Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE
MANUFACTURERS RECORD BOOK (FINAL DOSSIER)

Document Number: 1724000448-QC-DB-00029

Document Class: 2

02	13/03/2026	Accepted for Construction (AFC)	MS	WR	RM
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00	24/11/2025	Issue for Review (IFR)	MS	WR	RM
Rev.	Date	Description	Prepared	Reviewed	Approved

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1.1

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	07-11-2024

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE

SUPPLIER MASTER INFORMATION REGISTER

Document Number: 1724000448-MD-LIS-00001

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03	29/10/2024	Issue for Information (IFI)	PSC	WR	RM
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1	Cover	X	X	X	X				
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3	Revision / Change Log / Hold List	X	X	X	X				
4	References	X	X	X	X				
5	SMIR	X	X	X	X				

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Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Information (IFI)
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03	Issue for Information (IFI)

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SMIR - REGISTRO DOCUMENTI / *SMIR - SUPPLIER MASTER INFORMATION REGISTER*

Ordine n°/*order nr.*	1724000448		Fornitore/*Supplier* :	PSC Engineering & Contracting	
data / *dated:*	29/10/2024		Codice F./ *S. Code:*	-	
Commessa / *Job:*	PK2885		Indirizzo/ *address* :	via S.Antonio da Padova, 6/A - 20183 Bovisio Masciago (MB)	
Descrizione / *Description*	WATER TREATMENT PACKAGE		Persona di riferim./ *contact person:*		
Macrofase / *Phase*					

Pos.	Document nr. Client (1)	Doc Client Rev. (1)	Document nr. Internal	Document nr. Internal Rev. (2)	Document nr. Supplier (3)	Doc Supplier Rev. (3)	SMIR -SUPPLIER MASTER INFORMATION REGISTER AIR COMPRESSOR AND DRYER SYSTEM	Disciplina / *Discipline* (5)	Blocco Classe / *Class Block (6)*	Docum. Format (7)	first issue date (8)	Third Party Approval (I/A)	KEY Document Ingegneria	Document Approval (I/A)
							CONTROL DOCUMENTS							
1	1724000448-MD-LIS-00001	00	1724000448-MD-LIS-00001	01	PK2885-G-001	01	SMIR - SUPPLIER MASTER INFORMATION REGISTER	MEC			28/10/2024			A
							QUALITY DOCUMENTS							
2	1724000448-QC-ITP-00002	00	1724000448-QC-ITP-00002	00	PK2885-Q-001	00	INSPECTION TEST PLAN (ITP)	QUA			30/03/2024			A
							ENGINEERING DOCUMENTS							
3	1724000448-MAC-SP-00003	00	1724000448-MAC-SP-00003	00	PK2885-B-002	00	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION	MEC			10/05/2024			I
4	1724000448-MAC-CE-00004	00	1724000448-MAC-CE-00004	00	PK2885-B-003	00	PACKAGE CAUSE EFFECT MATRIX /LOGIC DIAGRAMS	MEC			10/05/2024			I
5	1724000448-MAC-DA-00005	00	1724000448-MAC-DA-00005	00	PK2885-P-002	00	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LAODING CALCULATIONS (INCLUDING COG AND E&I and UTILITES INLET/OUTLET)	MEC			31/10/2024		X	A
6	1724000448-MAC-DA-00006	00	1724000448-MAC-DA-00006	00	PK2885-P-003	00	GENERAL ARRANGEMENT AND DATSHEET- SEA WATER COARSE FILTER	MEC			15/05/2024			I
7	1724000448-MAC-DA-00007	00	1724000448-MAC-DA-00007	00	PK2885-P-007	00	GENERAL ARRANGEMENT AND DATASHEET - SAND FILTERS	MEC			28/10/2024			I
8	1724000448-MAC-DA-00008	00	1724000448-MAC-DA-00008	00	PK2885-P-004	00	GENERAL ARRANGEMENT AND DATASHEET - DESALINATION PACKAGE	MEC			31/10/2024			I
9	1724000448-MAC-DA-00009	00	1724000448-MAC-DA-00009	00	PK2885-P-005	00	GENERAL ARRANGEMENT AND DATSHEET- FRESH WATER PUMP	MEC			28/10/2024			I
10	1724000448-MAC-DA-00010	00	1724000448-MAC-DA-00010	00	PK2885-P-006	00	GENERAL ARRANGEMENT AND DATSHEET - TANKS	MEC			28/10/2024			I
11	1724000448-MAC-DA-00011	00	1724000448-MAC-DA-00011	00	PK2885-P-008	00	GENERAL ARRANGEMENT AND DATASHEET - UV PACKAGE	MEC			28/10/2024			I
12	1724000448-PP-DD-00012	00	1724000448-PP-DD-00012	00	PK2885-P-001	00	PACKAGE 3D MODEL DRAWING	MEC			10/04/2024			I
13	1724000448-PR-PID-00013	00	1724000448-PR-PID-00013	00	PK2885-B-001	00	PACKAGE P&ID	MEC			10/05/2024			A
14	1724000448-IN-DG-00014	00	1724000448-IN-DG-00014	00	PK2885-A-002	00	PACKAGE WIRING DIAGRAM - LCP	MEC			15/06/2024			I
15	1724000448-EL-DG-00015	00	1724000448-EL-DG-00015	00	PK2885-I-001	00	PACKAGE INTERCONNECTING DIAGRAM (ELE/INSTR)	MEC			30/04/2024			A
16	1724000448-MAC-DS-00016	00	1724000448-MAC-DS-00016	00	PK2885-C-004	00	PACKAGE WEIGHT DATA SHEET	MEC			15/05/2024			I
~~17~~	~~1724000448-MAC-DS-00017~~	~~00~~	~~1724000448-MAC-DS-00017~~	~~00~~	~~PK2885-M-001~~	~~00~~	~~EQUIPMENT DATA SHEETS (INCLUDING INDEX) (DELETED)~~	~~MEC~~			~~15/06/2024~~			~~I~~
18	1724000448-EL-LIS-00018	00	1724000448-EL-LIS-00018	00	PK2885-E-002	00	ELECTRICAL LOAD LIST	MEC			31/10/2024			A
19	1724000448-IN-LIS-00019	00	1724000448-IN-LIS-00019	00	PK2885-A-003	00	INPUT/OUTPUT LIST	MEC			10/05/2024			A
20	1724000448-MAC-LIS-00020	00	1724000448-MAC-LIS-00020	00	PK2885-B-005	00	UTILITIES/CHEMICAIS/CONSUMABLES/ LUBRICANTS CONSUMPTION LIST	MEC			10/05/2024			A
21	1724000448-IN-LIS-00021	00	1724000448-IN-LIS-00021	00	PK2885-I-006	00	INSTRUMENT LIST WITH SET POINTS/CONTROL/ALARM/SHUTDOWN	MEC			30/05/2024			I
22	1724000448-EL-LIS-00022	00	1724000448-EL-LIS-00022	00	PK2885-I-007	00	CABLES LIST	MEC			30/05/2024			I
23	1724000448-MAT-PRO-00023	00	1724000448-MAT-PRO-00023	00	PK2885-Q-006	00	PAINTING PROCEDURE FOR CONTAINER	QUA			30/04/2024			A
24	1724000448-QC-PRO-00024	00	1724000448-QC-PRO-00024	00	PK2885-Q-003	00	HYDROSTATIC AND OR PNEUMATIC TEST PROCEDURE	MAC			25/10/2024			A
25	1724000448-MAC-DG-00036	00	1724000448-MAC-DG-00036	00	PK2885-A-006	00	WTP FIRE & GAS PANEL WIRING DIAGRAM - WATER TREATMENT PACKAGE	MEC			07/10/2024			I
26	1724000448-QC-PRO-00025	00	1724000448-QC-PRO-00025	00	PK2885-Q-004	00	FAT (FINAL ACCEPTANCE TEST) PROCEDURE	MAC			31/10/2024			A
~~27~~	~~1724000448-WELPRO-00026~~	~~00~~	~~1724000448-WEL-PRO-00026~~	~~00~~	~~PK2885-Q-007~~	~~00~~	~~WPS CONTAINER (DELETED)~~	~~QUA~~			~~30/05/2024~~			~~I~~
~~28~~	~~1724000448-NDT-PRO-00027~~	~~00~~	~~1724000448-NDT-PRO-00027~~	~~00~~	~~PK2885-Q-008~~	~~00~~	~~NDT CONTAINER (DELETED)~~	~~QUA~~			~~30/05/2024~~			~~I~~
29	1724000448-QC-PRO-00028	00	1724000448-QC-PRO-00028	00	PK2885-Q-005	00	SITE ACCEPTANCE TEST	MAC			31/10/2024			A
							CERTIFICATES							
30	1724000448-QC-DB-00029	00	1724000448-QC-DB-00029	00	PK2885-Q-010	00	MANUFACTURERS RECORD BOOK (FINAL DOSSIER)	CERT			30/11/2024			A
31	1724000448-QC-LIS-00030	00	1724000448-QC-LIS-00030	00	PK2885-Q-009	00	MANUFACTURERS RECORD BOOK (FINAL DOSSIER) INDEX	QUA			30/06/2024			A
32	1724000448-MAC-LIS-00031	00	1724000448-MAC-LIS-00031	00	PK2885-Q-011	00	ATEX REGISTER	QUA			31/10/2024			A
							SPARES & MAINTENANCE DATA							
33	1724000448-MAC-MAN-00032	00	1724000448-MAC-MAN-00032	00	PK2885-G-007	00	INSTALLATION, OPERATING AND MAINTENANCE MANUAL	MEC			04/11/2024			I
34	1724000448-MAC-DD-00033	00	1724000448-MAC-DD-00033	00	PK2885-C-002	00	LIFITING DRAWINGS	MEC			28/07/2024			A
35	1724000448-COM-LIS-00034	00	1724000448-COM-LIS-00034	00	PK2885-G-008	00	SPARE PARTS LIST FOR COMMISSIONING AND 2 YEARS OPERATION	MEC			31/10/2024			I
							HANDLING, SHIPPING & SITE INSTALLATION							
36	1724000448-QC-PRO-00035	00	1724000448-QC-PRO-00035	00	PK2885-G-004	00	HANDLING, PRESERVATION AND PACKAGING PROCEDURE	EXP			31/10/2024			I

Notes:

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Document number internal
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Sign	Date
	06-09-2024

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE

ELECTRICAL LOAD LIST

Document Number: 1724000448-EL-LIS-00018

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02	28/08/2024	Accepted for Construction (AFC)	PSC	EC	RM
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PSC

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4	INSTRUCTIONS FOR USE OF THE FORM	X	X	X					
5	INSTRUCTIONS FOR USE OF THE FORM	X	X	X					
6	ELECTRICAL LOAD LIST	X	X	X					
7	ELECTRICAL LOAD LIST	X	X	X					
8	ELECTRICAL LOAD LIST	X	X	X					

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Accepted for Construction (AFC)
02	Accepted for Construction (AFC)

HOLDS LIST

No.	Description
1.	
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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	ELECTRICAL LOAD LIST	Sh. 4 of 8 Date: 28/08/2024 Rev. 02

INSTRUCTIONS FOR USE OF THE FORM

1 Item: Identification code of motor/electrical panel/electrical user

2 Description: Function of the driven machine in the plant

3 P&I: P&I - drawing and sheet number

4 Duty type: Operation

- **C** = Continuous.
- **D** = Discontinuous.
- **I** = Intermittent.

5 Duty operat. cond: Definition of the operation conditions of the utilities

- **R** = Running
- **S1** = Stand - by (installed)
- **S2** = Spare (not installed)

6 Type of supply:

- **N** = **NORMAL**. It has stopped for the logic and/or for feeding black-out.
- **R/..s** = **REACCELERATION**. The automatic reacceleration shall be foreseen in case of loss of power within the specified time in seconds.
- **E/..s** = **EMERGENCY**. It has to be maintained in operation re-fed in case of the normal feeding inefficiency.Max time allowed during voltage absence (sec.)

7 Control: (more type of control can coexist at the same time)

- PLC = Computer Control System
- PP = Power Panel
- HC = Local Hand Control (see below type)
- EPB = Emergency push button
- LCP = Local Control Panel

8 Signals to control system and/or at Emerg. Shut Down (ESD) (more type can coexist at the same time)

- **R** = Motor status (running)
- **S** = Motor status (stopped)
- **F** = Fault
- **X** = Test mode
- **RP** = Selector on remote position
- **LP** = Selector on local position
- **P** = Absorbed power
- **A** = Absorbed current
- **SI** = Speed indication (4-20 mA)
- **CB** = Circuit breaker status
- **E** = Emergency stop
- **Y** = Ready to start
- **NY** = Not ready to start/Fault
- **VF** = VFD Fault
- **VA** = VFD Alarm
- **SS** = Set Point
- **PS** = Proximity Switch
- **RD** = Motor status (running DOWN)
- **RU** = Motor status (running UP)
- **RH** = Motor status (running HIGHT)
- **RL** = Motor status (running LOW)
- **RR** = Motor status (running RIGHT/BACKWARD)
- **RF** = Motor status (running FORWARD)

9 HW interlock HW interlock - See document ……

10 Special requirem.: (more type can coexist at the same time)

- **F1** = Aux Fan for motor with VFD starter at 230V
- **F2** = Aux Fan for motor with VFD starter at 400V
- **R1** = Anticondensate resistance at 110V
- **R2** = Anticondensate resistance at 230V
- **T1** = Thermistor PTC type
- **T2** = Thermistor PT100 type
- **S1** = Feed solenoid valve 24V
- **S2** = Feed solenoid valve 110V
- **S3** = Feed solenoid valve 230V
- **SDS** = Safety Disconnectro Switch
- **A1** = Ammeter on Power Panel PP
- **A2** = Ammeter on local hand control
- **A3** = Ammeter to CCS
- **V1** = Vibrating sensor

CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
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INSTRUCTIONS FOR USE OF THE FORM

11 Power: Definition of the user power value

kWU = ABSORBED POWER. Operating brake power.

PN = INSTALLED POWER. Rated power of the motor, including safety factors.

12 Voltage: Definition of the user voltage value

13 Frequency Definition of the user frequency value

14 Current: Definition of the user current value

15 Starting Current: Definition of the user starting current value

16 Speesd: Definition of the user speed value

17 Power Factor: Definition of the user cosφ value

18 Efficiency: Definition of the user efficiency value

19 Feeder from: Definition of the electric user starter panel

20 Starter type: Definition of the electric user starter type

- **DOL** = Direct On Line
- **HD** = Heavy duty direct on line
- **SD** = Star - Delta
- **HSD** = Heavy duty Star - Delta
- **DRW** = Direct + reverse
- **SS** = Soft Starter
- **TW** = Double speed 2 windings
- **DAHL** = Double speed 1winding
- **VFD** = Variable Frequency Drive
- **THY** = Thyristor
- **CB** = Circuit breaker
- **AT** = Autotransformer
- **PDP** = Power Distribution Panel
- **CBR** = Circuit breaker + Relay

21 various

- **1** = Speed set from PLC
- **2** = Speed set from CCS + HC
- **3** = Speed set from local "FIC/local panel"
- **4** = Speed set from HC
- **5** = Temperature set from PLC

22 Notes:

- **P** = Preliminary Power
- **F** = Final Power

CROSSWIND

HOLLANDSE KUST NOORD WIND PARK Project
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Pos.	1 ITEM	2 Description	3 P&I 1724000448-PR-PID-00013 Sh.	4 Duty Type	5 Duty Operation Condition	6 Type of supply	7 Control Start	7 Control Stop	8 Signals to Control System	9 HW Interlock	10 Special Requirement	11 Power kWU (kW)	11 Power PN (kW)	12 Voltage (V)	13 Frequency (Hz)	14 Current In (A)	15 Starting Current (Is/In)	16 Speed s/min.	17 Cosφ	18 Efficiency	19 Feeder from	20 Starter Type	21 Various	22 Notes	Rev.
1	**JB-500E8 <2>**	Local Control Panel (Electrical Power Section)	/	C	R	N	/	/	/	/	/	46,792	63,564	400-230	50		/	/	0,97	/	**By Client**	CB		P	2
2	**JB-500F8 <2>**	Local Control Panel (Instruments Power Distribution Section) and Fire & Gas Panel	/	C	R	E	/	/	/	/	/	2	2	230	50		/	/	0,9	/	**By Client**	CB		P	2
3																									
4																									
5																									
6																									
7																									
8																									
9																									
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23																									
24																									
25																									
26																									
	TOTAL											48,792	65,564											P	0

CROSSWIND

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

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Date: 28/08/2024

Rev. 02

Pos.	ITEM	Description	P&I 1724000448-PR-PID-00013 Sh.	Duty		Type of supply	Control		Signals from-to Control System	HW Interlock	Special Requirement	Power		Voltage	Frequency	Current In	Starting Current	Speed	Cosφ	Efficiency	Feeder from	Starter Type	Various	Notes	Rev.
	1	2	3	4	5	6	7		8	9	10	11		12	13	14	15	16	17	18	19	20	21	22	
				Type	Operation Condition		Start	Stop				kWU (kW)	PN (kW)	(V)	(Hz)	(A)	(Is/In)	s/min.							
1	**P-50003A**	SW Booster Pumps	2	C	R	N	PLC	PLC	R-F	/	/	3,6	4	400	50						**CP-500E1**	DOL	/	P	1
2	**P-50003B**	SW Booster Pumps	2	C	R	N	PLC	PLC	R-F	/	/	/	4	400	50						**CP-500E1**	DOL	/	P	1
3	**P-50002A**	Backwash Pumps	1	C	R	N	PLC	PLC	R-F	/	/	0,6	1,1	400	50						**CP-500E1**	DOL	/	P	0
4	**P-50002B**	Backwash Pumps	1	C	S1	N	PLC	PLC	R-F	/	/	/	(1,1)	400	50						**CP-500E1**	DOL	/	P	0
5	**P-50004A**	HP SWRO Pumps	3	C	R	N	PLC	PLC	R-F-SI-SS	/	/	4,4	7,5	400	50				0,95		**CP-500E1**	VFD	1	P	1
6	**P-50004B**	HP SWRO Pumps	3	C	R	N	PLC	PLC	R-F-SI-SS	/	/	/	7,5	400	50				0,95		**CP-500E1**	VFD	1	P	1
7	**P-50009A**	Fresh Water Pumps	4	C	R	N	PLC	PLC	R-F	/	/	0,296	0,37	400	50	1	5,3	2880	0,7	0,738	**CP-500E1**	DOL	/	F	1
8	**P-50009B**	Fresh Water Pumps	4	C	S1	N	PLC	PLC	R-F	/	/	/	(0,37)	400	50	1	5,3	2880	0,7	0,738	**CP-500E1**	DOL	/	F	1
9	**H-50001**	Electric Heater	1	C	R	N	PLC	PLC	R-F-SS	/	/	30	30	400	50	43,35	/	/	1	/	**CP-500E1**	THY	5	F	1
10	**HHS-50003A**	Container Heater	1	C	R	N	PLC	PLC	R-F	/	/	3	3	400	50	4,34	/	/	1	/	**CP-500E1**	DOL	/	P	1
11	**HHS-50003B**	Container Heater	1	C	S1	N	PLC	PLC	R-F	/	/	/	(3)	400	50	4,34	/	/	1	/	**CP-500E1**	DOL	/	P	1
12	**HFA-5001A**	Container Fan	1	C	R	N	PLC	PLC	R-F	/	/	0,2	0,25	400	50						**CP-500E1**	DOL	/	P	1
13	**HFA-5001B**	Container Fan	1	C	S1	N	PLC	PLC	R-F	/	/	/	(0,25)	400	50						**CP-500E1**	DOL	/	P	1
14	**NL-001**	Lighting circuit		C	R	N	/	/	/	/	/	0,4	0,5	230	50		/	/	0,9	/	**CP-500E1**	CB	/	P	0
15	**LP-S-50010**	UV Sterilizer S-50010	4	C	R	N	PLC	PLC	/	/	/	0,032	0,04	230	50		/	/		/	**CP-500E1**	CBR	/	P	1
16	**LP-A-50003**	Local Panel Coarse Filter A-50003	1	C	R	N	/	/	/	/	/	0,144	0,18	230	50		/	/		/	**CP-500E1**	CB	/	P	0
17	**LP-S-50001**	Local Panel Sand filter S-50001	1	C	R	N	/	/	/	/	/	0,008	0,01	230	50		/	/	0,8	/	**CP-500E1**	CB	/	P	0
18																									
19	**50-LP-001**	Local Control Panel (Instruments Power Distribution Section)		C	R	N	/	/	/	/	/	4	5	230	50	27,17	/	/	0,8	/	**CP-500E1**	CB	/	P	1
20	**LP-S-50004**	Softening Filter	4	C	R	N	/	/	/	/	/	0,008	0,01	230	50	0,054	/	/	0,8	/	**CP-500E1**	CB	/	P	1
21																									
22																									
23																									
24																									
25																									
26																									
	TOTAL											46,688	63,46											P	1

CROSSWIND

HOLLANDSE KUST NOORD WIND PARK Project
Contract No. CW-I-WP4-2023-05

ROSETTI MARINO

Sh. 8 of 8

Document Title: ELECTRICAL LOAD LIST

Date: 28/08/2024

Rev. 02

Pos.	1 ITEM	2 Description	3 P&I 1724000448-PR-PID-00013 Sh.	4 Duty Type	5 Duty Operation Condition	6 Type of supply	7 Control Start	7 Control Stop	8 Signals to Control System	9 HW Interlock	10 Special Requirement	11 Power kWU (kW)	11 Power PN (kW)	12 Voltage (V)	13 Frequency (Hz)	14 Current In (A)	15 Starting Current (Is/In)	16 Speed s/min.	17 Cosφ	18 Efficiency	19 Feeder from	20 Starter Type	21 Various	22 Notes	Rev.
1	**P-50005A**	Soda Dosing Pumps	5	C	R	N	/	/	/	/	/	0,022	0,022	230	50		/	/		/	**CP-500E1**	CB	/	P	1
2	**P-50005B**	Soda Dosing Pumps	5	C	S1	N	/	/	/	/	/		(0,022)	230	50		/	/		/	**CP-500E1**	CB	/	P	1
3	**P-50006A**	Antiscalant Dosing Pumps	5	C	R	N	/	/	/	/	/	0,022	0,022	230	50		/	/		/	**CP-500E1**	CB	/	P	1
4	**P-50006B**	Antiscalant Dosing Pumps	5	C	S1	N	/	/	/	/	/		(0,022)	230	50		/	/		/	**CP-500E1**	CB	/	P	1
5	**P-50007A**	Biocide Dosing Pumps to Container Inlet	6	C	R	N	/	/	/	/	/	0,02	0,02	230	50		/	/		/	**CP-500E1**	CB	/	P	1
6	**P-50007B**	Biocide Dosing Pumps to Container Inlet	6	C	S1	N	/	/	/	/	/		(0,02)	230	50		/	/		/	**CP-500E1**	CB	/	P	1
7	**P-50008A**	Biocide Dosing Pumps to Seawater Intake	6	C	R	N	/	/	/	/	/	0,02	0,02	230	50		/	/		/	**CP-500E1**	CB	/	P	1
8	**P-50008B**	Biocide Dosing Pumps to Seawater Intake	6	C	S1	N	/	/	/	/	/		(0,02)	230	50		/	/		/	**CP-500E1**	CB	/	P	1
9	**P-50010A**	Biocide Dosing Pumps to Wastewater Tank	6	C	R	N	/	/	/	/	/	0,02	0,02	230	50		/	/		/	**CP-500E1**	CB	/	P	1
10	**P-50010B**	Biocide Dosing Pumps to Wastewater Tank	6	C	S1	N	/	/	/	/	/		(0,02)	230	50		/	/		/	**CP-500E1**	CB	/	P	1
11																									
12																									
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26																									
	TOTAL											0,104	0,104											P	0

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.MURA	22-11-2024

Base Load Power Hub (BLPH)

INPUT/OUTPUT LIST
Water Treatment Package A-50000

Document Number: 1724000448-IN-LIS-00019

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
03	20/11/2024	Accepted for Construction (AFC)	FC	FC	RM
02	27/08/2024	Accepted for Construction (AFC)	FC	FC	RM
01	16/07/2024	Issue for Review (IFR)	FC	FC	RM
00	03/06/2024	Issue for Review (IFR)	FC	FC	RM

PSC DOC. REF: PK2885-A-001

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File: 1724000448-IN-LIS-00019_Rev.3_ Input Output List Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01	02	03				
1	Cover	X	X	X	X				
2	Table of Contents	X	X	X					
3	Revision / Change Log	X	X	X					
4	Legend	X	X	X					
5	Input / Output Table	X	X						
9	Modbus/TCP Table		X	X					
12	Input / Output Count	X	X	X					

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
02	ACCEPTED FOR CONSTRUCTION (AFC)
03	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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File: 1724000448-IN-LIS-00019_Rev.3_ Input Output List Distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Legend

COLUMN	MEANING AND VALUES
STATUS	Status of the signal from the following table: ACTIVE Signal present and used DELETED Signal deleted from previous issue NEW Signal added from previous issue
TYPE	Type of signal composed by: A for analog signals; D for digital signals; RTD for temperature signals. I for input signals; O for output signals. An R in the type means that the signal is redundant.
SIGNAL	Electrical characteristic of signal from the control system point of view.
WIRING/ POWER SUPPLY	Type of connection (2 WIRE / 4 WIRE) for analog signal and requirements for external power supplies are listed here. Details are in the control panel wiring diagram.

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File: 1724000448-IN-LIS-00019_Rev.3_ Input Output List Distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO Sh. 5 of 12
Document Title:	INPUT/OUTPUT LIST Water Treatment Package A-50000	Date: 20/11/2024 Rev. 03

ID	STATUS	P&ID	LOOP NAME	P&ID TAG	CONTROLLER TAG	SERVICE	TYPE	SIGNAL	MIN/0 STATE	MAX/1 STATE	EU	REDUNDANT	HART	SIL	I.S.	PANEL	RACK	SLOT	SLOT R	CHANNEL	ADDRESS	WIRING / POWER SUPPLY	NOTE	
1	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-021	50-XZSH-021	_50XZSH021	P-50003A suction valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	1	-	0				DI
2	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-021	50-XZSL-021	_50XZSL021	P-50003A suction valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	1	-	1				DI
3	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-023	50-XZSH-023	_50XZSH023	P-50003A flushing valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	1	-	2				DI
4	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-023	50-XZSL-023	_50XZSL023	P-50003A flushing valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	1	-	3				DI
5	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003A	50-XI-P50003A	_50XIP50003A	SW booster pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	1	-	4				DI
6	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003A	50-XA-P50003A	_50XAP50003A	SW booster pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	1	-	5				DI
7	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-020	50-TSHH-020	_50TSHH020	H-50001 temperature	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	1	-	6				DI
8	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-020	50-XZSH-020	_50XZSH020	Seawater inlet valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	1	-	7				DI
9	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-020	50-XZSL-020	_50XZSL020	Seawater inlet valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	1	-	8				DI
10	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XI-HHS50003A1	_50XIHHS50003A1	Container electrical heater run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	1	-	9				DI
11	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XA-HHS50003A1	_50XAHHS50003A1	Container electrical heater available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	1	-	10				DI
12	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XI-HFA50001A	_50XIHFA50001A	Container air fan run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	1	-	11				DI
13	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XA-HFA50001A	_50XAHFA50001A	Container air fan available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	1	-	12				DI
14	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	1	-	13				DISPARE
15	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	1	-	14				DISPARE
16	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	1	-	15				DISPARE
17	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-022	50-XZSH-022	_50XZSH022	P-50003B suction valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	2	-	0				DI
18	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-022	50-XZSL-022	_50XZSL022	P-50003B suction valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	2	-	1				DI
19	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-024	50-XZSH-024	_50XZSH024	P-50003B flushing valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	2	-	2				DI
20	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-024	50-XZSL-024	_50XZSL024	P-50003B flushing valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	2	-	3				DI
21	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003B	50-XI-P50003B	_50XIP50003B	SW booster pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	2	-	4				DI
22	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003B	50-XA-P50003B	_50XAP50003B	SW booster pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	2	-	5				DI
23	ACTIVE	1724000448-PR-PID-00013 / 002	50-H-020	50-HS-020	_50HS020	Emergency stop pushbutton	DI	SINK 24VDC	EMERGENCY	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	2	-	6				DI
24	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-001	50-XS-001	_50XS001	Shutdown	DI	SINK 24VDC	SHUTDOWN	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	2	-	7			Contact replicated from SIL relay	DI
25	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-50003	50-XA-A50003	_50XAA50003	Seawater coarse filter cumulative alarm	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	2	-	8				DI
26	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XI-HHS50003A2	_50XIHHS50003A2	Container electrical heater run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	2	-	9				DI
27	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XA-HHS50003A2	_50XAHHS50003A2	Container electrical heater available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	2	-	10				DI
28	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XI-HFA50003B	_50XIHFA50003B	Container air fan run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	2	-	11				DI
29	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XA-HFA50003B	_50XAHFA50003B	Container air fan available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	2	-	12				DI
30	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	2	-	13				DISPARE
31	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	2	-	14				DISPARE
32	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	2	-	15				DISPARE
33	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-025	50-XZSH-025	_50XZSH025	Fresh water from A-50007A/B valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	3	-	0				DI
34	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-025	50-XZSL-025	_50XZSL025	Fresh water from A-50007A/B valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	3	-	1				DI
35	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-027	50-XZSH-027	_50XZSH027	Brine from A-50007A valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	3	-	2				DI
36	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-027	50-XZSL-027	_50XZSL027	Brine from A-50007A valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	3	-	3				DI
37	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-031	50-XZSH-031	_50XZSH031	Fresh water outlet valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	3	-	4				DI
38	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-031	50-XZSL-031	_50XZSL031	Fresh water outlet valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	3	-	5				DI
39	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002A	50-XI-P50002A	_50XIP50002A	Backwash pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	3	-	6				DI
40	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002A	50-XA-P50002A	_50XAP50002A	Backwash pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	3	-	7				DI
41	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-XS-P50004A	_50XSP50004A	HP pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	3	-	8				DI
42	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-XA-P50004A	_50XAP50004A	HP pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	3	-	9				DI
43	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	3	-	10				DISPARE
44	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	3	-	11				DISPARE
45	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	3	-	12				DISPARE
46	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	3	-	13				DISPARE
47	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	3	-	14				DISPARE
48	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	3	-	15				DISPARE
49	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-026	50-XZSH-026	_50XZSH026	Fresh water drain from A-50007A/B valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	4	-	0				DI
50	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-026	50-XZSL-026	_50XZSL026	Fresh water drain from A-50007A/B valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	4	-	1				DI
51	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-030	50-XZSH-030	_50XZSH030	Brine from A-50007B valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	4	-	2				DI
52	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-030	50-XZSL-030	_50XZSL030	Brine from A-50007B valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	4	-	3				DI
53	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-032	50-XSZH-032	_50XSZH032	Fresh water off-spec valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	4	-	4				DI
54	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-032	50-XZSL-032	_50XZSL032	Fresh water off-spec valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	4	-	5				DI
55	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002B	50-XI-P50002B	_50XIP50002B	Backwash pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	4	-	6				DI
56	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002B	50-XA-P50002B	_50XAP50002B	Backwash pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	4	-	7				DI
57	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-XI-P50004B	_50XIP50004B	HP pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	4	-	8				DI
58	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-XA-P50004B	_50XAP50004B	HP pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	4	-	9				DI
59	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	4	-	10				DISPARE
60	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	4	-	11				DISPARE
61	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	4	-	12				DISPARE
62	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	4	-	13				DISPARE
63	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	4	-	14				DISPARE
64	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	4	-	15				DISPARE
65	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005A	50-XI-P50005A	_50XIP50005A	Caustic soda dosing pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	0				DI
66	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005A	50-XA-P50005A	_50XAP50005A	Caustic soda dosing pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	5	-	1				DI
67	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006A	50-XI-P50006A	_50XIP50006A	Antiscalant dosing pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	2				DI
68	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006A	50-XA-P50006A	_50XAP50006A	Antiscalant dosing pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	5	-	3				DI

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69	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007A	50-XI-P50007A	_50XIP50007A	Non-oxidant biocide dosing pump - container inlet run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	4			DI
70	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007A	50-XA-P50007A	_50XAP50007A	Non-oxidant biocide dosing pump - container inlet available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	5	-	5			DI
71	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008A	50-XI-P50008A	_50XIP50008A	Non-oxidant biocide dosing pump - sea water intake run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	6			DI
72	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008A	50-XA-P50008A	_50XAP50008A	Non-oxidant biocide dosing pump - sea water intake available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	5	-	7			DI
73	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009A	50-XI-P50009A	_50XIP50009A	Fresh water pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	8			DI
74	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009A	50-XA-P50009A	_50XAP50009A	Fresh water pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	5	-	9			DI
75	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010A	50-XI-P50010A	_50XIP50010A	Non-oxidant biocide dosing pump - waste water tank run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	10			DI
76	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010A	50-XA-P50010A	_50XAP50010A	Non-oxidant biocide dosing pump - waste water tank available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	5	-	11			DI
77	ACTIVE	1724000448-PR-PID-00013 / 001	50-S-50001	50-XA-S50001	_50XAS50001	Sand filter cumulative alarm	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	5	-	12			DI
78	ACTIVE	1724000448-PR-PID-00013 / 004	50-S-50004	50-XS-S50004	_50XSS50004	Softening Filter regeneration in progress	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	5	-	13			DI
79	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-026	50-XA-026	_50XA026	Fresh water analyzer fault	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	5	-	14			DI
80	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	5	-	15			DISPARE
81	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005B	50-XI-P50005B	_50XIP50005B	Caustic soda dosing pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	6	-	0			DI
82	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005B	50-XA-P50005B	_50XAP50005B	Caustic soda dosing pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	6	-	1			DI
83	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006B	50-XI-P50006B	_50XIP50006B	Antiscalant dosing pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	6	-	2			DI
84	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006B	50-XA-P50006B	_50XAP50006B	Antiscalant dosing pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	6	-	3			DI
85	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007B	50-XI-P50007B	_50XIP50007B	Non-oxidant biocide dosing pump - container inlet run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	6	-	4			DI
86	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007B	50-XA-P50007B	_50XAP50007B	Non-oxidant biocide dosing pump - container inlet available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	6	-	5			DI
87	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008B	50-XI-P50008B	_50XIP50008B	Non-oxidant biocide dosing pump - sea water intake run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	6	-	6			DI
88	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008B	50-XA-P50008B	_50XAP50008B	Non-oxidant biocide dosing pump - sea water intake available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	6	-	7			DI
89	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009B	50-XI-P50009B	_50XIP50009B	Fresh water pump run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	6	-	8			DI
90	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009B	50-XA-P50009B	_50XAP50009B	Fresh water pump available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	6	-	9			DI
91	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010B	50-XI-P50010B	_50XIP50010B	Non-oxidant biocide dosing pump - waste water tank run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	6	-	10			DI
92	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010B	50-XA-P50010B	_50XAP50010B	Non-oxidant biocide dosing pump - waste water tank available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	6	-	11			DI
93	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	6	-	12			DISPARE
94	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	6	-	13			DISPARE
95	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	6	-	14			DISPARE
96	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	6	-	15			DISPARE
97	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-XI-HHS50003B1	_50XIHHS50003B1	Container electrical heater run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	7	-	0			DI
98	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-XA-HHS50003B1	_50XAHHS50003B1	Container electrical heater available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE		NO	NO	NO	NO	50-LP-001	1	7		1			DI
99	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-XI-HHS50003B2	_50XIHHS50003B2	Container electrical heater run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	7	-	2			DI
100	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-XA-HHS50003B2	_50XAHHS50003B2	Container electrical heater available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE		NO	NO	NO	NO	50-LP-001	1	7		3			DI
101	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XI-HHS50003A3	_50XIHHS50003A3	Container electrical heater fan run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	7	-	4			DI
102	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-XA-HHS50003A3	_50XAHHS50003A3	Container electrical heater fan available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	7	-	5			DI
103	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-XI-HHS50003B3	_50XIHHS50003B3	Container electrical heater fan run status	DI	SINK 24VDC	NOT RUN	RUN		NO	NO	NO	NO	50-LP-001	1	7		6			DI
104	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-XA-HHS50003B3	_50XAHHS50003B3	Container electrical heater fan available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	7	-	7			DI
105	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003C	50-XI-HFA50001C	_50XIHFA50001C	Container air fan run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	7	-	8			DI
106	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003C	50-XA-HFA50001C	_50XAHFA50001C	Container air fan available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE	-	NO	NO	NO	NO	50-LP-001	1	7	-	9			DI
107	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50001	50-XI-H50001	_50XIH50001	Electrical heater run status	DI	SINK 24VDC	NOT RUN	RUN	-	NO	NO	NO	NO	50-LP-001	1	7	-	10			DI
108	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50001	50-XA-H50001	_50XAH50001	Electrical heater available status	DI	SINK 24VDC	NOT AVAILABLE	AVAILABLE		NO	NO	NO	NO	50-LP-001	1	7		11			DI
109	ACTIVE		196SL1	196SL1	_196SL1	Container flooding alarm	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	7	-	12			DI
110	ACTIVE	1724000448-PR-PID-00013 / 002	50-H-50001	50-HSA-50001	_50HSA50001	Switch ON/OFF lamp/fan	DI	SINK 24VDC	OFF	ON	-	NO	NO	NO	NO	50-LP-001	1	7	-	13			DI
111	ACTIVE		30SP1/32SP1	30SP1/32SP1	_30SP1/32SP1	Voltage dischargers common fault	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	7	-	14			DI
112	ACTIVE		36GD1/36GD2	36GD1/36GD2	_36GD1/36GD2	Power feeder common fault	DI	SINK 24VDC	ALARM	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	7	-	15			DI
113	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-033	50-XZSH-033	_50XZSH033	Seawater drain from H-50001 valve open	DI	SINK 24VDC	NOT OPEN	OPEN		NO	NO	NO	NO	50-LP-001	1	8		0			DI
114	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-033	50-XZSL-033	_50XZSL033	Seawater drain from H-50001 valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	8	-	1			DI
115	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-034	50-XZSH-034	_50XZSH034	Seawater drain from T-50006 valve open	DI	SINK 24VDC	NOT OPEN	OPEN		NO	NO	NO	NO	50-LP-001	1	8		2			DI
116	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-034	50-XZSL-034	_50XZSL034	Seawater drain from T-50006 valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	8	-	3			DI
117	ACTIVE	1724000448-PR-PID-00013 / 005	50-X-035	50-XZSH-035	_50XZSH035	Fresh water from T-50008 drain valve open	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	8	-	4			DI
118	ACTIVE	1724000448-PR-PID-00013 / 005	50-X-035	50-XZSL-035	_50XZSL035	Fresh water from T-50008 drain valve closed	DI	SINK 24VDC	NOT CLOSED	CLOSED		NO	NO	NO	NO	50-LP-001	1	8		5			DI
119	ACTIVE				_	SPARE	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	8	-	6			DISPARE
120	ACTIVE				_	SPARE	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	8	-	7			DISPARE
121	ACTIVE				_	SPARE	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	8	-	8			DISPARE
122	ACTIVE				_	SPARE	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	8	-	9			DISPARE
123	ACTIVE				_	SPARE	DI	SINK 24VDC	NOT OPEN	OPEN	-	NO	NO	NO	NO	50-LP-001	1	8	-	10			DISPARE
124	ACTIVE				_	SPARE	DI	SINK 24VDC	NOT CLOSED	CLOSED	-	NO	NO	NO	NO	50-LP-001	1	8	-	11			DISPARE
125	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	8		12			DISPARE
126	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	8	-	13			DISPARE
127	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	8	-	14			DISPARE
128	ACTIVE					SPARE	DI	SINK 24VDC								50-LP-001	1	8	-	15			DISPARE
129	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-021	50-XY-021	_50XY021	P-50003A suction valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	9	-	0			DO
130	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-023	50-XY-023	_50XY023	P-50003A flushing valve command	DO	24VDC	CLOSE	OPEN		NO	NO	NO	NO	50-LP-001	1	9	-	1			DO
131	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003A	50-HS-P50003A	_50HSP50003A	SW booster pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	9	-	2			DO
132	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-020	50-XY-020	_50XY020	Seawater inlet valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	9	-	3			DO
133	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-50003	50-HS-A50003	_50HSA50003	Seawater coarse filter regeneration command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	9	-	4			DO
134	ACTIVE	1724000448-PR-PID-00013 / 001	50-S-50001	50-HS-S50001	_50HSS50001	Sand filter regeneration command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	9	-	5			DO
135	ACTIVE	1724000448-PR-PID-00013 / 004	50-S-50004	50-HS-S50004	_50HSS50004	Softening Filter regeneration command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	9	-	6			DO
136	ACTIVE	1724000448-PR-PID-00013 / 004	50-S-50010	50-HS-S50010	_50HSS50010	UV sterilizer start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	9	-	7			DO
137	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-003	50-XA-003	_50XA003	Fault	DO	24VDC	FAULT	NORMAL	-	NO	NO	NO	NO	50-LP-001	1	9	-	8			DO
138	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-025	50-XY-025	_50XY025	Fresh water from A-50007A/B valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	9	-	9			DO

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139	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-026	50-XY-026	_50XY026	Fresh water drain from A-50007A/B valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	9	-	10				DO
140	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-027	50-XY-027	_50XY027	Brine from A-50007A valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	9	-	11				DO
141	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-031	50-XY-031	_50XY031	Fresh water outlet valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	9	-	12				DO
142	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	9	-	13				DOSPARE
143	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	9	-	14				DOSPARE
144	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	9	-	15				DOSPARE
145	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-024	50-XY-024	_50XY024	P-50003B flushing valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	10	-	0				DO
146	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-022	50-XY-022	_50XY022	P-50003B suction valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	10	-	1				DO
147	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003B	50-HS-P50003B	_50HSP50003B	SW booster pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	2				DO
148	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002A	50-HS-P50002A	_50HSP50002A	Backwash pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	3				DO
149	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-HS-P50004A	_50HSP50004A	HP pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	4				DO
150	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005A	50-HS-P50005A	_50HSP50005A	Caustic soda dosing pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	5				DO
151	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006A	50-HS-P50006A	_50HSP50006A	Antiscalant dosing pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	6				DO
152	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007A	50-HS-P50007A	_50HSP50007A	Non-oxidant biocide dosing pump - container inlet start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	7				DO
153	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008A	50-HS-P50008A	_50HSP50008A	Non-oxidant biocide dosing pump - sea water intake start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	8				DO
154	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009A	50-HS-P50009A	_50HSP50009A	Fresh water pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	9				DO
155	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010A	50-HS-P50010A	_50HSP50010A	Non-oxidant biocide dosing pump - waste water tank start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	10				DO
156	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-HS-HHS50003A1	_50HSHHS50003A1	Container electrical heater start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	11				DO
157	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-HS-HFA50001A	_50HSHFA50001A	Container air fan start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	10	-	12				DO
158	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-032	50-XY-032	_50XY032	Fresh water off-spec valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	10	-	13				DO
159	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	10	-	14				DOSPARE
160	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	10	-	15				DOSPARE
161	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	11	-	0				DOSPARE
162	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	11	-	1				DOSPARE
163	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-030	50-XY-030	_50XY030	Brine from A-50007B valve command	DO	24VDC	CLOSE	OPEN		NO	NO	NO	NO	50-LP-001	1	11	-	2				DO
164	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002B	50-HS-P50002B	_50HSP50002B	Backwash pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	3				DO
165	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-HS-P50004B	_50HSP50004B	HP pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	4				DO
166	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005B	50-HS-P50005B	_50HSP50005B	Caustic soda dosing pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	5				DO
167	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006B	50-HS-P50006B	_50HSP50006B	Antiscalant dosing pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	6				DO
168	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007B	50-HS-P50007B	_50HSP50007B	Non-oxidant biocide dosing pump - container inlet start/stop command	DO	24VDC	STOP	START		NO	NO	NO	NO	50-LP-001	1	11		7				DO
169	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008B	50-HS-P50008B	_50HSP50008B	Non-oxidant biocide dosing pump - sea water intake start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	8				DO
170	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009B	50-HS-P50009B	_50HSP50009B	Fresh water pump start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	9				DO
171	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010B	50-HS-P50010B	_50HSP50010B	Non-oxidant biocide dosing pump - waste water tank start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	10				DO
172	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-HS-HHS50003A2	_50HSHHS50003A2	Container electrical heater start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	11	-	11				DO
173	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-HS-HFA50001B	_50HSHFA50001B	Container air fan start/stop command	DO	24VDC	STOP	START		NO	NO	NO	NO	50-LP-001	1	11	-	12				DO
174	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	11	-	13				DOSPARE
175	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	11	-	14				DOSPARE
176	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	11	-	15				DOSPARE
177	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-HS-HHS50003B1	_50HSHHS50003B1	Container electrical heater start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	12	-	0				DO
178	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-HS-HHS50003B2	_50HSHHS50003B2	Container electrical heater start/stop command	DO	24VDC	STOP	START		NO	NO	NO	NO	50-LP-001	1	12		1				DO
179	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-HS-HHS50003A3	_50HSHHS50003A3	Container electrical heater fan start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	12	-	2				DO
180	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-HS-HHS50003B3	_50HSHHS50003B3	Container electrical heater fan start/stop command	DO	24VDC	STOP	START		NO	NO	NO	NO	50-LP-001	1	12		3				DO
181	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003C	50-HS-HFA50001C	_50HSHFA50001C	Container air fan start/stop command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	12	-	4				DO
182	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12	-	5				DOSPARE
183	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12	-	6				DOSPARE
184	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12	-	7				DOSPARE
185	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-033	50-XY-033	_50XY033	Seawater drain from H-50001 valve command	DO	24VDC	CLOSE	OPEN		NO	NO	NO	NO	50-LP-001	1	12		8				DO
186	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-034	50-XY-034	_50XY034	Seawater drain from T-50006 valve command	DO	24VDC	CLOSE	OPEN	-	NO	NO	NO	NO	50-LP-001	1	12	-	9				DO
187	ACTIVE	1724000448-PR-PID-00013 / 005	50-X-035	50-XY-035	_50XY035	Fresh water drain from T-50008 valve command	DO	24VDC	CLOSE	OPEN		NO	NO	NO	NO	50-LP-001	1	12		10				DO
188	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-026	50-HS-026	_50HS026	Fresh water analyzer command	DO	24VDC	STOP	START	-	NO	NO	NO	NO	50-LP-001	1	12	-	11				DO
189	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12	-	12				DOSPARE
190	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12		13				DOSPARE
191	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12	-	14				DOSPARE
192	ACTIVE					SPARE	DO	24VDC								50-LP-001	1	12		15				DOSPARE
193	ACTIVE	1724000448-PR-PID-00013 / 002	50-A-023	50-AT-023	_50AT023	Filtered seawater conductivity to P-50003A/B	AI	4-20 mA		0	80000 uS/cm	NO	NO	NO	NO	50-LP-001	1	13	-	0				AI
194	ACTIVE	1724000448-PR-PID-00013 / 003	50-A-024	50-AT-024	_50AT024	Fresh water conductivity from A-50007A/B	AI	4-20 mA		0	1000 uS/cm	NO	NO	NO	NO	50-LP-001	1	13	-	1				AI
195	ACTIVE	1724000448-PR-PID-00013 / 001	50-F-020	50-FT-020	_50FT020	Seawater flow to S-50001	AI	4-20 mA		0	8 m3/h	NO	NO	NO	NO	50-LP-001	1	13	-	2				AI
196	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-020	50-PT-020	_50PT020	Seawater inlet pressure	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	13	-	3				AI
197	ACTIVE	1724000448-PR-PID-00013 / 004	50-F-027	50-FT-026	_50FT026	Fresh water outlet flow	AI	4-20 mA		0	2 m3/h	NO	NO	NO	NO	50-LP-001	1	13	-	4				AI
198	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-SI-P50004A	_50SIP50004A	HP pump speed feedback	AI	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	13	-	5				AI
199	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	13	-	6				AISPARE
200	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	13	-	7				AISPARE
201	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-022	50-FT-022	_50FT022	Filtered seawater flow from P-50003A	AI	4-20 mA		0	4 m3/h	NO	NO	NO	NO	50-LP-001	1	14	-	0				AI
202	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-025	50-PT-025	_50PT025	Filtered seawater pressure from P-50003A	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	14	-	1				AI
203	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-026	50-PT-026	_50PT026	Filtered seawater pressure to P-50004A	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	14	-	2				AI
204	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-030	50-PT-030	_50PT030	Filtered seawater pressure from P-50004A	AI	4-20 mA		0	100 bar	NO	NO	NO	NO	50-LP-001	1	14	-	3				AI
205	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-SI-P50004B	_50SIP50004B	HP pump speed feedback	AI	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	14	-	4				AI
206	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	14	-	5				AISPARE
207	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	14	-	6				AISPARE
208	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	14	-	7				AISPARE

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209	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-023	50-FT-023	_50FT023	Filtered seawater flow from P-50003B	AI	4-20 mA		0	4 m3/h	NO	NO	NO	NO	50-LP-001	1	15	-	0				AI
210	ACTIVE	1724000448-PR-PID-00013 / 003	50-F-024	50-FT-024	_50FT024	Fresh water flow from A-50007A/B	AI	4-20 mA		0	2 m3/h	NO	NO	NO	NO	50-LP-001	1	15	-	1				AI
211	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-027	50-PT-027	_50PT027	Filtered seawater pressure from P-50003B	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	15	-	2				AI
212	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-028	50-PT-028	_50PT028	Filtered seawater pressure to P-50004B	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	15	-	3				AI
213	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-032	50-PT-032	_50PT032	Filtered seawater pressure from P-50004B	AI	4-20 mA		0	100 bar	NO	NO	NO	NO	50-LP-001	1	15	-	4				AI
214	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	15	-	5				AISPARE
215	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	15	-	6				AISPARE
216	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	15	-	7				AISPARE
217	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-021	50-TT-021	_50TT021	Seawater temperature from H-50001	AI	4-20 mA		0	50 degC	NO	NO	NO	NO	50-LP-001	1	16	-	0				AI
218	ACTIVE	1724000448-PR-PID-00013 / 001	50-L-020	50-LT-020	_50LT020	T-50006 level	AI	4-20 mA		0	1800 mm	NO	NO	NO	NO	50-LP-001	1	16	-	1				AI
219	ACTIVE	1724000448-PR-PID-00013 / 004	50-L-021	50-LT-021	_50LT021	T-50008 level	AI	4-20 mA		0	1800 mm	NO	NO	NO	NO	50-LP-001	1	16	-	2				AI
220	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-022	50-LT-022	_50LT022	T-50002 level	AI	4-20 mA		0	1000 mm	NO	NO	NO	NO	50-LP-001	1	16	-	3				AI
221	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-023	50-LT-023	_50LT023	T-50003 level	AI	4-20 mA		0	500 mm	NO	NO	NO	NO	50-LP-001	1	16	-	4				AI
222	ACTIVE	1724000448-PR-PID-00013 / 006	50-L-024	50-LT-024	_50LT024	T-50004 level	AI	4-20 mA		0	1000 mm	NO	NO	NO	NO	50-LP-001	1	16	-	5				AI
223	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-050	50-PT-050	_50PT050	Pressure inlet S-50001	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	16	-	6				AI
224	ACTIVE					SPARE	AI	4-20 mA								50-LP-001	1	16	-	7				AISPARE
225	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-022	50-TT-022	_50TT022	Seawater temperature from H-50001	AI	4-20 mA		0	50 degC	NO	NO	NO	NO	50-LP-001	1	17	-	0				AI
226	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-041	50-PT-041	_50PT041	Fresh water outlet pressure	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	17	-	1				AI
227	ACTIVE	1724000448-PR-PID-00013 / 004	50-T-024	50-TT-024	_50TT024	Fresh water outlet temperature	AI	4-20 mA		0	50 degC	NO	NO	NO	NO	50-LP-001	1	17	-	2				AI
228	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-026	50-AT-026	_50AT026	Fresh water outlet total hardness	AI	4-20 mA		0	25 ppm CaCC	NO	NO	NO	NO	50-LP-001	1	17	-	3				AI
229	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-027	50-AT-027	_50AT027	Fresh water outlet pH	AI	4-20 mA		0	14 pH	NO	NO	NO	NO	50-LP-001	1	17	-	4				AI
230	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-023	50-TT-023	_50TT023	Ambient air temperature inside container	AI	4-20 mA		0	50 degC	NO	NO	NO	NO	50-LP-001	1	17	-	5				AI
231	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-047	50-PT-047	_50PT047	Softening filter inlet pressure	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	17	-	6				AI
232	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-051	50-PT-051	_50PT051	Pressure outlet S-50001	AI	4-20 mA		0	6 bar	NO	NO	NO	NO	50-LP-001	1	17	-	7				AI
233	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-SY-P50004A	_50SYP50004A	HP pump speed control	AO	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	18	-	0				AO
234	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005A	50-ZY-P50005A	_50ZYP50005A	Caustic soda dosing pump control	AO	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	18	-	1				AO
235	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-021	50-TZ-021	_50TZ021	Seawater temperature from H-50001	AO	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	18	-	2				AO
236	ACTIVE					SPARE	AO	4-20 mA								50-LP-001	1	18	-	3				AOSPARE
237	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-SY-P50004B	_50SYP50004B	HP pump speed control	AO	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	19	-	0				AO
238	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005B	50-ZY-P50005B	_50ZYP50005B	Caustic soda dosing pump control	AO	4-20 mA		0	100 %	NO	NO	NO	NO	50-LP-001	1	19	-	1				AO
239	ACTIVE					SPARE	AO	4-20 mA								50-LP-001	1	19	-	2				AOSPARE
240	ACTIVE					SPARE	AO	4-20 mA								50-LP-001	1	19	-	3				AOSPARE
241	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-021	50-HS-021	_50HS021	Manual alarm call point	DI	SINK 24VDC	ALARM	NORMAL		NO	NO	YES	NO	50-LP-002	1	1	-	0				
242	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-021	50-AT-021A	_50AT021A	Fire detection in container	DI	SINK 24VDC	ALARM	NORMAL		NO	NO	YES	NO	50-LP-002	1	1	-	1				
243	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-021	50-AT-021B	_50AT021B	Fire detection in container	DI	SINK 24VDC	ALARM	NORMAL		NO	NO	YES	NO	50-LP-002	1	1	-	2				
244	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-021	50-AT-021C	_50AT021C	Fire detection in container	DI	SINK 24VDC	ALARM	NORMAL		NO	NO	YES	NO	50-LP-002	1	1	-	3				
245	ACTIVE					SPARE	DI	SINK 24VDC				NO	NO	YES	NO	50-LP-002	1	1	-	4				
246	ACTIVE					SPARE	DI	SINK 24VDC				NO	NO	YES	NO	50-LP-002	1	1	-	5				
247	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-001	50-XA-001	_50XA001	Gas confirmed	DO	24VDC	ALARM	NORMAL		NO	NO	YES	NO	50-LP-002	1	2	-	0			Contact generated from SIL relay	
248	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-002	50-XA-002	_50XA002	Smoke confirmed	DO	24VDC	ALARM	NORMAL		NO	NO	YES	NO	50-LP-002	1	2	-	1			Contact generated from SIL relay	
249	ACTIVE					SPARE	DO	24VDC				NO	NO	YES	NO	50-LP-002	1	2	-	2				
250	ACTIVE					SPARE	DO	24VDC				NO	NO	YES	NO	50-LP-002	1	2	-	3				
251	ACTIVE					SPARE	DO	24VDC				NO	NO	YES	NO	50-LP-002	1	2	-	4				
252	ACTIVE					SPARE	DO	24VDC				NO	NO	YES	NO	50-LP-002	1	2	-	5				
253	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-020	50-AT-020A	_50AT020A	H2 gas detection in container	AI	4-20 mA		0	100 % LEL	NO	NO	YES	NO	50-LP-002	1	3	-	0				
254	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-020	50-AT-020B	_50AT020B	H2 gas detection in container	AI	4-20 mA		0	100 % LEL	NO	NO	YES	NO	50-LP-002	1	3	-	1				
255	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-020	50-AT-020C	_50AT020C	H2 gas detection in container	AI	4-20 mA		0	100 % LEL	NO	NO	YES	NO	50-LP-002	1	4	-	0				
256	ACTIVE					SPARE	AI	4-20 mA				NO	NO	YES	NO	50-LP-002	1	5	-	1				

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ID	STATUS	P&ID	LOOP NAME	FIELD TAG/DEVICE	CONTROLLER TAG	SERVICE	ICSS I/O TYPE	TYPE	FORMAT	MIN/0 STATE	MAX/1 STATE	EU	ALARM	ALARM TRESHOLD	ALARM PRIORITY	IP ADDRESS	MODBUS FUNCTION	MODBUS REGISTER	REGISTER BIT	NOTE
1	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-020	50-AT-020A	_50AT020A	H2 gas detection in container	SAI	ANALOG	FLOATING	0	100	% LEL	NO	-	-		3	40001	-	
2	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-020	50-AT-020B	_50AT020B	H2 gas detection in container	SAI	ANALOG	FLOATING	0	100	% LEL	NO	-	-		3	40003	-	SAI
3	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-020	50-AT-020C	_50AT020C	H2 gas detection in container	SAI	ANALOG	FLOATING	0	100	% LEL	NO	-	-		3	40005	-	SAI
4	ACTIVE	1724000448-PR-PID-00013 / 002	50-A-023	50-AT-023	_50AT023	Filtered seawater conductivity to P-50003A/B	SAI	ANALOG	FLOATING	0	80000	uS/cm	NO	-	-		3	40007	-	SAI
5	ACTIVE	1724000448-PR-PID-00013 / 003	50-A-024	50-AT-024	_50AT024	Fresh water conductivity from A-50007A/B	SAI	ANALOG	FLOATING	0	1000	uS/cm	NO	-	-		3	40009	-	SAI
6	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-026	50-AT-026	_50AT026	Fresh water outlet total hardness	SAI	ANALOG	FLOATING	0	25	ppm CaCO3	NO	-	-		3	40011	-	SAI
7	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-027	50-AT-027	_50AT027	Fresh water outlet pH	SAI	ANALOG	FLOATING	0	14	pH	NO	-	-		3	40013	-	SAI
8	ACTIVE	1724000448-PR-PID-00013 / 001	50-F-020	50-FT-020	_50FT020	Seawater flow to S-50001	SAI	ANALOG	FLOATING	0	8	m3/h	NO	-	-		3	40015	-	SAI
9	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-022	50-FT-022	_50FT022	Filtered seawater flow from P-50003A	SAI	ANALOG	FLOATING	0	4	m3/h	NO	-	-		3	40019	-	SAI
10	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-023	50-FT-023	_50FT023	Filtered seawater flow from P-50003B	SAI	ANALOG	FLOATING	0	2	m3/h	NO	-	-		3	40021	-	SAI
11	ACTIVE	1724000448-PR-PID-00013 / 003	50-F-024	50-FT-024	_50FT024	Fresh water flow from A-50007A/B	SAI	ANALOG	FLOATING	0	2	m3/h	NO	-	-		3	40023	-	SAI
12	ACTIVE	1724000448-PR-PID-00013 / 004	50-F-027	50-FT-026	_50FT026	Fresh water outlet flow	SAI	ANALOG	FLOATING	0	4	m3/h	NO	-	-		3	40017	-	SAI
13	ACTIVE	1724000448-PR-PID-00013 / 001	50-L-020	50-LT-020	_50LT020	T-50006 level	SAI	ANALOG	FLOATING	0	1800	mm	NO	-	-		3	40025	-	SAI
14	ACTIVE	1724000448-PR-PID-00013 / 004	50-L-021	50-LT-021	_50LT021	T-50008 level	SAI	ANALOG	FLOATING	0	1800	mm	NO	-	-		3	40027	-	SAI
15	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-022	50-LT-022	_50LT022	T-50002 level	SAI	ANALOG	FLOATING	0	1000	mm	NO	-	-		3	40029	-	SAI
16	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-023	50-LT-023	_50LT023	T-50003 level	SAI	ANALOG	FLOATING	0	500	mm	NO	-	-		3	40031	-	SAI
17	ACTIVE	1724000448-PR-PID-00013 / 006	50-L-024	50-LT-024	_50LT024	T-50004 level	SAI	ANALOG	FLOATING	0	1000	mm	NO	-	-		3	40033	-	
18	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-023	50-PDT-023	_50PDT023	dP across S-50001	SAI	ANALOG	FLOATING	0	1	bar	NO	-	-		3	40035	-	
19	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-020	50-PT-020	_50PT020	Seawater inlet pressure	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40037	-	SAI
20	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-025	50-PT-025	_50PT025	Filtered seawater pressure from P-50003A	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40039	-	SAI
21	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-026	50-PT-026	_50PT026	Filtered seawater pressure to P-50004A	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40041	-	SAI
22	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-027	50-PT-027	_50PT027	Filtered seawater pressure from P-50003B	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40043	-	SAI
23	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-028	50-PT-028	_50PT028	Filtered seawater pressure to P-50004B	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40045	-	SAI
24	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-030	50-PT-030	_50PT030	Filtered seawater pressure from P-50004A	SAI	ANALOG	FLOATING	0	100	bar	NO	-	-		3	40047	-	SAI
25	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-032	50-PT-032	_50PT032	Filtered seawater pressure from P-50004B	SAI	ANALOG	FLOATING	0	100	bar	NO	-	-		3	40049	-	SAI
26	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-041	50-PT-041	_50PT041	Fresh water outlet pressure	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40051	-	SAI
27	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-047	50-PT-047	_50PT047	Softening filter inlet pressure	SAI	ANALOG	FLOATING	0	6	bar	NO	-	-		3	40053	-	SAI
28	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-SI-P50004A	_50SIP50004A	HP pump speed feedback	SAI	ANALOG	FLOATING	0	100	%	NO	-	-		3	40055	-	SAI
29	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-SI-P50004B	_50SIP50004B	HP pump speed feedback	SAI	ANALOG	FLOATING	0	100	%	NO	-	-		3	40057	-	SAI
30	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-021	50-TT-021	_50TT021	Seawater temperature from H-50001	SAI	ANALOG	FLOATING	0	50	degC	NO	-	-		3	40059	-	SAI
31	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-022	50-TT-022	_50TT022	Seawater temperature from H-50001	SAI	ANALOG	FLOATING	0	50	degC	NO	-	-		3	40061	-	SAI
32	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-023	50-TT-023	_50TT023	Ambient air temperature inside container	SAI	ANALOG	FLOATING	0	50	degC	NO	-	-		3	40063	-	SAI
33	ACTIVE	1724000448-PR-PID-00013 / 004	50-T-024	50-TT-024	_50TT024	Fresh water outlet temperature	SAI	ANALOG	FLOATING	0	50	degC	NO	-	-		3	40065	-	SAI
34	ACTIVE	1724000448-PR-PID-00013 / 002	50-A-023	50-AT-023	_50AT023_H	Filtered seawater conductivity to P-50003A/B high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	uS/cm	YES	6300	2		3	40101	0	
35	ACTIVE	1724000448-PR-PID-00013 / 003	50-A-024	50-AT-024	_50AT024_H	Fresh water conductivity from A-50007A/B high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	uS/cm	YES	670	2		3	40101	1	
36	ACTIVE	1724000448-PR-PID-00013 / 003	50-A-024	50-AT-024	_50AT024_HH	Fresh water conductivity from A-50007A/B very high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	uS/cm	YES	750	1		3	40101	2	
37	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-026	50-AT-026	_50AT026_H	Fresh water outlet total hardness high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	ppm CaCO3	YES	8	2		3	40101	3	
38	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-026	50-AT-026	_50AT026_HH	Fresh water outlet total hardness very high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	ppm CaCO3	YES	9	1		3	40101	4	
39	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-027	50-AT-027	_50AT027_LL	Fresh water outlet pH very low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	pH	YES	6,9	1		3	40101	5	
40	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-027	50-AT-027	_50AT027_L	Fresh water outlet pH low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	pH	YES	7,1	2		3	40101	6	
41	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-027	50-AT-027	_50AT027_H	Fresh water outlet pH high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	pH	YES	7,8	2		3	40101	7	
42	ACTIVE	1724000448-PR-PID-00013 / 004	50-A-027	50-AT-027	_50AT027_HH	Fresh water outlet pH very high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	pH	YES	8	1		3	40101	8	
43	ACTIVE	1724000448-PR-PID-00013 / 001	50-F-020	50-FT-020	_50FT020_L	Seawater flow to S-50001 low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	4	2		3	40101	9	
44	ACTIVE	1724000448-PR-PID-00013 / 001	50-F-020	50-FT-020	_50FT020_H	Seawater flow to S-50001 high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	6	2		3	40101	10	
45	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-022	50-FT-022	_50FT022_L	Filtered seawater flow from P-50003A low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	1,5	2		3	40101	11	
46	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-022	50-FT-022	_50FT022_H	Filtered seawater flow from P-50003A high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	2,5	2		3	40101	12	
47	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-023	50-FT-023	_50FT023_L	Filtered seawater flow from P-50003B low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	1,5	2		3	40101	13	
48	ACTIVE	1724000448-PR-PID-00013 / 002	50-F-023	50-FT-023	_50FT023_H	Filtered seawater flow from P-50003B high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	2,5	2		3	40101	14	
49	ACTIVE	1724000448-PR-PID-00013 / 003	50-F-024	50-FT-024	_50FT024_L	Fresh water flow from A-50007A/B low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	0,5	2		3	40101	15	
50	ACTIVE	1724000448-PR-PID-00013 / 004	50-F-027	50-FT-026	_50FT026_L	Fresh water outlet flow low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	m3/h	YES	0,5	2		3	40102	0	
51	ACTIVE	1724000448-PR-PID-00013 / 001	50-L-020	50-LT-020	_50LT020_LL	T-50006 level very low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	10	1		3	40102	1	
52	ACTIVE	1724000448-PR-PID-00013 / 001	50-L-020	50-LT-020	_50LT020_L	T-50006 level low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	20	2		3	40102	2	
53	ACTIVE	1724000448-PR-PID-00013 / 001	50-L-020	50-LT-020	_50LT020_H	T-50006 level high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	90	2		3	40102	3	
54	ACTIVE	1724000448-PR-PID-00013 / 004	50-L-021	50-LT-021	_50LT021_LL	T-50008 level very low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	10	1		3	40102	4	
55	ACTIVE	1724000448-PR-PID-00013 / 004	50-L-021	50-LT-021	_50LT021_L	T-50008 level low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	20	2		3	40102	5	
56	ACTIVE	1724000448-PR-PID-00013 / 004	50-L-021	50-LT-021	_50LT021_H	T-50008 level high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	90	2		3	40102	6	
57	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-022	50-LT-022	_50LT022_LL	T-50002 level very low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	10	1		3	40102	7	
58	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-022	50-LT-022	_50LT022_L	T-50002 level low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	20	2		3	40102	8	
59	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-023	50-LT-023	_50LT023_LL	T-50003 level very low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES	10	1		3	40102	9	

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60	ACTIVE	1724000448-PR-PID-00013 / 005	50-L-023	50-LT-023	_50LT023_LL	T-50003 level low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES		20	2	3	40102	10	
61	ACTIVE	1724000448-PR-PID-00013 / 006	50-L-024	50-LT-024	_50LT024_LL	T-50004 level very low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES		10	1	3	40102	11	
62	ACTIVE	1724000448-PR-PID-00013 / 006	50-L-024	50-LT-024	_50LT024_L	T-50004 level low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	%	YES		20	2	3	40102	12	
63	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-023	50-PDT-023	_50PDT023_H	dP across S-50001 high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		1	2	3	40102	13	
64	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-020	50-PT-020	_50PT020_L	Seawater inlet pressure low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		4	2	3	40102	14	
65	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-025	50-PT-025	_50PT025_L	Filtered seawater pressure from P-50003A low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		3	2	3	40102	15	
66	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-026	50-PT-026	_50PT026_L	Filtered seawater pressure to P-50004A low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		2,5	2	3	40103	0	
67	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-027	50-PT-027	_50PT027_L	Filtered seawater pressure from P-50003B low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		3	2	3	40103	1	
68	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-028	50-PT-028	_50PT028_L	Filtered seawater pressure to P-50004B low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		2,5	2	3	40103	2	
69	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-030	50-PT-030	_50PT030_L	Filtered seawater pressure from P-50004A low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		55	2	3	40103	3	
70	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-030	50-PT-030	_50PT030_H	Filtered seawater pressure from P-50004A high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		65	2	3	40103	4	
71	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-032	50-PT-032	_50PT032_L	Filtered seawater pressure from P-50004B low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		55	2	3	40103	5	
72	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-032	50-PT-032	_50PT032_H	Filtered seawater pressure from P-50004B high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		65	2	3	40103	6	
73	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-041	50-PT-041	_50PT041_L	Fresh water outlet pressure low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		4	2	3	40103	7	
74	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-041	50-PT-041	_50PT041_H	Fresh water outlet pressure high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		6	2	3	40103	8	
75	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-047	50-PT-047	_50PT047_L	Softening filter inlet pressure low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		4	2	3	40103	9	
76	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-047	50-PT-047	_50PT047_H	Softening filter inlet pressure high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	bar	YES		6	2	3	40103	10	
77	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-022	50-TT-022	_50TT022_L	Seawater temperature from H-50001 low	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	degC	YES		10	2	3	40103	11	
78	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-022	50-TT-022	_50TT022_H	Seawater temperature from H-50001 high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	degC	YES		35	2	3	40103	12	
79	ACTIVE	1724000448-PR-PID-00013 / 001	50-T-022	50-TT-022	_50TT022_HH	Seawater temperature from H-50001 very high	SDI	DIGITAL	BOOLEAN	ALARM	NORMAL	degC	YES		40	1	3	40103	13	
80	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-020	50-XV-020	_50XV020_O	Seawater inlet valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40111	0	
81	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-020	50-XV-020	_50XV020_C	Seawater inlet valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40111	1	
82	ACTIVE	1724000448-PR-PID-00013 / 001	50-X-020	50-XV-020	_50XV020_F	Seawater inlet valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40111	2	
83	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-021	50-XV-021	_50XV021_O	P-50003A suction valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40111	3	
84	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-021	50-XV-021	_50XV021_C	P-50003A suction valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40111	4	
85	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-021	50-XV-021	_50XV021_F	P-50003A suction valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40111	5	
86	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-022	50-XV-022	_50XV022_O	P-50003B suction valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40111	6	SDI
87	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-022	50-XV-022	_50XV022_C	P-50003B suction valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40111	7	SDI
88	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-022	50-XV-022	_50XV022_F	P-50003B suction valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40111	8	SDI
89	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-023	50-XV-023	_50XV023_O	P-50003A flushing valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40111	9	
90	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-023	50-XV-023	_50XV023_C	P-50003A flushing valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40111	10	
91	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-023	50-XV-023	_50XV023_F	P-50003A flushing valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40111	11	
92	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-024	50-XV-024	_50XV024_O	P-50003B flushing valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40111	12	SDI
93	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-024	50-XV-024	_50XV024_C	P-50003B flushing valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40111	13	SDI
94	ACTIVE	1724000448-PR-PID-00013 / 002	50-X-024	50-XV-024	_50XV024_F	P-50003B flushing valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40111	14	SDI
95	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-025	50-XV-025	_50XV025_O	Fresh water from A-50007A/B valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40111	15	
96	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-025	50-XV-025	_50XV025_C	Fresh water from A-50007A/B valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40112	0	
97	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-025	50-XV-025	_50XV025_F	Fresh water from A-50007A/B valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40112	1	
98	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-026	50-XV-026	_50XV026_O	Fresh water drain from A-50007A/B valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40112	2	
99	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-026	50-XV-026	_50XV026_C	Fresh water drain from A-50007A/B valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40112	3	
100	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-026	50-XV-026	_50XV026_F	Fresh water drain from A-50007A/B valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40112	4	
101	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-027	50-XV-027	_50XV027_O	Brine from A-50007A valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40112	5	
102	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-027	50-XV-027	_50XV027_C	Brine from A-50007A valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40112	6	
103	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-027	50-XV-027	_50XV027_F	Brine from A-50007A valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40112	7	
104	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-028	50-XV-028	_50XV028_O	Fresh water from A-50007B valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40112	8	SDI
105	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-028	50-XV-028	_50XV028_C	Fresh water from A-50007B valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40112	9	SDI
106	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-028	50-XV-028	_50XV028_F	Fresh water from A-50007B valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40112	10	SDI
107	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-029	50-XV-029	_50XV029_O	Fresh water drain from A-50007B valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40112	11	SDI
108	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-029	50-XV-029	_50XV029_C	Fresh water drain from A-50007B valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40112	12	SDI
109	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-029	50-XV-029	_50XV029_F	Fresh water drain from A-50007B valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40112	13	SDI
110	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-030	50-XV-030	_50XV030_O	Brine from A-50007B valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40112	14	SDI
111	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-030	50-XV-030	_50XV030_C	Brine from A-50007B valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40112	15	SDI
112	ACTIVE	1724000448-PR-PID-00013 / 003	50-X-030	50-XV-030	_50XV030_F	Brine from A-50007B valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40113	0	SDI
113	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-031	50-XV-031	_50XV031_O	Fresh water outlet valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40113	1	SDI
114	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-031	50-XV-031	_50XV031_C	Fresh water outlet valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40113	2	SDI
115	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-031	50-XV-031	_50XV031_F	Fresh water outlet valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40113	3	SDI
116	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-032	50-XV-032	_50XV032_O	Fresh water off-spec valve open	SDI	DIGITAL	BOOLEAN	NOT OPEN	OPEN	-	NO	-		-	3	40113	4	SDI
117	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-032	50-XV-032	_50XV032_C	Fresh water off-spec valve closed	SDI	DIGITAL	BOOLEAN	NOT CLOSED	CLOSED	-	NO	-		-	3	40113	5	SDI
118	ACTIVE	1724000448-PR-PID-00013 / 004	50-X-032	50-XV-032	_50XV032_F	Fresh water off-spec valve failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-		3	3	40113	6	SDI

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119	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002A	50-P-50002A	_50P50002A_R	Backwash pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	0		SDI
120	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002A	50-P-50002A	_50P50002A_F	Backwash pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	1		SDI
121	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002B	50-P-50002B	_50P50002B_R	Backwash pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	2		SDI
122	ACTIVE	1724000448-PR-PID-00013 / 001	50-P-50002B	50-P-50002B	_50P50002B_F	Backwash pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	3		SDI
123	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003A	50-P-50003A	_50P50003A_R	SW booster pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	4		
124	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003A	50-P-50003A	_50P50003A_F	SW booster pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	5		
125	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003B	50-P-50003B	_50P50003B_R	SW booster pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	6		SDI
126	ACTIVE	1724000448-PR-PID-00013 / 002	50-P-50003B	50-P-50003B	_50P50003B_F	SW booster pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	7		SDI
127	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-P-50004A	_50P50004A_R	HP pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	8		SDI
128	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004A	50-P-50004A	_50P50004A_F	HP pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	9		SDI
129	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-P-50004B	_50P50004B_R	HP pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	10		SDI
130	ACTIVE	1724000448-PR-PID-00013 / 003	50-P-50004B	50-P-50004B	_50P50004B_F	HP pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	11		SDI
131	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005A	50-P-50005A	_50P50005A_R	Caustic soda dosing pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	12		SDI
132	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005A	50-P-50005A	_50P50005A_F	Caustic soda dosing pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	13		SDI
133	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005B	50-P-50005B	_50P50005B_R	Caustic soda dosing pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40121	14		SDI
134	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50005B	50-P-50005B	_50P50005B_F	Caustic soda dosing pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40121	15		SDI
135	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006A	50-P-50006A	_50P50006A_R	Antiscalant dosing pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	0		SDI
136	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006A	50-P-50006A	_50P50006A_F	Antiscalant dosing pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	1		SDI
137	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006B	50-P-50006B	_50P50006B_R	Antiscalant dosing pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	2		
138	ACTIVE	1724000448-PR-PID-00013 / 005	50-P-50006B	50-P-50006B	_50P50006B_F	Antiscalant dosing pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	3		
139	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007A	50-P-50007A	_50P50007A_R	Non-oxidant biocide dosing pump - container inlet running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	4		SDI
140	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007A	50-P-50007A	_50P50007A_F	Non-oxidant biocide dosing pump - container inlet failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	5		SDI
141	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007B	50-P-50007B	_50P50007B_R	Non-oxidant biocide dosing pump - container inlet running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	6		
142	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50007B	50-P-50007B	_50P50007B_F	Non-oxidant biocide dosing pump - container inlet failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	7		
143	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008A	50-P-50008A	_50P50008A_R	Non-oxidant biocide dosing pump - sea water intake running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	8		SDI
144	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008A	50-P-50008A	_50P50008A_F	Non-oxidant biocide dosing pump - sea water intake failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	9		SDI
145	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008B	50-P-50008B	_50P50008B_R	Non-oxidant biocide dosing pump - sea water intake running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	10		
146	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50008B	50-P-50008B	_50P50008B_F	Non-oxidant biocide dosing pump - sea water intake failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	11		
147	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009A	50-P-50009A	_50P50009A_R	Fresh water pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	12		SDI
148	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009A	50-P-50009A	_50P50009A_F	Fresh water pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	13		SDI
149	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009B	50-P-50009B	_50P50009B_R	Fresh water pump running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40122	14		
150	ACTIVE	1724000448-PR-PID-00013 / 004	50-P-50009B	50-P-50009B	_50P50009B_F	Fresh water pump failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40122	15		
151	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010A	50-P-50010A	_50P50010A_R	Non-oxidant biocide dosing pump - waste water tank running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40123	0		SDI
152	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010A	50-P-50010A	_50P50010A_F	Non-oxidant biocide dosing pump - waste water tank failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40123	1		SDI
153	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010B	50-P-50010B	_50P50010B_R	Non-oxidant biocide dosing pump - waste water tank running	SDI	DIGITAL	BOOLEAN	STOPPED	RUNNING	-	NO	-	-	3	40123	2		SDI
154	ACTIVE	1724000448-PR-PID-00013 / 006	50-P-50010B	50-P-50010B	_50P50010B_F	Non-oxidant biocide dosing pump - waste water tank failure	SDI	DIGITAL	BOOLEAN	FAILURE	NORMAL	-	YES	-	3	3	40123	3		SDI
155	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-H-50003A	_50H50003A_A	Container electrical heater start/stop command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	0		
156	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-H-50003B	_50H50003B_A	Container electrical heater start/stop command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	1		
157	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003A	50-H-50003A	_50HFA50001A_A	Container air fan start/stop command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	2		
158	ACTIVE	1724000448-PR-PID-00013 / 001	50-H-50003B	50-H-50003B	_50HFA50001B_A	Container air fan start/stop command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	3		
159	ACTIVE	1724000448-PR-PID-00013 / 001	50-A-50003	50-A-50003	_50A50003_A	Seawater coarse filter regeneration command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	4		
160	ACTIVE	1724000448-PR-PID-00013 / 001	50-S-50001	50-S-50001	_50S50001_A	Sand filter regeneration command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	5		
161	ACTIVE	1724000448-PR-PID-00013 / 004	50-S-50004	50-S-50004	_50S50004_A	Softening Filter regeneration command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	6		
162	ACTIVE	1724000448-PR-PID-00013 / 004	50-S-50010	50-S-50010	_50S50010_A	UV sterilizer start/stop command	SDI	DIGITAL	BOOLEAN	NOT ACTIVE	ACTIVE	-	NO	-	-	3	40131	7		SDI

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Input / Output Count

Type of signal	DI	DO	AI	AO
Control sytem I/O card modularity	16	16	8	4
Channel used	**95**	**47**	**31**	**5**
Spare required (%)	20	20	20	20
Quantity channel redundant used	0	0	0	0
Total channels used (including spares)	114	57	38	6
Total channels installed	**128**	**64**	**40**	**8**
Number of I/O modules installed	8	4	5	2
Actual Spare	*26%*	*27%*	*23%*	*38%*

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE

UTILITIES, CHEMICALS, CONSUMABLES, LUBRICANTS CONSUMPTION LIST

Document Number: 1724000448-MAC-LIS-00020

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.Mura	10-07-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
04	13/06/2025	Accepted for Construction (AFC)	IT	WR	RM
03	22/10/2024	Accepted for Construction (AFC)	IT	WR	RM
02	09/08/2024	Accepted for Construction (AFC)	IT	WR	RM
01	10/06/2024	Issue for Review (IFR)	IT	RC	RM
00	15/05/2024	Issue for Review (IFR)	IT	RC	RM

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File: 1724000448-MAC-LIS-00020_Rev.4_Utilities, chemicals, consumables, lubricants consumption list.pdf Any copy printed shall be considered as "NOT CONTROLLED" copy

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SH.	DESCRIPTION	REVISIONS							
		00	01	02	03	04			
1	Cover	X	X	X	X	X			
2	Table of Contents	X	X	X	X	X			
3	Revision / Change Log	X	X	X	X	X			
4	1) Utilities, 2) Chemicals, 3) Consumables, 4) Lubricants	X	X	X	X	X			

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File: 1724000448-MAC-LIS-00020_Rev.4_Utilities, chemicals, consumables, lubricants consumption list. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
02	ACCEPTED FOR CONSTRUCTION (AFC)
03	ACCEPTED FOR CONSTRUCTION (AFC)
04	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
1.	
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1) UTILITIES	AVERAGE CONSUMPTION			PEAK CONSUMPTION			PRESSURE		TEMPERATURE		POWER SUPPLY	
	m^3/h	kg/h	kW	m^3/h	kg/h	kW	min (barg)	max (barg)	min (°C)	max (°C)	Volt (V)	Freq. (Hz)
Cooling water	N.A.			N.A.					N.A.			
Demi water	N.A.			N.A.			atm	atm	ambient	ambient		
Instrument and service air	N.A.			N.A.			N.A.	N.A.				
Nitrogen	N.A.			N.A.								
Absorbed power			Note 1			Note 1					400	50

Note 1: refer to Electric Load List document n.1724000448-EL-LIS-00018.

2) CHEMICALS	DOSAGE	FLOWRATE	FREQUENCY OF DOSAGE		TYPE OF CHEMICAL	CONSUMPTION	
	mg/l	l/h	type	h		liters/6 months	liters/year
Biocide on pump caisson B50013A/B	50	0.85	discontinuous shock	20 min every 4 days	non-oxidising (DBNPA), 100% commercial product, density 1.16 g/cm^3, pH 2.5-4	13	26
Biocide on sea water lift pumps P50001A/B	50	0.85	discontinuous shock	20 min every 4 days	non-oxidising (DBNPA), 100% commercial product, density 1.16 g/cm^3, pH 2.5-4	13	26
Biocide on container inlet	2	0.03	discontinuous 2 days/week	12	non-oxidising (DBNPA), 100% commercial product, density 1.16 g/cm^3, pH 2.5-4	21	42
Biocide on WWT	25	0.33	discontinuous shock	1/week	non-oxidising (DBNPA), 100% commercial product, density 1.16 g/cm^3, pH 2.5-4	8	16
Antiscalant	5	0.01	discontinuous 2 days/week	12	100% commercial product, density 1.3 g/cm^3, pH 7.5	6	12
Caustic soda	58 @10°C 47 @23°C	0.05 @10°C 0.04 @23°C	discontinuous 2 days/week	12	2% w/w solution, density 1.02 g/cm^3, pH 13.7 NOTE 1	31.5 @10°C 25.5 @23°C	63 @10°C 51 @23°C
Salt for Softner 4	N.A.	N.A.	discontinuous tank refilling every 6 months		NaCl solid salt tablets	50 kg	100 kg

NOTE 1: to prepare Caustic soda 2% solution with demi water. Caustic soda solution shall be prepared offshore adding 10 l of demi water to 1 l caustic soda 20%.
For one year of operation: 60 l demi water and 6 l caustic soda 20%. For six months of operation: 30 l demi water and 3 l caustic soda 20%.
Caustic soda solution dosage shall be between 1% and 5% and shall be evaluated at site according to North Sea sea water composition. 4

3) CONSUMABLES	TYPE	QUANTITY INSTALLED	CONSUMPTION	CONSUMPTION
			replacement quantity/six months	replacement quantity/year
Cartridges 20 micron	spiral wound, PP	2	2	4
Cartridges 5 micron	spiral wound, PP	2	2	4
UV lamp	low pressure Hg lamp, 40 W	1	N.A.	1
SWRO membranes	diameter 4", lengh 40" Polyamide Thin-Film Composite LG SW 4040 R	12	12	24

4) LUBRICANTS	TYPE	CONSUMPTION
		kg/year
Backwash pumps	N.A. NOTE 2	N.A.
Booster pumps	N.A. NOTE 2	N.A.
High pressure pumps	N.A. NOTE 1	N.A
Fresh water pumps	N.A. NOTE 3	N.A.
Caustic soda dosing pumps	N.A.	N.A.
Antiscalant dosing pumps	N.A.	N.A.
Biocide on sea water dosing pumps	N.A.	N.A.
Biocide on container inlet dosing pumps	N.A.	N.A.
Biocide on WWT dosing pumps	N.A.	N.A.

NOTE 1: pump housing contains no bearings requiring lubrication as the only lubricating medium is water. Motor bearing replacement interval is 40000 working hours.
NOTE 2: pumps have no bearing, motors have bearing "greased for life".
NOTE 3: pumps have no bearing, motors bearing estimated replacement interval is 18000 working hours.

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE A-50000
INSTRUMENT LIST WITH SET POINTS/CONTROL/ALARM/SHUTDOWN

Document Number: 1724000448-IN-LIS-00021

Document Class : 3

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.MURA	10-07-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
05	13/06/2025	ISSUE FOR INFORMATION (IFI)	GB	AZ	RM
04	25/11/2025	ISSUE FOR INFORMATION (IFI)	GB	AZ	RM
03	04/11/2024	ISSUE FOR INFORMATION (IFI)	GB	AZ	RM
02	17/09/2024	ISSUE FOR INFORMATION (IFI)	GB	AZ	RM
01	03/07/2024	ISSUE FOR INFORMATION (IFI)	GB	AZ	RM
00	03/06/2024	ISSUE FOR INFORMATION (IFI)	GB	AZ	RM

PSC DOC. REF. PK2885-I-006

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2	Table of Contents	X	X	X	X		X		
3	Revision / Change Log	X	X	X	X		X		
4	Legend	X	X	X	X				
5	Instrument List	X	X	X	X		X		
6	Instrument List	X	X	X	X		X		
7	Instrument List	X	X	X	X				
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Legend

COLUMN	MEANING AND VALUES
LOC	Location Type Description, described as follow:

Component located in:
Field = Plant area
MCC = Motor Control Center (panel tag: CP-500E1)
F&G = Fire & Gas (panel tag: 50-LP-002)
UCP = Unit Control Panel (panel tag: 50-LP-001)
FGS = Client Fire Gas System (panel tag B400-FGS-002)
SIS = Client Safety Instrumented System

Abbreviation

NAME	DESCRIPTION
TBD:	To Be Defined
TBC:	To Be Confirmed
VTA:	Vendor To Advise

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UNIT	VARIABLE	LOOP	TAG NUMBER	SERVICE	INSTRUMENT TYPE DESCRIPTION	LOC	INSTRUMENT RANGE (MIN/MAX)	CALIBRATION RANGE (MIN/MAX)	INSTRUMENT ALARM				SET	ENGINEERING UNITS	ELECTRICAL EXECUTION	MANUFACTURER	MODEL	P&ID REFERENCE	REV	NOTE
									LL	L	H	HH								
50	A	020	50-AT-020A	H2 GAS DETECTION IN CONTAINER	H2 GAS DETECTOR	F&G	\	\	\	\	\	\	\	\	SAFE AREA	SIA	SENSATION – SMART 3G	1724000448-PR-PID-00013 / 003	02	PRE-ALARM 5% LFL ALARM 10% LFL
50	A	020	50-AT-020B	H2 GAS DETECTION IN CONTAINER	H2 GAS DETECTOR	F&G	\	\	\	\	\	\	\	\	SAFE AREA	SIA	SENSATION – SMART 3G	1724000448-PR-PID-00013 / 003	02	PRE-ALARM 5% LFL ALARM 10% LFL
50	A	020	50-AT-020C	H2 GAS DETECTION IN CONTAINER	H2 GAS DETECTOR	F&G	\	\	\	\	\	\	\	\	SAFE AREA	SIA	SENSATION – SMART 3G	1724000448-PR-PID-00013 / 003	02	PRE-ALARM 5% LFL ALARM 10% LFL
50	A	021	50-AT-021A	FIRE DETECTION IN CONTAINER	FLAME / FIRE DETECTOR	F&G	\	\	\	\	\	\	\	\	SAFE AREA	SIA	HOCHIKI - SOC-E-IS	1724000448-PR-PID-00013 / 003	02	
50	A	021	50-AT-021B	FIRE DETECTION IN CONTAINER	FLAME / FIRE DETECTOR	F&G	\	\	\	\	\	\	\	\	SAFE AREA	SIA	HOCHIKI - SOC-E-IS	1724000448-PR-PID-00013 / 003	02	
50	A	021	50-AT-021C	FIRE DETECTION IN CONTAINER	FLAME / FIRE DETECTOR	F&G	\	\	\	\	\	\	\	\	SAFE AREA	SIA	HOCHIKI - SOC-E-IS	1724000448-PR-PID-00013 / 003	02	
50	A	023	50-AT-023	FILTERED SEAWATER CONDUCTIVITY TO P-50003A/B	ANALYZER TRANSMITTER - CONDUCTIVITY	Field	100 … 2000000	0 … 80000	\	\	63000	\	\	uS/cm	SAFE AREA	BURKERT	8228	1724000448-PR-PID-00013 / 003	02	
50	A	024	50-AT-024	FRESH WATER CONDUCTIVITY FROM A-50007A	ANALYZER TRANSMITTER - CONDUCTIVITY	Field	0.05 … 10000	0 … 1000	\	\	670	750	\	uS/cm	SAFE AREA	BURKERT	8222	1724000448-PR-PID-00013 / 004	02	
50	A	026	50-AT-026	FRESH WATER OUTLET TOTAL HARDNESS	ANALYZER TRANSMITTER - TOTAL HARDNESS	Field	0.16 … 1.6	0.16 … 1.6	\	\	0.8	0.9	\	°f	SAFE AREA	BURKERT	DUROMAT IQ	1724000448-PR-PID-00013 / 005	05	
50	A	027	50-AT-027	FRESH WATER OUTLET PH	ANALYZER TRANSMITTER - PH	Field	0 … 14	0 … 14	6.9	7.1	7.8	8	7.5	pH	SAFE AREA	BURKERT	8202+8203	1724000448-PR-PID-00013 / 005	02	
50	F	020	50-FT-020	SEAWATER FLOW FROM H-50001	MAGNETIC FLOW TRASMITTER	Field	0 … 50	0.9 ... 8	\	2 / 4(*)	3 /6(*)	\	\	m³/h	SAFE AREA	BURKERT	8045	1724000448-PR-PID-00013 / 002	05	
50	F	022	50-FT-022	FILTERED SEAWATER FLOW FROM P-50003A	MAGNETIC FLOW TRASMITTER	Field	0 … 20	0.25 ... 4	\	1.5	2.5	\	\	m³/h	SAFE AREA	BURKERT	8045	1724000448-PR-PID-00013 / 003	05	
50	F	023	50-FT-023	FILTERED SEAWATER FLOW FROM P-50003B	MAGNETIC FLOW TRASMITTER	Field	0 … 20	0.25 ... 4	\	1.5	2.5	\	\	m³/h	SAFE AREA	BURKERT	8045	1724000448-PR-PID-00013 / 003	05	
50	F	024	50-FT-024	FRESH WATER FLOW FROM A-50007A	MAGNETIC FLOW TRASMITTER	Field	0 … 6	0.1 ... 2	\	0.5	\	\	\	m³/h	SAFE AREA	BURKERT	8045	1724000448-PR-PID-00013 / 004	05	
50	F	026	50-FT-026	FRESH WATER FLOW FROM S-50010	MAGNETIC FLOW TRASMITTER	Field	0 … 20	0.25 ... 2	\	0.5	1	\	\	m³/h	SAFE AREA	BURKERT	8045	1724000448-PR-PID-00013 / 005	05	
50	F	020	50-FV-020	SEE WATER OVERFLOW	CONTROL VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 002	05	
50	F	020	50-FY-020	SEE WATER OVERFLOW	I/P CONVERTER	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA25	1724000448-PR-PID-00013 / 002	05	
50	H	020	50-HS-020	CONTAINER EMERGENCY PUSH BUTTON	MANUAL ALARM FOR EMERGENCY	Field	\	\	\	\	\	\	\	\	SAFE AREA	STAHL	130679	1724000448-PR-PID-00013 / 003	02	
50	H	021	50-HS-021	MANUAL ALLARM CALL POINT	MANUAL ALARM FOR EMERGENCY	Field	\	\	\	\	\	\	\	\	SAFE AREA	SIA	STExCP8-PT	1724000448-PR-PID-00013 / 003	05	
50	H	A50003	50-HS-A50003	SEA WATER COARSE FILTER A-50003	START/STOP SELECTOR	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	H	HFA50001	50-HS-HFA50001	CONTAINER AIR FAN HFA-50001	START/STOP SELECTOR	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	H	S50001	50-HS-S50001	SAND FILTER S-50001	START/STOP SELECTOR	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	H	S50004	50-HS-S50004	SOFTENING FILTER S-50004	START/STOP SELECTOR	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	H	S50010	50-HS-S50010	UV STERILIZER S-50010	START/STOP SELECTOR	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	L	020	50-LT-020	T-50006 LEVEL	LEVEL TRANSMITTER (RADAR)	Field	0 … 100	0 … 100	7	40	83	93	\	%	SAFE AREA	VEGA	VEGAPULS31	1724000448-PR-PID-00013 / 002	05	
50	L	021	50-LT-021	T-50008 LEVEL	LEVEL TRANSMITTER (RADAR)	Field	0 … 100	0 … 100	16	40	80	92	\	%	SAFE AREA	VEGA	VEGAPULS31	1724000448-PR-PID-00013 / 005	05	
50	L	022	50-LT-022	T-50002 LEVEL	LEVEL TRANSMITTER (RADAR)	Field	0 … 100	0 … 100	21	46	82	\	\	%	SAFE AREA	VEGA	VEGAPULS31	1724000448-PR-PID-00013 / 006	05	
50	L	023	50-LT-023	T-50003 LEVEL	LEVEL TRANSMITTER (RADAR)	Field	0 … 100	0 … 100	21	46	82	\	\	%	SAFE AREA	VEGA	VEGAPULS31	1724000448-PR-PID-00013 / 006	05	
50	L	024	50-LT-024	T-50004 LEVEL	LEVEL TRANSMITTER (RADAR)	Field	0 … 100	0 … 100	20	44	83	\	\	%	SAFE AREA	VEGA	VEGAPULS31	1724000448-PR-PID-00013 / 007	05	
50	P	024	50-PDI-024	DIFF PRESSURE ACROSS S-50002A / S-50003A	DIFFERENTIAL PRESSURE INDICATOR (SYSTEM)	UCP	\	0 … 2.5	\	\	2	\	\	barg	\	\	\	1724000448-PR-PID-00013 / 003	02	
50	P	029	50-PDI-029	DIFF PRESSURE ACROSS S-50002B / S-50003B	DIFFERENTIAL PRESSURE INDICATOR (SYSTEM)	UCP	\	0 … 2.5	\	\	2	\	\	barg	\	\	\	1724000448-PR-PID-00013 / 003	02	
50	P	049	50-PDI-049	DIFF PRESSURE ACROSS S-50004 / S-50010	DIFFERENTIAL PRESSURE INDICATOR (SYSTEM)	UCP	\	0 … 1	\	\	0.5	\	\	barg	\	\	\	1724000448-PR-PID-00013 / 005	02	
50	P	050	50-PDI-052	DIFF PRESSURE ACROSS S-50001	DIFFERENTIAL PRESSURE INDICATOR (SYSTEM)	UCP	\	0 … 1.5	\	\	1	\	\	barg	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	P	022	50-PI-022	SEAWATER PRESSURE TO S-50001	PRESSURE GAUGE	Field	0 … 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 002	02	
50	P	031	50-PI-031	BRINE PRESSURE FROM A-50007A	PRESSURE GAUGE	Field	0 … 100	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS40	1724000448-PR-PID-00013 / 004	02	
50	P	033	50-PI-033	BRINE PRESSURE FROM A-50007B	PRESSURE GAUGE	Field	0 … 100	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS40	1724000448-PR-PID-00013 / 004	02	
50	P	042	50-PI-042	SULPHURIC ACID PRESSURE FROM P-50005A/B	PRESSURE GAUGE	Field	0 … 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 006	02	

UNIT	VARIABLE	LOOP	TAG NUMBER	SERVICE	INSTRUMENT TYPE DESCRIPTION	LOC	INSTRUMENT RANGE (MIN/MAX)	CALIBRATION RANGE (MIN/MAX)	INSTRUMENT ALARM				SET	ENGINEERING UNITS	ELECTRICAL EXECUTION	MANUFACTURER	MODEL	P&ID REFERENCE	REV	NOTE
									LL	L	H	HH								
50	P	043	50-PI-043	ANTISCALANT PRESSURE FROM P-50006A/B	PRESSURE GAUGE	Field	0 ... 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 006	02	
50	P	044	50-PI-044	BIOCIDE PRESSURE FROM P-50007A/B	PRESSURE GAUGE	Field	0 ... 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 007	02	
50	P	045	50-PI-045	BIOCIDE PRESSURE FROM P-50008A/B	PRESSURE GAUGE	Field	0 ... 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 007	02	
50	P	046	50-PI-046	BIOCIDE PRESSURE FROM P-50010A/B	PRESSURE GAUGE	Field	0 ... 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 007	02	
50	P	048	50-PI-048	SEAWATER PRESSURE OUTLET A-50003	PRESSURE GAUGE	Field	0 ... 6	\	\	\	\	\	\	barg	SAFE AREA	NUOVA FIMA	MGS20	1724000448-PR-PID-00013 / 002	02	
50	P	034	50-PSV-034	P-50004A SUCTION SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	4	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-14BL57-128	1724000448-PR-PID-00013 / 004	02	
50	P	035	50-PSV-035	A-50007A INLET SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	65	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-10AL0C-134	1724000448-PR-PID-00013 / 004	02	
50	P	036	50-PSV-036	A-50007A OUTLET SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	6	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-10AL2E-128	1724000448-PR-PID-00013 / 004	02	
50	P	037	50-PSV-037	P-50004B SUCTION SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	4	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-14BL57-128	1724000448-PR-PID-00013 / 004	02	
50	P	038	50-PSV-038	A-50007B INLET SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	65	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-10AL0C-134	1724000448-PR-PID-00013 / 004	02	
50	P	039	50-PSV-039	A-50007B OUTLET SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	6	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-10AL2E-128	1724000448-PR-PID-00013 / 004	02	
50	P	053	50-PSV-053	A-50009A/B OUTLET SIDE PROTECTION	PRESSURE RELIEF VALVE	Field	\	6	\	\	\	\	\	barg	SAFE AREA	COI TECHNOLOGY	GLVC-10AL2E-128	1724000448-PR-PID-00013 / 006	02	
50	P	020	50-PT-020	SEAWATER INLET PRESSURE	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	4	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 002	02	
50	P	025	50-PT-025	FILTERED SEAWATER PRESSURE FROM P-50003A	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	3	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 003	02	
50	P	026	50-PT-026	FILTERED SEAWATER PRESSURE TO P-50004A	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	2.5	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 003	02	
50	P	027	50-PT-027	FILTERED SEAWATER PRESSURE FROM P-50003B	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	3	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 003	02	
50	P	028	50-PT-028	FILTERED SEAWATER PRESSURE TO P-50004B	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	2.5	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 003	02	
50	P	030	50-PT-030	FILTERED SEAWATER PRESSURE FROM P-50004A	PRESSURE TRANSMITTER	Field	0 ... 100	0 ... 70	\	55	65	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 004	02	
50	P	032	50-PT-032	FILTERED SEAWATER PRESSURE FROM P-50004B	PRESSURE TRANSMITTER	Field	0 ... 100	0 ... 70	\	55	65	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 004	02	
50	P	041	50-PT-041	FRESH WATER OUTLET PRESSURE	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 8	\	4	6	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 005	02	
50	P	047	50-PT-047	FRESH WATER PRESSURE FROM P-50009A/B	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 8	\	4	6	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 005	02	
50	P	050	50-PT-050	PRESSURE INLET S-50001	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	\	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 002	02	
50	P	051	50-PT-051	PRESSURE OUTLET S-50001	PRESSURE TRANSMITTER	Field	0 ... 17	0 ... 6	\	\	\	\	\	barg	SAFE AREA	GEORG FISCHER	2450+9900	1724000448-PR-PID-00013 / 002	02	
50	T	020	50-TE-020	H-50001 TEMPERATURE	THERMOCOUPLE (PT100)	Field	-80 ... 500	\	\	\	\	\	\	°C	SAFE AREA	LA TERMOTECNICA	HR AB21030005	1724000448-PR-PID-00013 / 002	02	
50	T	020	50-TSHH-020	H-50001 TEMPERATURE	RELAY UNIT	MCC	\	\	\	\	110	\	110	°C	SAFE AREA	EUROTHERM	32ENG	1724000448-PR-PID-00013 / 002	02	
50	T	021	50-TT-021	SEAWATER TEMPERATURE FROM H-50001	TEMPERATURE TRANSMITTER	Field	-10 ... 100	0 ... 50	\	\	\	\	\	°C	SAFE AREA	GEORG FISCHER	2350+9900	1724000448-PR-PID-00013 / 002	02	
50	T	021	50-TIC-021	SEAWATER TEMPERATURE FROM H-50001	INDICATION AND CONTROL (SYSTEM)	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	T	021	50-TZ-021	SEAWATER TEMPERATURE FROM H-50001	THYRISTOR	MCC	\	\	\	\	\	\	\	\	SAFE AREA	MASTERWATT	73U03000D000060	1724000448-PR-PID-00013 / 002	02	
50	T	022	50-TT-022	SEAWATER TEMPERATURE FROM H-50001	TEMPERATURE TRANSMITTER	Field	-10 ... 100	0 ... 50	\	\	22	25 \ 40	\	°C	SAFE AREA	GEORG FISCHER	2350+9900	1724000448-PR-PID-00013 / 002	03	25° (HH1) - INTERLOCK 020 40° (HH2) - INTERLOCK 001
50	T	023	50-TT-023	AMBIENT AIR TEMPERATURE INSIDE CONTAINER	TEMPERATURE TRANSMITTER	Field	-50 ... 150	-20 ... 60	\	4	\	\	\	°C	SAFE AREA	E+H	TST434	1724000448-PR-PID-00013 / 002	05	
50	T	023	50-TIC-023	AMBIENT AIR TEMPERATURE INSIDE CONTAINER	INDICATION AND CONTROL (SYSTEM)	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	T	024	50-TT-024	FRESH WATER OUTLET TEMPERATURE	TEMPERATURE TRANSMITTER	Field	-10 ... 100	0 ... 50	\	\	\	\	\	°C	SAFE AREA	GEORG FISCHER	2350+9900	1724000448-PR-PID-00013 / 005	02	
50	T	024	50-TI-024	FRESH WATER OUTLET TEMPERATURE	INDICATION (SYSTEM)	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 005	02	
50	X	020	50-XA-020	CONTAINER ALARM	MANUAL ALARM FOR EMERGENCY	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	A50003	50-XA-A50003	SEA WATER COARSE FILTER A-50003	FAULT ALARM	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	X	S50001	50-XA-S50001	SAND FILTER S-50001	FAULT ALARM	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	X	S50004	50-XA-S50004	SOFTENING FILTER S-50004	FAULT ALARM	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	

UNIT	VARIABLE	LOOP	TAG NUMBER	SERVICE	INSTRUMENT TYPE DESCRIPTION	LOC	INSTRUMENT RANGE (MIN/MAX)	CALIBRATION RANGE (MIN/MAX)	INSTRUMENT ALARM				SET	ENGINEERING UNITS	ELECTRICAL EXECUTION	MANUFACTURER	MODEL	P&ID REFERENCE	REV	NOTE
									LL	L	H	HH								
50	X	S50010	50-XA-S50010	UV STERILIZER S-50010	FAULT ALARM	UCP	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 002	02	
50	X	001	50-XA-001	GAS CONFIRMED INSIDE CONTAINER	ALARM (SYSTEM)	FGS	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	002	50-XA-002	SMOKE CONFIRMED INSIDE CONTAINER	ALARM (SYSTEM)	FGS	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	003	50-XA-003	F&G FAULT	ALARM (SYSTEM)	FGS	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	001	50-XS-001	CONTAINER SHUTDOWN	SHUTDOWN ALARM	SIS	\	\	\	\	\	\	\	\	\	\	\	1724000448-PR-PID-00013 / 003	02	SIGNAL FROM SIS SYSTEM
50	X	020	50-XV-020	SEAWATER INLET	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 002	02	
50	X	020	50-XY-020	MOV OPEN/CLOSE - SEAWATER INLET	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 002	02	
50	X	020	50-XZSH-020	MOV OPENED - SEAWATER INLET	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 002	02	
50	X	020	50-XZSL-020	MOV CLOSED - SEAWATER INLET	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 002	02	
50	X	021	50-XV-021	P-50003A SUCTION	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 003	02	
50	X	021	50-XY-021	MOV OPEN/CLOSE - P-50003A SUCTION	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	021	50-XZSH-021	MOV OPENED - P-50003A SUCTION	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	021	50-XZSL-021	MOV CLOSED - P-50003A SUCTION	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	022	50-XV-022	P-50003B SUCTION	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 003	02	
50	X	022	50-XY-022	MOV OPEN/CLOSE - P-50003B SUCTION	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	022	50-XZSH-022	MOV OPENED - P-50003B SUCTION	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	022	50-XZSL-022	MOV CLOSED - P-50003B SUCTION	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	023	50-XV-023	P-50003A FLUSHING	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 003	02	
50	X	023	50-XY-023	MOV OPEN/CLOSE - P-50003A FLUSHING	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	023	50-XZSH-023	MOV OPENED - P-50003A FLUSHING	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	023	50-XZSL-023	MOV CLOSED - P-50003A FLUSHING	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	024	50-XV-024	P-50003B FLUSHING	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 003	02	
50	X	024	50-XY-024	MOV OPEN/CLOSE - P-50003B FLUSHING	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 003	02	
50	X	024	50-XZSH-024	MOV OPENED - P-50003B FLUSHING	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	024	50-XZSL-024	MOV CLOSED - P-50003B FLUSHING	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 003	02	
50	X	025	50-XV-025	FRESH WATER FROM A-50007A	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 004	02	
50	X	025	50-XY-025	MOV OPEN/CLOSE - FRESH WATER FROM A-50007A	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 004	02	
50	X	025	50-XZSH-025	MOV OPENED - FRESH WATER FROM A-50007A	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 004	02	
50	X	025	50-XZSL-025	MOV CLOSED - FRESH WATER FROM A-50007A	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 004	02	
50	X	026	50-XV-026	FRESH WATER DRAIN FROM A-50007A	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 004	02	
50	X	026	50-XY-026	MOV OPEN/CLOSE - FRESH WATER DRAIN FROM A-50007A	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 004	02	
50	X	026	50-XZSH-026	MOV OPENED - FRESH WATER DRAIN FROM A-50007A	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 004	02	
50	X	026	50-XZSL-026	MOV CLOSED - FRESH WATER DRAIN FROM A-50007A	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 004	02	
50	X	027	50-XV-027	BRINE FROM A-50007A	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	TRUST VALVES	Z5732-00-001-KC	1724000448-PR-PID-00013 / 004	02	
50	X	027	50-XY-027	MOV OPEN/CLOSE - BRINE FROM A-50007A	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 004	02	
50	X	027	50-XZSH-027	MOV OPENED - BRINE FROM A-50007A	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	TRUST VALVES	AOX-005	1724000448-PR-PID-00013 / 004	02	
50	X	027	50-XZSL-027	MOV CLOSED - BRINE FROM A-50007A	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	TRUST VALVES	AOX-005	1724000448-PR-PID-00013 / 004	02	

UNIT	VARIABLE	LOOP	TAG NUMBER	SERVICE	INSTRUMENT TYPE DESCRIPTION	LOC	INSTRUMENT RANGE (MIN/MAX)	CALIBRATION RANGE (MIN/MAX)	INSTRUMENT ALARM				SET	ENGINEERING UNITS	ELECTRICAL EXECUTION	MANUFACTURER	MODEL	P&ID REFERENCE	REV	NOTE
									LL	L	H	HH								
50	X	030	50-XV-030	BRINE FROM A-50007B	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	TRUST VALVES	Z5732-00-001-KC	1724000448-PR-PID-00013 / 004	02	
50	X	030	50-XY-030	MOV OPEN/CLOSE - BRINE FROM A-50007B	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 004	02	
50	X	030	50-XZSH-030	MOV OPENED - BRINE FROM A-50007B	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	TRUST VALVES	AOX-005	1724000448-PR-PID-00013 / 004	02	
50	X	030	50-XZSL-030	MOV CLOSED - BRINE FROM A-50007B	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	TRUST VALVES	AOX-005	1724000448-PR-PID-00013 / 004	02	
50	X	031	50-XV-031	FRESH WATER OUTLET S-50004	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 005	02	
50	X	031	50-XY-031	MOV OPEN/CLOSE - FRESH WATER OUTLET S-50004	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 005	02	
50	X	031	50-XZSH-031	MOV OPENED - FRESH WATER OUTLET S-50004	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	02	
50	X	031	50-XZSL-031	MOV CLOSED - FRESH WATER OUTLET S-50004	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	02	
50	X	032	50-XV-032	FRESH WATER OFF SPEC OUTLET S-50004	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 005	02	
50	X	032	50-XY-032	MOV OPEN/CLOSE - FRESH WATER OFF SPEC OUTLET S-50004	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 005	02	
50	X	032	50-XZSH-032	MOV OPENED - FRESH WATER OFF SPEC OUTLET S-50004	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	02	
50	X	032	50-XZSL-032	MOV CLOSED - FRESH WATER OFF SPEC OUTLET S-50004	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	02	
50	X	033	50-XV-033	H-50001 SEAWATER DRAIN	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 002	02	
50	X	033	50-XY-033	MOV OPEN/CLOSE - H-50001 SEAWATER DRAIN	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 002	02	
50	X	033	50-XZSH-033	MOV OPENED - H-50001 SEAWATER DRAIN	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 002	02	
50	X	033	50-XZSL-033	MOV CLOSED - H-50001 SEAWATER DRAIN	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 002	02	
50	X	034	50-XV-034	T-50006 SEAWATER DRAIN	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 002	02	
50	X	034	50-XY-034	MOV OPEN/CLOSE - T-50006 SEAWATER DRAIN	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 002	02	
50	X	034	50-XZSH-034	MOV OPENED - T-50006 SEAWATER DRAIN	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 002	02	
50	X	034	50-XZSL-034	MOV CLOSED - T-50006 SEAWATER DRAIN	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 002	02	
50	X	035	50-XV-035	T-50008 FRESH WATER DRAIN	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 005	02	
50	X	035	50-XY-035	MOV OPEN/CLOSE - T-50008 FRESH WATER DRAIN	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 005	02	
50	X	035	50-XZSH-035	MOV OPENED - T-50008 FRESH WATER DRAIN	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	02	
50	X	035	50-XZSL-035	MOV CLOSED - T-50008 FRESH WATER DRAIN	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	02	
50	X	036	50-XV-036	FRESH WATER RECIRCULATION LINE P50009A/B	MOTOR OPERATED VALVE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	546 PRO	1724000448-PR-PID-00013 / 005	05	
50	X	036	50-XY-036	MOV OPEN/CLOSE - FRESH WATER RECIRCULATION LINE P50009A/B	MOV COMMAND	UCP	\	\	\	\	\	\	\	\	SAFE AREA	\	\	1724000448-PR-PID-00013 / 005	05	
50	X	036	50-XZSH-036	MOV OPENED - FRESH WATER RECIRCULATION LINE P50009A/B	LIMIT SWITCH OPEN	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	05	
50	X	036	50-XZSL-036	MOV CLOSED - FRESH WATER RECIRCULATION LINE P50009A/B	LIMIT SWITCH CLOSE	Field	\	\	\	\	\	\	\	\	SAFE AREA	GEORG FISCHER	EA15	1724000448-PR-PID-00013 / 005	05	
950	MF	05201	950-MFA-05201	FIRE MANUAL PUSH BUTTON	MANUAL ALARM FOR EMERGENCY	Field	\	\	\	\	\	\	\	\	SAFE AREA	SIA	E2S – BExCP3-BG	1724000448-PR-PID-00013 / 003	02	SIGNAL TO B400-FGS-002
950	X	05201	950-XL-05201	CONTAINER AMBER LAMP SIGNAL	ALARM/STATUS AMBER LAMP	Field	\	\	\	\	\	\	\	\	SAFE AREA	SIA	E2S - D1xB2X05	1724000448-PR-PID-00013 / 003	02	SIGNAL FROM B400-FGS-002
950	X	05202	950-XL-05202	CONTAINER RED LAMP SIGNAL	ALARM/STATUS RED LAMP	Field	\	\	\	\	\	\	\	\	SAFE AREA	SIA	E2S - D1xB2X05	1724000448-PR-PID-00013 / 003	02	SIGNAL FROM B400-FGS-002
950	X	05201	950-XZ-05201	CONTAINER ACOUSTIC SIGNAL	ALARM/STATUS SOUNDER	Field	\	\	\	\	\	\	\	\	SAFE AREA	SIA	E2S – D1xS1F	1724000448-PR-PID-00013 / 003	02	SIGNAL FROM B400-FGS-002

Base Load Power Hub (BLPH)

CABLE LIST

Document Number: 1724000448-EL-LIS-00022

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	18-12-2024

Document Class: 3

03	11/12/2024	Issue for Information (IFI)	PSC	AZ	RM
02	21/10/2024	Issue for Information (IFI)	PSC	AZ	RM
01	01/08/2024	Issue for Information (IFI)	PSC	AZ	RM
00	07/06/2024	Issue for Information (IFI)	PSC	AZ	RM
Rev.	Date	Description	Prepared	Reviewed	Approved

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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	INSTRUMENT CABLE LIST	Date: 11/12/2024 Rev. 03

CABLE N°	CABLE				CABLE EXTREMITIES				LENGHT (m)	SUPPLIED BY	REMARKS	REV.
	CABLE SIZE (mm)	TYPE	OUTER SHEATH	SERVICE	FROM	CABLE ENTRY	TO	CABLE ENTRY				
PD-50-AT-023/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater conductivity to P-50003A/B	50-AT-023	M12x1.5	50-LP-001	-	17	PSC		2
PD-50-AT-024/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water conductivity from A-50007A	50-AT-024	M12x1.5	50-LP-001	-	11	PSC		2
C-50-AT-026/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet total hardness	50-AT-026	M16x1.5	50-LP-001	-	15	PSC		2
C-50-AT-026/50-LP-001_2	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet total hardness	50-AT-026	M16x1.5	50-LP-001	-	15	PSC		2
PD-50-AT-027/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet pH	50-AT-027	M12x1.5	50-LP-001	-	15	PSC		2
PD-50-FT-020/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Seawater flow from H-50001	50-FT-020	M20x1.5	50-LP-001	-	16	PSC		1
PD-50-FT-022/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater flow from P-50003A	50-FT-022	M20x1.5	50-LP-001	-	17	PSC		1
PD-50-FT-023/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater flow from P-50003B	50-FT-023	M20x1.5	50-LP-001	-	17	PSC		1
PD-50-FT-024/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water flow from A-50007A	50-FT-024	M20x1.5	50-LP-001	-	12	PSC		1
PD-50-FT-026/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water flow from S-50010	50-FT-026	M20x1.5	50-LP-001	-	15	PSC		1
C-50-LT-020/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	T-50006 level	50-LT-020	M20x1.5	50-LP-001	-	17	PSC		1
C-50-LT-021/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	T-50008 level	50-LT-021	M20x1.5	50-LP-001	-	17	PSC		1
C-50-LT-022/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	T-50002 level	50-LT-022	M20x1.5	50-LP-001	-	12	PSC		1
C-50-LT-023/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	T-50003 level	50-LT-023	M20x1.5	50-LP-001	-	12	PSC		1
C-50-LT-024/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	T-50004 level	50-LT-024	M20x1.5	50-LP-001	-	12	PSC		1
C-50-PT-020/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Seawater inlet pressure	50-PT-020	M20x1.5	50-LP-001	-	12	PSC		1
C-50-PT-025/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater pressure from P-50003A	50-PT-025	M20x1.5	50-LP-001	-	17	PSC		1
C-50-PT-026/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater pressure to P-50004A	50-PT-026	M20x1.5	50-LP-001	-	14	PSC		1
C-50-PT-027/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater pressure from P-50003B	50-PT-027	M20x1.5	50-LP-001	-	17	PSC		1
C-50-PT-028/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater pressure to P-50004B	50-PT-028	M20x1.5	50-LP-001	-	14	PSC		1
C-50-PT-030/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater pressure from P-50004A	50-PT-030	M20x1.5	50-LP-001	-	12	PSC		1
C-50-PT-032/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Filtered seawater pressure from P-50004B	50-PT-032	M20x1.5	50-LP-001	-	12	PSC		1
C-50-PT-041/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet pressure	50-PT-041	M20x1.5	50-LP-001	-	15	PSC		1
C-50-PT-047/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water pressure from P-50009A/B	50-PT-047	M20x1.5	50-LP-001	-	15	PSC		1
C-50-PT-050/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	dP across S-50001	50-PT-050	M20x1.5	50-LP-001	-	11	PSC		2
C-50-PT-051/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	dP across S-50001	50-PT-051	M20x1.5	50-LP-001	-	11	PSC		2
C-50-TE-020/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50001 temperature	50-TE-020	M20x1.5	50-LP-001	-	11	PSC		1
C-50-TT-021/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Seawater temperature from H-50001	50-TT-021	M20x1.5	50-LP-001	-	11	PSC		1
C-50-TT-022/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Seawater temperature from H-50001	50-TT-022	M20x1.5	50-LP-001	-	11	PSC		1
C-50-TT-023/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Ambient air temperature inside container	50-TT-023	M20x1.5	50-LP-001	-	15	PSC		1
C-50-TT-024/50-LP-001	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet temperature	50-TT-024	M20x1.5	50-LP-001	-	15	PSC		1
C-50-LP-001/50-LP-002	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	50-LP-50001 fault	50-LP-001	M20x1.5	50-LP-002	-	7	PSC		2
PD-50-XV-020/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Seawater inlet - open/close Command	50-XV-020	M20x1.5	50-LP-001	-	12	PSC		1
C-50-XV-020/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Seawater inlet - opened/closed Limit switches	50-XV-020	M20x1.5	50-LP-001	-	12	PSC		1
PD-50-XV-021/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003A suction - open/close Command	50-XV-021	M20x1.5	50-LP-001	-	17	PSC		1
C-50-XV-021/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003A suction - opened/closed Limit switches	50-XV-021	M20x1.5	50-LP-001	-	17	PSC		1
PD-50-XV-022/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003B suction - open/close Command	50-XV-022	M20x1.5	50-LP-001	-	17	PSC		1
C-50-XV-022/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003B suction - opened/closed Limit switches	50-XV-022	M20x1.5	50-LP-001	-	17	PSC		1
PD-50-XV-023/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003A flushing - open/close Command	50-XV-023	M20x1.5	50-LP-001	-	17	PSC		1
C-50-XV-023/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003A flushing - opened/closed Limit switches	50-XV-023	M20x1.5	50-LP-001	-	17	PSC		1
PD-50-XV-024/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003B flushing - open/close Command	50-XV-024	M20x1.5	50-LP-001	-	17	PSC		1
C-50-XV-024/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	P-50003B flushing - opened/closed Limit switches	50-XV-024	M20x1.5	50-LP-001	-	17	PSC		1
PD-50-XV-025/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water from A-50007A - open/close Command	50-XV-025	M20x1.5	50-LP-001	-	11	PSC		1
C-50-XV-025/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water from A-50007A - opened/closed Limit switches	50-XV-025	M20x1.5	50-LP-001	-	11	PSC		1
PD-50-XV-026/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water drain from A-50007A - open/close Command	50-XV-026	M20x1.5	50-LP-001	-	11	PSC		2
C-50-XV-026/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water drain from A-50007A - opened/closed Limit switches	50-XV-026	M20x1.5	50-LP-001	-	11	PSC		2
PD-50-XV-027/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Brine from A-50007A - open/close Command	50-XV-027	M18x1.5	50-LP-001	-	12	PSC		2
C-50-XV-027/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Brine from A-50007A - opened/closed Limit switches	50-XV-027	M18x1.5	50-LP-001	-	12	PSC		2
PD-50-XV-030/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Brine from A-50007B - open/close Command	50-XV-030	M18x1.5	50-LP-001	-	12	PSC		2
C-50-XV-030/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Brine from A-50007B - opened/closed Limit switches	50-XV-030	M18x1.5	50-LP-001	-	12	PSC		2
PD-50-XV-031/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet S-50004 - open/close Command	50-XV-031	M20x1.5	50-LP-001	-	15	PSC		1
C-50-XV-031/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water outlet S-50004 - opened/closed Limit switches	50-XV-031	M20x1.5	50-LP-001	-	15	PSC		1
PD-50-XV-032/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water off spec outlet S-50004 - open/close Command	50-XV-032	M20x1.5	50-LP-001	-	15	PSC		1
C-50-XV-032/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Fresh water off spec outlet S-50004 - opened/closed Limit switches	50-XV-032	M20x1.5	50-LP-001	-	15	PSC		1
PD-50-XV-033/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50001 seawater drain - open/close Command	50-XV-033	M20x1.5	50-LP-001	-	13	PSC		2
C-50-XV-033/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50001 seawater drain - opened/closed Limit switches	50-XV-033	M20x1.5	50-LP-001	-	13	PSC		2
PD-50-XV-034/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50006 seawater drain - open/close Command	50-XV-034	M20x1.5	50-LP-001	-	19	PSC		2

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CABLE N°	CABLE				CABLE EXTREMITIES				LENGHT (m)	SUPPLIED BY	REMARKS	REV.
	CABLE SIZE (mm)	TYPE	OUTER SHEATH	SERVICE	FROM	CABLE ENTRY	TO	CABLE ENTRY				
C-50-XV-034/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50006 seawater drain - opened/closed Limit switches	50-XV-034	M20x1.5	50-LP-001	-	19	PSC		2
PD-50-XV-035/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50008 fresh water drain - open/close Command	50-XV-035	M20x1.5	50-LP-001	-	17	PSC		2
C-50-XV-035/50-LP-001	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	H-50008 fresh water drain - opened/closed Limit switches	50-XV-035	M20x1.5	50-LP-001	-	17	PSC		2
C-50-HS-020/50-LP-001	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Container Emergency Push Button	50-HS-020	M20x1.5	50-LP-001	-	10	PSC		2
C-P-50005A/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Soda Dosing Pumps - status	P-50005A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50005A/50-LP-001_2	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Soda Dosing Pumps - start/stop + ctrl	P-50005A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50005B/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Soda Dosing Pumps - status	P-50005B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50005B/50-LP-001_2	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Soda Dosing Pumps - start/stop + ctrl	P-50005B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50006A/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Antiscalant Dosing Pumps - status	P-50006A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50006A/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Antiscalant Dosing Pumps - start/stop	P-50006A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50006B/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Antiscalant Dosing Pumps - status	P-50006B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50006B/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Antiscalant Dosing Pumps - start/stop	P-50006B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50007A/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Container Inlet - status	P-50007A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50007A/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Container Inlet - start/stop	P-50007A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50007B/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Container Inlet - status	P-50007B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50007B/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Container Inlet - start/stop	P-50007B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50008A/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Seawater Intake - status	P-50008A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50008A/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Seawater Intake - start/stop	P-50008A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50008B/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Seawater Intake - status	P-50008B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50008B/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Seawater Intake - start/stop	P-50008B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50010A/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Wastewater Tank - status	P-50010A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50010A/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Wastewater Tank - start/stop	P-50010A	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50010B/50-LP-001_1	2x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Wastewater Tank - status	P-50010B	M20x1.5	50-LP-001	-	11	PSC		1
C-P-50010B/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Biocide Dosing Pumps to Wastewater Tank - start/stop	P-50010B	M20x1.5	50-LP-001	-	11	PSC		1
C-LP-A-50003/50-LP-001_1	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Local Panel Coarse Filter A-50003 - alarm	LP-A-50003	M16x1.5	50-LP-001	-	12	PSC		2
C-LP-A-50003/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Local Panel Coarse Filter A-50003 - command	LP-A-50003	M16x1.5	50-LP-001	-	12	PSC		2
C-LP-S-50001/50-LP-001_1	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Local Panel Sand filter S-50001 - alarm	LP-S-50001	-	50-LP-001	-	11	PSC		1
C-LP-S-50001/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Local Panel Sand filter S-50001 - command	LP-S-50001	-	50-LP-001	-	11	PSC		1
C-LP-S-50004/50-LP-001_1	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Softening Filter - alarm	LP-S-50004	-	50-LP-001	-	15	PSC		1
C-LP-S-50004/50-LP-001_2	1x2x1 Sh	XLPE/LSZH-300/500V	Grey	Softening Filter - command	LP-S-50004	-	50-LP-001	-	15	PSC		1
C-50-LP-001/50-LP-002_net		Ethernet Cat5E		Serial link	50-LP-001	M20x1.5	50-LP-002	-	10	PSC		2
NOTE: CABLE LENGHT TO BE VERIFIED BEFORE CABLE CUTTING												

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CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	ELECTRICAL CABLE LIST	Date: 11/12/2024 Rev. 03

CABLE N°	CABLE				CABLE EXTREMITIES				LENGHT (m)	SUPPLIED BY	REMARKS	REV.
	CABLE SIZE (mm)	TYPE	OUTER SHEATH	SERVICE	FROM	CABLE ENTRY	TO	CABLE ENTRY				
50001-CEL-L1	1x70	XLPE/LSZH-0.6/1kV	Black	Local Control Panel (Electrical Power Section)	JB-500E8	M32x1.5	CP-500E1	-	10	PSC		2
50001-CEL-L2	1x70	XLPE/LSZH-0.6/1kV	Black	Local Control Panel (Electrical Power Section)	JB-500E8	M32x1.5	CP-500E1	-	10	PSC		2
50001-CEL-L3	1x70	XLPE/LSZH-0.6/1kV	Black	Local Control Panel (Electrical Power Section)	JB-500E8	M32x1.5	CP-500E1	-	10	PSC		2
50001-CEL-N	1x70	XLPE/LSZH-0.6/1kV	Black	Local Control Panel (Electrical Power Section)	JB-500E8	M32x1.5	CP-500E1	-	10	PSC		2
50001-CEL-PE	1x70	XLPE/LSZH-0.6/1kV	Black	Local Control Panel (Electrical Power Section)	JB-500E8	M32x1.5	CP-500E1	-	10	PSC		2
50002-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Local Control Panel (Instruments Power Distribution Section)	JB-500F8	M25x1.5	CP-500E1	-	7	PSC		2
50003-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	SW Booster Pumps	CP-500E1	-	P-50003A	M20x1.5	18	PSC		2
50004-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	SW Booster Pumps	CP-500E1	-	P-50003B	M20x1.5	18	PSC		2
50005-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	Backwash Pumps	CP-500E1	-	P-50002A	M25x1.5	19	PSC		2
50006-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	Backwash Pumps	CP-500E1	-	P-50002B	M25x1.5	19	PSC		2
50007-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	HP SWRO Pumps	CP-500E1	-	P-50004A	M25x1.5	16	PSC		2
50008-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	HP SWRO Pumps	CP-500E1	-	P-50004B	M25x1.5	16	PSC		2
50009-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	Fresh Water Pumps	CP-500E1	-	P-50009A	M20x1.5	18	PSC		2
50010-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	Fresh Water Pumps	CP-500E1	-	P-50009B	M20x1.5	18	PSC		2
50011-CEL	4G16	XLPE/LSZH-0.6/1kV	Black	Electric Heater	CP-500E1	-	H-50001	M50x1.5	13	PSC		2
50012-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	Container Heater	CP-500E1	-	HHS-50003A	M25x1.5	10	PSC		2
50013-CEL	4G2.5 Sh	XLPE/LSZH-0.6/1kV	Black	Container Heater	CP-500E1	-	HHS-50003B	M25x1.5	15	PSC		2
50014-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Container Fan	CP-500E1	-	HFA-5001A	-	6	PSC		2
50015-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Container Fan	CP-500E1	-	HFA-5001B	-	11	PSC		2
50032-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Container Fan	CP-500E1		HFA-5001C	-	16	PSC		2
50016-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Lighting circuit	CP-500E1	-	NL-001	-	20	PSC		2
50017-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	UV Sterilizer S-50010	CP-500E1	-	LP-S-50010	-	15	PSC		2
50018-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Local Panel Coarse Filter A-50003	CP-500E1	-	LP-A-50003	-	15	PSC		2
50019-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Local Panel Sand filter S-50001	CP-500E1	-	LP-S-50001	-	11	PSC		2
50020-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Fire & Gas Panel	CP-500E1	-	500-LP-002	M20x1.5	10	PSC		2
50021-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Softening Filter	CP-500E1	-	LP-S-50004	M16x1.5	16	PSC		2
50022-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Soda Dosing Pumps	CP-500E1	-	P-50005A	M20x1.5	13	PSC		2
50023-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Soda Dosing Pumps	CP-500E1	-	P-50005B	M20x1.5	13	PSC		2
50024-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Antiscalant Dosing Pumps	CP-500E1	-	P-50006A	M20x1.5	13	PSC		2
50025-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Antiscalant Dosing Pumps	CP-500E1	-	P-50006B	M20x1.5	13	PSC		2
50026-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Biocide Dosing Pumps to Container Inlet	CP-500E1	-	P-50007A	M20x1.5	13	PSC		2
50027-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Biocide Dosing Pumps to Container Inlet	CP-500E1	-	P-50007B	M20x1.5	13	PSC		2
50028-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Biocide Dosing Pumps to Seawater Intake	CP-500E1	-	P-50008A	M20x1.5	13	PSC		2
50029-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Biocide Dosing Pumps to Seawater Intake	CP-500E1	-	P-50008B	M20x1.5	13	PSC		2
50030-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Biocide Dosing Pumps to Wastewater Tank	CP-500E1	-	P-50010A	M20x1.5	13	PSC		2
50031-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Biocide Dosing Pumps to Wastewater Tank	CP-500E1	-	P-50010B	M20x1.5	13	PSC		2
50032-CEL-LN	3G2.5	micaXLPE/LSZH-0.6/1kV	Black	Fresh water outlet total hardness	CP-500E1	-	50-AT-026	M16x1.5	15	PSC		2

NOTE: CABLE LENGHT TO BE VERIFIED BEFORE CABLE CUTTING

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Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE A-50000
SPARE PARTS LIST FOR COMMISSIONING AND 2 YEARS OPERATION

Document Number: 1724000448-COM-LIS-00034

Document Class: 3V

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	03-03-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
01	15/02/2025	Issue for Information (IFI)	PSC	WR	RM
00	06/12/2024	Issue for Information (IFI)	PSC	WR	RM

PSC DOC. REF: PK2885-G-008

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-COM-LIS-00034_Rev.01_Spare parts list for commissioning and 2 years operation_Cover Uncontrolled once printed shall be considered as "NOT CONTROLLED" copy

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01						
1	Cover	X	X						
2	Table of Contents	X	X						
3	Revision / Change Log / Hold List	X	X						
4	Spare parts tables	X	X						

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Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Information (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list				
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)				Contract: CW-I-WP4-2023-05
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev.: Issued for Information	Rev. Date: 15-Feb-25 / Status: IFI / Class: 2

The equipment consists of the following units/components

1	Tag no.	P-50003A/B	P-50002A/B				
2	Tag description	SW BOOSTER PUMPS	BACKWASH PUMPS				
3	Manufacturer model/type no.	HTT 12000 PP	HTM 15 PP				
4	Manufacturer serial no.						
5	No. of units	2	2				
6	Quantity of parts FITTED / INSTALLED per unit/component						

Supplier: GEMMECOTTI srl

Address: Via Po, 23-25-27
20031 Cesate (MI)
ITALY

PO Number: No. 2885/07/24/1

PO description: CENTRIFUGAL PUMPS

Supplier telephone no: +39 02 96460406

E-mail: marco.rocchegiani@gemmecotti.com

Contact name: Marco Rocchegiani

Contact mobile no:

WEBSITE www.gemmecotti.com

General Information:

						MATERIALS DATA																Commissioning spares	2 Years spares	
								Parts/drawing ref.																
					Item Number	Total number of identical spares installed	Description of recommended spare parts	Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturersame	Quantity ordered	Quantity ordered	Remarks
					7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
2					1	2	O-RING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		EPDM										SP-2885-001	SP-2885-001		2		
2					2	2	O-RING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		EPDM										SP-2885-002	SP-2885-002			2	
2					3	2	FRONT AND REAR DISC	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PP										SP-2885-003	SP-2885-003			2	
2					4	2	SHAFT + RING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		Al2O3										SP-2885-004	SP-2885-004			2	
2					5	2	IMPELLER	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PVDF										SP-2885-005	SP-2885-005			2	
2					6	2	INT. MAGNET	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PP										SP-2885-006	SP-2885-006			2	
2					7	2	REAR CASING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PP										SP-2885-007	SP-2885-007			2	
	2				8	2	O-RING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		EPDM										SP-2885-008	SP-2885-008		2		
	2				9	2	O-RING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		EPDM										SP-2885-009	SP-2885-009			2	
	2				10	2	CASING THRUST BRUSH	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												SP-2885-010	SP-2885-010			2	
	2				11	2	SHAFT + RING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		Al2O3										SP-2885-011	SP-2885-011			2	
	2				12	2	IMPELLER	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PP										SP-2885-012	SP-2885-012			2	
	2				13	2	INT. MAGNET	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PP										SP-2885-013	SP-2885-013			2	
	2				14	2	REAR CASING	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PP										SP-2885-014	SP-2885-014			2	
	2				15	2	IMPELLER THRUST BRUSH	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PTFEC										SP-2885-015	SP-2885-015			2	
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list				
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)			Contract: CW-I-WP4-2023-05	
Project ID: 123A90	Doc. n°: 1724000448-COM-LIS-00034	Rev.: Issued for Information	Rev. Date: 15-Feb-25	Status: IFI	Class: 2

The equipment consists of the following units/components

1 Tag no.: P-5000A/B

2 Tag description: HIGH PRESSURE PUMPS

3 Manufacturer model/type no.: APP2.2

4 Manufacturer serial no.: 18083045

5 No. of units: 2

Supplier: DANFOSS srl

Address: Corso E. Tazzoli, 221
10137 TORINO
ITALY

PO Number: No. 2885/08/24/0

PO description: HIGH PRESSURE PUMPS

Supplier telephone no:

E-mail: stefano.frega@danfoss.com

Contact name: Stefano Frega

Contact mobile no: +39 366 6167946

WEBSITE https://www.danfoss.com/it-it/

General Information:

6 Quantity of parts FITTED / INSTALLED per unit/component

MATERIALS DATA

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.																	
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	0	APP1.5-3.5 SET OF TOOLS EAN Number 5715162668511	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008						0,07						Denmark	SP-2885-016	SP-2885-016		1		
2	2	APP 1.5-2.5 SET OF GASKET EAN Number 5715162668474	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008						0,31						Denmark	SP-2885-017	SP-2885-017		2		
3	2	APP 1.5-2.5 SET OF PISTON EAN Number 5715162668221	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008						0,72						Denmark	SP-2885-018	SP-2885-018			2	
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list					
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)				Contract	CW-I-WP4-2023-05
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev. Issued for Information	Rev. Date 15-Feb-25	Status IFI / Class 2

The equipment consists of the following units/components

1	Tag no.	P-50009A/B	P-50005A/B	P-50006A/B	P-50007A/B	P-50008A/B	P-50010A/B	
2	Tag description	FRESH WATER PUMPS	CAUSTIC SODA DOSING PUMPS	ANTISCALANT DOSING PUMPS	BIOCIDE DOSING PUMPS TO CONTAINER INLET	BIOCIDE DOSING PUMPS TO SEA WATER INTAKE	BIOCIDE DOSING PUMPS TO WASTE WATER TANK	
3	Manufacturer model/type no.	CRN15-12 E-FG)-A-E-HQQE	DDC 6-10 AR-PVC/E/C- F-311211GC3	DDC 6-10 AR-PVC/V/C- F-311211GC3	DDC 6-10 AR-PVC/V/C- F-311211GC3	DDC 6-10 AR-PVC/V/C- F-311211GC3	DDC 6-10 AR-PVC/V/C- F-311211GC3	
4	Manufacturer serial no.	99866825	98173728	98451667	98451667	98451667	98451667	
5	No. of units	2	2	2	2	2	2	

Supplier: GRUNDFOS POMPE ITALIA srl

Address: Via Gran Sasso, 4
20060 Truccazzano (MI)
ITALY

PO Number: No. 2885/12/24/0

PO description: DOSING PUMPS and FRESH WATER PUMPS

Supplier telephone no:

E-mail: ffederico@grundfos.com

Contact name: Fabio Federico

Contact mobile no: +39 3355947391

WEBSITE www.grundfos.com

General Information:

6 Quantity of parts FITTED / INSTALLED per unit/component

MATERIALS DATA

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref. Project Datasheet no.	Parts/drawing ref. Project Detail dwg. no.	Parts/drawing ref. Item ref.	Material	Certificate Type (if applicable)	Certificate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	Kit shaft seal QQEGG KB012S1 25bar	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												DK	SP-2885-019	SP-2885-019			1	
2	2	Kit gasket EPDM CR/I/N 1s/1/3/5	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		EPDM										DK	SP-2885-020	SP-2885-020			1	
3	2	Kit valve/diaph. SD-S-PVC/E/C-1 (diaphragm+valves)	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												FR	SP-2885-021	SP-2885-021			1	
4	2	Kit valve/diaph. SD-S-PVC/V/C-1 (diaphragm+valves)	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												FR	SP-2885-022	SP-2885-022			1	
5	2	kit valve/diaph. SD-S-PVC/V/C-1 (diaphragm+valves)	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												FR	SP-2885-023	SP-2885-023			1	
6	2	kit valve/diaph. SD-S-PVC/V/C-1 (diaphragm+valves)	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												FR	SP-2885-024	SP-2885-024			1	
7	2	kit valve/diaph. SD-S-PVC/V/C-1 (diaphragm+valves)	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008												FR	SP-2885-025	SP-2885-025			1	
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list				
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)				Contract: CW-I-WP4-2023-05
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev.: Issued for Information	Rev. Date: 15-Feb-25 / Status: IFI / Class: 2

The equipment consists of the following units/components

1 Tag no.	S-50010	
2 Tag description	UV sterilizer	
3 Manufacturer model/type no.	1S	
4 Manufacturer serial no.		
5 No. of units	1	

Supplier: NOBEL srl
Address: Via Galilei, 5
20054 Segrate (MI)
ITALY

PO Number: No.2885/11/24/0

PO description: UV sterilizer
Supplier telephone no: +39 02 2827968
E-mail: nobel@nobel.srl

Contact name: Carlo Strino
Contact mobile no:
WEBSITE www.nobel.srl

General Information:

6 Quantity of parts FITTED / INSTALLED per unit/component

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	1	UV lamp 40W	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008													SP-2885-026	SP-2885-026		1	1	
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list				
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)				Contract: CW-I-WP4-2023-05
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev.: Issued for Information	Rev. Date: 15-Feb-25	Status: IFI	Class: 2

The equipment consists of the following units/components

1	Tag no.	A-50003
2	Tag description	SEA WATER COARSE FILTER
3	Manufacturer mode/type no.	MSCR PP 1"1/2-7
4	Manufacturer serial no.	
5	No. of units	1
6	Quantity of parts FITTED / INSTALLED per unit/component	1

Supplier: ELFI srl

Address: Via Scodoncello 41/E
43044 Collecchio (PR)
ITALY

PO Number: No. 2885/28/24/0

PO description: Self cleaning filter

Supplier telephone no: +39 0521 806846

E-mail: omar.colonna@elfifiltration.com

Contact name: Omar Colonna

Contact mobile no:

WEBSITE: www.elfifiltration.com

General Information:

									MATERIALS DATA																Commissioning spares	2 Years spares	
Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certiciate Type (if applicable)	Certiciate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername							Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.																				Quantity ordered	Quantity ordered	
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25						26	27	28
1	1	Filtering cartridge, d.114 L=225 filtration 120 micron	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008		PVC											SP-2885-027	SP-2885-027								1	
2	1	Complete kit of gasket	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008													SP-2885-028	SP-2885-028								1	
3	1	Complete kit of nozzle	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008													SP-2885-029	SP-2885-029								1	
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**					
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**				Contract **CW-I-WP4-2023-05**	
Project ID	**123A90**	Doc. n°	**1724000448-COM-LIS-00034**	Rev. **Issued for Information**	Rev. Date **15-Feb-25**	Status **IFI** / Class **2**

The equipment consists of the following units/components

1 Tag no.: 50-LP-002

2 Tag description: F&G PANEL

3 Manufacturer model/type no.: SIA-5319

4 Manufacturer serial no.:

5 No. of units: 1

6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: S.I.A. srl

Address: Via Aldo Moro, 6
20010 Pogliano Mil.se (MI)
ITALY

PO Number: No. 2885/19/24/0

PO description: Fire & Gas Detection System

Supplier telephone no: +39 02.35969813

E-mail: l.rizzo@sia-italia.com

Contact name: Luca Rizzo

Contact mobile no: +39 335 5208987

WEBSITE www.sia-italia.com

General Information:

			MATERIALS DATA																	Commissioning spares	2 Years spares	
	Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Quantity ordered	Quantity ordered	Remarks
				Project Datasheet no.	Project Detail dwg. no.	Item ref.																
	7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	1		Commissioning Kit composed by Fuses and Resistors															SP-2885-030	SP-2885-030		1		
	2		DIG Card - Six Input Line Digital															SP-2885-031	SP-2885-031			1	
	3		OUT Card - Six Controlled Output															SP-2885-032	SP-2885-032			1	
	4		ANA Card – Two Analog Input Line with individual display															SP-2885-033	SP-2885-033			1	
	5		REL Card – Six Output Relay															SP-2885-034	SP-2885-034			1	
	6		CPU Card – EN 54-2															SP-2885-035	SP-2885-035			1	
	7		PSU Card for Power Supply - EN 54-4															SP-2885-036	SP-2885-036			1	
	8		Modbus TCP/IP card															SP-2885-037	SP-2885-037			1	
	9		Replace Display															SP-2885-038	SP-2885-038			1	
	10		System Card															SP-2885-039	SP-2885-039			1	
	11		Power Supply Unit															SP-2885-040	SP-2885-040			1	
	12		GAS Detector Catalytic for H2															SP-2885-041	SP-2885-041			1	
	13		IS Smoke Detector															SP-2885-042	SP-2885-042			1	
	14		Fire Beacon				Alloy material											SP-2885-043	SP-2885-043			1	
	15		GAS Beacon				Alloy material											SP-2885-044	SP-2885-044			1	
	16		Fire & GAS Sounder				Alloy material											SP-2885-045	SP-2885-045			1	
	17		Manual Alarm Call Point				Alloy material											SP-2885-046	SP-2885-046			1	
	18																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**					
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**				Contract **CW-I-WP4-2023-05**	
Project ID	**123A90**	Doc. n°	**1724000448-COM-LIS-00034**	Rev. **Issued for Information**	Rev. Date **15-Feb-25**	Status **IFI** / Class **2**

The equipment consists of the following units/components

1 Tag no.: 50-LP-001

2 Tag description: PLC PANEL

3 Manufacturer model/type no.:

4 Manufacturer serial no.:

5 No. of units: 1

6 Quantity of parts FITTED / INSTALLED per unit/component: 1

Supplier: PHOENIX CONTACT S.p.A.	PO Number: No. 2885/20/24/0	PO description: PLC panel	Contact name:	
Address: Via Bellini 39/41 20095 Cusano Milanino (MI) ITALY		Supplier telephone no: +39 02 66 05 91	Contact mobile no:	
		E-mail: csc_it@phoenixcontact.com	WEBSITE www.phoenixcontact.it	
General Information:				

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	Relays															SP-2885-047	SP-2885-047			1	
2	1	Relays															SP-2885-048	SP-2885-048			1	
3	50	Relays box															SP-2885-049	SP-2885-049			10	
4																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)** — Contract: **CW-I-WP4-2023-05**
Project ID	**123A90** — Doc. n° **1724000448-COM-LIS-00034** — Rev. **Issued for Information** — Rev. Date **15-Feb-25** — Status **IFI** — Class **2**

The equipment consists of the following units/components

1 Tag no.: 50-LP-001

2 Tag description: PLC PANEL

Supplier: SIEMENS S.p.A.

Address: Via Vipiteno 4, 20128 MILANO, ITALY

PO Number: No. 2885/05/24/0

PO description: PLC panel

Supplier telephone no: +39 02 243 62000

E-mail: portale.rc-it@siemens.com

Contact name: Stefano Raimondo

Contact mobile no:

WEBSITE:

General Information:

3 Manufacturer mode/type no.

4 Manufacturer serial no.

5 No. of units: 1

6 Quantity of parts FITTED / INSTALLED per unit/component: 1

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	SIMATIC ET 200SP, output analogic module, AQ 4XU/I Standard								0,04						DE	SP-2885-050	SP-2885-050		1	1	
2	5	SIMATIC ET 200SP, inlet analogic module, AI 8XI 2-/4-Wire Basic								0,04						DE	SP-2885-051	SP-2885-051		1	1	
3	3	SIMATIC ET 200SP, output digital module, DQ 16x 24V DC/0,5A Standard								0,04						DE	SP-2885-052	SP-2885-052		1	1	
4	6	SIMATIC ET 200SP, inlet digital module, DI 16x 24V DC Standard								0,03						DE	SP-2885-053	SP-2885-053		1	1	
5																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)** — Contract: **CW-I-WP4-2023-05**
Project ID	**123A90** — Doc. n°: **1724000448-COM-LIS-00034** — Rev.: **Issued for Information** — Rev. Date: **15-Feb-25** — Status: **IFI** — Class: **2**

The equipment consists of the following units/components

1 Tag no.: 50-LP-001

2 Tag description: MCC PANEL

3 Manufacturer model/type no.:

4 Manufacturer serial no.:

5 No. of units: 1

6 Quantity of parts FITTED / INSTALLED per unit/component: 1

Supplier: SCHNEIDER ELECTRIC S.p.A.

Address: via Circonvallazione Est,1
24040 Stezzano (BG)
ITALY

PO Number: No. 2885/21/24

PO description: MCC panel

Supplier telephone no:

E-mail: it-ordini@se.com

Contact name:

Contact mobile no:

WEBSITE:

General Information:

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares	2 Years spares	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.															Quantity ordered	Quantity ordered	
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	10	Base potenza 12A															SP-2885-054	SP-2885-054			1	
2	4	Unità standard 3-12A 24V DC															SP-2885-055	SP-2885-055			1	
3	6	Unità standard 0,35-1,4A 24V DC															SP-2885-056	SP-2885-056			1	
4	10	AUX CONTACT MOD 2NO															SP-2885-057	SP-2885-057			2	
5	10	CONTATTO AUX DIF+DISP															SP-2885-058	SP-2885-058			2	
6																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list				
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)				Contract: CW-I-WP4-2023-05
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev.: Issued for Information	Rev. Date: 15-Feb-25 / Status: IFI / Class: 2

The equipment consists of the following units/components

1 Tag no.

2 Tag description: Pressure gauge

3 Manufacturer mode//type no.

4 Manufacturer serial no.

5 No. of units: 1

6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: NUOVA FIMA STORE S.r.l.
Address: via Barro, 56/58
28045 Invorio (NO)
ITALY

PO Number: No. 2885/59/24/0

PO description: Pressure gauge
Supplier telephone no:
E-mail: upigozzi@nuovafimastore.com

Contact name: Ugo Pigozzi
Contact mobile no:
WEBSITE:

General Information:

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1		Pressure gauge, solid front, 0-6 bar, dia DN100 mm, inox 316L, IP67, connection 1/2" gas F/F				inox 316L											SP-2885-059	SP-2885-059			1	
2																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)** — Contract: **CW-I-WP4-2023-05**
Project ID	**123A90** — Doc. n° **1724000448-COM-LIS-00034** — Rev.: **Issued for Information** — Rev. Date: **15-Feb-25** — Status: **IFI** — Class: **2**

The equipment consists of the following units/components

1	Tag no.	50-XV-025, 032, 033	50-XV-021, 022, 023, 031, 034, 035	50-XV-020				
2	Tag description	On-off ball valves	On-off ball valves	On-off ball valves				
3	Manufacturer model/type no.	546 PRO D.20	546 PRO D.32	546 PRO D.50				
4	Manufacturer serial no.							
5	No. of units	3	7	1				
6	Quantity of parts FITTED / INSTALLED per unit/component							

Supplier: I.S.I. S.r.l.
Address: via Donatori di Organi, 3
29010 Castelvetro P.no (PC)
ITALY

PO Number: No. 2885/56/24/0

PO description: On-off ball valves
Supplier telephone no:
E-mail: davide.borgonovo@isi-flex.it

Contact name: Davide Borgonovo
Contact mobile no:
WEBSITE:

General Information:

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7	8		9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	3	Set of gasket															SP-2885-060	SP-2885-060			1	
2	7	Set of gasket															SP-2885-061	SP-2885-061			1	
3	1	Set of gasket															SP-2885-062	SP-2885-062			1	
4																						
5																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**				
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**				Contract **CW-I-WP4-2023-05**
Project ID	**123A90**	Doc. n°	**1724000448-COM-LIS-00034**	Rev. **Issued for Information**	Rev. Date **15-Feb-25**	Status **IFI**	Class **2**

The equipment consists of the following units/components

1 Tag no.

2 Tag description

3 Manufacturer model/type no.

4 Manufacturer serial no.

5 No. of units

6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: MEF S.r.l.

PO Number: No. 2885/82/24/0 and 2885/84/24/0

PO description:

Contact name: Giuseppe Mandaglio

Address:

Supplier telephone no: 0362-1739900

Contact mobile no: 345-6176791

E-mail: giuseppe.mandaglio@mefsrl.it

WEBSITE:

General Information:

			MATERIALS DATA																			Commissioning spares	2 Years spares	
	Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Quantity ordered	Quantity ordered	Remarks
				Project Datasheet no.	Project Detail dwg. no.	Item ref.																		
	7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
	1		Cable gland M50*1.5, IP68															SP-2885-063	SP-2885-063	Cembre		1		
	2		Cable gland M32*1.5, IP68															SP-2885-064	SP-2885-064	Cembre		1		
	3		Cable gland M25*1.5, IP68															SP-2885-065	SP-2885-065	Cembre		1		
	4		Cable gland M20*1.5, IP68															SP-2885-066	SP-2885-066	Cembre		2		
	5		Cable gland M16*1.5, IP68															SP-2885-067	SP-2885-067	Cembre		2		
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**					
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**				Contract **CW-I-WP4-2023-05**	
Project ID	**123A90**	Doc. n°	**1724000448-COM-LIS-00034**	Rev. **Issued for Information**	Rev. Date **15-Feb-25**	Status **IFI** / Class **2**

The equipment consists of the following units/components

1 Tag no. | 2 Tag description | 3 Manufacturer model/type no. | 4 Manufacturer serial no. | 5 No. of units

6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: Plastic-Glass srl

Address: Via Miles, 8
20873 Cavenago B.za (MB)
ITALY

PO Number: No. 2885/03/24/0

PO description: Erection of Water Treatment Plant in container

Supplier telephone no: +39 02 95 06 445

E-mail: paolo.toselli@plastic-glass.com

Contact name: Paolo Toselli

Contact mobile no:

WEBSITE: www.plastic-glass.com

General Information:

								MATERIALS DATA														**Commissioning spares**	**2 Years spares**	
									Parts/drawing ref.															
Item Number	Total number of identical spares installed	Description of recommended spare parts	Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Quantity ordered	Quantity ordered	Remarks
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1		Ball valve PN16 1/2"		1724000448-PR-PID-00013		PVC-U											SP-2885-068	SP-2885-068			1	
1		Ball valve PN16 1"		1724000448-PR-PID-00013		PVC-U											SP-2885-069	SP-2885-069			1	
2		Ball valve PN16 1 1/4"		1724000448-PR-PID-00013		PVC-U											SP-2885-070	SP-2885-070			1	
3		Ball valve PN16 1 1/2"		1724000448-PR-PID-00013		PVC-U											SP-2885-071	SP-2885-071			1	
4		Check valve 1/2"		1724000448-PR-PID-00013		PVC-U											SP-2885-072	SP-2885-072			1	
5		Check valve 1"		1724000448-PR-PID-00013		PVC-U											SP-2885-073	SP-2885-073			1	
6		Diaphragm valve PN10 1"		1724000448-PR-PID-00013		PVC-U											SP-2885-074	SP-2885-074			1	
7		Sediment Strainer PN16 1/2"		1724000448-PR-PID-00013		PVC-U											SP-2885-075	SP-2885-075			1	
8		Ball valve PN10 1/2"		1724000448-PR-PID-00013		PP-H											SP-2885-076	SP-2885-076			1	
9		Check valve 1/2"		1724000448-PR-PID-00013		PP-H											SP-2885-077	SP-2885-077			1	
10		"Y" Strainer PN10 1/2"		1724000448-PR-PID-00013		PP-H											SP-2885-078	SP-2885-078			1	
11		Air release valve 1/2"		1724000448-PR-PID-00013		PVC-U											SP-2885-079	SP-2885-079			1	
12		Spring check valve 1/2"		1724000448-PR-PID-00013		PP-H											SP-2885-080	SP-2885-080			1	
13		Ball check valve 1/2"		1724000448-PR-PID-00013		PVC-U											SP-2885-081	SP-2885-081			1	
14		Ball check valve 1/2"		1724000448-PR-PID-00013		PP-H											SP-2885-082	SP-2885-082			1	
15		Flat gasket thk. 3 mm 1/2"		1724000448-PR-PID-00013		EPDM											SP-2885-083	SP-2885-083			20	
16		Flat gasket thk. 3 mm 1"		1724000448-PR-PID-00013		EPDM											SP-2885-084	SP-2885-084			10	
17		Flat gasket thk. 3 mm 1 1/2"		1724000448-PR-PID-00013		EPDM											SP-2885-085	SP-2885-085			6	
18		Flat gasket thk. 3 mm 2"		1724000448-PR-PID-00013		EPDM											SP-2885-086	SP-2885-086			6	
19		Screw M16x70 with 1 nut and 2 washer		1724000448-PR-PID-00013		A4											SP-2885-087	SP-2885-087			20	
20		Screw M12x60 with 1 nut and 2 washer		1724000448-PR-PID-00013		A4											SP-2885-088	SP-2885-088			40	
21		Screw M12x70 with 1 nut and 2 washer		1724000448-PR-PID-00013		A4											SP-2885-089	SP-2885-089			60	
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**					
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**				Contract **CW-I-WP4-2023-05**	
Project ID	**123A90**	Doc. n°	**1724000448-COM-LIS-00034**	Rev. **Issued for Information**	Rev. Date **15-Feb-25**	Status **IFI** / Class **2**

The equipment consists of the following units/components

1 Tag no. | 2 Tag description | 3 Manufacturer model/type no. | 4 Manufacturer serial no. | 5 No. of units | 6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: Plastic-Glass srl

Address: Via Miles, 8
20873 Cavenago B.za (MB)
ITALY

PO Number: No. 2885/03/24/0

PO description: Erection of Water Treatment Plant in container

Supplier telephone no: +39 02 95 06 445

E-mail: paolo.toselli@plastic-glass.com

Contact name: Paolo Toselli

Contact mobile no:

WEBSITE: www.plastic-glass.com

General Information:

		MATERIALS DATA																		Commissioning spares	2 Years spares	
Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Quantity ordered	Quantity ordered	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.																	
		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1		Set of gasket		1724000448-PR-PID-00013		EPDM											SP-2885-090	SP-2885-090			2 set	
1		Set of bolt		1724000448-PR-PID-00013		8.8											SP-2885-091	SP-2885-091			2 set	
2																						
3																						
4																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list					
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)				Contract: CW-I-WP4-2023-05	
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev.: Issued for Information	Rev. Date: 15-Feb-25	Status: IFI / Class: 2

The equipment consists of the following units/components

1 Tag no.

2 Tag description

3 Manufacturer model/type no. — LG SW 4040 R

4 Manufacturer serial no.

5 No. of units

6 Quantity of parts FITTED / INSTALLED per unit/component

Supplier: SG Project Srl	PO Number: No. 2885/06/24/0	PO description: SWRO membranes	Contact name: Nicolò Di Lascio		
Address: Strada Folciona, 5/bis 27058 Voghera (PV) ITALY		Supplier telephone no:	Contact mobile no: 0039 327 8113714		
		E-mail: nicolo.dilascio@sgprojects.it	WEBSITE: https://sgprojects.it		
General Information:					

		MATERIALS DATA																	Commissioning spares	2 Years spares	
	Item Number / Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturer name	Quantity ordered	Quantity ordered	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.																
		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	12	LG SW 4040 R, diameter 4", lenght 40"				Polyamide thin-film composite											SP-2885-092	SP-2885-092		2	36	
1																						
2																						
3																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	**Commissioning and 2 years spare parts list**					
The document relates to	**HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)**				Contract **CW-I-WP4-2023-05**	
Project ID	**123A90**	Doc. n°	**1724000448-COM-LIS-00034**	Rev. **Issued for Information**	Rev. Date **15-Feb-25**	Status **IFI** / Class **2**

The equipment consists of the following units/components

1 Tag no.

2 Tag description

Supplier: Everblue srl	PO Number: No. 2885/40/24/0 No. 2885/71/24/0	PO description: Cartridge filters and Chemicals	Contact name: Gianpaolo Spagnoli
Address: Via Alberto Zanrè, 16 43051 Loc. Gotra, Albareto (PR) ITALY		Supplier telephone no: +39 05251920100 int.15	Contact mobile no:
		E-mail: spagnoli@everblue.it	WEBSITE: http://www.everblue.it
General Information:			

3 Manufacturer model/type no.

4 Manufacturer serial no.

5 No. of units

6 Quantity of parts FITTED / INSTALLED per unit/component

Item Number	Total number of identical spares installed	MATERIALS DATA: Description of recommended spare parts	Parts/drawing ref.: Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certicate Type (if applicable)	Certicate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Commissioning spares: Quantity ordered	2 Years spares: Quantity ordered	Remarks
7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	2	Cartridge 20 micron				PP spiral wound											SP-2885-093	SP-2885-093	Everblue			CONSUMABLES: quantity ordered n.6
2	2	Cartridge 5 micron				PP spiral wound											SP-2885-094	SP-2885-094	Everblue			CONSUMABLES: quantity ordered n.6
3																						
4		Antiscalant Everblue 600															SP-2885-095	SP-2885-095	Everblue			CONSUMABLES: quantity ordered 20 kg for 6 months
5		Biocide EB Plus EBBPL															SP-2885-096	SP-2885-096	Everblue			CONSUMABLES: quantity ordered 60 kg for 6 months
6		Biocide EB Plus EBBPL															SP-2885-097	SP-2885-097	Everblue			CONSUMABLES: quantity ordered 10 kg for 6 months
7																						
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ROSETTI MARINO

SPARE PARTS LIST

CROSSWIND

Document Title	Commissioning and 2 years spare parts list						
The document relates to	HOLLANDSE KUST NOORD WIND PARK Project - Base Load Power Hub (BLPH)					Contract CW-I-WP4-2023-05	
Project ID	123A90	Doc. n°	1724000448-COM-LIS-00034	Rev. Issued for Information	Rev. Date 15-Feb-25	Status IFI	Class 2

The equipment consists of the following units/components

1	Tag no.
2	Tag description
3	Manufacturer model/type no.
4	Manufacturer serial no.
5	No. of units
6	Quantity of parts FITTED / INSTALLED per unit/component

Supplier: Merk Life Science Srl	PO Number: No. 2885/88/24/0	PO description: Caustic soda	Contact name:
Address: Via Monte Rosa, 93 20149 Milano ITALY		Supplier telephone no: 0039 02 33417310	Contact mobile no:
		E-mail: itcustomerrelations@merkgroup.com	WEBSITE:

General Information:

Item Number	Total number of identical spares installed	Description of recommended spare parts	Parts/drawing ref.			MATERIALS DATA														Commissioning spares	2 Years spares	Remarks
			Project Datasheet no.	Project Detail dwg. no.	Item ref.	Material	Certiciate Type (if applicable)	Certiciate Reference (if applicable)	Shelf life (years)	Weight (net)	Weight (gross)	Volume	HS Code	ECCN Code	% US Content	Country of origin	Supplier part no.	Manufacturer part no.	Manufacturername	Quantity ordered	Quantity ordered	
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1		Sodium hydroxide solution 6 mol/l															SP-2885-098	SP-2885-098	Merk			CONSUMABLES: quantity ordered 1 l for 6 months
2		Sodium hydroxide solution 6 mol/l															SP-2885-099	SP-2885-099	Merk			CONSUMABLES: quantity ordered 2,5 l for 6 months
3																						
4																						
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ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	07-11-2024

Base Load Power Hub (BLPH)

PACKAGE WEIGHT DATA SHEET

Document Number: 1724000448-MAC-DS-00016

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
01	24/10/2024	Issue for Information (IFI)	UR	WR	RM
00	27/06/2024	Issue for Information (IFI)	UR	WR	RM

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-MAC-DS-00016_Rev.1_Package weight data sheet. This document is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01						
1	Cover	X	X						
2	Table of Contents	X	X						
3	Revision / Change Log	X	X						
4	Data sheet	X	X						

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-MAC-DS-00016_Rev.1_Package weight data sheet Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Information (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

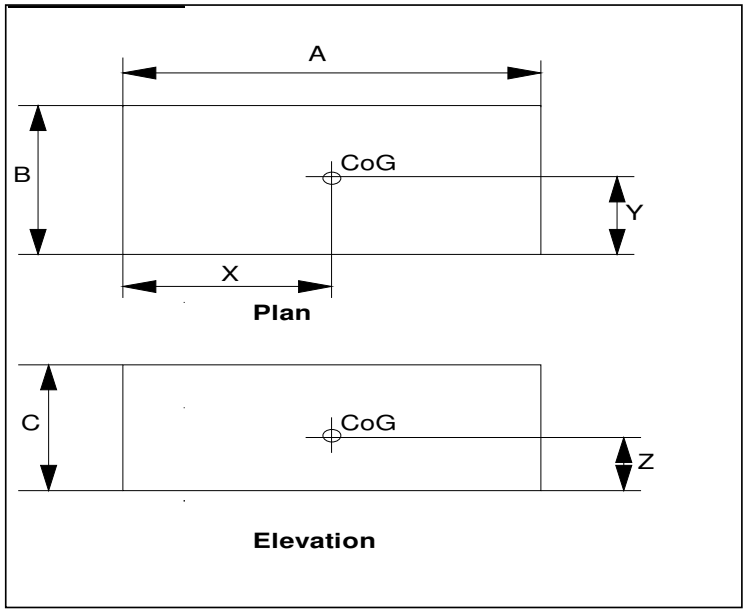
This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-MAC-DS-00016_Rev.1_Package weight data sheet. It data transmission is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

CROSSWIND	HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	ROSETTI MARINO
Document Title:	PACKAGE WEIGHT DATA SHEET	Sh. 4 of 4 Date 24/10/2024 Rev. 01

WEIGHT DATA (kg)

		Areas for input by Supplier	
Dry Weight	(I)	10500	**kg**
Content	(II)	Note (1)	**kg**
Operating Weight	(I+II)	15675	**kg**
Auxiliaries' weight, included in I (specify under Notes)		-	**kg**
Test weight, i.e. filled with water		15675	**kg**
Transport weight		10500	**kg**

CENTRE OF GRAVITY (CoG) DATA FOR INSTALLED DRY CONDITION



Overall dimensions		
A =	12192	**mm**
B =	2438	**mm**
C =	2896	**mm**

CoG location (mm)		
X =	7076	**mm**
Y =	1034	**mm**
Z =	1293	**mm**

NOTES

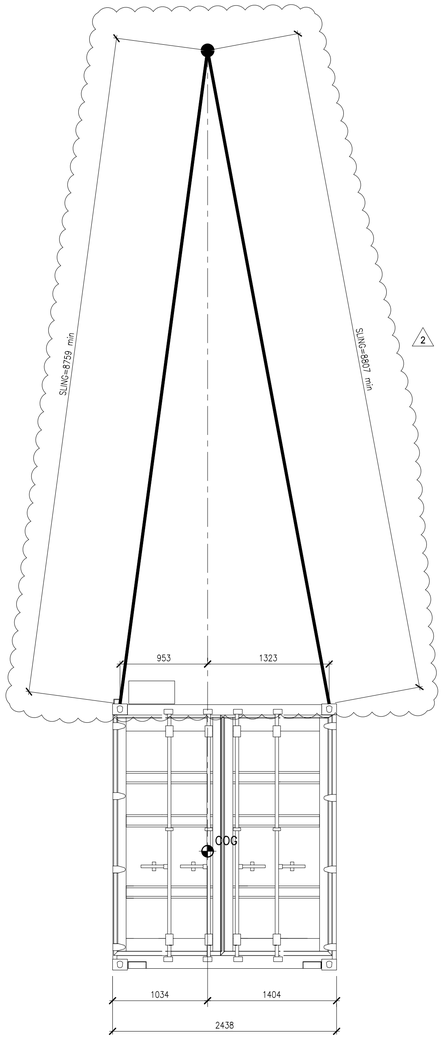
(1) Not applicable as the dry weight include the container and equipment
(2) CoG indication in lifting operation
(3) Please refer to doc. nr. 1724000448-MAC-DA-00005 for dimensions details
(4) Please refer to doc. nr. 1724000448-MAC-DD-00033 for lifting details

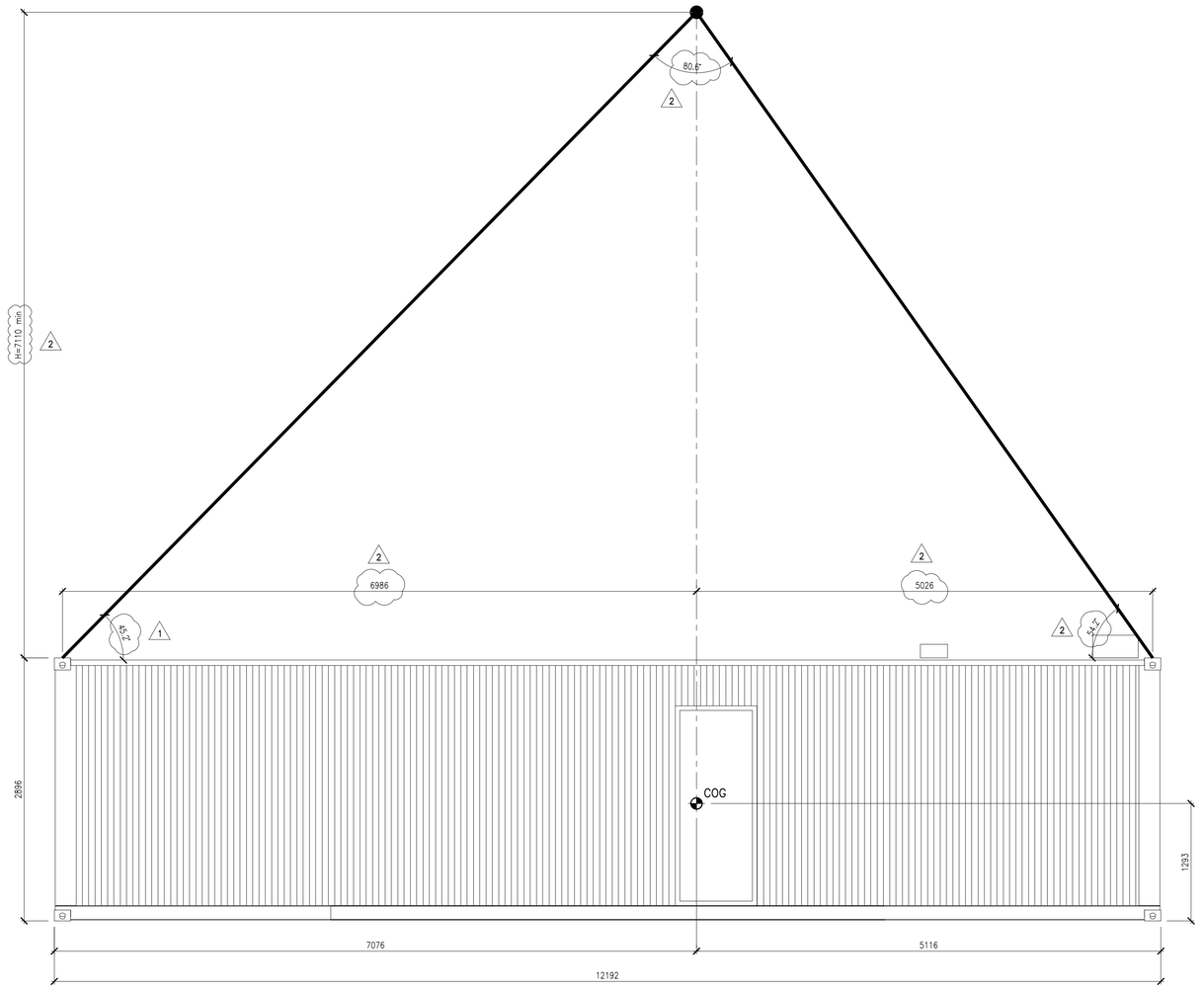
WEIGHT AND CoG STATUS (TICK OFF AS APPROPRIATE)

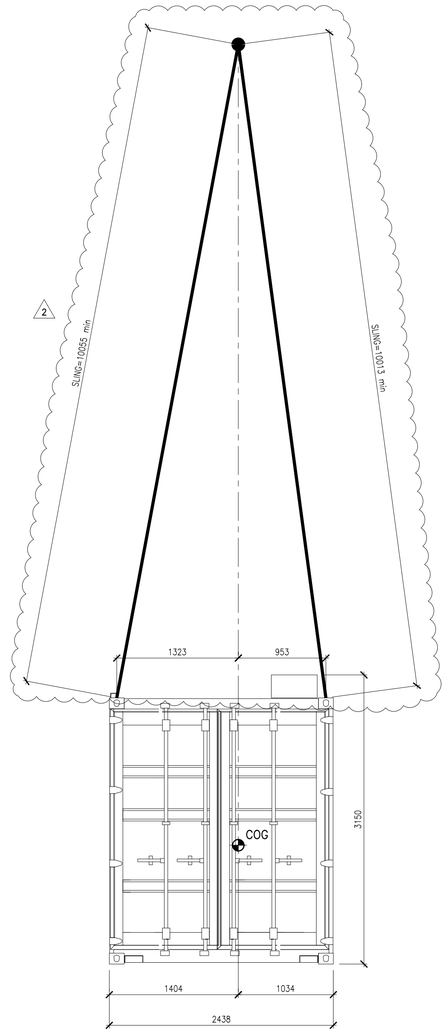
■ Estimated	☐ Calculated
■ Catalogue data	☐ Weighed

DRAWING NO. 1724000448-MAC-DD-00033

REV. 02







ROSETTI MARINO	
1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	26-03-2025

CONTAINER TOTAL WEIGHT	
DESCRIPTION	
LIFTING CONDITION	10500 kg
MAXIMUM OPERATING GROSS MASS	32500 kg

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED.

PSC DOC. REF: PK2885-C-002

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	04-MAR-25	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION (AFC)
01	25-NOV-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION (AFC)
00	24-OCT-24	PSC	UR	RM	ISSUED FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : WATER TREATMENT PACKAGE
LIFTING DRAWING

CONTRACT NO./TITLE			SCALE 1:33 1/3
DRAWN PSC	CHECKED UR	APPROVED RM	DATE 04/03/25
A1	DRAWING NO. 1724000448-MAC-DD-00033	SHEET 001	REV. 02

File Name : 1724000448-MAC-DD-00033 rev02

Base Load Power Hub (BLPH)

VENDOR ASSET AND TAG REGISTER-WATER TREATMENT PACKAGE A-50000

Document Number: 1724000448-MAC-LIS-00038

Document Class: 2

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	12-05-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
02	03/03/2025	Accepted for Construction (AFC)	PSC	WR	RM
01	11/02/2025	Issue for Review (IFR)	PSC	WR	RM
00	16/12/2024	Issue for Review (IFR)	PSC	WR	RM

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-MAC-LIS-00038_Rev.02_VENDOR ASSET AND TAG REGISTER-WATER TREATMENT PACKAGE A-50000 Any printed copy shall be considered as "NOT CONTROLLED" copy

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SH.	DESCRIPTION	REVISIONS							
		00	01	02					
1	Cover	X	X	X					
2	Table of Contents	X	X	X					
3	Revision / Change Log	X	X	X					
4	VENDOR ASSET AND TAG REGISTER	X	X	X					

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
02	ACCEPTED FOR CONSTRUCTION (AFC)

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No.	Description
1.	
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File: 1724000448-MAC-LIS-00038_Rev.02_VENDOR ASSET AND TAG REGISTER-WATER TREATMENT PACKAGE A-50000

Tag Number	Tag Description	Physical Class Name	Location	System/Subsystem Code	Purchase Order Number	Vendor Company Name	Manufacturer Company Name	Model Number	Equipment Manufacturer Serial Number	Model Part No	Hazardous Area Equip Relevant	Hazardous Area Certificate Standard	Hazardous Area Certifying Authority	Hazardous Area Certificate Number	Atex Classification	Explosion Protection Examination Certificate Document Number	Layout Drawing	Datasheet	Assembly/Dimensional Drawing	General Arrangement	Operating & Maintenance Manual	Wiring Diagram	Spare Parts List	Lubricant Document Reference	Criticality	Remarks
A-50003	SEA WATER COARSE FILTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	ELFI S.r.l.	MSCR PP 112-7	24147083B	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00006	1724000448-MAC-DA-00006	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
H-50001	ELECTRIC HEATER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	MASTERWATT	HEIZUNG AUF FLANSCH F2500	00031532	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
S-50001	SAND FILTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NOBEL S.r.l.	FCV 07/CT	61465-2024	A1996-240319 (PENTAIR)	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00007	1724000448-MAC-DA-00007	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50002A	BACKWASH PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GemmeCotti	HTM 15 PP	855/1	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
PM-50002A	MOTOR BACKWASH PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SMEM	T3A80B-2	2312091 - 03003	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50002B	BACKWASH PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GemmeCotti	HTM 15 PP	855/2	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
PM-50002B	MOTOR BACKWASH PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SMEM	T3A80B-2	2312091 - 03079	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
T-50006	FILTERED WATER TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	CMP S.p.A.	RV 105	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
HHS-50003A	CONTAINER ELECTRICAL HEATER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	AC GRAF	K97007013	370-24	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
HHS-50003B	CONTAINER ELECTRICAL HEATER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	AC GRAF	K97007013	370-24	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
HFA-50001A	CONTAINER AIR FAN	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	STEGO	FPO 018	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
HFA-50001B	CONTAINER AIR FAN	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	STEGO	FPO 018	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
HFA-50001C	CONTAINER AIR FAN	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	STEGO	FPO 018	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
P-50003A	SEA WATER BOOSTER PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GemmeCotti	HTT 12000 PP	854/1	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
PM-50003A	MOTOR SEAWATER BOOSTER PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SMEM	T3A112M-2	2310069-08016	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50003B	SEA WATER BOOSTER PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GemmeCotti	HTT 12000 PP	854/2	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
PM-50003B	MOTOR SEAWATER BOOSTER PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SMEM	T3A112M-2	2310069-08034	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
S-50002A	SEA WATER CARTRIDGE FILTER (20 MICRON)	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	EVERBLUE	FILTERMAX FMX-01	PP95MX5L1320MXS	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
S-50002B	SEA WATER CARTRIDGE FILTER (5 MICRON)	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	EVERBLUE	FILTERMAX FMX-01	PP95MX5L1305MXS	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
S-50003A	SEA WATER CARTRIDGE FILTER (20 MICRON)	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	EVERBLUE	FILTERMAX FMX-01	PP95MX5L1320MXS	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
S-50003B	SEA WATER CARTRIDGE FILTER (5 MICRON)	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	EVERBLUE	FILTERMAX FMX-01	PP95MX5L1305MXS	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-LP-001	MCC &PLC PANEL	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	PSC S.p.A. Engineering & Contracting	-	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-DG-00014	1724000448-IN-DG-00014	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-LP-002	F&G PANEL	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA	-	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DG-00036	1724000448-MAC-DG-00036	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-HS-020	EMERGENCY PUSH BUTTON	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	STAHL	8040	1180X-10L07SA05	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-DG-00014	1724000448-IN-DG-00014	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
P-50004A	HIGH PRESSURE PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	DANFOSS	APP 2.2	93091602-284	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
PM-50004A	MOTOR HIGH PRESSURE PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	HOYER	HMA3 132S2-2	DK1157280151	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50004B	HIGH PRESSURE PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	DANFOSS	APP 2.2	93150102-294	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
PM-50004B	MOTOR HIGH PRESSURE PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	HOYER	HMA3 132S2-2	DK1157280188	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
A-50007A	SEA WATER REVERSE OSMOSIS UNIT	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	Phoenix Vessel Technology Ltd	4" x 1000 psi x 6 elements (40")	4.AAXWW.1	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
A-50007B	SEA WATER REVERSE OSMOSIS UNIT	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	Phoenix Vessel Technology Ltd	4" x 1000 psi x 6 elements (40")	4.AAXWX.1	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
T-50008	FRESH WATER TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	CMP S.p.A.	RV 90	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50009A	FRESH WATER PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	CRN1S-12 E-FGJ-A-E-HQQE	99866825210000002	99866825	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00009	1724000448-MAC-DA-00009	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
PM-50009A	MOTOR FRESH WATER TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	MG71A	85805102100545 76	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00009	1724000448-MAC-DA-00009	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50009B	FRESH WATER PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	CRN1S-12 E-FGJ-A-E-HQQE	99866825210000001	99866825	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00009	1724000448-MAC-DA-00009	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
PM-50009B	MOTOR FRESH WATER TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	MG71A	85805102100545 64	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00009	1724000448-MAC-DA-00009	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
S-50004	SOFTENING FILTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NOBEL S.r.l.	AC 90/SV +DM	61466	A2434-230119 (PENTAIR)	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
S-50010	UV-STERILIZER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NOBEL S.r.l.	PURO 1S	24786	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00011	1724000448-MAC-DA-00011	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
T-50002	CAUSTIC SODA DOSING TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	ASTRO S.r.l	DS 05	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
T-50003	ANTISCALANT DOSING TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	ASTRO S.r.l	DS 05	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
T-50004	NON OXIDANT BIOCIDE DOSING TANK	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	ASTRO S.r.l	DS 1	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50005A	CAUSTIC SODA DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6 -10 AR-PVC/VI/C-F-31U2U2F	98173728210000012	98173728	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
P-50005B	CAUSTIC SODA DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6 -10 AR-PVC/VI/C-F-31U2U2F	98173728210000011	98173728	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
P-50006A	ANTISCALANT DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C-F-31U2U2F	98451667100000 70	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
P-50006B	ANTISCALANT DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C-F-31U2U2F	98451667100000 71	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
P-50007A	NON OXIDANT BIOCIDE DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C-F-31U2U2FG	98451667100000 69	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50007B	NON OXIDANT BIOCIDE DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C-F-31U2U2FG	98451667100000 68	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50008A	NON OXIDANT BIOCIDE DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C-F-31U2U2FG	98451667100000 67	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50008B	NON OXIDANT BIOCIDE DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C-F-31U2U2FG	98451667100000 66	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	

Tag Number	Tag Description	Physical Class Name	Location	System/Subsystem Code	Purchase Order Number	Vendor Company Name	Manufacturer Company Name	Model Number	Equipment Manufacturer Serial Number	Model Part No	Hazardous Area Equip Relevant	Hazardous Area Certificate Standard	Hazardous Area Certifying Authority	Hazardous Area Certificate Number	Atex Classification	Explosion Protection Examination Certificate Document Number	Layout Drawing	Datasheet	Assembly/Dimensional Drawing	General Arrangement	Operating & Maintenance Manual	Wiring Diagram	Spare Parts List	Lubricant Document Reference	Criticality	Remarks
P-50010A	NON OXIDANT BIOCIDE DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C/F-31U2U2FG	98451667100000065	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
P-50010B	NON OXIDANT BIOCIDE DOSING PUMP	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GRUNDFOS	DDC 6-10 AR-PVC/E/C/F-31U2U2FG	98451667100000072	98451667	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-MAC-DA-00008	1724000448-MAC-DA-00008	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-XV-020	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	1724000448-MAC-DA-00005	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PT-020	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62405030008	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PI-048	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58837	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-033	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-TE-020	PT100	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	LA TERMOTECNICA	HR AB21030005	-	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-TT-021	TEMPERATURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2350+9900	62404261633	159001745	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-TT-022	TEMPERATURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2350+9900	62404260427	159001745	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PI-022	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58834	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-FT-020	MAGNETIC FLOW TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8045	31992	00449670	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-050	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62405030034	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-051	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62406130842	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-LT-020	LEVEL TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	VEGA	VEGAPULS 31	72597236	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-XV-034	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-TT-023	TEMPERATURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	Endress+Hauser	TST434	W9004C14538	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-AT-023	ANALYZER TRANSMITTER - CONDUCTIVITY	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8228	2581	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-XV-021	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-022	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-023	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-024	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PT-025	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62402030024	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-FT-022	MAGNETIC FLOW TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8045	31994	00449670	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-026	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62404260316	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-027	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62405030009	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-FT-023	MAGNETIC FLOW TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8045	31993	00449670	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-028	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62405030020	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PSV-034	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-14BL57-128	24-07148	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PSV-037	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-14BL57-128	24-07149	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PSV-035	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-10AL0C-134	24-07150	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PSV-038	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-10AL0C-134	24-07151	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PT-030	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	WIKA	UPT-21	1A03D6R821Y	57507884	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-032	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	WIKA	UPT-21	1A03D6R942	57507884	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PI-031	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS40	D-58832	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PI-033	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS40	D-58833	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-027	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST	Z5732-00-001-KC (AOX-005)	2024-10-00029	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-030	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST	Z5732-00-001-KC (AOX-005)	2024-10-00028	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PSV-036	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-10AL2E-128	24-07152	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PSV-039	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-10AL2E-128	24-07153	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT-024	ANALYZER TRANSMITTER - CONDUCTIVITY	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8222	4600	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-FT-024	MAGNETIC FLOW TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8045	31991	00449670	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-XV-026	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-025	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-LT-021	LEVEL TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	VEGA	VEGAPULS 31	72597234	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-XV-035	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PSV-053	PRESSURE RELIEF VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	COI TECHNOLOGY	GLVC-10AL2E-128	24-07154	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PT-047	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62405030030	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-AT-026	ANALYZER TRANSMITTER - TOTAL HARDNESS	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	APURA	DUROMAT IQ	241162008	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	

Tag Number	Tag Description	Physical Class Name	Location	System/Subsystem Code	Purchase Order Number	Vendor Company Name	Manufacturer Company Name	Model Number	Equipment Manufacturer Serial Number	Model Part No	Hazardous Area Equip Relevant	Hazardous Area Certificate Standard	Hazardous Area Certifying Authority	Hazardous Area Certificate Number	Atex Classification	Explosion Protection Examination Certificate Document Number	Layout Drawing	Datasheet	Assembly/Dimensional Drawing	General Arrangement	Operating & Maintenance Manual	Wiring Diagram	Spare Parts List	Lubricant Document Reference	Criticality	Remarks
50-TT-024	TEMPERATURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2350+9900	62404260415	159001745	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PT-041	PRESSURE TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	2450+9900	62405030021	159001696	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-FT-026	MAGNETIC FLOW TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8045	31995	00449670	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-AT-027	ANALYZER TRANSMITTER - PH	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	BURKERT	8202+8203	5714	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-XV-031	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-XV-032	AUTOMATIC VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	546 PRO	-	198153201	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-LT-022	LEVEL TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	VEGA	VEGAPULS 31	72597246	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PI-042	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58835	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-LT-023	LEVEL TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	VEGA	VEGAPULS 31	72597223	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PI-043	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58836	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-LT-024	LEVEL TRANSMITTER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	VEGA	VEGAPULS 31	72597219	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	1724000448-EL-DG-00015	1724000448-COM-LIS-00034	-	-	
50-PI-044	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58838	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PI-045	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58839	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-PI-046	PRESSURE GAUGE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	NUOVA FIMA	MGS20	D-58840	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	1724000448-IN-LIS-00021	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT-021A	INTRINSICALLY SAFE SMOKE DETECTOR	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (HOCHIKI)	SOC-E-IS + YBN-R/4(S)	4014000100	-	N/A	II 1 G Ex-ia IIC T5 Ga	-	Baseefa19ATEX0143X EC	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT-021B	INTRINSICALLY SAFE SMOKE DETECTOR	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (HOCHIKI)	SOC-E-IS + YBN-R/4(S)	4014000097	-	N/A	II 1 G Ex-ia IIC T5 Ga	-	Baseefa19ATEX0143X EC	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT-021C	INTRINSICALLY SAFE SMOKE DETECTOR	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (HOCHIKI)	SOC-E-IS + YBN-R/4(S)	4041000098	-	N/A	II 1 G Ex-ia IIC T5 Ga	-	Baseefa19ATEX0143X EC	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT-020A	HYDROGEN GAS DETECTOR	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (SENSITRON)	SMART3GC2 S2097H2	D89251	-	N/A	II 2 G Ex db IIC T5 Gb	-	CESI01ATEX013U	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT-020B	HYDROGEN GAS DETECTOR	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (SENSITRON)	SMART3GC2 S2097H2	D89257	-	N/A	II 2 G Ex db IIC T5 Gb	-	CESI01ATEX013U	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-AT020C	HYDROGEN GAS DETECTOR	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (SENSITRON)	SMART3GC2 S2097H2	D89252	-	N/A	II 2 G Ex db IIC T5 Gb	-	CESI01ATEX013U	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
50-HS-001	MANUAL ALARM CALL POINT	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (E2S)	BExCP3CBGSSNAP2A1RN24E4K7 RS820R	1CP3CBG000753	-	N/A	II 2 GD Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75oC Db Ta = (-40°C to +65°C)	-	Sira 09ATEX3286X	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
950-JE-05104	COMBINATION UNIT (SOUNDER/BEACONS)	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (E2S)	D1xC3J21A1RS1FDC024GN1AWR	01DC3200482	-	N/A	II 2G Ex db IIC T3/T4/T5 Gb Ta -55°C to +75°C (AC: +65°C) II 2D Ex tb IIIC T169°C Db Ta -55°C to +75°C (AC: T141°C +60°C)	-	DEMKO 19 ATEX 2141X DEMKO 19 ATEX 2009X	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
950-MFA-05201	MANUAL FIRE ALARM	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	SIA (E2S)	STExCP8PTSPLAS2A1RN	1CP8PTS001178	-	N/A	II 2G Ex db IIC T6 Gb Ta -55°C to +70°C	-	DEMKO 15 ATEX 1589X	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
950-XL-05201	AMBER LIGHT	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	E2S	D1xC3J21A1RS1FDC024GN1AWR (combination unit)	01DC3200482	-	N/A	II 2G Ex db IIC T3/T4/T5 Gb Ta -55°C to +75°C (AC: +65°C) II 2D Ex tb IIIC T169°C Db Ta -55°C to +75°C (AC: T141°C +60°C)	-	DEMKO 19 ATEX 2141X DEMKO 19 ATEX 2009X	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
950-XL-05202	RED LIGHT	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	E2S	D1xC3J21A1RS1FDC024GN1AWR (combination unit)	01DC3200482	-	N/A	II 2G Ex db IIC T3/T4/T5 Gb Ta -55°C to +75°C (AC: +65°C) II 2D Ex tb IIIC T169°C Db Ta -55°C to +75°C (AC: T141°C +60°C)	-	DEMKO 19 ATEX 2141X DEMKO 19 ATEX 2009X	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
950-XZ-05201	SOUNDER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	E2S	D1xC3J21A1RS1FDC024GN1AWR (combination unit)	01DC3200482	-	N/A	II 2G Ex db IIC T3/T4/T5 Gb Ta -55°C to +75°C (AC: +65°C) II 2D Ex tb IIIC T169°C Db Ta -55°C to +75°C (AC: T141°C +60°C)	-	DEMKO 19 ATEX 2141X DEMKO 19 ATEX 2009X	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
A-50000	CONTAINER TAG	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	WALDEM CONTAINER SHELTER	1AAA-RJY49HCDDG	RJY23CO1220	-	N/A	-	-	-	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
JB-500E8	JUNCTION BOX	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	STAHL	8146/1083	242115998040001	-	N/A	II 2 G Ex eb IIC T6 Gb II 2 D Ex tb IIIC T80°C Db	-	PTB 01 ATEX 1016	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
JB-500F8	JUNCTION BOX	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	STAHL	8146/1051	242121719040001	-	N/A	II 2 G Ex eb IIC T6 Gb II 2 D Ex tb IIIC T80°C Db	-	PTB 01 ATEX 1016	SAFE AREA	-	1724000448-MAC-DA-00005	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-635	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-500	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV050E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-501	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-502	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-503	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-504	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	562	-	167 562 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-636	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-505	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-506	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV050E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-507	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-508	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-509	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV050E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-510	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-512	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-637	DIAPHRAGM VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	DKUIV	-	DKUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-638	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-513	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-514	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV050E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-515	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	

Tag Number	Tag Description	Physical Class Name	Location	System/SubSystem Code	Purchase Order Number	Vendor Company Name	Manufacturer Company Name	Model Number	Equipment Manufacturer Serial Number	Model Part No	Hazardous Area Equip Relevant	Hazardous Area Certificate Standard	Hazardous Area Certifying Authority	Hazardous Area Certificate Number	Atex Classification	Explosion Protection Examination Certificate Document Number	Layout Drawing	Datasheet	Assembly/Dimensional Drawing	General Arrangement	Operating & Maintenance Manual	Wiring Diagram	Spare Parts List	Lubricant Document Reference	Criticality	Remarks
BLPH-MV-516	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-517	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV050E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-518	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-519	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-639	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-522	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-523	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-657	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-658	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-659	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-525	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-526	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-527	DIAPHRAGM VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	DKUIV	-	DKUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-640	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-528	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV040E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-529	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV040E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-530	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-667	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-668	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-533	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-534	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-535	DIAPHRAGM VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	DKUIV	-	DKUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-641	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-536	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV040E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-537	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV040E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-538	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-669	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-670	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-539	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-544	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST VALVES (KCM TECNOLOGY)	FSBV106	-	Z5732-00-002-KC	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-545	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-642	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-546	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-643	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-660	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-661	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-662	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-548	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST VALVES (KCM TECNOLOGY)	FSBV106	-	Z5732-00-002-KC	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-549	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-550	NEEDLE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST VALVES (KCM TECNOLOGY)	Z5732-00-003-KC	-	Z5732-00-003-KC	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-553	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST VALVES (KCM TECNOLOGY)	FSBV106	-	Z5732-00-002-KC	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-554	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-555	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-645	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-646	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-557	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST VALVES (KCM TECNOLOGY)	FSBV106	-	Z5732-00-002-KC	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-558	NEEDLE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	TRUST VALVES (KCM TECNOLOGY)	Z5732-00-003-KC	-	Z5732-00-003-KC	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-647	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	

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BLPH-NRV-648	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-649	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-650	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-561	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-564	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-562	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-565	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-563	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-566	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-651	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-653	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-568	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-569	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-666	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-570	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-571	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-572	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-654	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-663	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-664	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-665	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-652	AIR RELEASE VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VAIV	-	VAIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-575	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-576	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-577	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-576	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-577	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-597	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIV	-	RVUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-598	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIV	-	RVUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-574	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-578	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-579	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-580	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-581	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-582	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-583	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-584	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-586	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-587	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-588	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-589	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-599	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIV	-	RVUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-600	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIV	-	RVUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-590	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-591	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-593	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-592	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VRUIV	-	VRUIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-594	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-595	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-596	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIV	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	

Tag Number	Tag Description	Physical Class Name	Location	System/SubSystem Code	Purchase Order Number	Vendor Company Name	Manufacturer Company Name	Model Number	Equipment Manufacturer Serial Number	Model Part No	Hazardous Area Equip Relevant	Hazardous Area Certificate Standard	Hazardous Area Certifying Authority	Hazardous Area Certificate Number	Atex Classification	Explosion Protection Examination Certificate Document Number	Layout Drawing	Datasheet	Assembly/Dimensional Drawing	General Arrangement	Operating & Maintenance Manual	Wiring Diagram	Spare Parts List	Lubricant Document Reference	Criticality	Remarks
BLPH-MV-602	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-603	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-604	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-605	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIM	-	RVUIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-NRV-606	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	561	-	167 561 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-607	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-608	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-609	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-610	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-611	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIM	-	RVUIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-614	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-612	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	561	-	167 561 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-613	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-615	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-616	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIM	-	RVUIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-NRV-617	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	561	-	167 561 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-618	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-619	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-655	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-620	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-621	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIM	-	RVUIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-622	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-623	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	561	-	167 561 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-624	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-625	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-626	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIM	-	RVUIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-656	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-627	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	561	-	167 561 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-628	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-629	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-630	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-SP-631	Y-STRAINER	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	RVUIM	-	RVUIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-632	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-NRV-633	CHECK VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	GEORG FISCHER	561	-	167 561 002	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	.	
BLPH-MV-634	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIM020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-531	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIV032E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	
BLPH-MV-644	BALL VALVE	-	A-50000	-	1724000448	PSC S.p.A. Engineering & Contracting	FIP	VKDIM	-	VKDIV020E	N/A	-	-	-	SAFE AREA	-	-	-	-	1724000448-MAC-DA-00006	1724000448-MAC-MAN-00032	-	1724000448-COM-LIS-00034	-	-	

1.2

DIAGRAMS

DRAWING NO. 1724000448-PR-PID-00013

REV. 07

MANUAL VALVES

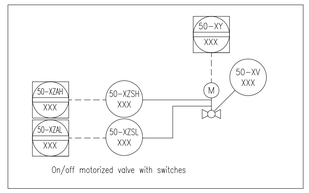
- GATE VALVE
- BALL VALVE
- CHECK VALVE
- NEEDLE VALVE
- "Y" TYPE FILTER
- DIAPHRAGM VALVE
- AUTOMATIC AIR VENT VALVE
- BACK PRESSURE VALVE

OPERATED VALVES

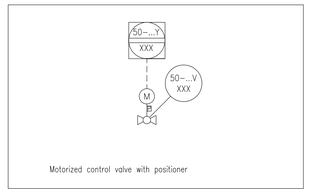
- MOTORIZED ACTUATOR ON-OFF BALL VALVE
- PRESSURE SAFETY VALVE
- MOTORIZED ACTUATOR CONTROL BALL VALVE

OTHER SYMBOLS

- Local instrument
- Instrument in DCS
- Interlock in DCS
- Software signal
- Electric signal
- Pressure gauge with diaphragm
- Polyamide Tubing (RILSAN TYPE)



On/off motorized valve with switches



Motorized control valve with positioner



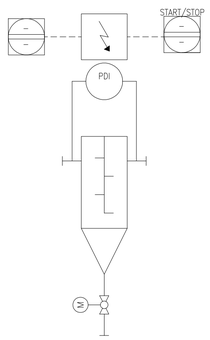
HH = High High
H = High
L = Low
LL = Low Low

Intrument in DCS with alarm

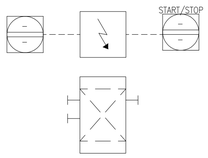
INSTRUMENTS IDENTIFICATION – REFER TO ISA S5.1 FOR DETAILS

Letter	FIRST LETTER	LETTERS FOLLOW			
	Measure or process variable	Modification	Letter or passive function	Output function	
A	Analysis		Alarm		
B	Flame detection		Optional user	Optional user	
C	Conductivity	Control		Regulation	
D	Density	Differential			
E	Electrical voltage	Element	Primary el.		
F	Flow	Relationship			
G	Choice user				
H	Manual override			High	
I	Electricity		Indication		
J	Power	Scansion			
K	Time schedule or time	Rate of change			
L	Level		Light	Low	
M	Choice user	Momentary or instant.			
N	Choice user		Optional user	Optional user	
O	Choice user		Orifice or restriction		
P	Pressure		Handhold		
Q	Quantity	Full or score.			
R	Radioactivity		Registration		
S	Speed or frequency	Security		Interruption	
T	Temperature	Transmitter		Transmission	
U	General alarm			Multifunction	
V	Vibration or mechanical analysis	Valve	Valve		
W	Weight or force		Well or sheath		
X	Variable unclassified	X axis	Not rated	Not rated	
Y	State or event	Y axis		Computing module	
Z	Position or size	Z axis			

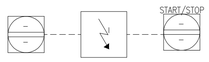
CORSE FILTER EQUIPPED WITH PDI, AUTOMATIC DRAIN VALVE AND LOCAL CONTROL PANEL



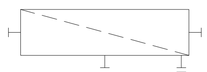
SAND FILTER EQUIPPED WITH LOCAL CONTROL PANEL



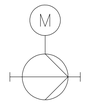
UV LAMP EQUIPPED WITH LOCAL CONTROL PANEL



RO VESSEL & MEMBRANES (RO UNIT)



CENTRIFUGAL PUMP



AIR FAN



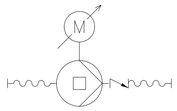
ELECTRIC HEATER



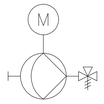
CARTRIDGE FILTER



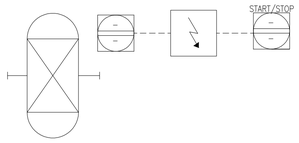
HIGH PRESSURE PUMP



DOSING PUMP EQUIPPED WITH MULTIFUNCTION VALVE



SOFTENING FILTER EQUIPPED WITH LOCAL CONTROL PANEL



ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
f.mura	07-11-2025

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

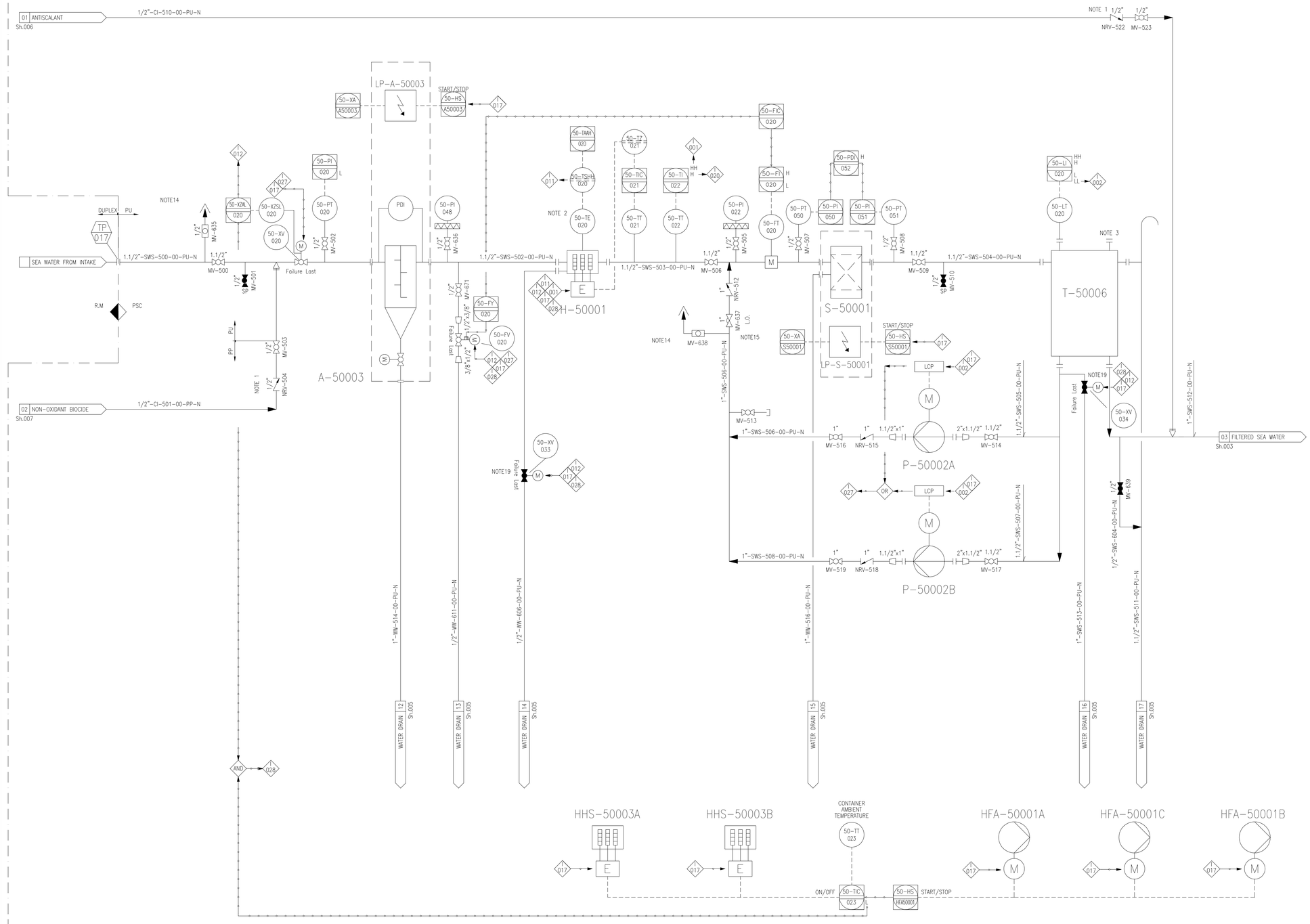
TITLE :

WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE –
DRAWN UR	CHECKED WR	APPROVED RM	DATE 25/09/25
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 001	REV. 07

File Name : 1724000448-PR-PID-00013 Rev07

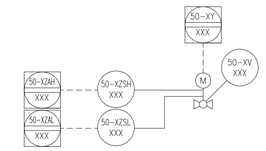
DRAWING NO. 1724000448-PR-PID-00013 REV. 07



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

A-50003	
SEA WATER COARSE FILTER	
FILTRATION RATE	125 µm
CAPACITY	2.5 m3/h
DES. PRESS.	5 barg
DES. TEMP.	50° C
MATERIAL	PLASTIC MAT.

H-50001	
ELECTRIC HEATER	
POWER	30 kW
CAPACITY	2.5 m3/h
DES. PRESS.	6 barg
DES. TEMP.	60° C
MATERIAL	PVC-TITANIUM

S-50001	
SAND FILTER	
TYPE	PRESSURE,VERTICAL
CAPACITY	2.5 m3/h
DES. PRESS.	7 barg
DES. TEMP.	50° C
MATERIAL	FRP

T-50006	
FILTERED WATER TANK	
VOLUME	3 m3
DES. PRESS.	ATM
DES. TEMP.	50° C
MATERIAL	FRP

P-50002A/B	
BACKWASH PUMP	
TYPE	CENTRIFUGAL
DES. PRESSURE	6 barg
CAPACITY	5 m3/h
HEAD	1.50 bar(a)
DES. TEMP.	60 °C
MATERIAL	PP

HHS-50003A/B	
CONTAINER ELECTRICAL HEATER	
POWER	8.4 kW
DES. PRESS.	ATM
DES. TEMP.	65°C

HFA-50001A/B/C	
CONTAINER AIR FAN	
POWER	140 W
DES. PRESS.	ATM
DES. TEMP.	60°C

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

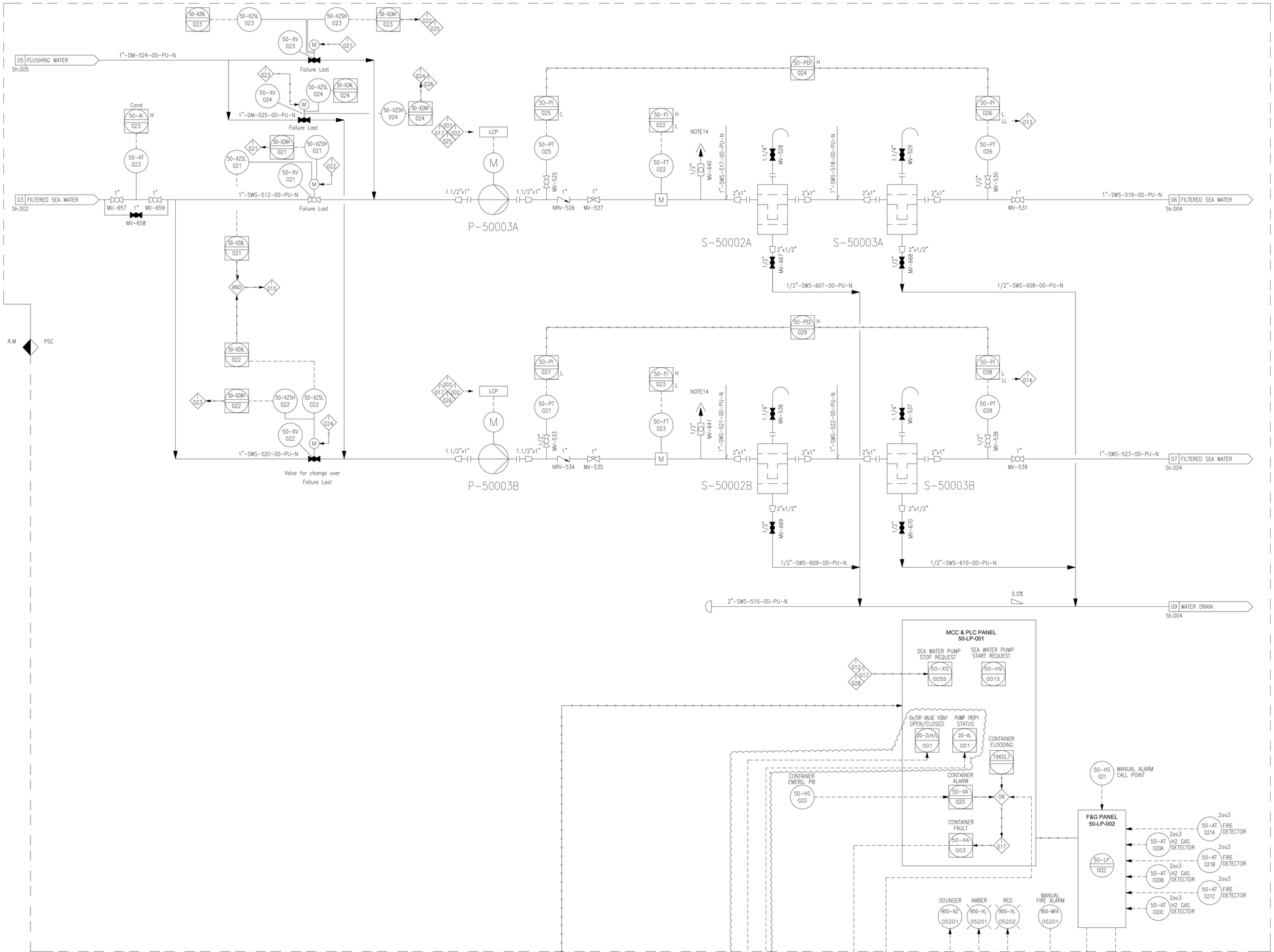
CROSSWIND ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE –
DRAWN UR	CHECKED WR	APPROVED RM	DATE 25/09/25
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 002	REV. 07

File Name : 1724000448-PR-PID-00013 Rev07

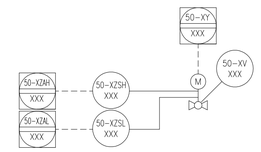
DRAWING NO. 1724000448-PR-PID-00013 REV. 07



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

P-50003A/B	
SW BOOSTER PUMP	
TYPE	CENTRIFUGAL
DES PRESSURE	6 barg
CAPACITY	2.5 m3/h
HEAD	4 bar(a)
DES. TEMP.	60° C
MATERIAL	PP

S-50002A/B	
SW 1ST CARTRIDGE FILTER	
FILTRATION RATE	20 µm
CAPACITY	2 m3/h
DES. PRESS.	6 barg
DES. TEMP.	50° C
MATERIAL	PP

S-50003A/B	
SW 2ND CARTRIDGE FILTER	
FILTRATION RATE	5 µm
CAPACITY	2 m3/h
DES. PRESS.	6 barg
DES. TEMP.	50° C
MATERIAL	PP

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :

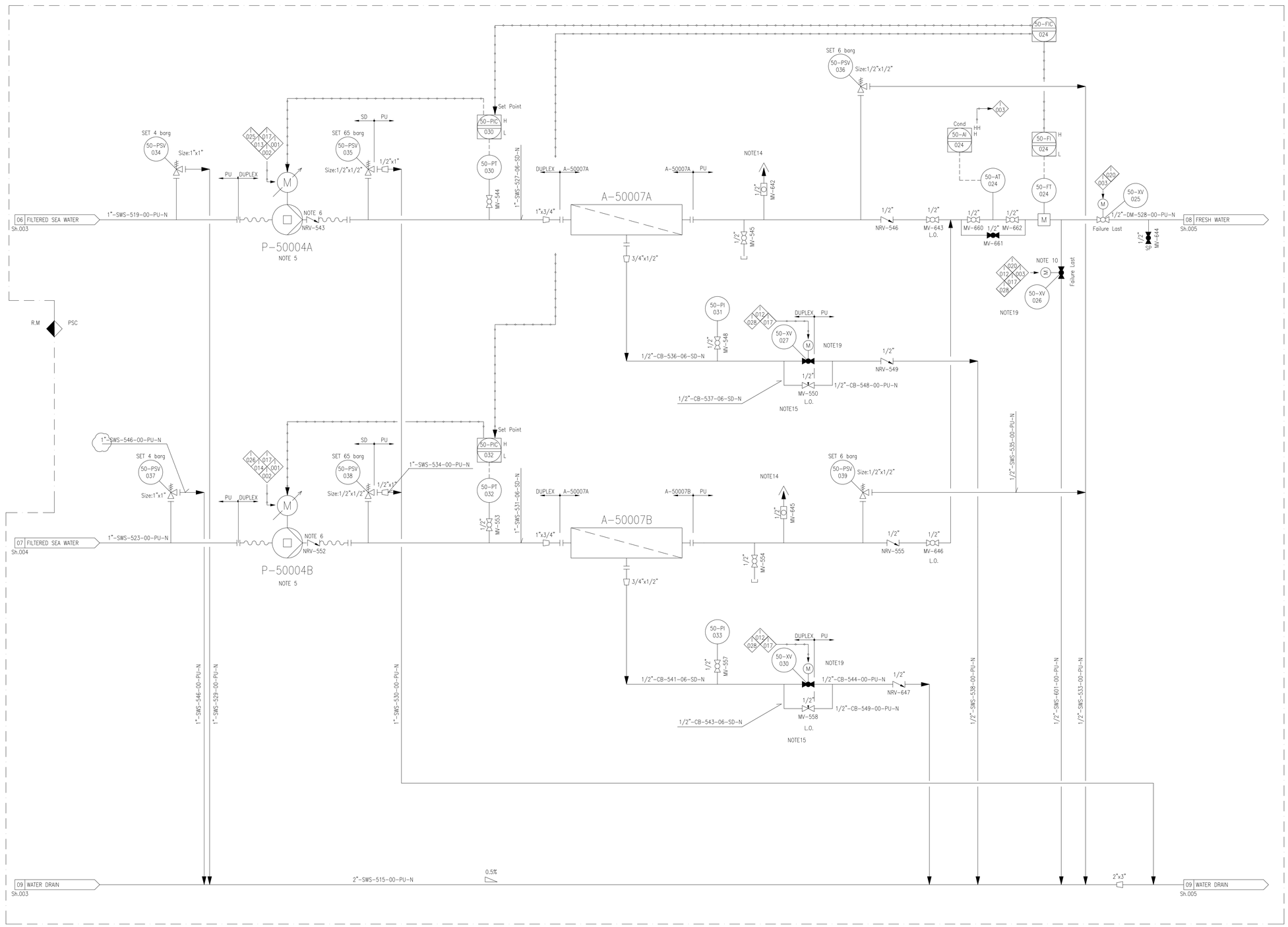
WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE –
DRAWN UR	CHECKED WR	APPROVED RM	DATE 25/09/25
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 003	REV. RM

File Name : 1724000448-PR-PID-00013 Rev07

DRAWING NO. 1724000448-PR-PID-00013

REV. 07



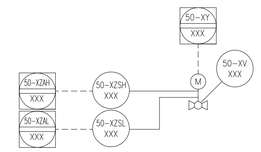
P-50004A/B	
HP PUMP	
TYPE	AXIAL ROTATING PISTONS
DES PRESSURE	83 barg
CAPACITY	2 m3/h
HEAD	64.5 bar(a)
DES. TEMP.	50° C
MATERIAL	SS DUPLEX

A-50007A/B	
SEA WATER REVERSE OSMOSIS UNITS	
CAPACITY	0.8 m3/h
DES. PRESS.	69 barg
DES. TEMP.	45° C
MATERIAL	FRP

TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
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2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

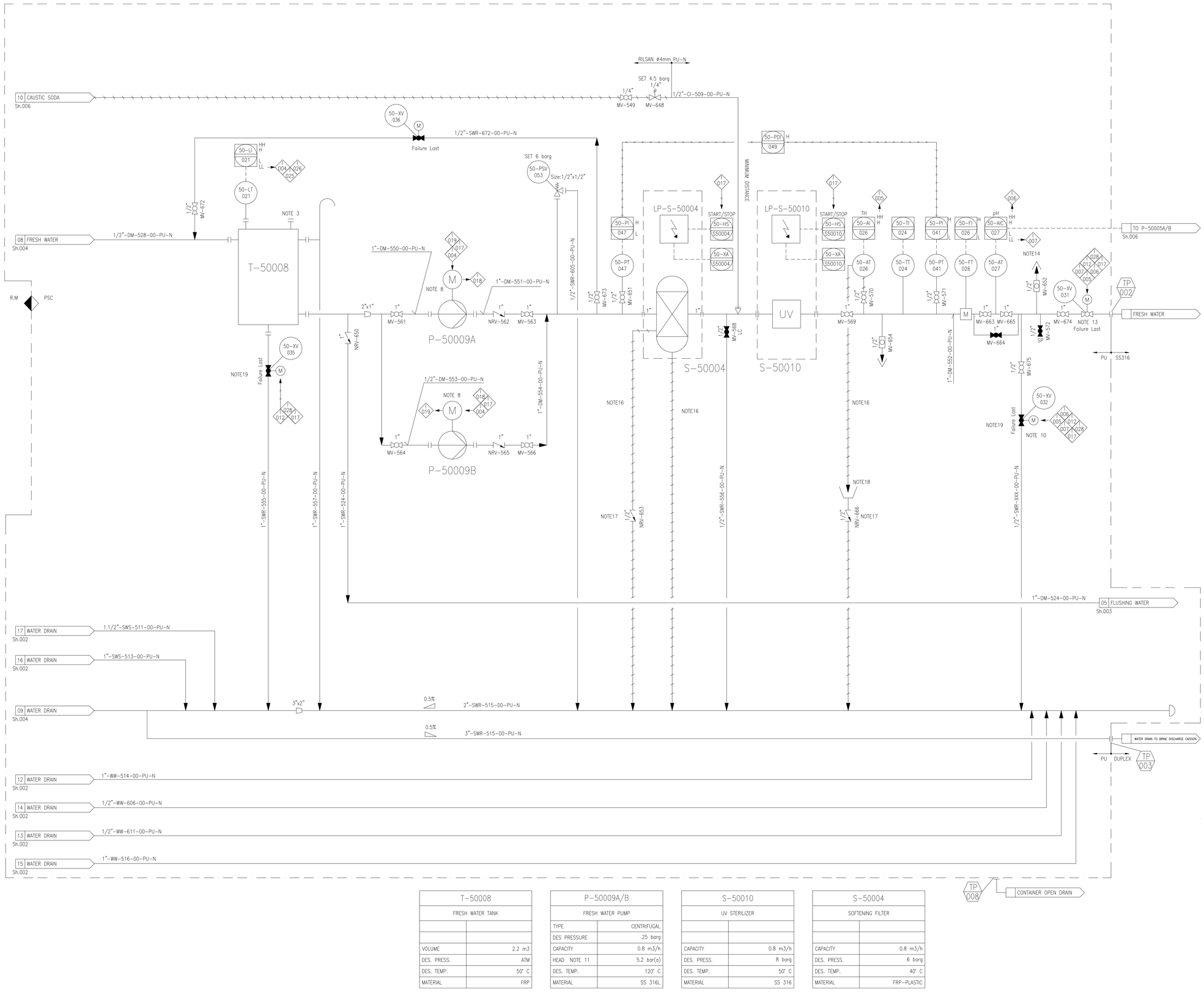
ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
SEA WATER REVERSE OSMOSIS
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE –
DRAWN UR	CHECKED WR	APPROVED RM	DATE 25/09/25
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 004	REV. 07

File Name : 1724000448-PR-PID-00013 Rev07

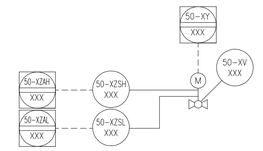
DRAWING NO. 1724000448-PR-PID-00013 REV. 07



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

T-50008	
FRESH WATER TANK	
VOLUME	2.2 m3
DES. PRESS.	ATM
DES. TEMP.	50° C
MATERIAL	FRP

P-50009A/B	
FRESH WATER PUMP	
TYPE	CENTRIFUGAL
DES PRESSURE	25 barg
CAPACITY	0.8 m3/h
HEAD NOTE 11	5.2 bar(a)
DES. TEMP.	120° C
MATERIAL	SS 316L

S-50010	
UV STERILIZER	
CAPACITY	0.8 m3/h
DES. PRESS.	8 barg
DES. TEMP.	50° C
MATERIAL	SS 316

S-50004	
SOFTENING FILTER	
CAPACITY	0.8 m3/h
DES. PRESS.	6 barg
DES. TEMP.	40° C
MATERIAL	FRP-PLASTIC

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
FRESH WATER STORAGE
P&I DIAGRAM

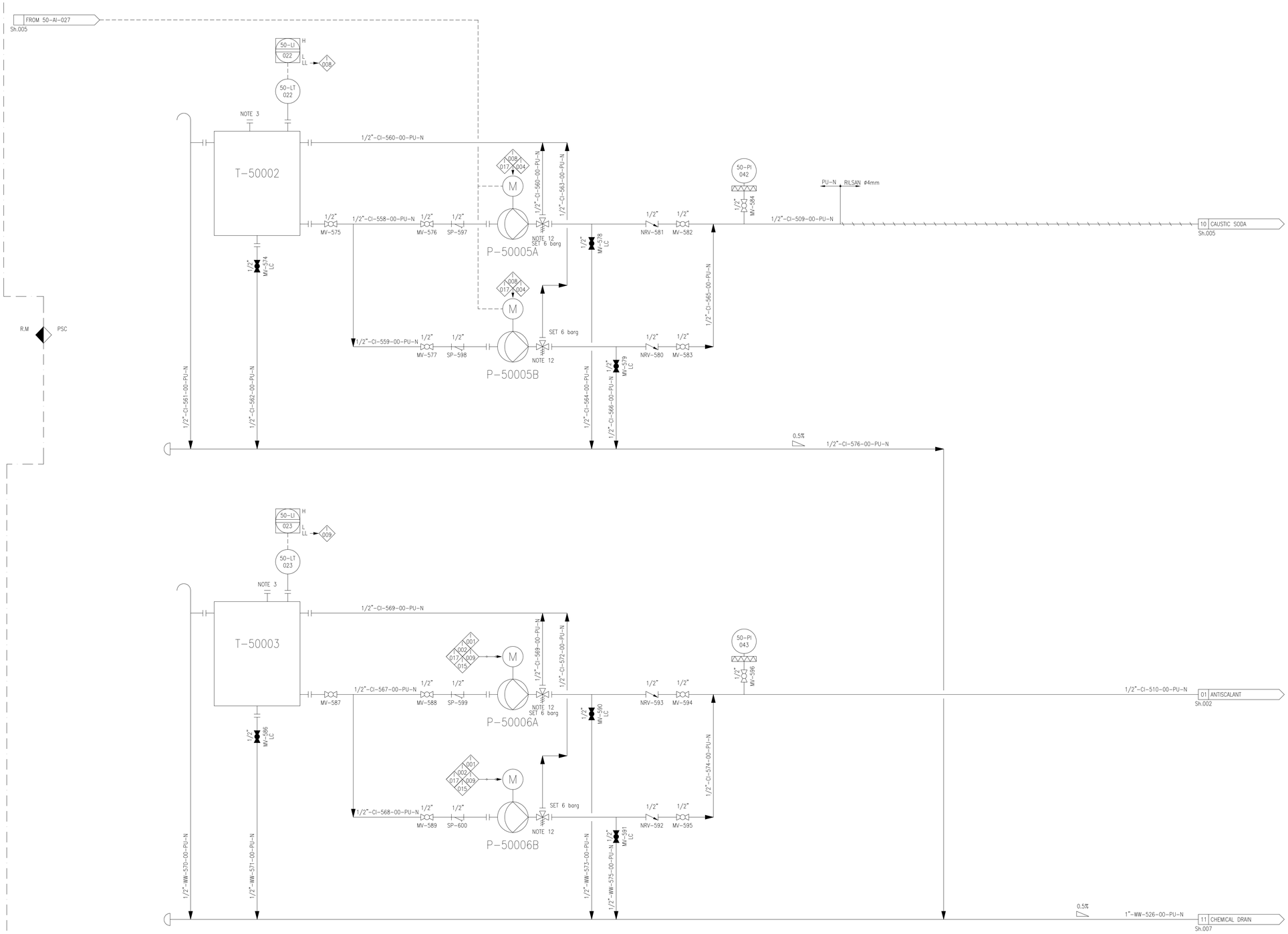
CONTRACT NO./TITLE			SCALE –
DRAWN UR	CHECKED WR	APPROVED RM	DATE 25/09/25

A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 005	REV. RM

File Name : 1724000448-PR-PID-00013 Rev07

DRAWING NO. 1724000448-PR-PID-00013

REV. 07



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

T-50002	
CAUSTIC SODA DOSING TANK	
VOLUME	0.05 m3
DES. PRESS.	ATM
DES. TEMP.	45° C
MATERIAL	PE

P-50005A/B	
CAUSTIC SODA DOSING PUMP	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.05 l/h
HEAD	4 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

T-50003	
ANTISCALANT DOSING TANK	
VOLUME	0.05 m3
DES. PRESS.	ATM
DES. TEMP.	45° C
MATERIAL	PE

P-50006A/B	
ANTISCALANT DOSING PUMP	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.01 l/h
HEAD	4 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
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03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

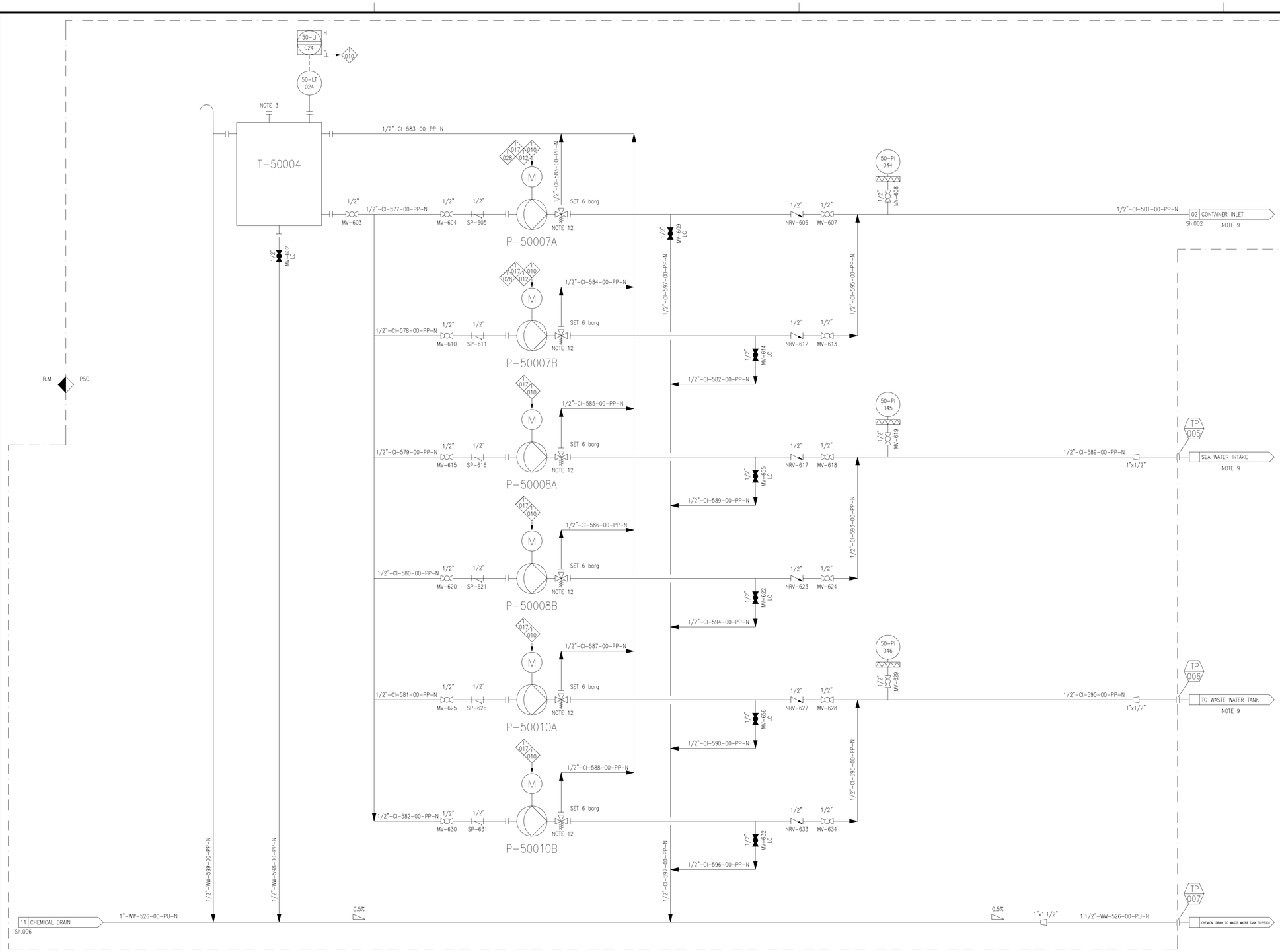
ROSETTI MARINO

TITLE :

WATER TREATMENT PACKAGE
CHEMICALS DOSAGE
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE -
DRAWN UR	CHECKED WR	APPROVED ACCEPTED FOR CONSTRUCTION	26/09/25
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 006	REV. RM

File Name : 1724000448-PR-PID-00013 Rev07



T-50004	
NON-OXIDANT BIOCIDE DOSING TANK	
VOLUME	0.1 m3
DES. PRESS.	ATM
DES. TEMP.	45° C
MATERIAL	PE

P-50007A/B	
NON-OXIDANT BIOCIDE DOSING PUMP – CONTAINER INLET	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.03 l/h
HEAD	4.5 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

P-50008A/B	
NON-OXIDANT BIOCIDE DOSING PUMP – SEA WATER INTAKE	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.85 l/h
HEAD	4.5 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

P-50010A/B	
NON-OXIDANT BIOCIDE DOSING PUMP – WASTE WATER TANK	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.33 l/h
HEAD	4.5 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH–
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
07	25-SEP-25	UR	WR	RM	
06	28-JULY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
05	19-MAY-25	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
BIOCIDE DOSAGE
P&I DIAGRAM

CONTRACT NO./TITLE | SCALE –

DRAWN UR | CHECKED WR | APPROVED CCEPTED FOR CONSTR | DATE 25/09/25

A1 | DRAWING NO. 1724000448-PR-PID-00013 | SHEET 007 | REV. 07

DRAWING NO. 1724000448-PR-PID-00013 REV. 07

File Name : 1724000448-PR-PID-00013 Rev07

BASE LOAD POWER HUB (BLPH)

WIRING DIAGRAM LCP 50-LP-001

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	21-01-2025

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COVER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 1

REV. 04

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LISTA FOGLI \ INDEX

Foglio Sheet	Pagina Page	Descrizione Description	Revisioni Revisions								
			1	2	3	4	5	6	7	8	9
1	1	COVER	X	X	X	X					
2	2	SHEET LEGEND	X	X	X	X					
2A	3	SHEET LEGEND	X	X	X	X					
2B	4	SHEET LEGEND		X	X	X					
4	5	GENERAL DATA	X								
4A	6	GENERAL DATA		X	X						
5	7	PLATE LIST	X	X	X						
6	8	FRONT VIEW 50-LP-001	X	X	X						
6A	9	REAR VIEW 50-LP-001	X		X						
6B	10	SIDES VIEW 50-LP-001	X								
6C	11	TOP/BOTTOM VIEW 50-LP-001	X	X	X						
6D	12	BLANK SHEET	X	X							
6E	13	INTERNAL VIEW 50-LP-001	X	X	X						
20	14	COMPONENT LIST	X	X	X						
20A	15	COMPONENT LIST	X	X	X						
20B	16	COMPONENT LIST	X	X	X						
20C	17	COMPONENT LIST	X	X	X						
20D	18	COMPONENT LIST	X	X	X						
20E	19	COMPONENT LIST	X	X	X						
20F	20	COMPONENT LIST	X	X	X	X					
20G	21	COMPONENT LIST		X	X	X					
25	22	SYMBOL LIST			X						
25A	23	SYMBOL LIST			X						
25B	24	SYMBOL LIST			X						
30	25	INCOMING MAIN LINE	X	X	X						
32	26	INCOMING UPS LINE	X	X	X						
34	27	230VAC DISTRIBUTION	X		X						
36	28	230VAC DISTRIBUTION		X							
38	29	230VAC AUXILIARY	X								
40	30	24VDC DISTRIBUTION	X								
42	31	24VDC INSTRUMENT SUPPLY		X	X						
60	32	HP SWRO PUMPS			X						
62	33	HP SWRO PUMPS SPARE			X						
66	34	ELECTRIC HEATER	X	X	X						
70	35	BOOSTER SW PUMPS MOTORS									
72	36	BACKWASH PUMPS MOTORS		X							
74	37	FRESH WATER PUMPS MOTORS		X							
76	38	CONTAINER HEATER		X							
77	39	CONTAINER HEATER		X							
78	40	CONTAINER FAN		X							
88	41	LIGHTING CIRCUIT	X		X						
90	42	UV STERILIZER	X								
92	43	LP COARSE FILTER A-500003	X	X							
94	44	LP SAND FILTER S-500001	X								
96	45	FIRE&GAS PANEL	X		X						
100	46	SOFTENING FILTER	X								
110	47	SODA DOSING PUMPS	X								
112	48	ANTISCALANT DOSING PUMPS	X								
114	49	BIOCIDE DOSING PUMPS TO CONTAINER INLET	X								
116	50	BIOCIDE DOS. PUMPS TO SEAWATER INTAKE	X								
118	51	BIOCIDE DOS. PUMPS TO WASTEWATER TANK	X								
148	52	SWITCH ETHERNET	X	X	X						

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SHEET LEGEND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 2

REV. 04

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LISTA FOGLI \ INDEX

Foglio Sheet	Pagina Page	Descrizione Description	Revisioni Revisions								
			1	2	3	4	5	6	7	8	9
150	53	HMI			X						
152	54	CPU A			X						
154	55	CPU B									
160	56	RACK 1		X							
170	57	WIRING DIGITAL INPUT RACK 1 SLOT 1			X						
172	58	WIRING DIGITAL INPUT RACK 1 SLOT 1		X		X					
174	59	WIRING DIGITAL INPUT RACK 1 SLOT 2	X			X					
176	60	WIRING DIGITAL INPUT RACK 1 SLOT 2		X							
178	61	WIRING DIGITAL INPUT RACK 1 SLOT 3	X								
180	62	WIRING DIGITAL INPUT RACK 1 SLOT 3		X	X						
182	63	WIRING DIGITAL INPUT RACK 1 SLOT 4	X								
184	64	WIRING DIGITAL INPUT RACK 1 SLOT 4		X	X						
186	65	WIRING DIGITAL INPUT RACK 1 SLOT 5									
188	66	WIRING DIGITAL INPUT RACK 1 SLOT 5		X	X						
190	67	WIRING DIGITAL INPUT RACK 1 SLOT 6									
192	68	WIRING DIGITAL INPUT RACK 1 SLOT 6		X							
194	69	WIRING DIGITAL INPUT RACK 1 SLOT 7		X							
196	70	WIRING DIGITAL INPUT RACK 1 SLOT 7		X	X						
198	71	WIRING DIGITAL INPUT RACK 1 SLOT 8			X						
200	72	WIRING DIGITAL INPUT RACK 1 SLOT 8			X						
210	73	WIRING DIGITAL OUTPUT RACK 1 SLOT 9	X	X	X	X					
212	74	WIRING DIGITAL OUTPUT RACK 1 SLOT 9	X	X	X	X					
214	75	WIRING DIGITAL OUTPUT RACK 1 SLOT 10		X	X						
216	76	WIRING DIGITAL OUTPUT RACK 1 SLOT 10		X	X						
218	77	WIRING DIGITAL OUTPUT RACK 1 SLOT 11		X	X						
220	78	WIRING DIGITAL OUTPUT RACK 1 SLOT 11		X	X						
222	79	WIRING DIGITAL OUTPUT RACK 1 SLOT 12		X	X						
224	80	WIRING DIGITAL OUTPUT RACK 1 SLOT 12		X	X						
240	81	WIRING ANALOG INPUT RACK 1 SLOT 13		X	X						
242	82	WIRING ANALOG INPUT RACK 1 SLOT 13		X	X						
244	83	WIRING ANALOG INPUT RACK 1 SLOT 14		X	X						
246	84	WIRING ANALOG INPUT RACK 1 SLOT 14		X	X						
248	85	WIRING ANALOG INPUT RACK 1 SLOT 15		X	X						
250	86	WIRING ANALOG INPUT RACK 1 SLOT 15		X	X						
252	87	WIRING ANALOG INPUT RACK 1 SLOT 16		X	X						
254	88	WIRING ANALOG INPUT RACK 1 SLOT 16		X	X						
256	89	WIRING ANALOG INPUT RACK 1 SLOT 17		X	X						
258	90	WIRING ANALOG INPUT RACK 1 SLOT 17		X	X						
280	91	WIRING ANALOG OUTPUT RACK 1 SLOT 18		X	X						
282	92	WIRING ANALOG OUTPUT RACK 1 SLOT 19		X	X						
300	93	AUXILIARY CONTACT	X			X					
302	94	AUXILIARY CONTACT	X	X		X					
304	95	AUXILIARY CONTACT			X	X					
306	96	AUXILIARY CONTACT		X		X					
308	97	AUXILIARY CONTACT			X	X					
310	98	AUXILIARY CONTACT		X							
312	99	AUXILIARY CONTACT		X							
314	100	AUXILIARY CONTACT		X	X	X					
320	101	EXTERNAL COMMAND	X			X					
400	102	TERMINAL STRIP XMAIN - XUPS - FDI		X	X						
402	103	TERMINAL STRIP XM1	X	X	X						
403	104	TERMINAL STRIP XM2 - XM3	X	X	X						

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SHEET LEGEND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 2A

REV. 04

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LISTA FOGLI \ INDEX

Foglio Sheet	Pagina Page	Descrizione Description	Revisioni Revisions 1	2	3	4	5	6	7	8	9
404	105	TERMINAL STRIP XINS1 - XINS2	X	X	X						
406	106	TERMINAL STRIP XDI	X	X	X	X					
408	107	TERMINAL STRIP XDO		X	X	X					
410	108	TERMINAL STRIP XAI		X	X						
412	109	TERMINAL STRIP XAO	X	X							
414	110	TERMINAL STRIP XEXT - XPF - XSL1	X		X						
420	111	TERMINAL STRIP TDI		X	X						
422	112	TERMINAL STRIP TDO		X	X	X					
424	113	TERMINAL STRIP TAI		X	X						
426	114	TERMINAL STRIP TAO		X							
430	115	GA JB-500E8			X						
431	116	GA JB-500E8			X						
432	117	GA JB-500F8			X						
	118	ARC FLASH				X					
	119	ARC FLASH				X					
	120	ARC FLASH HAZARD				X					
	121	ARC FLASH HAZARD				X					

Foglio Sheet	Pagina Page	Descrizione Description	Revisioni Revisions 1	2	3	4	5	6	7	8	9

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SHEET LEGEND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 2B

REV. 04

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

A	DATI GENERALI General data							
A1	NORME Standard	☐ CEI	■ IEC	☐ UL				
A2	LINGUA CONTRATTUALE Contrattual language	☐ ITALIANO	■ **ENGLISH**	.....				
A3	CLIMA Climate	☐ NORMALE Normal	☐ TROPICALE Tropical	■ Seaside Climate/Aggressive				
A4	TEMPERATURA Temperature	**+40°C Max / −8.4°C Min**						
A5	UMIDITA' Humidity	**100% RA Max / 5% Min**						
A6	LUOGO DI INSTALLAZIONE Installation place	**Indoor / Air Conditioned Room**						
A7	TRATTAMENTO APPARECCHIATURE Equipments treatment	■ **NORMALE** **Standard**	☐ **TROPICALE** **Tropical**					

B	DATI MECCANICI Mechanical data							
B1	GRADO DI PROTEZIONE Mechanical protection	**IP54 (INTERNAL IP20)**						
B2	ALIMENTAZIONE Supply	ARRIVO Incoming	■ **ALTO** **Top**	☐ BASSO Bottom	■ **CAVO** **Cable**	☐ CONDOTTO Bus duct		
		PARTENZE Outgoing	■ **ALTO** **Top**	☐ BASSO Bottom	■ **CAVO** **Cable**	☐ CONDOTTO Bus duct		
B3	LAMIERE DI FONDO Bottom plates	■ **POTENZA** **Power**	■ **SI** **Yes**	☐ NO Not	☐ FISSE Fixed	■ **ASPORTABILI** **Removable**		
		■ **AUSILIARI** **Auxiliary**	■ **SI** **Yes**	☐ NO Not	☐ FISSE Fixed	■ **ASPORTABILI** **Removable**		
B4	ACCESSIBILITA' Accessibility	■ **FRONTE** **Front**	☐ RETRO Rear					
B5	GUARNIZIONI Gaskets	■ **SI** **Yes**	☐ NO Not					
B6	MORSETTIERE FISSE SU VANI DISPONIBILI M.C.C. Fixed aux. terminals in available M.C.C. cubicles	☐ SI Yes	☐ NO Not					
B7	SERRATURE Locks	TIPO Type	☐ CHIAVE Ng Key Ng	■ DOPPIA IMPRONTA Double impression				
B8	SOLLEVAMENTO QUADRO Lifting board	■ GOLFARI Lifting eye bolt	☐ FERRI FISSI Fixed irons	☐ FERRI ASPORTABILI Removable irons				
B9	FERRI DI FONDAZIONE Base irons	☐ SI Yes	■ **NO** **Not**	.....				

C	VERNICIATURA Painting				
C1	SPECIFICHE DI RIFERIMENTO Reference specifications	**STD MFR**			
C2	ESTERNA Esternal	/	STRUTTURA Structure	☐ LISCIO Smooth	■ BUCCIATO Peel type
				COLORE Colour **LIGHT GREY**	RAL **7035**
C3	ESTERNA Esternal	/	PORTELLE Doors	☐ LISCIO Smooth	■ BUCCIATO Peel type
				COLORE Colour **LIGHT GREY**	RAL **7035**
C4	INTERNA Internal	COLORE Colour **LIGHT GREY**	☐ LISCIO Smooth	■ BUCCIATO Peel type	
			RAL **7035**	☐ ANTICONDENSA Anticondensation	
C5	STRUTTURA – SUPPORTI Structure – mounting	■ **ZINCOPASSIVATI** **Cold galvanized**			

D	TARGHETTE ESTERNE External labels		
D1	MATERIALE Material	☐ Plastic Back ground White – Letters Black Fixing by stainless steel screws	■ TRAFFOLYTE Back ground White – Letters Black Fixing by stainless steel screws

E	DATI ELETTRICI Electrical data			
E1	TENSIONE DI ESERCIZIO Operating voltage	**400 Vac 50 Hz**		
E2	TENSIONE DI ISOLAMENTO Insulation voltage	**0.6/1** KV		
E3	TENSIONE DI PROVA Withstand voltage	**4** KV	50 Hz c/s	PER For 1"
E4	FREQUENZA Frequency	50 Hz c/s		
E5	SBARRE OMNIBUS Main bus bars	-- A	-- mm	
E6	CORRENTE DI C.TO C.TO SIMMETRICA Short circuit current symm. r.m.s.	**25** KA	PER For **1** SEC.	
E7	CORRENTE DI C.TO C.TO VALORE DI PICCO Short circuit current peak value	**25** KA		

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GENERAL DATA

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 4

REV. 01

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

F — CIRCUITI AUSILIARI / Ausiliary circuits

F1 — COLLEGAMENTI AUSILIARI IN CORDA Cu–SEZ. / Auxiliary connections with copper wire section

400 Vac SUPPLY 2.5 sqmm min	COLORE Colour	Phase 1: Black Phase 2: Black Phase 3: Black Neutral: Light Blue
230 Vac SUPPLY 1.5 sqmm min	COLORE Colour	Phase: Brown Neutral: Light Blue
DC POWER SUPPLY 1.5 sqmm min	COLORE Colour	(+) : Red (–) : Black
Analog signals 0.5 sqmm min.	COLORE Colour	Input : White Output : White
Digital signals 0.5 sqmm min.	COLORE Colour	Input : Grey Output : Grey
Free Contact 1 sqmm min.	COLORE Colour	Orange
Protective Ground 1.5 sqmm min.	COLORE Colour	Green/Yellow
Instrument Circuit Ground 1.5 sqmm min.	COLORE Colour	Green/Yellow

F2 — COLLEGARE A TERRA TUTTE LE PARTI METALLICHE CON MONTATA APPARECCHIATURA (LE PORTINE SEMPRE) CON:

All metal parts, the doors always, are to be connected to earth bar with:

■ CAVO GIALLO/VERDE Green/Yellow — □ TRECCIA Braid — SEZ. Sec. 1.5/2.5/6/10/16sqmm

PROTECTIVE EARTH (PE)	SEZ. Sec.	COPPER BAR 150sqmm (30x5)
INSTRUMENT EARTH (IE)	SEZ. Sec.	COPPER BAR 100sqmm (12x4)

F3

WIRING :

- Type: H07V–K (> 1.5 sqmm)
- Material : STRANDED COPPER WIRE (IEC 60228 cl.5)
- Voltage rating : 450/750 V
- Insulation : PVC compound

- Type: H05V–K (< 1.5 sqmm)
- Material : STRANDED COPPER WIRE (IEC 60228 cl.5)
- Voltage rating : 350/500 V
- Insulation : PVC compound

NOTE :

I SEGNALI ANALOGICI–DIGITALI ANDRANNO CABLATI E INSTALLATI IN CANALINE DEDICATE, SEPARATE DAL CABLAGGIO DI POTENZA.

The analog–digital signal wires shall be installed in dedicated cable duct, separated from power cable.

NOTE :

THIS DOCUMENT INCLUDES ONLY PLC AND MCC PANEL WIRING

FOR F&G WIRING PLEASE REFER TO DOCUMENT NO. 1724000448–MAC–DG–00036

PSC — DOC. REF: PK2885–A–002

CROSSWIND — ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GENERAL DATA

CONTRACT NO./TITLE CW–I–WP4–2023–05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448–IN–DG–00014 | SHEET 4A | REV. 03

File Name : PK2885_1

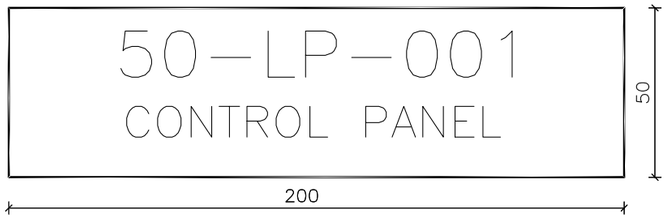
F.to UNI A3: 420mmx297mm

PLATES LIST

MATERIAL _**Traffolyte**_ _ _ _ _ BACKGROUND _**White**_ _ _ _ _ _ _ ENGRAVING _**Black**_ _ FIXING _**Biadhesive**_ _ _ _ _ _ _

POS.	Q.TY	TAG	DIMENS.	FIRST LINE		SECOND LINE		THIRD LINE	
				WRITING	HIGH (mm)	WRITING	HIGH (mm)	WRITING	HIGH (mm)
1	1	**Z1**	200x50	**50-LP-001**	15	**CONTROL PANEL**	10		10
2	1	**Z2**	70x20	**POWER ON 230 Vac 50Hz**	4	**L1 FROM MAIN**	4		
3	1	**Z3**	70x20	**POWER ON 230 Vac 50Hz**	4	**L2 FROM MAIN**	4		
4	1	**Z4**	70x20	**POWER ON 230 Vac 50Hz**	4	**L3 FROM MAIN**	4		
5	1	**Z5**	70x20	**POWER ON 230 Vac 50Hz**	4	**FROM UPS**	4		
6	1	**Z6**	70x20	**POWER ON 24 Vdc**	4				
7	1	**Z7**	70x20	**INCOMING POWER MONITORING**	4				
8	1	**Z8**	70x20	**TEMPERATURE MONITORING**	4				
9	1	**Z9**	70x20	**MAIN SWITCH LINE**	4				

Z1



Z2



Z3



Z4



Z5



Z6



Z7



Z8



Z9



CHARACTER HEIGHT : 4mm (first line)
4mm (second line)

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
PLATE LIST

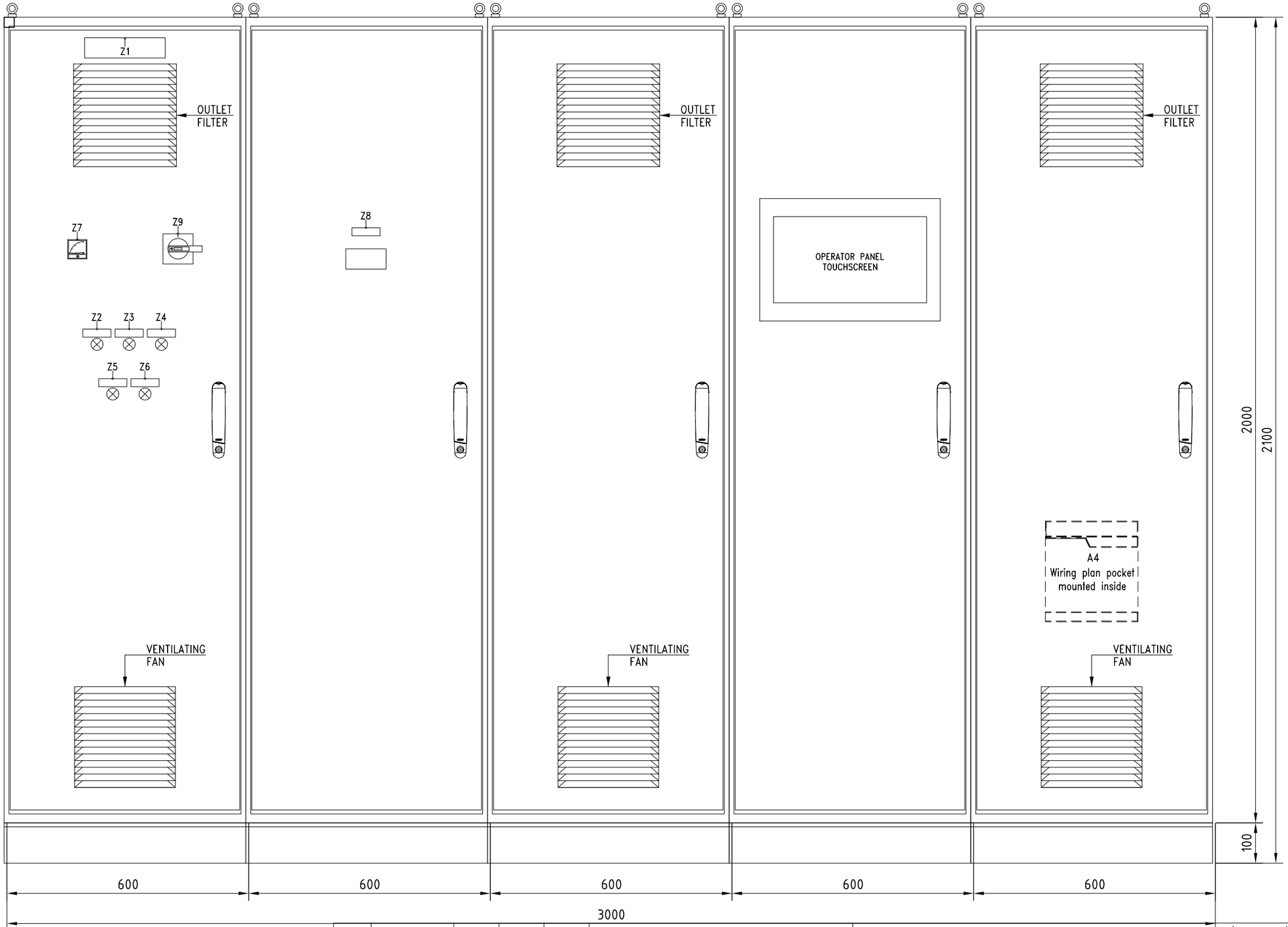
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 5 | REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

50-LP-001



FRONT VIEW "50-LP-001"

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
FRONT VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

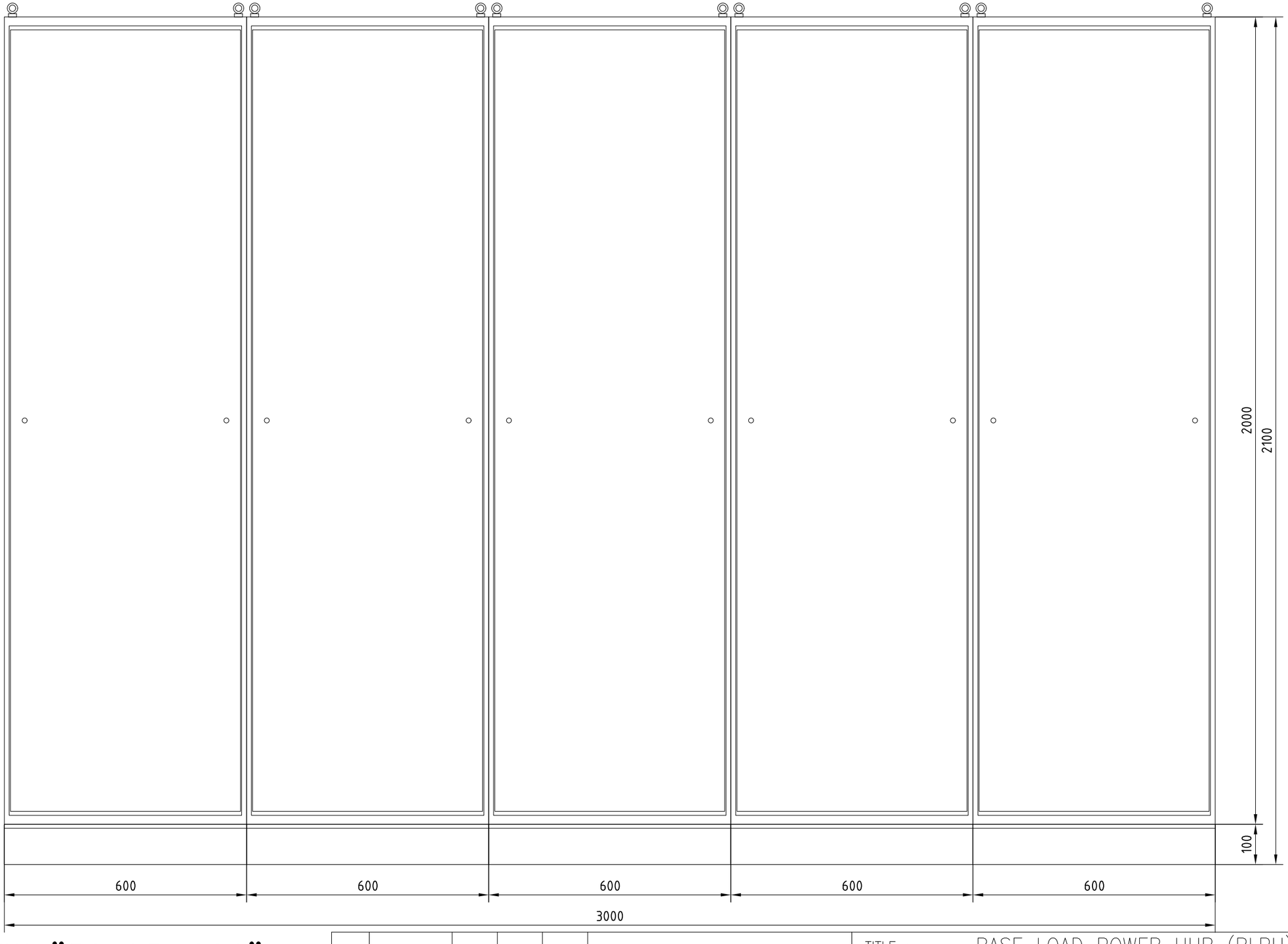
DRAWING NO. 1724000448-IN-DG-00014

SHEET 6

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm



REAR VIEW "50-LP-001"

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
REAR VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6A

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

SIDE RIGHT

"50-LP-001"

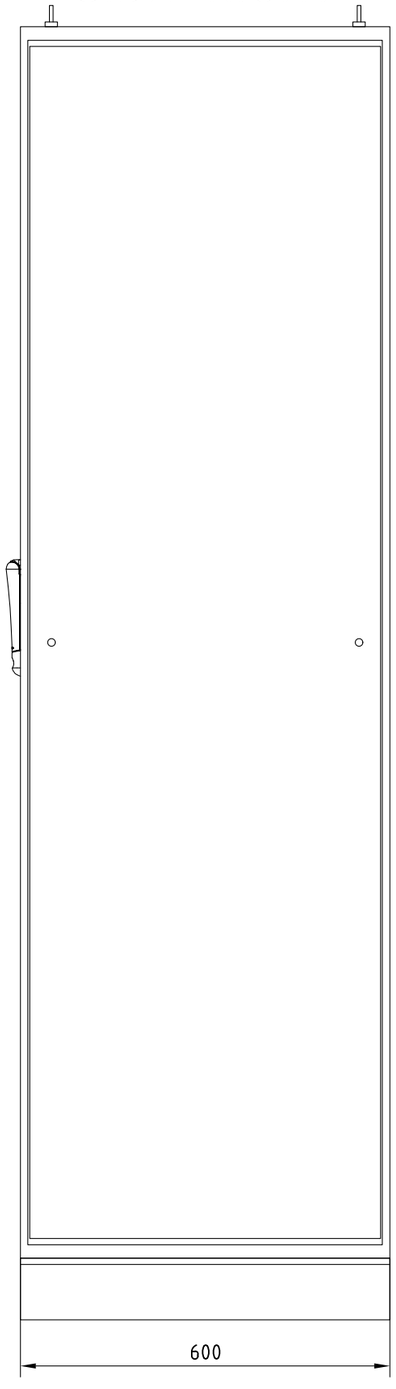
SIDE LEFT

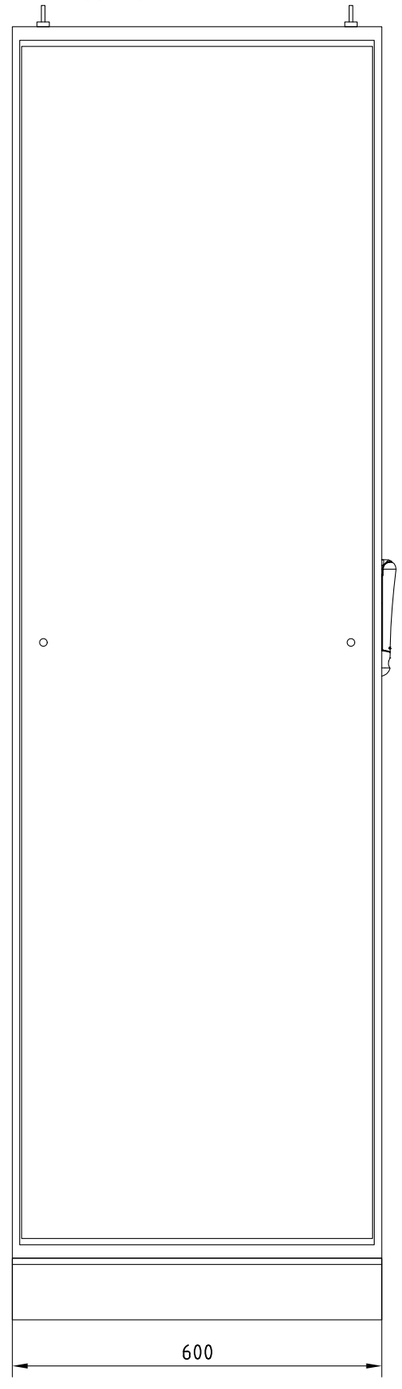
FRONT

REAR

REAR

FRONT





DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SIDES VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6B

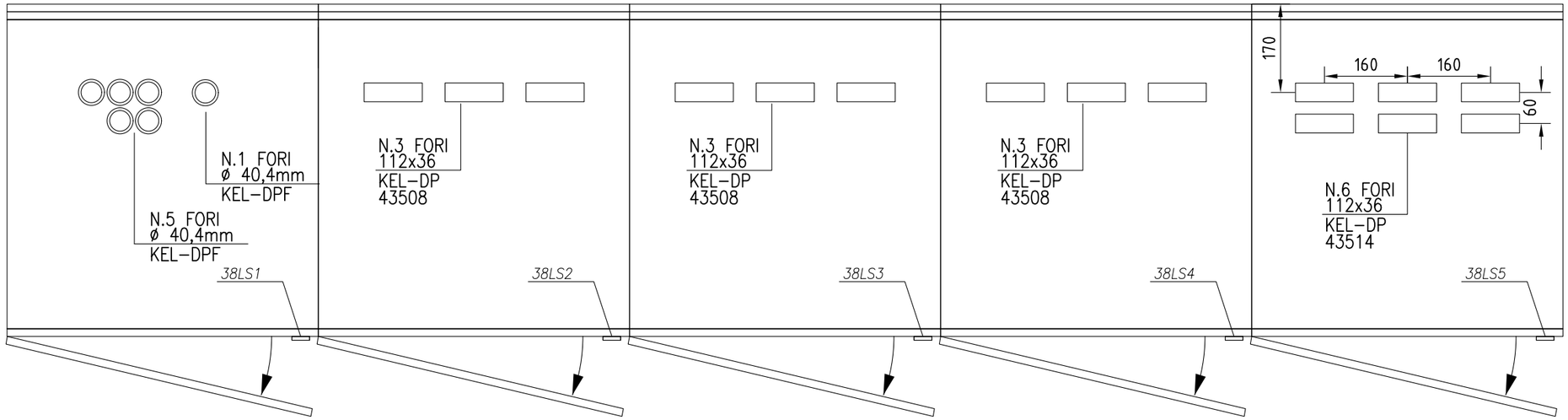
REV. 01

File Name : PK2885_1

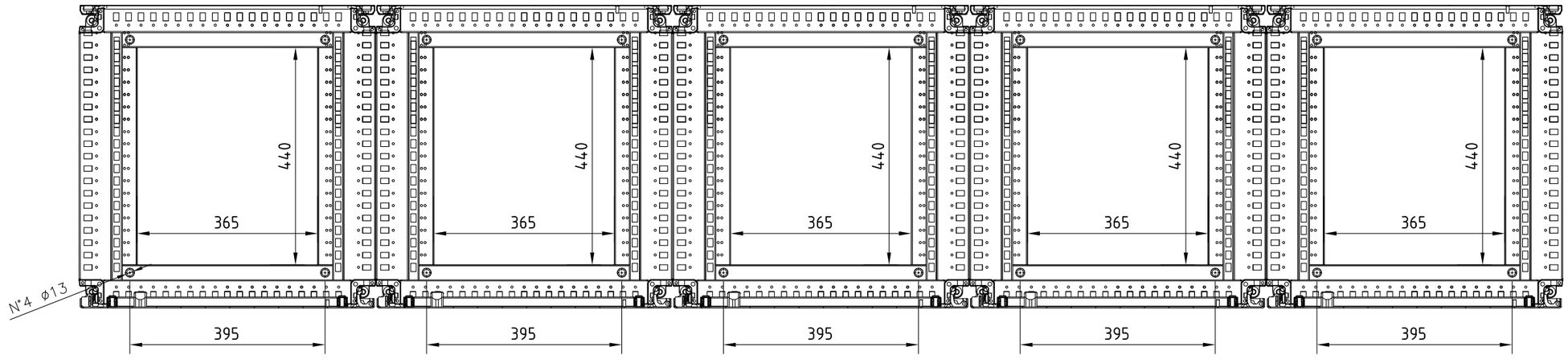
F.to UNI A3: 420mmx297mm

"50-LP-001"

TOP VIEW



BOTTOM VIEW



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TOP/BOTTOM VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6C

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BLANK SHEET

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6D

REV. 02

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LEGEND

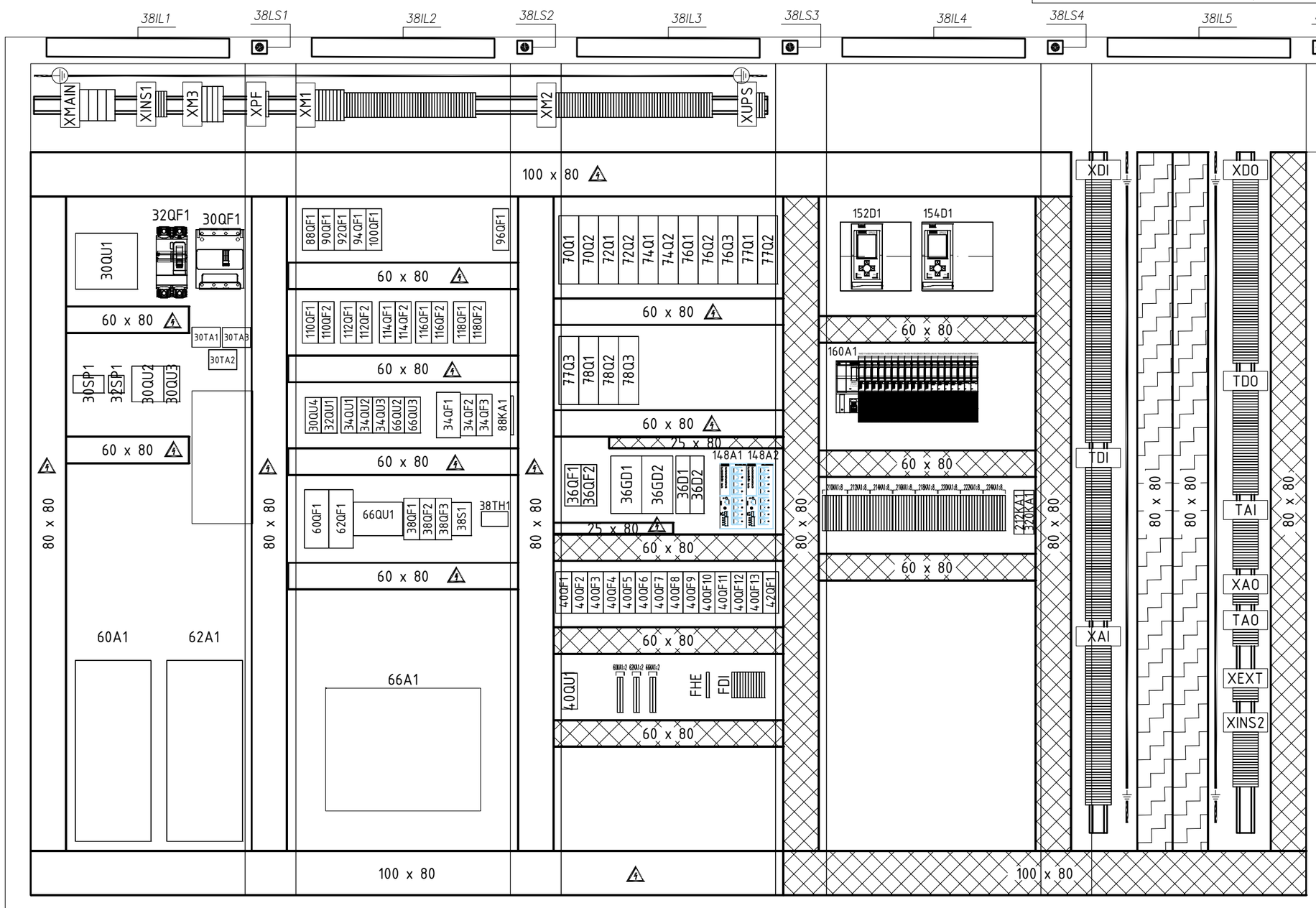
AC Safety Ground (GND)

Instrument Circuit Ground

CABLE FROM FIELD

Supply 400/230 Vac (Internal wiring)

24 Vdc (Internal wiring)



INTERNAL VIEW "50-LP-001"

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
INTERNAL VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6E

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
	5000012	Fuse 5x20 mm 250V 1A fast	Wimex	50-LP-001		2
30A1	METSEPM5110	Power Meter PM5110 Modbus	Schneider Electric	50-LP-001	30	1
30QF1	C12B4TM160L	circuit breaker ComPacT NSXm 25kA, TM160D, 4 P 4d, EverLink connectors	Schneider Electric	50-LP-001	30	1
	LV426932T	Deferred rotary shunting, ComPacT NSXm, black shunting, 200mm to 600mm shaft length, IP54	Schneider Electric			1
	LV426913	Long terminal covers 4P	Schneider Electric			1
	LV426804	Minimum voltage coil MN 208/240 Vac 60 Hz - 220/240 Vac 50 Hz?	Schneider Electric			1
30QU1	A9GSB792	Fuse disconnector, Acti9 SBI, 3P+N, 125 A, for fuse 22 x 58 mm	Schneider Electric	50-LP-001	30	1
30QU2	A9N15658	STI isolatable fuse carrier - 3P+N - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	30	1
30QU3	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	30	1
30QU4	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	30	1
30SP1	SPJ316224	P-VMS 280 Fm R 4	SIPF	50-LP-001	30	1
30TA1	METSECT5MB025	TA 250/5 D.26 - sbar 12x40 15x32mm	Schneider Electric	50-LP-001	30	1
30TA2	METSECT5MB025	TA 250/5 D.26 - sbar 12x40 15x32mm	Schneider Electric	50-LP-001	30	1
30TA3	METSECT5MB025	TA 250/5 D.26 - sbar 12x40 15x32mm	Schneider Electric	50-LP-001	30	1
32HL1	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	32	1
32QF1	C10M2TM016	Circuit breaker ComPacT NSX100 AC/DC N 50kA, 2 poles 2d TM16D	Schneider Electric	50-LP-001	32	1
32QU1	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	32	1
32SP1	SPJ316227	P-VMS 280 Fm R 4	SIPF	50-LP-001	32	1
34HL1	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	34	1
34HL2	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	34	1
34HL3	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	34	1
34QF1	18792	Circuit breaker NG125L, 2P, C, 32A, 50 kA	Schneider Electric	50-LP-001	34	1
34QF2	A9F74201	Circuit breaker iC60N, 2P, C, 1A, 6000A	Schneider Electric	50-LP-001	34	1
34QF3	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	34	1
34QU1	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	34	1
34QU2	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	34	1
34QU3	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	34	1
36D1	2907752	QUINT4-S-ORING/12-24DC/1X40 - Redundancy module. Input: 8...30 V DC, Output: 12 - 24 V DC / 1 x 40 A	Phoenix Contact	50-LP-001	36	1
36D2	2907752	QUINT4-S-ORING/12-24DC/1X40 - Redundancy module. Input: 8...30 V DC, Output: 12 - 24 V DC / 1 x 40 A	Phoenix Contact	50-LP-001	36	1
36GD1	2904602	QUINT POWER primary switching power supply with optional output characteristic curve PS/1AC/24DC/20	Phoenix Contact	50-LP-001	36	1
36GD2	2904602	QUINT POWER primary switching power supply with optional output characteristic curve PS/1AC/24DC/20	Phoenix Contact	50-LP-001	36	1
36QF1	A9F89210	Circuit breaker iC60H, 2P, C, 10A, 10000A	Schneider Electric	50-LP-001	36	1
36QF2	A9F89210	Circuit breaker iC60H, 2P, C, 10A, 10000A	Schneider Electric	50-LP-001	36	1
38IL1	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL2	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL3	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL4	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL5	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38LS1	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS2	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS3	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS4	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS5	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38QF1	A9F74201	Circuit breaker iC60N, 2P, C, 1A, 6000A	Schneider Electric	50-LP-001	38	1

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
38QF2	A9F74201	Circuit breaker iC60N, 2P, C, 1A, 6000A	Schneider Electric	50-LP-001	38	1
38QF3	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	38	1
	A9V25263	Vigi iC60 2P 63A 300mA [S] Type A	Schneider Electric			1
38S1	0804025	EO-CF/UT/GN Rail-mountable base	Phoenix Contact	50-LP-001	38	1
38TH1	11101.0-00	AC thermostat 0 ... 60°C 1 NC	Stego	50-LP-001	38	1
38V1	01873.0-30	Fan: AC; axial; 230VAC; 305m3/h; 64dBA; IP54; L: 300mm	Stego	50-LP-001	38	1
	11873.0-00	Vent, gray, Stego filter fans 01873.0-30 & 01873.9-30 "IN", 257 mm	Stego			1
38V2	01873.0-30	Fan: AC; axial; 230VAC; 305m3/h; 64dBA; IP54; L: 300mm	Stego	50-LP-001	38	1
	11873.0-00	Vent, gray, Stego filter fans 01873.0-30 & 01873.9-30 "IN", 257 mm	Stego			1
38V3	01873.0-30	Fan: AC; axial; 230VAC; 305m3/h; 64dBA; IP54; L: 300mm	Stego	50-LP-001	38	1
	11873.0-00	Vent, gray, Stego filter fans 01873.0-30 & 01873.9-30 "IN", 257 mm	Stego			1
40HL1	XB4BVB1	white complete pilot light Ø22 plain lens with integral LED 24V	Schneider Electric	50-LP-001	40	1
40QF1	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF2	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF3	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF4	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF5	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF6	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	40	1
40QF7	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	40	1
40QF8	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF9	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF10	A9F75206	Circuit breaker iC60N, 2P, D, 6A, 6000A	Schneider Electric	50-LP-001	40	1
40QF11	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF12	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF13	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QU1	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	40	1
42QF1	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	42	1
50-LP-001	ENUX062006PR	CABINET E NUX PR 0600X2000X060 FRONT DOOR BLIND+ POST PANEL	ETA	50-LP-001	6	5
	EUFI060200	ENUX SIDE WALLS 0600X2000 - 2 PCS. PLATE	ETA			1
	EUPA-060200	INSIDE PLATE FRONTAL ENUX 600X2000	ETA			5
	WTKB-002	ENUX PLATE MOUNTING KIT ALSO FOR SPLIT PLATES	ETA			5
	EUZE-A100	ENUX UNIVERSAL ANGLES SOCKET H=100 (4PCS) WITH MOUNTING ACCESSORIES	ETA			5
	EUZE-T0600	ENUX PLINTH CROSSBARS L=600 (2PCS)	ETA			6
	EUKU-002	UNION KIT AND NUX 8PCS - H=1600/1800/2000/2200	ETA			4
	EUKU-003	UNION BRACKETS KIT AND NUX 8PCS - H=1600/1800/2000/2200	ETA			4
	TR-01-50100	PAIR TRAV.SOLL.L=3600 PROFILE 50X100X8 MM	ETA			1
60A1	ATV630U75N4	Altivar630 threephase 380 - 480 Vac 50/60 Hz Pot.7.5Kw	Schneider Electric	50-LP-001	60	1
60KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	60	1
60KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	60	1
60QF1	GV3L25	Motor circuit breaker, TeSys GV3, 3P, 25 A, magnetic, rotary handle, EverLink terminals	Schneider Electric	50-LP-001	60	1
	GVAN11	TeSys GV2 & GV3 - auxiliary contact block - 1 NO + 1 NC	Schneider Electric			1
62A1	ATV630U75N4	Altivar630 threephase 380 - 480 Vac 50/60 Hz Pot.7.5Kw	Schneider Electric	50-LP-001	62	1
62KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	62	1
62KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	62	1

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
62QF1	GV3L25	Motor circuit breaker, TeSys GV3, 3P, 25 A, magnetic, rotary handle, EverLink terminals	Schneider Electric	50-LP-001	62	1
	GVAN11	TeSys GV2 & GV3 - auxiliary contact block - 1 NO + 1 NC	Schneider Electric			1
66A1	EPOWER/3PH-50A/600V/XXX/XXX/XXX/XXX/00/XX/10/XX/		Eurotherm	50-LP-001	66	1
66A2	32ENG		Eurotherm	50-LP-001	66	1
66KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	66	1
66KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	66	1
66QU1	DF143C	FUSE HOLDER 50A 14X51 3P	Schneider Electric	50-LP-001	66	1
66QU2	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	66	1
66QU3	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	66	1
70Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	70	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
70Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	70	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
72Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	72	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
72Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	72	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
74Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	74	1
	LUCA1XBL	Standard control unit, TeSys Ultra, 0.35-1.4A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
74Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	74	1
	LUCA1XBL	Standard control unit, TeSys Ultra, 0.35-1.4A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
76Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	76	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
76Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	76	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
76Q3	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	76	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20B

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
76Q3	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric	50-LP-001	76	1
77Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	77	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
77Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	77	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
77Q3	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	77	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
78Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	78	1
	LUCC1XBL	Advanced control unit, TeSys Ultra, 0.35-1.4A, 1P motors, protection & diagnostic, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
78Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	78	1
	LUCC1XBL	Advanced control unit, TeSys Ultra, 0.35-1.4A, 1P motors, protection & diagnostic, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
78Q3	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	78	1
	LUCC1XBL	Advanced control unit, TeSys Ultra, 0.35-1.4A, 1P motors, protection & diagnostic, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
88KA1	93018240	Socket with screw terminals Mounting: 35 mm blind bar Colour: Blue Protection class: IP 20	Finder	50-LP-001	88	1
	345170600010	Ultraslim relay (EMR)	Finder			1
88QF1	A9F94204	Circuit breaker iC60L, 2P, C, 4A, 15000A	Schneider Electric	50-LP-001	88	1
90QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	90	1
92QF1	A9F94202	Circuit breaker iC60L, 2P, C, 2A, 15000A	Schneider Electric	50-LP-001	92	1
94QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	94	1
96QF1	A9F94216	Circuit breaker iC60L, 2P, C, 16A, 15000A	Schneider Electric	50-LP-001	96	1
100QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	100	1
110QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	110	1
110QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	110	1
112QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	112	1
112QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	112	1
114QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	114	1
114QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	114	1
116QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	116	1
116QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	116	1
118QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	118	1
118QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	118	1
148A1	6GK5208-0BA00-2AC2	XC208 Managed switch con 8 porte RJ45 100Mbit/s	Siemens	50-LP-001	148	1

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
148A2	6GK5208-0BA00-2AC2	XC208 Managed switch con 8 porte RJ45 100Mbit/s	Siemens	50-LP-001	148	1
150A1	6AV2128-3QB06-0AX1	SIMATIC HMI MTP1500, Unified Comfort Panel, touch operation, 15.6" widescreen TFT display	Siemens	50-LP-001	150	1
152D1	6ES7515-2RM00-0AB0	CPU 1515R-2 PN	Siemens	50-LP-001	152	1
154D1	6ES7515-2RM00-0AB0	CPU 1515R-2 PN	Siemens	50-LP-001	154	1
160A1	6ES7155-6AU01-0CN0	Interface module IM 155-6 PN HF/2 V4.2	Siemens	50-LP-001	160	1
	6ES7193-6AR00-0AA0	BBA 2×RJ45 (PROFINET BusAdapter with standard Ethernet socket for IM-PN)	Siemens			1
160AI1	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160AI2	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AI3	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AI4	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AI5	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AO1	6ES7135-6HD00-0BA1	Analog Output Module: AQ 4xU/I ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160AO2	6ES7135-6HD00-0BA1	Analog Output Module: AQ 4xU/I ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI1	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160DI2	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI3	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI4	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI5	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160DI6	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI7	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI8	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DO1	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160DO2	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DO3	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DO4	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20D

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
196SL1				50-LP-001	196	1
210KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA8	2967109	PLC-RSC- 24DC/1-1/ACT Screw relays	Phoenix Contact	50-LP-001	210	1
212KA1	2981020	PSR-SCP- 24DC/ESP4/2X1/1X2 Safety Module	Phoenix Contact	50-LP-001	212	1
212KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA4	2967109	PLC-RSC- 24DC/1-1/ACT Screw relays	Phoenix Contact	50-LP-001	212	1
212KA5	2967109	PLC-RSC- 24DC/1-1/ACT Screw relays	Phoenix Contact	50-LP-001	212	1
212KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
214KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
216KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
218KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
220KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20E

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
220KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
222KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
224KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
320KA1	2981020	PSR-SCP- 24DC/ESP4/2X1/1X2 Safety Module	Phoenix Contact	50-LP-001	320	1
320KA2	2981020	PSR-SCP- 24DC/ESP4/2X1/1X2 Safety Module	Phoenix Contact	50-LP-001	320	1
FDI	5000040	Fuse 5x20 mm 250V 0.5A delayed	Wimex	50-LP-001		16
FDI	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		16
FHE	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		1
FHE	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		1
TAI	5000030	Fuse 5x20 mm 250V 0.05A delayed	Wimex	50-LP-001		16
TAI	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		16
TAO	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		6
TDI	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		66
TDO	5000012	Fuse 5x20 mm 250V 1A fast	Wimex	50-LP-001		6
TDO	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		16
	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact			20
XAI	5000030	Fuse 5x20 mm 250V 0.05A delayed	Wimex	50-LP-001		60
XAI	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		60
XAO	5000030	Fuse 5x20 mm 250V 0.05A delayed	Wimex	50-LP-001		4
XAO	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		4
XDI	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		106
XDO	5000012	Fuse 5x20 mm 250V 1A fast	Wimex	50-LP-001		36
XDO	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		2
XDO	5000015	Fuse 5x20 mm 250V 2A fast	Wimex	50-LP-001		4
XDO	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		44
	3046139	UT 4-MT Universal screw clamp	Phoenix Contact			28

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
XEXT	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		5
XINS1	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		4
XINS2	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		10
XINS2	5000007	Fuse 5x20 mm 250V 0.315A fast	Wimex	50-LP-001		10
XINS2	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		20
XM1	3044131	UT 6 Universal screw clamp	Phoenix Contact	50-LP-001		6
	3044157	UT 6-PE Universal screw clamp	Phoenix Contact			2
	3044102	UT 4 Universal screw clamp	Phoenix Contact			32
	3044128	UT 4-PE Universal screw clamp	Phoenix Contact			16
XM2	3044102	UT 4 Universal screw clamp	Phoenix Contact	50-LP-001		42
	3044128	UT 4-PE Universal screw clamp	Phoenix Contact			15
XM3	3044212	UT 16-PE Universal screw clamp	Phoenix Contact	50-LP-001		1
	3044199	UT 16 Universal screw clamp	Phoenix Contact			3
XMAIN	3213140	UKH 70 Universal Screw Clamp Power	Phoenix Contact	50-LP-001		4
XPF	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		1
XPF	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		1
XSL1	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		2
XUPS	3044131	UT 6 Universal screw clamp	Phoenix Contact	50-LP-001		2
	3044128	UT 4-PE Universal screw clamp	Phoenix Contact			1

LEGENDA SIMBOLI \ SYMBOLS LEGEND

Simbolo Ref.	Descrizione Description
	File : 2 PIN + PE CON RIF.
	Blocco generico 3 PIN File : 3 PIN
	File : 4 PIN + PE CON RIF.
	Modulo ingressi digitali: DI 16x24VDC ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7131-6BH01-0BA0_193-6BP20-0BA0
	Modulo ingressi digitali: DI 16x24VDC ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7131-6BH01-0BA0_193-6BP20-0DA0
	Modulo uscite digitali: DQ 16x24VDC/0.5A ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7132-6BH01-0BA0_193-6BP20-0BA0
	Modulo uscite digitali: DQ 16x24VDC/0.5A ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7132-6BH01-0BA0_193-6BP20-0DA0
	Modulo ingressi analogici: AI 8xI 2-/4-wire BA;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7134-6GF00-0AA1_193-6BP20-0BA0
	Modulo ingressi analogici: AI 8xI 2-/4-wire BA;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7134-6GF00-0AA1_193-6BP20-0DA0
	Modulo uscite analogiche: AQ 4xU/I ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7135-6HD00-0BA1_193-6BP20-0BA0

Simbolo Ref.	Descrizione Description
	Modulo uscite analogiche: AQ 4xU/I ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. separati File : 6ES7135-6HD00-0BA1_193-6BP20-0DA0
	Modulo di interfaccia IM 155-6 PN HF/2 V4.2;BA 2×RJ45 (BusAdapter PROFINET con presa Ethernet) File : 6ES7155-6AU01-0CN0_193-6AR00-0AA0
	Ventilatore File : E1
M 3AC	Ventilatore trifase File : E2
M 1AC	Ventilatore monofase File : E3
	Elemento riscaldante 3P collegamento a stella File : E7
	Elemento riscaldante 3P collegamento a triangolo File : E9
	Fusibile unipolare File : F3
	Segnalazione luminosa File : H5
M 3~	Motore asincrono trifase File : M2

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SYMBOL LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

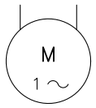
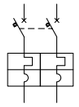
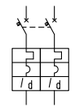
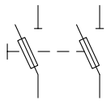
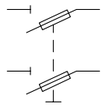
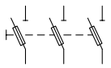
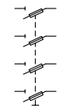
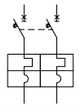
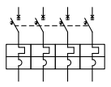
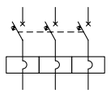
SHEET 25

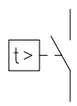
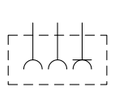
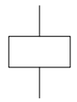
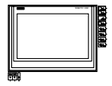
REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LEGENDA SIMBOLI \ SYMBOLS LEGEND

Simbolo Ref.	Descrizione Description
	Motore corrente alternata monofase File : M9
	Inter. automatico magnetotermico bipolare File : Q10
	Interruttore automatico bipolare magnetotermico con differenziale File : Q14
	Sezionatore bipolare con fusibili File : Q82
	Sezionatore bipolare con fusibile File : Q820
	Sezionatore tripolare con fusibili File : Q83
	Sezionatore tetrapolare con fusibile File : Q840
	Inter. automatico magnetotermico sezionatore bipolare File : Q135
	Inter. automatico magnetotermico sezionatore tetrapolare File : Q137
	Inter. automatico tripolare con magnetico File : Q148

Simbolo Ref.	Descrizione Description
	Fine corsa NO File : S10
	Comandato dal livello di un fluido (livellostato) NC File : S15C
	Comandato dalla temperatura (termostato) NO File : S18
	Trasformatore di corrente File : T10
	Presa di corrente bipolare con contatto PE File : X1
	Bobina Relè Aux File : KA1
	PM5110 power meter File : PM5110 POWER METER
	SIMATIC HMI MTP1500, Unified Comfort Panel, touch operation, 15.6" widescreen TFT display File : S_6AV2128-3QB06-0AX1
	CPU 1515R-2 PN File : S_6ES7515-2RM00-0AB0
	Processore di comunicazione, CP 1543-1, Ethernet Security File : S_6GK7543-1AX00-0XE0

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SYMBOL LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

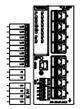
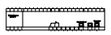
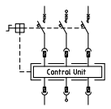
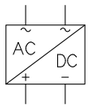
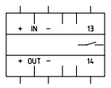
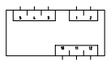
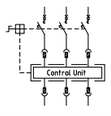
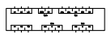
SHEET 25A

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LEGENDA SIMBOLI \ SYMBOLS LEGEND

Simbolo Ref.	Descrizione Description	Simbolo Ref.	Descrizione Description
	XC208 Managed switch con 8 porte RJ45 100Mbit/s File : XC208		File :
	Altivar630 trifase 380 - 480 Vac 50/60 Hz Pot.7.5Kw File : ALT630		File :
	Avvio motore Tesys Ultra - Base di potenza un senso di marcia File : LUB1F_N		File :
	Convertitore di corrente AC-DC monofase File : ALIMENTATORE CON CONTATTO NO		File :
	 File : BLOCCO GENERICO		File :
	Redundancy module File : DIODO PHOENIX QUINT		File :
	Gesint K39 File : GESINT K39		Morsetto fusibilato per sezionamento interno quadro File : _MORS-F3
	INTERNAL LIGHTING File : LAMPADA		Morsetto passante File : _MORS-N2
	Avvio motore Tesys Ultra - Base di potenza un senso di marcia File : LUB_N		Morsetto sezionabile a coltello File : _MORS-S2
	Redundancy module File : SCR EUROTHERM2		Morsetto fusibilato File : _MORS-F2

03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SYMBOL LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

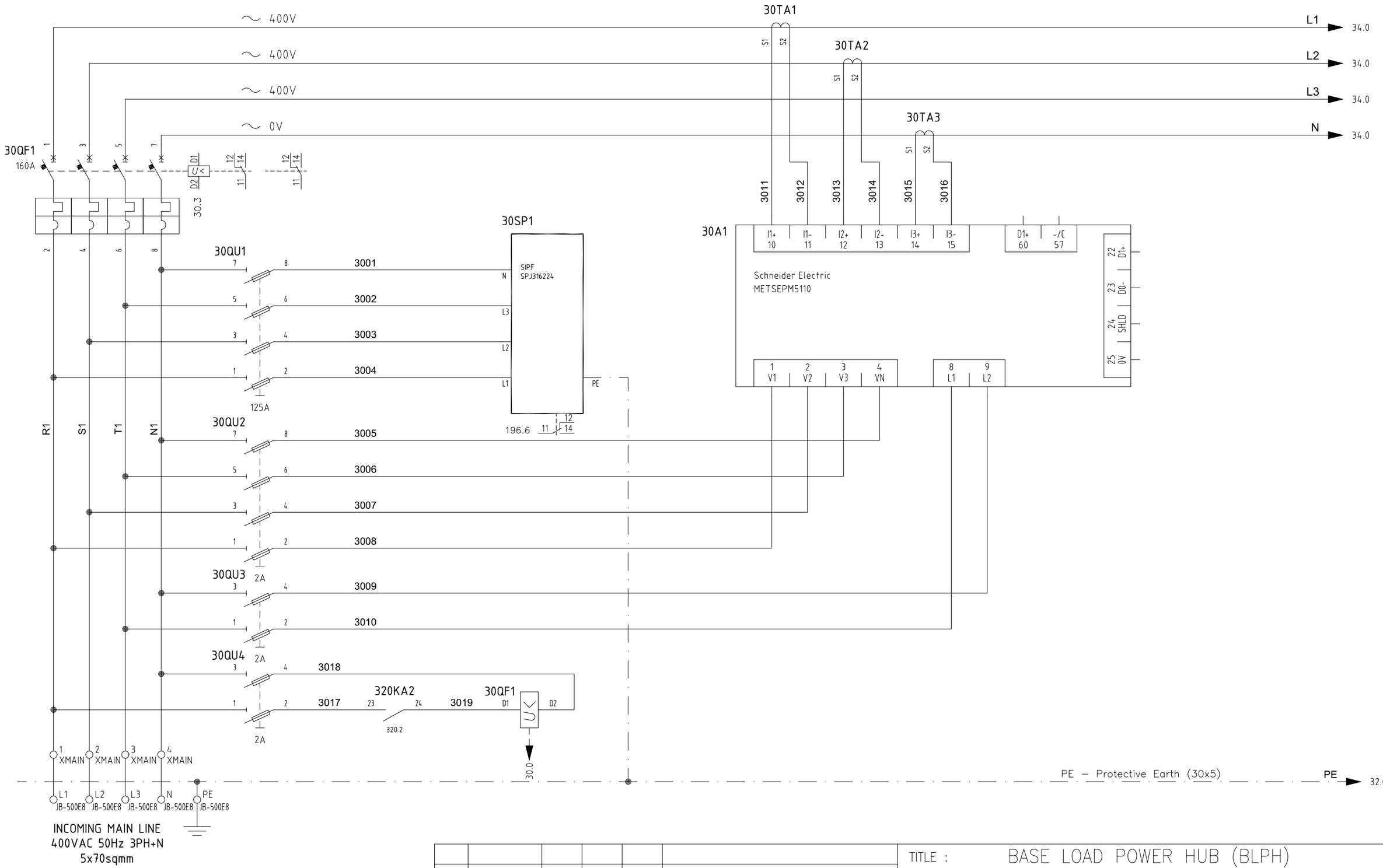
DRAWING NO. 1724000448-IN-DG-00014

SHEET 25B

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
INCOMING MAIN LINE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

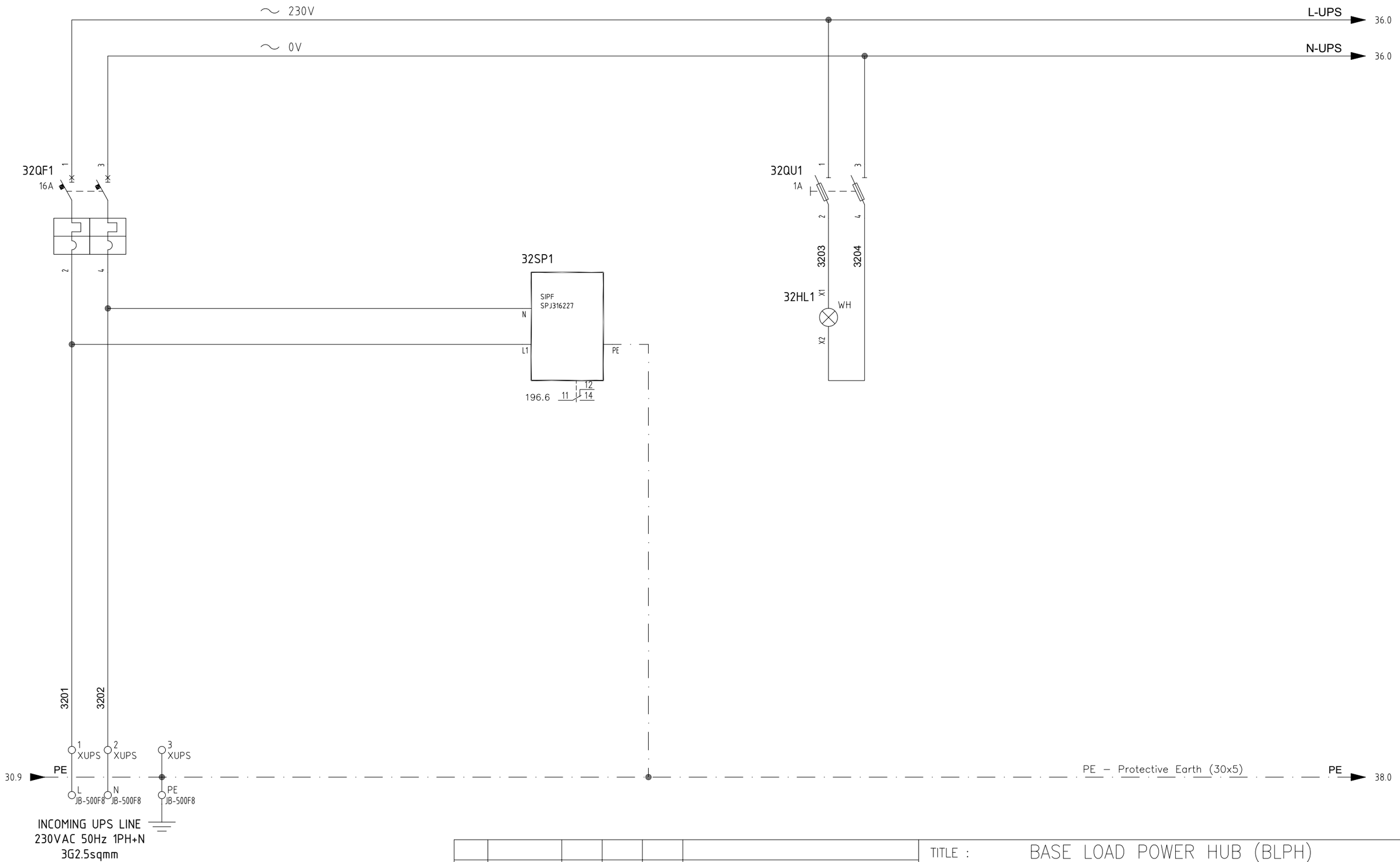
DRAWING NO. 1724000448-IN-DG-00014

SHEET 30

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
INCOMING UPS LINE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

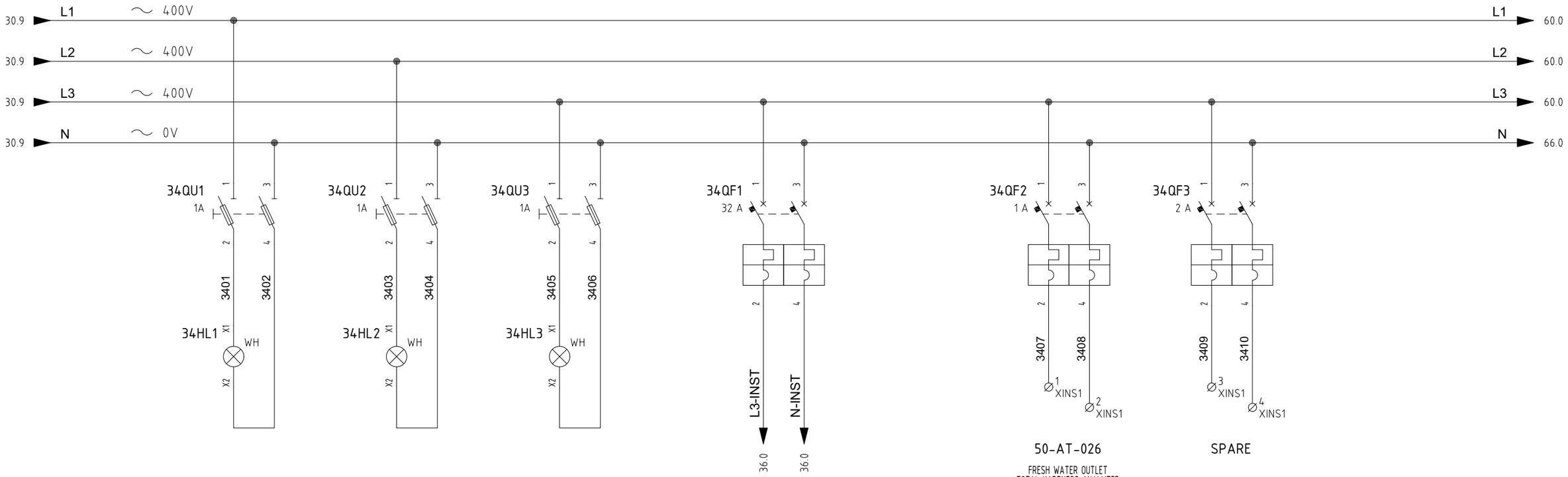
DRAWING NO. 1724000448-IN-DG-00014

SHEET 32

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



INSTRUMENTS POWER
DISTRIBUTION SECTION

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
230VAC DISTRIBUTION

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

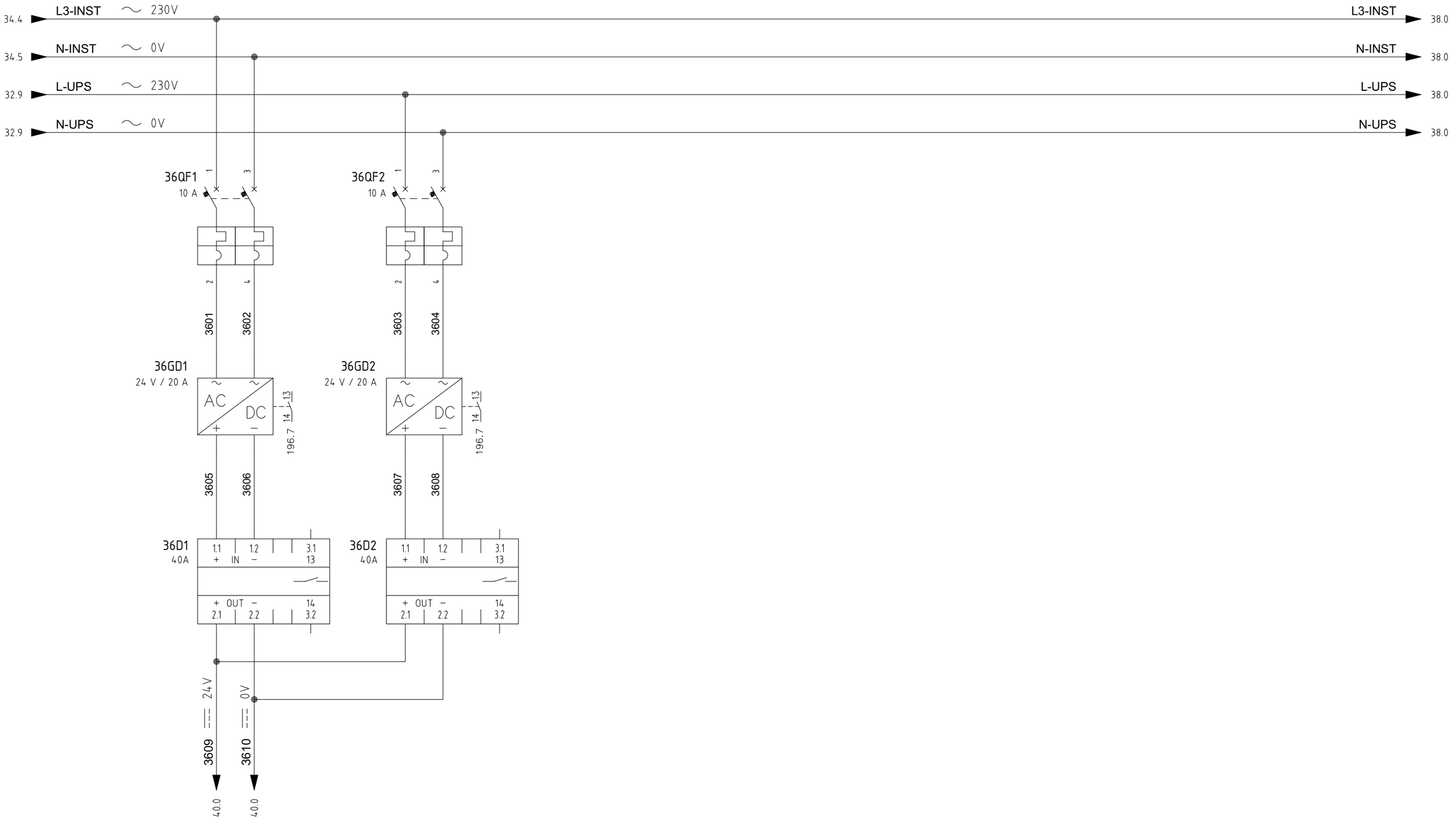
DRAWING NO. 1724000448-IN-DG-00014

SHEET 34

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
230VAC DISTRIBUTION

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 36

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm

36.9 L3-INST ~ 230V
36.9 N-INST ~ 0V
36.9 L-UPS ~ 230V
36.9 N-UPS ~ 0V

L3-INST /./
N-INST /./
L-UPS 96.0
N-UPS 96.0

38QF1 1 A
38QF2 1 A
38QF3 4 A
30mA

3801 3802 3811 3812 3809 3810

38LS1 38LS2 38LS3 38LS4 38LS5
3803 3804 3805 3806 3807
38IL1 38IL2 38IL3 38IL4 38IL5

38TH1 t>
3813
38V1 38V2 38V3

38S1

32.9 PE — PE – Protective Earth (30x5) — PE 60.0

INTERNAL LIGHTING
VENTILATING FAN
SOCKET (CE 7/4)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

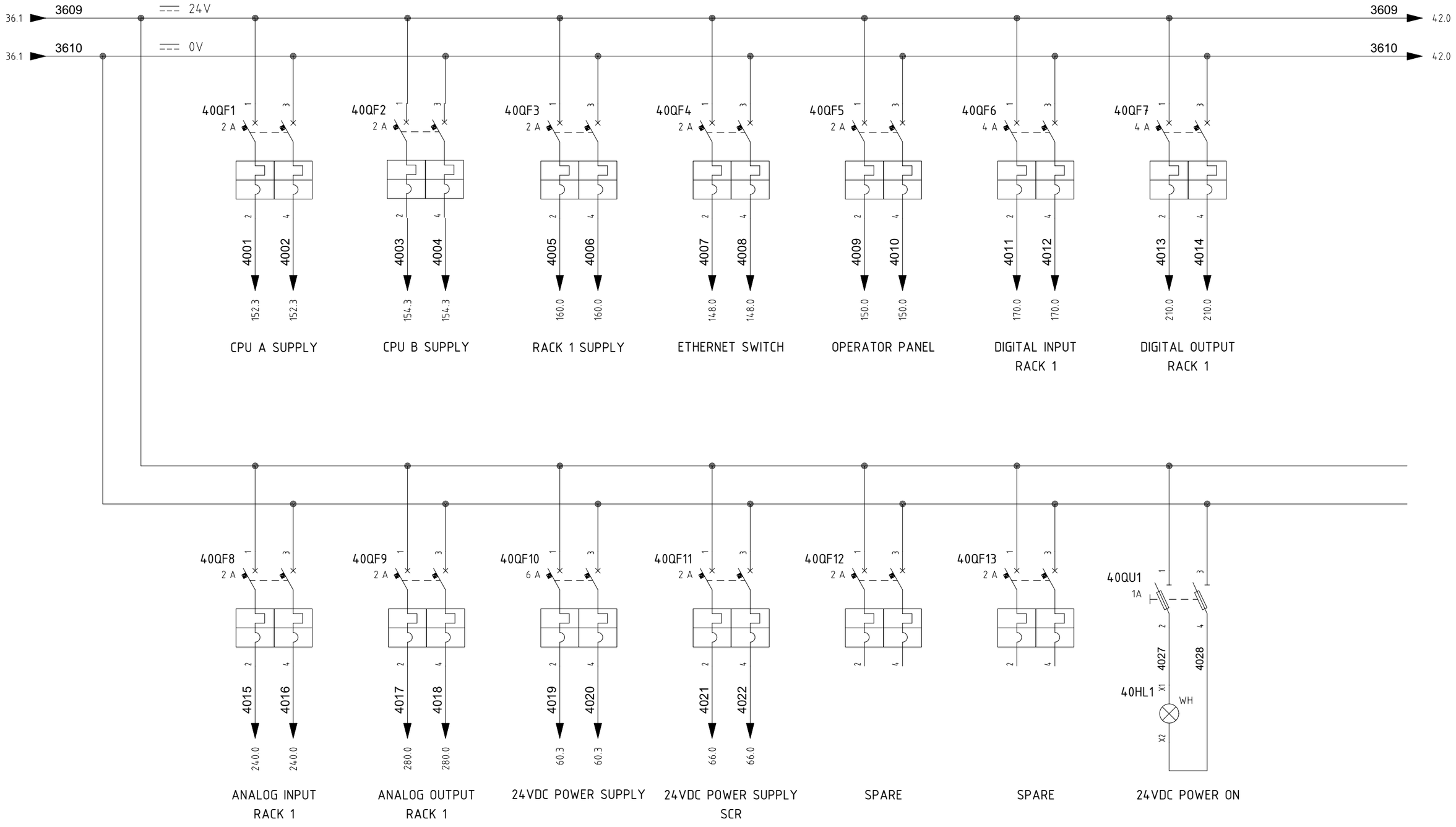
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
230VAC AUXILIARY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 38 | REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
24VDC DISTRIBUTION

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

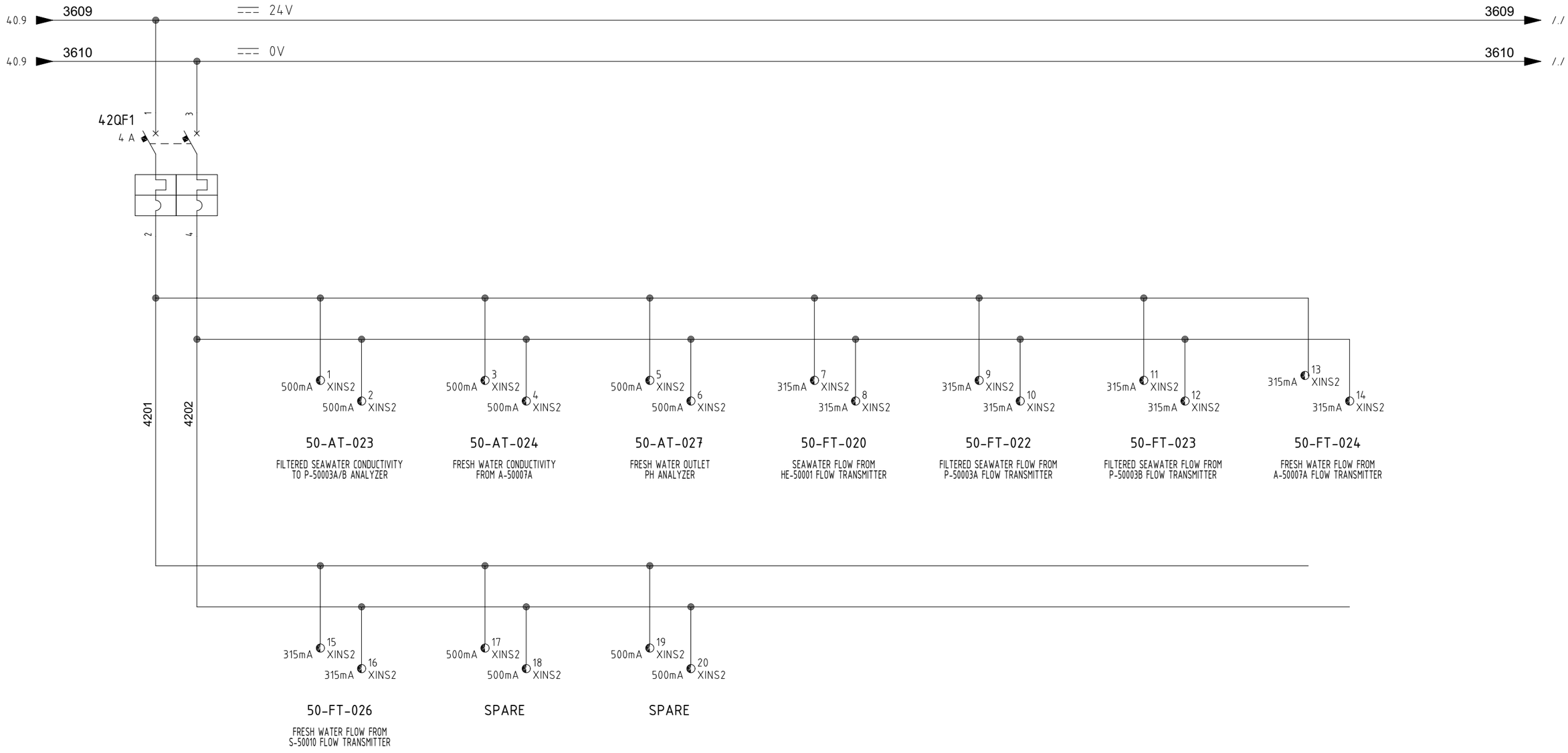
DRAWING NO. 1724000448-IN-DG-00014

SHEET 40

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
24VDC INSTRUMENT SUPPLY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 42

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm

34.9 L1 ~ 400V L1 62.0

34.9 L2 ~ 400V L2 62.0

34.9 L3 ~ 400V L3 62.0

60QF1
25A

60R01 2 | 60S01 4 | 60T01 6

180.3 | 32 | 44 | 31 | 43

304.5 30409 | 304.5 30410 | 242.3 6001 | 242.3 6002 | 280.3 28002 | 280.2 28001

60A1

L1/R	L2/S	L3/T	PE		P24	0V	DI1	DI2	DI3	DI4	DI5	DI6	24V	STOA	STOB	24V	COM	AQ1	AQ2	10V	AI1	COM	AI2	AI3

Schneider Electric
ALTIVAR630

Reference	Fg./Sh.
Comunication Board	
extended I/O module	

GRAFIC DISPLAY

Integrated Modbus

U	V	W	PE		R1A	R1B	R1C	R2A	R2C	R3A	R3C	RJ45	RJ45	RJ45

60U01 | 60V01 | 60W01 | 60PE01

38.9 PE ——— PE 62.0

1 XM1 | 2 XM1 | 3 XM1 | 4 XM1

U | V | W | PE

P-50004A

M 3~

HP SWRO PUMP

400V - 50Hz - 7,5kW

6003 | 6004

40.3 4019 ——— 4019 62.3

60KA1 A1 | 60KA2 A1

A2 | A2

40.4 4020 ——— 4020 62.3

180.3 11 12 14

180.2 11 12 14

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
HP SWRO PUMPS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 60

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm

60.9 L1 ~ 400V → L1 66.0

60.9 L2 ~ 400V → L2 66.0

60.9 L3 ~ 400V → L3 66.0

62QF1
25A

62R01 62S01 62T01

184.3

30809 30810 6201 6202 28202 28201

62A1

L1/R	L2/S	L3/T	PE		P24	0V	DI1	DI2	DI3	DI4	DI5	DI6	24V	STOA	STOB	24V	COM	AQ1	AQ2	10V	AI1	COM	AI2	AI3

Schneider Electric
ALTIVAR630

Reference	Fg./Sh.
Comunication Board	
extended I/O module	

GRAFIC DISPLAY

Integrated Modbus

U	V	W	PE		R1A	R1B	R1C	R2A	R2C	R3A	R3C	RJ45	RJ45	RJ45

62U01 62V01 62W01 62PE01

60.2 PE → PE 66.0

5 XM1 6 XM1 7 XM1 8 XM1

P-50004B U V W PE

M 3~

HP SWRO PUMP SPARE

400V - 50Hz - 7,5kW

6203 6204

60.5 4019 → 4019 300.0

62KA1 A1 A2 62KA2 A1 A2

60.5 4020 → 4020 300.0

184.3 11 12 14 184.2 11 12 14

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
HP SWRO PUMPS SPARE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 62

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm

62.9 L1 ~ 400V → L1 70.0
62.9 L2 ~ 400V → L2 70.0
62.9 L3 ~ 400V → L3 70.0
34.9 N ~ 0V → N 78.0
40.4 4021 ⎓ 24V → 4021 /./ ; 4021 66.2 ; 4021 66.4

66QU1 50A — 66R01 / 66S01 / 66T01
66QU2 2A — 6601 / 6602 — 28005 (280.5) / 28006 (280.5)
66QU3 2A — 6605 / 6606
170.6 → 17008
500mA FHE — 6610
6611

66A1
1 L1 | 3 L2 | 5 L3
L 230V | N 0V — SK8
2 AI1+ | 3 AI1- | 8 DI1 | 9 DI2 | 10 0V — SK1
Eurotherm
EPOWER/3PH-50A/600V/XXX/XXX/XXX/XXX/00/XX/I0/XX/
SK6: T1 2 | T2 4 | T3 6 — NO 14 | C 11 | NC 12
SK3: NO 10 | C 11 | NC 12

66A2
1A NO | 2A NC | 1B C
L 230V | N 0V
32ENG
Eurotherm
HF | HE | HD
+ VI | - V+ | - V-

66U01 / 66V01 / 66W01

66KA1 A1 — 6603 — 4021 — 66.9 — A2
66KA2 A1 — 6604 — 4021 — 66.9 — A2

W/ORANGE | ORANGE | W/GREEN
6607 ∅3 XEXT | 6608 ∅4 XEXT | 6609 ∅5 XEXT

40.5 4022 ⎓ 0V → 4022 /./

196.3 11 12 14
196.4 11 12 14

62.2 PE → PE 70.0
PE – Protective Earth (30x5)

1 XM3 | 2 XM3 | 3 XM3 | 4 XM3
L1 | L2 | L3
H-50001
400V - 50Hz - 30kW
ELECTRIC HEATER

PSC DOC. REF: PK2885-A-002

CROSSWIND | ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
ELECTRIC HEATER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 66 | REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm

66.9 L1 ~ 400V
66.9 L2 ~ 400V
66.9 L3 ~ 400V

L1 72.0
L2 72.0
L3 72.0

70Q1

1/L1 3/L2 5/L3 13 14 21 22 33 34 43 44 17 18 95 96

3-12A

170.5 170.6

Control Unit

Reference	Fg./Sh.
Control Unit	
Coil	300.3
Module	

2/T1 4/T2 6/T3

70U01 70V01 70W01

70Q2

1/L1 3/L2 5/L3 13 14 21 22 33 34 43 44 17 18 95 96

3-12A

174.5 174.6

Control Unit

Reference	Fg./Sh.
Control Unit	
Coil	304.3
Module	

2/T1 4/T2 6/T3

70U02 70V02 70W02

66.9 PE

PE – Protective Earth (30x5)

PE 72.0

P-50003A

1 XM2 2 XM2 3 XM2 4 XM2

U V W PE

M 3~

BOOSTER SW PUMP

400V - 50Hz - 4kW

P-50003B

5 XM2 6 XM2 7 XM2 8 XM2

U V W PE

M 3~

BOOSTER SW PUMP SPARE

400V - 50Hz - 4kW

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BOOSTER SW PUMPS MOTORS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

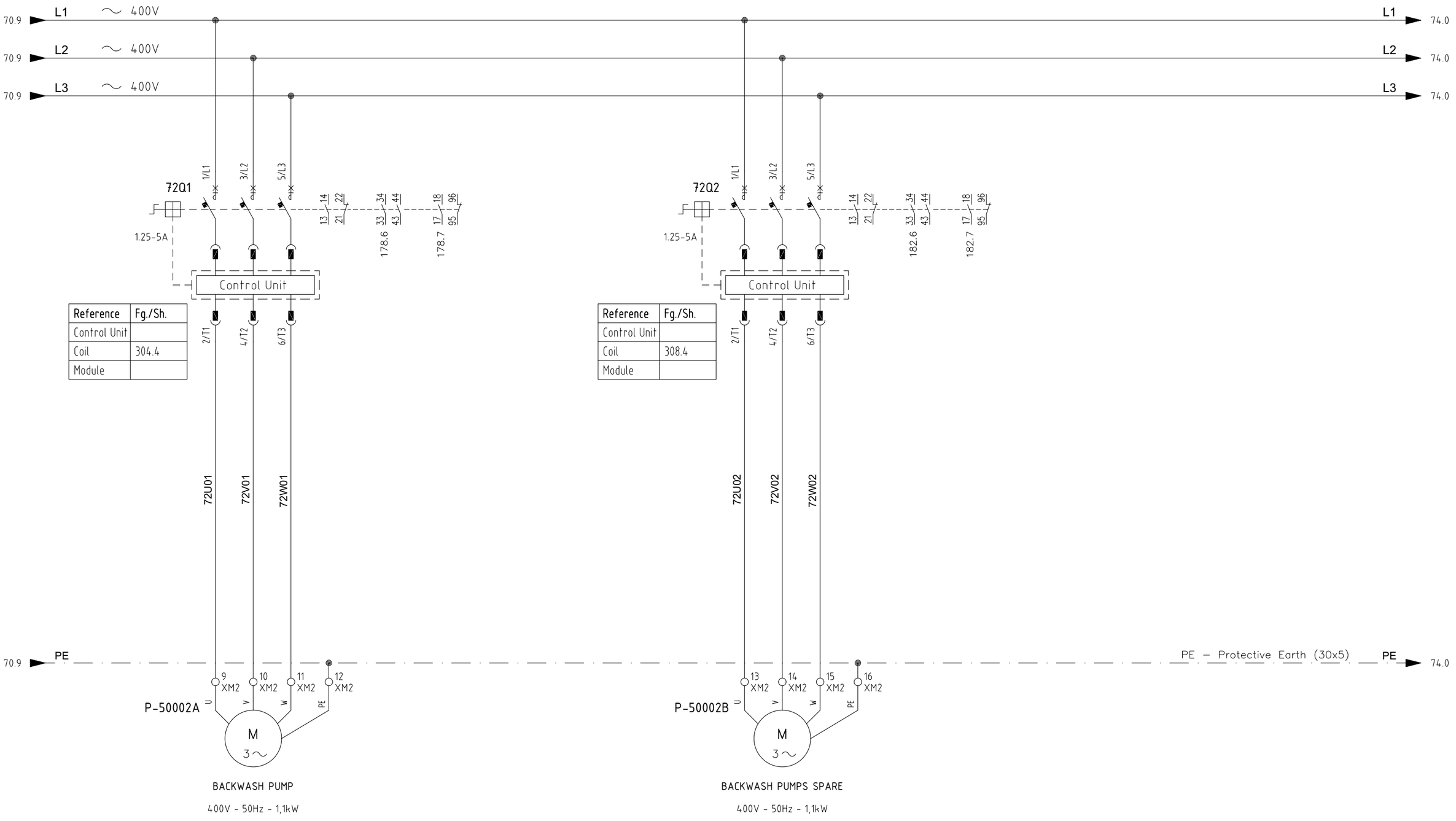
DRAWING NO. 1724000448-IN-DG-00014

SHEET 70

REV. 00

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BACKWASH PUMPS MOTORS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

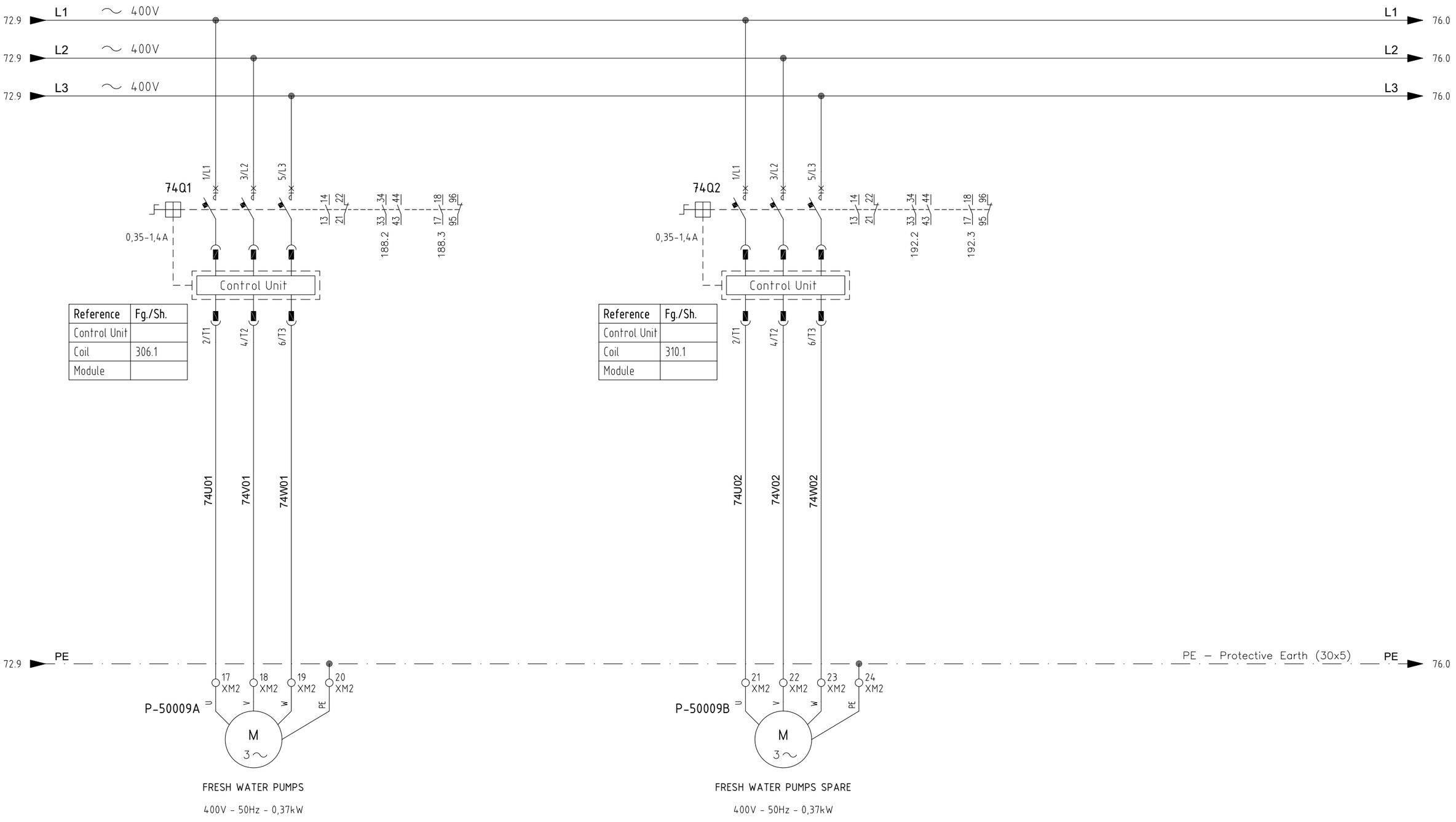
DRAWING NO. 1724000448-IN-DG-00014

SHEET 72

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



FRESH WATER PUMPS

400V - 50Hz - 0,37kW

FRESH WATER PUMPS SPARE

400V - 50Hz - 0,37kW

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
FRESH WATER PUMPS MOTORS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

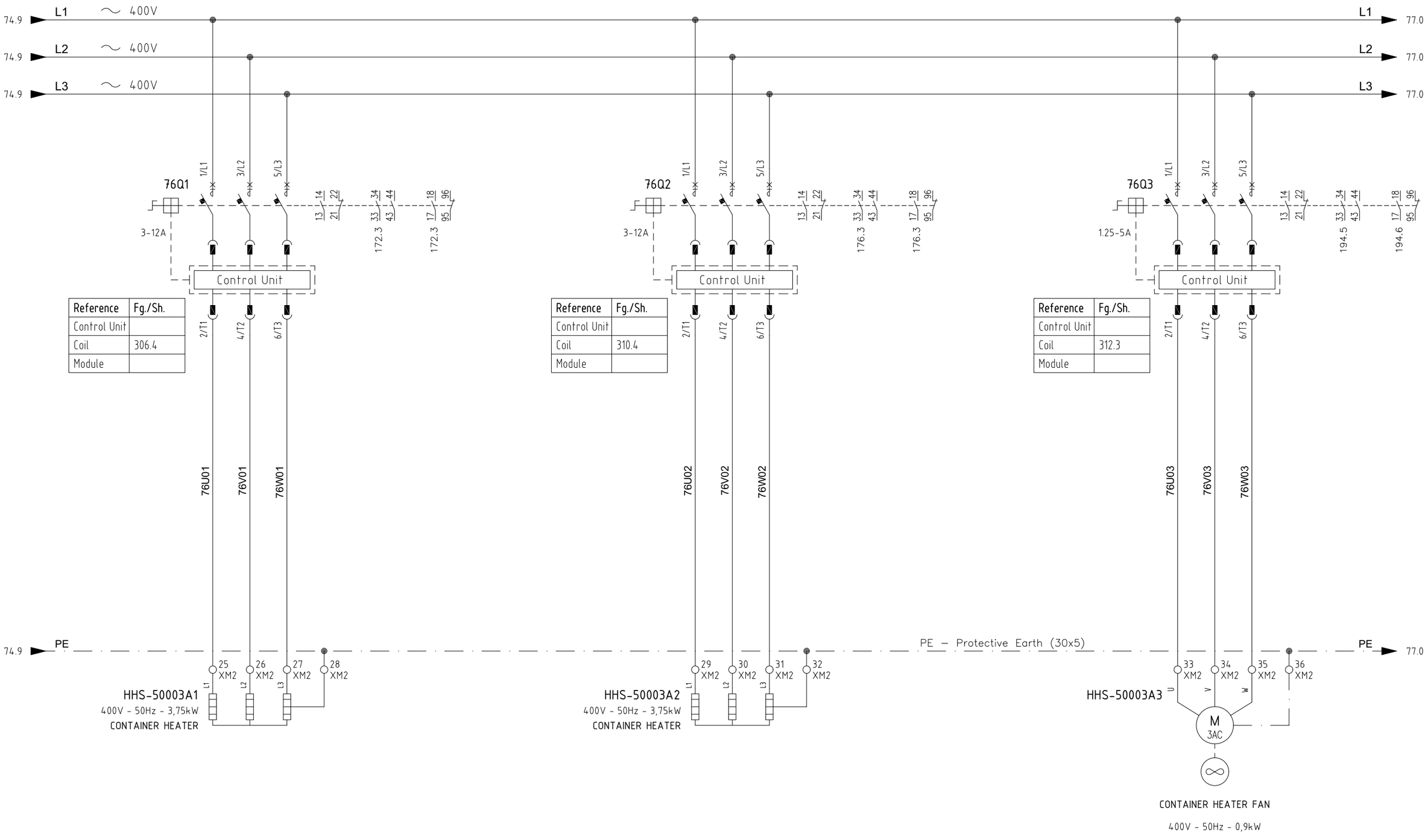
DRAWING NO. 1724000448-IN-DG-00014

SHEET 74

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CONTAINER HEATER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

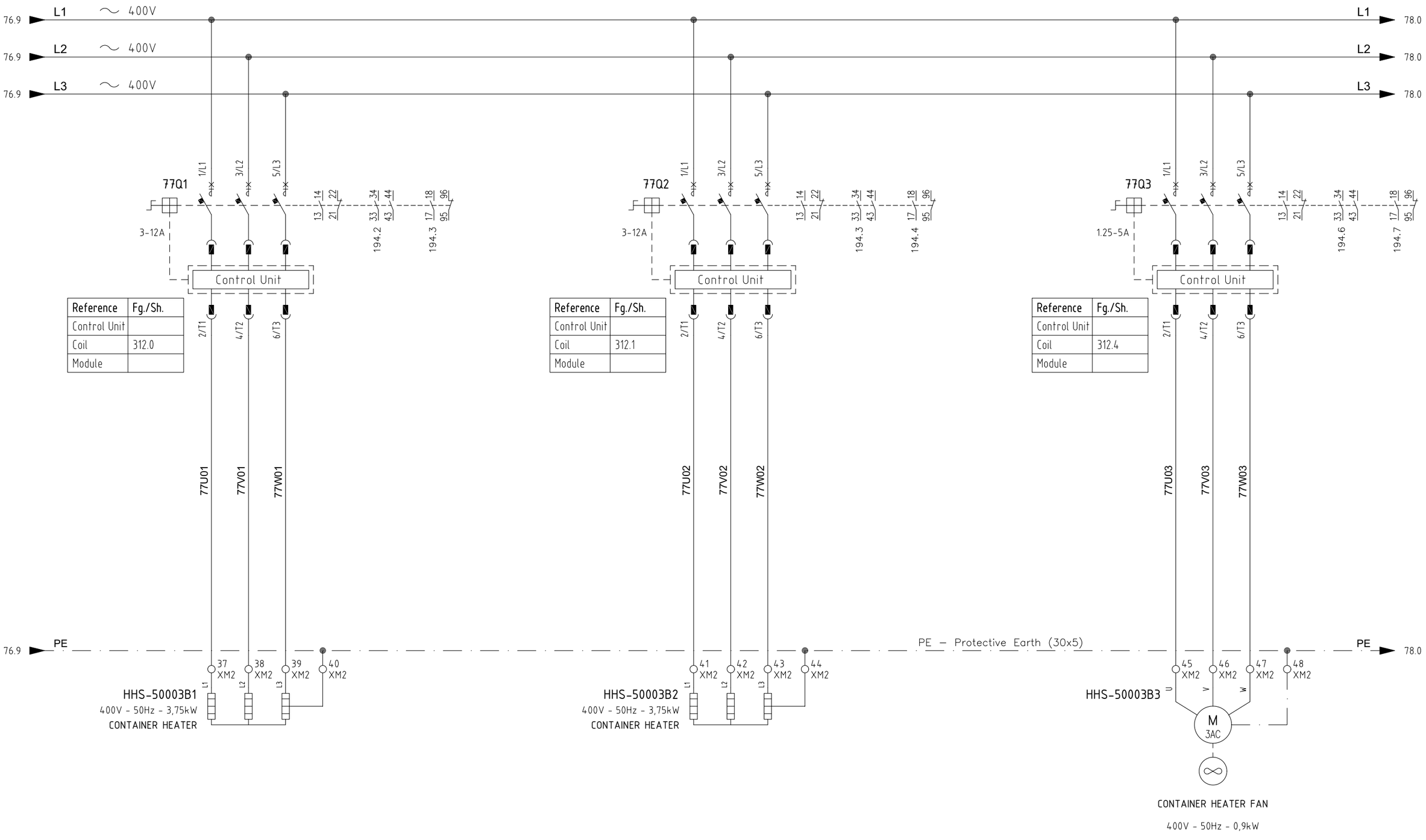
DRAWING NO. 1724000448-IN-DG-00014

SHEET 76

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CONTAINER HEATER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

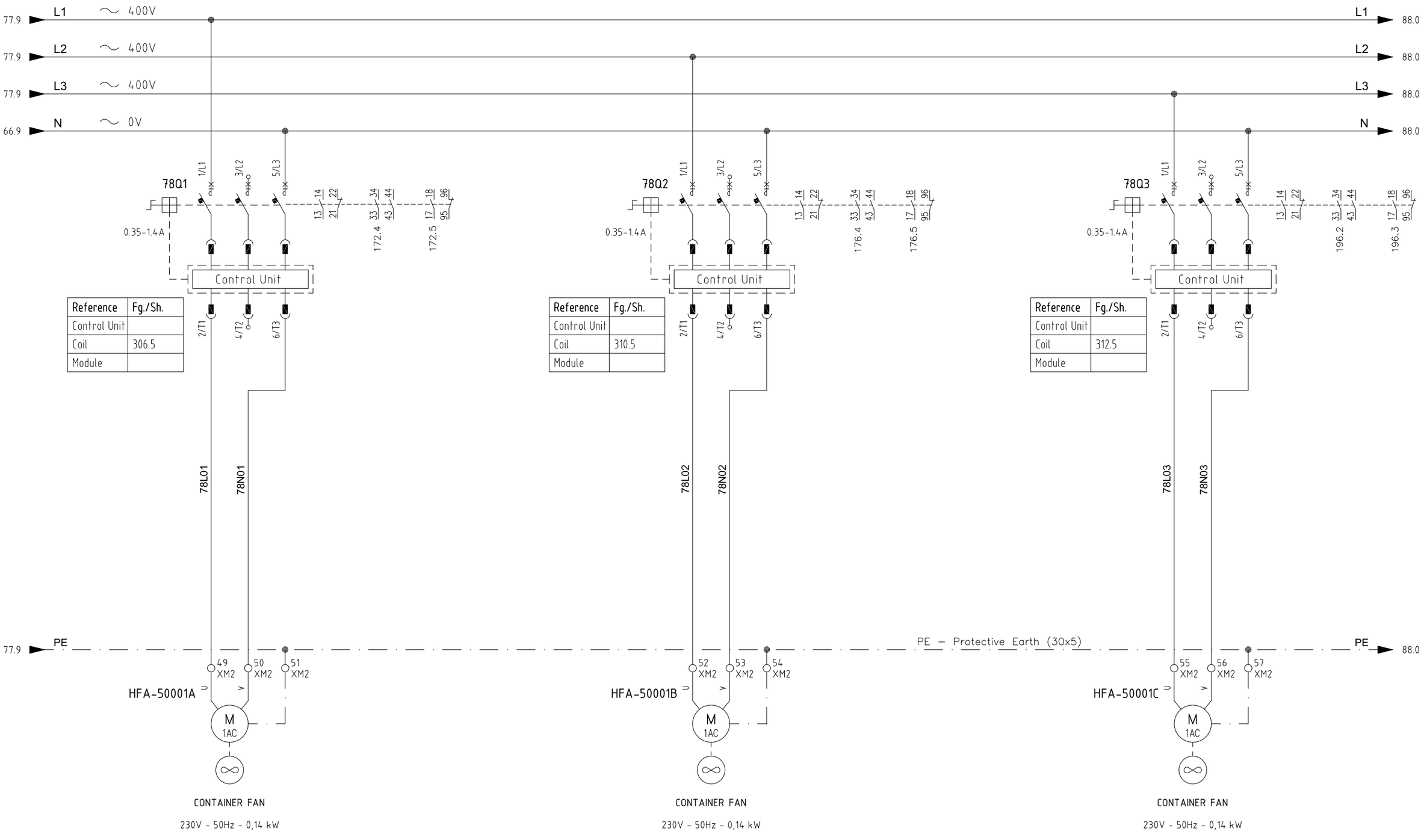
DRAWING NO. 1724000448-IN-DG-00014

SHEET 77

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



Reference	Fg./Sh.
Control Unit	
Coil	306.5
Module	

Reference	Fg./Sh.
Control Unit	
Coil	310.5
Module	

Reference	Fg./Sh.
Control Unit	
Coil	312.5
Module	

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CONTAINER FAN

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 78

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
LIGHTING CIRCUIT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 88

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
UV STERILIZER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 90

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
LP COARSE FILTER A-500003

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 92

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
LP SAND FILTER S-500001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 94

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
FIRE&GAS PANEL

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 96

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SOFTENING FILTER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

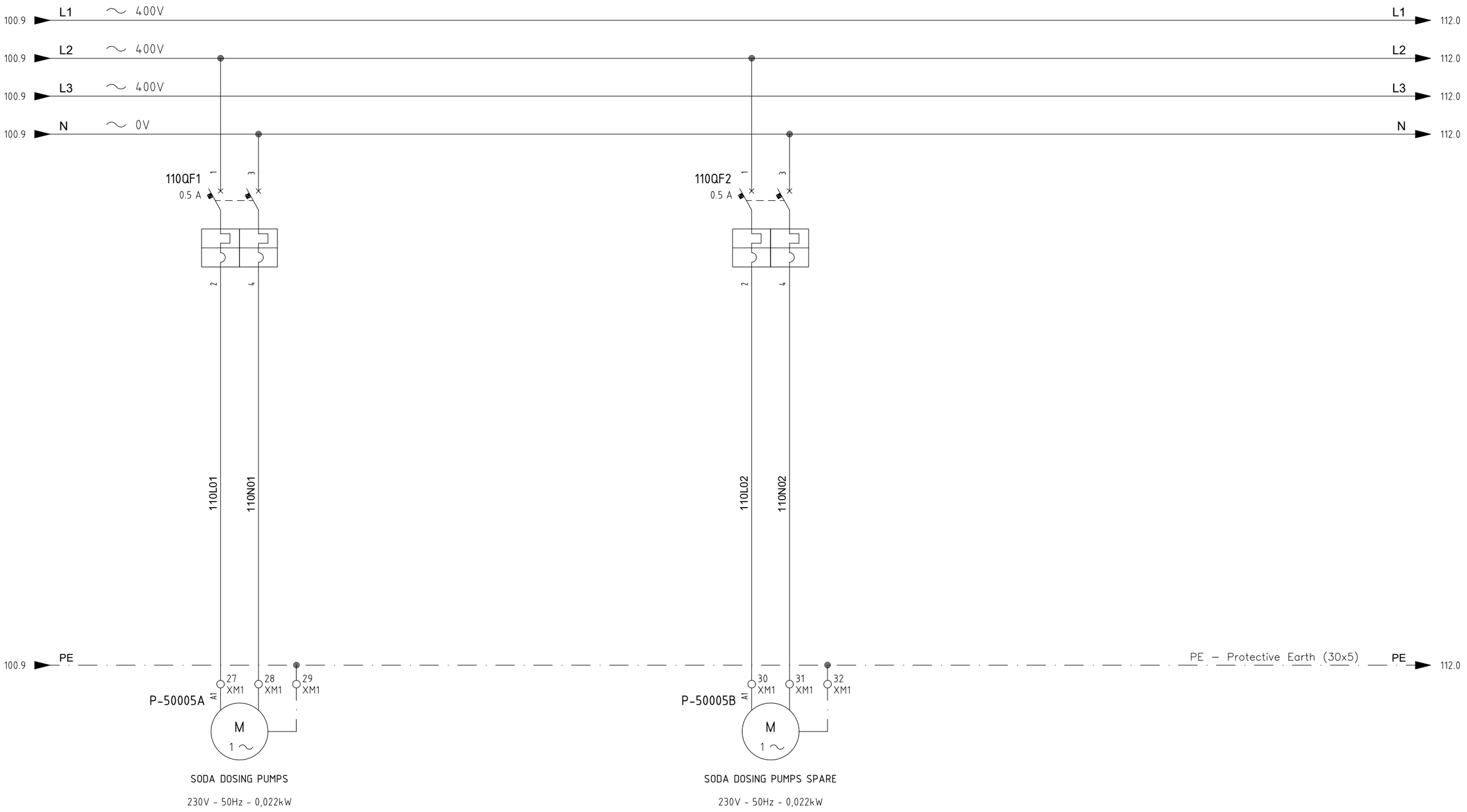
DRAWING NO. 1724000448-IN-DG-00014

SHEET 100

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SODA DOSING PUMPS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

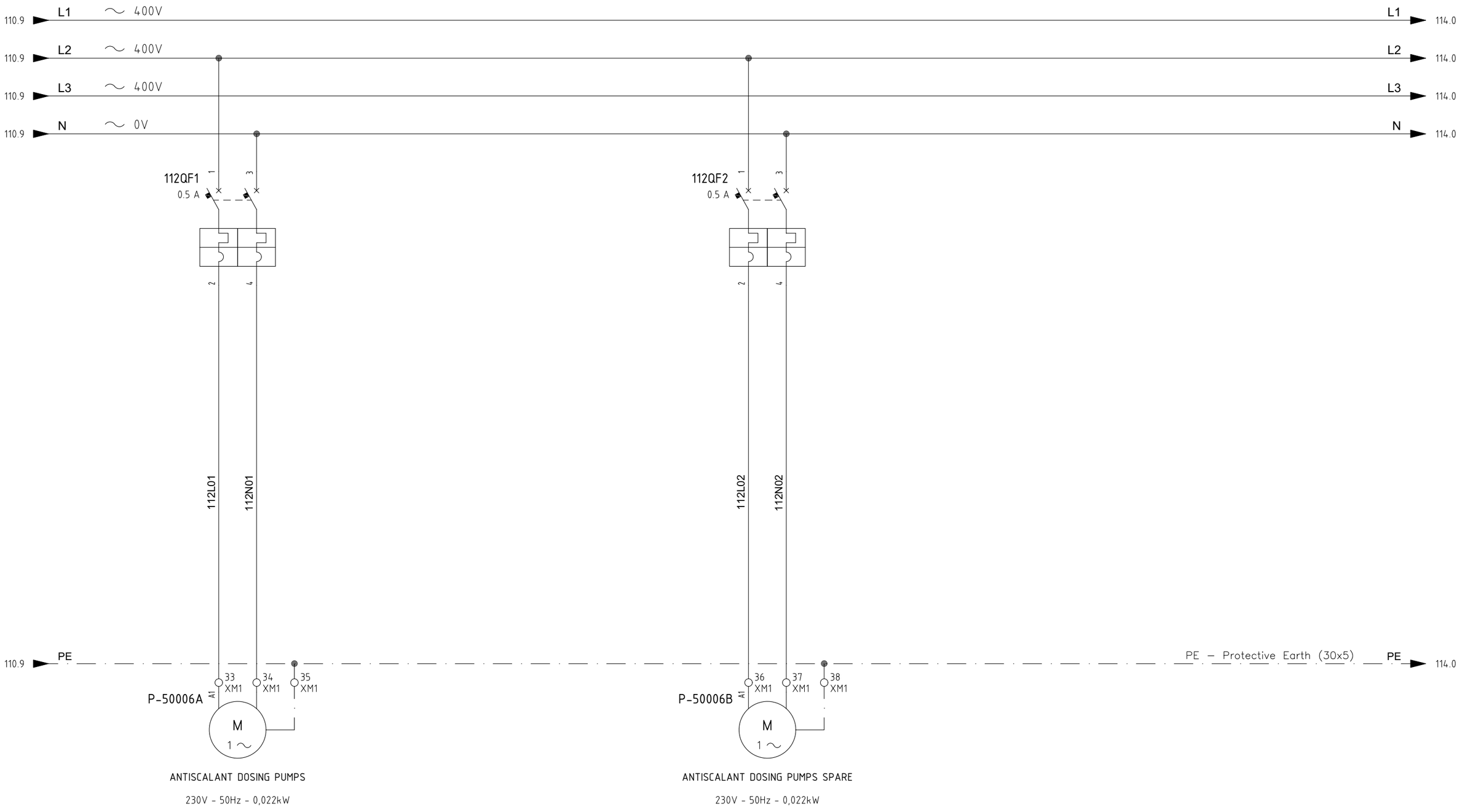
DRAWING NO. 1724000448-IN-DG-00014

SHEET 110

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
ANTISCALANT DOSING PUMPS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

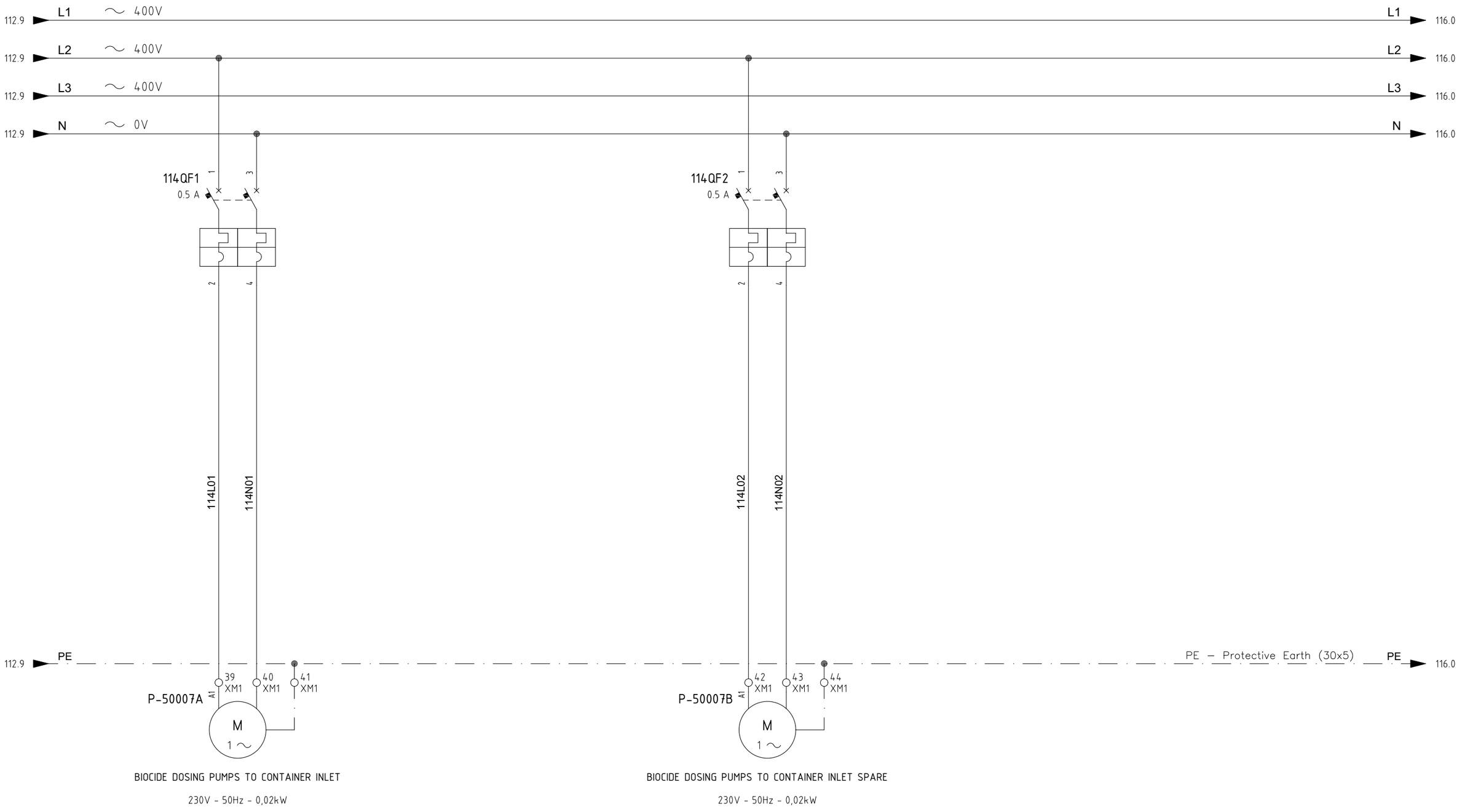
DRAWING NO. 1724000448-IN-DG-00014

SHEET 112

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



BIOCIDE DOSING PUMPS TO CONTAINER INLET

230V - 50Hz - 0,02kW

BIOCIDE DOSING PUMPS TO CONTAINER INLET SPARE

230V - 50Hz - 0,02kW

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BIOCIDE DOSING PUMPS TO CONTAINER INLET

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

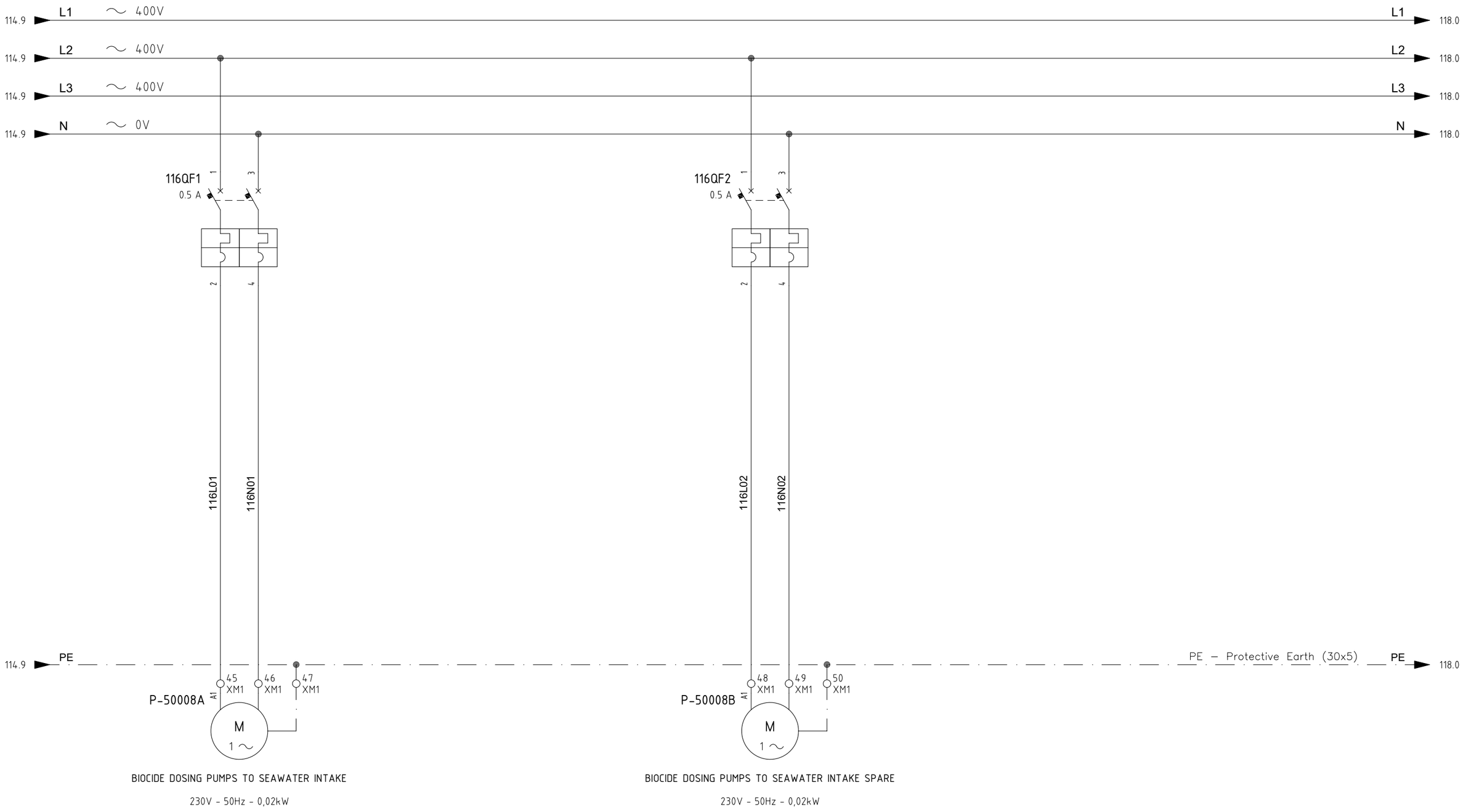
DRAWING NO. 1724000448-IN-DG-00014

SHEET 114

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BIOCIDE DOS. PUMPS TO SEAWATER INTAKE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

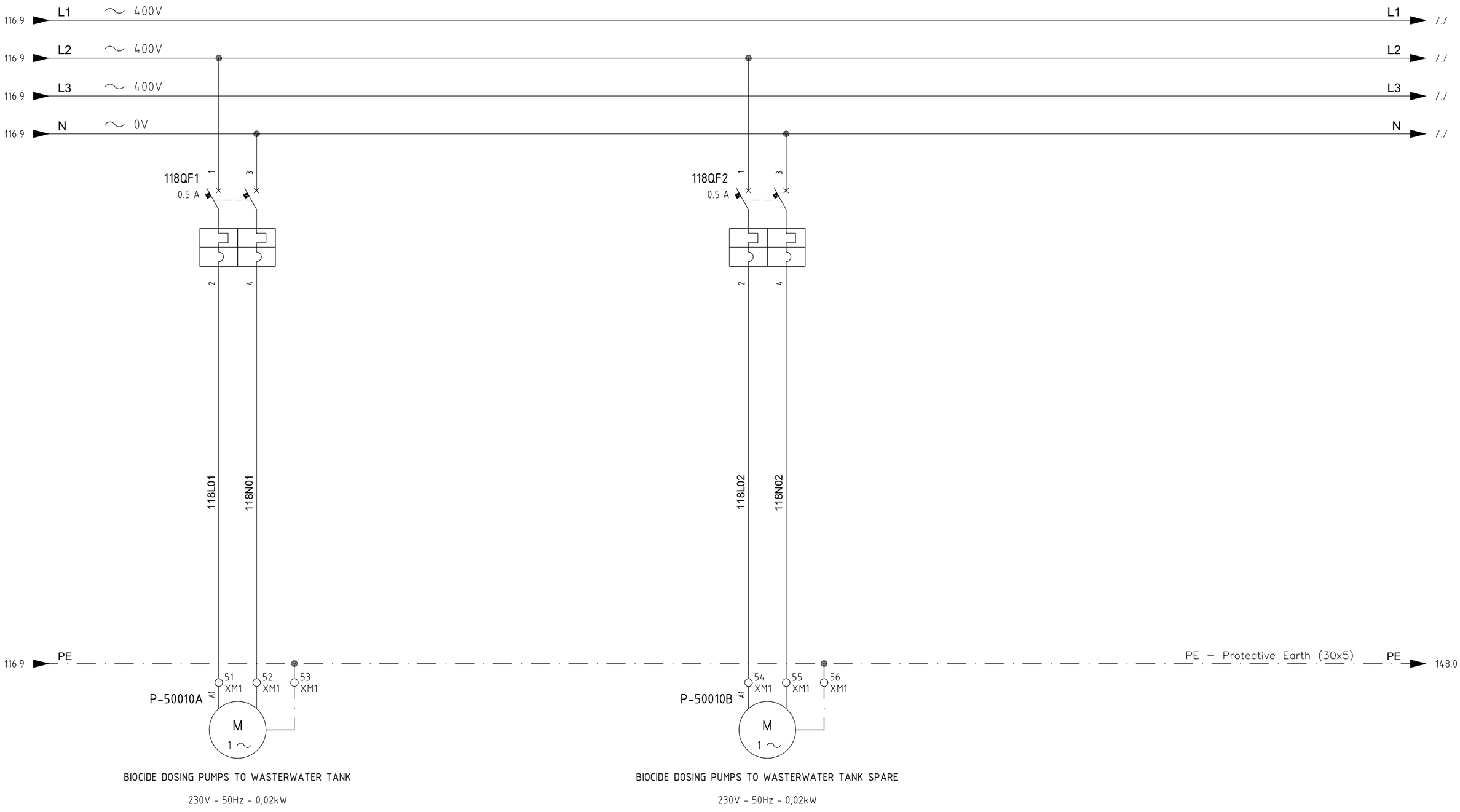
DRAWING NO. 1724000448-IN-DG-00014

SHEET 116

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



BIOCIDE DOSING PUMPS TO WASTERWATER TANK

230V - 50Hz - 0,02kW

BIOCIDE DOSING PUMPS TO WASTERWATER TANK SPARE

230V - 50Hz - 0,02kW

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BIOCIDE DOS. PUMPS TO WASTEWATER TANK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

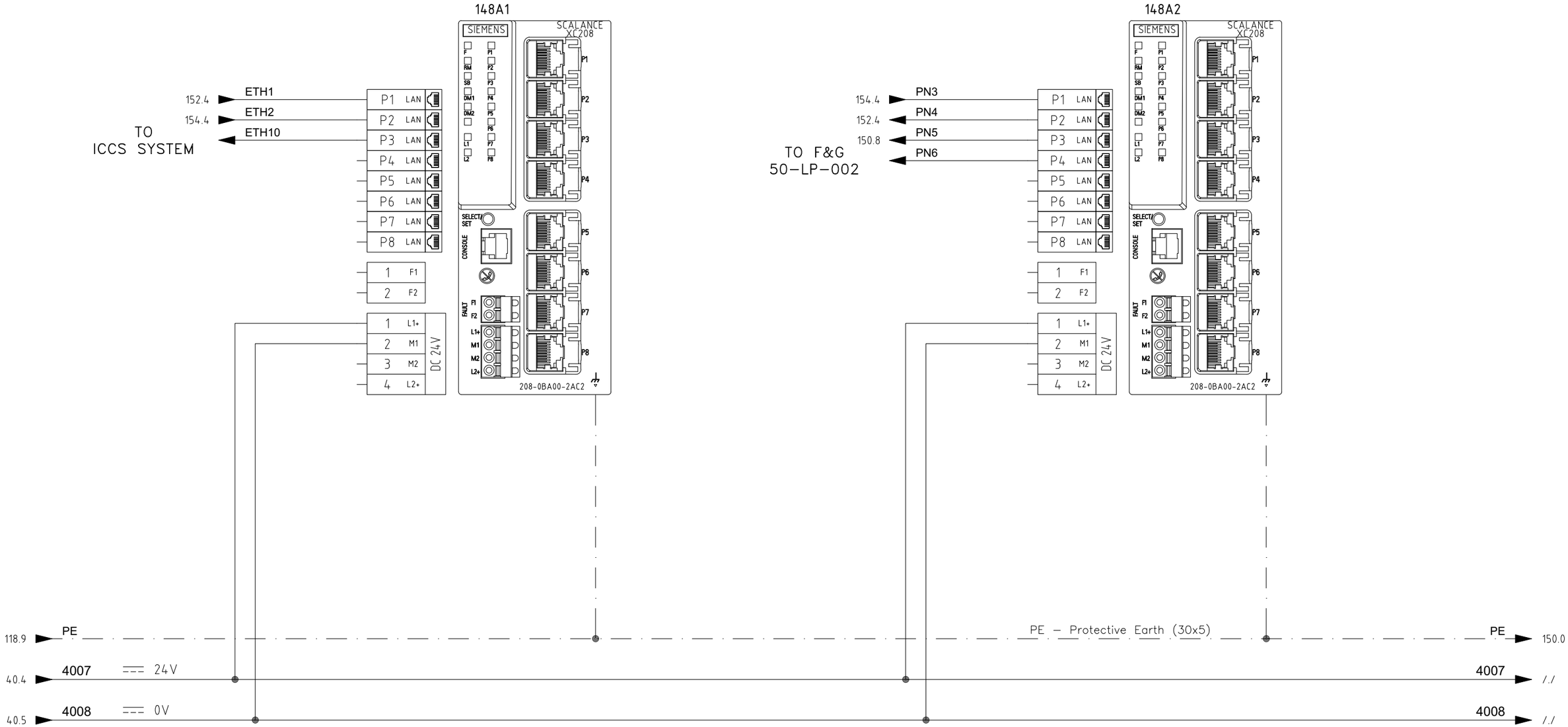
DRAWING NO. 1724000448-IN-DG-00014

SHEET 118

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SWITCH ETHERNET

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

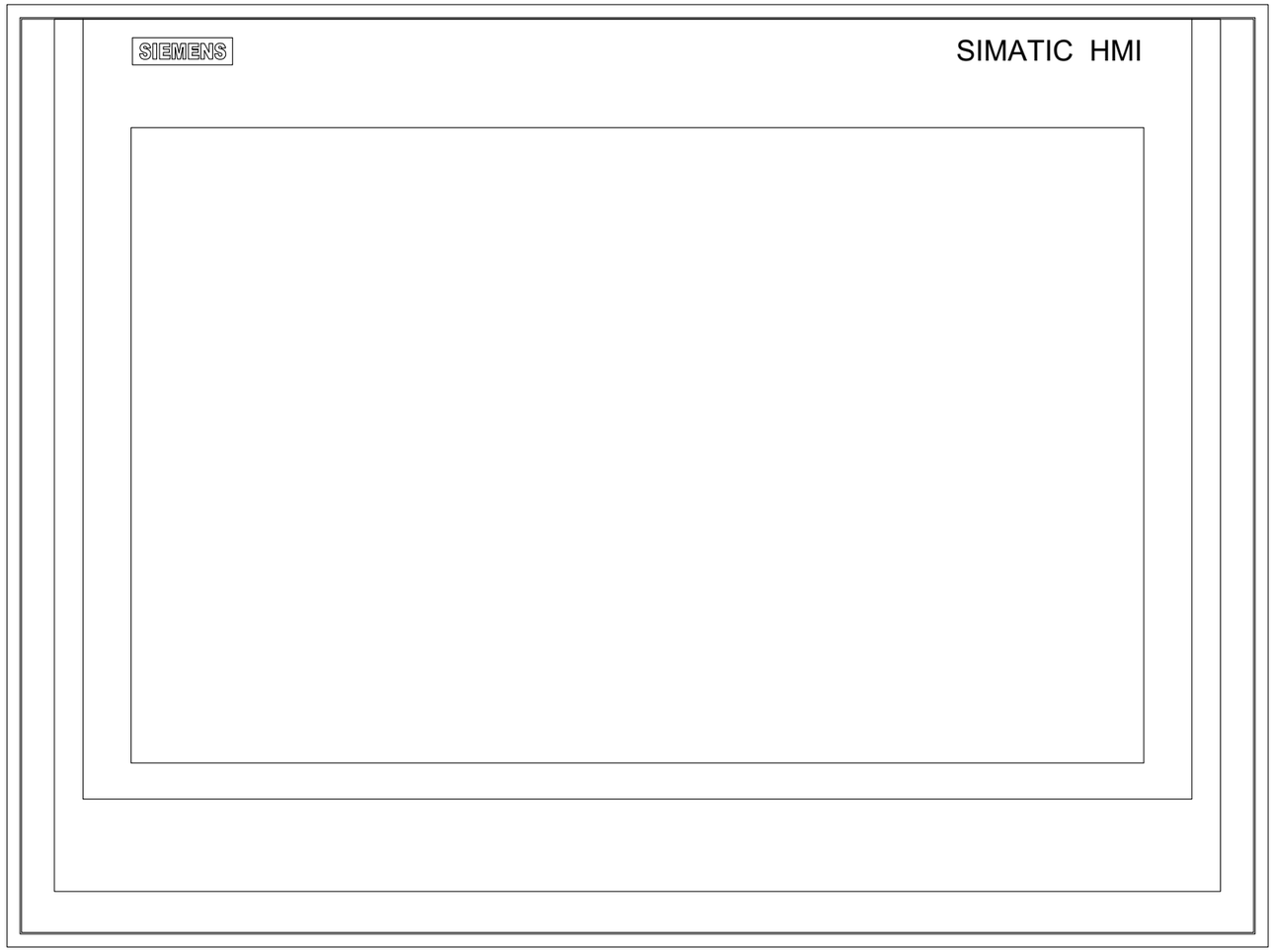
SHEET 148

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

150A1



X1 P1 PROFINET — PN5 → 148.5
X1 P2 PROFINET
X20 RS422/485
X2 P1 PROFINET
X61 USB - Type A
X62 USB - Type A
X63 USB - Type A
X64 USB - Type A

DC 24V (X80)
L+ 1
M 2
FG

148.9 PE — PE – Protective Earth (30x5) — PE → 152.0
40.5 4009 ⎓ 24V → 4009 /./
40.6 4010 ⎓ 0V → 4010 /./

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

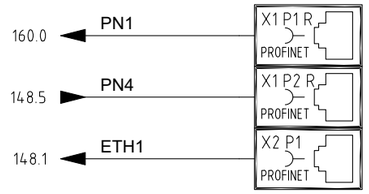
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
HMI

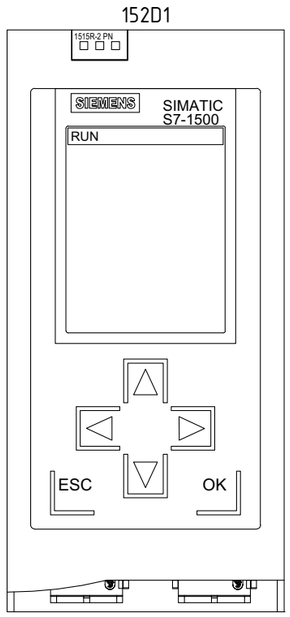
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

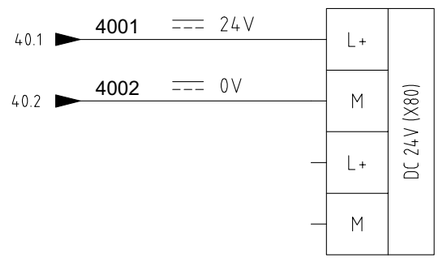
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 150 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm







150.9 PE — PE – Protective Earth (30x5) — PE 154.0

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CPU A

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

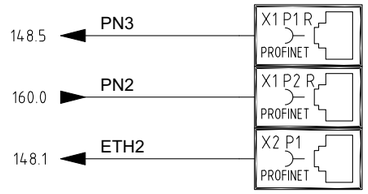
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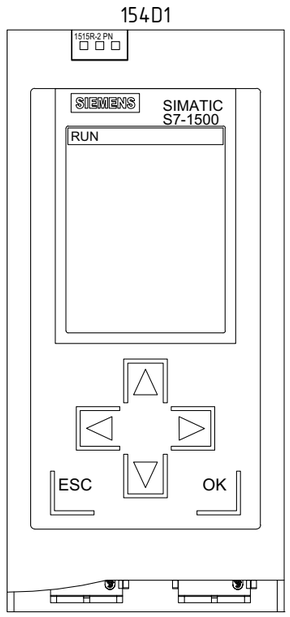
SHEET 152

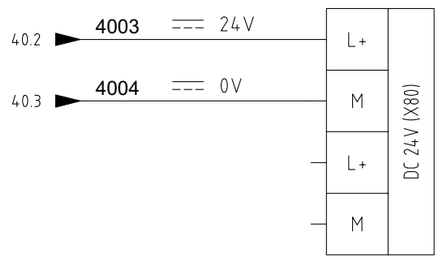
REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm







152.9 PE — PE – Protective Earth (30x5) — PE 160.0

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CPU B

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

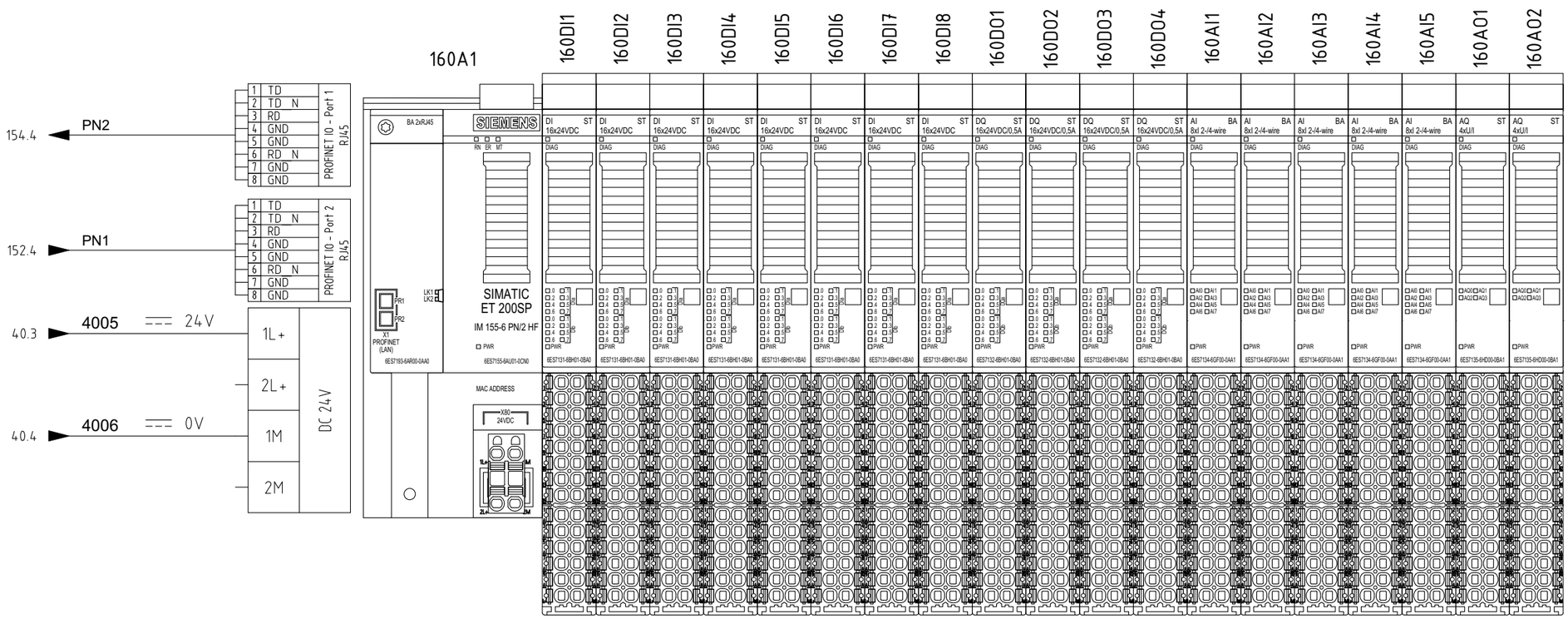
DRAWING NO. 1724000448-IN-DG-00014

SHEET 154

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



154.9 PE — PE – Protective Earth (30x5) — PE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	17/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
RACK 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

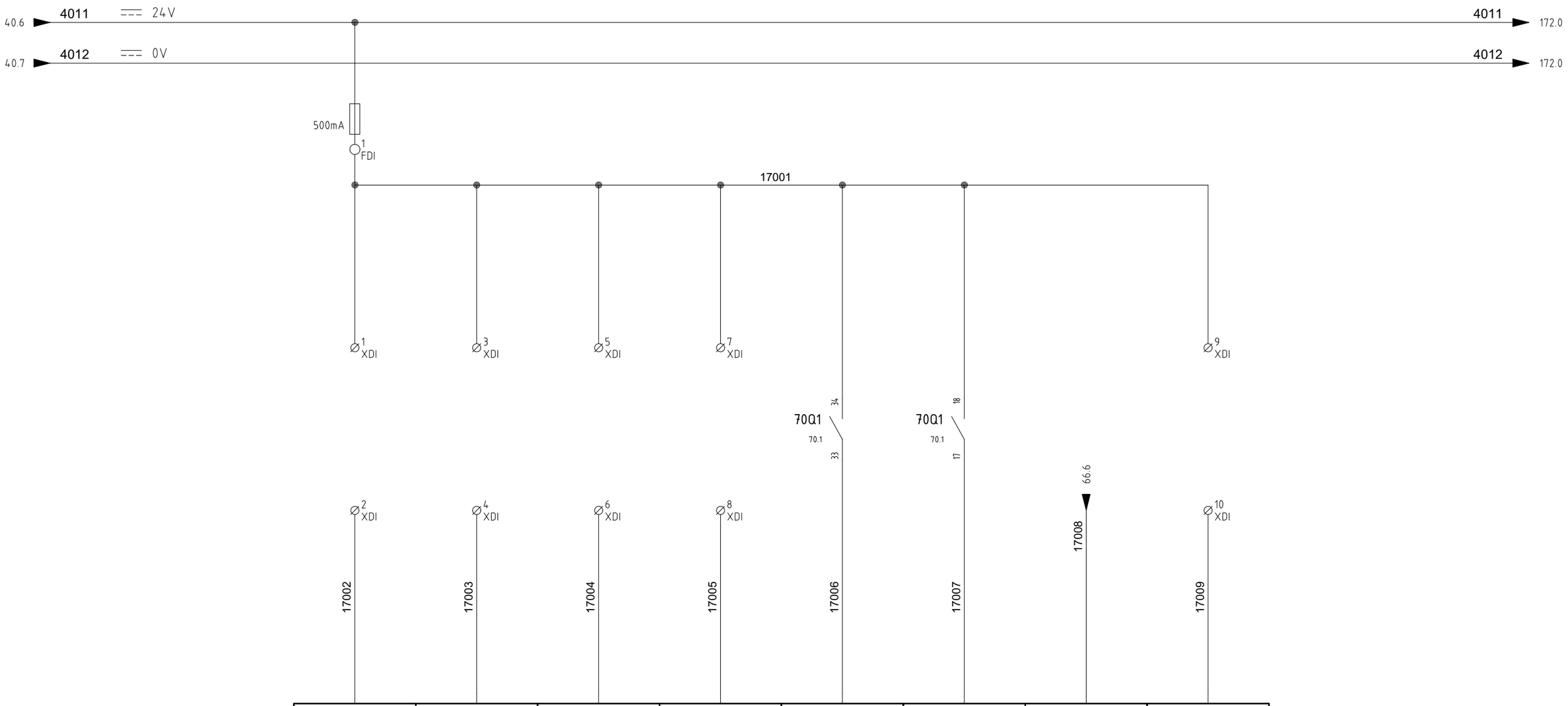
DRAWING NO. 1724000448-IN-DG-00014

SHEET 160

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I0.0	I0.1	I0.2	I0.3	I0.4	I0.5	I0.6	I0.7
CPU RACK 1 MOD. 1 50-XZSH-021	CPU RACK 1 MOD. 1 50-XZSL-021	CPU RACK 1 MOD. 1 50-XZSH-023	CPU RACK 1 MOD. 1 50-XZSL-023	CPU RACK 1 MOD. 1 50-XI-P50003A	CPU RACK 1 MOD. 1 50-XA-P50003A	CPU RACK 1 MOD. 1 50-TSHH-020	CPU RACK 1 MOD. 1 50-XZSH-020
Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3
P-50003A SUCTION VALVE OPEN	P-50003A SUCTION VALVE CLOSED	P-50003A FLUSHING VALVE OPEN	P-50003A FLUSHING VALVE CLOSED	SW BOOSTER PUMP RUN STATUS	SW BOOSTER PUMP AVAILABLE STATUS	H-50001 TEMPERATURE	SEAWATER INLET VALVE OPEN

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

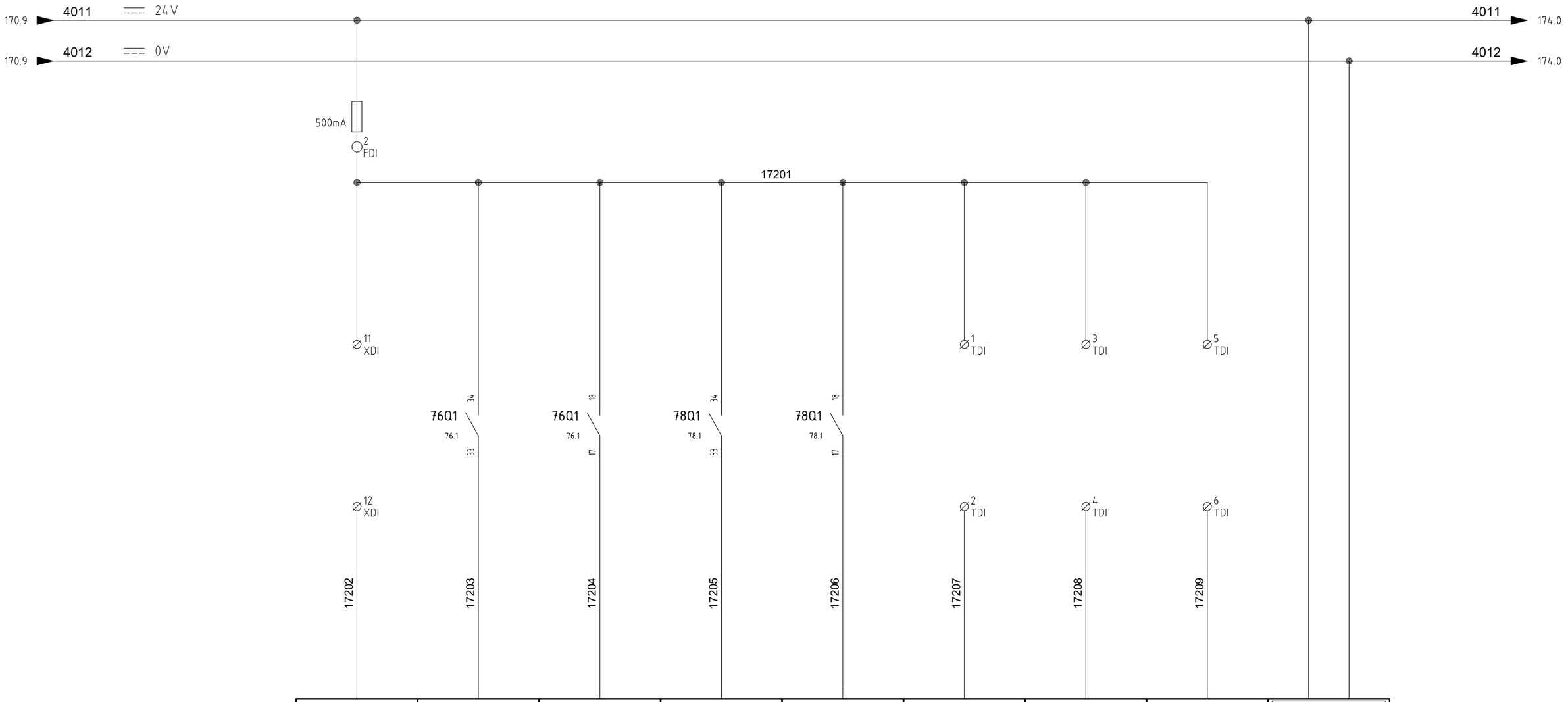
DRAWING NO. 1724000448-IN-DG-00014

SHEET 170

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	L+ M
I1.0	I1.1	I1.2	I1.3	I1.4	I1.5	I1.6	I1.7	
CPU RACK 1 MOD. 1 50-XZSL-020	CPU RACK 1 MOD. 1 50-XI-HHS50003A1	CPU RACK 1 MOD. 1 50-XA-HHS50003A1	CPU RACK 1 MOD. 1 50-XI-HFA50001A	CPU RACK 1 MOD. 1 50-XA-HFA50001A	CPU RACK 1 MOD. 1 50-XA-S50001B	CPU RACK 1 MOD. 1 SPARE	CPU RACK 1 MOD. 1 SPARE	CPU RACK 1 MOD. 1
Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3
SEAWATER INLET VALVE CLOSED	CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER AIR FAN RUN STATUS	CONTAINER AIR FAN AVAILABLE STATUS	REGENERATION STATUS SAND FILTER S-50001	SPARE	SPARE	

4

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

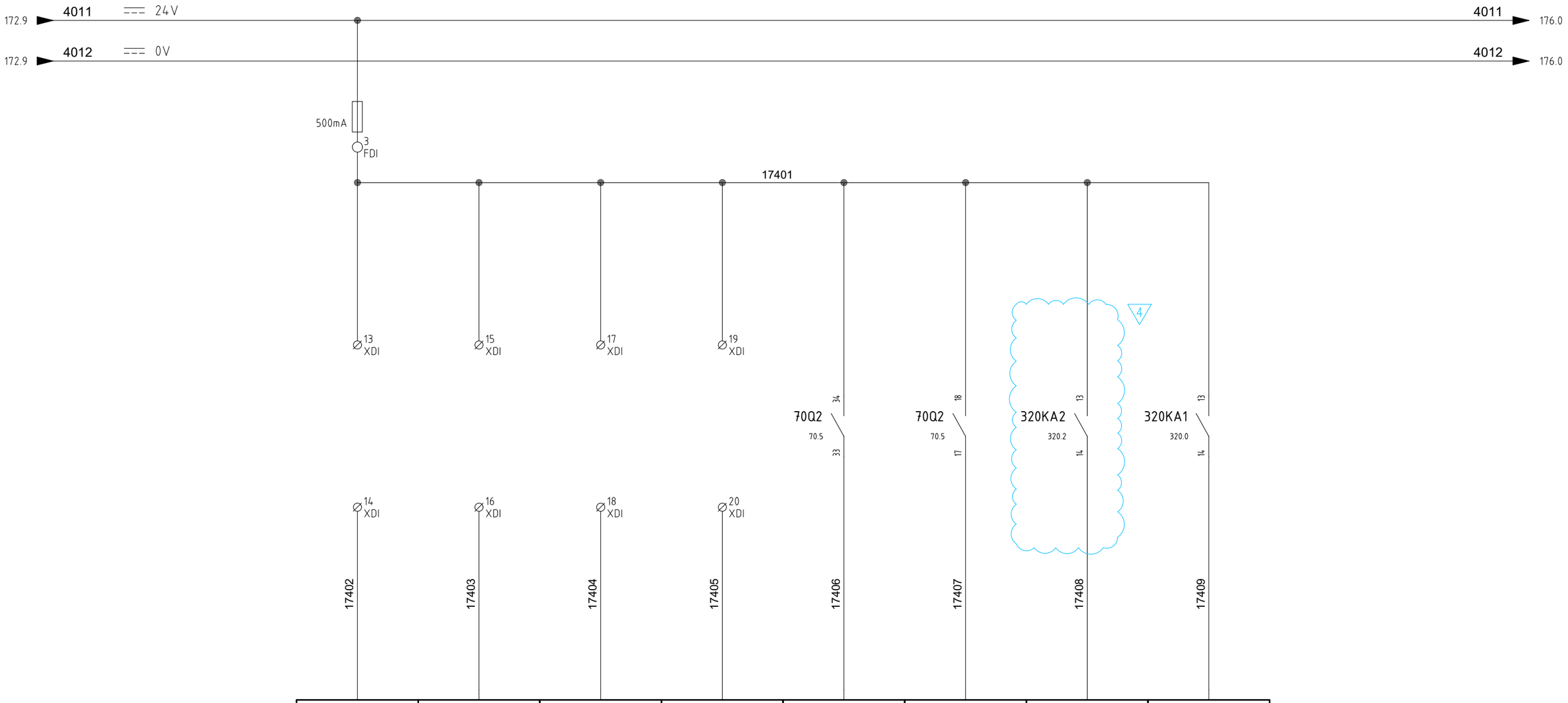
DRAWING NO. 1724000448-IN-DG-00014

SHEET 172

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I2.0	I2.1	I2.2	I2.3	I2.4	I2.5	I2.6	I2.7
CPU RACK 1 MOD. 2 50-XZSH-022	CPU RACK 1 MOD. 2 50-XZSL-022	CPU RACK 1 MOD. 2 50-XZSH-024	CPU RACK 1 MOD. 2 50-XZSL-024	CPU RACK 1 MOD. 2 50-XI-P50003B	CPU RACK 1 MOD. 2 50-XA-P50003B	CPU RACK 1 MOD. 2 50-HS-020	CPU RACK 1 MOD. 2 50-XS-001
Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3
P-50003B SUCTION VALVE OPEN	P-50003B SUCTION VALVE CLOSED	P-50003B FLUSHING VALVE OPEN	P-50003 FLUSHING VALVE CLOSED	SW BOOSTER PUMP RUN STATUS	SW BOOSTER PUMP AVAILABLE STATUS	EMERGENCY STOP PUSHBUTTON	SHUTDOWN

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

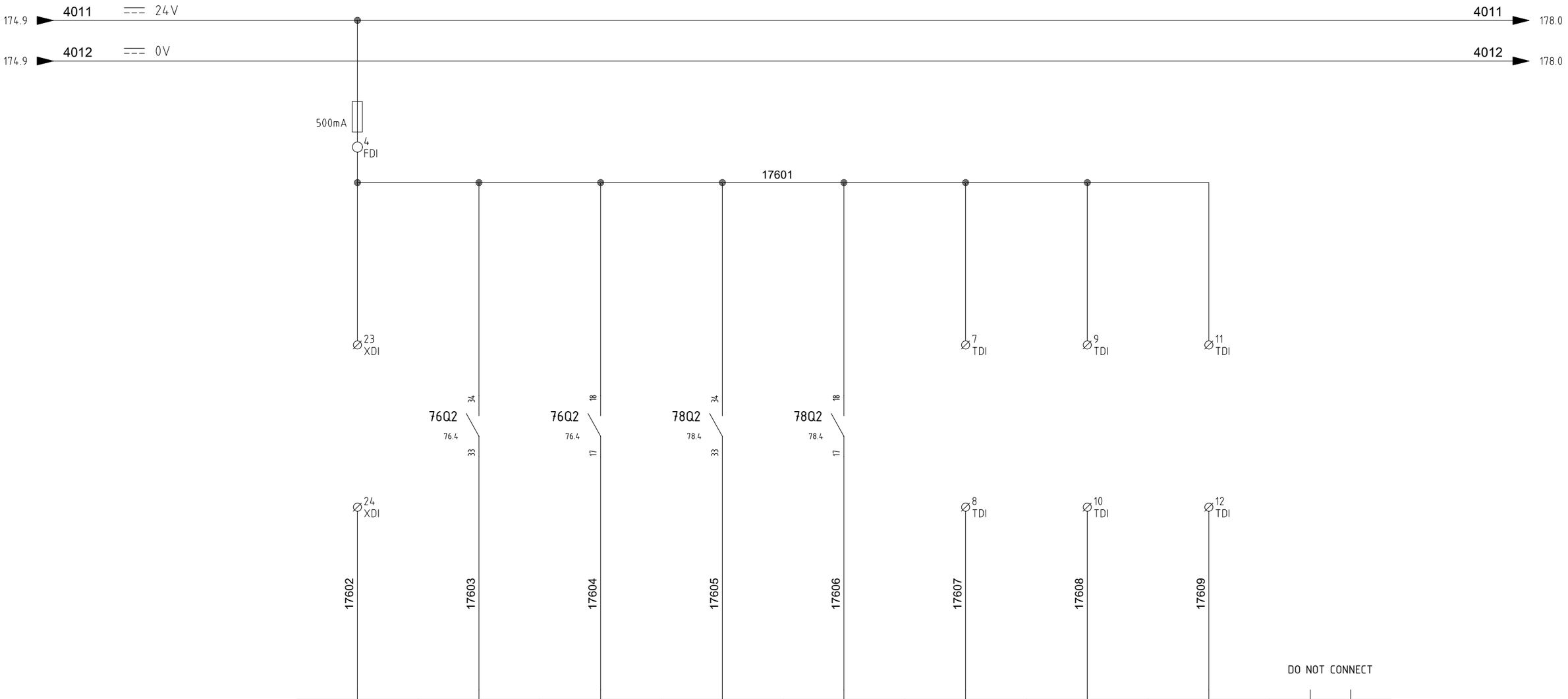
DRAWING NO. 1724000448-IN-DG-00014

SHEET 174

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I3.0	I3.1	I3.2	I3.3	I3.4	I3.5	I3.6	I3.7	
CPU RACK 1 MOD. 2 50-XA-A50003	CPU RACK 1 MOD. 2 50-XI-HHS50003A2	CPU RACK 1 MOD. 2 50-XA-HHS50003A2	CPU RACK 1 MOD. 2 50-XI-HFA50001B	CPU RACK 1 MOD. 2 50-XA-HFA50001B	CPU RACK 1 MOD. 2 SPARE	CPU RACK 1 MOD. 2 SPARE	CPU RACK 1 MOD. 2 SPARE	CPU RACK 1 MOD. 2
Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3
SEAWATER COARSE FILTER CUMULATIVE ALARM	CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER AIR FAN RUN STATUS	CONTAINER AIR FAN AVAILABLE STATUS	SPARE	SPARE	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

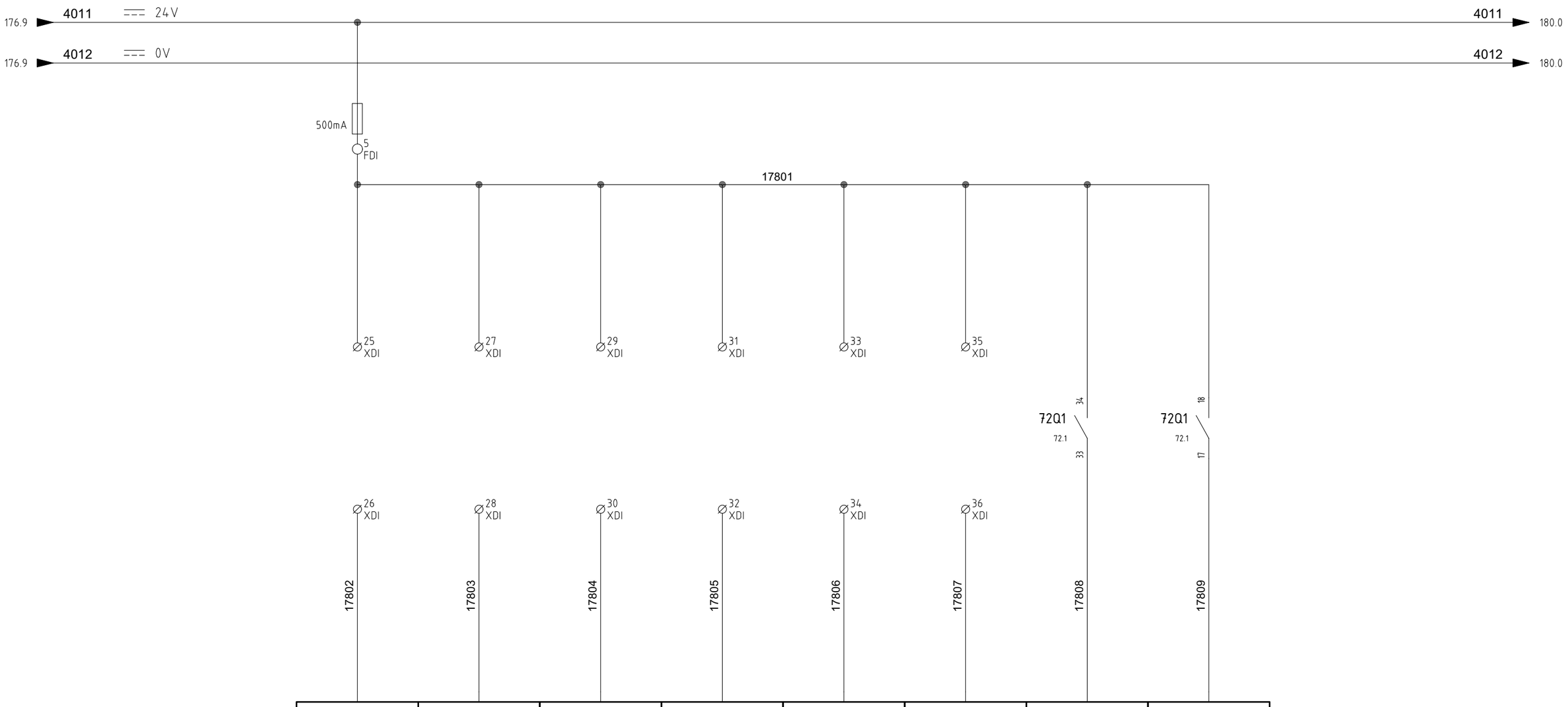
DRAWING NO. 1724000448-IN-DG-00014

SHEET 176

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7
CPU RACK 1 MOD. 3 50-XZSH-025	CPU RACK 1 MOD. 3 50-XZSL-025	CPU RACK 1 MOD. 3 50-XZSH-027	CPU RACK 1 MOD. 3 50-XZSL-027	CPU RACK 1 MOD. 3 50-XZSH-031	CPU RACK 1 MOD. 3 50-XZSL-031	CPU RACK 1 MOD. 3 50-XI-P50002A	CPU RACK 1 MOD. 3 50-XA-P50002A
Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3
FRESH WATER FROM A-50007A/B VALVE OPEN	FRESH WATER FROM A-50007A/B VALVE CLOSED	BRINE FROM A-50007A VALVE OPEN	BRINE FROM A-50007A VALVE CLOSED	FRESH WATER OUTLET VALVE OPEN	FRESH WATER OUTLET VALVE CLOSED	BACKWASH PUMP RUN STATUS	BACKWASH PUMP AVAILABLE STATUS

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 3

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

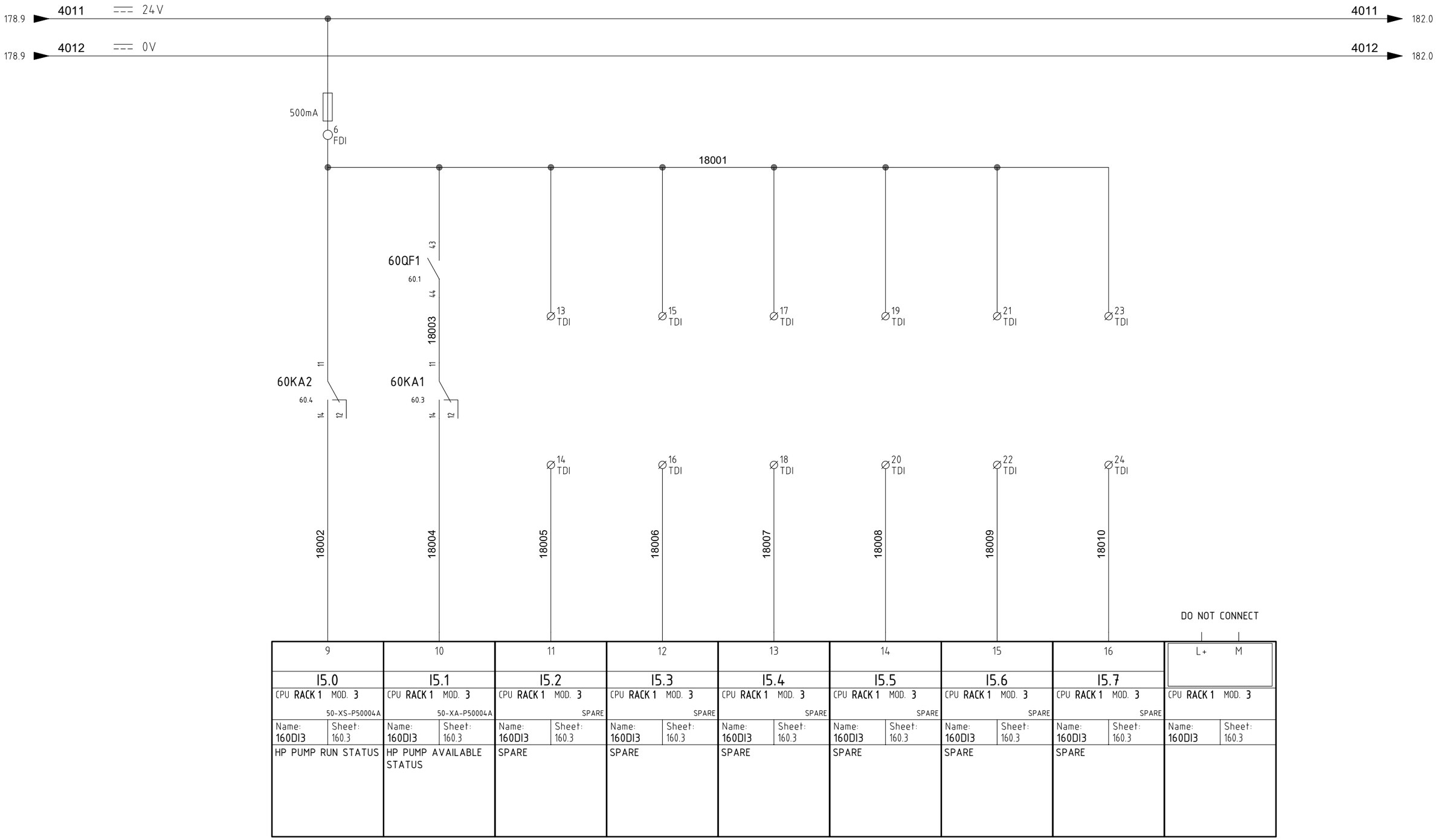
DRAWING NO. 1724000448-IN-DG-00014

SHEET 178

REV. 01

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I5.0	I5.1	I5.2	I5.3	I5.4	I5.5	I5.6	I5.7	
CPU RACK 1 MOD. 3 50-XS-P50004A	CPU RACK 1 MOD. 3 50-XA-P50004A	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3
Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3	Name: 160DI3 / Sheet: 160.3
HP PUMP RUN STATUS	HP PUMP AVAILABLE STATUS	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 3

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

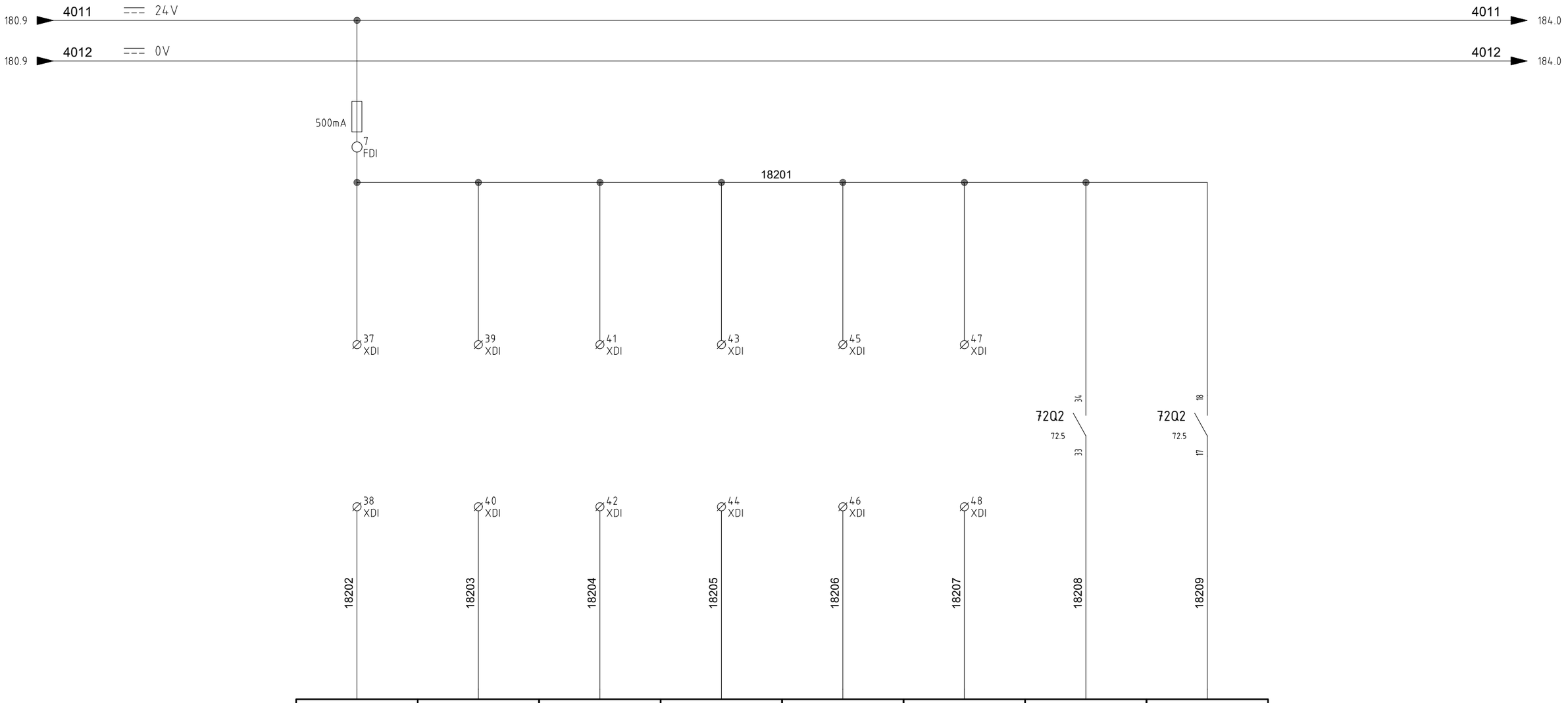
DRAWING NO. 1724000448-IN-DG-00014

SHEET 180

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I6.0	I6.1	I6.2	I6.3	I6.4	I6.5	I6.6	I6.7
CPU RACK 1 MOD. 4 50-XZSH-026	CPU RACK 1 MOD. 4 50-XZSL-026	CPU RACK 1 MOD. 4 50-XZSH-030	CPU RACK 1 MOD. 4 50-XZSL-030	CPU RACK 1 MOD. 4 50-XZSH-032	CPU RACK 1 MOD. 4 50-XSZL-032	CPU RACK 1 MOD. 4 50-XI-P50002B	CPU RACK 1 MOD. 4 50-XA-P50002B
Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3
FRESH WATER DRAIN FROM A-50007A/B VALVE OPEN	FRESH WATER DRAIN FROM A-50007A/B VALVE CLOSED	BRINE FROM A-50007B VALVE OPEN	BRINE FROM A-50007B VALVE CLOSED	FRESH WATER OFF-SPEC VALVE OPEN	FRESH WATER OFF-SPEC VALVE CLOSED	BACKWASH PUMP RUN STATUS	BACKWASH PUMP AVAILABLE STATUS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 4

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

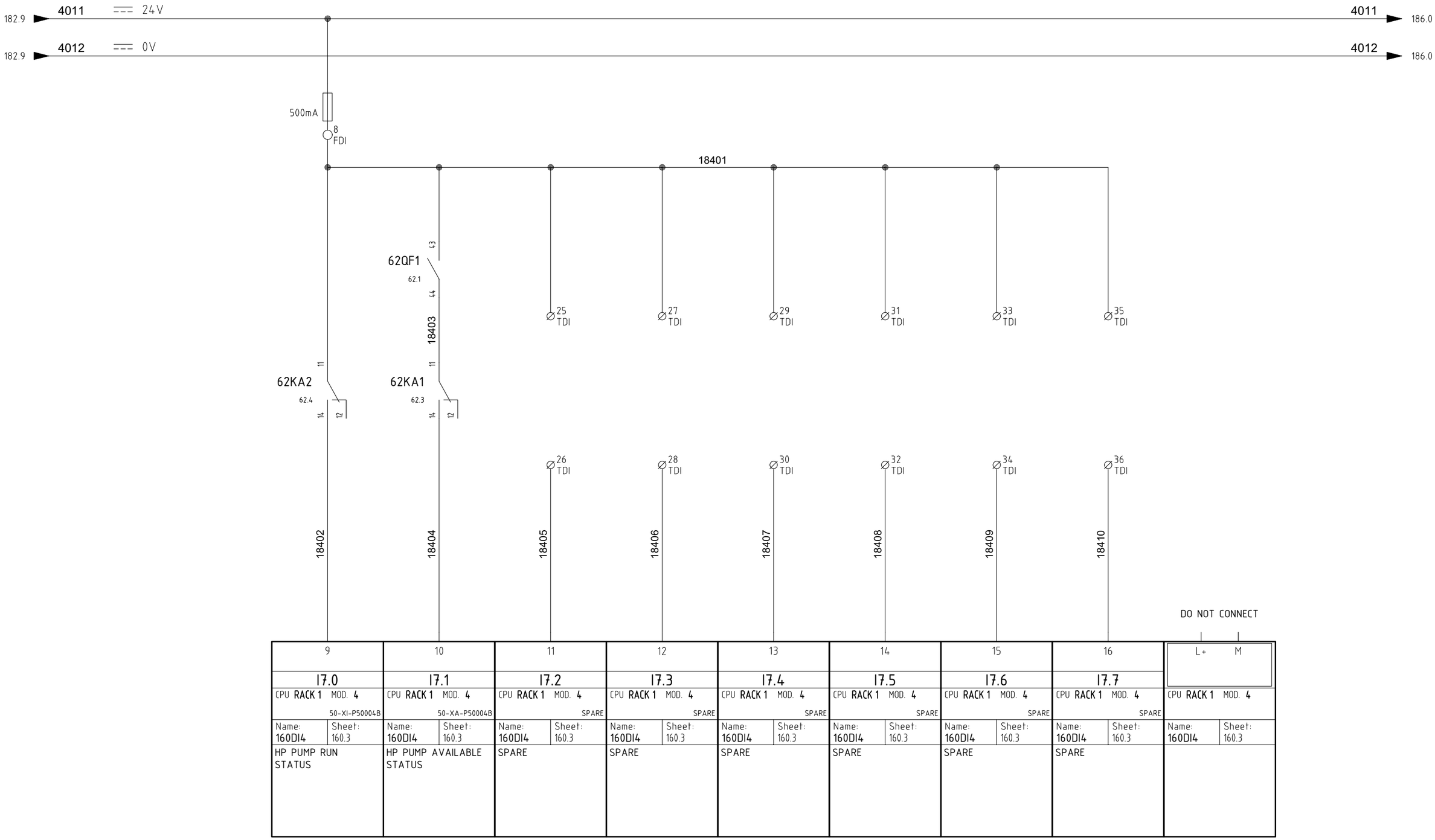
DRAWING NO. 1724000448-IN-DG-00014

SHEET 182

REV. 01

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	
CPU RACK 1 MOD. 4 50-XI-P50004B	CPU RACK 1 MOD. 4 50-XA-P50004B	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4
Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3
HP PUMP RUN STATUS	HP PUMP AVAILABLE STATUS	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 4

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

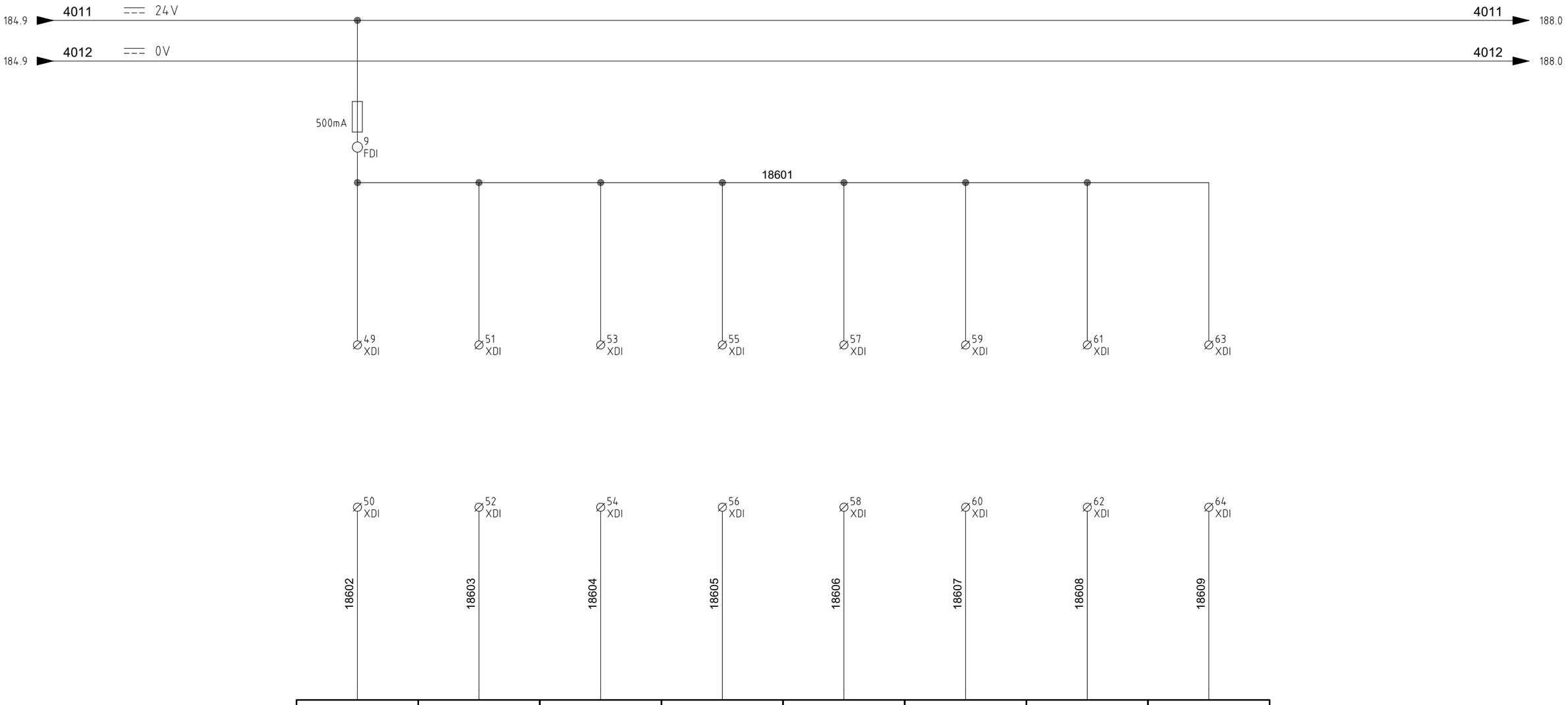
DRAWING NO. 1724000448-IN-DG-00014

SHEET 184

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I8.0	I8.1	I8.2	I8.3	I8.4	I8.5	I8.6	I8.7
CPU RACK 1 MOD. 5 50-XI-P50005A	CPU RACK 1 MOD. 5 50-XA-P50005A	CPU RACK 1 MOD. 5 50-XI-P50006A	CPU RACK 1 MOD. 5 50-XA-P50006A	CPU RACK 1 MOD. 5 50-XI-P50007A	CPU RACK 1 MOD. 5 50-XA-P50007A	CPU RACK 1 MOD. 5 50-XI-P50008A	CPU RACK 1 MOD. 5 50-XA-P50008A
Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4
CAUSTIC SODA DOSING PUMP RUN STATUS	CAUSTIC SODA DOSING PUMP AVAILABLE STATUS	ANTISCALANT DOSING PUMP RUN STATUS	ANTISCALANT DOSING PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE AVAILABLE STATUS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 5

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

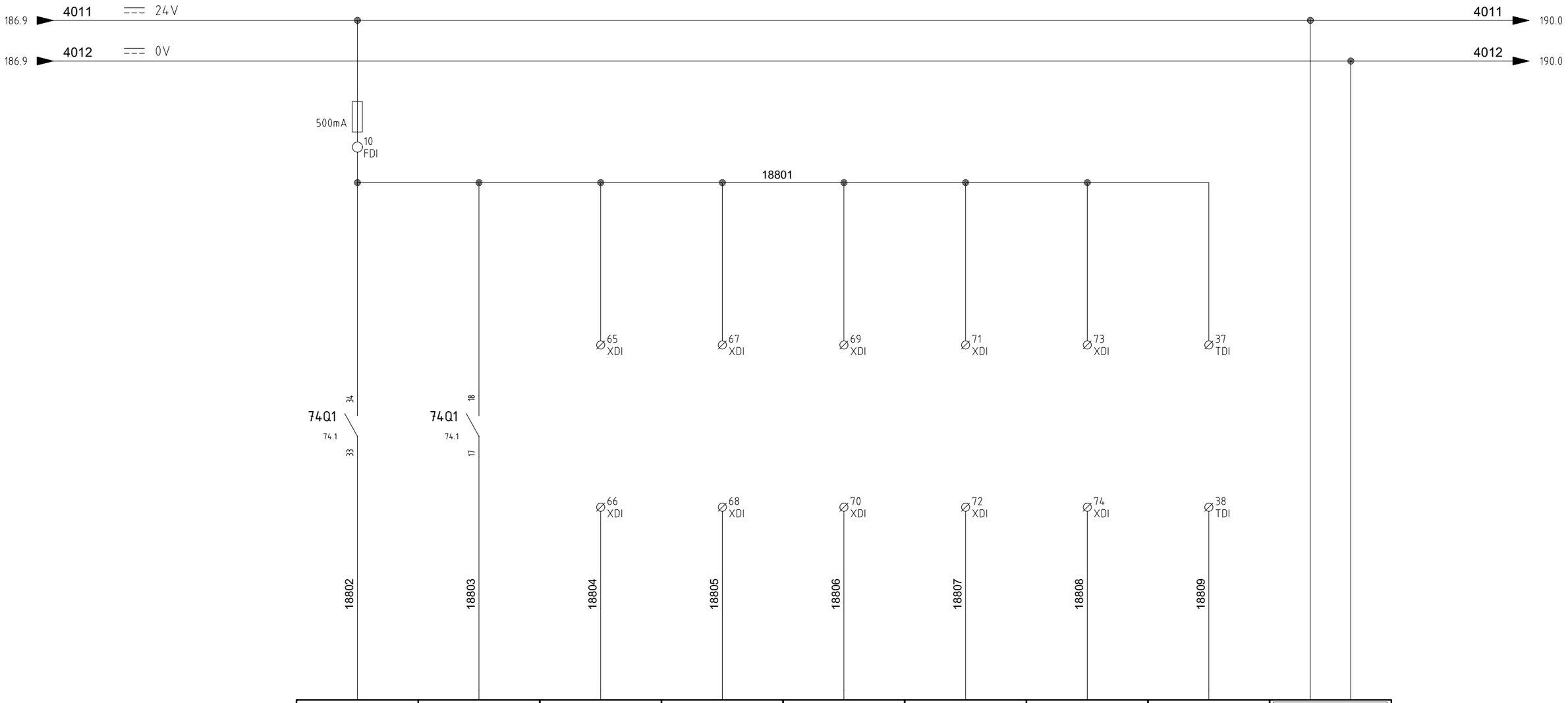
DRAWING NO. 1724000448-IN-DG-00014

SHEET 186

REV. 00

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	L+ M
I9.0	I9.1	I9.2	I9.3	I9.4	I9.5	I9.6	I9.7	
CPU RACK 1 MOD. 5 50-XI-P50009A	CPU RACK 1 MOD. 5 50-XA-P50009A	CPU RACK 1 MOD. 5 50-XI-P50010A	CPU RACK 1 MOD. 5 50-XA-P50010A	CPU RACK 1 MOD. 5 50-XA-S50001	CPU RACK 1 MOD. 5 50-XS-S50004	CPU RACK 1 MOD. 5 50-XA-026	CPU RACK 1 MOD. 5 SPARE	CPU RACK 1 MOD. 5
Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4
FRESH WATER PUMP RUN STATUS	FRESH WATER PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK AVAILABLE STATUS	SAND FILTER CUMULATIVE ALARM	SOFTENING FILTER REGENERATION IN PROGRESS	FRESH WATER ANALYZER FAULT	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 5

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

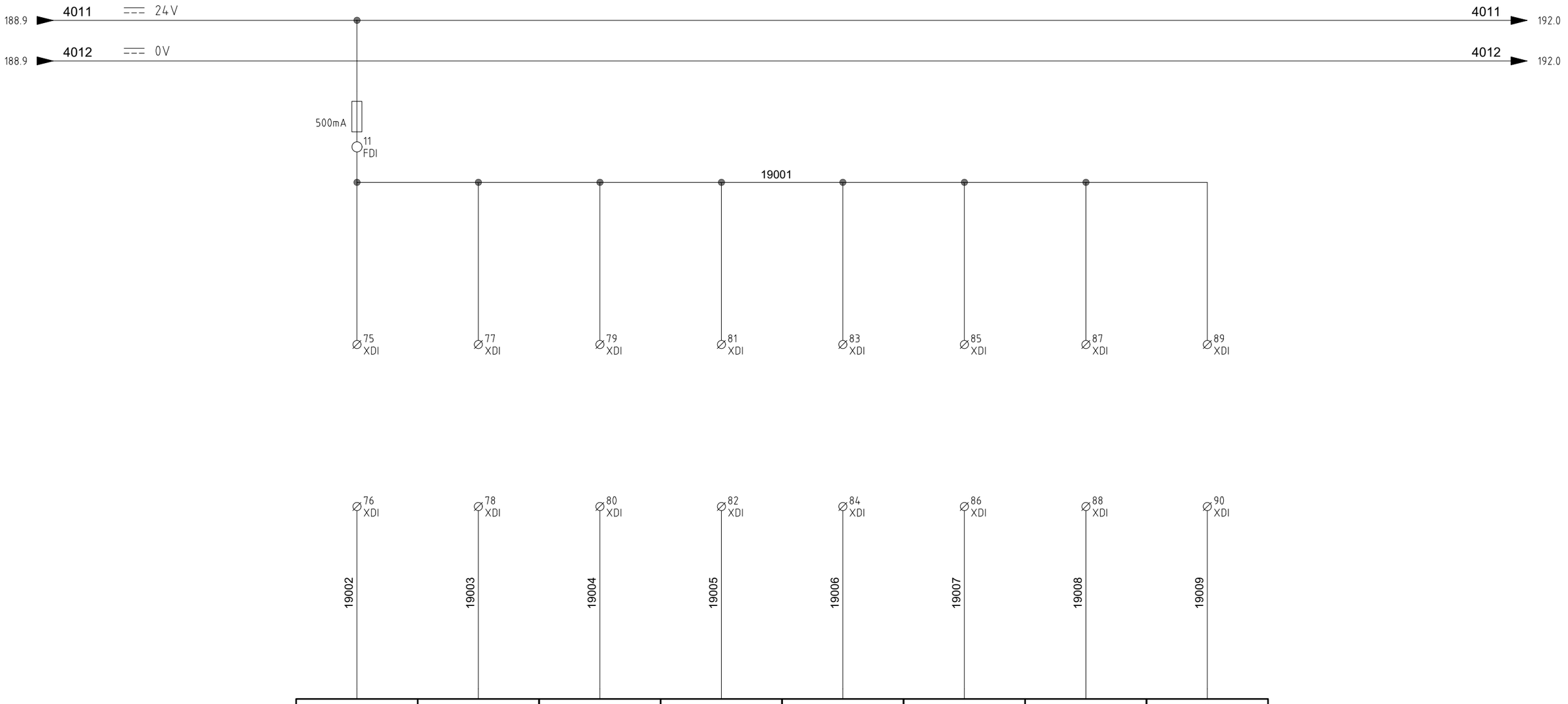
DRAWING NO. 1724000448-IN-DG-00014

SHEET 188

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I10.0	I10.1	I10.2	I10.3	I10.4	I10.5	I10.6	I10.7
CPU RACK 1 MOD. 6 50-XI-P50005B	CPU RACK 1 MOD. 6 50-XA-P50005B	CPU RACK 1 MOD. 6 50-XI-P50006B	CPU RACK 1 MOD. 6 50-XA-P50006B	CPU RACK 1 MOD. 6 50-XI-P50007B	CPU RACK 1 MOD. 6 50-XA-P50007B	CPU RACK 1 MOD. 6 50-XI-P50008B	CPU RACK 1 MOD. 6 50-XA-P50008B
Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4
CAUSTIC SODA DOSING PUMP RUN STATUS	CAUSTIC SODA DOSING PUMP AVAILABLE STATUS	ANTISCALANT DOSING PUMP RUN STATUS	ANTISCALANT DOSING PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE AVAILABLE STATUS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 6

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

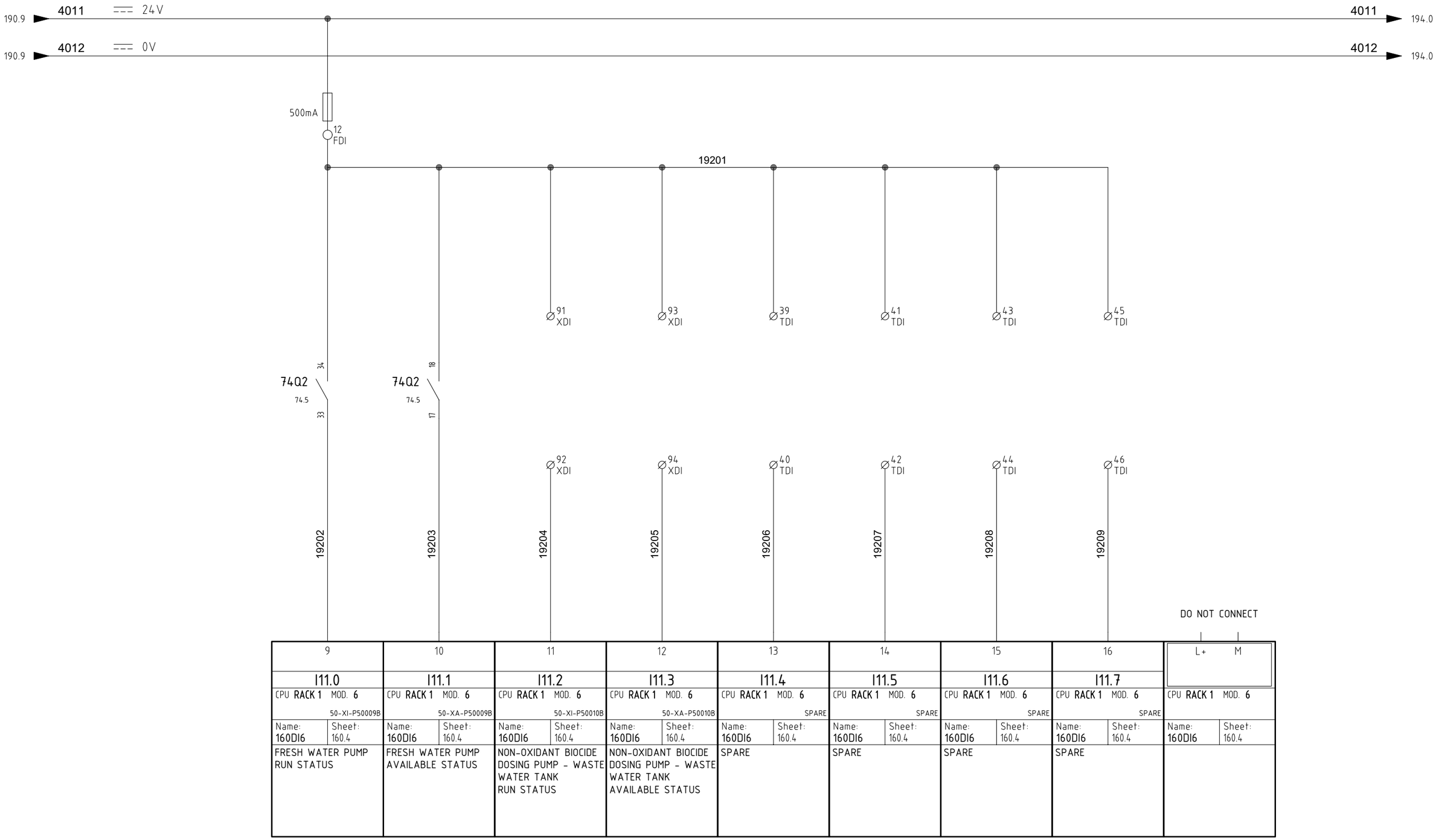
DRAWING NO. 1724000448-IN-DG-00014

SHEET 190

REV. 00

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I11.0	I11.1	I11.2	I11.3	I11.4	I11.5	I11.6	I11.7	
CPU RACK 1 MOD. 6 50-XI-P50009B	CPU RACK 1 MOD. 6 50-XA-P50009B	CPU RACK 1 MOD. 6 50-XI-P50010B	CPU RACK 1 MOD. 6 50-XA-P50010B	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6
Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4
FRESH WATER PUMP RUN STATUS	FRESH WATER PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK AVAILABLE STATUS	SPARE	SPARE	SPARE	SPARE	

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 6

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

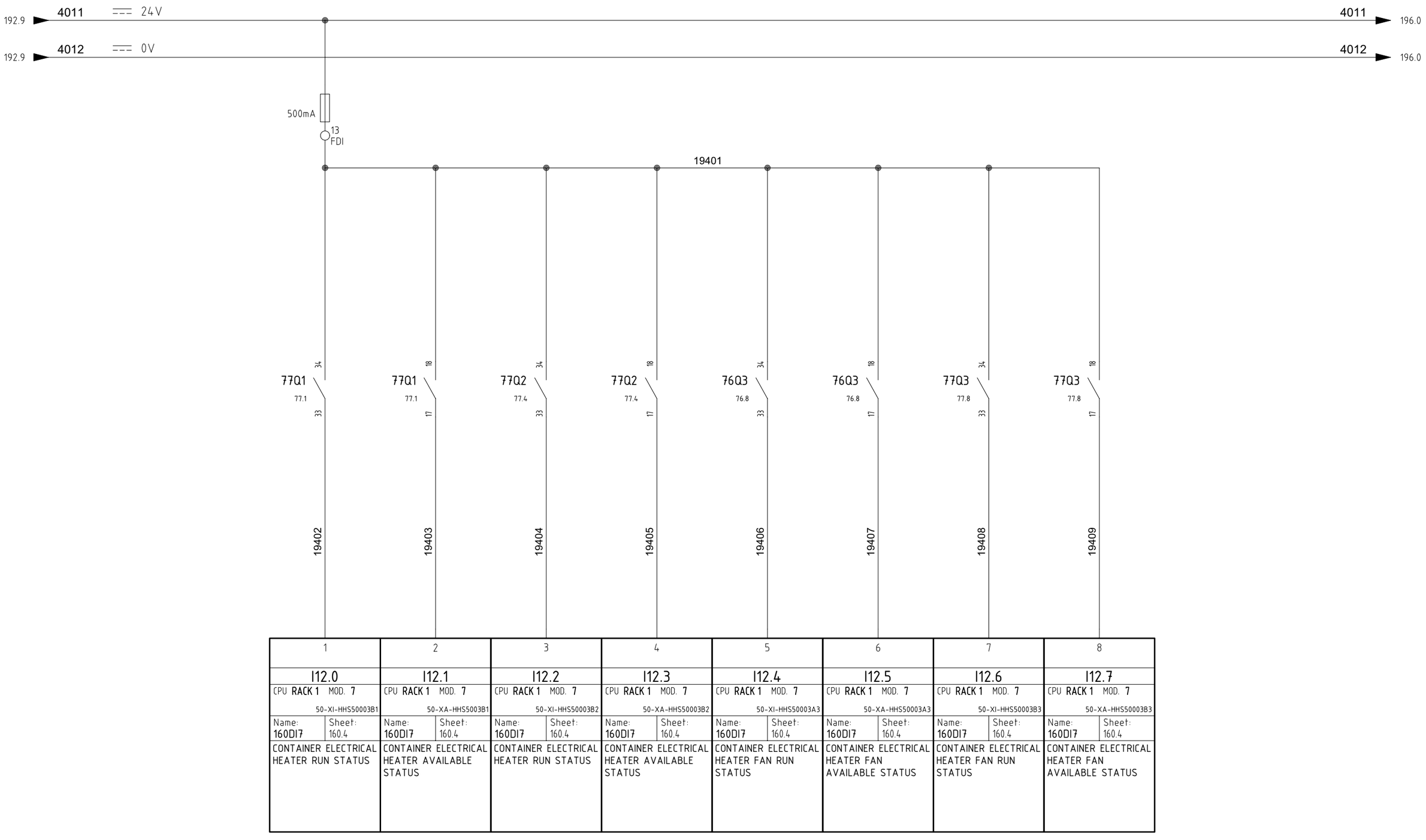
DRAWING NO. 1724000448-IN-DG-00014

SHEET 192

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I12.0	I12.1	I12.2	I12.3	I12.4	I12.5	I12.6	I12.7
CPU RACK 1 MOD. 7 50-XI-HHS50003B1	CPU RACK 1 MOD. 7 50-XA-HHS5003B1	CPU RACK 1 MOD. 7 50-XI-HHS50003B2	CPU RACK 1 MOD. 7 50-XA-HHS50003B2	CPU RACK 1 MOD. 7 50-XI-HHS50003A3	CPU RACK 1 MOD. 7 50-XA-HHS50003A3	CPU RACK 1 MOD. 7 50-XI-HHS50003B3	CPU RACK 1 MOD. 7 50-XA-HHS50003B3
Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4
CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER ELECTRICAL HEATER FAN RUN STATUS	CONTAINER ELECTRICAL HEATER FAN AVAILABLE STATUS	CONTAINER ELECTRICAL HEATER FAN RUN STATUS	CONTAINER ELECTRICAL HEATER FAN AVAILABLE STATUS

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 7

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

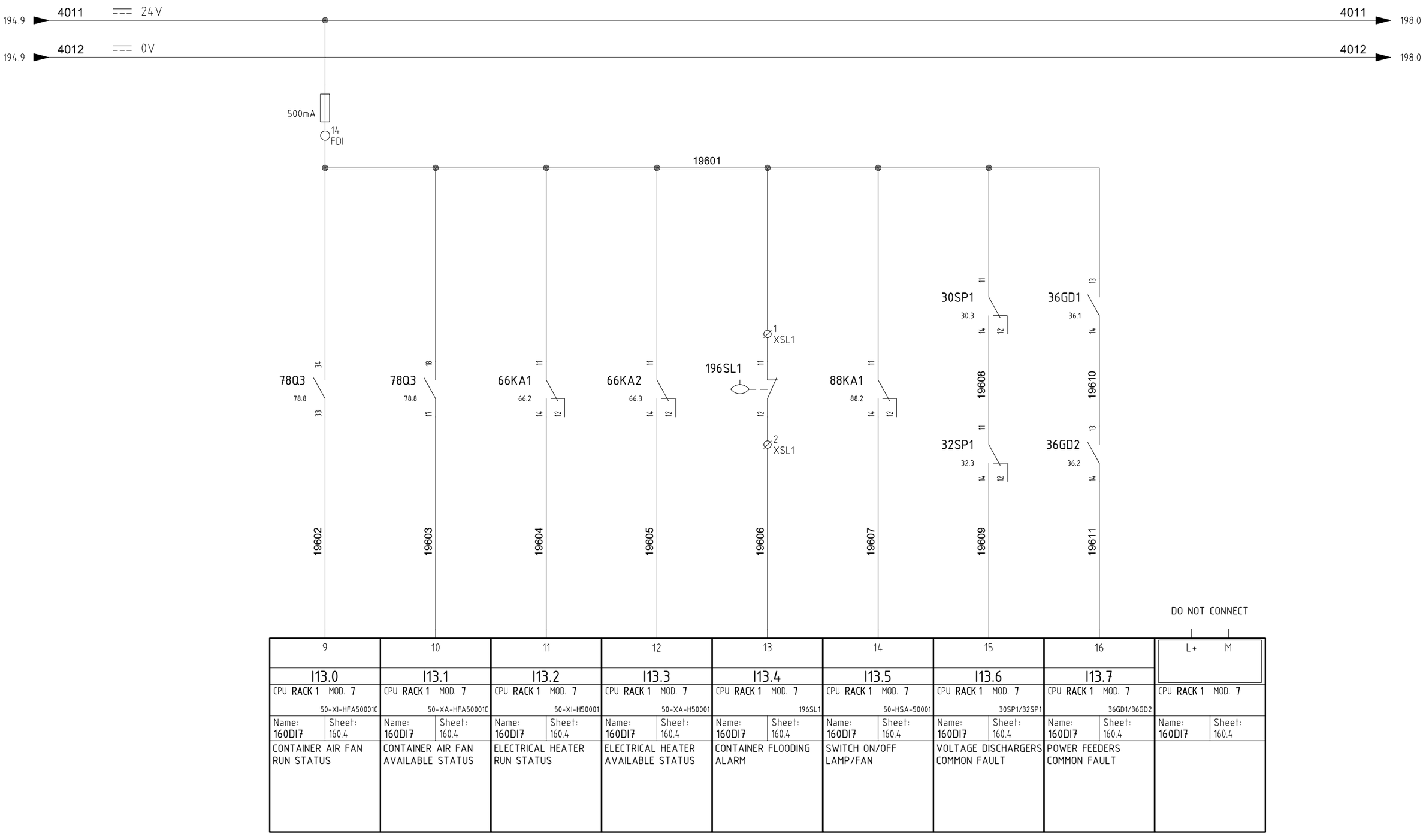
DRAWING NO. 1724000448-IN-DG-00014

SHEET 194

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I13.0	I13.1	I13.2	I13.3	I13.4	I13.5	I13.6	I13.7	
CPU RACK 1 MOD. 7 50-XI-HFA50001C	CPU RACK 1 MOD. 7 50-XA-HFA50001C	CPU RACK 1 MOD. 7 50-XI-H50001	CPU RACK 1 MOD. 7 50-XA-H50001	CPU RACK 1 MOD. 7 196SL1	CPU RACK 1 MOD. 7 50-HSA-50001	CPU RACK 1 MOD. 7 30SP1/32SP1	CPU RACK 1 MOD. 7 36GD1/36GD2	CPU RACK 1 MOD. 7
Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4	Name: 160DI7 / Sheet: 160.4
CONTAINER AIR FAN RUN STATUS	CONTAINER AIR FAN AVAILABLE STATUS	ELECTRICAL HEATER RUN STATUS	ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER FLOODING ALARM	SWITCH ON/OFF LAMP/FAN	VOLTAGE DISCHARGERS COMMON FAULT	POWER FEEDERS COMMON FAULT	

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 7

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

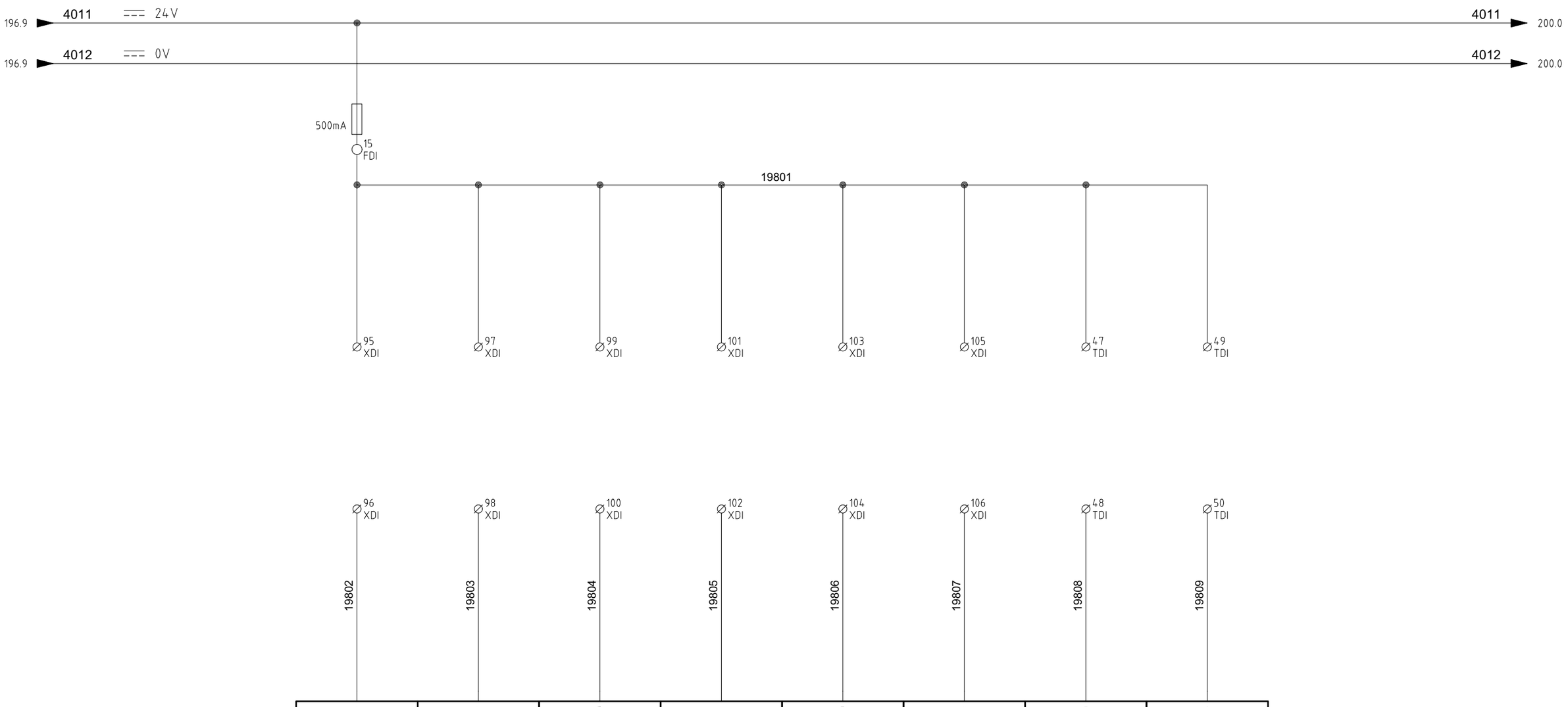
DRAWING NO. 1724000448-IN-DG-00014

SHEET 196

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I14.0	I14.1	I14.2	I14.3	I14.4	I14.5	I14.6	I14.7
CPU RACK 1 MOD. 8 50-XZSH-033	CPU RACK 1 MOD. 8 50-XZSL-033	CPU RACK 1 MOD. 8 50-XZSH-034	CPU RACK 1 MOD. 8 50-XZSL-034	CPU RACK 1 MOD. 8 50-XZSH-035	CPU RACK 1 MOD. 8 50-XZSL-035	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE
Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5
SEAWATER DRAIN FROM H-50001 VALVE OPEN	SEAWATER DRAIN FROM H-50001 VALVE CLOSED	SEAWATER DRAIN FROM T-50006 VALVE OPEN	SEAWATER DRAIN FROM T-50006 VALVE CLOSED	FRESH WATER FROM T-50008 DRAIN VALVE OPEN	FRESH WATER FROM T-50008 DRAIN VALVE CLOSED	SPARE	SPARE

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

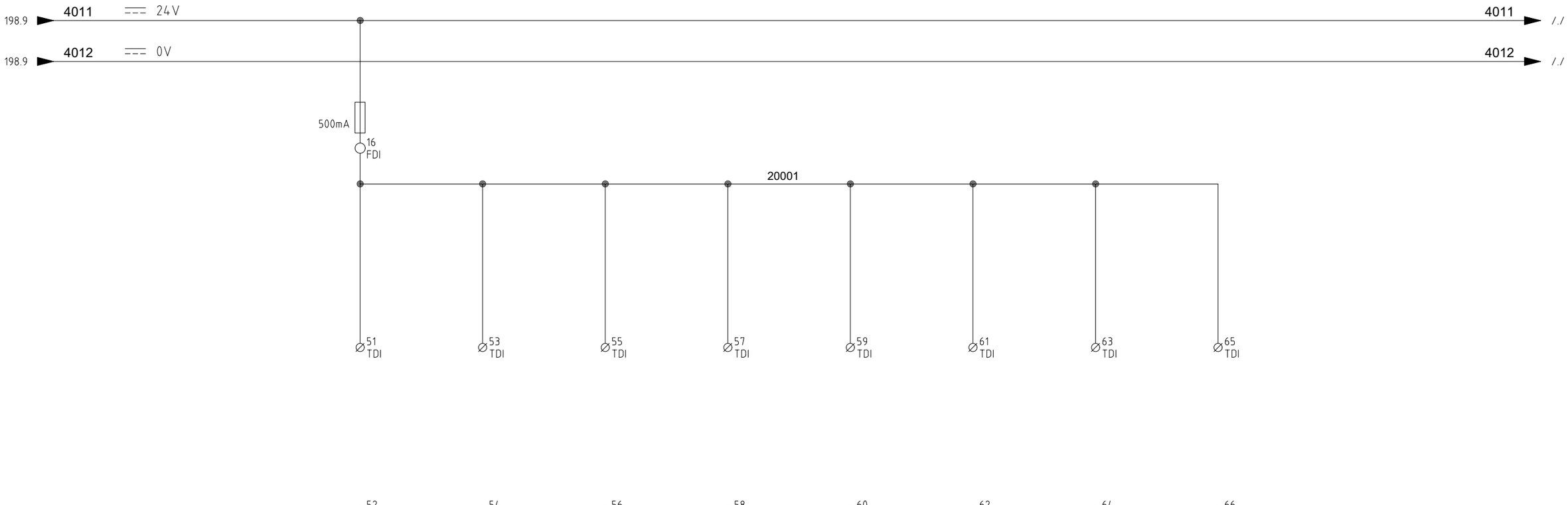
DRAWING NO. 1724000448-IN-DG-00014

SHEET 198

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I15.0	I15.1	I15.2	I15.3	I15.4	I15.5	I15.6	I15.7	
CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8
Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5
SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 200

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

P-50003A SUCTION VALVE COMMAND	P-50003A FLUSHING VALVE COMMAND	SW BOOSTER PUMP START/STOP COMMAND	SEAWATER INLET VALVE COMMAND	SEAWATER COARSE FILTER REGENERATION COMMAND	SPARE	SOFTENING FILTER REGENERATION COMMAND	UV STERILIZER START/STOP COMMAND
Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5
CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9
50-XY-021	50-XY-023	50-HS-P50003A	50-XY-020	50-HS-A50003	SPARE	50-HS-S50004	50-HS-S50010
Q0.0	Q0.1	Q0.2	Q0.3	Q0.4	Q0.5	Q0.6	Q0.7
1	2	3	4	5	6	7	8

4

40.7 4013 ⎓ 24V 4013 212.0

21001 21002 21003 21004 21005 21006 21007 21008

210KA1 210KA2 210KA3 210KA4 210KA5 210KA6 210KA7 210KA8

A1 A2

40.8 4014 ⎓ 0V 4014 212.0

300.0 300.1 300.3 300.4 300.5 300.6 300.7 90.1 90.1

11 12 14 24 21

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 9

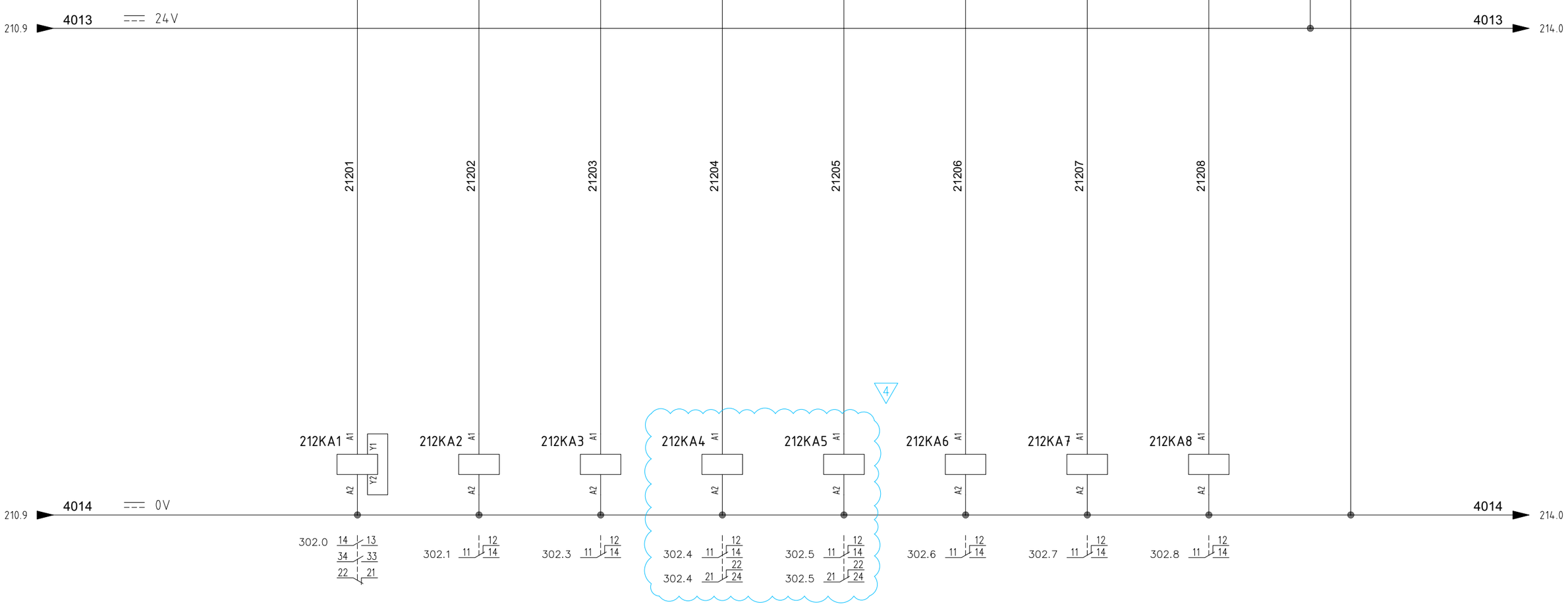
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 210 | REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

FAULT	FRESH WATER FROM A-50007A/B VALVE COMMAND	FRESH WATER DRAIN FROM A-50007A/B VALVE COMMAND	BRINE FROM A-50007A VALVE COMMAND	FRESH WATER OUTLET VALVE COMMAND	SPARE	SPARE	SPARE	
Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5
CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9	CPU RACK 1 MOD. 9
50-XA-003	50-XY-025	50-XY-026	50-XY-027	50-X-031	SPARE	SPARE	SPARE	
Q1.0	Q1.1	Q1.2	Q1.3	Q1.4	Q1.5	Q1.6	Q1.7	
9	10	11	12	13	14	15	16	L+ M



04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 9

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 212

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

P-50003B FLUSHING VALVE COMMAND	P-50003B SUCTION VALVE COMMAND	SW BOOSTER PUMP START/STOP COMMAND	BACKWASH PUMP START/STOP COMMAND	HP PUMP START/STOP COMMAND	CAUSTIC SODA DOSING PUMP START/STOP COMMAND	ANTISCALANT DOSING PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP COMMAND
Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5
CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10
50-XY-024	50-XY-022	50-HS-P50003B	50-HS-P50002A	50-HS-P50004A	50-HS-P50005A	50-HS-P50006A	50-HS-P50007A
Q2.0	Q2.1	Q2.2	Q2.3	Q2.4	Q2.5	Q2.6	Q2.7
1	2	3	4	5	6	7	8

212.9 4013 24V — 4013 216.0

21401 21402 21403 21404 21405 21406 21407 21408

214KA1 214KA2 214KA3 214KA4 214KA5 214KA6 214KA7 214KA8

212.9 4014 0V — 4014 216.0

304.0 304.1 304.3 304.4 304.5 304.6 304.7 304.8

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 10

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 214

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE START/STOP COMMAND	FRESH WATER PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK START/STOP COMMAND	CONTAINER ELECTRICAL HEATER START/STOP COMMAND	CONTAINER AIR FAN START/STOP COMMAND	FRESH WATER OFF-SPEC VALVE COMMAND	SPARE	SPARE	
Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5	Name: 160DO2 / Sheet: 160.5
CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10	CPU RACK 1 MOD. 10
50-HS-P50008A	50-HS-P50009A	50-HS-P50010A	50-HS-HHS50003A	50-HS-HFA50001A	50-XY-032	SPARE	SPARE	
Q3.0	Q3.1	Q3.2	Q3.3	Q3.4	Q3.5	Q3.6	Q3.7	
9	10	11	12	13	14	15	16	L+ M

DO NOT CONNECT

214.9 4013 ⎓ 24V → 218.0 4013

21601 21602 21603 21604 21605 21606 21607 21608

216KA1 A1/A2 216KA2 A1/A2 216KA3 A1/A2 216KA4 A1/A2 216KA5 A1/A2 216KA6 A1/A2 216KA7 A1/A2 216KA8 A1/A2

214.9 4014 ⎓ 0V → 218.0 4014

306.0 306.1 306.3 306.4 306.5 306.6 306.7 306.8 (11 / 12 14)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 10

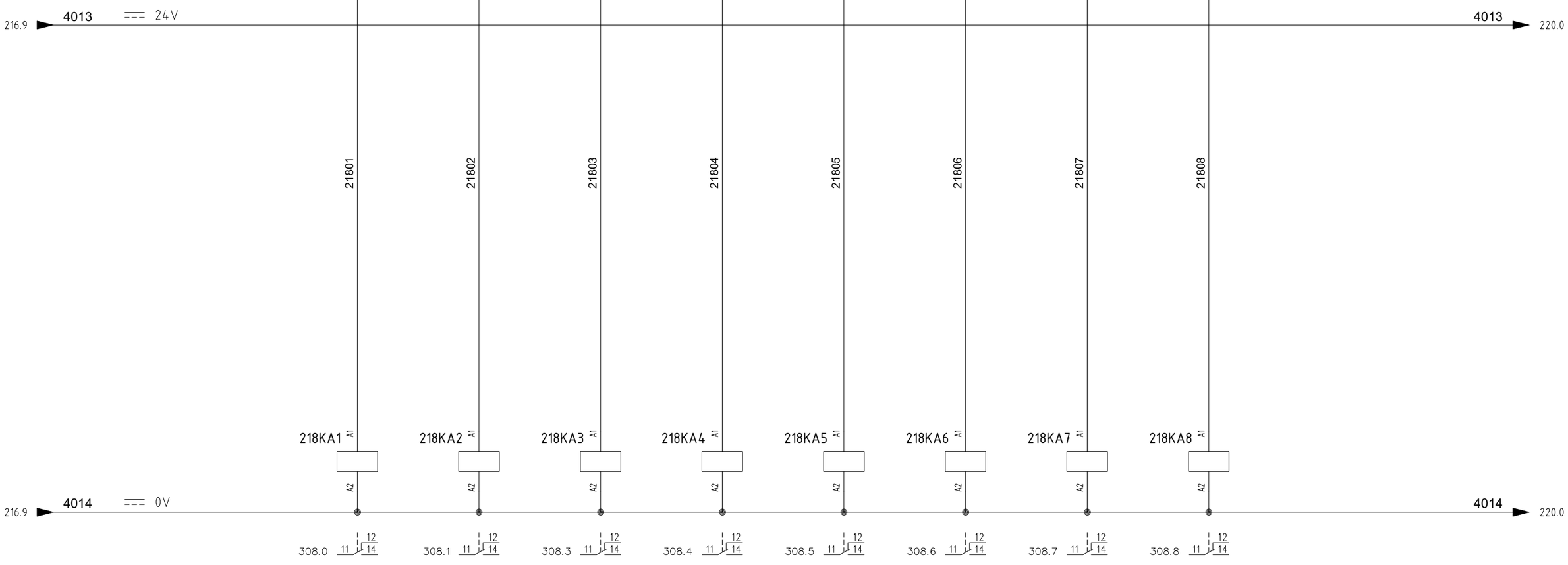
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 216 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

SPARE	SPARE	BRINE FROM A-50007B VALVE COMMAND	BACKWASH PUMP START/STOP COMMAND	HP PUMP START/STOP COMMAND	CAUSTIC SODA DOSING PUMP START/STOP COMMAND	ANTISCALANT DOSING PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP COMMAND
Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5
CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11	CPU RACK 1 MOD. 11
SPARE	SPARE	50-XY-030	50-HS-P50002B	50-HS-P50004B	50-HS-P50005B	50-HS-P50006B	50-HS-P50007B
Q4.0	Q4.1	Q4.2	Q4.3	Q4.4	Q4.5	Q4.6	Q4.7
1	2	3	4	5	6	7	8



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 11

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 218

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE START/STOP COMMAND		FRESH WATER PUMP START/STOP COMMAND		NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK START/STOP COMMAND		CONTAINER ELECTRICAL HEATER START/STOP COMMAND		CONTAINER AIR FAN START/STOP COMMAND		SPARE		SPARE		SPARE			
Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5	Name: 160DO3	Sheet: 160.5
CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11	CPU RACK 1	MOD. 11
50-HS-P50008B		50-HS-P50009B		50-HS-P50010B		50-HS-HHS50003B		50-HS-HFA50001B		SPARE		SPARE		SPARE	
Q5.0		Q5.1		Q5.2		Q5.3		Q5.4		Q5.5		Q5.6		Q5.7	
9		10		11		12		13		14		15		16	

L+ M

DO NOT CONNECT

218.9 4013 ⎓ 24V 4013 222.0

22001 22002 22003 22004 22005 22006 22007 22008

220KA1 220KA2 220KA3 220KA4 220KA5 220KA6 220KA7 220KA8

218.9 4014 ⎓ 0V 4014 222.0

310.0 310.1 310.3 310.4 310.5 310.6 310.7 310.8

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 11

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 220 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

CONTAINER ELECTRICAL HEATER START/STOP COMMAND		CONTAINER ELECTRICAL HEATER START/STOP COMMAND		CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND		CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND		CONTAINER AIR FAN START/STOP COMMAND		SPARE		SPARE		SPARE	
Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6	Name: 160DO4	Sheet: 160.6
CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12	
50-HS-HHS50003B1		50-HS-HHS50003B2		50-HS-HHS50003A3		50-HS-HHS50003B3		50-HS-HFA50001C		SPARE		SPARE		SPARE	
Q6.0		Q6.1		Q6.2		Q6.3		Q6.4		Q6.5		Q6.6		Q6.7	
1		2		3		4		5		6		7		8	

220.9 4013 ⎓ 24V 4013 224.0

22201 22202 22203 22204 22205 22206 22207 22208

222KA1 A1 A2 222KA2 A1 A2 222KA3 A1 A2 222KA4 A1 A2 222KA5 A1 A2 222KA6 A1 A2 222KA7 A1 A2 222KA8 A1 A2

220.9 4014 ⎓ 0V 4014 224.0

312.0 11 12 14 312.1 11 12 14 312.3 11 12 14 312.4 11 12 14 312.5 11 12 14 312.6 11 12 14 312.7 11 12 14 312.8 11 12 14

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 12

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 222 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

SEAWATER DRAIN FROM H-50001 VALVE COMMAND	SEAWATER DRAIN FROM T-50006 VALVE COMMAND	FRESH WATER DRAIN FROM T-50008 VALVE COMMAND	FRESH WATER ANALYZER COMMAND	SPARE	SPARE	SPARE	SPARE	
Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6	Name: 160DO4 Sheet: 160.6
CPU RACK 1 MOD. 12 50-XY-033	CPU RACK 1 MOD. 12 50-XY-034	CPU RACK 1 MOD. 12 50-XY-035	CPU RACK 1 MOD. 12 50-HS-026	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12
Q7.0	Q7.1	Q7.2	Q7.3	Q7.4	Q7.5	Q7.6	Q7.7	L+ M
9	10	11	12	13	14	15	16	DO NOT CONNECT

222.9 4013 24V 4013 /./

22401 22402 22403 22404 22405 22406 22407 22408

224KA1 224KA2 224KA3 224KA4 224KA5 224KA6 224KA7 224KA8

222.9 4014 0V 4014 /./

314.0 314.1 314.3 314.4 314.5 314.6 314.7 314.8

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 12

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

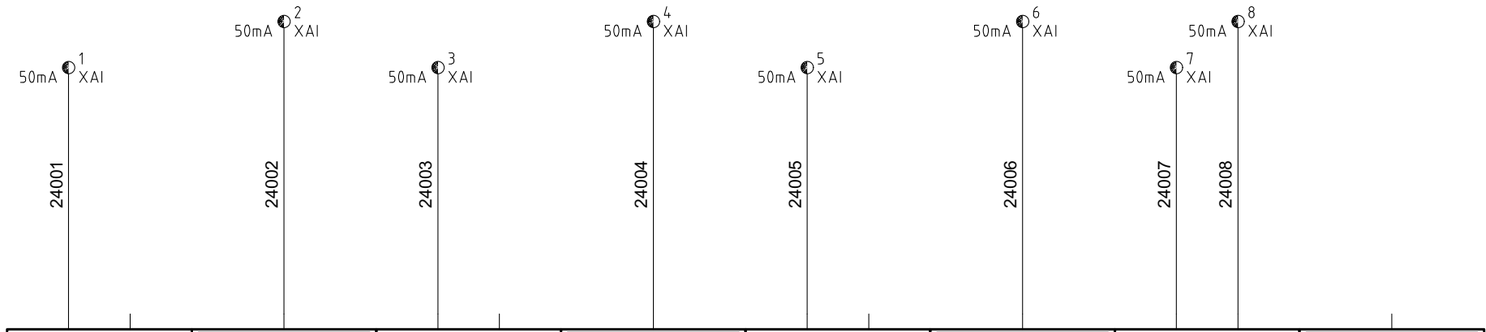
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 224 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

40.1 4015 ⎓ 24V → 4015 242.0

40.2 4016 ⎓ 0V → 4016 242.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW64		IW66		IW68		IW70	
CPU RACK 1 MOD. 13 50-AT-023	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-AT-024	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-FT-020	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-PT-020	CPU RACK 1 MOD. 13
Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6
FILTERED SEAWATER CONDUCTIVITY TO P-50003A/B		FRESH WATER CONDUCIVITY FROM A-50007A		SEAWATER FLOW TO S-50001		SEAWATER INLET PRESSURE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 13

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

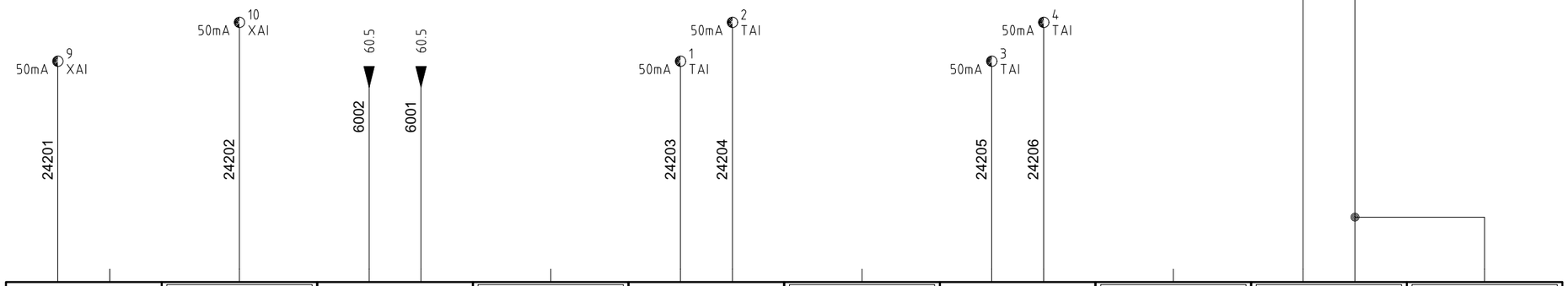
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 240 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

240.9 4015 ⎓ 24V → 4015 244.0

240.9 4016 ⎓ 0V → 4016 244.0



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW72		IW74		IW76		IW78			
CPU RACK 1 MOD. 13 50-FT-026	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-SI-P50004A	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 SPARE	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 SPARE	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13
Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6
FRESH WATER OUTLET FLOW		HP PUMP SPEED FEEDBACK		SPARE		SPARE			

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 13

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

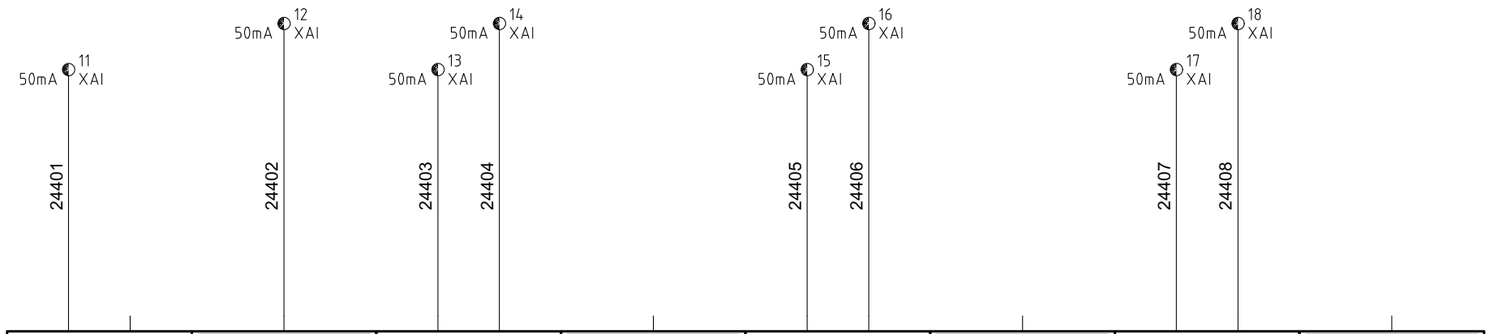
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 242 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

242.9 4015 ⎓ 24V → 4015 246.0

242.9 4016 ⎓ 0V → 4016 246.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW80		IW82		IW84		IW86	
CPU RACK 1 MOD. 14 50-FT-022	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 50-PT-025	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 50-PT-026	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 50-PT-030	CPU RACK 1 MOD. 14
Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6
FILTERED SEAWATER FLOW FROM P-50003A		FILTERED SEAWATER PRESSURE FROM P-50003A		FILTERED SEAWATER PRESSURE TO P-50004A		FILTERED SEAWATER PRESSURE FROM P-50004A	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 14

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 244

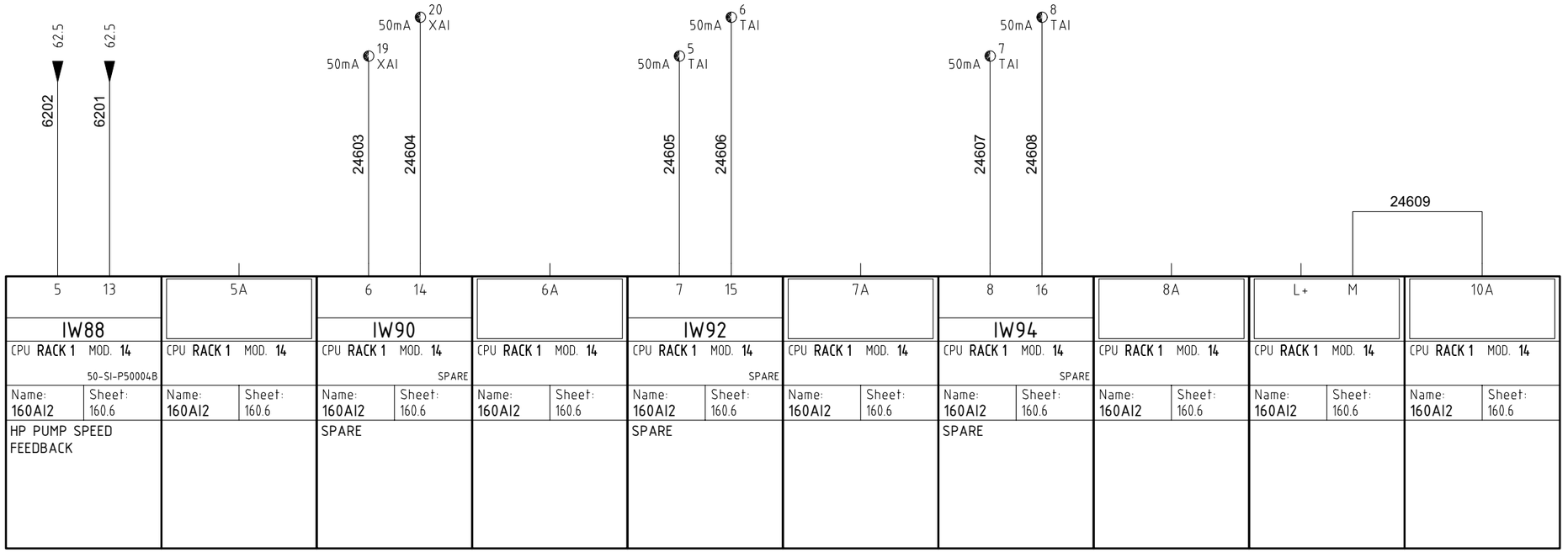
REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

244.9 4015 ⎓ 24V → 4015 248.0

244.9 4016 ⎓ 0V → 4016 248.0



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 14

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 246

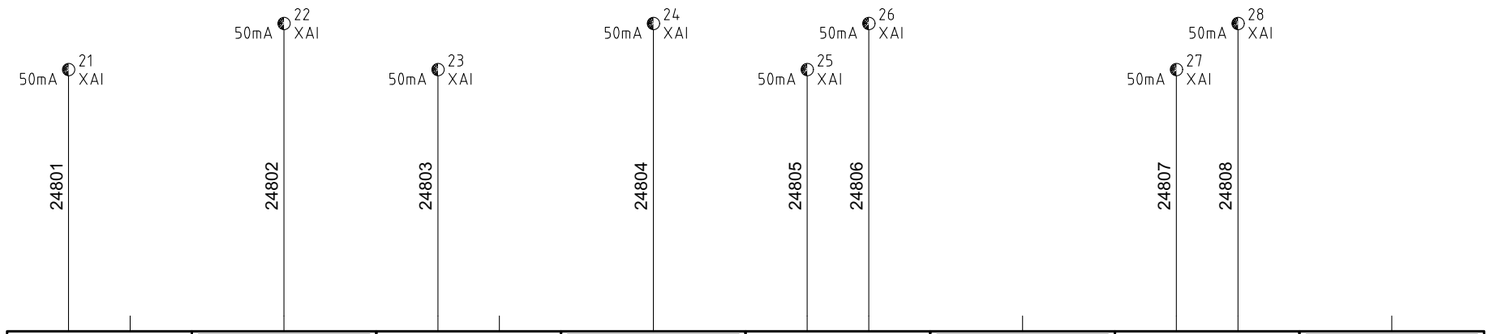
REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

246.9 4015 ⎓ 24V → 4015 250.0

246.9 4016 ⎓ 0V → 4016 250.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW96		IW98		IW100		IW102	
CPU RACK 1 MOD. 15 50-FT-023	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15 50-FT-024	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15 50-PT-027	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15 50-PT-028	CPU RACK 1 MOD. 15
Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6
FILTERED SEAWATER FLOW FROM P-50003B		FRESH WATER FLOW FROM A-50007A/B		FILTERED SEAWATER PRESSURE FROM P-50003B		FILTERED SEAWATER PRESSURE TO P-50004B	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 15

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

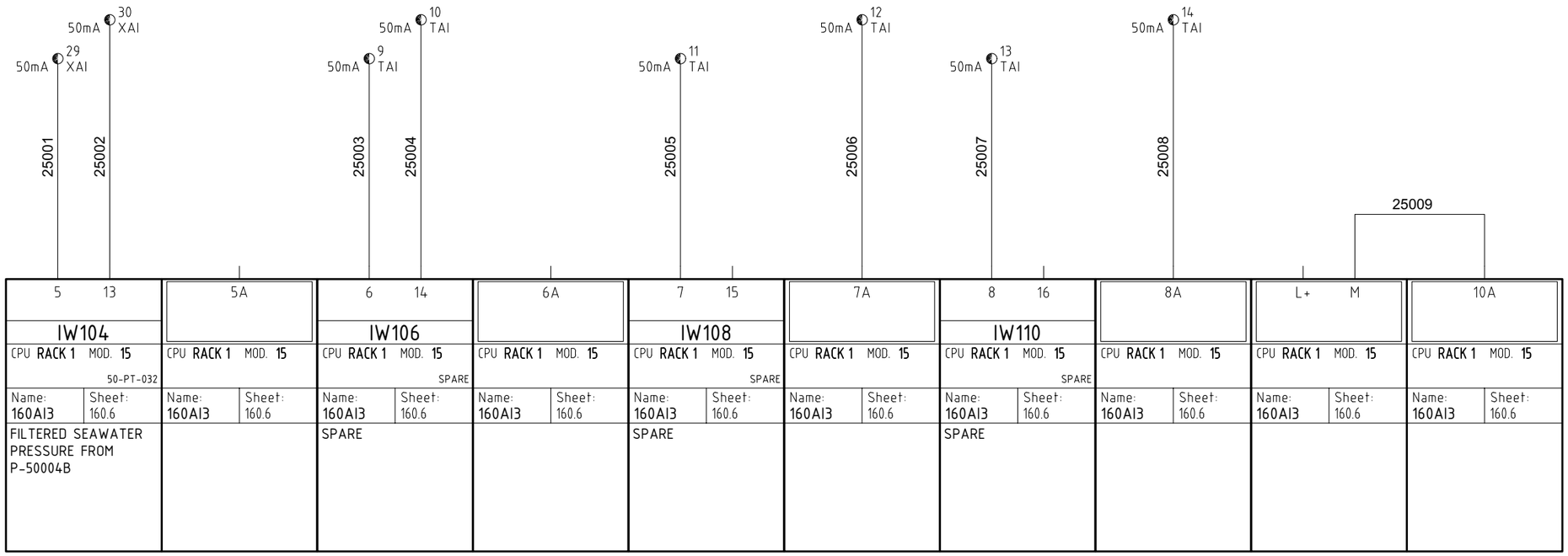
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 248 | REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

248.9 4015 ⎓ 24V → 4015 252.0

248.9 4016 ⎓ 0V → 4016 252.0



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 15

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 250

REV. 03

DOC. REF: PK2885-A-002

CROSSWIND

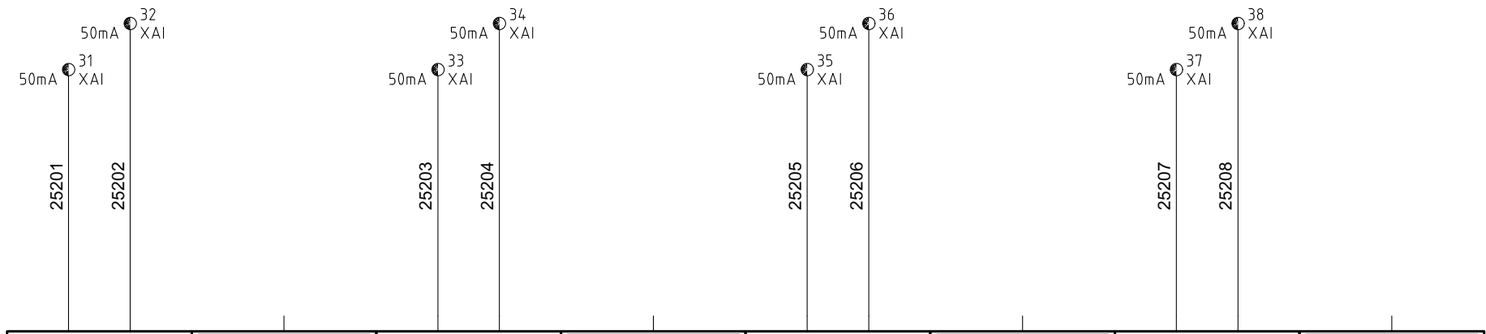
ROSETTI MARINO

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

250.9 4015 ⎓ 24V → 4015 254.0

250.9 4016 ⎓ 0V → 4016 254.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW112		IW114		IW116		IW118	
CPU RACK 1 MOD. 16 50-TT-021	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-020	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-021	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-022	CPU RACK 1 MOD. 16
Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7	Name: 160AI4 Sheet: 160.7
SEAWATER TEMPERATURE FROM H-50001		T-50006 LEVEL		T-50008 LEVEL		T-50002 LEVEL	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 16

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 252

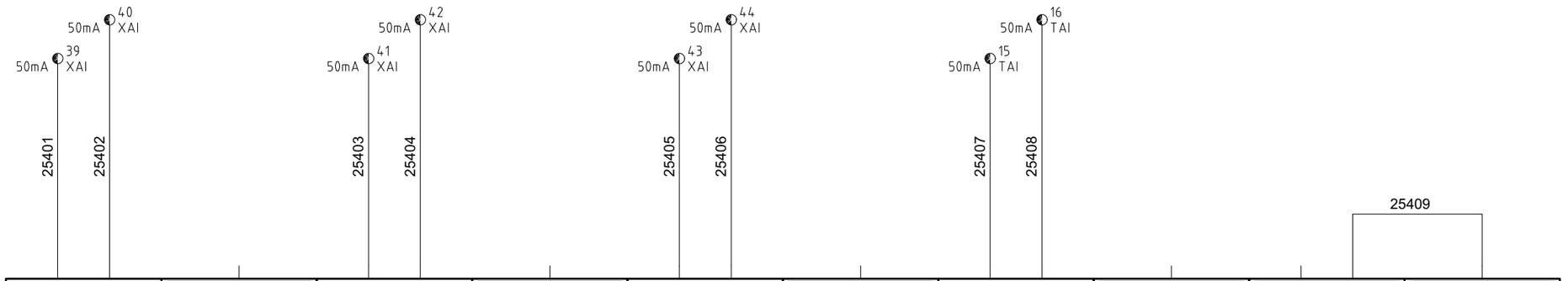
REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

252.9 4015 ⎓ 24V → 4015 256.0

252.9 4016 ⎓ 0V → 4016 256.0



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 16

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 254

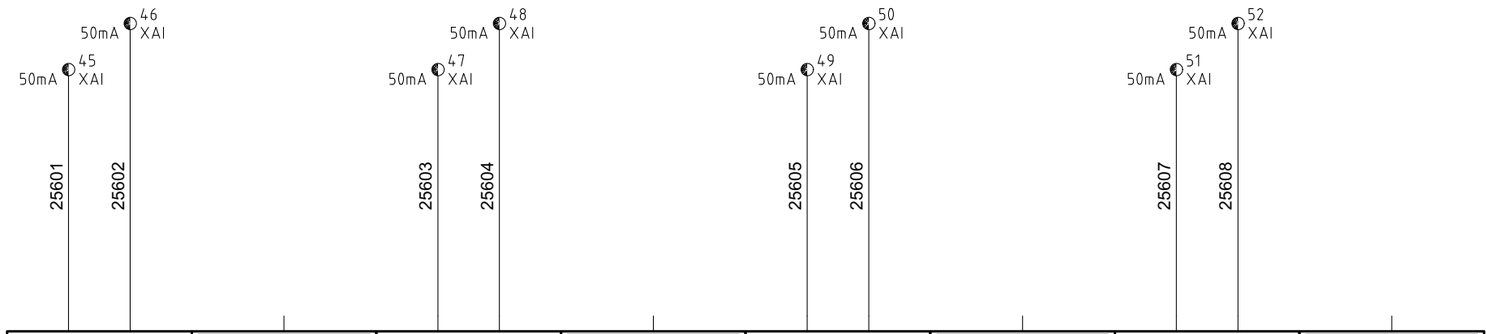
REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

254.9 4015 ⎓ 24V → 4015 258.0

254.9 4016 ⎓ 0V → 4016 258.0



1	9	1A	2	10	2A	3	11	3A	4	12	4A
IW128			IW130			IW132			IW134		
CPU RACK 1 MOD. 17 50-TT-022		CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-PT-041		CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-TT-024		CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-AT-026		CPU RACK 1 MOD. 17
Name: 160AI5	Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5	Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5	Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5	Sheet: 160.7	Name: 160AI5 Sheet: 160.7
SEAWATER TEMPERATURE FROM H-50001			FRESH WATER OUTLET PRESSURE			FRESH WATER OUTLET TEMPERATURE			FRESH WATER OUTLET TOTAL HARDNESS		

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 17

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 256

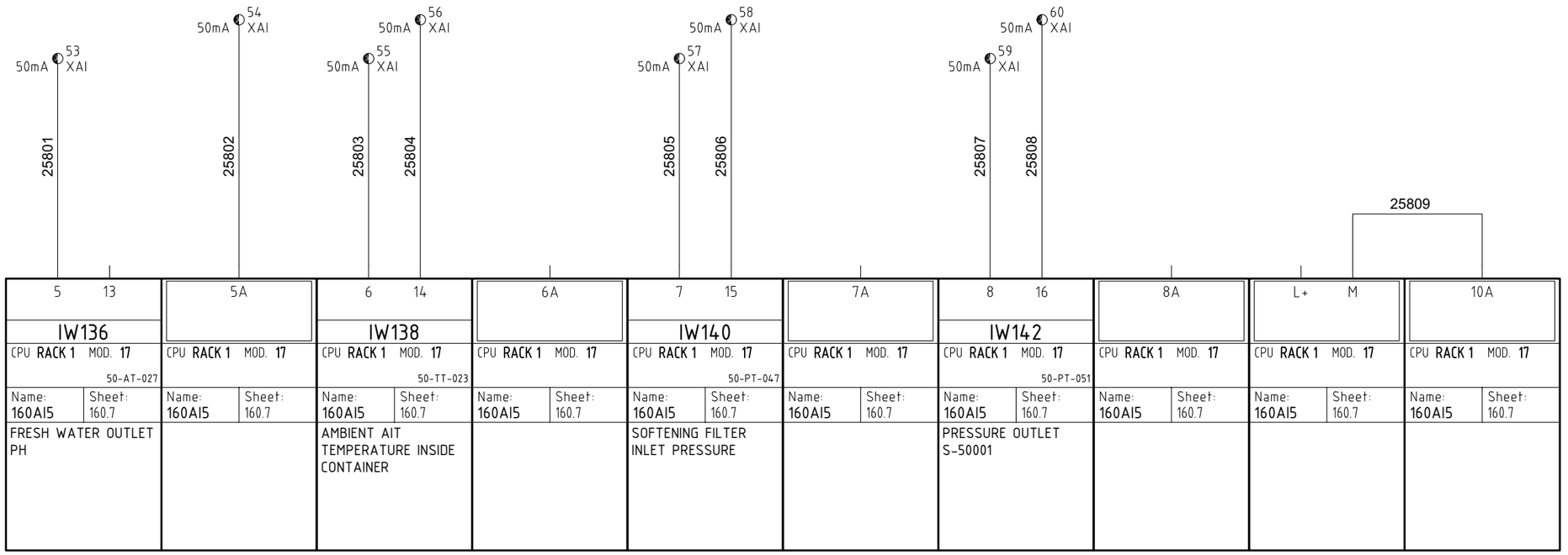
REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

256.9 4015 ⎓ 24V → 4015 /./

256.9 4016 ⎓ 0V → 4016 /./



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW136		IW138		IW140		IW142			
CPU RACK 1 MOD. 17 50-AT-027	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-TT-023	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-PT-047	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-PT-051	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17
Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7
FRESH WATER OUTLET PH		AMBIENT AIT TEMPERATURE INSIDE CONTAINER		SOFTENING FILTER INLET PRESSURE		PRESSURE OUTLET S-50001			

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 17

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 258

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

HP PUMP SPEED CONTROL	CAUSTIC SODA DOSING PUMP CONTROL	SEAWATER TEMPERATURE FROM H-50001	SPARE	
Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7
CPU **RACK 1** MOD. **18**	CPU **RACK 1** MOD. **18**	CPU **RACK 1** MOD. **18**	CPU **RACK 1** MOD. **18**	CPU **RACK 1** MOD. **18**
50-SY-P50004A	50-ZY-P50005A	50-TZ-021	SPARE	
QW64	QW66	QW68	QW70	
9 1 5 13	10 2 6 14	11 3 7 15	12 4 8 16	L+ M

28001 → 60.6
28002 → 60.6
28003 → 50mA 1 XAO
28004 → 50mA 2 XAO → 66.3
28005 → 66.3
28006 → 66.3
28007 → 50mA 1 TAO
28008 → 50mA 2 TAO

40.2 4017 ⎓ 24V → 4017 282.0

40.3 4018 ⎓ 0V → 4018 282.0

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG OUTPUT RACK 1 SLOT 18

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

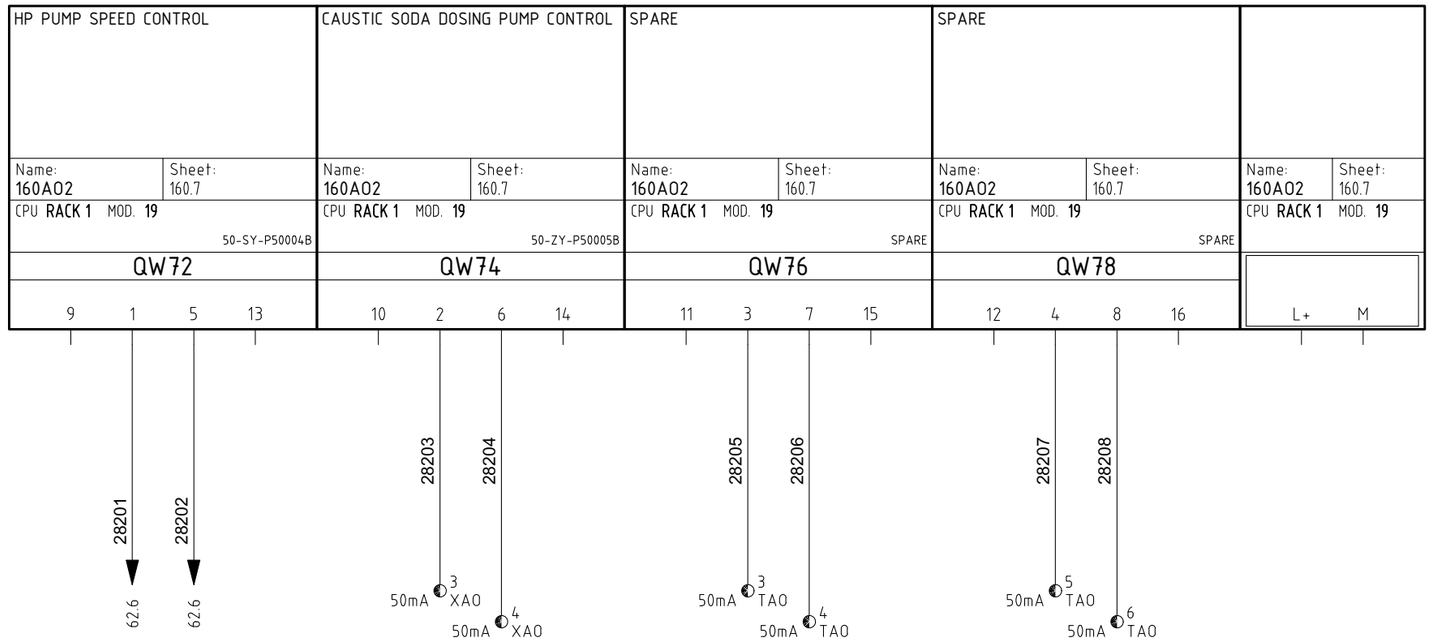
DRAWING NO. 1724000448-IN-DG-00014

SHEET 280

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



280.9 4017 ⎓ 24V 4017 /.

280.9 4018 ⎓ 0V 4018 /.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG OUTPUT RACK 1 SLOT 19

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

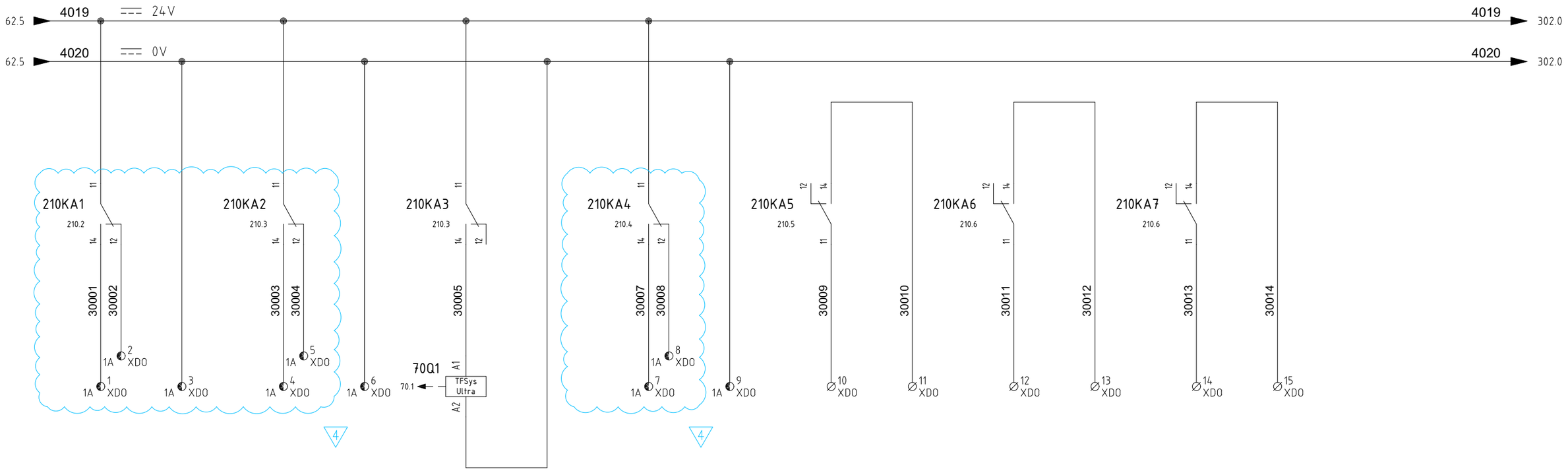
SHEET 282

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XY-021	50-XY-023	50-HS-P50003A	50-XY-020	50-HS-A50003	SPARE	50-HS-S50004
P-50003A SUCTION VALVE COMMAND	*P-50003A FLUSHING VALVE COMMAND*	*SW BOOSTER PUMP START/STOP COMMAND*	*SEAWATER INLET VALVE COMMAND*	*SEAWATER COARSE FILTER REGENERATION COMMAND*	*SPARE*	*SOFTENING FILTER REGENERATION COMMAND*



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

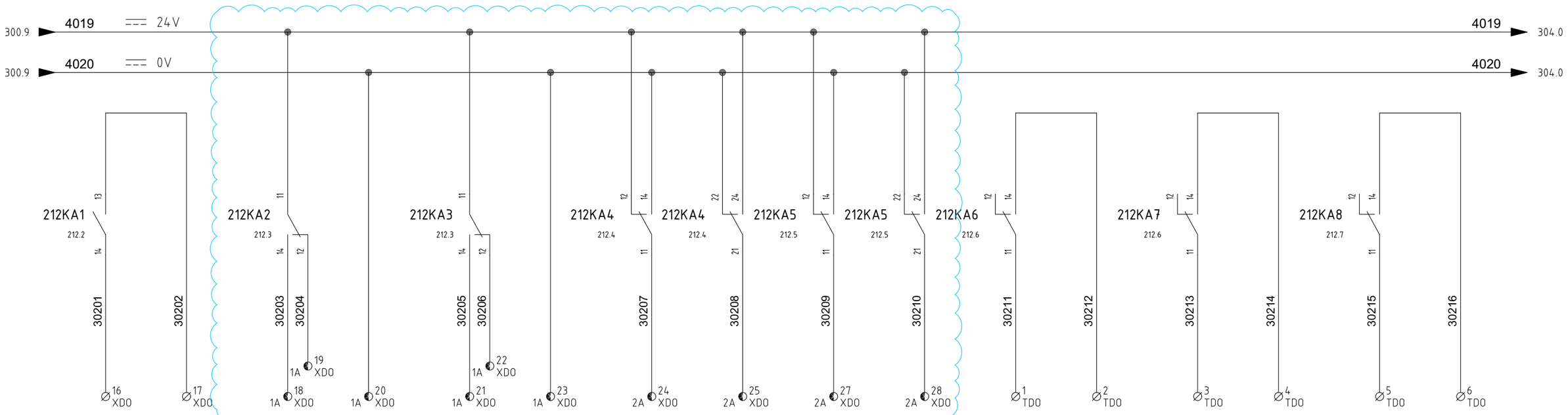
SHEET 300

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XA-003	50-XY-025	50-XY-026	50-XY-027	50-XY-031	SPARE	SPARE	SPARE
FAULT	*FRESH WATER FROM A-50007A VALVE COMMAND*	*FRESH WATER DRAIN FROM A-50007A VALVE COMMAND*	*BRINE FROM A-50007A VALVE COMMAND*	*FRESH WATER OUTLET VALVE COMMAND*	SPARE	SPARE	SPARE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

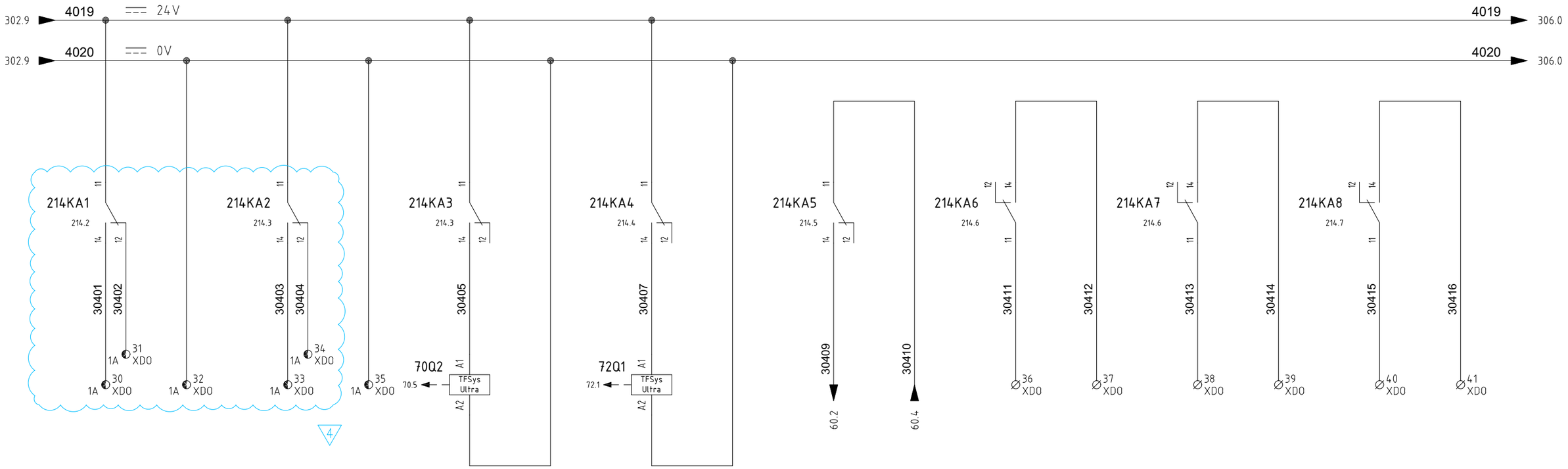
SHEET 302

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XY-024	50-XY-022	50-HS-P50003B	50-HS-P50002A	50-HS-P50004A	50-HS-P50005A	50-HS-P50006A	50-HS-P50007A
P-50003B FLUSHING VALVE COMMAND	*P-50003B SUCTION VALVE COMMAND*	*SW BOOSTER PUMP START/STOP COMMAND*	*BACKWASH PUMP START/STOP COMMAND*	*HP PUMP START/STOP COMMAND*	*CAUSTIC SODA DOSING PUMP START/STOP COMMAND*	*ANTISCALANT DOSING PUMP START/STOP COMMAND*	*NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP CMD*



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

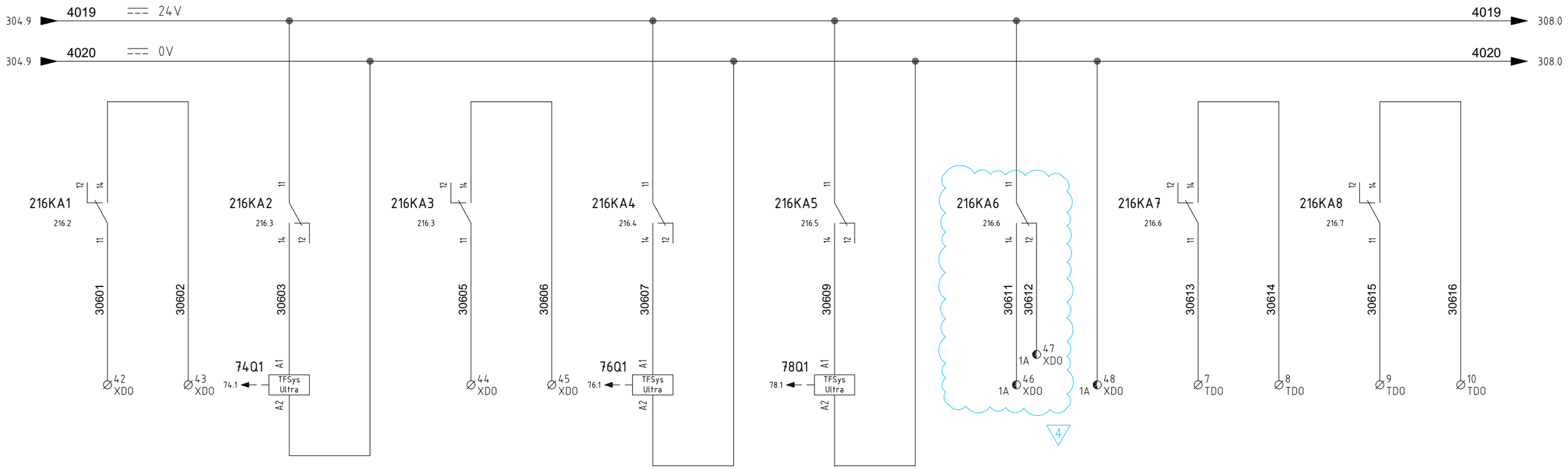
SHEET 304

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-HS-P50008A	50-HS-P50009A	50-HS-P50010A	50-HS-HHS50003A	50-HS-HFA50001A	50-XY-032	SPARE	SPARE
NON-OXIDANT BIOCIDE DOSING PUMP - SEA W. INTAKE START/STOP CMD	*FRESH WATER PUMP START/STOP COMMAND*	*NON-OXIDANT BIOCIDE DOSING PUMP - WASTE W. TANK START/STOP CMD*	*CONTAINER ELECTRICAL HEATER START/STOP COMMAND*	*CONTAINER AIR FAN START/STOP COMMAND*	*FRESH WATER OFF-SPEC VALVE COMMAND*	SPARE	SPARE



04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

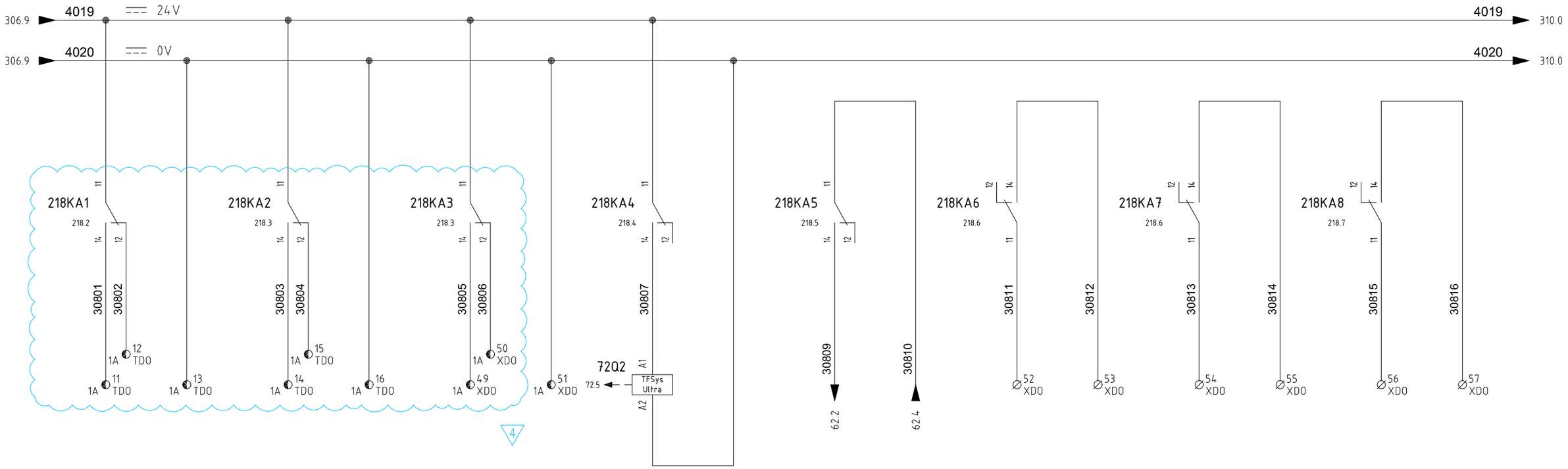
SHEET 306

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

SPARE	SPARE	50-XY-030	50-HS-P50002B	50-HS-P50004B	50-HS-P50005B	50-HS-P50006B	50-HS-P50007B
		BRINE FROM A-50007B VALVE COMMAND	*BACKWASH PUMP START/STOP COMMAND*	*HP PUMP START/STOP COMMAND*	*CAUSTIC SODA DOSING PUMP START/STOP COMMAND*	*ANTISCALANT DOSING PUMP START/STOP COMMAND*	*NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP CMD*



04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

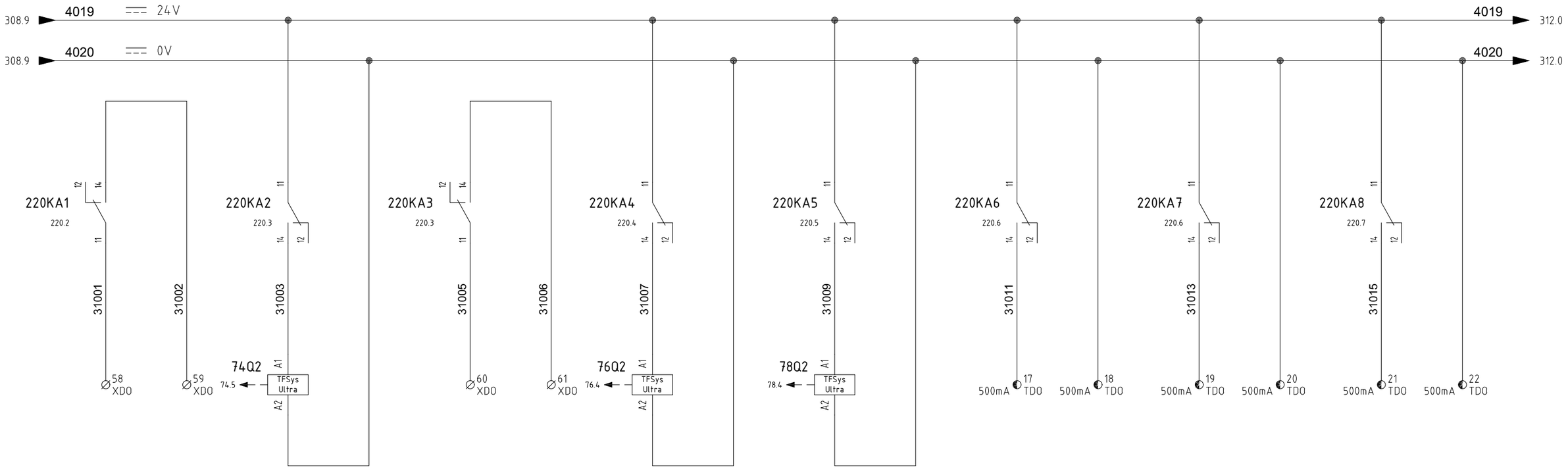
SHEET 308

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-HS-P50008B	50-HS-P50009B	50-HS-P50010B	50-HS-HHS50003B	50-HS-HFA50001B	SPARE	SPARE	SPARE
NON-OXIDANT BIOCIDE DOSING PUMP - SEA W. INTAKE START/STOP CMD	*FRESH WATER PUMP START/STOP COMMAND*	*NON-OXIDANT BIOCIDE DOSING PUMP - SEA W. INTAKE START/STOP CMD*	*CONTAINER ELECTRICAL HEATER START/STOP COMMAND*	*CONTAINER AIR FAN START/STOP COMMAND*	SPARE	SPARE	SPARE



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

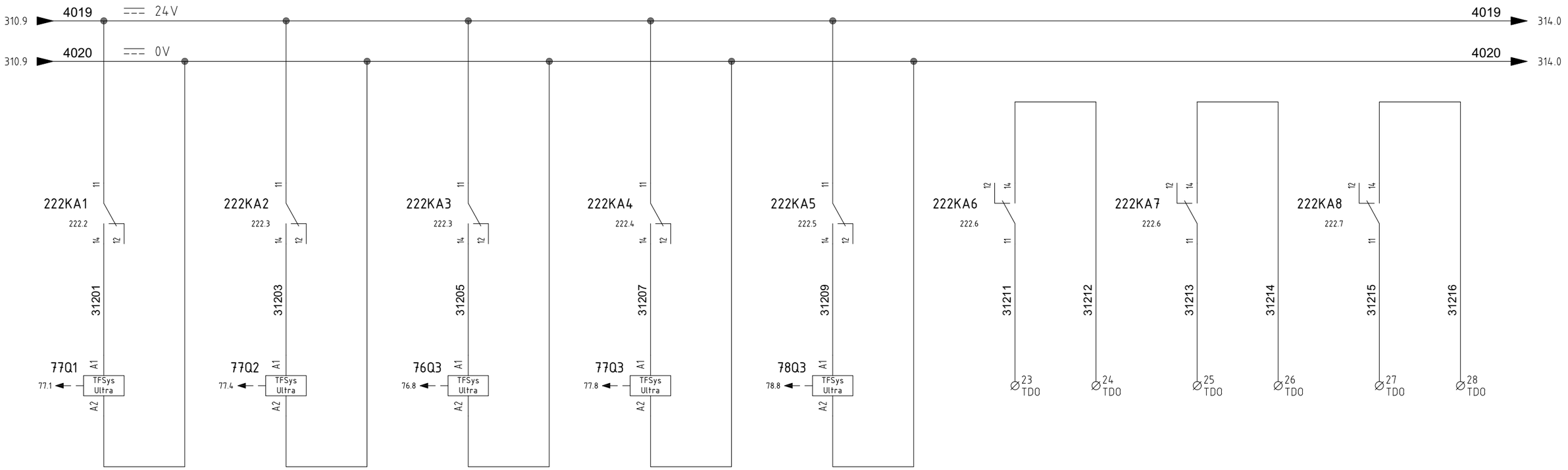
SHEET 310

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-HS-HHS50003B1	50-HS-HHS50003B2	50-HS-HHS50003A3	50-HS-HHS50003B3	50-HS-HFA50001C	SPARE	SPARE	SPARE
CONTAINER ELECTRICAL HEATER START/STOP COMMAND	*CONTAINER ELECTRICAL HEATER START/STOP COMMAND*	*CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND*	*CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND*	*CONTAINER AIR FAN START/STOP COMMAND*	SPARE	SPARE	SPARE



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

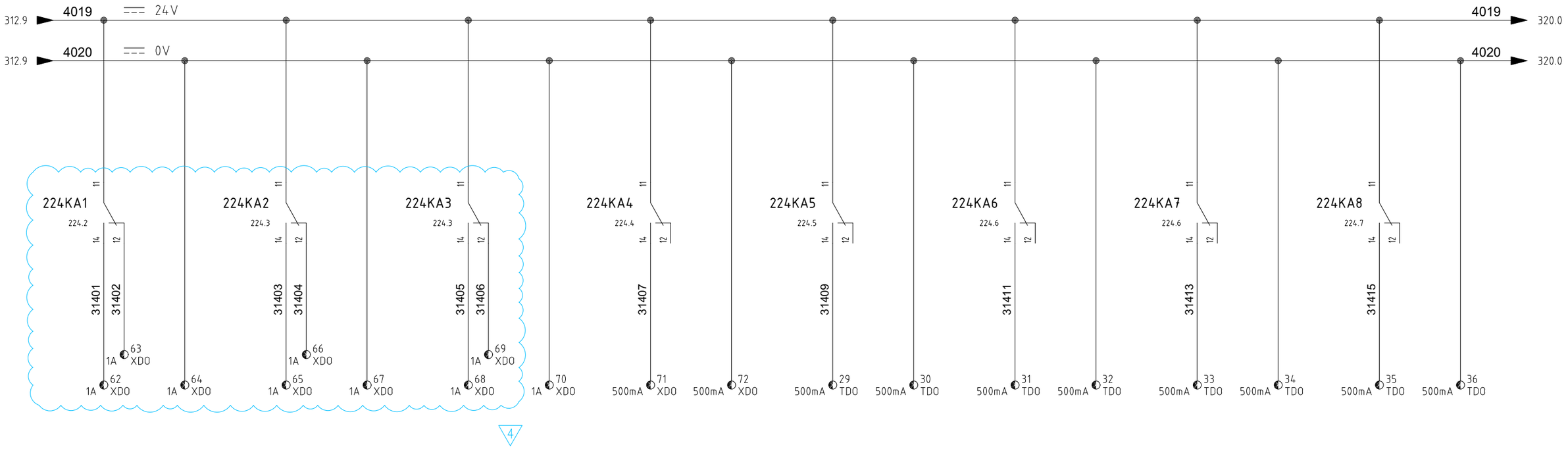
SHEET 312

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XY-033	50-XY-034	50-XY-035	50-HS-026	SPARE	SPARE	SPARE	SPARE
SEAWATER DRAIN FROM H-50001 VALVE COMMAND	*SEAWATER DRAIN FROM T-50006 VALVE COMMAND*	*FRESH WATER DRAIN FROM T-50008 VALVE COMMAND*	*FRESH WATER ANALYZER COMMAND*	SPARE	SPARE	SPARE	SPARE



DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 314

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XS-001
SHUTDOWN

50-HS-020
EMERGENCY STOP PUSHBUTTON

4

314.9 4019 ⎓ 24V → 4019 /./

314.9 4020 ⎓ 0V → 4020 /./

1 XEXT

2 XEXT

21 XDI

22 XDI

32001

32002

32003

320KA1 A1 Y1 Y2 A2

320KA2 A1 Y1 Y2 A2

174.7 14 13 / 34 33 / 22 21

174.6 14 13 / 30.2 24 23 / 32 31

DOC. REF: PK2885-A-002

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
EXTERNAL COMMAND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

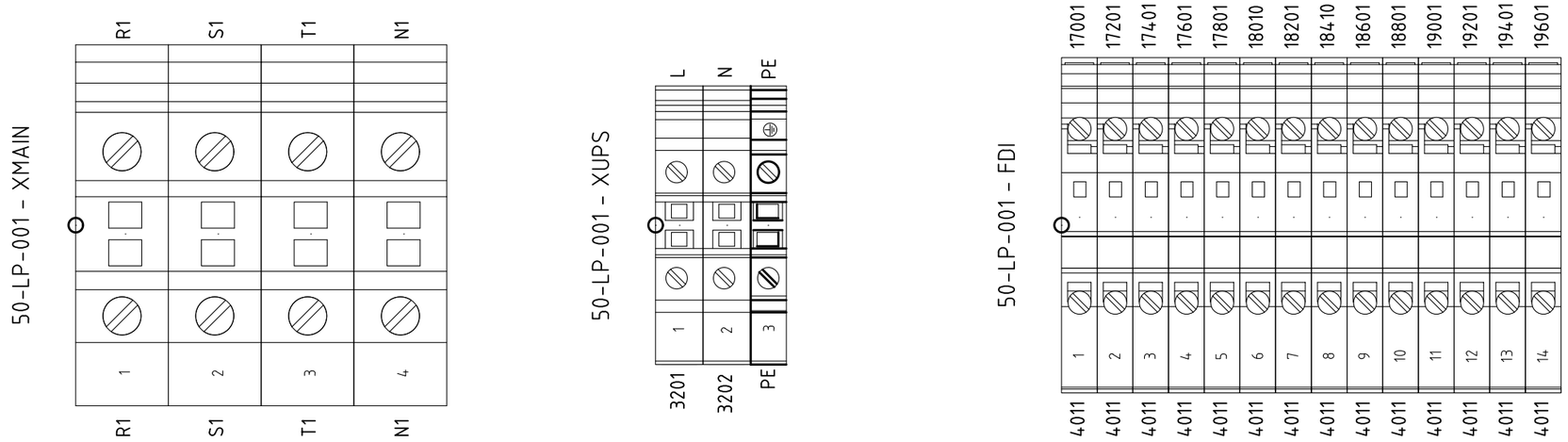
DRAWING NO. 1724000448-IN-DG-00014

SHEET 320

REV. 04

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



Instrument Earth (30x5)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XMAIN - XUPS - FDI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

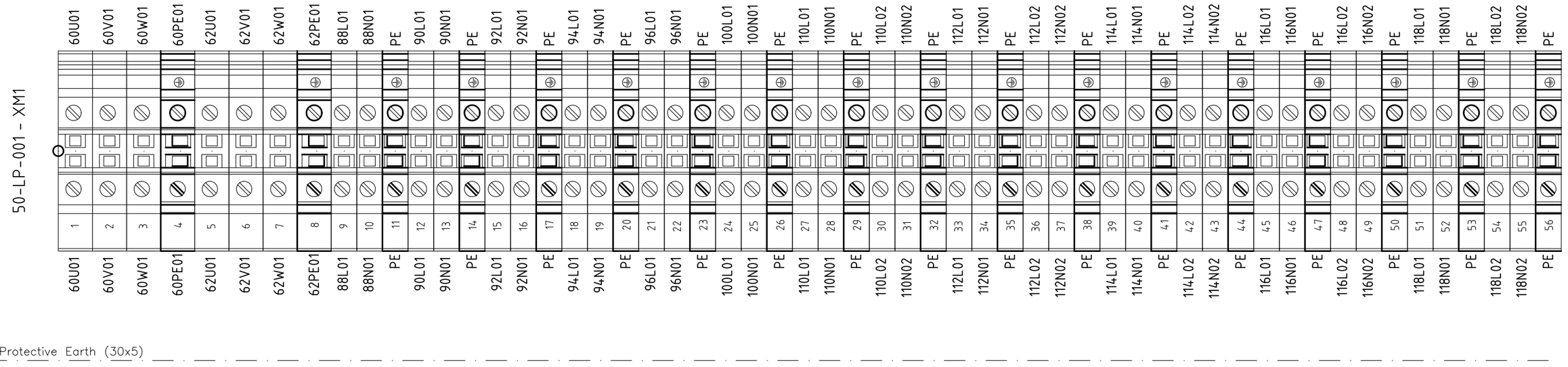
DRAWING NO. 1724000448-IN-DG-00014

SHEET 400

REV. 03

File Name : PK2885_5

F.to UNI A3: 420mmx297mm



DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XM1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

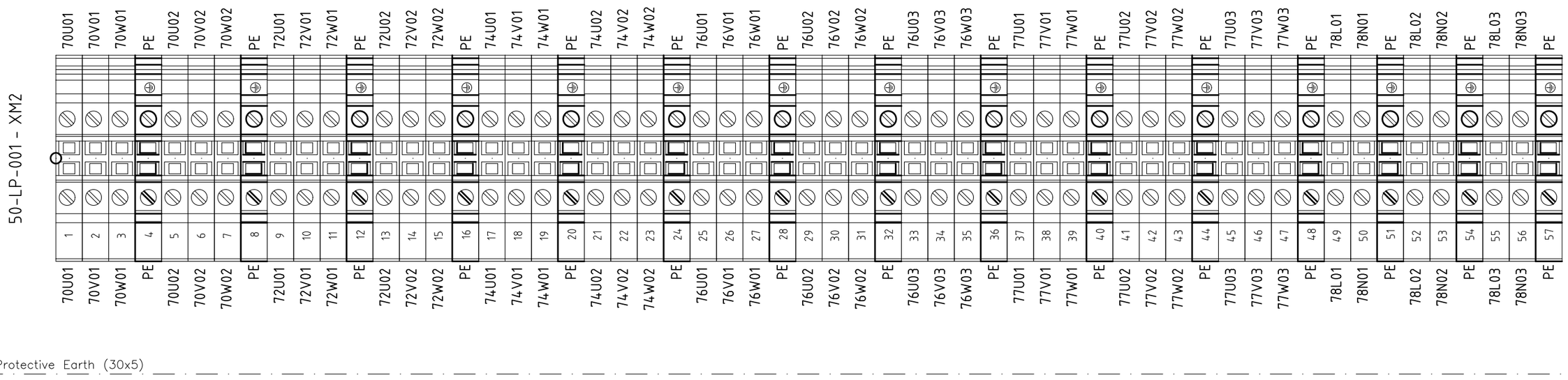
DRAWING NO. 1724000448-IN-DG-00014

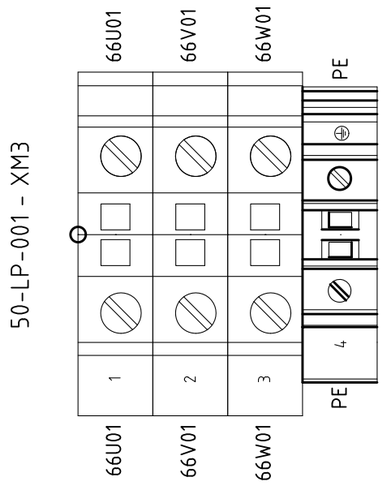
SHEET 402

REV. 03

File Name : PK2885_5

F.to UNI A3: 420mmx297mm





REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XM2 - XM3

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

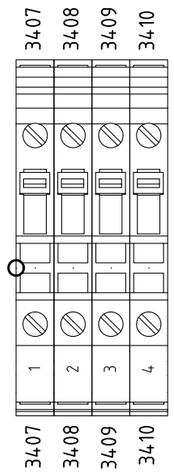
SHEET 403

REV. 03

File Name : PK2885_5

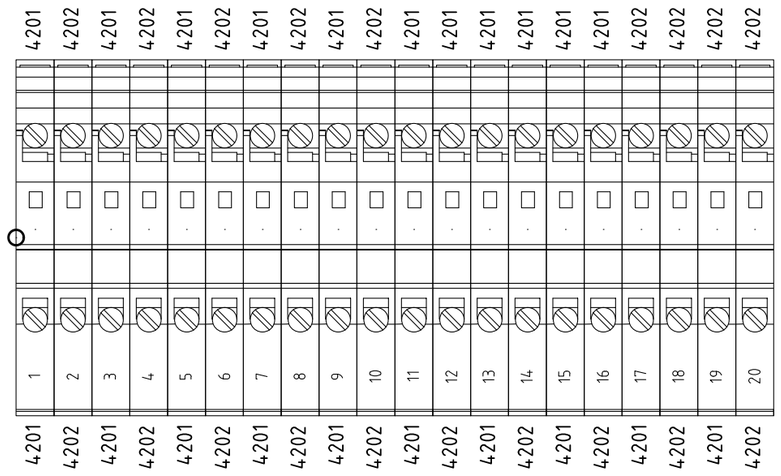
F.to UNI A3: 420mmx297mm

50-LP-001 - XINS1



Instrument Earth (30x5)

50-LP-001 - XINS2



Instrument Earth (30x5)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XINS1 - XINS2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

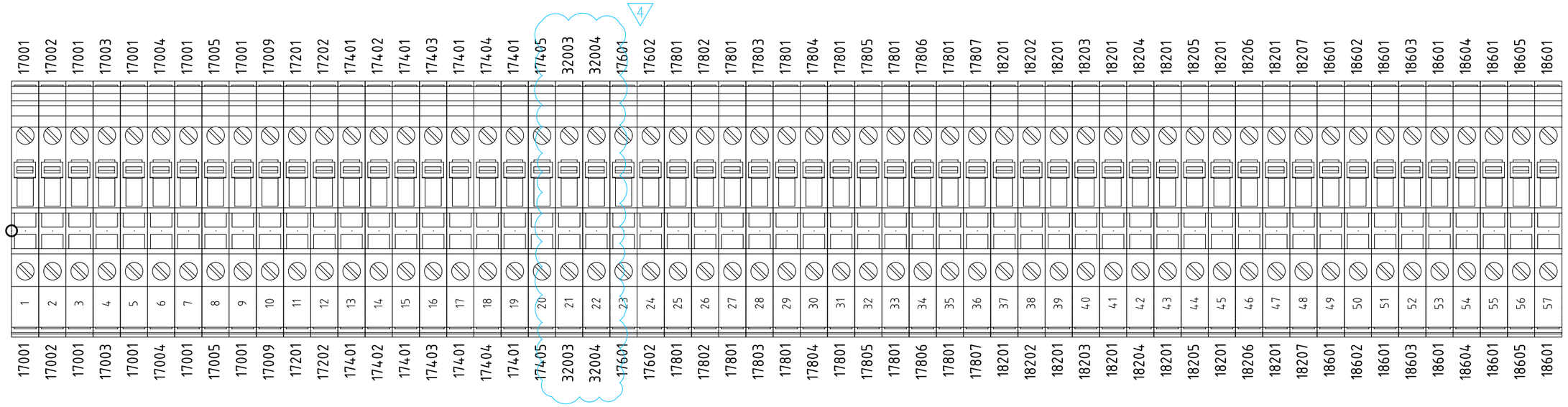
SHEET 404

REV. 03

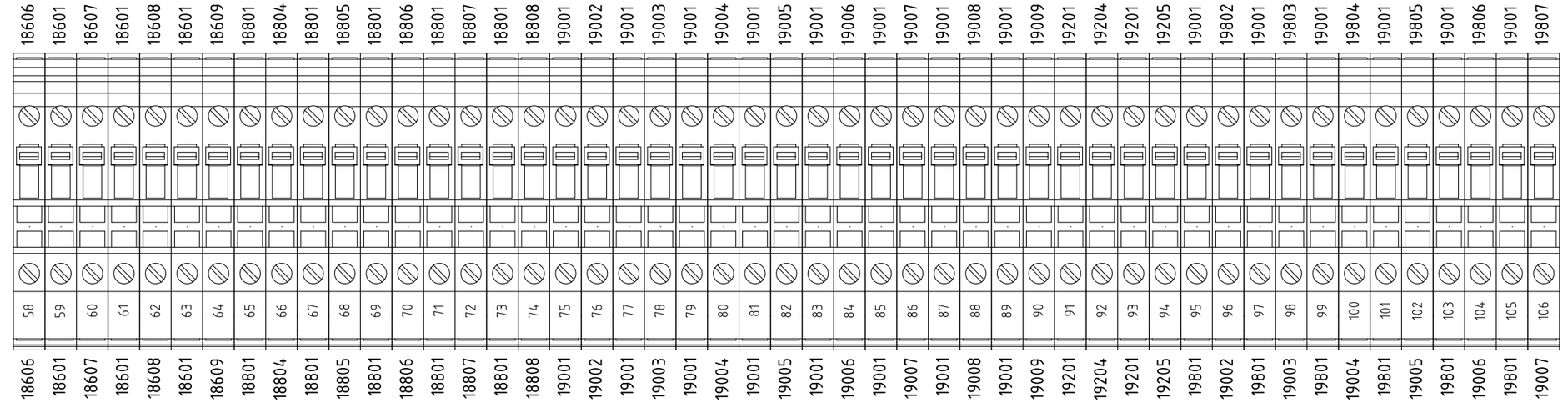
File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - XDI



Instrument Earth (30x5)



Instrument Earth (30x5)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XDI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

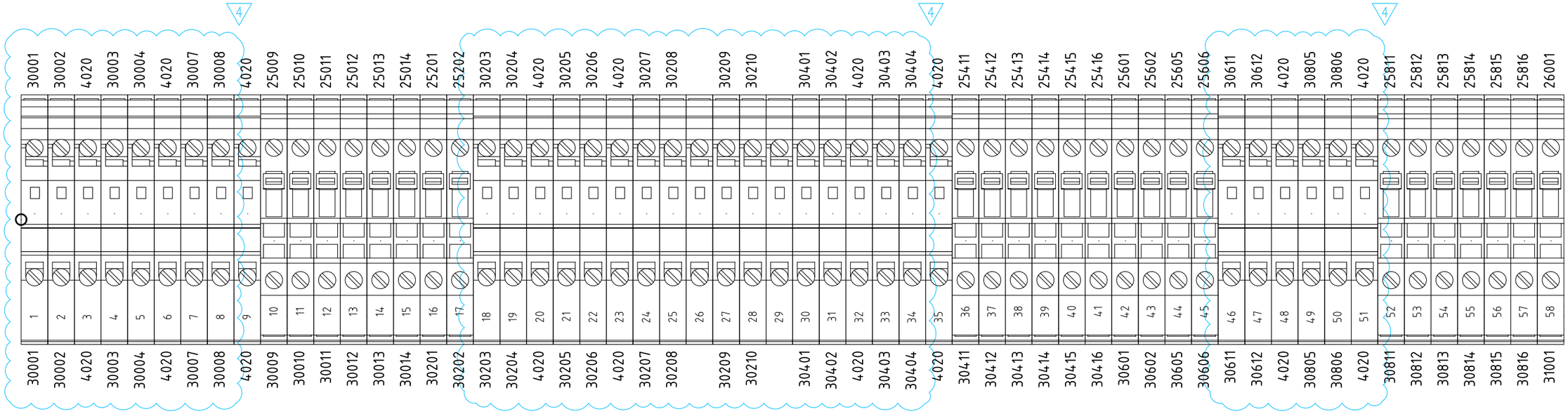
SHEET 406

REV. 04

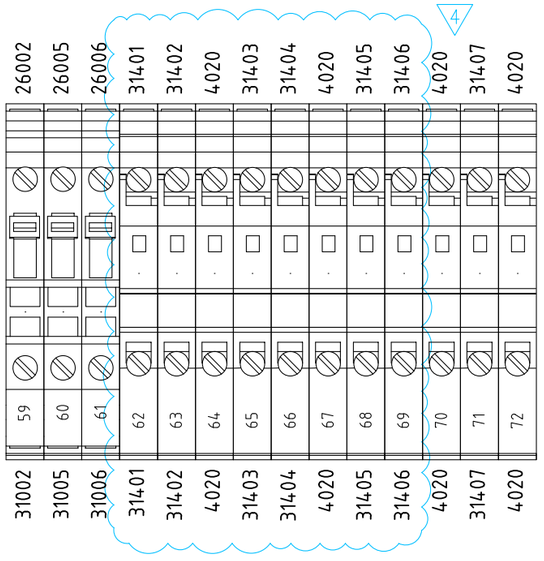
File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - XD0



Instrument Earth (30x5)



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XD0

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

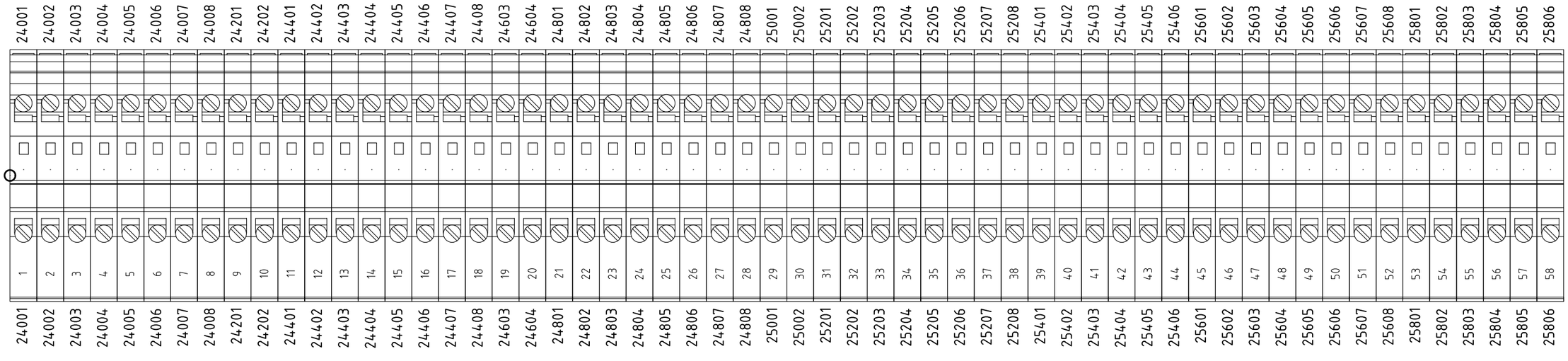
SHEET 408

REV. 04

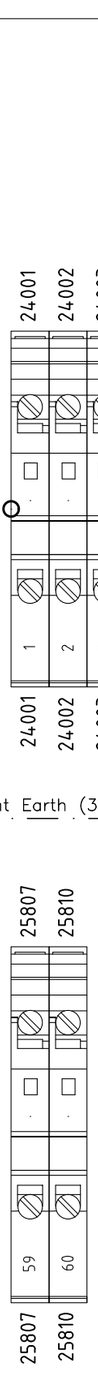
File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - XAI



Instrument Earth (30x5)



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XAI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

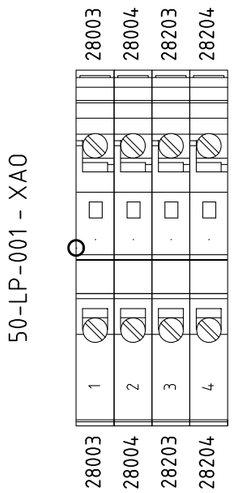
DRAWING NO. 1724000448-IN-DG-00014

SHEET 410

REV. 03

File Name : PK2885_5

F.to UNI A3: 420mmx297mm



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XA0

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

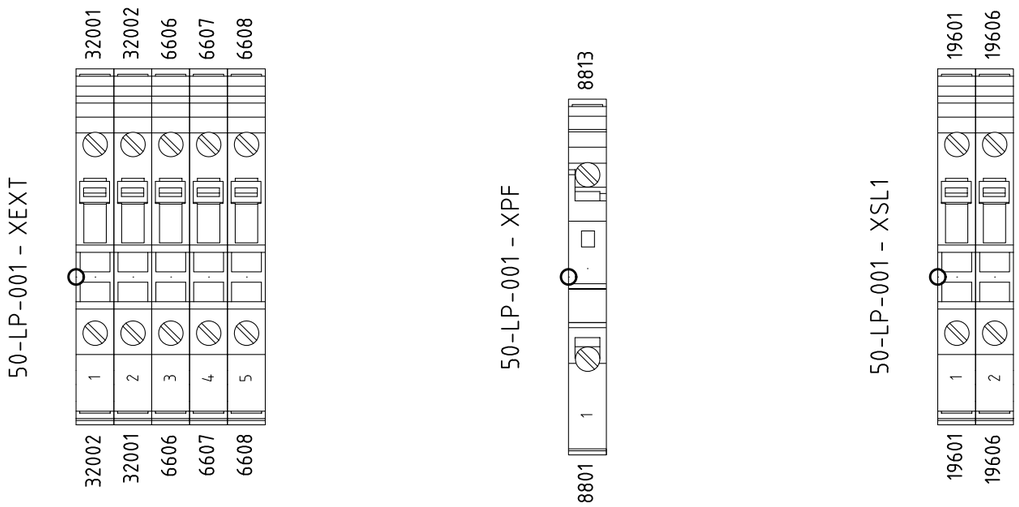
DRAWING NO. 1724000448-IN-DG-00014

SHEET 412

REV. 02

File Name : PK2885_5

F.to UNI A3: 420mmx297mm



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XEXT - XPF - XSL1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

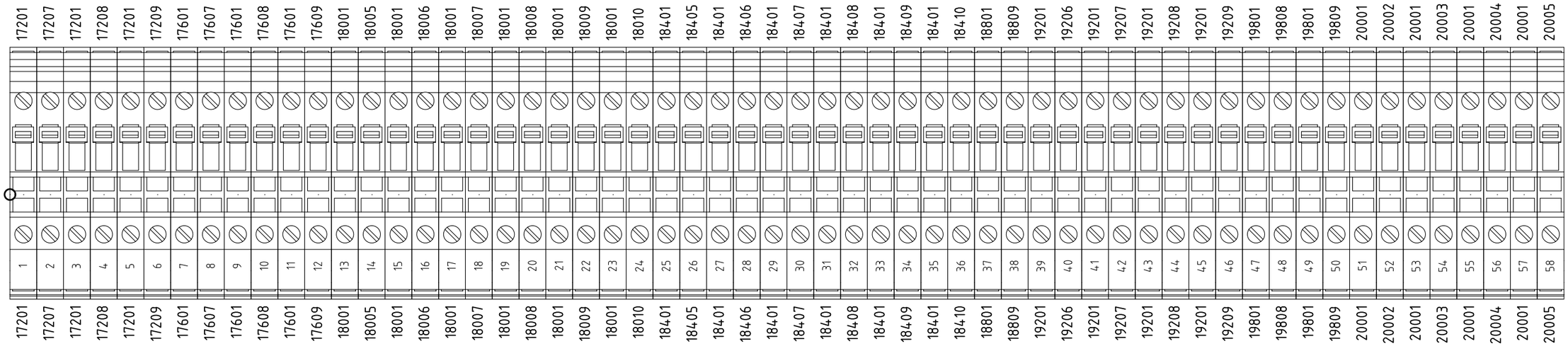
SHEET 414

REV. 03

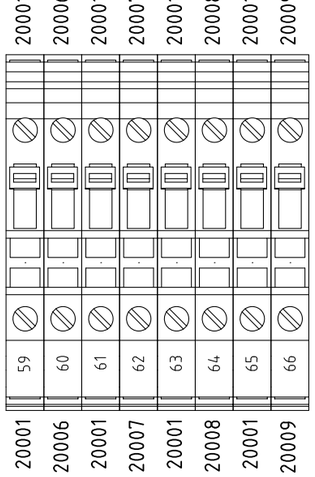
File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - TDI



Instrument Earth (30x5)



Instrument Earth (30x5)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TDI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

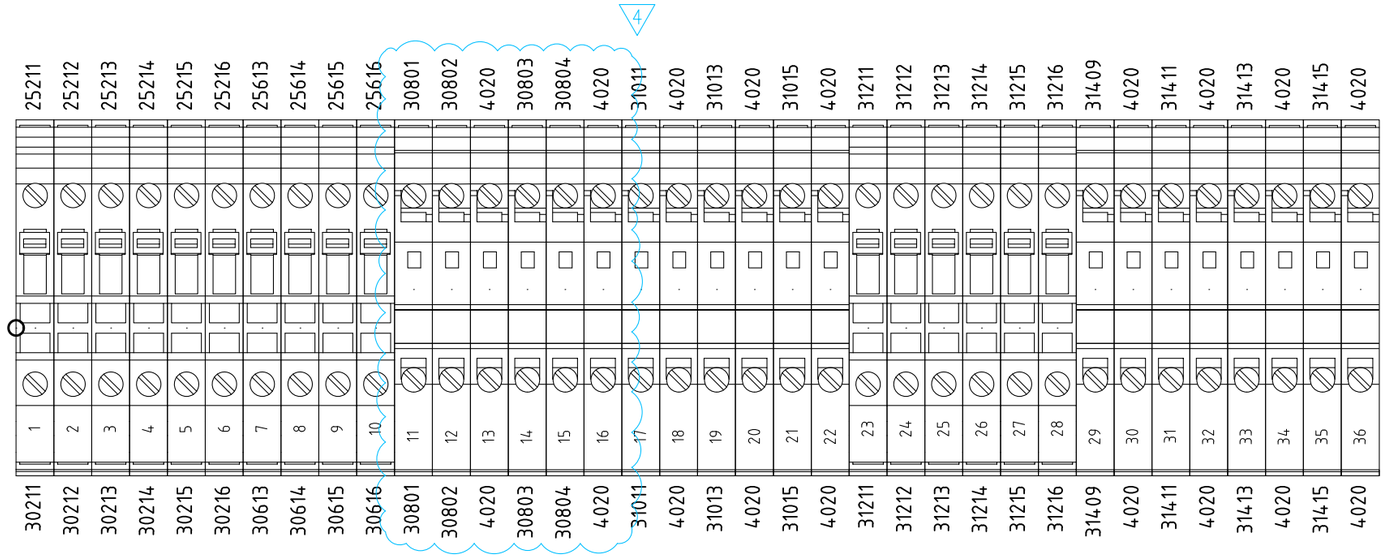
SHEET 420

REV. 03

File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - TDO



Instrument Earth (30x5)

Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	10/01/25	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TDO

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

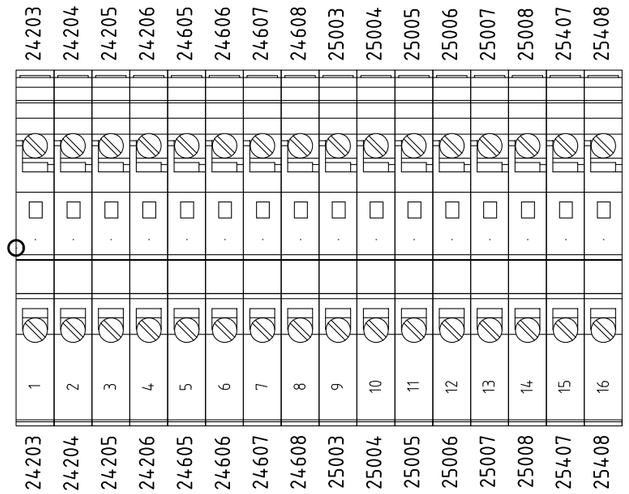
SHEET 422

REV. 04

File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - TAI



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TAI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

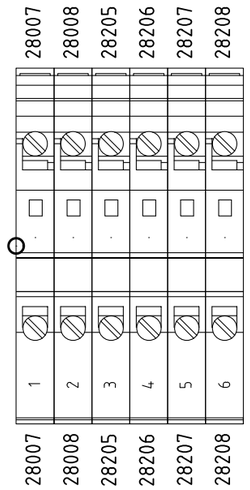
SHEET 424

REV. 03

File Name : PK2885_5

F.to UNI A3: 420mmx297mm

50-LP-001 - TA0



Instrument Earth (30x5)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TA0

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

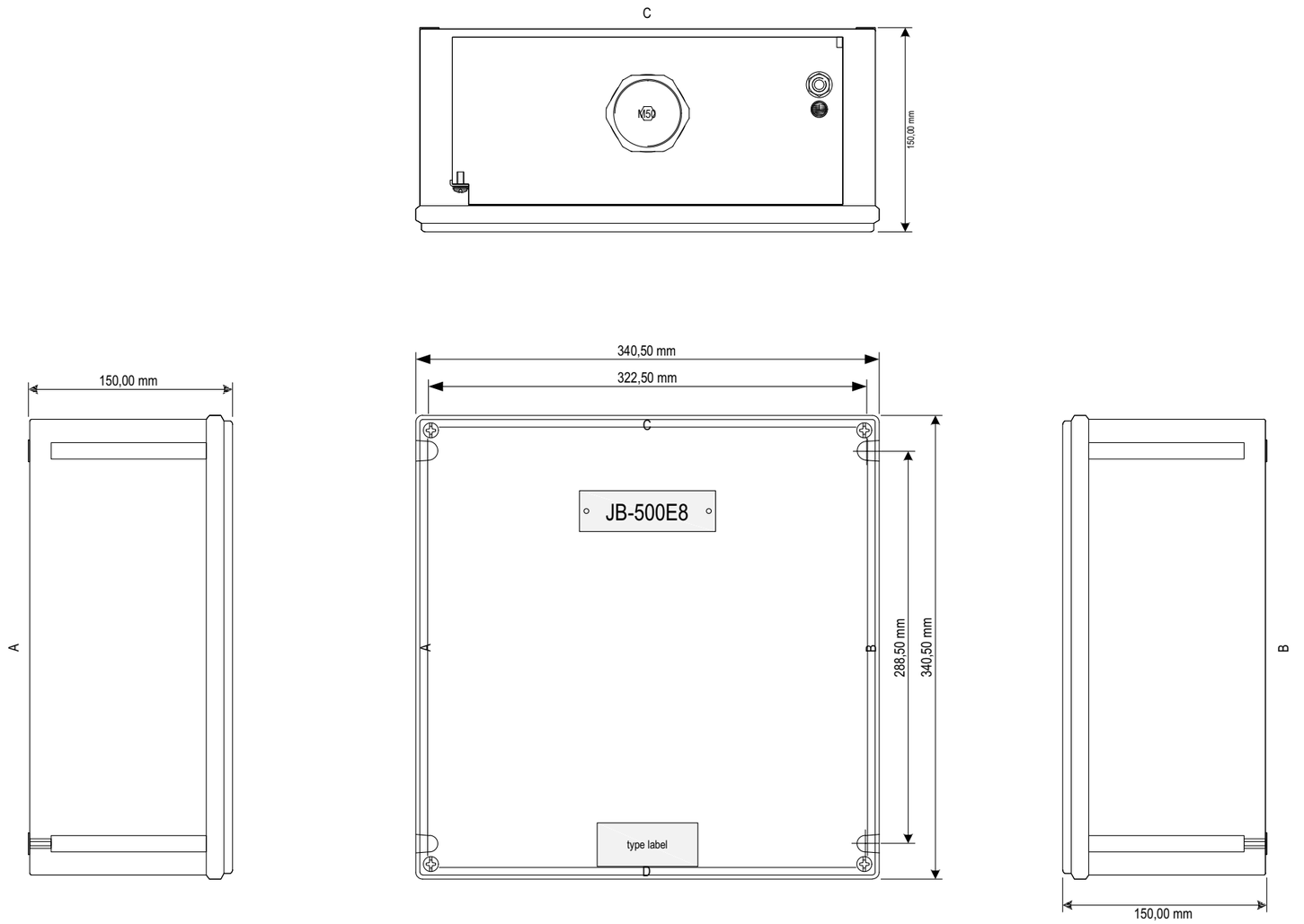
DRAWING NO. 1724000448-IN-DG-00014

SHEET 426

REV. 02

File Name : PK2885_5

F.to UNI A3: 420mmx297mm



03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GA JB-500E8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

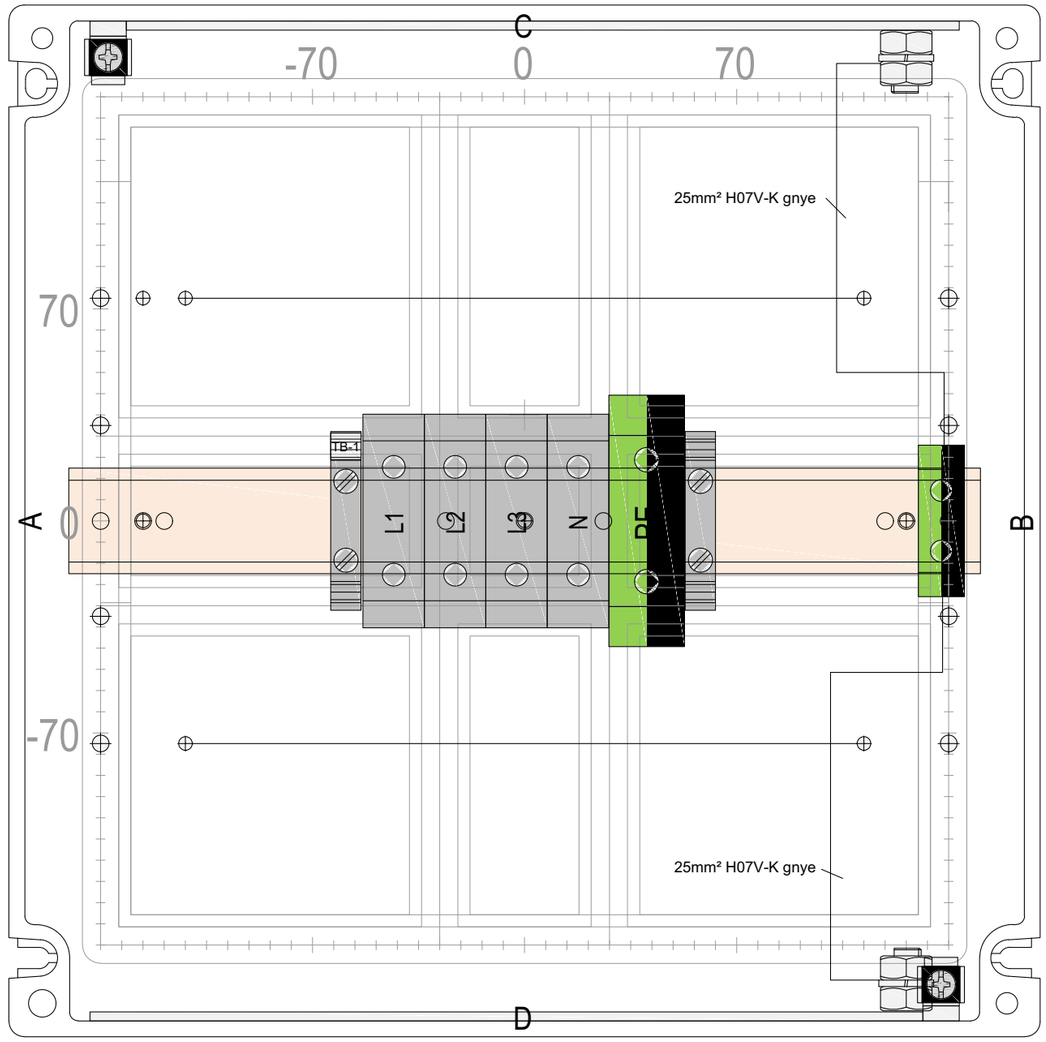
DRAWING NO. 1724000448-IN-DG-00014

SHEET 430

REV. 03

File Name : PK2885_5

F.to UNI A3: 420mmx297mm



Terminal marking on both sides
Klemmenbeschriftung beidseitig

03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GA JB-500E8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

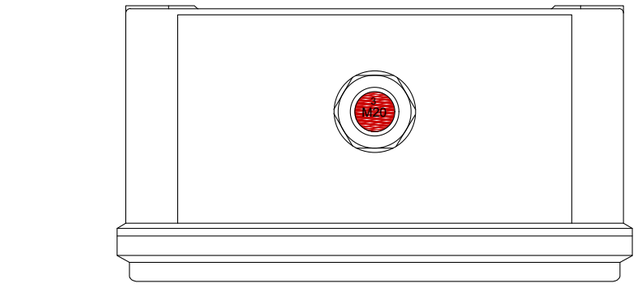
DRAWING NO. 1724000448-IN-DG-00014

SHEET 431

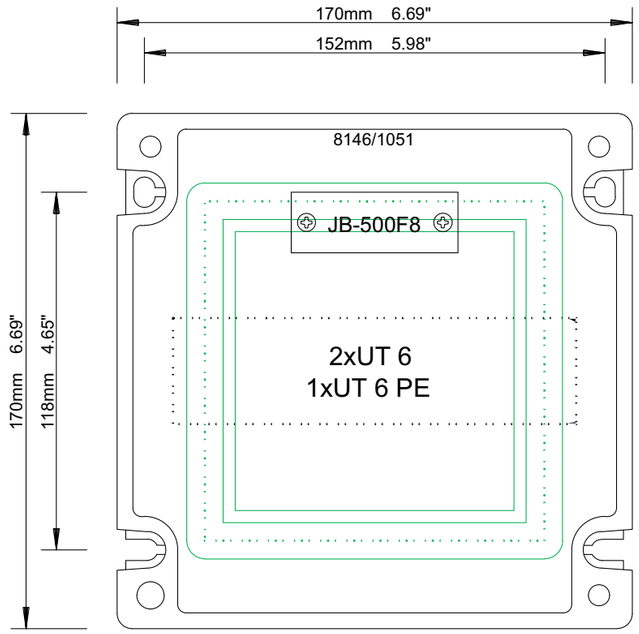
REV. 03

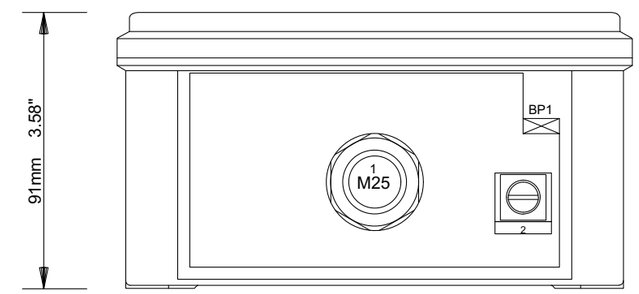
File Name : PK2885_5

F.to UNI A3: 420mmx297mm



8146/1051-C





8146/1051-D
mit Messingplatte/with brass plate

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	29/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GA JB-500F8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 432 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

Arc-Flash

Job	PK2885
Description	SWRO Container
Customer	Rosetti Marino
Site	Base Load Power Hub (BLPH)
Date	09/01/2025
Power Supply	400-230V
Switchboard Type	PLC-MCC
Degree protection	IP54 (Internal IP20)
Materials used	Schneider Electric - Siemens
References	PK2885-A-002
Operator	Emanuele Catalano

Arc-Flash

Panel desc. [Ut.rif. Arc-Flash]	Voltage Voc [V]	Current Ibf [kA]	Current Iarc [kA]	Arc Time T [ms]	Working distance [mm]	Incident energy [cal/cm²]	PPE level	AFB Limit [mm]
SWRO Container LCP 50-LP-001								
[Inc. LCP 50-LP-001]	400	25	16,7	60,7	304,8	3,78	1	625,2

Arc-Flash Hazard Warning

Job	PK2885
Description	SWRO Container
Customer	Rosetti Marino
Site	Base Load Power Hub (BLPH)
Date	09/01/2025
Power Supply	400-230V
Switchboard Type	PLC-MCC
Degree protection	IP54 (Internal IP20)
Materials used	Schneider Electric - Siemens
References	PK2885-A-002
Operator	Emanuele Catalano



WARNING

Arc Flash and Shock Hazard

Appropriate PPE Required	Level 1

625,2 mm	Arc Flash Boundary
304,8 mm	Working Distance
15,827 [J/cm²]	Incident Energy
400 V	Shock Hazard when cover is removed
1066,8 mm	Limited Approach
304,8 mm	Restricted Approach
Location: LCP 50-LP-001	**Date: January 2025**

BASE LOAD POWER HUB (BLPH)

A-50000 PACKAGE INTERCONNECTING DIAGRAM

(ELE/INSTR)

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	24-02-2024

PSC

DOC. REF: PK2885-I-001

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/02/25	PSC	AZ	RM	REVISED WHERE INDICATED
02	21/10/24	PSC	AZ	RM	ACCEPTED FOR CONSTRUCTION
01	17/07/24	PSC	AZ	RM	REVISED AFTER CLIENT COMMENTS
00	14/05/24	PSC	AZ	RM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
A-50000 PACKAGE INTERCONNECTING DIAGRAM
COVER PAGE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1724000448-EL-DG-00015 | SHEET 001 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000448-EL-DG-00015 Rev. 03

REV.	SHEET NUMBER	DESCRIPTION	REF. CODE
01	001	FRONT PAGE	
01	002	SUMMARY and GENERAL NOTES	
01	003	FIRE & GAS ALARM	
01	004	SHUTDOWN/FAULT ALARM	
01	005	400/230V POWER SUPPLY	
01	006	CONTROL SYSTEM	

GENERAL NOTES

1: .

2: .

3: .

4: .

DOC. REF: PK2885-I-001

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/02/25	PSC	AZ	RM	REVISED WHERE INDICATED
02	21/10/24	PSC	AZ	RM	ACCEPTED FOR CONSTRUCTION
01	17/07/24	PSC	AZ	RM	REVISED AFTER CLIENT COMMENTS
00	14/05/24	PSC	AZ	RM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
A-50000 PACKAGE INTERCONNECTING DIAGRAM
SUMMARY and GENERAL NOTES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000448-EL-DG-00015

SHEET 002

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000448-EL-DG-00015 Rev. 03

FIELD - PACKAGE A-50000

INSIDE CONTAINER

OUTSIDE CONTAINER

I&T EQUIPMENT ROOM (ITER)

MARSHALLING CABINET
B400-FGS-002

JUNCTION BOX
950-JE-05104

PSC ◀▷ Customer

TB-1

SOUNDER	950-XZ-05201	+	1 — 1BK
		−	2 — 2BK
AMBER	950-XL-05201	+	3 — 3BK
		−	4 — 4BK
RED	950-XL-05202	+	5 — 5BK
		−	6 — 6BK
			7 — 7BK
			8 — 8BK
			9 — 9BK
			10 — 10BK
			11 — 11BK
			12 — 12BK
			SH

950-JE-05104/B400-FGS-002
12x2,5mmq
(By Others)

TB-950-JE-051004

1BK	1
2BK	2
3BK	3
4BK	4
5BK	5
6BK	6
7BK	7
8BK	8
9BK	9
10BK	10
11BK	11
12BK	12

F&G PANEL
50-LP-002

PSC ◀▷ Customer

TB-RLY

GAS CONFIRMED 50-XA-001		5	1WH
		6	1BK
SMOKE CONFIRMED 50-XA-002		1	2WH
		2	2BK

50-LP-002/B400-FGS-003
2x2x0,75mmq
(By Others)

3

TB-50-LP-002

1WH	1
1BK	2
2WH	3
2BK	4

3

PSC ◀▷ Customer

MANUAL FIRE ALARM — 950-MFA-05201 (+ WH, − BK)

C-950-MFA-05201/B400-FGS-003
2x0,75mmq
(By Others)

TB-B400-FGS-002-1

WH	09
BK	10

Shield Bar

I.E.

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/02/25	PSC	AZ	RM	REVISED WHERE INDICATED
02	21/10/24	PSC	AZ	RM	ACCEPTED FOR CONSTRUCTION
01	17/07/24	PSC	AZ	RM	REVISED AFTER CLIENT COMMENTS
00	14/05/24	PSC	AZ	RM	ISSUE FOR REVIEW (IFR)

PSC

DOC. REF: PK2885-I-001

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
A-50000 PACKAGE INTERCONNECTING DIAGRAM
FIRE & GAS ALARM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 1724000448-EL-DG-00015

SHEET 003

REV. 03

File Name : 1724000448-EL-DG-00015 Rev. 03

F.to UNI A3: 420mmx297mm

FIELD - PACKAGE A-50000		I&T EQUIPMENT ROOM (ITER)
INSIDE CONTAINER	OUTSIDE CONTAINER	MARSHALLING CABINET B400-SIS-001



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/02/25	PSC	AZ	RM	REVISED WHERE INDICATED
02	21/10/24	PSC	AZ	RM	ACCEPTED FOR CONSTRUCTION
01	17/07/24	PSC	AZ	RM	REVISED AFTER CLIENT COMMENTS
00	14/05/24	PSC	AZ	RM	ISSUE FOR REVIEW (IFR)

PSC

DOC. REF: PK2885-I-001

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
A-50000 PACKAGE INTERCONNECTING DIAGRAM
SHUTDOWN/FAULT ALARM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 1724000448-EL-DG-00015

SHEET 004

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000448-EL-DG-00015 Rev. 03

FIELD - PACKAGE A-50000

INSIDE CONTAINER

OUTSIDE CONTAINER

B-200 CONTAINER LV ROOM

SG-200N1
CLA3/+08 COLUMN CUBICLE

MCC PANEL
CP-500E1

400/230Vac
POWER SUPPLY

XMAIN
1
2
3
4
PE

50001-CEL-L1
1x70mmq

50001-CEL-L2
1x70mmq

50001-CEL-L3
1x70mmq

50001-CEL-N
1x70mmq

50001-CEL-PE
1x70mmq

JUNCTION BOX
JB-500E8

PSC ◆ Customer

TB-1
L1
L2
L3
N
PE

83016-CEL
5G70mmq
(By Others)

B-300 CONTAINER UPS ROOM

DP-200F3
AC DISTRIBUTION BOARD-PAS Q14

230Vac
UPS
POWER SUPPLY

XUPS
1
2
PE

50002-CEL-LN
3G2,5mmq
(By Others)

JUNCTION BOX
JB-500F8

PSC ◆ Customer

TB-1
L
N
PE

84313-CEL
3G2,5mmq
(By Others)

PSC

DOC. REF: PK2885-I-001

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/02/25	PSC	AZ	RM	REVISED WHERE INDICATED
02	21/10/24	PSC	AZ	RM	ACCEPTED FOR CONSTRUCTION
01	17/07/24	PSC	AZ	RM	REVISED AFTER CLIENT COMMENTS
00	14/05/24	PSC	AZ	RM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
A-50000 PACKAGE INTERCONNECTING DIAGRAM
400/230V POWER SUPPLY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 1724000448-EL-DG-00015

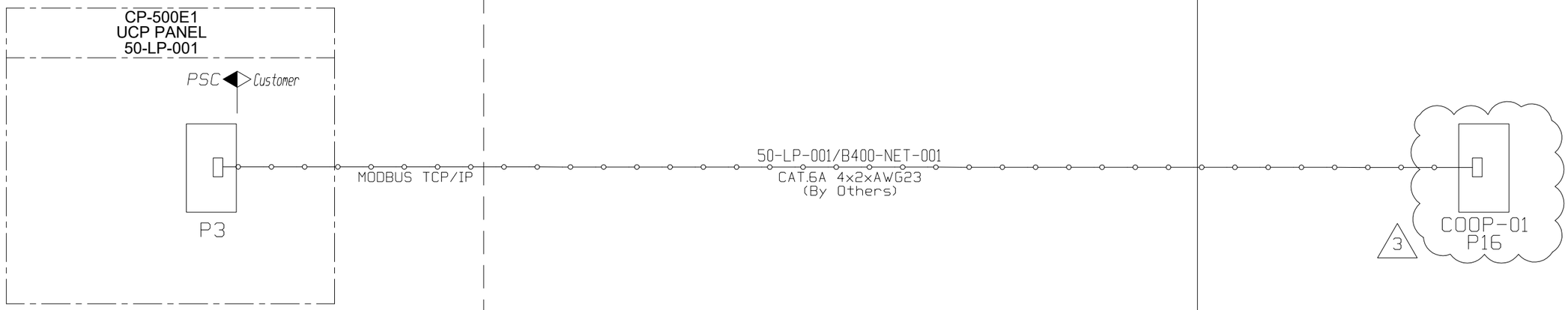
SHEET 005

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000448-EL-DG-00015 Rev. 03

FIELD - PACKAGE A-50000		I&T EQUIPMENT ROOM (ITER)
INSIDE CONTAINER	OUTSIDE CONTAINER	B400-NET-001



PSC

DOC. REF: PK2885-I-001

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	10/02/25	PSC	AZ	RM	REVISED WHERE INDICATED
02	21/10/24	PSC	AZ	RM	ACCEPTED FOR CONSTRUCTION
01	17/07/24	PSC	AZ	RM	REVISED AFTER CLIENT COMMENTS
00	14/05/24	PSC	AZ	RM	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
A-50000 PACKAGE INTERCONNECTING DIAGRAM
CONTROL SYSTEM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : 1:X

A3

DRAWING NO. 1724000448-EL-DG-00015

SHEET 006

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1724000448-EL-DG-00015 Rev. 03

WTP FIRE AND GAS PANEL WIRING DIAGRAM
(50-LP-002)
WATER TREATMENT PACKAGE
(A-50000)

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	21-01-2025

PSC

DOC. REF: PK2885-A-006

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	09/01/25	SIA	PSC	RM	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/12/24	SIA	PSC	RM	ISSUE FOR REVIEW (IFR)
00	07/10/24	SIA	PSC	RM	ISSUE FOR REVIEW (IFR)

TITLE : WTP FIRE AND GAS PANEL WIRING DIAGRAM
WATER TREATMENT PACKAGE
COVER PAGE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : NTS

A3

DRAWING NO. 1724000448-MAC-DG-00036

SHEET 001

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1724000448-MAC-DG-00036 Rev. 02

REV.	DATA DATE	DESCRIZIONE DESCRIZIONE	DISEGN. DRAWN	CONTR. CHECK.	APPROV. APPROV.
1	23/09/2024	FOR CONSTRUCTION	D.O.	T.Z.	C.T.
0	16/08/2024	FOR APPROVAL	D.O.	T.Z.	C.T.

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CLIENTE / CUSTOMER: PSC S.p.A.

PROGETTO / PROJECT: FIRE & GAS DETECTION SYSTEM FOR ELECTRICAL CONTAINER

COMMESSA N° / JOB N°: C24032

ARCHIVIO / FILE: C24032-WID-001_R1

A TERMINE DI LEGGE LA SIA s.r.l. SI RISERVA LA PROPRIETA' DEL PRESENTE DISEGNO E NE VIETA LA RIPRODUZIONE O LA COMUNICAZIONE A TERZI SENZA IL PROPRIO BENESTARE SCRITTO

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TITOLO / TITLE:

SIA-5319 CONTROL PANEL

WIRING AND DIMENSIONAL DRAWING

DISEGNO N° / DRAWING N°	FORM	SCALA / SCALE	FOGLIO / FOGLIO	DI / OF
C24032-WID-001	A3	--	1	21

REVISION INDEX

Sheet	Description	Revision 0	1	2	3
1	COVER	X	X		
2	REVISION INDEX	X	X		
3	WIRES COLOUR CODE AND STANDARDS	X			
4	POWER SUPPLY DISTRIBUTION	X			
5	SIA-5319-RACK-R SLOT S-0	X			
6	24V POWER SUPPLY DISTRIBUTION	X			
7	RACK CONNECTIONS	X			
8	RACK 5319 SIA-R	X			
9	SIA-5319-RACK-R SLOT 1/2	X			
10	SIA-5319-RACK-R SLOT 3/4	X			
11	SIA-5319-RACK 1 SLOT 0	X			
12	SIA-5319-RACK 1 SLOT 1/2/3	X			
13	SIA-5319-RACK 1 SLOT 4/5/6	X	X		
14	SIA-5319-RACK 1 SLOT 7/8/9	X			
15	SIA-5319-RACK 1 SLOT 10/11/12	X			
16	SIA-5319-RACK 1 SLOT 13	X			
17	RACKS DETAIL	X			
18	FRONT & SIDE VIEW	X			
19	TOP & BOTTOM VIEW	X			
20	INTERNAL MOUNTING PLATE VIEW	X	X		
21	MATERIAL LIST	X	X		
22	DEVICES TYPICAL CONNECTION	X	X		
23					
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REVISION INDEX

Sheet	Description	Revision 0	1	2	3	4	5	6
40								
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REFERENCE DRAWINGS

DOC.No.	DESCRIPTION
C24032-DSH-001	FIRE & GAS SYSTEM INSTRUMENT DATASHEET
C24032-BLK-001	FIRE & GAS SYSTEM BLOCK DIAGRAM
C24032-LAY-001	FIRE & GAS SYSTEM LAYOUT

GENERAL NOTES

1) ISOLATED BARS ARE MOUNTED NEAR TERMINAL STRIPS FOR CABLE SHIELDS CONNECTIONS.

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TITOLO
WIRING & DIMENSIONAL DRAWING REVISION INDEX
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R1	2	3
DRAWING N°			SHEET	FOLLOW

ELECTRICAL SYMBOLS

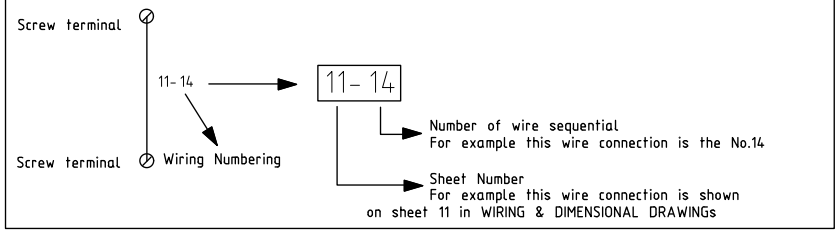
SYMBOL	DESCRIPTION
Fx	FUSED SWITCH
QFx	AUTOMATIC SWITCH
PE	PROTECTION EARTH
IE	INSTRUMENT EARTH
BATT+	BATTERIES
Ux xxA +V -V	POWER SUPPLY
CB xxA +V -V	BATTERY CHARGER
R	TEST BATTERY RESISTOR
	TERMINAL WITH SCREW
TSxx	TERMINAL BOARD LABEL
BZ	LOCAL SOUNDER
FL	POWER SUPPLY FILTER

WIRING IDENTIFICATION

DESCRIPTION	IDENTIFIC.	COLOUR	TYPE & WIRING SIZE (mm2)
AC PHASE	L	BROWN	Unipolar cable - FS17 - 450/750 V, Cross-sec. 2.5
AC NEUTRAL	N	BLUE	Unipolar cable - FS17 - 450/750 V, Cross-sec. 2.5 & 1.5
PROTECTION EARTH	PE	YELLOW/GREEN	Unipolar cable - FS17 - 450/750 V, Cross-sec. 2.5 & 6
POSITIVE DC POWER	+	RED	Unipolar cable - FS17 - 450/750 V, Cross-sec. 1.5
NEGATIVE DC POWER	-	BLACK	Unipolar cable - FS17 - 450/750 V, Cross-sec. 1.5
DC SIGNAL		WHITE	Unipolar cable - FS17 - 450/750 V, Cross-sec. 1
RELAY SIGNAL (FREE VOLTAGE)		ORANGE	Unipolar cable - FS17 - 450/750 V, Cross-sec. 1

ACCORDING TO: CEI EN 60445
ALL INTERNAL WIRES: CPR Compliant 305/2011/EU (Standard: EN50575:2014+A1:2016 Class Cca-S3, d1, a3)

WIRING NUMBERING PHILOSOFY



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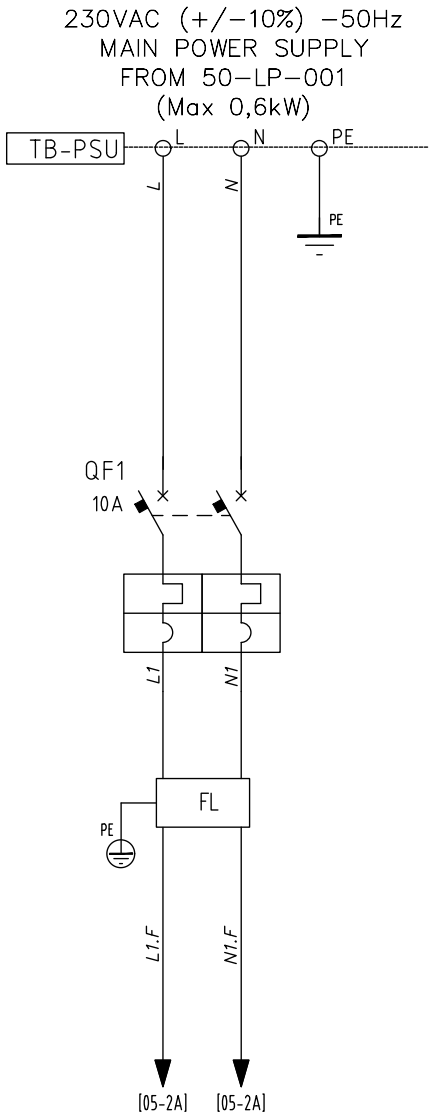
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TITOLO
WIRING & DIMENSIONAL DRAWING
WIRES COLOUR CODE AND STANDARDS
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	3	4
DRAWING N°			SHEET	FOLLOW



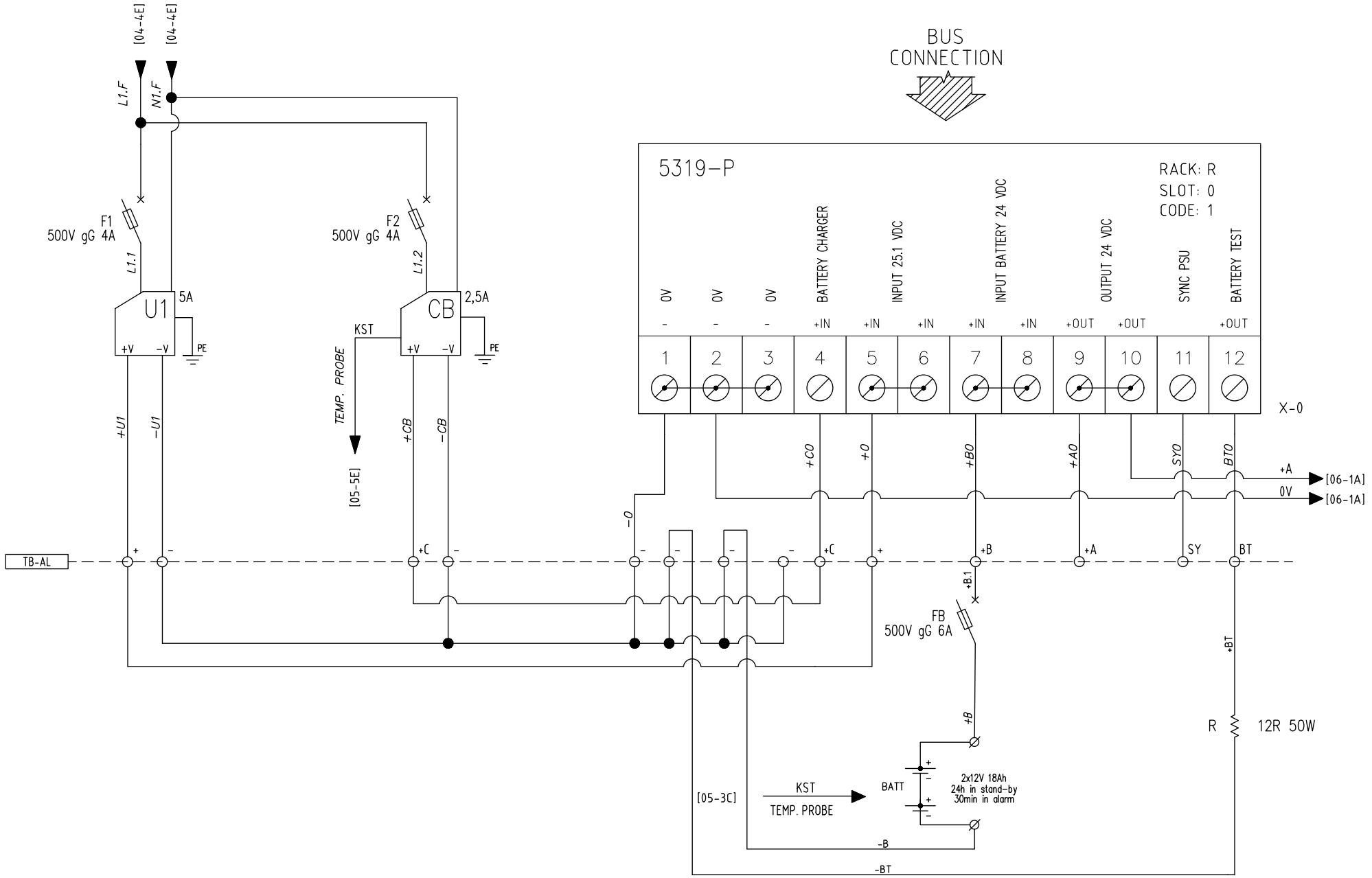
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TITOLO
WIRING & DIMENSIONAL DRAWING
POWER SUPPLY DISTRIBUTION
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	4	5
DRAWING N°			SHEET	FOLLOW



SIA FIRE FIGHTING SYSTEMS

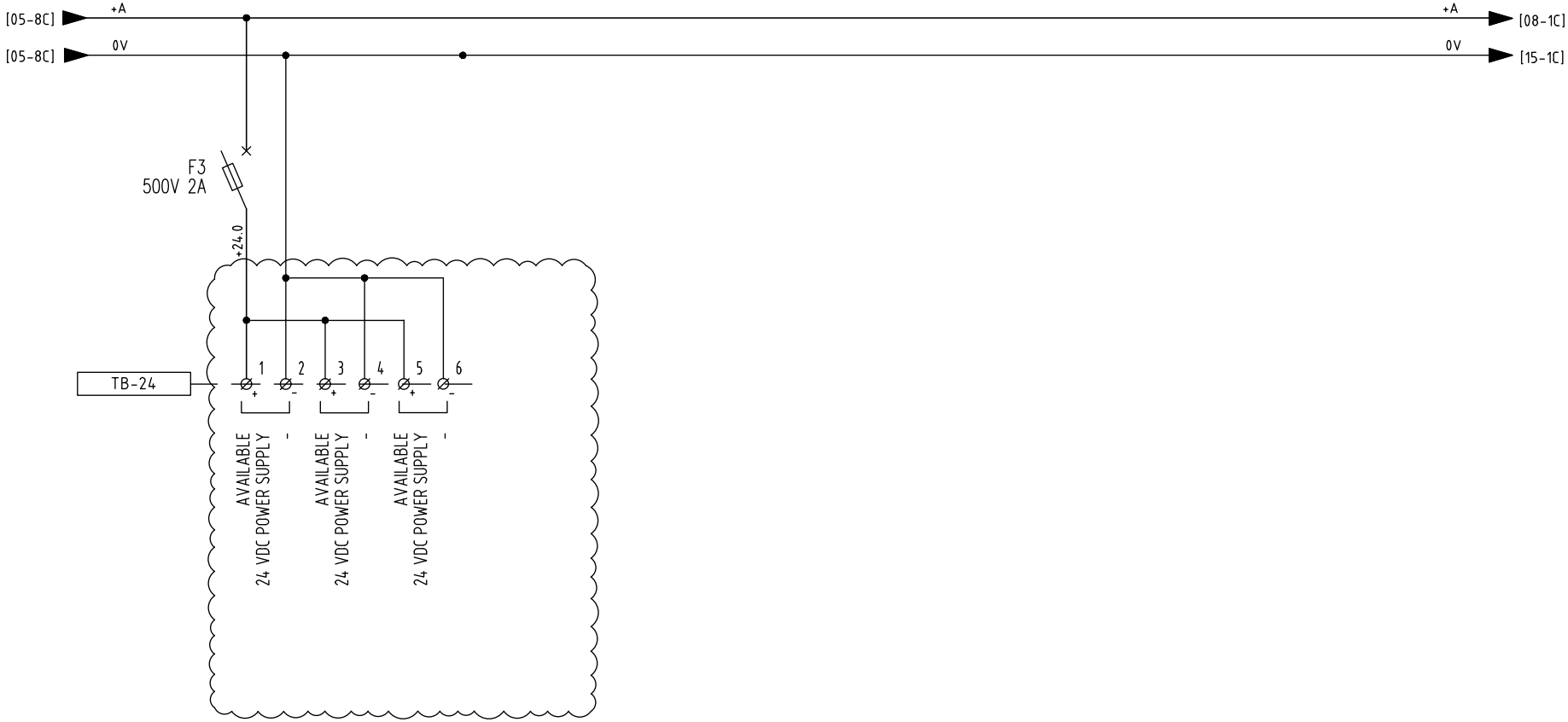
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TITOLO
WIRING & DIMENSIONAL DRAWING
SIA-5319-RACK-R SLOT S-0
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	5	6
DRAWING N°			SHEET	FOLLOW



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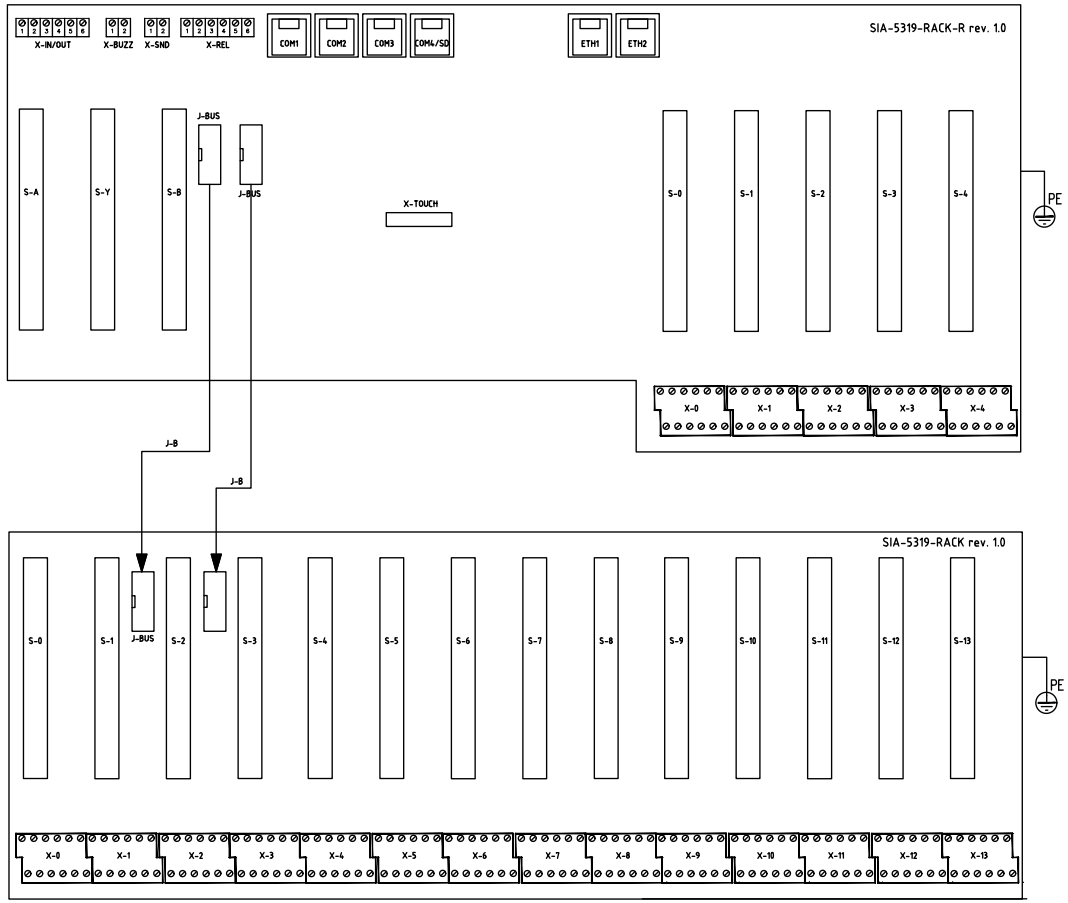
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TITOLO / TITLE

WIRING & DIMENSIONAL DRAWING
24V POWER SUPPLY DISTRIBUTION

DISEGNO N° / DRAWING N°	FORM	REV	FOGLIO / SHEET	SEGUE / FOLLOW
C24032-WID-001	A3	R0	6	7



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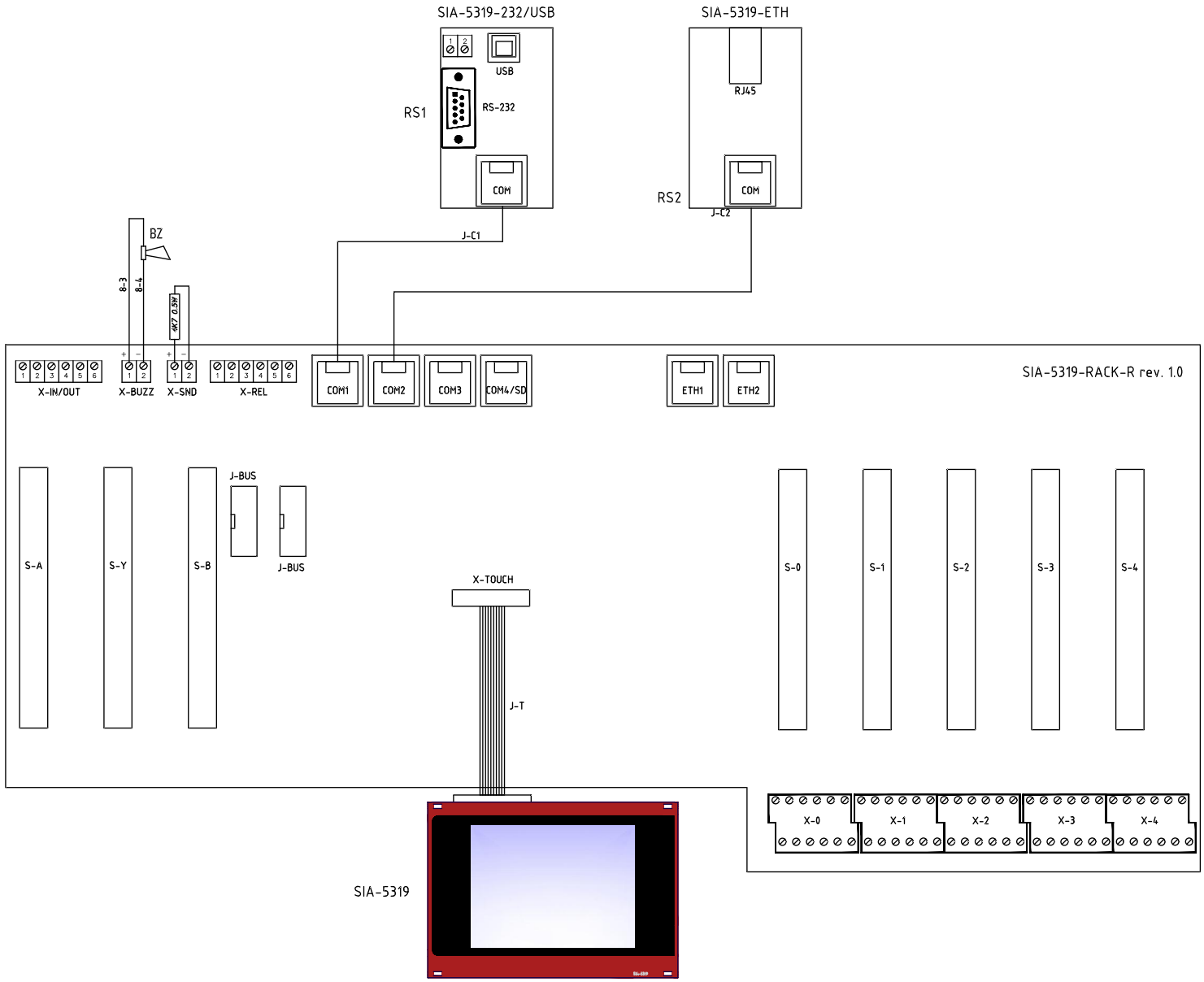
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TITOLO
WIRING & DIMENSIONAL DRAWING
RACK CONNECTIONS

TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	7	8
DRAWING N°			SHEET	FOLLOW



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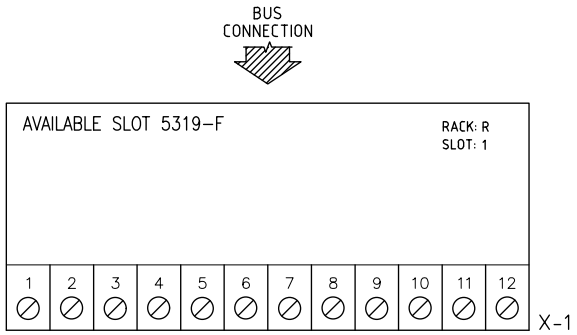
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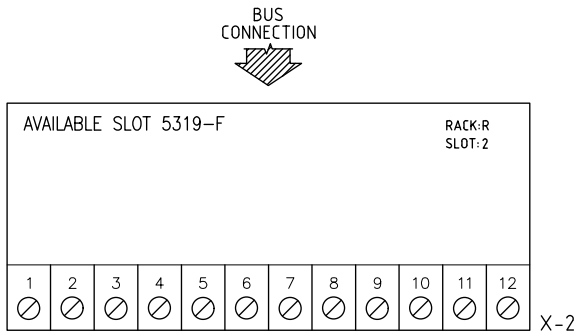
TITOLO

WIRING & DIMENSIONAL DRAWING
RACK 5319 SIA-R

TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	8	9
DRAWING N°			SHEET	FOLLOW





SIA FIRE FIGHTING SYSTEMS

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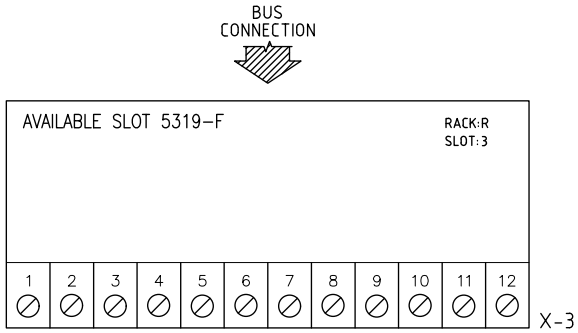
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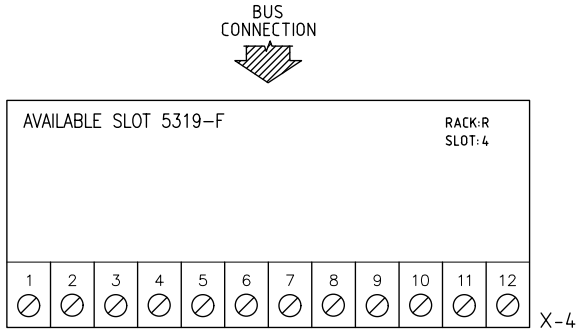
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TITOLO
WIRING & DIMENSIONAL DRAWING SIA-5319-RACK-R SLOT 1/2
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	9	10
DRAWING N°			SHEET	FOLLOW





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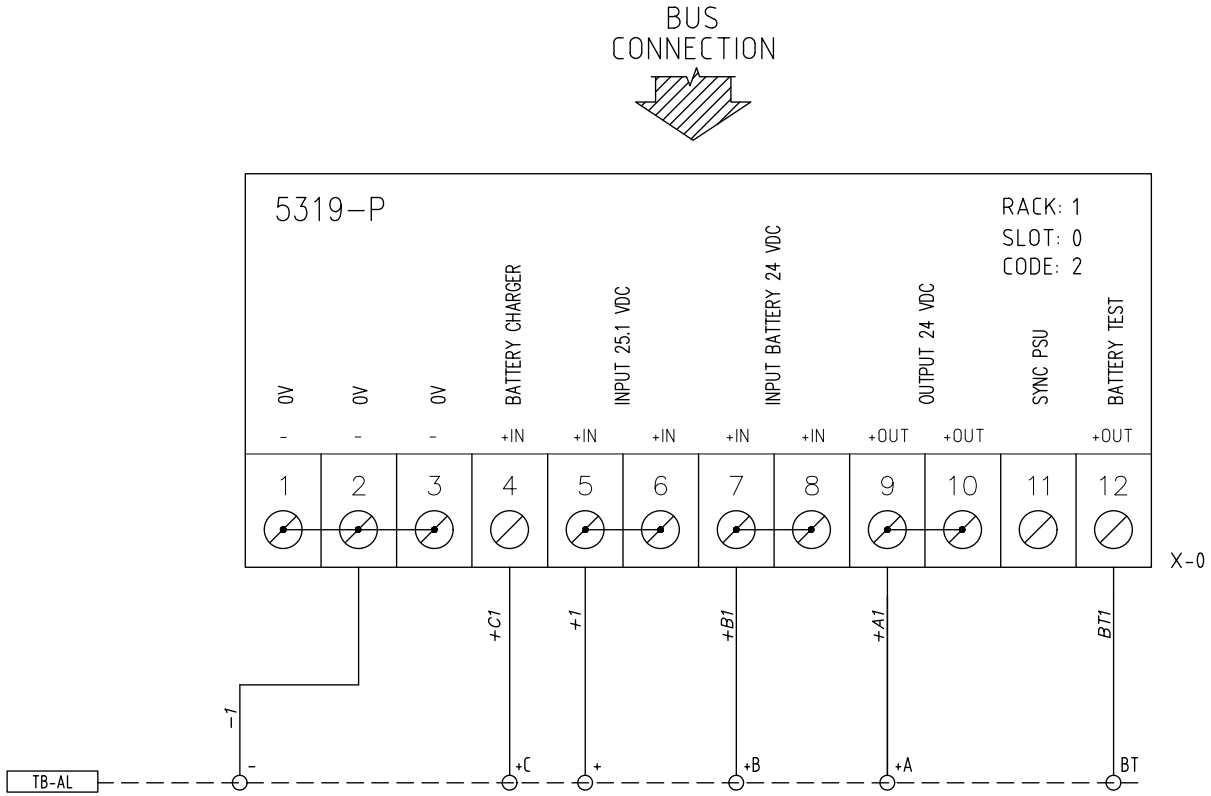
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TITOLO / TITLE

WIRING & DIMENSIONAL DRAWING
SIA-5319-RACK-R SLOT 3/4

DISEGNO N° / DRAWING N°	FORM	REV	FOGLIO / SHEET	SEGUE / FOLLOW
C24032-WID-001	A3	R0	10	11



SIA FIRE FIGHTING SYSTEMS

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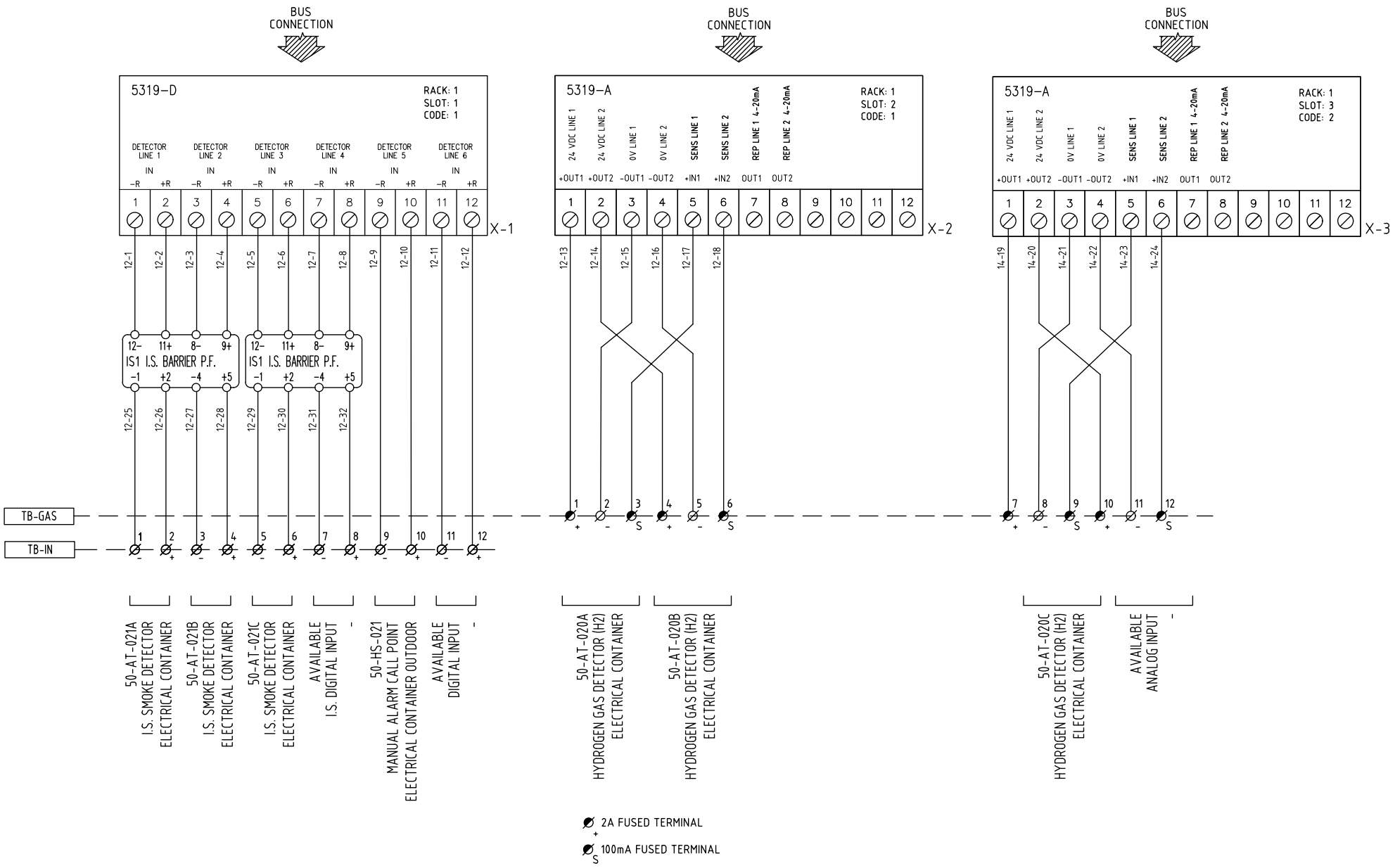
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TITOLO
WIRING & DIMENSIONAL DRAWING
SIA-5319-RACK-1 SLOT 0
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	11	12
DRAWING N°			SHEET	FOLLOW



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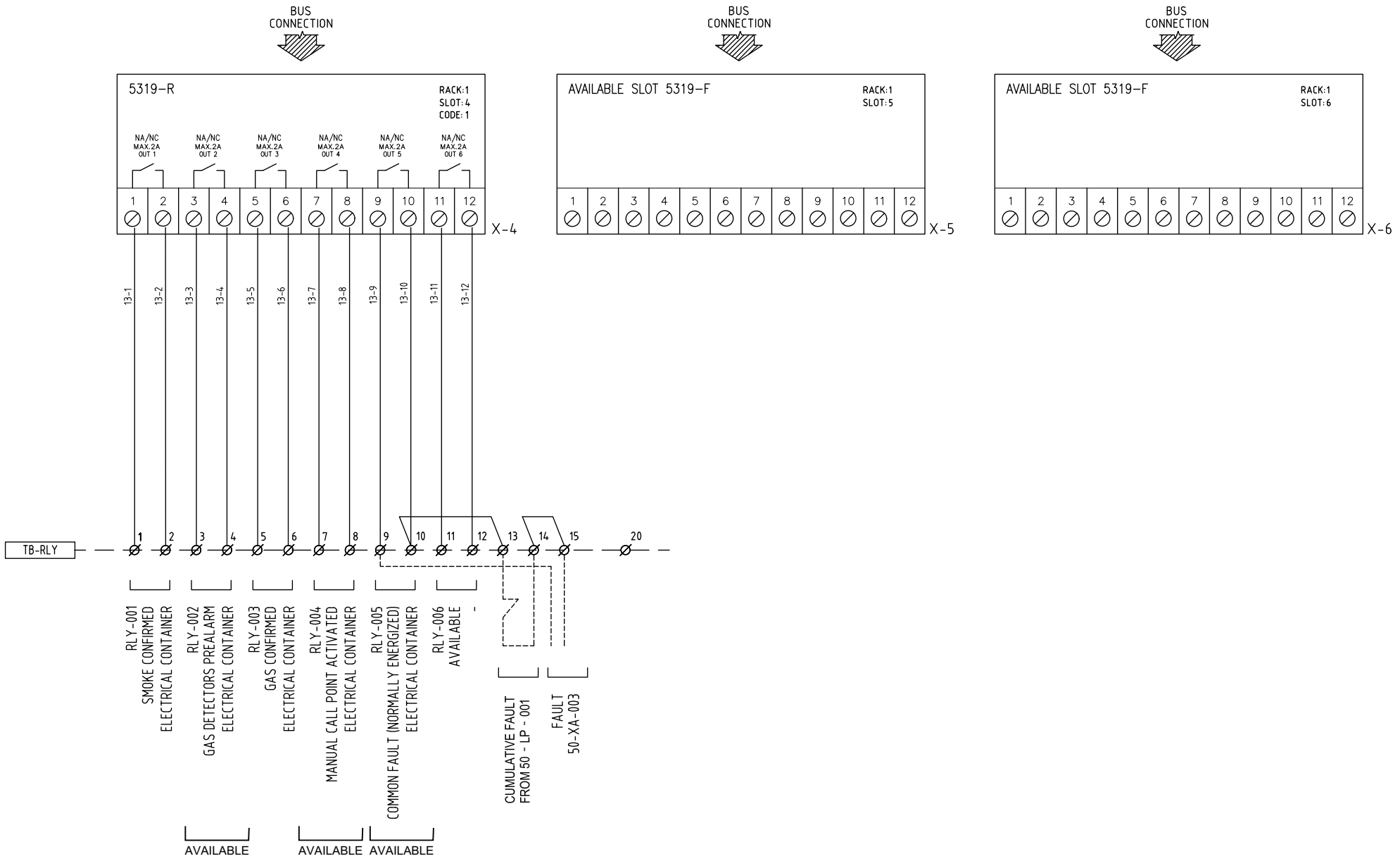
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TITOLO
WIRING & DIMENSIONAL DRAWING
SIA–5319–RACK–1 SLOT 1/2/3

TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032–WID–001	A3	R0	12	13
DRAWING N°			SHEET	FOLLOW



SIA FIRE FIGHTING SYSTEMS

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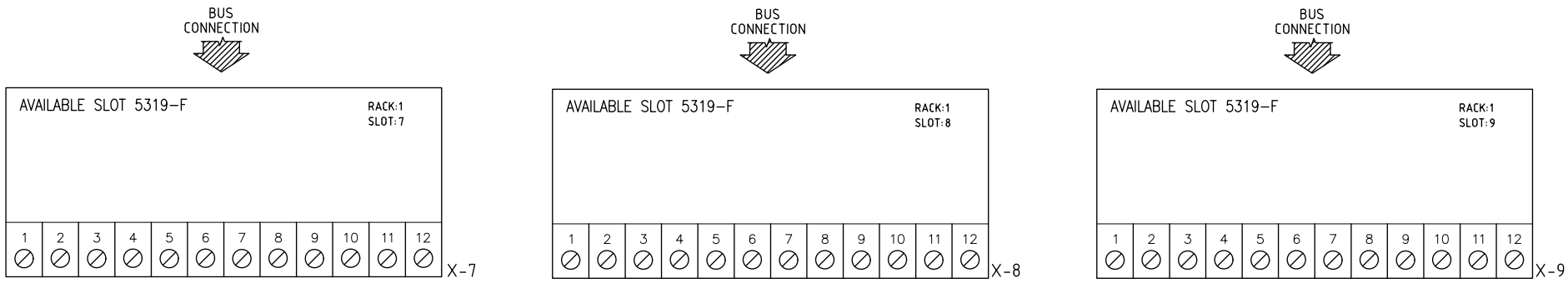
A TERMINE DI LEGGE LA SIA s.r.l. SI RISERVA LA PROPRIETA' DEL PRESENTE DISEGNO E NE VIETA LA RIPRODUZIONE O LA COMUNICAZIONE A TERZI SENZA IL PROPRIO BENESTARE SCRITTO

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TITOLO
WIRING & DIMENSIONAL DRAWING
SIA-5319-RACK-1 SLOT 4/5/6

TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R1	13	14
DRAWING N°			SHEET	FOLLOW



SIA FIRE FIGHTING SYSTEMS

S.I.A. - Safety Industrial Applications s.r.l.

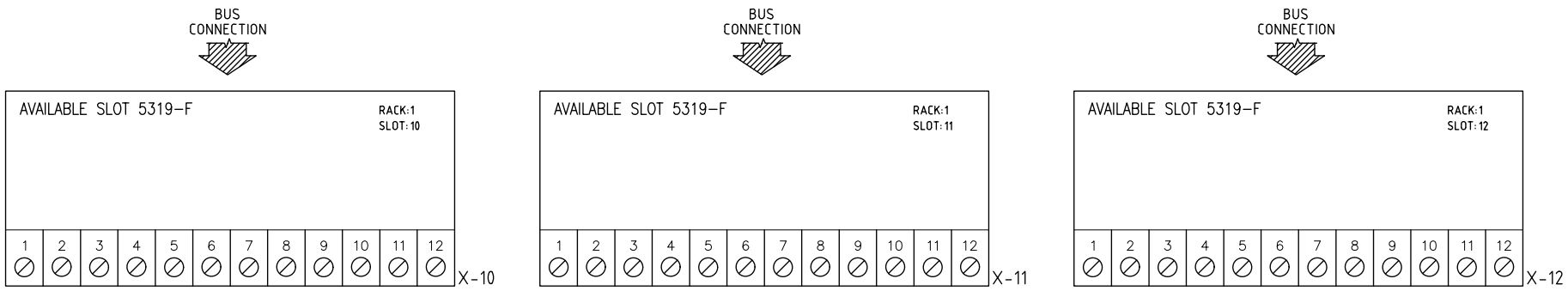
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TITOLO
WIRING & DIMENSIONAL DRAWING SIA-5319-RACK-1 SLOT 7/8/9
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	14	15
DRAWING N°			SHEET	FOLLOW



SIA FIRE FIGHTING SYSTEMS

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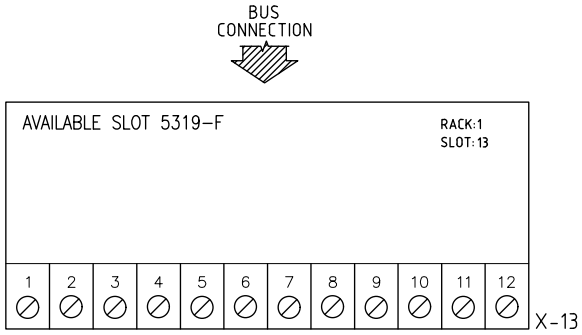
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TITOLO
WIRING & DIMENSIONAL DRAWING
SIA-5319-RACK-1 SLOT 10/11/12
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	15	16
DRAWING N°			SHEET	FOLLOW



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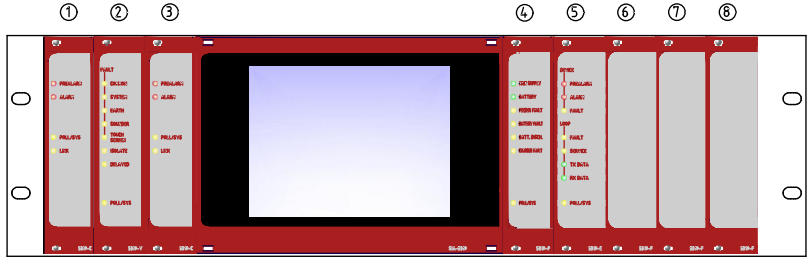
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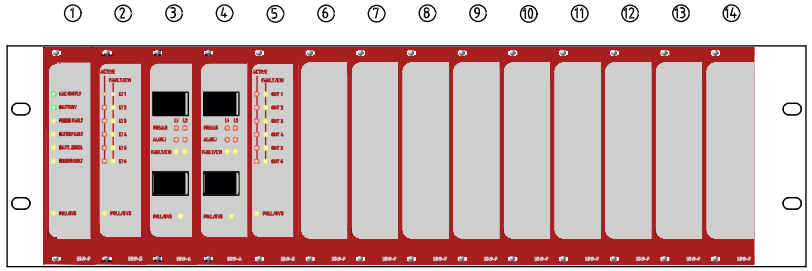
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TITOLO / TITLE

WIRING & DIMENSIONAL DRAWING
SIA-5319-RACK-1 SLOT 13

DISEGNO N° / DRAWING N°	FORM	REV	FOGLIO / SHEET	SEGUE / FOLLOW
C24032-WID-001	A3	R0	16	17





R24 R25 R26 R27 R28

SIA-5319-RACK-R					
POS.	BOARD	DESCRIPTION	POS.	BOARD	DESCRIPTION
1	5319-C	CPU MODULE	8	5319-F	AVAILABLE SLOT
2	5319-Y	SYSTEM MODULE			
3	5319-C	CPU MODULE			
4	5319-P	POWER CONTROL MODULE			
5	5319-E	ADDRESSABLE LOOP MODULE			
6	5319-F	AVAILABLE SLOT			
7	5319-F	AVAILABLE SLOT			

R25 R27 R29 R31 R35

SIA-5319-RACK (1)					
POS.	BOARD	DESCRIPTION	POS.	BOARD	DESCRIPTION
1	5319-P	POWER CONTROL MODULE	8	5319-F	AVAILABLE SLOT
2	5319-D	6 SUPERV. INPUT MODULE	9	5319-F	AVAILABLE SLOT
3	5319-A	4-20mA INPUT MODULE	10	5319-F	AVAILABLE SLOT
4	5319-A	4-20mA INPUT MODULE	11	5319-F	AVAILABLE SLOT
5	5319-R	6 RELAY OUTPUT MODULE	12	5319-F	AVAILABLE SLOT
6	5319-F	AVAILABLE SLOT	13	5319-F	AVAILABLE SLOT
7	5319-F	AVAILABLE SLOT	14	5319-F	AVAILABLE SLOT

SIA FIRE FIGHTING SYSTEMS

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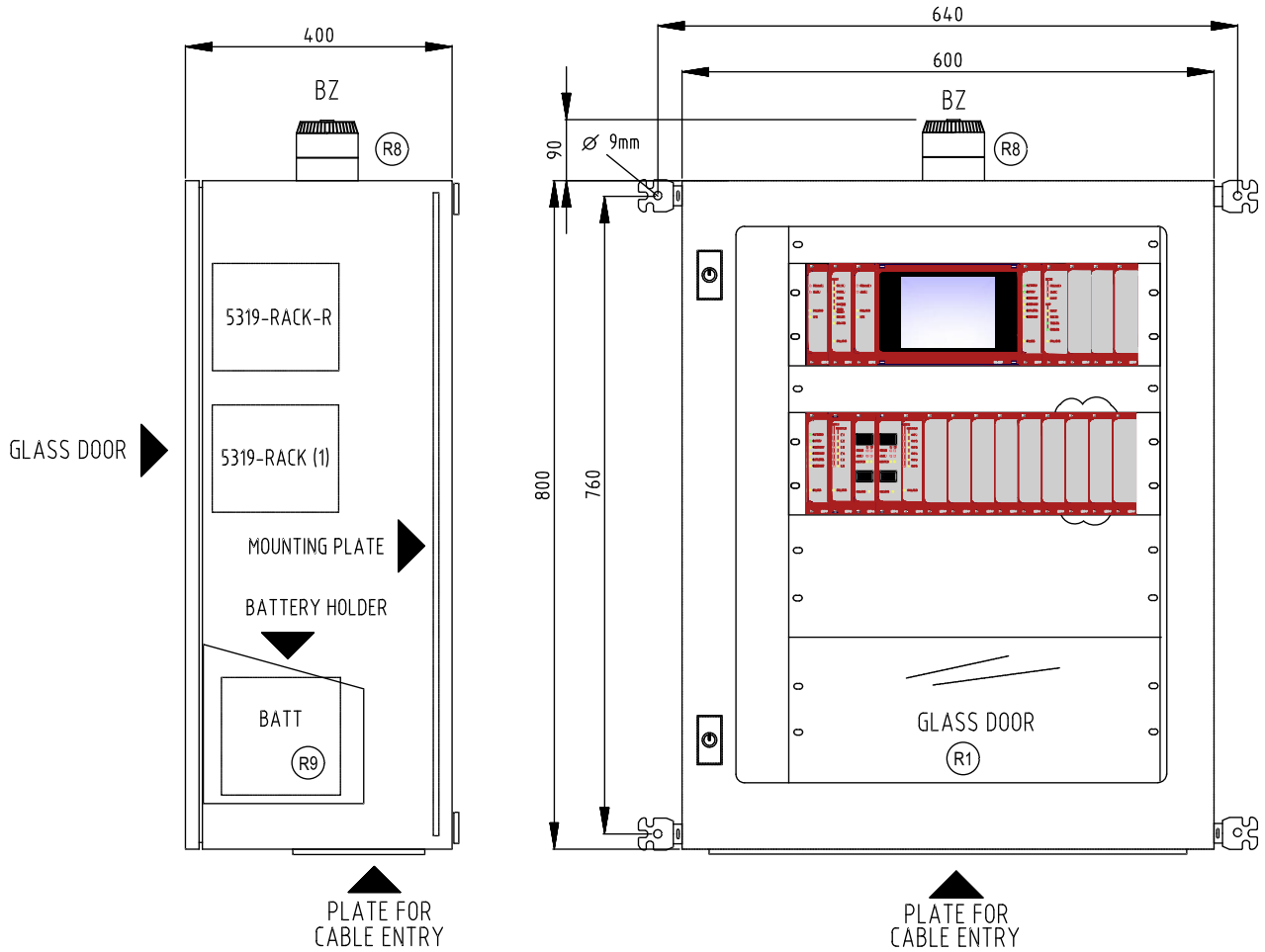
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TITOLO
WIRING & DIMENSIONAL DRAWING RACKS DETAIL
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R0	17	18
DRAWING N°			SHEET	FOLLOW



PANEL DETAILS:

- ALL WIRE ARE IN TYPE OF ADEGUATE SECTION
- EACH ELECTRICAL TERMINATION AND EQUIPMENT WITH TAG NUMBER & TERMINAL
- INLET POWER 230 Vac - 50HZ - 0.6 kW MAX
- PROTECTION DEGREE: IP54
- CABINET COLOR: RAL 7035
- DIMENSION 600 w x 400 d x 800 h (mm)

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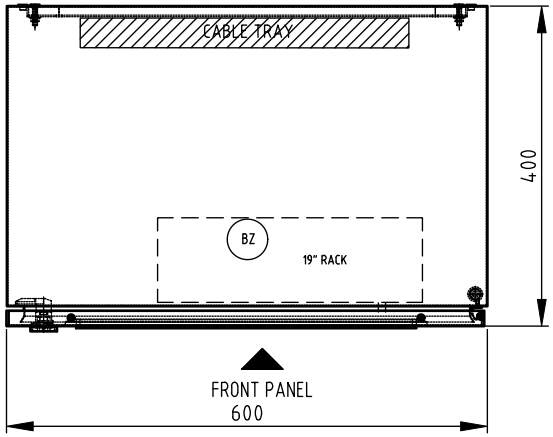
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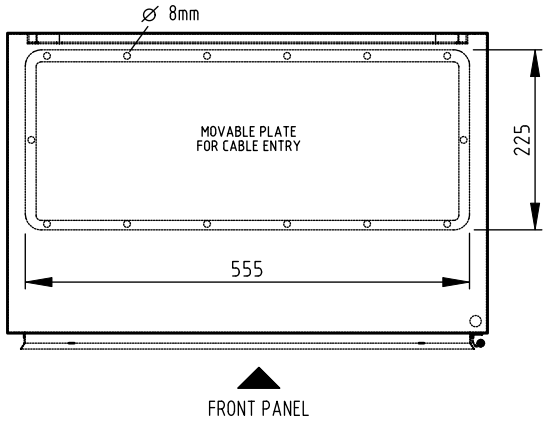
TITOLO / TITLE: WIRING & DIMENSIONAL DRAWING FRONT & SIDE VIEW

DISEGNO N° / DRAWING N°	FORM	REV	FOGLIO / SHEET	SEGUE / FOLLOW
C24032-WID-001	A3	R0	18	19

TOP VIEW



BOTTOM VIEW



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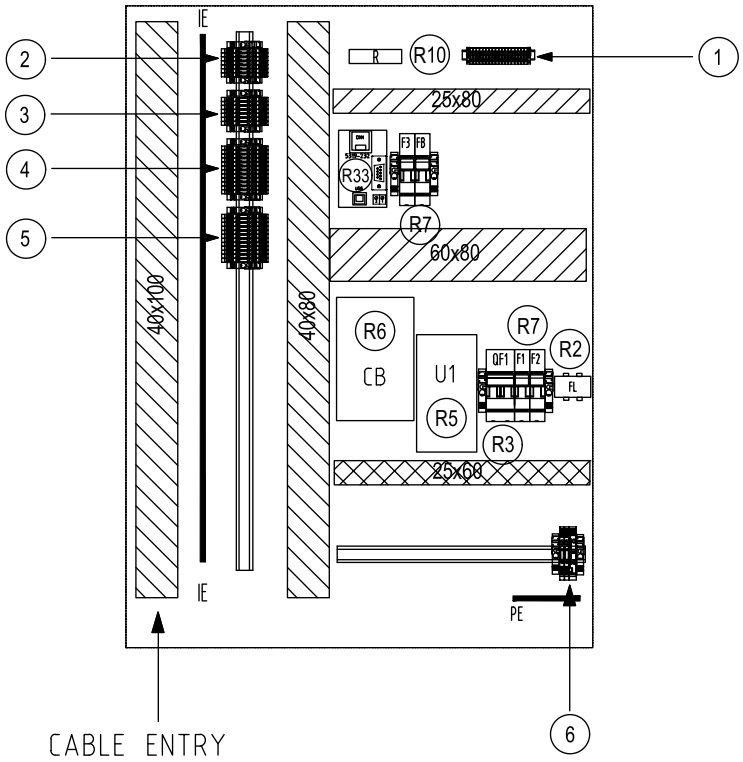
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TITOLO / TITLE

WIRING & DIMENSIONAL DRAWING TOP & BOTTOM VIEW

DISEGNO N° / DRAWING N°	FORM	REV	FOGLIO / SHEET	SEGUE / FOLLOW
C24032-WID-001	A3	R0	19	20

INTERNAL MOUNTING PLATE - FRONT VIEW



R11 R12 R13 R14

TERMINAL BOARDS		
POS.	DESCRIPTION	Q.ty
1	TB-AL	19
2	TB-24	6
3	TB-IN	12
4	TB-GAS	12
5	TB-RLY	20
6	TB-PSU	3
7		
8		
9		
10		
11		
12		
13		
14		
15		

24VDC CABLE DUCT

220VAC CABLE DUCT

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TITOLO

WIRING & DIMENSIONAL DRAWING
INTERNAL MOUNTING PLATE VIEW

TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R1	20	21
DRAWING N°			SHEET	FOLLOW

MATERIAL LIST

REF. (Rxx)	Q.ty	DESCRIPTION	MANUFACT.	MODEL	LABEL
R1	1	PANEL 800Hx600Wx400D c/w ACCESSORIES	DKC	R5CEX0864	
R2	1	SUPPRESSOR FILTER	SCHAFFNER	FN2010-6-06	FL
R3	1	CIRCUIT BREAKER 10A	SCHNEIDER ELECTRIC	A9F64210 - Curve C	QF1
R4					
R5	1	POWER SUPPLY 10A	WEIDMULLER	PRO ECO 120W 5A	U1
R6	1	BATTERY CHARGER 2,5A	BENTEL	BAQ60T24	CB
R7	4	FUSE HOLDER WITH FUSE (RATING IN RELEVANT SH.)	SCHNEIDER ELECTRIC	A9N15636	FB, F1, F2, F3
R8	1	HORN	ROSHNI	ROLP-V	BZ
R9	2	BATTERIES	ZENITH (or equivalent)	12V 18Ah	BATT
R10	1	TEST BATTERY RESISTANCE	CGS-TYCO	HSC50 12R	R
R11	19	FEED-THRU TERMINAL	CONTACLIP	RK 1,5-4/15	TB-AL
R12	2+1	FEED-THRU TERMINAL	WEIDMULLER	WDU6+WPE6 - 6 mm2	TB-PSU
R13	42	FEED-THRU TERMINAL	WEIDMULLER	WDU2.5 - 2.5 mm2	TB-24, TB-IN, TB-GAS, TB-RLY
R14	8	FUSED TERMINAL	WEIDMULLER	WSI6 - 6 mm2	TB-GAS
R15					
R16					
R17					
R18					
R19					
R20					
R21					
R22					
R23					
R24	1	OPERATOR PANEL	SIA	SIA-5319-RACK-R	
R25	1	RACK FOR MODULES	SIA	SIA-5319-RACK	
R26	2	CPU CARD	SIA	5319-C	
R27	2	POWER CONTROL CARD	SIA	5319-P	
R28	1	COMMON SIGNALING CARD	SIA	5319-Y	
R29	1	6 DIGITAL SPRV. INPUT CARD	SIA	5319-D	
R30					
R31	1	6 RELAY OUTPUT CARD	SIA	5319-R	
R32					
R33	1	RS-232 SERIAL INTERFACE CARD	SIA	SIA-5319-232/USB	RS1
R34					
R35	2	DUAL CHANNEL 4-20 mA ANALOG INPUT CARD	SIA	5319-A	
R36					

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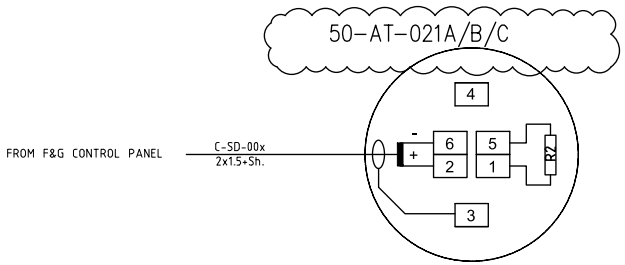
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TITOLO
WIRING & DIMENSIONAL DRAWING
MATERIAL LIST

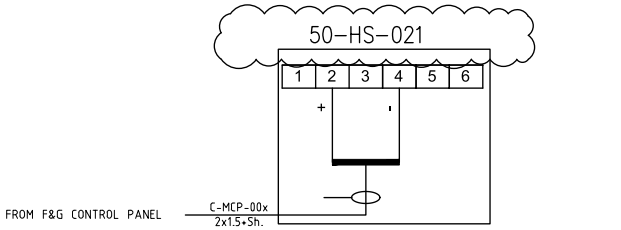
TITLE

DISEGNO N°	FORM	REV	FOGLIO	SEGUE
C24032-WID-001	A3	R1	21	22
DRAWING N°			SHEET	FOLLOW

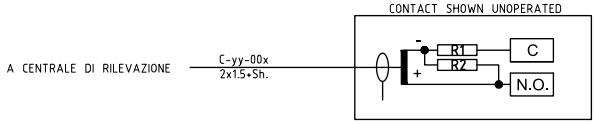
INTRINSICALLY SAFE SMOKE DETECTOR



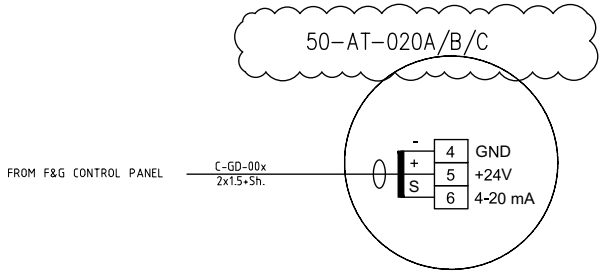
MANUAL ALARM CALL POINT



DIGITAL INPUTS ON 5319-D CARD



HYDROGEN GAS DETECTOR (H2)



RESISTOR LEGEND

R1= 820R - 2 Watt
R2= 4k7R - 1/2 Watt

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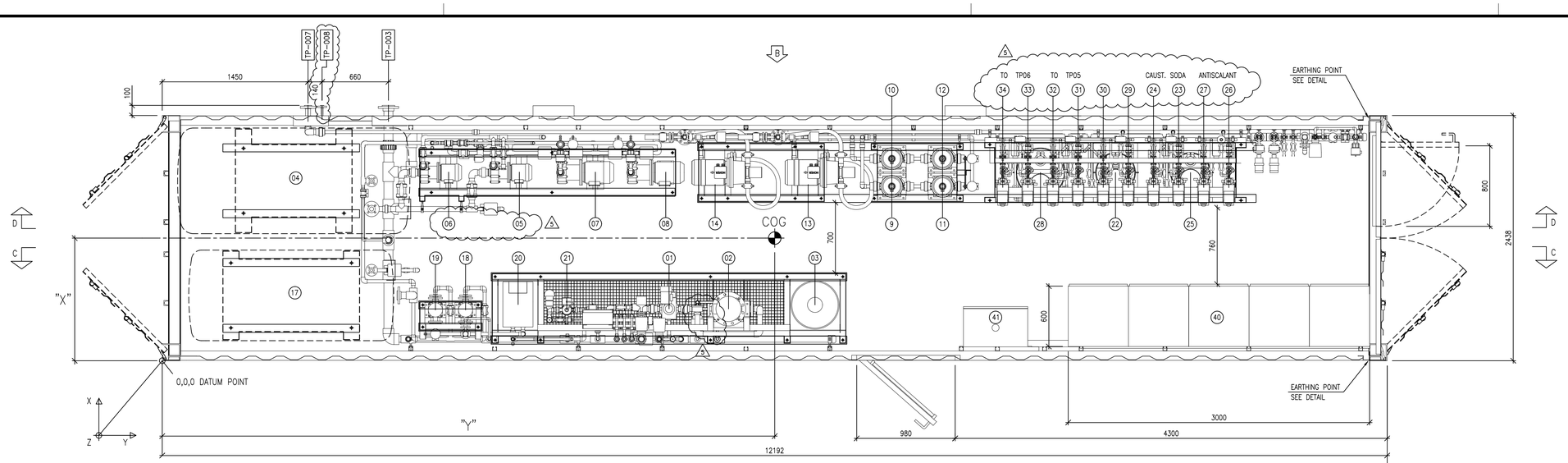
TITOLO / TITLE: WIRING & DIMENSIONAL DRAWING
DEVICES TYPICAL CONNECTION

DISEGNO N° / DRAWING N°	FORM	REV	FOGLIO / SHEET	SEGUE / FOLLOW
C24032-WID-001	A3	R1	22	-

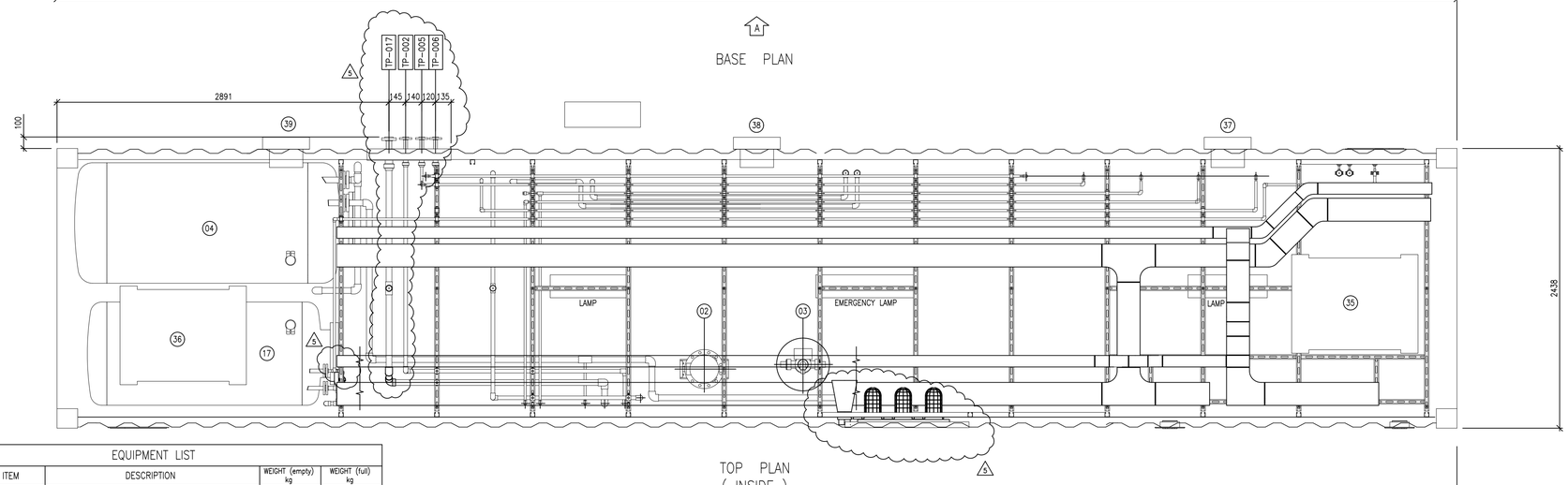
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DRAWINGS

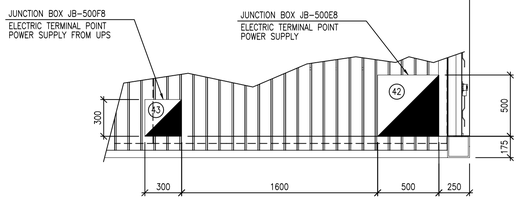
DRAWING NO. 1724000448-MAC-DA-00005 REV. 05



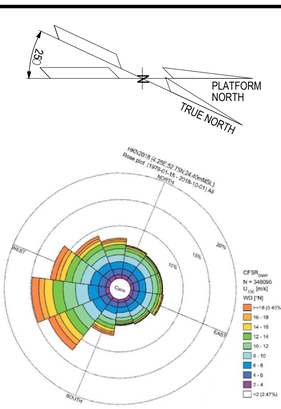
BASE PLAN



TOP PLAN
(INSIDE)



TOP PLAN (OUTSIDE PARTIAL PLAN)



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED.

TERMINAL POINT

TP No.	NPS	RATING	FACE	MAT.	DESCRIPTION
TP-017	1.1/2"	L.J. FLG. ASME B16.5 150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	L.J. FLG. ASME B16.5 150#	RF	PVC	PRODUCT WATER
TP-003	3"	L.J. FLG. ASME B16.5 150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	L.J. FLG. ASME B16.5 150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	L.J. FLG. ASME B16.5 150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	L.J. FLG. ASME B16.5 150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	L.J. FLG. ASME B16.5 150#	RF	PVC	CONTAINER OPEN DRAIN

REF. DOCUMENTS

DOC. No.	DESCRIPTION
1724000448-PR-PID-00013	P&I DIAGRAM
1724000448-MAC-DS-00016	PACKAGE WEIGHT DATA SHEET
1724000448-IN-DG-00014	WIRING DIAGRAM

EQUIPMENT LIST

REF.	ITEM	DESCRIPTION	WEIGHT (empty) kg	WEIGHT (full) kg
01	A50003	SEA WATER COARSE FILTER	7	20
02	H50001	ELECTRIC HEATER	155	180
03	S50001	SEA WATER SAND FILTER	250	300
04	T50006	FILTERED WATER TANK	300	3300
05	P50002A	BACKWASH PUMP	20	25
06	P50002B	BACKWASH PUMP	20	25
07	P50003A	SW BOOSTER PUMP	20	25
08	P50003B	SW BOOSTER PUMP	20	25
09	S50002A	SW 1ST. CARTRIDGE FILTER	18	35
10	S50002B	SW 1ST. CARTRIDGE FILTER	18	35
11	S50003A	SW 2ND. CARTRIDGE FILTER	18	35
12	S50003B	SW 2ND. CARTRIDGE FILTER	18	35
13	P50004A	HIGHT PRESSURE PUMP	50	55
14	P50004B	HIGHT PRESSURE PUMP	50	55
15	A50007A	SEA WATER REVERSE OSMOSIS UNIT	60	120
16	A50007B	SEA WATER REVERSE OSMOSIS UNIT	60	120
17	T50008	FRESH WATER TANK	200	2200
18	P50009A	FRESH WATER PUMP	20	25
19	P50009B	FRESH WATER PUMP	20	25
20	S50004	SOFTENING FILTER	35	125
21	S50010	UV STERILIZER	15	50
22	T50002	CAUSTIC SODA DOSING TANK	20	80
23	P50005A	CAUSTIC SODA DOSING PUMP	2	3
24	P50005B	CAUSTIC SODA DOSING PUMP	2	3
25	T50003	ANTISCALANT DOSING TANK	20	80
26	P50006A	ANTISCALANT DOSING PUMP	2	3
27	P50006B	ANTISCALANT DOSING PUMP	2	3
28	T50004	NON-OXIDANT BIOCIDE DOSING TANK	30	130
29	P50007A	NON-OXIDANT BIOCIDE DOSING PUMP-CONTAINER INLET	2	3
30	P50007B	NON-OXIDANT BIOCIDE DOSING PUMP-CONTAINER INLET	2	3
31	P50008A	NON-OXIDANT BIOCIDE DOSING PUMP-B.L. TP005	2	3
32	P50008B	NON-OXIDANT BIOCIDE DOSING PUMP-B.L. TP005	2	3
33	P50010A	NON-OXIDANT BIOCIDE DOSING PUMP-B.L. TP006	2	3
34	P50010B	NON-OXIDANT BIOCIDE DOSING PUMP-B.L. TP006	2	3
35	HHS-50003A	CONTAINER ELECTRICAL HEATER	90	90
36	HHS-50003B	CONTAINER ELECTRICAL HEATER	90	90
37	HFA-50001A	CONTAINER AIR FAN	–	–
38	HFA-50001B	CONTAINER AIR FAN	–	–
39	HFA-50001C	CONTAINER AIR FAN	–	–
40	50-LP-001	MCC & PLC PANEL	1800	1800
41	50-LP-002	FIRE & GAS PANEL	50	50
42	JB-500E8	JUNCTION BOX FOR POWER SUPPLY	10	10
43	JB-500F8	JUNCTION BOX FOR POWER SUPPLY FROM UPS	5	5

CONTAINER TOTAL WEIGHT	
DESCRIPTION	
LIFTING CONDITION	10500 kg
OPERATING CONDITION	15675 kg

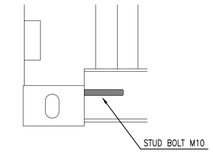
C.O.G.			
DESCRIPTION	"X" mm	"Y" mm	"Z" mm
LIFTING CONDITION	1034	7076	1293
OPERATING CONDITION	1185	4540	1322

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.MURA	10-07-2025



EARTHING POINT DETAIL

PSC DOC. REF: PK2885-P-002

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	14-APR-25	PSC	UR	RM	AS BUILT
04	26-NOV-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
03	31-OCT-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
02	23-JUL-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
01	07-MAY-24	PSC	UR	RM	ISSUE FOR REVIEW
00	10-APR-24	PSC	UR	RM	ISSUE FOR REVIEW

CROSSWIND ROSETTI MARINO

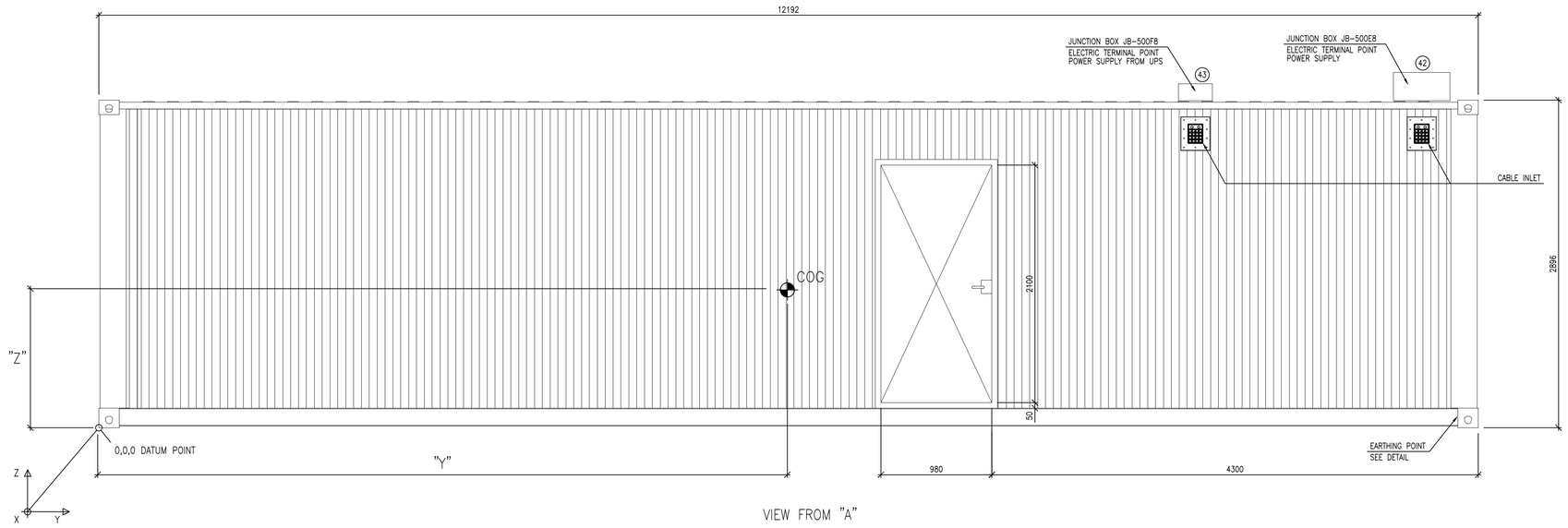
TITLE :
WATER TREATMENT PACKAGE
GENERAL ARRANGEMENT DRAWINGS AND
FOUNDATIONS LOADING CALCULATIONS-PLANS

CONTRACT NO./TITLE			SCALE 1:25
DRAWN PSC	CHECKED UR	APPROVED RM	DATE 14/04/2025
A1	DRAWING NO. 1724000448-MAC-DA-00005	SHEET 001	REV. 05

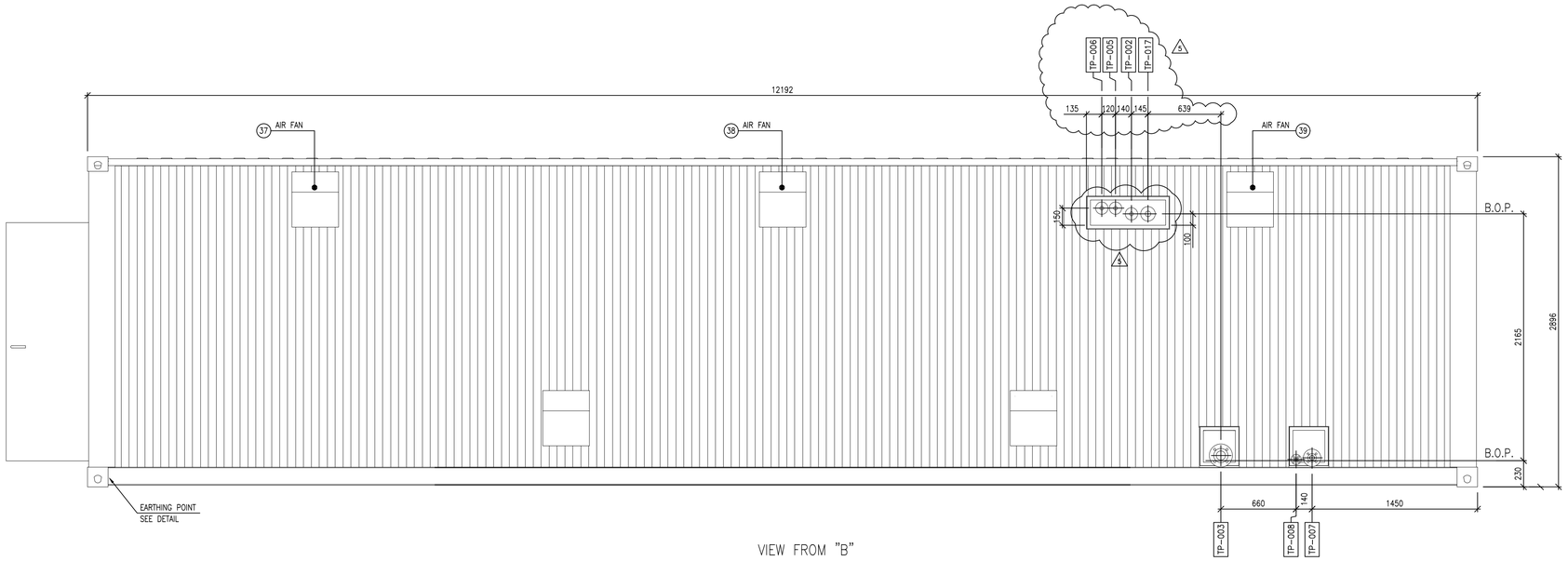
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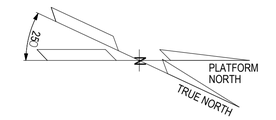
REV. 05

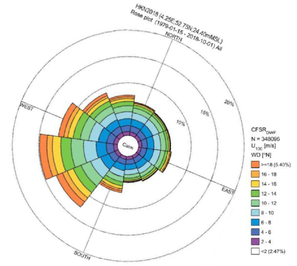


VIEW FROM "A"



VIEW FROM "B"





NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED.

PSC DOC. REF: PK2885-P-002

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	14-APR-25	PSC	UR	RM	AS BUILT
04	26-NOV-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
03	31-OCT-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
02	23-JUL-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
01	07-MAY-24	PSC	UR	RM	ISSUE FOR REVIEW
00	10-APR-24	PSC	UR	RM	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

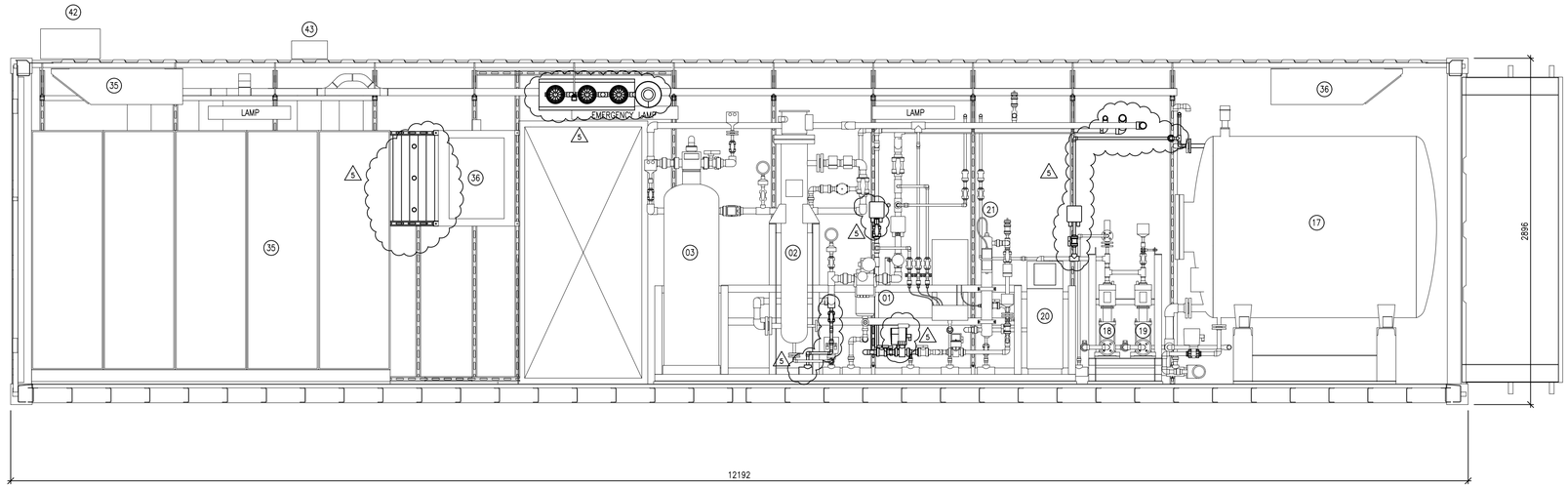
TITLE :
WATER TREATMENT PACKAGE
GENERAL ARRANGEMENT DRAWINGS AND
FOUNDATIONS LOADING CALCULATIONS-VIEWS

CONTRACT NO./TITLE			SCALE 1:25
DRAWN PSC	CHECKED UR	APPROVED RM	DATE 14/04/202
A1	DRAWING NO. 1724000448-MAC-DA-00005	SHEET 002	REV. 05

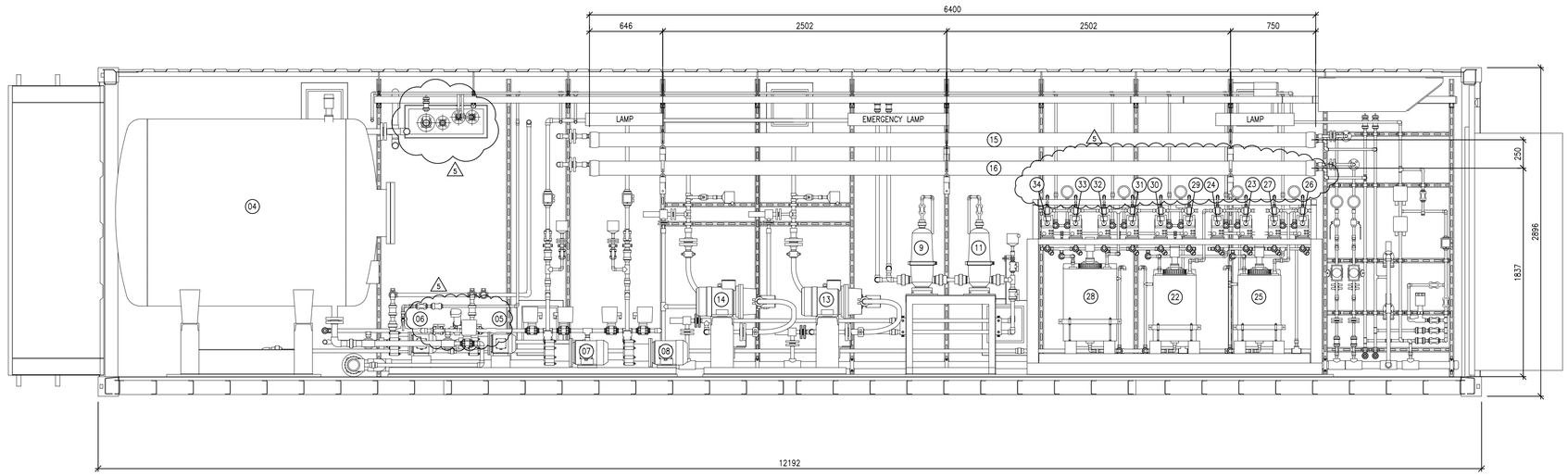
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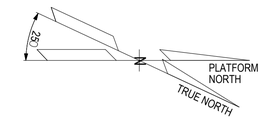
REV. 05

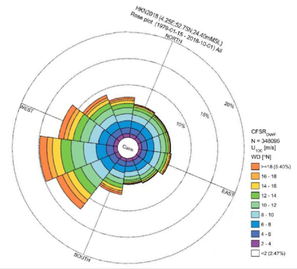


SECTION "C-C"



SECTION "D-D"





NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED.

PSC DOC. REF: PK2885-P-002

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	14-APR-25	PSC	UR	RM	AS BUILT
04	26-NOV-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
03	31-OCT-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
02	23-JUL-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
01	07-MAY-24	PSC	UR	RM	ISSUE FOR REVIEW
00	10-APR-24	PSC	UR	RM	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
GENERAL ARRANGEMENT DRAWINGS AND
FOUNDATIONS LOADING CALCULATIONS-SECTIONS

CONTRACT NO./TITLE			SCALE 1:25
DRAWN PSC	CHECKED UR	APPROVED RM	DATE 14/04/202
A1	DRAWING NO. 1724000448-MAC-DA-00005	SHEET 003	REV. 05

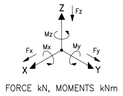
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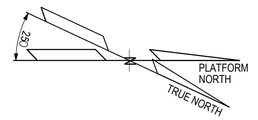
REV. 05

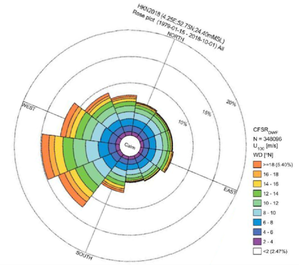


MAX. LOAD REACTION						
OPERATING CONDITION						
POINT	Fx	Fy	Fz	Mx	My	Mz
A1	19.5	9.1	49.0	118.4	27.3	118.4
A2	19.5	9.1	49.0	118.4	27.3	118.4
B1	19.5	9.1	49.0	118.4	27.3	118.4
B2	19.5	9.1	49.0	118.4	27.3	118.4
TRANSIT CONDITION						
A1	19.3	19.3	48.3	–	–	–
A2	19.3	19.3	48.3	–	–	–
B1	19.3	19.3	48.3	–	–	–
B2	19.3	19.3	48.3	–	–	–



FORCE kN, MOMENTS kNm





NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED.

PSC DOC. REF: PK2885-P-002

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
05	14-APR-25	PSC	UR	RM	AS BUILT
04	26-NOV-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
03	31-OCT-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
02	24-OCT-24	PSC	UR	RM	ACCEPTED FOR CONSTRUCTION
01	07-MAY-24	PSC	UR	RM	ISSUE FOR REVIEW
00	10-APR-24	PSC	UR	RM	ISSUE FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
GENERAL ARRANGEMENT DRAWINGS AND
FOUNDATIONS LOADING CALCULATIONS-FOUNDATION

CONTRACT NO./TITLE			SCALE 1:25
DRAWN PSC	CHECKED UR	APPROVED RM	DATE 14/04/2025
A1	DRAWING NO. 1724000448-MAC-DA-00005	SHEET 004	REV. 05

File Name : 1724000448-MAC-DA-00005_sh.4 rev5

Base Load Power Hub (BLPH)

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	26-11-2024

GENERAL ARRANGEMENT AND DATA SHEET- SEA WATER COARSE FILTER A-50003

Document Number: 1724000448-MAC-DA-00006

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
02	21/11/2024	Issue for Information (IFI)	WR	RM	RM
01	19/07/2024	Issue for Information (IFI)	WR	RM	RM
00	05/06/2024	Issue for Information (IFI)	ED	RM	RM

PSC

Reference: DOC No. PK2885-P-003

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File: 1724000448-MAC-DA-00006_Rev.02_GA drawings-sea water coarse filter Distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01	02					
1	Cover	X	X	X					
2	Table of Contents	X	X	X					
3	Revision / Change Log	X	X	X					
4	Drawing	X	X	X					
5	Datasheet	X	X	X					

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File: 1724000448-MAC-DA-00006_Rev.02_GA drawings-sea water coarse filter Uncontrolled if not electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
00	ISSUE FOR INFORMATION (IFI)
01	ISSUE FOR INFORMATION (IFI)
02	ISSUE FOR INFORMATION (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
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File: 1724000448-MAC-DA-00006_Rev.02_GA drawings-sea water coarse filter Each distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

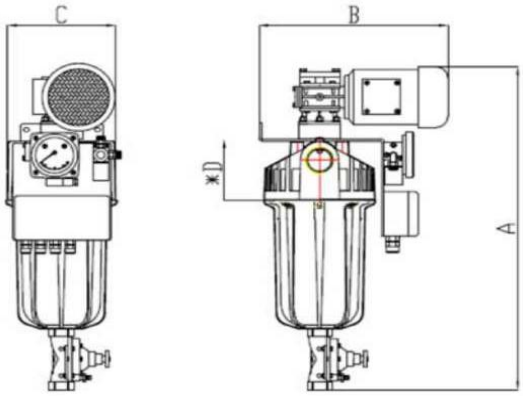
Supplier: ELFI

Models: MSCR_PP 1''1/2-7

TAG=A-50003

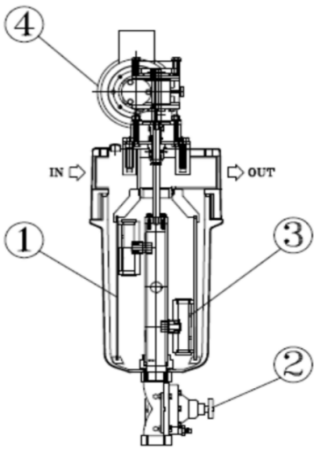
WEIGHT= 7 kg

DIMENSIONS



	Description	Dimens. mm
A		610
B		320
C		190
D	Cartridge extraction	250
	Connection IN/OUT	Threaded 1.1/2" Gas Female
	Discharge	Threaded 1'' Gas Female

Material	
Body	PP
Cover	PP
Mesh support strainer	PVC
Filtering mesh	PES
Protection mesh	PP
Suction nozzle	PE
Nozzle support	PVC
Nozzle pipe	PVC
Internal seals	EPDM



1 FILTER ELEMENT
2 DISCHARGE VALVE
3 SUNCTION NOZZLE
4 ELECTRIC MOTOR

REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-MAC-DA-00006_Rev.02_GA drawings-sea water coarse filter Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

FILTER DATA SHEET
SPECIFICA PER FILTRO

Sh. 5 / 5

PLANT: Impianto: Water treatment package	**CUSTOMER:** Cliente: Rosetti Marino S.p.A		
LOCATION: Località: HOLLANDSE KUST NOORD	**JOB:** Commessa: PK2885	**ITEM:** Sigla: A-50003	
DEPARTMENT : Reparto	**P&I :** 1724000448-PR-PID-00013	**MFR:** Costruttore: ELFI	**DOC.Nr.** Doc. Nr.: PK2885-M-001

1	SERVICE OF UNIT / Servizio: Coarse filter			No. OF UNITS / No. di unità: 1
2	FLUID HANDLED / Fluido trattato:			Sea water
3	CORROSIVE COMPOUNDS / Composti corrosivi		ppm	TDS = 37000 and Chloride = 20300, pH = 8.2
4	FLOW RATE / Portata:	OPERATING INLET	m^3/h	2.5
5	OPERATING / DESIGN PRESSURE / Pressione di esercizio		barg	4 / 6
6	OPERATING TEMPERATURE / Temperatura di esercizio:		°C	1.3 / 20.2
7	FLUID DENSITY/ Densità:		kg/m^3	1020 / 1029
8	FLUID VISCOSITY / Viscosità:		mPa sec	1.67/ 0.89
9	TOTAL SUSPENDED SOLIDS / Solidi Sospesi Totali:		mg/l	10
10	MINIMUM SIZE OF PARTICLES TO BE REMOVED / Dim. minima delle particelle da filtrare:		µm	> 125
11	PRESSURE DROP / Perdite di carico:	CLEAN / DIRTY / MAX	bar	0.2 / 0.7 / 1.0
12	MAX WASHING PHASE FLOW RATE		m^3/h	2
13	MAX WASHING PHASE DURATION TIME		sec	15
14	DESIGN PRESSURE / Pressione di progetto:		barg	6
15	TEST PRESSURE / Pressione di prova :		barg	15
16	DESIGN TEMPERATURE / Temperatura di progetto:		°C	50
17	FILTER TYPE (Tipo di filtro)			Pressure and vertical, self cleaning, filter basket type element
18	FILTRATION AREA		cm^2	700
19	FILTER DIMENSIONS		mm	Diameter 190 mm, height 610 mm
20	FILTER EMPTY AND OPERATING WEIGHT		kg	7 / 25
21	FILTER MATERIAL / Materiale filtrante:			PVC
22	SUCTION NOOZLE MATERIAL / Materiale aspirazione ugello :			PP
23	FILTER HOLES DIAMETER / Diametro fori del filtro:		µm	125
24	FILTER REMOVAL EFFICIENCY / Efficienza di filtrazione		%	95
25	BODY MATERIAL / Materiale corpo:			PP
26	CORROSION ALLOWANCE / Sovraspessore di corrosione:		mm	N.A.
27	CODE REQUIREMENTS / Norme richieste:			PED 2014/68 2006/42/CE 2014/35/UE 2014/30/UE
28	CONNECTIONS / Connessioni	FLUID / Fluido:	IN /OUT	Threaded 1.1/2" GAS F
29		DRAIN / Scarico:		Threaded 1" GAS F
30		VENT / Sfiato:		NONE
31	BY-PASS FOR MAINTENANCE / By-pass per manutenzione:			NO
32	FILTER TWIN OR SINGLE / Filtro doppio o singolo:			Single
33	TYPE OF SUPPORT (IF APPLICABLE) / Tipo di supporto:			N.A.
34	GASKETS / Guarnizioni:			N.A.
35	ELASTOMERS / Elastomeri:			N.A.
36	POWER SUPPLY		V, Hz	220V, 50Hz
37	INSTALLED POWER		W	90
38	THERMAL INSULATION TYPE / Tipo isolamento: N.A.	THICKNESS / Spessore:	mm	N.A.
39	**REMARKS**			
40				
41				
42				

REV. Rev.	DATE Data	DESCRIPTION Descrizione	PREPARED Compilato da	CHECKED Controllato da	APPR. BY Approvato da
02	21/11/2024	Issued for Information	IT	WR	RM
01	30/07/2024	Issued for Information	IT	WR	RM
00	24/06/2024	Issued for Information	IT	WR	RM

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	11-11-2024

NOTE:
FINAL ACCEPTANCE IS ACHIEVED WITH CODE 1 ALSO FROM CROSSWIND (CRS CLOSEOUT)

Base Load Power Hub (BLPH)

GENERAL ARRANGEMENT AND DATASHEET- SAND FILTER S-50001

Document Number: 1724000448-MAC-DA-00007

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
02	08/11/2024	Issue for Information (IFI)	IT	RM	RM
01	22/07/2024	Issue for Information (IFI)	WR	RM	RM
00	05/06/2024	Issue for Information (IFI)	ED	RM	RM

PSC

Reference: DOC No. PK2885-P-007

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Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01	02					
1	Cover	X	X	X					
2	Table of Contents	X	X	X					
3	Revision / Change Log	X	X	X					
4	Drawing	X	X	X					
5	Datasheet	X	X	X					

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1724000448-MAC-DA-00007_Rev.02_GA drawings-sand filter distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
00	ISSUE FOR INFORMATION (IFI)
01	ISSUE FOR INFORMATION (IFI)
02	ISSUE FOR INFORMATION (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
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File: 1724000448-MAC-DA-00007_Rev.02_GA drawings-sand filter. Distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Supplier:NOBEL

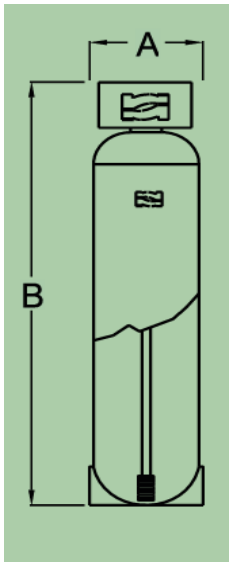
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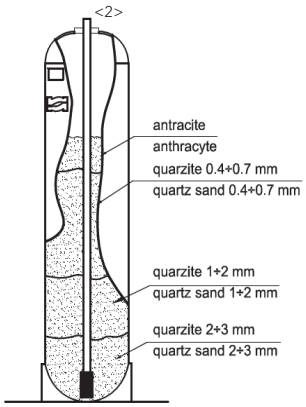
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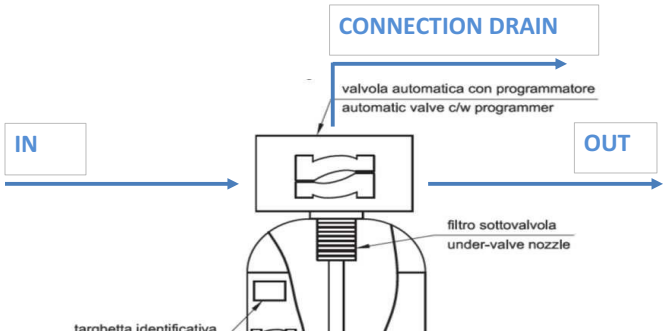
TAG= S-50001

POS	
A	460 mm
B	2000 mm
Connection in-out	1 1/2'' BSP (GAS)
Connection drain	1'' BSP (GAS)

<2>







REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

This document undergoes an issuance cycle within EDMS "Fusionlive".
Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

FILTER DATA SHEET

SPECIFICA PER FILTRO

PLANT: Impianto — Water treatment package	**CUSTOMER:** Cliente — Rosetti Marino S.p.A		Sh. 5 / 5
LOCATION: Località — HOLLANDSE KUST NOORD WIND PARK Project	**JOB:** Commessa — PK2885		**ITEM:** Sigla — S-50001
DEPARTMENT : Reparto	**P&I :** 1724000448-PR-PID-00013	**MFR:** Costruttore — NOBEL, mod. FCT 07/CT-DM	**DOC.Nr.** Doc. Nr. — PK2885-M-001

1	SERVICE OF UNIT / Servizio: Sand filter			No. OF UNITS / No. di unità: 1
2	FLUID HANDLED / Fluido trattato:			Sea water
3	CORROSIVE COMPOUNDS / Composti corrosivi		ppm	TDS = 37000 and Chloride = 20300 (@ pH = 8.2)
4	FLOW RATE / Portata:		m^3/h	2
5	OPERATING / DESIGN PRESSURE / Pressione di esercizio /progetto:		bar	4 / 8
6	OPERATING TEMPERATURE / Temperatura di esercizio:		°C	10 / 23
7	FLUID DENSITY/ Densità:		kg/m^3	1020/1029
8	FLUID VISCOSITY / Viscosità:		mPa sec	1.67/ 0.89
9	TOTAL SUSPENDED SOLIDS / Solidi Sospesi Totali:		mg/l	10
10	MINIMUM SIZE OF PARTICLES TO BE REMOVED / Dim. minima delle particelle da filtrare:		µm	< 125
11	PRESSURE DROP / Perdite di carico:	CLEAN / DIRTY / MAX	bar	0.2 / 0.7 / 1.0
12	MAX BACKWASH FLOW RATE		m^3/h	5
13	MAX FLOW / PORTATA MASSIMA		m^3/h	6.4
14	MAX BACKWASH DURATION TIME		min	20
15	DESIGN PRESSURE / Pressione di progetto:		barg	8
16	TEST PRESSURE / Pressione di prova :		barg	11
17	DESIGN TEMPERATURE / Temperatura di progetto:		°C	50
18	FILTER TYPE (Tipo di filtro)			Pressure and vertical, automatic backwash with filtered water
19	FILTRATION AREA		m^2	0.17 <2>
20	FILTRATION RATE		m/h	12 <2>
21	FILTER DIMENSIONS		mm	Diameter =460 <2>, H=2000 mm
22	FILTER EMPTY AND OPERATING WEIGHT		kg	250 / 430 <2>
23	FINE FILTERING MEDIA, TYPE AND QUANTITY		kg	SAND 0.4-0.7 mm 100 kg , SAND 1-2 mm 50 kg, SAND 2-3 mm 25 kg, ANTRACITE 35 kg <2>
25	BODY MATERIAL / Materiale corpo:			GRP
26	CORROSION ALLOWANCE / Sovraspessore di corrosione:		mm	N.A.
27	CODE REQUIREMENTS / Norme richieste:			2006/42/CE - 2006/95/CE - 2004/108/CE UNI EN ISO 12100:2010 - UNI EN 60204-1 (CEI 44-5)
28	CONNECTIONS / Connessioni	FLUID / Fluido: IN /OUT		1.1/2"Threaded BSP-F (GAS-F)
29		DRAIN / Scarico:		1"Threaded BSP-F (GAS-F)
30		VENT / Sfiato:		NONE
31	BY-PASS FOR MAINTENANCE / By-pass per manutenzione:			NO
32	TYPE OF SUPPORT (IF APPLICABLE) / Tipo di supporto:			N.A.
33	GASKETS / Guarnizioni:			N.A.
34	ELASTOMERS / Elastomeri:			N.A.
35	POWER SUPPLY		V, Hz	220 V, 50Hz
36	INSTALLED POWER		W	10
37	THERMAL INSULATION TYPE / Tipo isolamento: N.A.	THICKNESS / Spessore:	mm	N.A.
38	**REMARKS**			
39				
40	**(2) Items included:** **- Local panel with communication port to PSC's PLC** **- Automatic multiport filtered valves for filtration and backwash** **- Internal flow distributor and bottom filter strainer in PP** **- Nameplate**			
41				
42				
43				
44				

REV. Rev.	DATE Data	DESCRIPTION Descrizione	PREPARED Compilato da	CHECKED Controllato da	APPR. BY Approvato da
2	08/11/2024	Issued for Information	IT	RM	RM
1	22/07/2024	Issued for Information	WR	RM	RM
0	05/06/2024	Issued for Information	ED	RM	RM

Base Load Power Hub (BLPH)

GENERAL ARRANGEMENT AND DATASHEET - DESALINATION PACKAGE

Document Number: 1724000448-MAC-DA-00008

Document Class: 3

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.MURA	29-07-2025

Rev.	Date	Description	Prepared	Reviewed	Approved
04	25/07/2025	Issue For Information (IFI)	SF	RM	RM
03	06/12/2024	Issue For Information (IFI)	SF	RM	RM
02	04/11/2024	Issue For Information (IFI)	SF	RM	RM
01	22/07/2024	Issue For Information (IFI)	ED	RM	RM
00	05/06/2024	Issue For Information (IFI)	ED	RM	RM

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SH.	DESCRIPTION	REVISIONS							
		00	01	02	03	4			
1	Cover	X	X	X	X				
2	Table of Contents	X	X	X	X				
3	Revision / Change Log	X	X	X	X				
4	Drawing Heat Exchanger (Element)	X	X	X					
5	Heat Exchanger (Element) Datasheet	X	X	X		X			
6	Drawing high pressure pumps	X	X	X					
7	High pressure pumps datasheet	X	X	X					
8	Drawing Back wash pumps	X	X	X					
9	Back wash pumps datasheet	X	X	X					
10	Drawing Sea Water Booster pumps	X	X	X					
11	Sea Water Booster pumps datasheet	X	X	X					
12	Drawing dosing pump (Caustic Soda)	X	X	X					
13	Dosing pump (Caustic Soda) datasheet	X	X	X					
14	Drawing dosing pump (Antiscalant)	X	X	X					
15	Dosing pump (Antiscalant) datasheet	X	X	X					
16	Drawing dosing pump (Biocide)	X	X	X					
17	Dosing pump (Biocide) datasheet	X	X	X					
18	Drawing cartridge filters	X	X	X					
19	Cartridge filters datasheet	X	X	X					
20	Cartridge filters datasheet	X	X	X					
21	Drawing Vessel membranes	X	X	X					
22	Vessel membranes datasheet	X	X	X					
23	Drawing Water Softener	X	X	X					
24	Water Softener Datasheet	X	X	X					
25	Container air fan drawing	X	X	X					
26	Container air fan datasheet	X	X	X					
27	Container electrical heater drawing	X	X	X					
28	Container electrical heater datasheet	X	X	X					
29	Desalination Package general view	X	X	X					

Revision / Change Log

Rev.	Description
00	ISSUE FOR INFORMATION (IFI)
01	ISSUE FOR INFORMATION (IFI)
02	ISSUE FOR INFORMATION (IFI)
03	ISSUE FOR INFORMATION (IFI)
04	ISSUE FOR INFORMATION (IFI)

HOLDS LIST

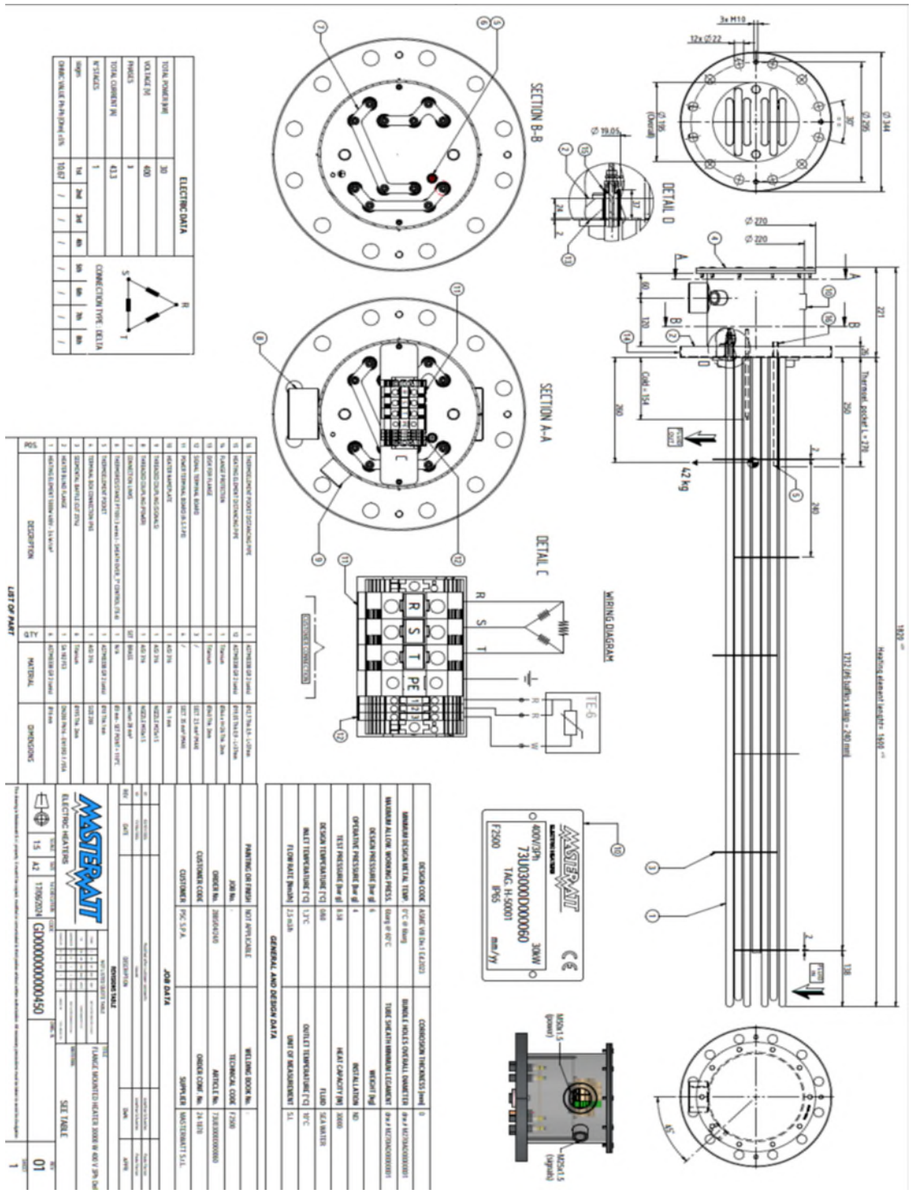
No.	Description
1.	
2.	
3.	
4.	

Drawing Heat Exchanger (Element)

Supplier: MASTERWATT

Models: 30 Kw - 400 V./3ph - sea water

WEIGHT= Heating elements 42 kg <2> **TAG= H-50001**
Vessel 160 kg <2>



REFERENCE DOCUMENTS

1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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ELECTRIC HEATER DATASHEET

PSC	PROJECT: HOLLANDSE KUST NOORD WIND PARK Project	CLIENT: Rosetti Marino S.p.A.	Doc. Nr. PK2885-M-001
	ITEM: H-50001		
REFERENCE DRAWING:	P&I: 1724000448-PR-PID-00013	MFR: Masterwatt	

TYPE: Electric Heater Bundle

INSTALLATION: ■ INDOOR ☐ OUTDOOR

ELECTRICAL CHARACTERISTICS

INSTALLED POWER	30	kW				
SUPPLY	400	Volts	3	Phases	50	Hz
CONNECTION TYPE	■ DELTA	☐ STAR				
	☐ SINGLE PHASE	☐				
STANDARDS	☐ IEC	☐ ATEX	☐ KOSHA			
PROTECTION	IP65					
EXECUTION	SAFE AREA					
TEMPERATURE CLASS	N.A.					
NUMBER OF STAGES	1					
ELECTRIC POWER STEP N° 1	30	kW				
ELECTRIC POWER STEP N° 2	-	kW				
ELECTRIC POWER STEP N° 3	-	kW				
ELECTRIC POWER STEP N° 4	-	kW				
SPECIFIC POWER	3.4	W/cm^2				
EXCHANGE SURFACE	0.882 <2>	m^2				

SERVICE CONDITION

FLUID TO BE HEATED	SEA WATER			
DESIGN FLOW	2,5	m^3/h		
INLET PRESSURE	4	bar g		
MAX PRESSURE DROP	1	bar g		
INLET LIQUID TEMP.	1,3	°C		
OUTLET LIQUID TEMP.	10	°C		
HEAT DUTY CAPACITY	30	kW		
MOLECULAR WEIGHT	18	DENSITY	1020-1030	kg/m^3
INLET FLUID CONDITION	■ LIQUID	☐ GAS		
OUTLET FLUID CONDITION	■ LIQUID	☐ GAS		
FLUID SPEED	2.5	m^3/h		
MECHANICAL DESIGN TEMPERATURE	0 / +60	°C		
MECHANICAL DESIGN PRESSURE	6	barg		
DESIGN VESSEL CODE	PED			
INSTALLATION	Indoor & Vertical			

MECHANICAL CHARACTERISTICS

ELEMENT NUMBER	6 armoured electric resistances				
ELEMENT DIAMETER	16	mm			
TOTAL LENGHT	2021 [4]	mm			
HEATED LENGHT	2500 [4]	mm			
BAFFLES	YES ■	NO ☐	n°	6	
VESSEL DIAMETER	DN200	mm			
HEAT EXCHANGER EMPTY WEIGHT	197 (bundle + vessel) [4]	kg			
HEAT EXCHANGER TET WEIGHT	270 [4]	kg			

PROCESS CONNECTIONS

FLANGE	Inlet (PVC)	DIAMETER	DN40
		RATING	PN16
FLANGE	Outlet (PVC)	DIAMETER	DN40
		RATING	PN16
FLANGE	Heater	DIAMETER	DN 200
		RATING	EN1092 PN16

MATERIALS

BODY CONNECTIONS FLANGE	A185 F53 / Titanium Cladded
HEATING ELEMENTS SHEATH	ASTM B338
TERMINAL BOX	AISI 316
VESSEL	Vinylester
BAFFLES	Titanium
TUBE SHEET	A185 F53 / Titanium Cladded
CORROSION ALLOWANCE	N.A. mm
FINISHING	N.A.

ACCESSORIES

THERMOELEMENT FOR FLUID	YES ☐	NO ■
THERMOELEMENT FOR HEATING ELEM.	YES ■	NO ☐
ANTICONDENSING	YES ☐	NO ■
ELECTRIC INSULATION BETWEEN RESISTIVE WIRE, SHEATH	YES ■	NO ☐

REMARKS

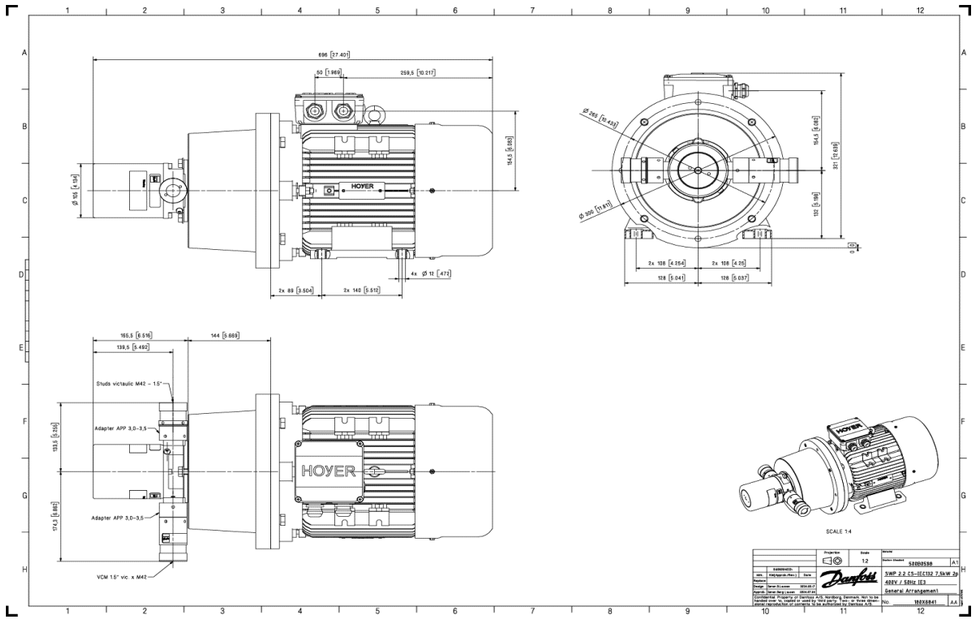
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01	31/07/2024	Issue for Review (IFR)	IT	WR	RM
00	24/06/2024	Issue for Review (IFR)	IT	WR	RM

Supplier: DANFOSS

Models: APP 2.2

Drawing high pressure pumps

WEIGHT (PUMP+MOTOR) = 67 kg <2>
TAG= P-50004A/B



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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VOLUMETRIC PUMP DATA SHEET
SPECIFICA PER POMPA VOLUMETRICA

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	LOCATION: Località	Off Shore Hollandse Kust Noord (Netherlands)	DOC N° : Doc N°	PK2885-M-001
MOD: Mod	APP 2.2	PLANT: Impianto	Water treatment package	CUSTOMER: Cliente	Rosetti Marino S.p.A.
MFR: Fornitori	DANFOSS			JOB: Commessa	PK2885

1	SERVICE Descrizione	SWRO HIGH PRESSURE PUMP		PUMP TYPE Tipo di pompa	Volumetric, Rotating Axial Pistons	PUMP SERIAL No. Matricola pompa	
2	MANUFACTURER Costruttore	DANFOSS		No. of UNITS No. Unità	2		
3	EL. MOTOR No. Motore el. No.	ITEM Sigla	P-50004 A/B	SUPPLIED BY Fornito da	HOYER <2>	ASSEMBLED BY Sub-Supplier Montato da	N/A<2>
4	WEIGHT: Peso	67 <2> Kg					

DESIGN CONDITION FOR ONE PUMP
CONDIZIONI DI PROGETTO

6	LIQUID Liquido	Sea water		CAPACITY NORM. Portata normale	2	m^3/h	
7	SOLID IN SUSPENSION Solidi in sospensione	None		DISCHARGE PRESSURE Pressione di mandata	55-63.5	barg	
8	CORROSIVE COMPOUND Composti corrosivi	(pH = 8.2), Chlorides = 20310 ppm		SUCTION PRESS. MAX Pressione di aspirazione max	4	barg	
9	TEMP. NORM. Temp. Norm.	10	MAX 25 °C Max	DIFFERENTIAL PRESSURE Pressione differenziale	51-59.5	bar	
10	VISCOSITY Viscosità	1.31-0.89	mPa sec	DIFFERENTIAL HEAD Prevalenza	507-592 <2>	m	
11	DENSITY Densità	1020-1030	kg/m^3	NPSH AVAILABLE NPSH disponibile	30 (booster pump)	m	
12	VAPOUR PRESSURE Tensione di vapore	0.012-0.02	Bar abs	OPERATION Servizio	Continuos		
13	FREEZING TEMP. Temperatura di congelamento	-1	°C	INSTALLATION Installazione	INDOOR ■ Al chiuso	OUTDOOR □ All'aperto	

CHARACTERISTICS
CARATTERISTICHE

6	SAFETY V. RATING Taratura valvola sicurezza	65	bar
7	MAX PRESSURE Pressione max ammissibile	83	bar
8	MAX TEMP. Temperatura max	50	°C

CONSTRUCTION DATA
DATI COSTRUTTIVI

15	PUMP ASSEMBLING Montaggio pompa	(HORIZONTAL ■) (Orizzontale)	(FOOT □) (Foot)	(BRAKET □) (Braket)	(VERTICAL □) (Verticale)		
16	JACKET Camicie	N/A <2>					
17	DIAPHRAGM ø Membrana	N/A <2>	mm	THICKNESS Spessore	N/A <2>	mm	
18	PISTON CASING NORM. Corsa pistone	0/125.2 <2>	mm	MIN./MAX			
19	VALVE TYPE Tipo valvole di ritegno	Check valve VCM 10 (Supplier Standard) <2>					
20	SUCTION NOZZLE ø Flangia di aspirazione	3/4 GAS	mm				
21	DISCHARGE NOZZLE ø Flangia di mandata	3/4 GAS	mm				
22	LUBRICATION TYPE Lubrificazione tipo	None		LUBRICANT TYPE Lubrificante tipo	None <2>		
23	JOINT TYPE Giunto tipo	Flexible Coupling					
24	BASE PLATE Basamento	None					
25	PACKING TYPE Premistoppa tipo	Hastelloy / NBR					
26	SEALING TYPE Tenuta tipo	Packing					
27	SAFETY VALVE Valvola di sicurezza	External	(YES □) (Si)	(NO ■) (No)	PULSATION DAMPER Smorzatore di pulsazioni	(YES □) (Si)	(NO ■) (No)
28	STEAM TRACING (to execute at erection) Tracciatura (da eseguire al montaggio)		(YES □) (Si)	(NO ■) (No)	FLUID Fluido		
29	INSULATION Coibentazione	None <2>					

TESTS
COLLAUDI

<2> According to project ITP Doc. 1724000448-QC-ITP-00002

MATERIALS
MATERIALI

31	CASING Cassa	Duplex Stainless Steel	
32	PISTON Pistone	Duplex Stainles Steel	
33	INNER PART Parti interne	Super Duplex Stainles Steel	
34	VALVE Valvole di ritegno	Duplex <2>	
35	STUFFING BOX Premistoppa tipo	Hastelloy / NBR <2>	
36	PULSATION DAMPER Smorzatore di pulsazioni	N.A.	
37	GASKETS Guarnizioni	NBR	
38	BASE PLATE Basamento	N.A.	

DRIVING MOTOR
MOTORE DI COMANDO

31	TYPE: Tipo	ELECTRIC ■ Elettrico	PNEUMATIC □ Pneumatico		
32	NOMINAL POWER kW Potenza Nominale	7.5			
33	RPM Giri al minuto	2930 (1)	POLES No. No. Poli	2	
34	CONSTR. SHAPE Forma	B3			
35	PROTECTION & EXECUTION Protezione ed esecuzione	IP 55	Safe Area		
36	VOLT/PHASES/CYCLES Volt/fasi/cicli	400/3/50			
37	MFR Costruttore	HOYER			
38	TYPE Tipo	IEC			

AUXILIARY PIPES
TUBAZIONI AUSILIARIE

REMARKS *Note*: (1) Suitable for operation with VSDS

Rev.	DATE Data	DESCRIPTION Descrizione	FILLED OUT Compilato	CHECKED Controllato	APPR. BY Approvato
02	04/11/2024	Issue for Review (IFR)	SF	WR	RM
01	31/07/2024	Issue for Review (IFR)	IT	WR	RM
00	23/06/2024	Issue for Review (IFR)	IT	WR	RM

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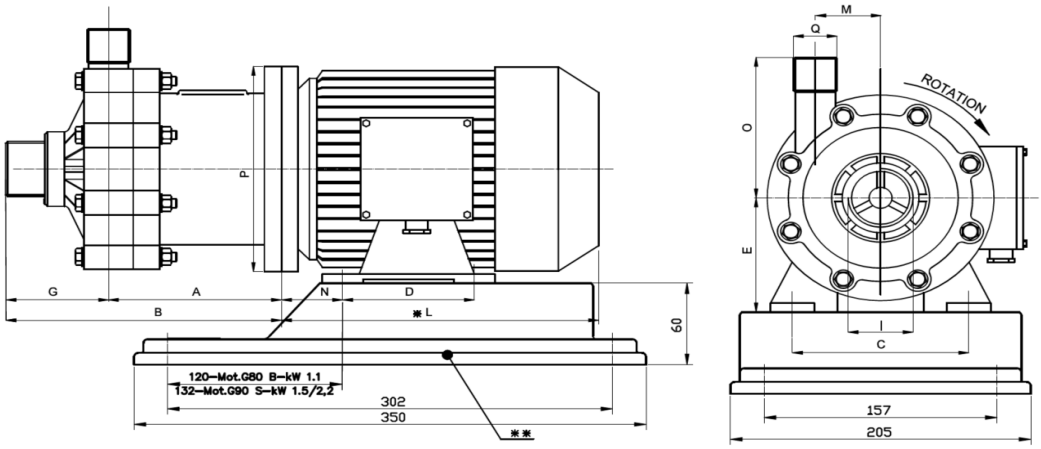
Supplier: GEMMECOTTI

Models: HTM 15 PP 1.1. kW

Drawing Back wash pumps

WEIGHT (PUMP+MOTOR) = 18.8 kg TAG= P-50002A/B

DATA												
A	B	C	D	E	G	I	L	M	N	O	P	Q
151	231	125	100	80	80	2'' Threaded Gas MALE	232	66	50	135	200	1.1/2" Threaded Gas MALE



<2>

PUMP TYPE	MOTOR FLANGE B3–B5	POT. Kw	DIMENSIONS – mm –												
			A	B	C	D	E	G	I	*L	M	N	O	P	Q
HTM 15	G 80 B	1.1	151	231	125	100	80	80	2" MALE	232	66	50	135	200	1" 1/2 MALE

REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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CENTRIFUGAL PUMP DATA SHEET

SPECIFICA POMPA CENTRIFUGA

PROJECT: Progetto	HOLLANDSE KUST NOORD / WIND PARK Project	LOCATION: Località	Off Shore Hollandse Kust / Noord	DOC N° : Doc N°	PK2885-M-001
MOD: Mod	HTM 15 PP	PLANT: Impianto	Water treatment package	CUSTOMER: Cliente	Rosetti Marino S.p.A.
MFR: Fornitori	GEMME COTTI			JOB: Commessa	PK2885

SERVICE (Descrizione)	Backwash pumps	ITEM (Descrizione)	P-50002 A/B	N° OF UNITS (N° di unità)	2	
APPLICABLE CODE (Norme)	NONE			TYPE (Tipo)	Centrifugal	
WEIGHTS: (Pesi)	PUMP: (Pompa) 6		Kg MOTOR: (Kg motore) 13			

DESIGN CONDITION
CONDIZIONI DI PROGETTO

LIQUID (Liquido)	SEA WATER (2)		NORMAL CAPACITY (Portata normale)	5 m³/	DESIGN (Richiesta) 23 m³/h
SOLID IN SUSPENSION (Solidi in sospensione)	None % wt		DISCHARGE PRESSURE (Pressione di mandata)		2.6 bar abs
SIZE DISTRIBUTION (Granulometria)	N/A <2>		SUCTION PRESSURE (Pressione di aspirazione massima)		1.1 bar abs
PUMPING TEMPERATURE (P.T.) (Temperatura di pompaggio)	10/25 °C		DIFFERENTIAL PRESSURE (Pressione differenziale)		1.5 bar
VISCOSITY AT P.T. (Viscosità)	1.31-0.89 m Pa sec		DIFFERENTIAL HEAD (Prevalenza)		14.5 m
SPECIFIC GRAVITY AT P.T. (Densità)	1020-1030 kg/m³		OPERATING TIME (Tempo operativo)		1 hours/day
VAPOUR PRESSURE AT P.T. (Tensione di vapore)	0.012-0.02 bar abs		SHUT-OFF PRESSURE (Pressione di arresto)		2 bar
NPSH AVAILABLE / REQUIRED (NPSH richiesto / disponibile)	10.4 - 11.3 / 2.5 m		MAX. SUCTION PRESS. (Pressione di aspirazione massima)		1.2 bar abs
EFFICIENCY (Rendimento)	34.28 <2> %		MECH. DESIGN PRESS. (Pressione di progetto)		6 bar (g)
POWER (Potenza) — ABSORBED AT DUTY POINT (Assorbita al punto di lavoro normale)	0.55 kW		MECH. DESIGN TEMP. (Temperatura di progetto)		60 °C
ABSORBED AT END OF CURVE (Assorbita al massimo carico)	0.9 kW		SPEED (Velocità)		2900 rpm
SELECTED MOTOR (Nominale)	1.1 kW		ROTATION (VIEW FROM MOTOR) (Rotazione (vista dal MOTORE)) <2>	☐ C.W. (Orario)	■ C.C.W. (Antiorario)

CONSTRUCTION DATA
DATI COSTRUTTIVI

INSTALLATION (Installazione)	■ HORIZONTAL (Orizzontale)	☐ VERTICAL (Verticale)	■ IN LINE (In linea)	LOCATION (Posizione) ☐ OUTDOOR (All'aperto)	■ INDOOR (Al chiuso)
SUPPORT TYPE (Supporti tipo)	☐ CENTERLINE (In linea)	<2> ■ MOTOR FOOT (Piedini)	☐ BRACKET (Mensole)		
SPLIT (Apertura corpo)	☐ AXIAL (Assiale)	<2> ■ RADIAL (Radiale)			
CASING (Voluta tipo)	<2> ■ SINGLE VOLUTE (Singola)	☐ DOUBLE VOLUTE (Doppia)	☐ DIFFUSER (Diffusore)		
THREADED CONNECTIONS (Connessioni filettate)	☐ VENT (Sfiato)	☐ DRAIN (Scarico)	☐ MANOMETER (Manometro)		
NOZZLE (Bocchelli) — SUCTION (Aspirazione)	SIZE (Ø) Threaded 2" Gas Male				
DISCHARGE (Mandata)	SIZE (Ø) Threaded 1.1/2" Gas Male				
IMPELLER N° (Girante N°)	TYPE (Tipo) ☐ OPEN (Aperta) ☐ SEMIOPEN (Semiaperta) ■ CLOSED (Chiusa)		RATED ø (Diametro ø) 108 <2> mm		
RADIAL THRUST BEARINGS MFT & TYPE (Cuscinetti tipo)	Supplier standard <2>		LUBRICATION (Lubrificazione)	N/A <2>	
COUPLING (Giunto)	MAGNETIC DRIVEN		ASSEMBLED BY (Montato da)	☐ BUYER (Cliente) <2>	■ PUMP MRF (Costruttore)
COUPLING GUARD NON-SPARKING (Protezione giunto da scintille)	☐ YES (Si) ■ NO (No)		BASE PLATE (Basamento)	☐ YES (Si) <2>	■ NO (No)
SEALING (Tenuta) N/A<2>	☐ MECHANICAL (Meccanica) ☐ PACKING (Premistoppa)		TYPE (Tipo)	N.A.	
☐ REDUCTION GEAR (Riduttore a ingranaggi)	N/A <2>				

MATERIALS
MATERIALI

CASING (Corpo)	PP	BEARINGS (Cuscinetti)	PTFEC
IMPELLER (Girante N°)	PVDF	BASE PLATE (Basamento)	PP <2>
SHAFT (Albero)	Al2O3		

HEATING / COOLING <2>
TUBAZIONI AUSILIARIE



SHOP TEST APPL. CODE
COLLAUDI

<2> According to project ITP Doc. 1724000448-QC-ITP-00002

OTHERS
ALTRO

PUMP + BASE PLATE + COUPLING WEIGHT+DRIVE (Peso pompa + Basamento + Giunto + Motore)	22 <2>	kg
PUMP WEIGHT ONLY (Peso corpo pompa)	6 <2>	kg

MOTOR DRIVER
MOTORE DI COMANDO

DRIVER (Motore)	■ ELECTRICAL MOTOR (Elettrico)				TYPE (Tipo)	IE3	
REQUIRED POWER (Potenza richiesta)	kW	1.1	rpm	2900	Volts/Phases/Cycles (Volt/fasi/Cicli)	400/3/50	
	Shape (Forma)		Enclosure (Protezione)	IP55	Execution (Esecuzione)	Safe area	

REMARKS (Note)

(1) INCLUDED:
- **Electric motor**
- **Nameplate**

(2) pH = 8,2 Chlorides = 20310 ppm

DATE (Data)	REV (Rev)	DESCRIPTION (Descrizione)	FILLED OUT (Compilato)	CHECKED (Controllato)	APPR. BY (Approvato)
04/11/2024	02	Issue for Review (IFR)	SF	WR	RM
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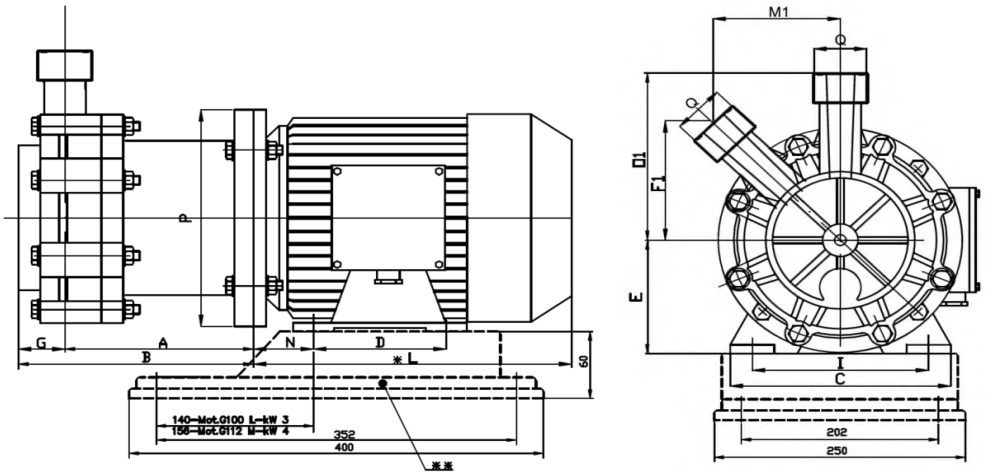
Supplier: GEMMECOTTI

Models: HTT 12000 PP 4 Kw

Drawing Sea Water Booster pumps

WEIGHT (PUMP+MOTOR)= 43 <2>kg **TAG= P-50003A/B**

DATA													
A	B	C	D	E	F	G	I	L	M	N	O1	P	Q
207	241	230	140	112	95	34	190	324	95	70	135	250	1.1/2'' Threaded GAS MALE



PUMP TYPE	MOTOR FLANGE B3–B5	POT. Kw	DIMENSIONS – mm –													
			A	B	C	D	E	F1	G	I	*L	M1	N	O1	P	Q
HTT 12000	G 100 L	3	207	241	200	140	100	95	34	160	316	95	63	135	250	1" 1/2"G MALE
	G 112 M	4			230		112			190	324		70			

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1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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CENTRIFUGAL PUMP DATA SHEET
SPECIFICA POMPA CENTRIFUGA

PROJECT: Progetto	HOLLANDSE KUST NOORD / WIND PARK Project	LOCATION: Località	Off Shore Hollandse Kust Noord / The Netherlands
DOC N° : Doc N°	PK2885-M-001		
MOD. Mod	HTT 12000 PP	PLANT: Impianto	Water treatment package
CUSTOMER: Cliente	Rosetti Marino S.p.A.		
MFR: Fornitori	GEMME COTTI		
JOB: Commessa	PK2885		

SERVICE Descrizione	Booster pumps	ITEM ITEM	P-50003 A/B	N° OF UNITS N° di unità	2	
APPLICABLE CODE Norme	NONE			TYPE Tipo	Centrifugal	
WEIGHTS: Pesi	PUMP: Pompa	8 <2>	Kg BASE: Kg base		Kg MOTOR: Kg motore	30.2 <2>
					Kg TOTAL WEIGHT: Kg peso totale	43 Kg

DESIGN CONDITION
CONDIZIONI DI PROGETTO

LIQUID Liquido	SEA WATER (2)			NORMAL CAPACITY Portata normale	2.5	m^3/h	DESIGN Richiesta 9 m^3/h
SOLID IN SUSPENSION Solidi in sospensione	None	% wt		DISCHARGE PRESSURE Pressione di mandata			5.1 bar abs
SIZE DISTRIBUTION Granulometria	N/A <2>			SUCTION PRESSURE Pressione di aspirazione massima			1.1 bar abs
PUMPING TEMPERATURE (P.T.) Temperatura di pompaggio	10/25	°C		DIFFERENTIAL PRESSURE Pressione differenziale			4 bar
VISCOSITY AT P.T. Viscosità	1.31-0.89	m Pa sec		DIFFERENTIAL HEAD Prevalenza			41.2 m
SPECIFIC GRAVITY AT P.T. Densità	1020-1030	kg/m^3		OPERATING TIME Tempo operativo			24 hours/day
VAPOUR PRESSURE AT P.T. Tensione di vapore	0.012-0.02	bar abs		SHUT-OFF PRESSURE Pressione di arresto			4.8 bar
NPSH AVAILABLE / REQUIRED NPSH richiesto / disponibile	10.4 - 11.3 / 3	m		MAX. SUCTION PRESS. Pressione di aspirazione massima			1.2 bar abs
EFFICIENCY Rendimento	7.51 <2>	%		MECH. DESIGN PRESS. Pressione di progetto			6 bar (g)
POWER Potenza	ABSORBED AT DUTY POINT Assorbita al punto di lavoro normale	3.5 kW		MECH. DESIGN TEMP. Temperatura di progetto			60 °C
	ABSORBED AT END OF CURVE Assorbita al massimo carico	2.25 kW		SPEED Velocità			2900 rpm
	SELECTED MOTOR Nominale	4 kW		ROTATION (VIEW FROM MOTOR) <2> Rotazione (vista dal MOTORE)		■ C.W. Orario	☐ C.C.W. Antiorario

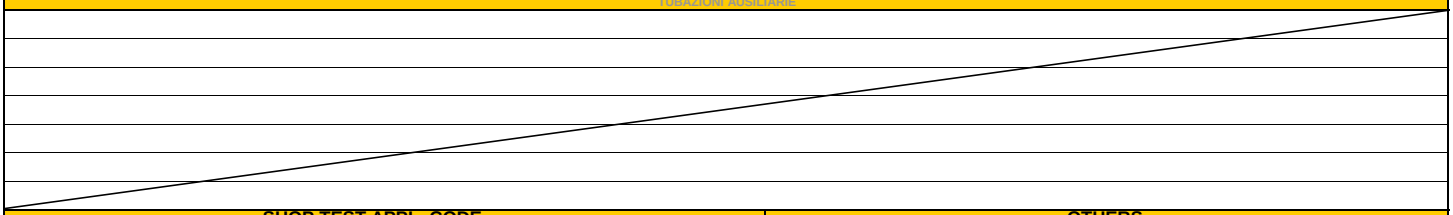
CONSTRUCTION DATA
DATI COSTRUTTIVI

INSTALLATION Installazione	■ HORIZONTAL Orizzontale	☐ VERTICAL Verticale	☐ IN LINE In linea	LOCATION Posizione	☐ OUTDOOR All'aperto	■ INDOOR Al chiuso	
SUPPORT TYPE Supporti tipo	☐ CENTERLINE In linea	<2> ■ MOTOR FOOT Piedini	☐ BRACKET Mensole				
SPLIT Apertura corpo	☐ AXIAL Assiale	<2> ■ RADIAL Radiale					
CASING Voluta tipo	■ SINGLE VOLUTE Singola	☐ DOUBLE VOLUTE Doppia	☐ DIFFUSER Diffusore				
THREADED CONNECTIONS Connessioni filettate	☐ VENT Sfiato	☐ DRAIN Scarico	☐ MANOMETER Manometro				
NOZZLE Bocchelli	SUCTION Aspirazione	SIZE Ø	Threaded 1.1/2" GAS Male				
	DISCHARGE Mandata	SIZE Ø	Threaded 1.1/2" GAS Male				
IMPELLER N° Girante N°	TYPE Tipo ☐ OPEN Aperta	☐ SEMIOPEN Semiaperta	■ CLOSED Chiusa	RATED ø Diametro ø	92 <2> mm		
RADIAL THRUST BEARINGS MFT & TYPE Cuscinetti tipo	Supplier standard <2>			LUBRICATION Lubrificazione	N/A <2>		
COUPLING Giunto	MAGNETIC DRIVEN			ASSEMBLED BY Montato da	☐ BUYER Cliente	■ PUMP MRF Costruttore	
COUPLING GUARD NON-SPARKING Protezione giunto da scintille	☐ YES Si	■ NO No		BASE PLATE Basamento	☐ YES Si	■ NO No	
SEALING Tenuta	N/A<2>	☐ MECHANICAL Meccanica	☐ PACKING Premistoppa	TYPE Tipo	N.A.		
☐ REDUCTION GEAR Riduttore a ingranaggi	N/A <2>						

MATERIALS
MATERIALI

CASING Corpo	PP	BEARINGS Cuscinetti	PTFEC
IMPELLER Girante N°	PVDF	BASE PLATE Basamento	PP <2>
SHAFT Albero	Al2O3		

HEATING / COOLING <2>
TUBAZIONI AUSILIARIE



SHOP TEST APPL. CODE
COLLAUDI

<2> According to project ITP Doc. 1724000448-QC-ITP-00002

OTHERS
ALTRO

PUMP + BASE PLATE + COUPLING WEIGHT+DRIVE Peso pompa + Basamento + Giunto + Motore	43 <2>	kg
PUMP WEIGHT ONLY Peso corpo pompa	8 <2>	kg

MOTOR DRIVER
MOTORE DI COMANDO

DRIVER Motore	■ ELECTRICAL MOTOR Elettrico				TYPE Tipo	IE3	
REQUIRED POWER Potenza richiesta	kW	4	rpm	2900	Volts/Phases/Cycles Volt/fasi/Cicli	400/3/50	
	Shape Forma		Enclosure Protazione	IP55	Execution Esecuzione	Safe area	

REMARKS
Note

(1) INCLUDED:
- Electric motor
- Nameplate

(2) pH = 8,2 Chlorides = 20310 ppm

DATE Data	REV Rev	DESCRIPTION Descrizione	FILLED OUT Compilato	CHECKED Controllato	APPR. BY Approvato
04/11/2024	02	Issue for Review (IFR)	SF	WR	RM
31/07/2024	01	Issue for Review (IFR)	IT	WR	RM
20/06/2024	00	Issue for Review (IFR)	IT	WR	RM

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Supplier: GRUNDFOS

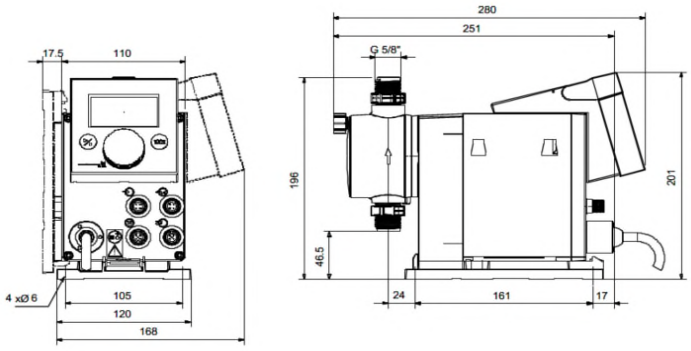
Models: DDC 6-10 AR-PV/T/C-F-31U2U2FGC3

Drawing dosing pump (Caustic Soda)

WEIGHT= 2 kg

TAG= P-50005A/B

Dimension



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LAODING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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VOLUMETRIC PUMP DATA SHEET
SPECIFICA PER POMPA VOLUMETRICA

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	**LOCATION:** Località	Off Shore Hollandse Kust Noord (Netherlands)	**DOC N° :** Doc N°	PK2885-M-001
MOD: Mod	DDC 6-10 AR-PVC/E/C F-31U2U2FGC3	**PLANT:** Impianto	Water treatment package	**CUSTOMER:** Cliente	Rosetti Marino S.p.A.
MFR: Fornitori	Grundfos			**JOB:** Commessa	PK2885

1	SERVICE Descrizione	Caustic soda dosing pumps		PUMP TYPE Tipo di pompa	Volumetric, Metering diaphragm	PUMP SERIAL No. Matricola pompa	
2	MANUFACTURER Costruttore	Grundfos		No. of UNITS No. Unità	2		
3	EL. MOTOR No. Motore el. No.	ITEM Sigla	P-50005 A/B	SUPPLIED BY Fornito da	Grundfos	ASSEMBLED BY Montato da	Grundfos
4	WEIGHT: PUMP Kg Pesi Pompa	2					

DESIGN CONDITION FOR ONE PUMP
CONDIZIONI DI PROGETTO

6	LIQUID Liquido	Caustic soda (2% w/w)		CAPACITY NORM. Portata normale	0,05	DES. Rich.	0,10	l/h
7	SOLID IN SUSPENSION Solidi in sospensione	None		DISCHARGE PRESSURE Pressione di mandata	5,3			barg
8	CORROSIVE COMPOUNDS Composti corrosivi	pH = 13.7		SUCTION PRESS. MAX Pressione di aspirazione max	atm			barg
9	TEMP. NORM. Temp. Norm.	10.5	MAX Max 25 °C	DIFFERENTIAL PRESSURE Pressione differenziale	5,3			bar
10	VISCOSITY Viscosità	1 <2>	mPa sec	DIFFERENTIAL HEAD Prevalenza	53 <2>			m
11	DENSITY Densità	1020	kg/m^3	NPSH AVAILABLE NPSH disponibile	10 <2>			m
12	VAPOUR PRESSURE Tensione di vapore	0,012 <2>	Bar abs	OPERATION Servizio	Continuos			
13	FREEZING TEMP. Temperatura di congelamento	<0 <2>	°C	INSTALLATION Installazione	INDOOR ■ Al chiuso	OUTDOOR □ All'aperto		

CHARACTERISTICS
CARATTERISTICHE

SAFETY V. RATING Taratura valvola sicurezza	6 (1)	bar
CAPACITY Portata	min 6 ml/h max 6 l/h	
MAX PRESSURE Pressione max ammissibile	10	bar
MAX TEMP. Temperatura max	45	°C

CONSTRUCTION DATA
DATI COSTRUTTIVI

15	PUMP ASSEMBLING Montaggio pompa	(HORIZONTAL ■ Orizzontale)	(FOOT ■ Foot)	(BRAKET □ Braket)	(VERTICAL □ Verticale)
16	JACKET Camicia	N/A <2>			
17	CORROSION ALLOWANCE Sovraspessore di corrosione	N/A <2> mm			
18	SUCTION NOZZLE ø Flangia di aspirazione	Threaded 5/8" Gas Male			
19	DISCHARGE NOZZLE ø Flangia di mandata	Threaded 5/8" Gas Male			
20	LUBRICATION TYPE Lubrificazione tipo	None			
21	JOINT TYPE Giunto tipo	None			
22	BASE PLATE Basamento	None			
23	PACKING TYPE Premistoppa tipo	N/A <2>			
24	SEALING TYPE Tenuta tipo	N/A <2>			
25	MULTI FUNCTIONAL VALVE Valvola multifunzione	(YES ■ Si)	(NO □ No)	PULSATION DAMPER Smorzatore di pulsazioni	(YES □ Si) □ (NO ■ No)
26	STEAM TRACING (to execute at erection) Tracciatura (da eseguire al montaggio)	(YES □ Si)	(NO ■ No)		
27	INSULATION Coibentazione	N/A <2>			

TESTS
COLLAUDI

<2> According to project ITP Doc. 1724000448-QC-ITP-00002

MATERIALS
MATERIALI

29	CASING Cassa	PVC
30	PISTON Pistone	N/A <2>
31	DIAPHRAGM Membrana	PVDF
32	INNER PART Parti interne	PVC
33	VALVE Valvole di ritegno	PVC
34	STUFFING BOX Premistoppa tipo	N/A <2>
35	PULSATION DAMPER Smorzatore di pulsazioni	N/A <2>
36	GASKETS Guarnizioni	EPDM
37	BASE PLATE Basamento	N/A <2>
38		

DRIVING MOTOR
MOTORE DI COMANDO

29	TYPE: Tipo	ELECTRIC ■ Elettrico PNEUMATIC □ Pneumatico
30	NOMINAL POWER kW Potenza Nominale	0.022 <2>
31	PROTECTION & EXECUTION Protezione ed esecuzione	IP 65
32	VOLT/PHASES/CYCLES Volt/fasi/cicli	240 or 100/1/50
33	MFR Costruttore	Grundfos
34	TYPE Tipo	Stepper suitable for safe area
35	FULL LOAD AMPERAGE A Amperaggio pieno carico	25 <2>
36		
37		
38		

AUXILIARY PIPES <2>
TUBAZIONI AUSILIARIE

REMARKS
Note

(1) Multi functional valve (PSV+check) set at 6 barg
(2) Injection valve shall be included
(3) Automatic stroke adjustment 4-20 mA

Rev. Rev.	DATE Data	DESCRIPTION Descrizione	FILLED OUT Compilato	CHECKED Controllato	APPR. BY Approvato
02	04/11/2024	Issue for Review (IFR)	SF	WR	RM
01	31/07/2024	Issue for Review (IFR)	IT	WR	RM
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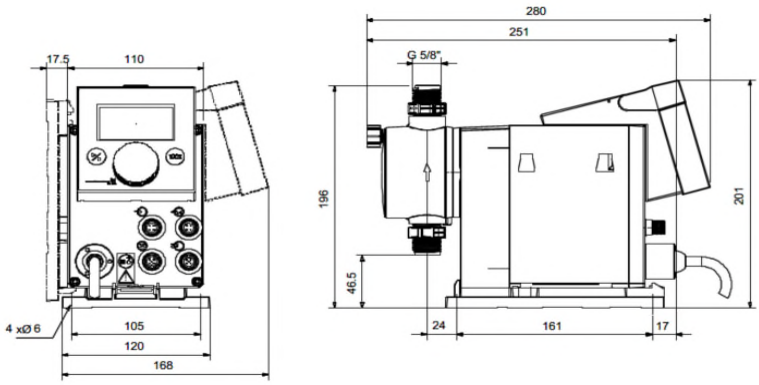
Models: DDC 6-10 AR-PVC/V/C-F-31U2U2FGC3

Drawing dosing pump (Antiscalant)

WEIGHT= 2 kg

TAG= P-50006A/B

Dimension



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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VOLUMETRIC PUMP DATA SHEET
SPECIFICA PER POMPA VOLUMETRICA

PROJECT: Progetto: HOLLANDSE KUST NOORD WIND PARK	LOCATION: Località: Off Shore Hollandse Kust Noord (Netherlands)	DOC N° : Doc N°: PK2885-M-001	
MOD: Mod: DDC 6-10 AR-PVC/V/C F-31U2U2FG	PLANT: Impianto: Water treatment package	DEPARTMENT: Reparto:	CUSTOMER: Cliente: Rosetti Marino S.p.A.
MFR: Fornitori: Grundfos	RFQ N° RdO N°:	PO N° Ordine N°:	JOB: Commessa: PK2885

SERVICE Descrizione	Antiscalant dosing pumps		PUMP TYPE Tipo di pompa	Volumetric, Metering diaphragm	PUMP SERIAL No. Matricola pompa
MANUFACTURER Costruttore	Grundfos		No. of UNITS No. Unità	2	
EL. MOTOR No. Motore el. No.		ITEM Sigla	P-50006 A/B	SUPPLIED BY Fornito da	Grundfos	ASSEMBLED BY Montato da	Grundfos
WEIGHT: PUMP Kg Peso Pompa	2				

DESIGN CONDITION FOR ONE PUMP
CONDIZIONI DI PROGETTO

LIQUID Liquido	Antiscalant		CAPACITY NORM. Portata normale	0.01	DES. Rich.	0.05	l/h
SOLID IN SUSPENSION Solidi in sospensione	None		DISCHARGE PRESSURE Pressione di mandata	3.0			barg
CORROSIVE COMPOUNDS Composti corrosivi	pH = 7.5		SUCTION PRESS. MAX Pressione di aspirazione max	atm			barg
TEMP. NORM. Temp. Norm.	10.5	MAX Max 25 °C	DIFFERENTIAL PRESSURE Pressione differenziale	3			bar
VISCOSITY Viscosità	<10 <2>	mPa sec	DIFFERENTIAL HEAD Prevalenza	27 <2>			m
DENSITY Densità	1130 <2>	kg/m^3	NPSH AVAILABLE NPSH disponibile	10 <2>			m
VAPOUR PRESSURE Tensione di vapore	Not available	bar abs	OPERATION Servizio	Continuos			
FREEZING TEMP. Temperatura di congelamento	<0	°C	INSTALLATION Installazione	INDOOR ■ Al chiuso	OUTDOOR □ All'aperto		

CHARACTERISTICS
CARATTERISTICHE

SAFETY V. RATING Taratura valvole sicurezza	6 (1)	bar
CAPACITY Portata	min 6 ml/h max 6	l/h
MAX PRESSURE Pressione max ammissibile	10	bar
MAX TEMP. Temperatura max	45	°C

CONSTRUCTION DATA
DATI COSTRUTTIVI

PUMP ASSEMBLING Montaggio pompa	(HORIZONTAL ■ Orizzontale)	(FOOT ■ Foot)	(BRAKET □ Braket)	(VERTICAL □ Verticale)	
JACKET Camicie	N/A <2>				
CORROSION ALLOWANCE Sovraspessore di corrosione	N/A <2> mm				
SUCTION NOZZLE ø Flangia di aspirazione	Threaded 5/8" Gas Male				
DISCHARGE NOZZLE ø Flangia di mandata	Threaded 5/8" Gas Male				
LUBRICATION TYPE Lubrificazione tipo	None				
JOINT TYPE Giunto tipo	None				
BASE PLATE Basamento	None				
PACKING TYPE Premistoppa tipo	N/A <2>				
SEALING TYPE Tenuta tipo	N/A <2>				
MULTI FUNCTIONAL VALVE Valvola multifunzione	(YES ■ Si) (NO □ No)	PULSATION DAMPER Smorzatore di pulsazioni	(YES □ Si)	□ (NO ■ No)	
STEAM TRACING (to execute at erection) Tracciatura (da eseguire al montaggio)	(YES □ Si) (NO ■ No)				
INSULATION Coibentazione	N/A <2>				

TESTS
COLLAUDI

<2> According to project ITP Doc. 1724000448-QC-ITP-00002

MATERIALS
MATERIALI

CASING Cassa	PVC
PISTON Pistone	N/A <2>
DIAPHRAGM Membrana	PVDF
INNER PART Parti interne	PVC
VALVE Valvole di ritegno	PVC
STUFFING BOX Premistoppa tipo	N/A <2>
PULSATION DAMPER Smorzatore di pulsazioni	N/A <2>
GASKETS Guarnizioni	EPDM
BASE PLATE Basamento	N/A <2>

DRIVING MOTOR
MOTORE DI COMANDO

TYPE: ELECTRIC ■ Tipo Elettrico / PNEUMATIC □ Pneumatico	
NOMINAL POWER kW Potenza Nominale	0.022 <2>
PROTECTION & EXECUTION Protezione ed esecuzione	IP 65
VOLT/PHASES/CYCLES Volt/fasi/cicli	240 or 100/1/50
MFR Costruttore	Grundfos
TYPE Tipo	Stepper suitable for safe area
FULL LOAD AMPERAGE A Amperaggio pieno carico	25 <2>

AUXILIARY PIPES <2>
TUBAZIONI AUSILIARIE

REMARKS
Note

(1) Multi functional valve (PSV+check) set at 6 barg

(2) Injection valve shall be included

(3) Manual stroke adjustment

Rev. Rev.	DATE Data	DESCRIPTION Descrizione	FILLED OUT Compilato	CHECKED Controllato	APPR. BY Approvato
02	04/11/2024	Issue for Review (IFR)	SF	WR	RM
01	31/07/2024	Issue for Review (IFR)	IT	WR	RM
00	23/06/2024	Issue for Review (IFR)	IT	WR	RM

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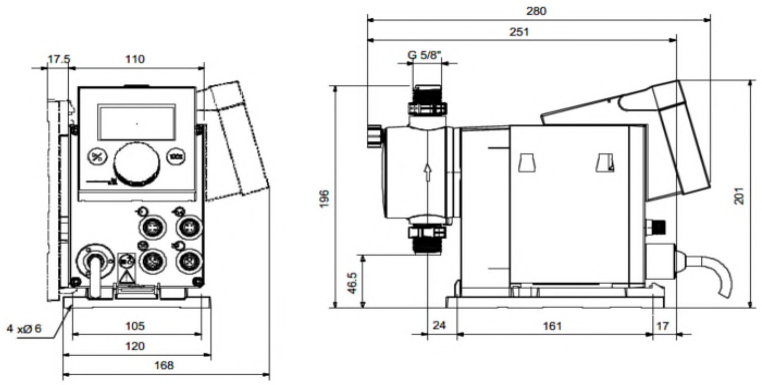
Models: DDC 6-10 AR-PVC/V/C-F-31U2U2FGC3

Drawing dosing pump (Biocide)

WEIGHT= 2 kg

TAG= P-50007A/B
P-50008A/B
P-50010A/B

Dimension



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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VOLUMETRIC PUMP DATA SHEET
SPECIFICA PER POMPA VOLUMETRICA

Sh. 17 / 29

		PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	LOCATION: Località	Off Shore Hollandse Kust Noord (Netherlands)	DOC N° : Doc N°	PK2885-M-001
	MOD: Mod	DDC 6-10 AR-PVC/V/C F-31U2U2FG	PLANT: Impianto	Water treatment package	DEPARTMENT: Reparto	CUSTOMER: Cliente	Rosetti Marino S.p.A.
	MFR: Fornitori	Grundfos	RFQ N° RdO N°		PO N° Ordine N°	JOB: Commessa	PK2885

1	SERVICE Descrizione	Biocide dosing pumps (inlet water plant)		PUMP TYPE Tipo di pompa	Volumetric, Metering diaphragm	PUMP SERIAL No. Matricola pompa
2	MANUFACTURER Costruttore	Grundfos		No. of UNITS No. Unità	2	
3	EL. MOTOR No. Motore el. No.	ITEM Sigla	P-50007 A/B P-50008 A/B <2> P-50010 A/B <2>	SUPPLIED BY Fornito da	Grundfos	ASSEMBLED BY Montato da Grundfos
4	WEIGHT: PUMP Kg Peso Pompa	2				

	DESIGN CONDITION FOR ONE PUMP CONDIZIONI DI PROGETTO					CHARACTERISTICS CARATTERISTICHE		
5								
6	LIQUID Liquido	Biocide (DBNPA or equivalent)		CAPACITY NORM. Portata normale	Note 4 <2> DES. 6 <2> Rich.	l/h	SAFETY V. RATING Taratura valvola sicurezza	6 (1) bar
7	SOLID IN SUSPENSION Solidi in sospensione	None		DISCHARGE PRESSURE Pressione di mandata	4.5	barg	CAPACITY Portata	min 6 ml/h max 6 l/h
8	CORROSIVE COMPOUNDS Composti corrosivi	pH = 2.5-4 (sol. 1%)		SUCTION PRESS. MAX Pressione di aspirazione max	atm	barg	MAX PRESSURE Pressione max ammissibile	10 bar
9	TEMP. NORM. Temp. Norm.	10.5	MAX Max 25 °C	DIFFERENTIAL PRESSURE Pressione differenziale	4.5	bar	MAX TEMP. Temperatura max	45 °C
10	VISCOSITY Viscosità	1	mPa sec	DIFFERENTIAL HEAD Prevalenza	38	m		
11	DENSITY Densità	1140-1180	kg/m^3	NPSH AVAILABLE NPSH disponibile	8	m		
12	VAPOUR PRESSURE Tensione di vapore	0.23	bar abs	OPERATION Servizio	Continuos			
13	FREEZING TEMP. Temperatura di congelamento	<0	°C	INSTALLATION Installazione	INDOOR ■ Al chiuso OUTDOOR □ All'aperto			

	CONSTRUCTION DATA DATI COSTRUTTIVI				TESTS COLLAUDI
14					
15	PUMP ASSEMBLING Montaggio pompa	(HORIZONTAL ■ Orizzontale)	(FOOT ■ Foot)	(BRAKET □ Braket) (VERTICAL □ Verticale)	<2> According to project ITP Doc. 1724000448-QC-ITP-00002
16	JACKET Camicia	N/A <2>			
17	CORROSION ALLOWANCE Sovraspessore di corrosione	N/A <2> mm			
18	SUCTION NOZZLE ø Flangia di aspirazione	Threaded 5/8" Gas Male			
19	DISCHARGE NOZZLE ø Flangia di mandata	Threaded 5/8" Gas Male			
20	LUBRICATION TYPE Lubrificazione tipo	None			
21	JOINT TYPE Giunto tipo	None			
22	BASE PLATE Basamento	None			
23	PACKING TYPE Premistoppa tipo	N/A <2>			
24	SEALING TYPE Tenuta tipo	N/A <2>			
25	MULTI FUNCTIONAL VALVE Valvola multifunzione	(YES ■ Si) (NO □ No)	PULSATION DAMPER Smorzatore di pulsazioni	(YES □ Si) □ (NO ■ No)	
26	STEAM TRACING (to execute at erection) Tracciatura (da eseguire al montaggio)	(YES □ Si) (NO ■ No)			
27	INSULATION Coibentazione	N/A <2>			

	MATERIALS MATERIALI		DRIVING MOTOR MOTORE DI COMANDO		
28					
29	CASING Cassa	PVC	TYPE: Tipo ELECTRIC Elettrico ■	PNEUMATIC Pneumatico □	
30	PISTON Pistone	N/A <2>	NOMINAL POWER kW Potenza Nominale	0.022 <2>	
31	DIAPHRAGM Membrana	PVDF	PROTECTION & EXECUTION Protezione ed esecuzione	IP 65	
32	INNER PART Parti interne	PVC	VOLT/PHASES/CYCLES Volt/fasi/cicli	240 or 100/1/50	
33	VALVE Valvole di ritegno	PVC	MFR Costruttore	Grundfos	
34	STUFFING BOX Premistoppa tipo	N/A <2>	TYPE Tipo	Stepper suitable for safe area	
35	PULSATION DAMPER Smorzatore di pulsazioni	N/A <2>	FULL LOAD AMPERAGE A Amperaggio pieno carico	25 <2>	
36	GASKETS Guarnizioni	EPDM			
37	BASE PLATE Basamento	N/A <2>			
38					

	AUXILIARY PIPES <2> TUBAZIONI AUSILIARIE
39	
40	
41	
42	
43	
44	
45	

46 ***REMARKS***
Note

47 **(1) Multi functional valve (PSV+check) set at 6 barg**

48 **(2) Injection valve shall be included**

49 **(3) Manual stroke adjustment**

50 **(4) P50007A/B: 0.03 l/h; P50008A/B: 0.85 l/h; P50010A/B: 0.85 l/h <2>**

51

Rev. Rev	DATE Data	DESCRIPTION Descrizione	FILLED OUT Compilato	CHECKED Controllato	APPR. BY Approvato
02	04/11/2024	Issue for Review (IFR)	SF	WR	RM
01	31/07/2024	Issue for Review (IFR)	IT	WR	RM
00	23/06/2020	Issue for Review (IFR)	IT	WR	RM

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Supplier: EVERBLUE

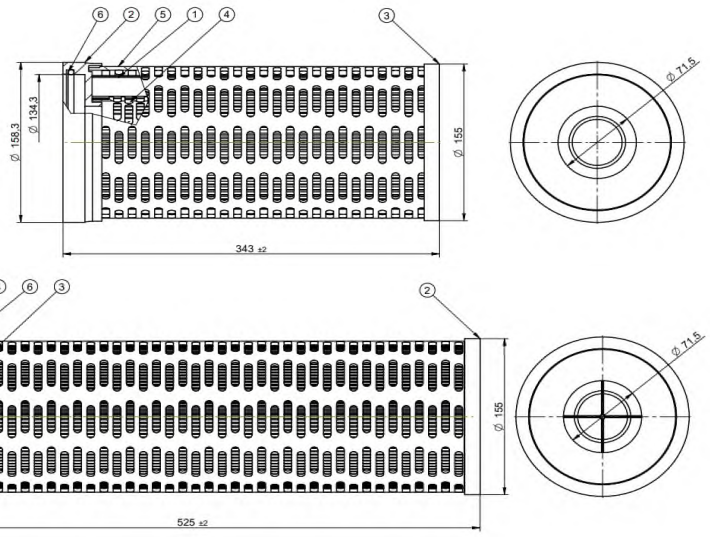
Models: FMX-01
Model cartridge filter: PP95MX5L 13" 20 MICRON / PP95MX5L 13" 5 MICRON

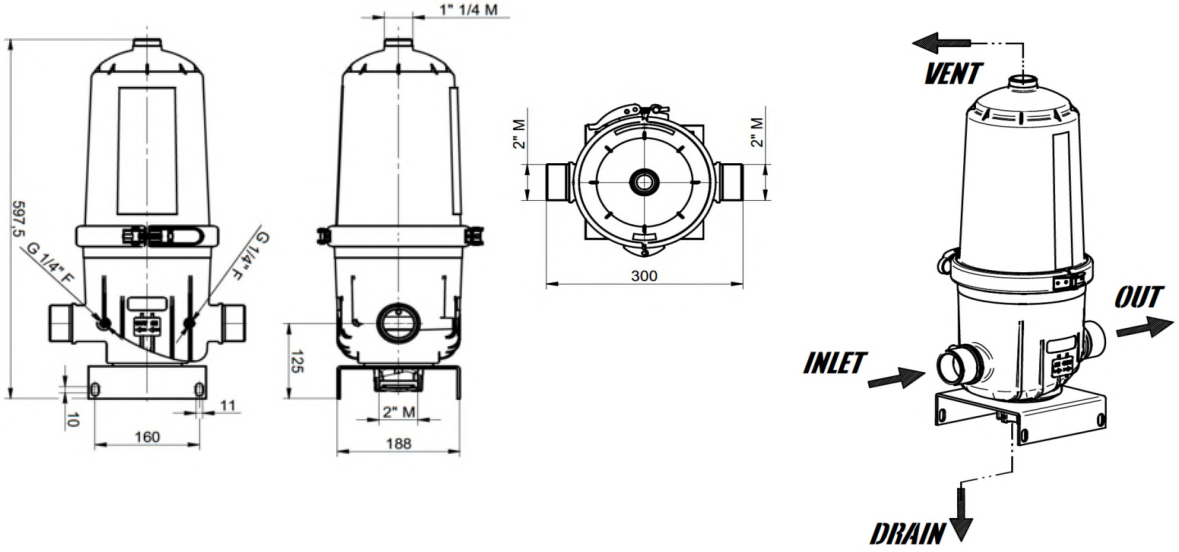
Drawing cartridge filters

WEIGHT VESSEL = 19 kg

TAG= S-50002A/B, S-50003A/B

Po.	Description	Dimens.	Material
1	Pleated	L=311mm,5 mm	PP
2	Lower shell attachment MX	D=155	PP
3	Lower shell attachment		PP
4	Cartridge Inner Duct FM	13''	PP
5	Cartridge Outer Duct MX	13''	PP
6	Ring 210	133,4*5,34*144,08 mm	Silica





REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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FILTER DATA SHEET
SPECIFICA PER FILTRO

PLANT: Impianto: Water treatment package	**CUSTOMER:** Cliente: Rosetti Marino S.p.A		
LOCATION: Località: HOLLANDSE KUST NOORD WIND PARK Project	**JOB:** Commessa: PK2885	**ITEM:** Sigla: S-50002A/B	
DEPARTMENT : Reparto	**P&I :** 1724000448-PR-PID-00013	**MFR:** Costruttore: EVERBLUE	**DOC.Nr.** Doc. Nr.: PK2885-M-001

1	SERVICE OF UNIT / Servizio: Cartridge filter (20 µm)			No. OF UNITS / No. di unità: 2
2	FLUID HANDLED / Fluido trattato:			Sea water
3	CORROSIVE COMPOUNDS / Composti corrosivi		ppm	TDS = 37000 and Chloride = 20300, (@pH = 8,2)
4	FLOW RATE / Portata:	OPERATING INLET / NET	m^3/h	2 / 2
5	OPERATING PRESSURE / Pressione di esercizio		barg	4
6	OPERATING TEMPERATURE / Temperatura di esercizio:		°C	10-23
7	FLUID DENSITY/ Densità:		kg /m^3	1020 / 1029
8	FLUID VISCOSITY / Viscosità:		mPa sec	1.67/ 0.89
9	TOTAL SUSPENDED SOLIDS / Solidi Sospesi Totali:		mg/l	<5
10	MINIMUM SIZE OF PARTICLES TO BE REMOVED / Dim. minima delle particelle da filtrare:		µm	> 40
11	PRESSURE DROP / Perdite di carico:	CLEAN / DIRTY / MAX	bar	0.2 / 0.7 / 1.0
12	MAX WASHING PHASE FLOW RATE		m^3/h	N.A.
13	MAX WASHING PHASE DURATION TIME		sec	N.A.
14	DESIGN PRESSURE / Pressione di progetto:		barg	6
15	TEST PRESSURE / Pressione di prova :		barg	9
16	DESIGN TEMPERATURE / Temperatura di progetto:		°C	50
17	FILTER TYPE (Tipo di filtro)			Cartridge element spiral wound
18	FILTRATION AREA		m^2	0,3
19	FILTER DIAMETER/HEIGHT DIMENSIONS		mm	300 / 600
20	FILTER EMPTY AND OPERATING WEIGHT		kg	19 / 40
21	FILTER MATERIAL / Materiale filtrante:			PP
22	SUPPORT BASKET MATERIAL / Materiale supporto cestello:			PP
23	FILTER HOLES DIAMETER / Diametro fori del filtro:		µm	20 (NON ABSOLUTE)
24	FILTER REMOVAL EFFICIENCY / Efficienza di filtrazione		%	95
25	BODY MATERIAL / Materiale corpo:			PP
26	CORROSION ALLOWANCE / Sovraspessore di corrosione:		mm	N.A.
27	CODE REQUIREMENTS / Norme richieste:			PED 2014/68/UE
28	CONNECTIONS / Connessioni	FLUID / Fluido: IN /OUT		3" BSP
29		DRAIN / Scarico:		3" BPS
30		VENT / Sfiato:		3/4 "
31	BY-PASS FOR MAINTENANCE / By-pass per manutenzione:			NO
32	FILTER TWIN OR SINGLE / Filtro doppio o singolo:			Single
33	TYPE OF SUPPORT (IF APPLICABLE) / Tipo di supporto:			N.A.
34	GASKETS / Guarnizioni:			NBR
35	ELASTOMERS / Elastomeri:			N.A.
36	POWER SUPPLY		V, Hz	N.A.
37	INSTALLED POWER		W	N.A.
38	THERMAL INSULATION TYPE / Tipo isolamento: N.A.	THICKNESS / Spessore:	mm	N.A.

39 **REMARKS**

40 **(1) Required items included:**
- Nameplate
- Filter element
-Tools key

41
42
43
44
45

REV. Rev.	DATE Data	DESCRIPTION Descrizione	PREPARED Compilato da	CHECKED Controllato da	APPR. BY Approvato da
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00	24/06/2024	Issue for Review (IFR)	IT	WR	RM

FILTER DATA SHEET
SPECIFICA PER FILTRO

PSC

Sh. 20 / 29

PLANT: Impianto	Water treatment package	**CUSTOMER:** Cliente	Rosetti Marino S.p.A
LOCATION: Località	HOLLANDSE KUST NOORD WIND PARK Project	**JOB:** Commessa	PK2885
ITEM: Sigla	S-50003A/B		
DEPARTMENT : Reparto		**P&I :**	1724000448-PR-PID-00013
MFR: Costruttore	EVERBLUE	**DOC.Nr.** Doc. Nr.	PK2885-M-001

1	SERVICE OF UNIT / Servizio:	Cartridge filter (5 µm)			No. OF UNITS / No. di unità: 2
2	FLUID HANDLED / Fluido trattato:				Sea water
3	CORROSIVE COMPOUNDS / Composti corrosivi			ppm	TDS = 37000 and Chloride = 20300, (@ pH = 8.2)
4	FLOW RATE / Portata:	OPERATING INLET / NET		m^3/h	2 / 2
5	OPERATING PRESSURE / Pressione di esercizio			bar	4
6	OPERATING TEMPERATURE / Temperatura di esercizio:			°C	10
7	FLUID DENSITY/ Densità:			kg /m^3	1020 / 1029
8	FLUID VISCOSITY / Viscosità:			mPa sec	1.67/ 0.89
9	TOTAL SUSPENDED SOLIDS / Solidi Sospesi Totali:			mg/l	<3
10	MINIMUM SIZE OF PARTICLES TO BE REMOVED / Dim. minima delle particelle da filtrare:			µm	> 20
11	PRESSURE DROP / Perdite di carico:	CLEAN / DIRTY / MAX		bar	0.2 / 0.7 / 1.0
12	MAX WASHING PHASE FLOW RATE			m^3/h	N.A.
13	MAX WASHING PHASE DURATION TIME			sec	N.A.
14	DESIGN PRESSURE / Pressione di progetto:			barg	6
15	TEST PRESSURE / Pressione di prova :			barg	9
16	DESIGN TEMPERATURE / Temperatura di progetto:			°C	50
17	FILTER TYPE (Tipo di filtro)				Cartridge element spiral wound
18	FILTRATION AREA			m^2	0,3
19	FILTER DIAMETER/HEIGHT DIMENSIONS			mm	300 / 600
20	FILTER EMPTY AND OPERATING WEIGHT			kg	19 / 40
21	FILTER MATERIAL / Materiale filtrante:				PP
22	SUPPORT BASKET MATERIAL / Materiale supporto cestello:				PP
23	FILTER HOLES DIAMETER / Diametro fori del filtro:			µm	5 (NON ABSOLUTE)
24	FILTER REMOVAL EFFICIENCY / Efficienza di filtrazione			%	95
25	BODY MATERIAL / Materiale corpo:				PP
26	CORROSION ALLOWANCE / Sovraspessore di corrosione:			mm	N.A.
27	CODE REQUIREMENTS / Norme richieste:				PED 2014/68/UE
28	CONNECTIONS / Connessioni	FLUID / Fluido:	IN /OUT		3" BSP
29		DRAIN / Scarico:			3" BPS
30		VENT / Sfiato:			3/4 "
31	BY-PASS FOR MAINTENANCE / By-pass per manutenzione:				NO
32	FILTER TWIN OR SINGLE / Filtro doppio o singolo:				Single
33	TYPE OF SUPPORT (IF APPLICABLE) / Tipo di supporto:				NONE
34	GASKETS / Guarnizioni:				NBR
35	ELASTOMERS / Elastomeri:				N.A.
36	POWER SUPPLY			V, Hz	N.A.
37	INSTALLED POWER			W	N.A.
38	THERMAL INSULATION TYPE / Tipo isolamento:	N.A.	THICKNESS / Spessore:	mm	N.A.

39 **REMARKS**

40 **(1) Required items included:**
- Nameplate
- Filter element
- Tools key

41
42
43
44
45

REV. Rev.	DATE Data	DESCRIPTION Descrizione	PREPARED Compilato da	CHECKED Controllato da	APPR. BY Approvato da
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Supplier: SG

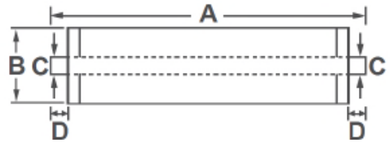
Models: LG SW4040R membrane
1MNC1384 Vessel

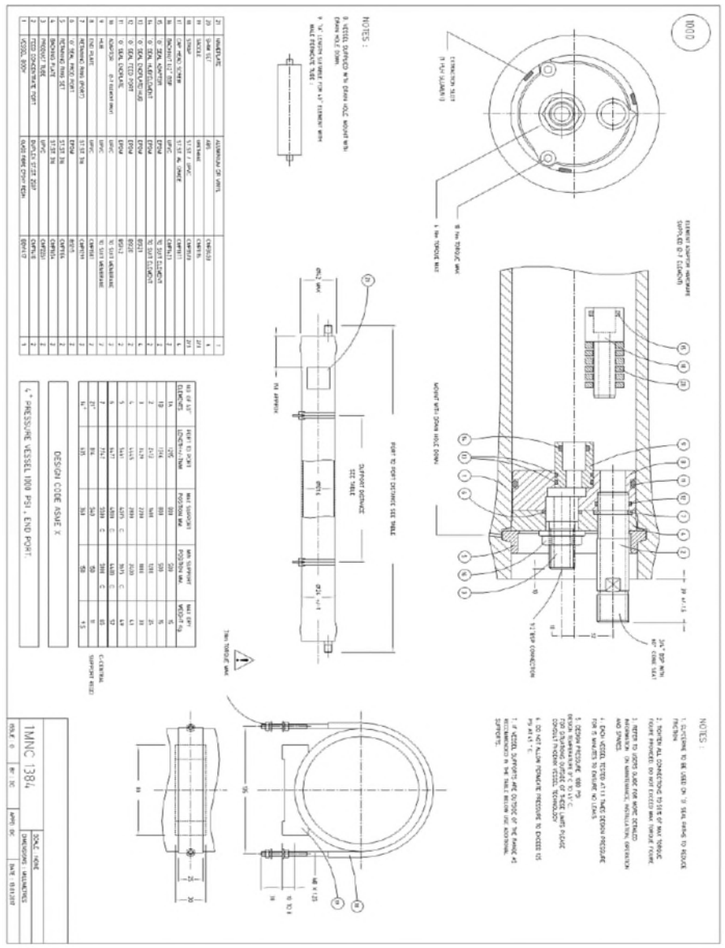
Drawing Vessel membranes

WEIGHT= 57 kg **TAG=A-50007A/B**

Membrane: nr.6 elements

Dimension	
A	1,016 mm
B	100 mm
C	19 mm
D	29 mm





REFERENCE DOCUMENTS	
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1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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Pressure Vessel for Membranes

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	**LOCATION:** Località	Off Shore Hollandse Kust Noord (Netherlands)
DOC N° : Doc N°	PK2885-M-001		
MOD: Mod	1MNC1384	**PLANT:** Impianto	Water treatment package
CUSTOMER: Cliente	Rosetti Marino S.p.A		
MFR: Fornitori	ASTRO		
JOB: Commessa	PK2885		

1	SERVICE Servizio	Pressure Vessel for Membranes	ITEM Item	A-50007A/B	No. of UNITS No. Di UNITA' 2
2	WEIGHT Pesi	EMPTY Vuoto 57 kg			
3					

OPERATING CONDITION
CONDIZIONI OPERATIVE

		SHELL Mantello	JACKET Camicia
5			
6	OPERATING TEMPERATURE Temperatura operativa °C	10 / 25	
7	OPERATING PRESSURE Pressione operativa barg	55 - 63	
8	Fluid	Filtered sea water	
9			
10			
11			
12			
14			
15			

DESIGN DATA
DATI DI PROGETTO

17	DESIGN PRESSURE Pressione di progetto	69 barg	
18	TEST PRESSURE Pressione di prova	75,9 (1,1 times Pdes) barg	
19	DESIGN TEMPERATURE Tempratura di progetto	0 - 45°C °C	
	Body Material Materiale	Glass Fibre Epoxy Resin	
24	GASKET Guarnizioni	EPDM	
25	Number of installed elements	6 membranes	
26	DIMENSION Dimensione	4"/ 6477 mm (Lenght)	
27	INSTALLATION Installazione Horizontal	INDOOR All'aperto ■	OUTDOOR Al chiuso □
28	INSULATION TYPE Tipo isolamento NONE	THICKNESS Spessore N.A. mm	SURFACE Superficie m^2
30	CODE REQUIREMENTS Guranizioni		

NOZZLES
BOCCHELLI

ITEM Sigla	DN" DN"	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	3/4"	-	Threaded BSP - F	Sea Water Inlet
N2	3/4"	-	Threaded BSP - F	Product Water Outlet
N3	1/2"	-	Threaded BSP - F	Concentrate (Brine)



REMARKS
Note

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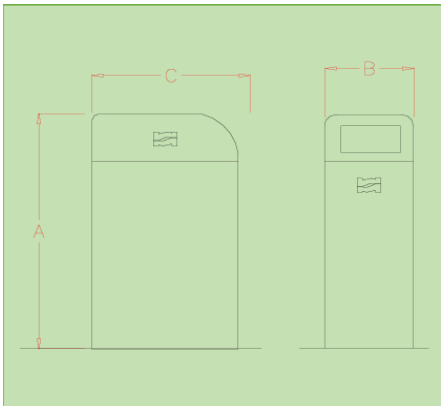
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Supplier:NOBEL

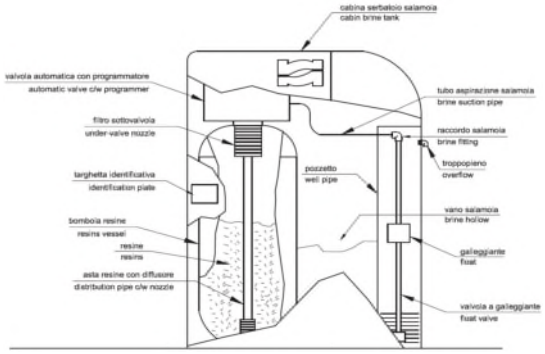
Models:AC 90

Drawing Water Softener

WEIGHT= 35 kg **TAG= S-50004**



Data			Connections inlet/outlet 1''
A	B	C	
1000 mm	300 mm	450 mm	



REFERENCE DOCUMENTS	
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Water Softener Data sheet

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	**LOCATION:** Località	Off Shore Hollandse Kust Noord (Netherlands)
DOC N° : Doc N°	PK2885-M-001		
MOD: Mod	AC 90	**PLANT:** Impianto	Water treatment package
CUSTOMER: Cliente	Rosetti Marino S.p.A		
MFR: Fornitori	Nobel		
JOB: Commessa	PK2885		

SERVICE Servizio	Water Softener	ITEM Item	S-50004	No. of UNITS No. Di UNITA'	1	
WEIGHT Pesi	EMPTY Vuoto	35	Kg	IN OPERATION	110	kg

OPERATING CONDITION
CONDIZIONI OPERATIVE

		SHELL Mantello	JACKET Camicia
OPERATING TEMPERATURE Temperatura operativa	°C	10 / 25	
OPERATING PRESSURE Pressione operativa	barg	5	
Max Flow	m^3/h	1.8	
Fluid		Fresh Water	

DESIGN DATA
DATI DI PROGETTO

DESIGN PRESSURE Pressione di progetto	6	barg
DESIGN TEMPERATURE Temprature di progetto	5 - 40°C	°C
Body Material Materiale	GRP	
GASKET Guarnizioni	EPDM	
Power Supply	110 - 240 V; 50-60 Hz; 10 W 12 V (Working tension)	
DIMENSION Dimensione	1000 x 300 x 450	mm

INSTALLATION Installazione	Vertical	INDOOR All'aperto	■	OUTDOOR Al chiuso	□		
INSULATION TYPE Tipo isolamento	NONE	THICKNESS Spessore	N.A.	mm		SURFACE Superficie	m^2

CODE REQUIREMENTS
Guranizioni

NOZZLES
BOCCHELLI

ITEM Sigla	DN" DN"	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	1"	-	Threaded BSP - F	Water Inlet
N2	1"	-	Threaded BSP - F	Water Outlet
N3	22 mm	-	Nipple	Drain

REMARKS
Note

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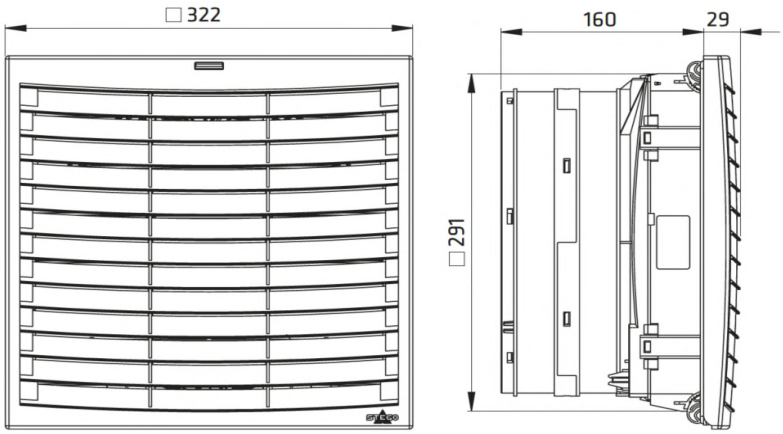
Supplier: STEGO

Models: FPO 018

Container air fan drawing

WEIGHT= 3.4 kg **TAG= HFA-50001A/B/C**

Data		
Lenght	heigth	width
322 mm	322 mm	189 mm



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
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CONTAINER AIR FAN

SPECIFICA PER VENTILATORE CONTAINER

	PLANT: Impianto: **Water treatment package**	**CUSTOMER:** Cliente: **Rosetti Marino S.p.A**	**Sh.: 26/29**
	LOCATION: Località: **HOLLANDSE KUST NOORD**	**JOB:** Commessa: **PK2885**	**ITEM:** Sigla: **HFA-50001A/B/C**
DEPARTMENT : Reparto	**P&I :** **172400448-PR-PID-00013**	**MFR:** Costruttore: **STEGO**	**DOC.Nr.** Doc. Nr.: **PK2885-M-001**

1	SERVICE OF UNIT / Servizio: **CONTAINER AIR FAN**		No. OF UNITS / No. di unità:	**3**
2	FLUID HANDLED / Fluido trattato:			**ambient air**
3	FLOW RATE / Portata:	m^3/h		**1010**
4	OPERATING / DESIGN PRESSURE / Pressione di esercizio /progetto	barg		**atm**
5	OPERATING TEMPERATURE / Temperatura di esercizio:	°C		**min -25°C; Max +50**
6	DESIGN TEMPERATURE / Temperatura di progetto:	°C		**min -40°C; Max +70**
7	AIR FAN DIMENSIONS	mm		**Please refer to sheet 25**
8	AIR FAN WEIGHT	kg		**3.4**
9	CASING MATERIAL			**Plastic UL94 V-0**
10	POWER SUPPLY	W		**140**
11	NOMINAL VOLTAGE			**AC 230 V, 50/60 Hz**
12	CURRENT ABSORBED	mA		**500-700**
13				
14				
15				
16				
17				
18				
19				
20				
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37				
38	**REMARKS**			
39				

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00	24/06/2024	Issued for Information	IT	WR	RM

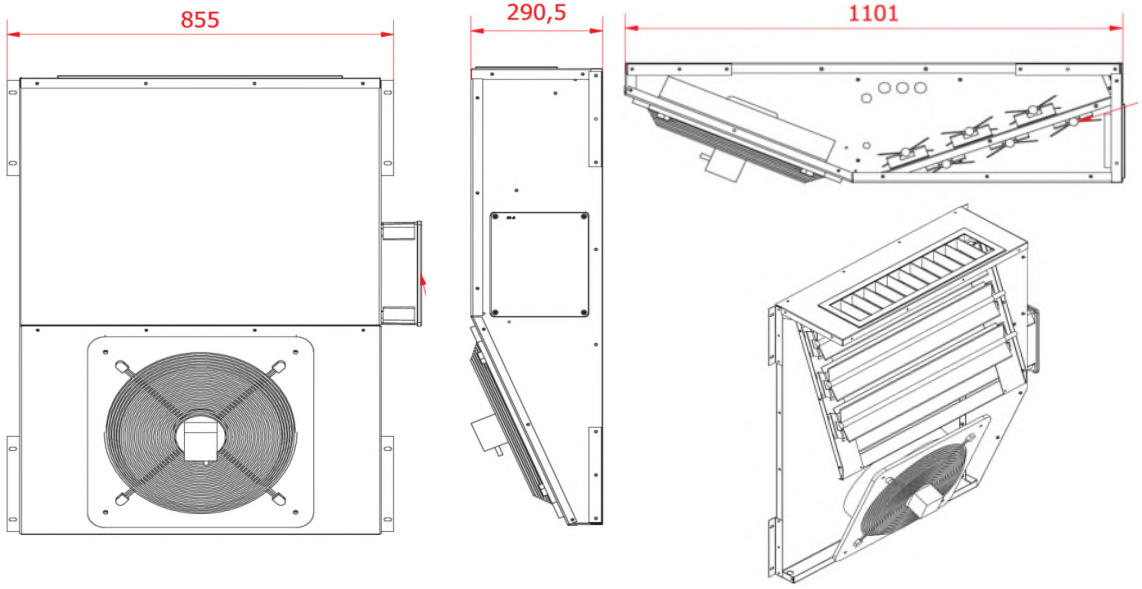
Supplier: AC GRAF

Models: Not Applicable

Container electrical heater drawing

WEIGHT= 26.4 kg **TAG= HHS-50003A/B**

Data		
Lenght	heigth	width
1101 mm	290.5 mm	855 mm



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
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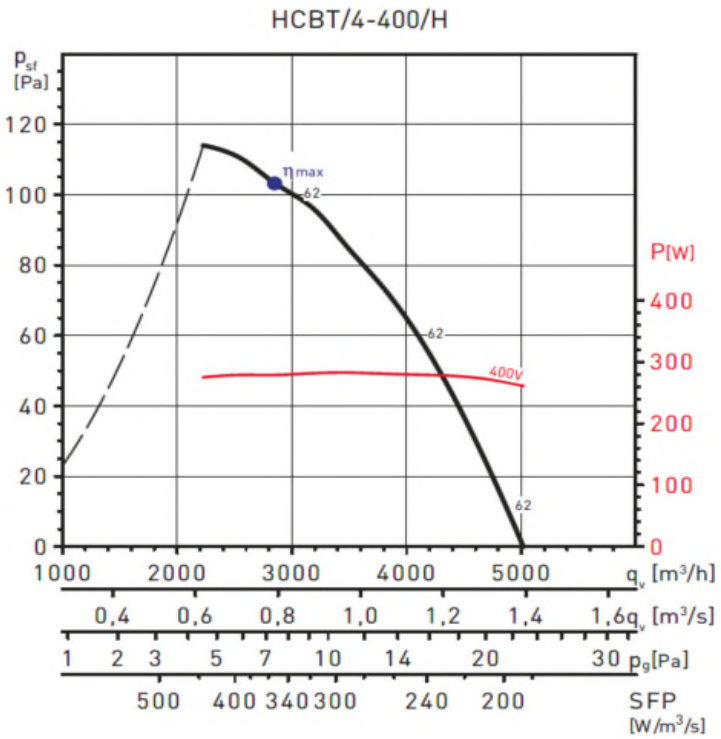
CONTAINER ELECTRICAL HEATER

SPECIFICA PER RISCALDATORE CONTAINER

PLANT: Impianto: Water treatment package	CUSTOMER: Cliente: Rosetti Marino S.p.A		Sh.: 28/29
LOCATION: Località: HOLLANDSE KUST NOORD	JOB: Commessa: PK2885	ITEM: Sigla: HHS-50003A/B	
DEPARTMENT : Reparto	P&I : 172400448-PR-PID-00013	MFR: Costruttore: AC GRAF	DOC.Nr. Doc. Nr.: PK2885-M-001

1	SERVICE OF UNIT / Servizio: CONTAINER ELECTRICAL HEATER		No. OF UNITS / No. di unità: 2
2	FLUID HANDLED / Fluido trattato:		ambient air
3	FLOW RATE / Portata:	m^3/h	2000
4	OPERATING / DESIGN PRESSURE / Pressione di esercizio /progetto	barg	atm
5	OPERATING TEMPERATURE / Temperatura di esercizio:	°C	min -40°C; Max +70
6	DESIGN TEMPERATURE / Temperatura di progetto:	°C	min -40°C; Max +70
7	CONTAINER ELECTRICAL HEATER DIMENSIONS	mm	Please refer to sheet 27
8	CONTAINER ELECTRICAL HEATER WEIGHT	kg	26.4
9	CASING MATERIAL		AISI 316
10	POWER SUPPLY	kW	8.4
11	NOMINAL VOLTAGE		400 V; 3ph; 50Hz
12			

AXIAL FLOW FAN PERFORMANCE CURVE (Note1)

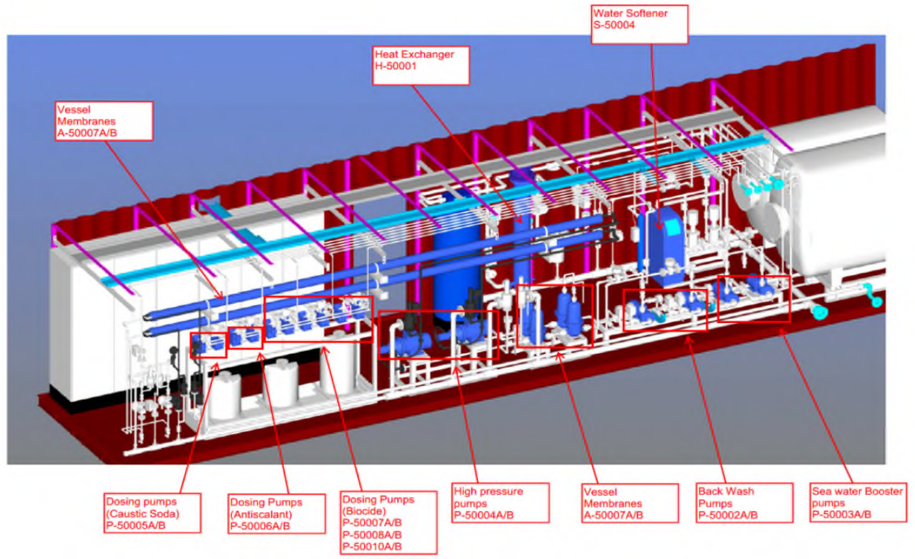


Note

1) Installed in the container electrical heater

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00	24/06/2024	Issued for Information	IT	WR	RM

Desalination Package general view



REFERENCE DOCUMENTS	
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Base Load Power Hub (BLPH)

GENERAL ARRANGEMENT AND DATA SHEET - FRESH WATER PUMP P-50009A/B

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	18-02-2025

Document Number: 1724000448-MAC-DA-00009

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
05	18/02/2025	Issue for Information (IFI)	SF	RM	RM
04	06/12/2024	Issue for Information (IFI)	SF	RM	RM
03	24/10/2024	Issue for Information (IFI)	SF	RM	RM
02	29/08/2024	Issue for Information (IFI)	SF	RM	RM
01	30/07/2024	Issue for Information (IFI)	WR	RM	RM
00	05/06/2024	Issue for Information (IFI)	WR	RM	RM

PSC

Reference: DOC No. PK2885-P-005

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4	Drawing	X	X	X	X	X			
5	Data sheet	X	X	X	X		X		

Revision / Change Log

Rev.	Description
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04	ISSUE FOR INFORMATION (IFI)
05	ISSUE FOR INFORMATION (IFI)

HOLDS LIST

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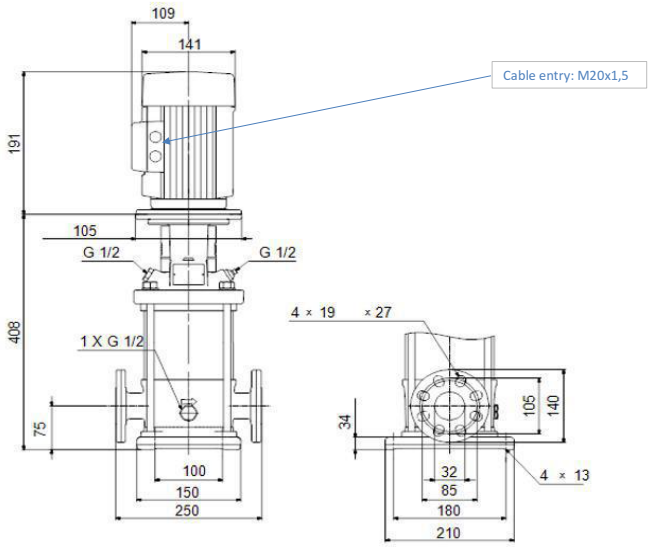
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Supplier: GRUNFOS

Models: CRN 1S-10 E-FGJ-A-E-HQQE

TAG= P-50009A/B

SECTION



REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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CENTRIFUGAL PUMP DATA SHEET
SPECIFICA POMPA CENTRIFUGA

Sh. 5 / 5

PSC	PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK Project	LOCATION: Località	Off Shore Hollandse Kust Noord The Nederlands	DOC N° : Doc N°	PK2885-M-001
MOD: Mod	CRN 1S-12 E-FGJ-A-E-HQQE	PLANT: Impianto	Water treatment package		CUSTOMER: Cliente	Rosetti Marino S.p.A.
MFR: Fornitori	GRUNDFOS				JOB: Commessa	PK2885

1	SERVICE Descrizione	FRESH WATER PUMP (2)		ITEM Item	P-50009 A/B		N° OF UNITS N° di unità	2		
2	APPLICABLE CODE Norme	NONE					TYPE Tipo	Vertical in-line & Centrifugal		
3	WEIGHTS: Pesi	Kg TOTAL WEIGHT: Kg peso totale	25	Kg						
4	**DESIGN CONDITION** CONDIZIONI DI PROGETTO									
5	LIQUID Liquido	FRESH WATER (2)				NORMAL CAPACITY Portata normale	0.8	m^3/h	DESIGN Richiesta	0.1-1.1 m^3/h
6	SOLID IN SUSPENSION Solidi in sospensione	None	% wt			DISCHARGE PRESSURE Pressione di mandata				6.3 bar abs
7	SIZE DISTRIBUTION Granulometria	N/A				SUCTION PRESSURE Pressione di aspirazione massima				1.1 bar abs
8	PUMPING TEMPERATURE (P.T.) Temperatura di pompaggio	10/25	°C			DIFFERENTIAL PRESSURE Pressione differenziale				5.2 bar
9	VISCOSITY AT P.T. Viscosità	1	m Pa sec			DIFFERENTIAL HEAD Prevalenza				52 m
10	SPECIFIC GRAVITY AT P.T. Densità	1000	kg/m^3			OPERATING TIME Tempo operativo				24 Hours/day
11	VAPOUR PRESSURE AT P.T. Tensione di vapore	0.012-0.02	bar abs			SHUT-OFF PRESSURE Pressione di arresto				6.5 barg
12	NPSH AVAILABLE / REQUIRED NPSH richiesto / disponibile	>7 / 2.3	m			MAX. SUCTION PRESS. Pressione di aspirazione massima				1.2 bar abs
13	EFFICIENCY Rendimento	36.8	%			MECH. DESIGN PRESS. Pressione di progetto				25 bar (g)
14	POWER Potenza	ABSORBED AT DUTY POINT Assorbita al punto di lavoro normale	0.33	kW		MECH. DESIGN TEMP. Temperatura di progetto				120 °C
15		ABSORBED AT END OF CURVE Assorbita al massimo carico	0.34	kW		SPEED Velocità				2873 rpm
16		SELECTED MOTOR Nominale	0.37	kW		ROTATION (VIEW FROM MOTOR) Rotazione (vista dal giunto)	☐ C.W. Orario	■ C.C.W. Antiorario		
17	**CONSTRUCTION DATA** DATI COSTRUTTIVI									
18	INSTALLATION Installazione	☐ HORIZONTAL Orizzontale	■ VERTICAL Verticale	☐ IN LINE In linea	LOCATION Posizione	☐ OUTDOOR All'aperto	■ INDOOR Al Chiuso			
19	SUPPORT TYPE Supporti tipo	☐ CENTERLINE In linea	<3> ■ FOOT (3) Piedini	☐ BRACKET Mensole						
20	SPLIT Apertura corpo	■ AXIAL Assiale	☐ RADIAL Radiale							
21	CASING Voluta tipo	■ SINGLE VOLUTE Singola	☐ DOUBLE VOLUTE Doppia	☐ DIFFUSER Diffusore						
22	THREADED CONNECTIONS Connessioni filettate	■ VENT Sfiato	☐ DRAIN Scarico	☐ MANOMETER Manometro						
23	NOZZLE Bocchelli	SUCTION Aspirazione	SIZE ø DN25	RATING PN25						
24		DISCHARGE Mandata	SIZE ø DN25	RATING PN25						
25	IMPELLER N° Girante N°	TYPE Tipo	☐ OPEN Aperta	☐ SEMIOPEN Semiaperta	■ CLOSED Chiusa	RATED ø Diametro e	Multistage			
26	RADIAL THRUST BEARINGS MFT & TYPE Cuscinetti tipo	Thrust Bearings, Supplier Standard				LUBRICATION Lubrificazione	Grease for life			
27	COUPLING Giunto	DIRECT TO THE MOTOR				ASSEMBLED BY Montato da	☐ BUYER Cliente	■ PUMP MRF Costruttore		
28	COUPLING GUARD NON-SPARKING Protezione giunto da scintille	☐ YES Si	■ NO No			BASE PLATE Basamento	☐ YES Si	<3> ■ NO (3) No		
29	SEALING Tenuta	■ MECHANICAL Meccanica	☐ PACKING Premistoppa			TYPE Tipo	Single			
30	MECHANICAL SEALING PURCHASED BY Tenuta meccanica fornita da	☐ BUYER Cliente	■ PUMP MFR Costruttore	ASSEMBLED BY Montata da	☐ BUYER Cliente	■ PUMP MFR Costruttore				
31	☐ REDUCTION GEAR Riduttore a ingranaggi	N/A								
32	**MATERIALS** MATERIALI									
33	CASING Corpo	AISI 316		BEARINGS Cuscinetti	SIC					
34	IMPELLER Girante N°	AISI 316		ELASTOMER Elastomeri	EPDM					
35	SHAFT Albero	AISI 316		BASE PLATE Basamento	Cast Iron					
36	**HEATING / COOLING** TUBAZIONI AUSILIARIE									
37										
38										
39										
40										
41										
42										
43										
44	**SHOP TEST APPL. CODE** COLLAUDI									
45	According to project ITP Doc. 1724000448-QC-ITP-00002									
46										
47										
48										
49	**MOTOR DRIVER** MOTORE DI COMANDO									
50	DRIVER Motore	■ ELECTRICAL MOTOR Elettrico			TYPE Tipo	IEC, 71A	Manufacturer Fornitore	Grundfos <3>		
51	REQUIRED POWER Potenza richiesta	kW	0.37	rpm	2873	Volts/Phases Volt/fasi/Cicli	400/3/50			
52		Shape Forma	V18	Enclosure Protazione	IP55	Execution Esecuzione	Safe Area			
53										
54										
55										
56										
57	**REMARKS** Note									
58	(1) INCLUDED: - Eletric motor - Nameplate									
59	(2) pH = 6.5 TDS = 350 ppm (3) Mounting base integral in pump body <3>									

DATE Data	REV Rev	DESCRIPTION Descrizione	FILLED OUT Compilato	CHECKED Controllato	APPR. BY Approvato
18/02/2024	5	Issue for Information (IFI)	SF	WR	RM
24/10/2024	4	Issue for Information (IFI)	SF	WR	RM
24/10/2024	3	Issue for Information (IFI)	SF	WR	RM
29/08/2024	2	Issue for Information (IFI)	SF	WR	RM
30/07/2024	1	Issue for Information (IFI)	IT	WR	RM
20/06/2024	0	Issue for Information (IFI)	IT	WR	RM

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ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	07-11-2024

Base Load Power Hub (BLPH)

GENERAL ARRANGEMENT AND DATASHEET - TANKS T-50006; T-50008; T-50002; T-50003; T-50004

Document Number: 1724000448-MAC-DA-00010

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
02	24/10/2024	Issue for Information (IFI)	WR	RM	RM
01	22/07/2024	Issue for Information (IFI)	WR	RM	RM
00	05/06/2024	Issue for Information (IFI)	ED	RM	RM

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Reference: DOC No. PK2885-P-006

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4	Drawing filtered water tank T-50006	X	X	X					
5	Datasheet tantk T-50006	X	X	X					
6	Drawing fresh water tank T-50008	X	X	X					
7	Datasheet tantk T-50008	X	X	X					
8	Drawing Caustic Sodar tank T-50002	X	X	X					
9	Datasheet tantk T-50002	X	X	X					
10	Drawing Antiscalant tank T-50003	X	X	X					
11	Datasheet tantk T-50003	X	X	X					
12	Drawing Biocide tank T-50004	X	X	X					
13	Datasheet tantk T-50004	X	X	X					

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Revision / Change Log

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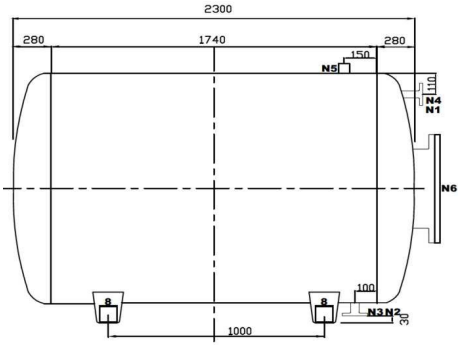
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Supplier: CMP

Models: Type RV 105

Drawing filtered water tank T-50006

TAG= T-50006

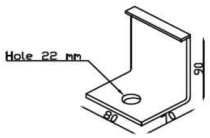


	Data Tank	
	Interior width	1050 mm
<2>	Lenght	2300 mm
<2>	Height	1640 mm
	Capacity	3000 l

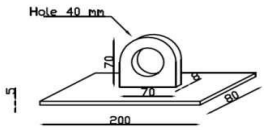
	Material
-	Internal isophthalic resin liner 3 mm
-	Translucent design with external protective liner
-	Fiberglass and polyester resin

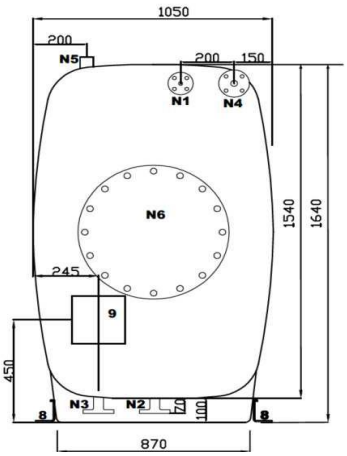
LIST OF NOZZLE			
Position	Nozzle		SERVICE
	DN	PN	
N6	400	6	Inspection Nozzle
N5	50	-	2" Female GAS Threaded connection for Level Transmitter
N4	40	16	Overflow
N3	40	16	Backwash Outlet / Drain
N2	25	16	See Water Outlet
N1	40	16	See Water Inlet
7	-	-	Nr.2 Lifting lugs INOX 304
8	-	-	Nr.4 Anchorage point INOX 304
9	-	-	Plate Support INOX 304 200x200 mm

8



7





REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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TANK DATA SHEET

SPECIFICA PER SERBATOIO

PROJECT: Progetto: HOLLANDSE KUST NOORD WIND PARK Project	**LOCATION:** Località: Off Shore Hollandse Kust Noord (Netherlands)	**DOC N° :** Doc N°: PK2885-M-001	
MOD: Mod: RV 105	**PLANT:** Impianto: Water treatment package	**CUSTOMER:** Cliente: Rosetti Marino S.p.A	
MFR: Fornitori: CMP		**JOB:** Commessa: PK2885	

SERVICE Servizio	FILTERED WATER TANK		ITEM Item	T-50006	No. of UNITS No. Di UNITA'	1		
WEIGHT Pesi	EMPTY Vuoto	300 kg	FULL of FLUID Pieno di liquido	3300 kg			FULL of WATER Pieno d'acqua	3300 kg

OPERATING CONDITION
CONDIZIONI OPERATIVE

STORED FLUID Fluido stoccato		SEA WATER
OPERATING TEMPERATURE Temperatura operativa	°C	10-23
VAPOUR PRESSURE Tensione di vapore	bar	0.012
SPECIFIC GRAVITY Peso specifico	kg/m^3	1020-1030
SUSPENDED SOLIDS Solidi in sospensione		NONE
CORROSIVE COMPOUNDS Composti corrosivi		TDS = 37000 ppm and Chloride = 20300 ppm, pH = 8.2
FREEZING POINT Temp. di congelamento	°C	-1.8
VISCOSITY Viscosità	mPa sec	1.6

DESIGN DATA
DATI DI PROGETTO

DESIGN PRESSURE Pressione di progetto	atm	bar	
TEST PRESSURE Pressione di prova	-		
DESIGN TEMPERATURE Tempratura di progetto	50	°C	
MATERIAL Materiale	Fiberglass and Polyester resin, isophtalic liner 3 mm, finish translucent		
GASKET Guarnizioni	N.A.		
GEOMETRICAL CAPACITY Capacità geometrica	3	m^3	
DIMENSION Dimensione	L=2300; W=1050; H=1640 <2>	mm	

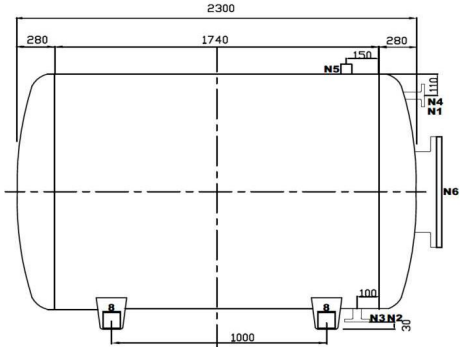
INSTALLATION Installazione: Horizontal — INDOOR All'aperto: ■ — OUTDOOR Al chiuso: □

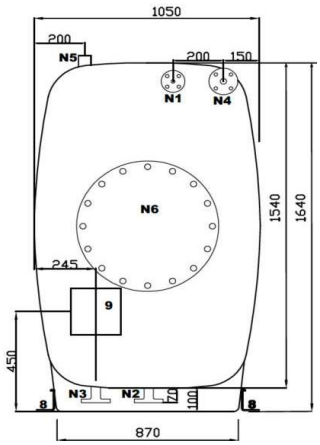
INSULATION TYPE Tipo isolamento: NONE — THICKNESS Spessore: mm — SURFACE Superficie: m^2

CODE REQUIREMENTS
Guranizioni

NOZZLES
BOCCHELLI

ITEM Sigla	DN DN	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	40	PN16	FF	Sea Water Inlet
N2	25	PN16	FF	Sea Water Outlet
N3	40	PN16	FF	Backwash Outlet / Drain
N4	40	PN16	FF	Over Flow
N5	50	-	Thereded	2" Female GAS Threaded connection for Level Transmitter
N6	400	PN6	FF	Inspection Nozzle





REMARKS
Note

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1	29/07/2024	Issue for Information	IT	WR	RM
0	23/06/2024	Issue for Information	IT	WR	RM

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Supplier: CMP

Models: Type RV 90

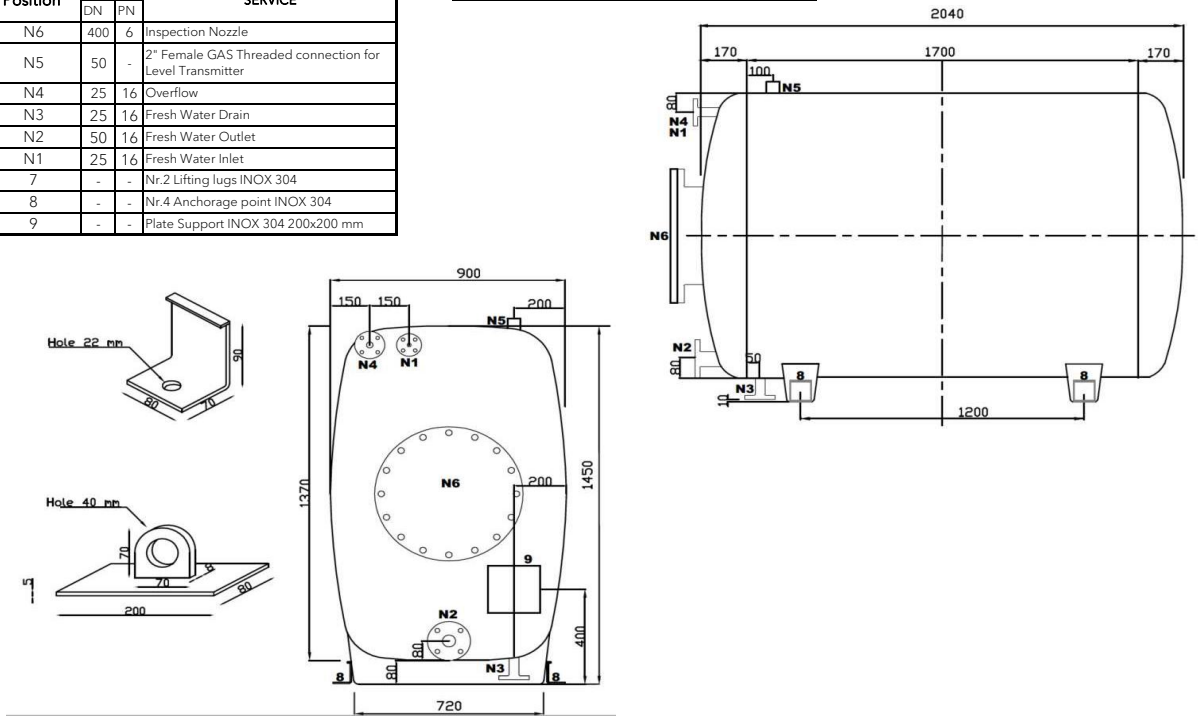
TAG= T-50008

Data Tank	
Interior width	900 mm
Lenght	2040 mm
Insert protrusion	1450 mm
Capacity	2000 l

<2>

Material	
-	Internal isophthalic resin liner 3 mm
-	Translucent design with external protective liner
-	Fiberglass and polyester resin

LIST OF NOZZLE			
Position	Nozzle		SERVICE
	DN	PN	
N6	400	6	Inspection Nozzle
N5	50	-	2" Female GAS Threaded connection for Level Transmitter
N4	25	16	Overflow
N3	25	16	Fresh Water Drain
N2	50	16	Fresh Water Outlet
N1	25	16	Fresh Water Inlet
7	-	-	Nr.2 Lifting lugs INOX 304
8	-	-	Nr.4 Anchorage point INOX 304
9	-	-	Plate Support INOX 304 200x200 mm



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TANK DATA SHEET
SPECIFICA PER SERBATOIO

Sh. 7 / 13

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	LOCATION: Località	Off Shore Hollandse Kust Noord (Netherlands)	DOC N° : Doc N°	PK2885-M-001
MOD: Mod	RV 90	PLANT: Impianto	Water treatment package	DEPARTMENT: Reparto		CUSTOMER: Cliente	Rosetti Marino S.p.A
MFR: Fornitori	CMP					JOB: Commessa	PK2885

1	SERVICE Servizio	FRESH WATER TANK		ITEM Item	T-50008		No. of UNITS No. Di UNITA'	1		
2	WEIGHT Pesi	EMPTY Vuoto	200	kg		FULL of FLUID Pieno di liquido	2200	kg	FULL of WATER Pieno d'acqua	2200 kg
3										

OPERATING CONDITION
CONDIZIONI OPERATIVE

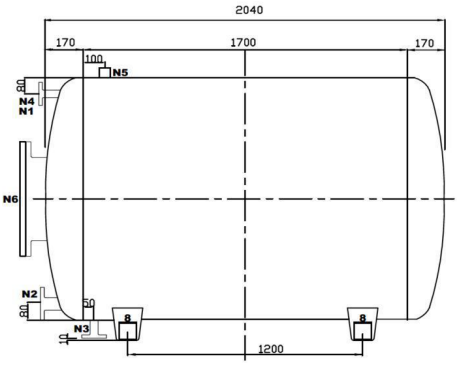
			SHELL Mantello	JACKET Camicia
5	STORED FLUID Fluido stoccato		FRESH WATER	
6	OPERATING TEMPERATURE Temperatura operativa	°C	10-23	
7	VAPOUR PRESSURE Tensione di vapore	bar	0.012	
8	SPECIFIC GRAVITY Peso specifico	kg/m³	1000	
9	SUSPENDED SOLIDS Solidi in sospensione		NONE	
10	CORROSIVE COMPOUNDS Composti corrosivi		pH = 6.5, TDS = 350 ppm	
11	FREEZING POINT Temp. di congelamento	°C	0	
12	VISCOSITY Viscosità	mPa sec	1.3	
13				

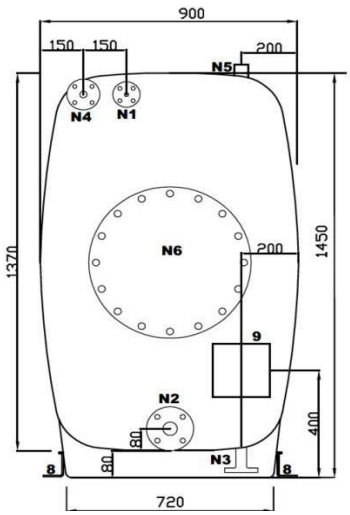
DESIGN DATA
DATI DI PROGETTO

14	DESIGN PRESSURE Pressione di progetto	atm	bar	
15	TEST PRESSURE Pressione di prova	-		
16	DESIGN TEMPERATURE Tempratura di progetto	50	°C	
	MATERIAL Materiale	Fiberglass and Polyester resin, isophtalic liner 3 mm		
17	GASKET Guarnizioni	N.A.		
18	GEOMETRICAL CAPACITY Capacità geometrica	2	m³	
19	DIMENSION Dimensione	L=2040; W=900; H=1450 <2>	mm	
20	INSTALLATION Installazione	Horizontal	INDOOR All'aperto ■	OUTDOOR Al chiuso □
21	INSULATION TYPE Tipo isolamento	NONE	THICKNESS Spessore	mm SURFACE Superficie m²
22	CODE REQUIREMENTS Guranizioni			

NOZZLES
BOCCHELLI

ITEM Sigla	DN" DN"	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	25	PN16	FF	Fresh Water Inlet
N2	50	PN16	FF	Fresh Water Outlet
N3	25	PN16	FF	Fresh Water Drain
N4	40	PN16	FF	Overflow
N5	50	-	Threaded	2" Female GAS Threaded connection for Level Transmitter
N6	400	PN6	FF	Inspection Nozzle





REMARKS
Note

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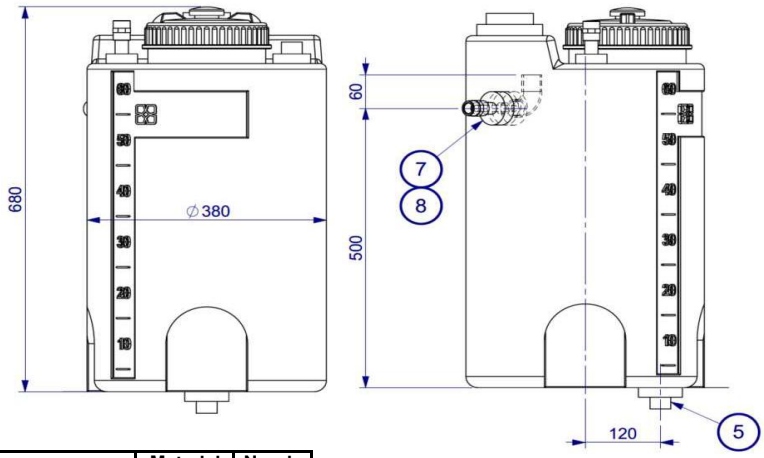
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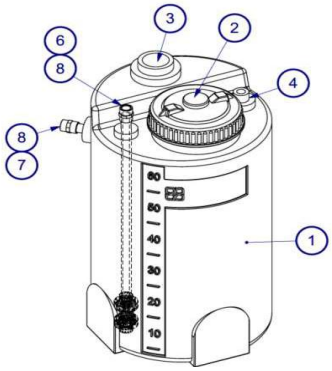
Caustic Soda Dosing Tank

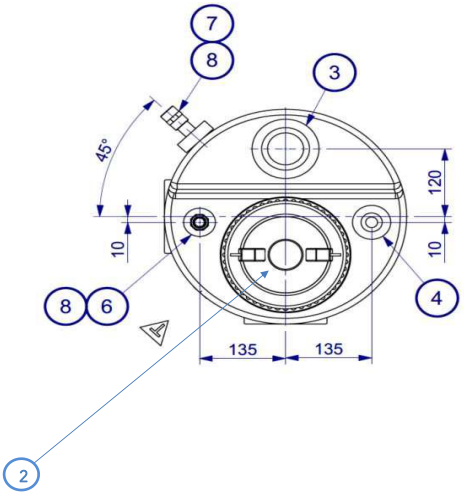
Supplier: ASTRO Srl

Models: TANK DS 05



Position	Description	Material	Nozzle
1	DS 05 - LT.60	PE	
2	CPF 200 - Threaded Cover and Vent SF3	PP	N1
3	2" TFE reduction for Level Transmitter	PP	N2
4	1/2" TFE reduction for pump recycle	PP	N3
5	1/2" TFE reduction drain	PP	N4
6	1/2" dip Tube (Pump Sunction) P/R	PP/PVC	N5
7	1/2" TPH overflow	PE	N6
8	1/2" MFV	PVC	





REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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TANK DATA SHEET

SPECIFICA PER SERBATOIO

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	LOCATION: Località	Off Shore Hollandse Kust Noord (Netherlands)	DOC N° : Doc N°	PK2885-M-001
MOD: Mod	DS-05	PLANT: Impianto	Water treatment package	DEPARTMENT: Reparto		CUSTOMER: Cliente	Rosetti Marino S.p.A
MFR: Fornitori	ASTRO					JOB: Commessa	PK2885

1	SERVICE Servizio	CAUSTIC SODA DOSING TANK		ITEM Item	T-50002	No. of UNITS No. Di UNITA'	1		
2	WEIGHT Pesi	EMPTY Vuoto	5.5	kg	FULL of FLUID Pieno di liquido	57	kg	FULL of WATER Pieno d'acqua	57 kg
3									

OPERATING CONDITION
CONDIZIONI OPERATIVE

		SHELL Mantello	JACKET Camicia
STORED FLUID Fluido stoccato		CAUSTIC SODA 2% wt	
OPERATING TEMPERATURE Temperatura operativa	°C	10 / 23	
VAPOUR PRESSURE Tensione di vapore	bar	-	
SPECIFIC GRAVITY Peso specifico	kg/m^3	1020	
SUSPENDED SOLIDS Solidi in sospensione		NONE	
CORROSIVE COMPOUNDS Composti corrosivi		pH =13.7	
FREEZING POINT Temp. di congelamento	°C	-	
VISCOSITY Viscosità	mPa sec	-	

DESIGN DATA
DATI DI PROGETTO

DESIGN PRESSURE Pressione di progetto	Atm	bar
TEST PRESSURE Pressione di prova	-	
DESIGN TEMPERATURE Tempratura di progetto	50	°C
MATERIAL Materiale	PE	
GASKET Guarnizioni	EPDM	
GEOMETRICAL CAPACITY Capacità geometrica	0.06	m^3
DIMENSION Dimensione	diameter 380, height 680	mm

INSTALLATION Installazione: Vertical cylindrical — INDOOR All'aperto ☒ — OUTDOOR Al chiuso ☐

INSULATION TYPE Tipo isolamento: NONE — THICKNESS Spessore: mm — SURFACE Superficie: m^2

CODE REQUIREMENTS Guranizioni

NOZZLES
BOCCHELLI

ITEM Sigla	DN" DN"	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	200 mm	-	Threaded	Screw cap
N2	2"	-	Threaded	Level Transmitter
N3	1/2"	-	Threaded	Pump Recycle
N4	1/2"	-	Threaded	Vessel Drain
N5	1/2"	-	Threaded	Pump Sunction
N6	1/2"	-	Threaded	Vessel Overflow

REMARKS
Note

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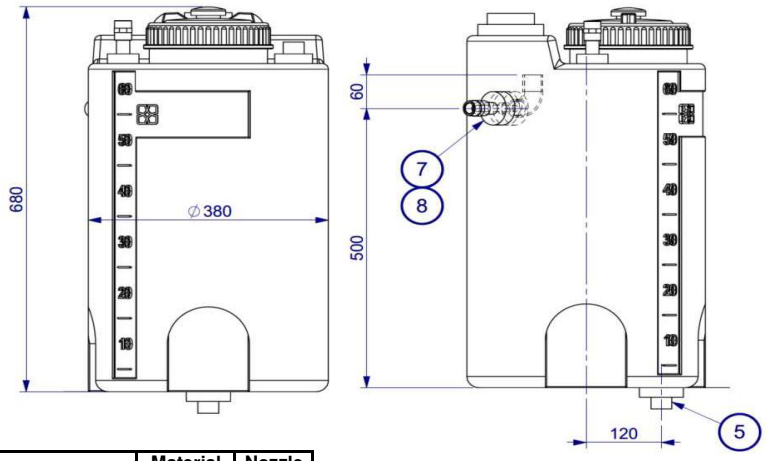
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TAG: T-50003

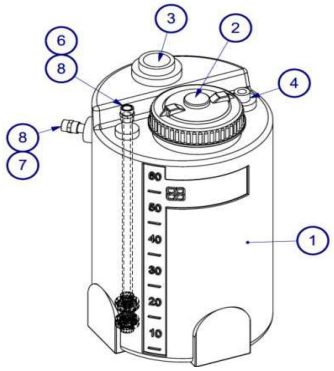
Antiscalant Dosing Tank

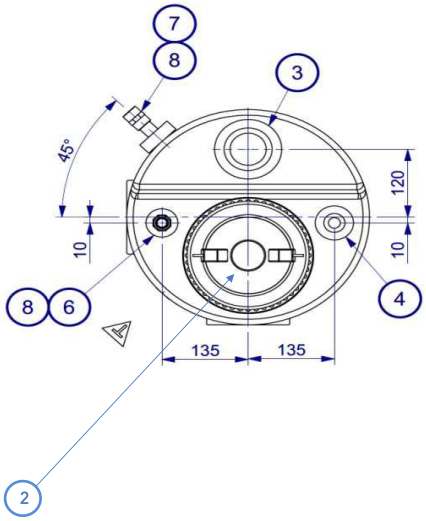
Supplier: ASTRO Srl

Models: TANK DS 05



Position	Description	Material	Nozzle
1	DS 05 - LT.60	PE	
2	CPF 200 - Threaded Cover and Vent SF3	PP	N1
3	2" TFE reduction for Level Transmitter	PP	N2
4	1/2" TFE reduction for pump recycle	PP	N3
5	1/2" TFE reduction drain	PP	N4
6	1/2" dip Tube (Pump Sunction) P/R	PP/PVC	N5
7	1/2" TPH overflow	PE	N6
8	1/2" MFV	PVC	





REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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TANK DATA SHEET

SPECIFICA PER SERBATOIO

PROJECT: Progetto: HOLLANDSE KUST NOORD WIND PARK	**LOCATION:** Località: Off Shore Hollandse Kust Noord (Netherlands)	**DOC N° :** Doc N°: PK2885-M-001	
MOD: Mod: DS-05	**PLANT:** Impianto: Water treatment package	**DEPARTMENT:** Reparto:	**CUSTOMER:** Cliente: Rosetti Marino S.p.A
MFR: Fornitori: ASTRO			**JOB:** Commessa: PK2885

SERVICE Servizio	ANTISCALANT DOSING TANK	ITEM Item	T-50003	No. of UNITS No. Di UNITA'	1				
WEIGHT Pesi	EMPTY Vuoto	5.5	kg	FULL of FLUID Pieno di liquido	84	kg	FULL of WATER Pieno d'acqua	84	kg

OPERATING CONDITION
CONDIZIONI OPERATIVE

		SHELL Mantello	JACKET Camicia
STORED FLUID Fluido stoccato	ANTISCALANT		
OPERATING TEMPERATURE Temperatura operativa	10 / 23 °C		
VAPOUR PRESSURE Tensione di vapore	- bar		
SPECIFIC GRAVITY Peso specifico	1300 kg/m^3		
SUSPENDED SOLIDS Solidi in sospensione	NONE		
CORROSIVE COMPOUNDS Composti corrosivi	pH = 7.5		
FREEZING POINT Temp. di congelamento	<0 °C		
VISCOSITY Viscosità	- mPa sec		

DESIGN DATA
DATI DI PROGETTO

DESIGN PRESSURE Pressione di progetto	Atm	bar	
TEST PRESSURE Pressione di prova	-		
DESIGN TEMPERATURE Tempratura di progetto	50	°C	
MATERIAL Materiale	PE		
GASKET Guarnizioni	EPDM		
GEOMETRICAL CAPACITY Capacità geometrica	0.06	m^3	
DIMENSION Dimensione	diameter 380, height 680	mm	

INSTALLATION Installazione: Vertical cylindrical — INDOOR All'aperto: ■ — OUTDOOR Al chiuso: □

INSULATION TYPE Tipo isolamento: NONE — THICKNESS Spessore: mm — SURFACE Superficie: m^2

CODE REQUIREMENTS Guranizioni

NOZZLES
BOCCHELLI

ITEM Sigla	DN" DN"	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	200 mm	-	Threaded	Screw cap
N2	2"	-	Threaded	Level Transmitter
N3	1/2"	-	Threaded	Pump Recycle
N4	1/2"	-	Threaded	Vessel Drain
N5	1/2"	-	Threaded	Pump Sunction
N6	1/2"	-	Threaded	Vessel Overflow

REMARKS
Note

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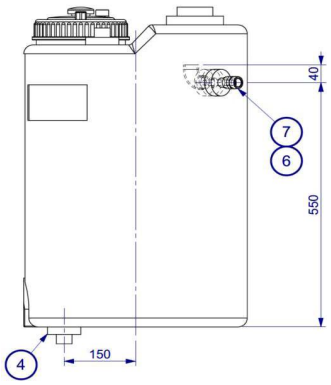
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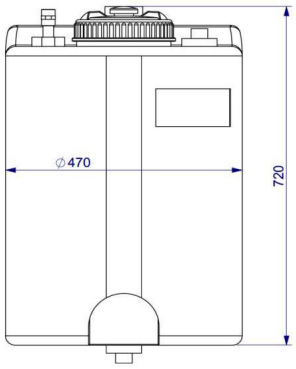
TAG: T-50004

Biocide Dosing Tank

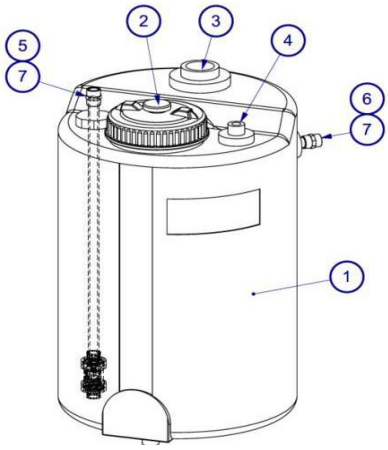
Supplier: ASTRO Srl

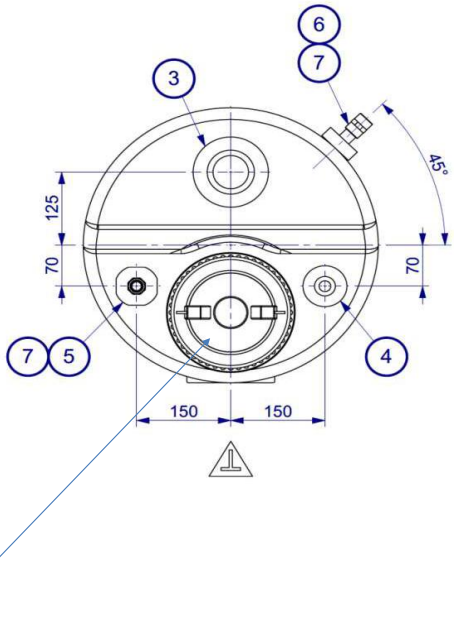
Models: TANK DS 1





Position	Description	Material	Nozzle
1	DS 1 - LT.108	PE	
2	CPF 200 - Threaded Cover and Vent SF3	PP	N1
3	2" TFE reduction for Level Transmitter	PP	N2
4	1/2" TFE reduction for pump recycle / drain	PP	N3 / N4
5	1/2" dip Tube (Pump Sunction) P/R	PP/PVC	N5
6	1/2" TPH overflow	PE	N6
7	1/2" MFV	PVC	





REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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TANK DATA SHEET

SPECIFICA PER SERBATOIO

PROJECT: Progetto	HOLLANDSE KUST NOORD WIND PARK	LOCATION: Località	Off Shore Hollandse Kust Noord (Netherlands)
DOC N° : Doc N°	PK2885-M-001		
MOD: Mod	DS 1	PLANT: Impianto	Water treatment package
DEPARTMENT: Reparto		CUSTOMER: Cliente	Rosetti Marino S.p.A
MFR: Fornitori	ASTRO		
JOB: Commessa	PK2885		

SERVICE Servizio	BIOCIDE DOSING TANK	ITEM Item	T-50004	No. of UNITS No. Di UNITA'	1			
WEIGHT Pesi	EMPTY Vuoto	7.5	kg	FULL of FLUID Pieno di liquido	124	kg	FULL of WATER Pieno d'acqua	124 kg

OPERATING CONDITION

CONDIZIONI OPERATIVE

	SHELL Mantello	JACKET Camicia
STORED FLUID Fluido stoccato	BIOCIDE (DBNPA or equivalent)	
OPERATING TEMPERATURE Temperatura operativa	10 / 25 °C	
VAPOUR PRESSURE Tensione di vapore	0.23 bar	
SPECIFIC GRAVITY Peso specifico	1140 / 1180 kg/m^3	
SUSPENDED SOLIDS Solidi in sospensione	NONE	
CORROSIVE COMPOUNDS Composti corrosivi	pH = 2.5-4	
FREEZING POINT Temp. di congelamento	<0 °C	
VISCOSITY Viscosità	1 mPa sec	

DESIGN DATA

DATI DI PROGETTO

DESIGN PRESSURE Pressione di progetto	Atm	bar
TEST PRESSURE Pressione di prova	-	
DESIGN TEMPERATURE Tempratura di progetto	50	°C
MATERIAL Materiale	PE	
GASKET Guarnizioni	EPDM	
GEOMETRICAL CAPACITY Capacità geometrica	0.110	m^3
DIMENSION Dimensione	diameter 470, height 590	mm

INSTALLATION Installazione: Verical cylindrical — INDOOR All'aperto: ■ — OUTDOOR Al chiuso: □

INSULATION TYPE Tipo isolamento: NONE — THICKNESS Spessore: mm — SURFACE Superficie: m^2

CODE REQUIREMENTS Guranizioni

NOZZLES

BOCCHELLI

ITEM Sigla	DN" DN"	RATING Rating	TYPE Tipo	SERVICE Servizio
N1	200 mm	-	Threaded	Screw cap
N2	2"	-	Threaded	Level Transmitter
N3	1/2"	-	Threaded	Pump Recycle
N4	1/2"	-	Threaded	Vessel Drain
N5	1/2"	-	Threaded	Pump Sunction
N6	1/2"	-	Threaded	Vessel Overflow

REMARKS

Note

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Base Load Power Hub (BLPH)

GENRAL ARRANGEMENT - UV PACKAGE AND DATA SHEET S-50010

Document Number: 1724000448-MAC-DA-00011

ROSETTI MARINO

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NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	04-11-2024

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
03	25/10/2024	Issue for Information (IFI)	SF	RM	RM
02	30/08/2024	Issue for Information (IFI)	SF	RM	RM
01	22/07/2024	Issue for Information (IFI)	WR	RM	RM
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PSC

Reference: DOC No. PK2885-P-008

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2	Table of Contents	X	X	X	X				
3	Revision / Change Log	X	X	X	X				
4	Drawing	X	X	X	X				
5	Datasheet	X	X	X	X				

Revision / Change Log

Rev.	Description
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01	ISSUE FOR INFORMATION(IFI)
02	ISSUE FOR INFORMATION(IFI)
03	ISSUE FOR INFORMATION(IFI)

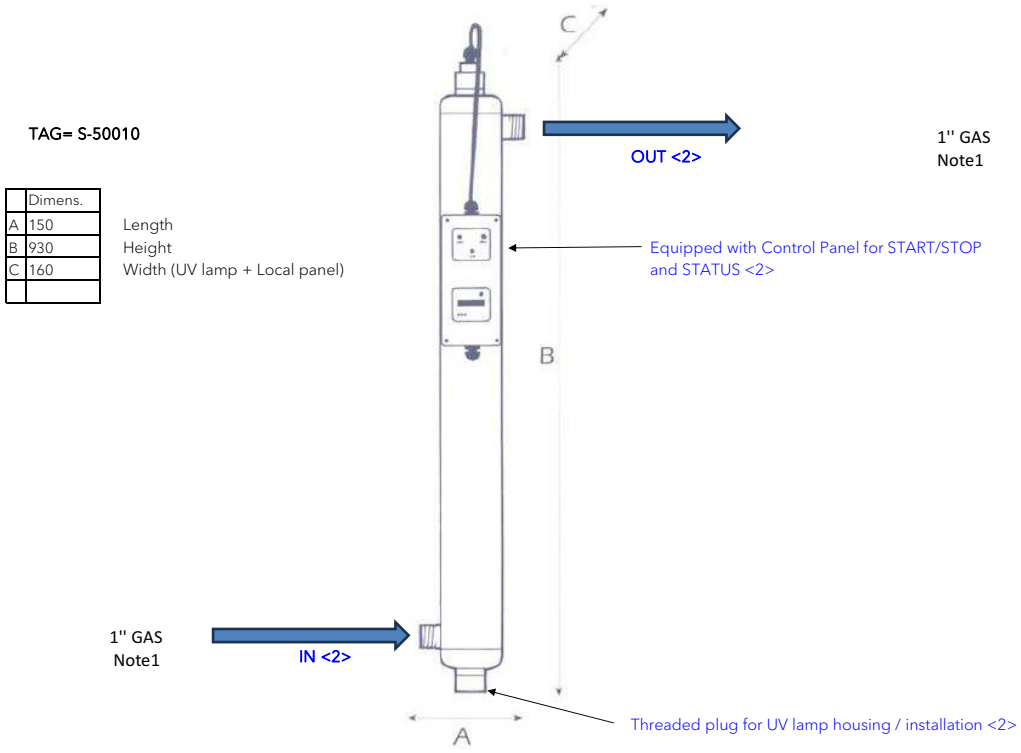
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Supplier: NOBEL

Models:1S



	Dimens.	
A	150	Length
B	930	Height
C	160	Width (UV lamp + Local panel)

Note 1: Process connction threaded 1" Gas (Male)
Note 2: Please foresee 930 mm for UV lamp insertion and removal above the UV Package

REFERENCE DOCUMENTS	
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LOADING CALCULATIONS
1724000448-PR-PID-00013	WATER TREATMENT PACKAGE-PID DIAGRAM

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UV PACKAGE DATA SHEET

SPECIFICA PER LAMPADA UV

	PLANT: Water treatment package Impianto	**CUSTOMER:** Rosetti Marino S.p.A Cliente	**Sh.: 5/5**
	LOCATION: HOLLANDSE KUST NOORD Località	**JOB:** PK2885 Commessa	**ITEM:** S-50010 Sigla
DEPARTMENT : Reparto	**P&I :** 172400448-PR-PID-00013	**MFR:** Nobel Costruttore	**DOC.Nr.** PK2885-M-001 Doc. Nr.

1	SERVICE OF UNIT / Servizio: **UV PACKAGE**			No. OF UNITS / No. di unità: **1**
2	FLUID HANDLED / Fluido trattato:			**Fresh Water (TDS 350ppm)**
3	FLOW RATE / Portata:	OPERATING INLET	m^3/h	**0.8**
4	OPERATING / DESIGN PRESSURE / Pressione di esercizio /progetto		barg	**5 / 8**
5	OPERATING TEMPERATURE / Temperatura di esercizio:		°C	**10 / 20.2**
6	FLUID DENSITY/ Densità:		kg/m^3	**1000**
7	FLUID VISCOSITY / Viscosità:		mPa sec	**1**
8	DESIGN TEMPERATURE / Temperatura di progetto:		°C	**50**
9	UV PACKAGE DIMENSIONS		mm	**Please refer to sheet 4**
10	UV PACKAGE WEIGHT		kg	**15 (50 full)**
11	VESSEL MATERIAL			**AISI 316**
12	LAMP / FLUID SEPARATORS			**Quartz Sleeves**
13	LIGHT SPECTRUM		Nm	**254**
14	CORROSION ALLOWANCE / Sovraspessore di corrosione:		mm	**-**
15	CONNECTIONS / Connessioni	IN /OUT		**1" GAS Male**
16		DRAIN / Scarico:		**N.A.**
17		VENT / Sfiato:		**N.A.**
18	POWER SUPPLY		W	**40**
19	THERMAL INSULATION TYPE / Tipo isolamento: **N.A.**	THICKNESS / Spessore:	mm	**N.A.**
20				
21				
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01	22/07/2024	Issued for Information	IT	WR	RM
00	24/06/2024	Issued for Information	IT	WR	RM

1.4

PROCEDURES – SPECIFICATIONS

Base Load Power Hub (BLPH)

INSPECTION AND TEST PLAN

WATER TREATMENTPACKAGE

Document Number: 1724000448-QC-ITP-00002

ROSETTI MARINO	
1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED
NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.	
Sign	Date
ROSETTI MARINO S.p.A.	**03/12/2024**

Document Class: 2

03	20/11/2024	Iss Accepted for Construction	PSC	WR	RM
02	20/06/2024	Issue for Review (IFR)	PSC	WR	RM
01	20/06/2024	Issue for Review (IFR)	PSC	WR	RM
00	29/03/2024	Issue for Review (IFR)	PSC	WR	RM
Rev.	Date	Description	Prepared	Reviewed	Approved

PSC DOC. REF.: PK2885-Q-001

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
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02	Issue for Review (IFR)
03	Accepted for Constructio (AFC)

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

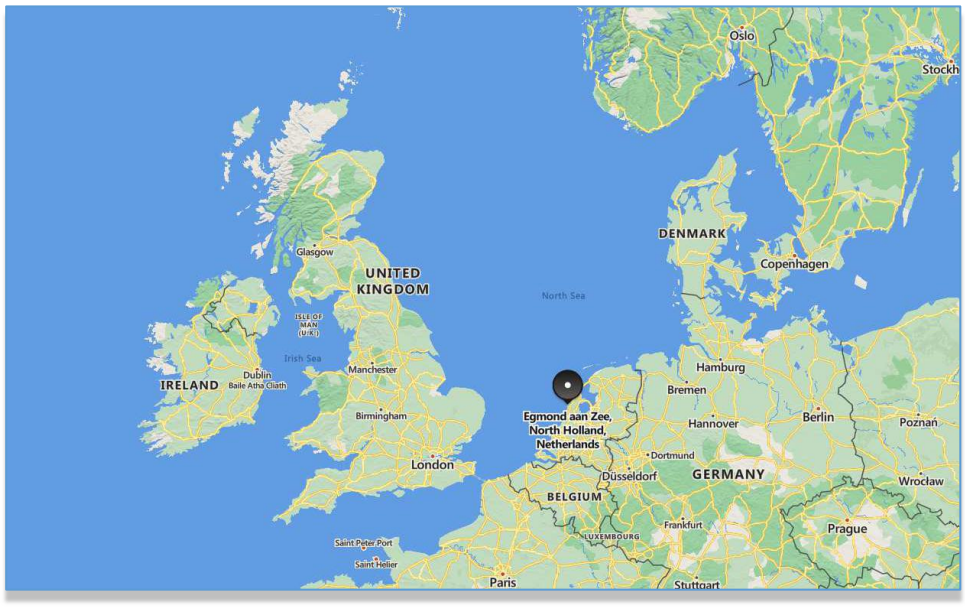


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

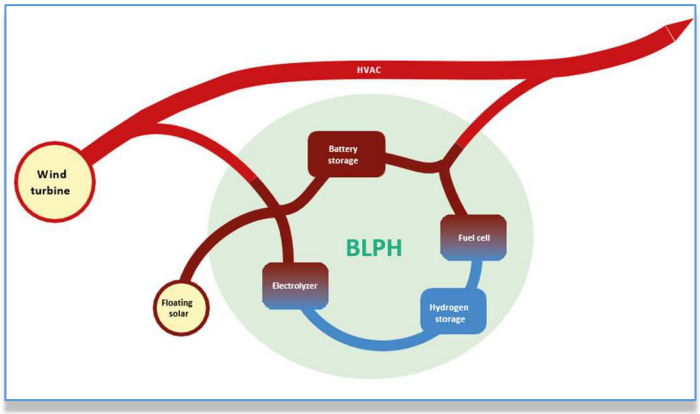


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 DOCUMENT PURPOSE AND SCOPE

This plan defines inspections and tests to be carried out to verify quality requirements identified in all contractual documents: Drawings, Specification, Codes and Standards latest revisions.

This document shall be applied to structural fabrication and erection activities for Base Load Power Hub (BLPH), including sea fastening and grillage. Disciplines other than structural are covered by dedicated project ITPs.

2.1 REFERENCES

Doc. No.	Description
1724000448-PR-PID-00013	P&ID
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
CA	Certification Agency
DS	Surveyor
EXP	Expediting dept.
LOG	Logistic Dept.
NDE	Non Destructive Examination
PQR	Procedure Qualification Record
QC	Quality Control Dept.
QCI	Quality Control Inspector
SC	PSC Engineering S.p.A.
WI	Welding Inspector
WLD	Welding Dept.
WQR	Welder Qualification Record
WPS	Welding Procedure Specification

Table 2 - Definitions and Abbreviations

3 RESPONSIBILITIES

PROJECT QUALITY MANAGER

The PQM shall assure that :

- the project quality requirements are implemented through all phase of the project;
- project works are properly controlled, inspected, tested and documented.
- The required documentation for certification purpose is submitted to CPY for review and signature on continuous basis;
- fabrication facilities are properly maintained and/or calibrated according to contractors and project quality standards ; all personnel holds required competence level and training in compliance with project specifications

3.1 QC INSPECTOR (QCI) / WELDING INSPECTOR (WI)

QCI / WI shall:

- perform the checks and tests as stated in responsibility column of this ITP;
- document the inspections issuing proper inspection reports;
- produce daily welding monitoring reports
- supervise and monitor the activities on site;
- interface with the CPY QA/QC site representative for the management of the inspection;
- notify the inspections to be attended to the CPY QA/QC site representative.
- coordinate all NDE activities;
- mark-up repairs area to be excavated in line with NDE report and control weld repairs (mark-up of areas to be repaired should be managed and independently performed by the NDE operator. Judgement of welds including characteristics of any repair shall be ensured the sole responsibility of the NDE operator).

3.2 NDE OPERATOR

The NDE operator shall :

- be suitably qualified (certified) in accordance with project requirements
- perform NDE according to the project requirements and applicable procedure, and ensure that NDE results shall be concluded subsequently after the inspection (at least daily), ensuring that inspection results are preserved and maintained
- prepare inspection reports within 48 hours from the inspection

3.3 DIMENSIONAL CONTROL ENGINEER

The dimensional control engineer shall:

- carry out dimensional check
- issue dimensional reports, including relevant mark-up drawing
- Surveys will be carried out for the following items and steps :
  - Upper grillage subassemblies as-built
  - Upper grillage assembly, positioning and as-built
  - Topside structure subassemblies, as-built
  - Topside structure assemblies (by level), as built
  - Primary nodes at fit-up stage
  - Primary nodes as-built
  - Overall structure, including interfaces, as-built

3.4 SUB-CONTRACTOR

Subcontractor (1) shall:

- provide resources suitable for the required quality level, in terms of both personnel and equipment; RM has the right to reject or ask for replacement at any time in case of inadequate resources
- comply with instructions and coordination by RM construction supervisors
- execute the work in accordance with project requirements, by applying RM procedures and CPY specifications referenced in this document, supported by RM construction and inspection personnel

(1) for the purpose of this document "subcontractor" is intended as the organization providing resources and executing fabrication activities, with supervision by RM Construction Dept. and Quality Control by RM QC Dept. Such subcontractors may execute the work both within RM premises (yard, workshop) or in external workshops.

4 NOTIFICATION FOR INSPECTION

CPY and CTR site surveyor shall be notified for inspection attendance by means of "Notification for Inspection" form, containing all details on the inspection, sent by e-mail to the CPY QA/QC site representative and CTR surveyor. The notification shall be issued to CPY and CTR at least 1 week in advance for witness inspections. In case of emergencies, such notification can be sent even with shorter notice, provided it has been previously agreed upon.

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5 INSPECTION RECORDS

Inspection records shall be made available for CPY and CTR in due time after completion of activities. Original records shall be filed in the CTR QC dept. and made available for CPY and CTR review at any time.

6 INTERVENTION POINTS DESCRIPTION

Code	Description
M	Routine intervention (Monitoring). Activities concerned shall be continuously monitored. Monitoring activities are not formalised.
S	Percentage intervention (Spot). Activities shall be monitored in percentage. The intervention is formalised by issuing a document related to the specific activity (report, certificate or control report).
R	Documentation review (Review). Certificates, reports and documents issued for the specific activity foreseen by the Quality Control Plan shall be checked. Personnel in charge of controls shall formalise the review by signing relevant documents.
W	Witnessed intervention (Witness). CPY and\or CTR shall be notified in written; should CPY and\or CTR not be present at notified date and time, the activity may proceed.
H	Hold point (Hold). CPY and\or CTR shall be notified in written; should CPY and\or CTR decide not to witness the activity, the waiver shall be in written. In case the activity is not waived, it shall not proceed until CPY and\or CTR are present.

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7 INSPECTION AND TEST

7.1 PRE-INSPECTION MEETING

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.1	PRE-INSPECTION MEETING								
7.1.1	Pre-inspection meeting	N.A.	SC	1724000448-QC-ITP-00002	N.A.	N.A.	H	W	W

7.2 CENTRIFUGAL PUMPS

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.2	Centrifugal Pumps: P-50002A/B –P-50003A/B - P-500009A/B								
7.2.1	Pump Datasheet	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	H	R	R
7.2.2	Material certificates	Material Certificate EN10204 2.2	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	Material Certificates	H	R	R
7.2.3	Pump type test	Performance certification	SC	1724000448-MAC-DS-00017	Manufacturer std	Manufacturer report	H	R	R
7.2.4	Motor type test	Type Test	SC	1724000448-MAC-DS-00017	Manufacturer std	Manufacturer report	H	R	R
7.2.5	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.2.6	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.2.7	CE declaration	N.A.	SC	N.A:	N.A.	N.A.	R	R	R

7.3 BOOSTER PUMPS

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.3	**Booster Pumps: P-50004A/B**								
7.3.1	Pump Datasheet	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	H	R	R
7.3.2	Pump Inspection Certificate	EN10204-3.1 Performance certification & Material	SC	1724000448-MAC-DS-00017	Manufacturer std	Manufacturer report	H	R	R
7.3.3	Motor type test	Type Test	SC	1724000448-MAC-DS-00017	Manufacturer std	Manufacturer report	H	R	R
7.3.4	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.3.5	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W

7.4 DOSING PUMPS

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.4	**Dosing Pumps: P-50005A/B – P-50006A/B – P-50007A/B – P-50008A/B – P-500010A/B**								
7.4.1	Pump Datasheet	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	H	R	R
7.4.2	Pump Inspection Certificate	EN10204-3.1 Performance certification & Material	SC	1724000448-MAC-DS-00017	Manufacturer std	Manufacturer report	H	R	R
7.4.3	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.4.4	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.4.5	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.5 STORAGE TANKS

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.5	Storage Tanks T-50006 / T-50008 (FRP tanks)								
7.5.1	Tank Datasheet and Drawing	N.A.	SC	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	H	R	R
7.5.2	Material certificates	EN 13121-3	SC	Manufacturer dwg	Material Code	Material Certificates	H	R	R
7.5.3	Hydro test *	EN 13121-3	SC	Manufacturer procedure	Manufacturer procedure	Manufacturer procedure	R	R	R
7.5.4	Visual dimensional check, also internal check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.5.5	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.5.6	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

- Only internal manufacturer test according to production code EN-13121-3, not possible to attend to the test. The certificate will be issued by manufacturer

7.6 TANKS FOR DOSING PUMP

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.6	Storage Tanks T-50002 / T-50003 / T-50004 (PE tanks)								
7.6.1	Tank Datasheet and Drawing	N.A.	SC	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	1724000448-MAC-DA-00010	H	R	R
7.6.2	Hydro test *	Manufacturer procedure	SC	Manufacturer procedure	Manufacturer procedure	Manufacturer procedure	R	R	R
7.6.3	Visual dimensional check, also internal check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.6.4	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.6.5	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

- Only internal manufacturer test according to manufactuer procedure, not possible to attend to the test. The certificate will be issued by manufacturer

7.7 SELF CLEANING FILTER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.5	Self-Cleaning Filter: A-50003								
7.7.1	Filter Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.7.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	R
7.7.3	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.7.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.8 SAND FILTER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.8	**Sand Filter: S-50001**								
7.8.1	Filter Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.8.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.8.3	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.8.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.9 CARTRIDGE FILTER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.9	Cartridge Filter: S-50002A/B – S-50003A/B								
7.9.1	Filter Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.9.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.9.3	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.9.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.10 ELECTRIC HEATER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.10	Electric Heater: H-50001								
7.10.1	Electric Heater Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.10.2	Material certificates	Chem. Analysis & mech. Test EN10204 3.1 (in contact with fluid)	SC	Manufacturer dwg.	Material Code	Material Certificates	R	R	R
7.10.3	Insulation Test (Element)	Manufacturer Procedure	SC	Manufacturer Procedure	Manufacturer Standard	Insulation Test Report	H	R	R
7.10.4	Visual and Dimensional Check (Wiring check will be performed during FAT test) (only for element)	Manufacturer Procedure	SC	Manufacturer Procedure	Manufacturer Standard	Test Report	H	W	W
7.10.5	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	R
7.10.6	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.11 WATER MEMBRANE AND VESSEL

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.11	Water Membrane: A-50007A/B								
7.11.1	Membrane and Housing Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.11.2	Membrane element NSF certificate	N.A.	SC	Manufacturer std	Manufacturer std	Manufacturer std	H	R	R
7.11.3	Hydrostatic Report for Vessel	PED / ASME X	SC	Manufacturer Procedure	Manufacturer Procedure	Manufacturer Procedure	H	R	R
7.11.4	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.11.5	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.12 UV STERILIZER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.12	**UV Sterilizer S-50010**								
7.12.1	Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.12.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.12.3	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.12.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.13 SOFTENER FILTER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.13	**Softener Filter S-50004**								
7.13.1	Datasheet and Drawing	N.A.	SC	1724000448-MAC-DS-00017	1724000448-MAC-DS-00017	N.A.	H	R	R
7.13.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.13.3	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.13.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.14 TRANSMITTERS

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.14	**Transmitters**								
7.14.1	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.14.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.14.3	Calibration test report	N.A.	SC	1724000448-IN-LIS-00021	1724000448-IN-LIS-00021	1724000448-IN-LIS-00021	R	R	R
7.14.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

Note: 1) Instruments case materials: PBT/PVPF

7.15 PRESSURE & DIFFERENTIAL PRESSURE GAUGES

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.15	**Pressure & differential Pressure Gauges**								
7.15.1	Material certificates	Chem. Analysis & mech. Test EN10204 3.1 (where applicable)	SC	N.A.	Material Code	Material Certificates	R	R	R
7.15.2	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.15.3	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.15.4	Calibration test report	N.A.	SC	1724000448-IN-LIS-00021	1724000448-IN-LIS-00021	1724000448-IN-LIS-00021	R	R	R
7.15.5	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.16 SHUT OFF VALVES

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.16	**Shut Off Valves**								
7.16.1	Material certificates	Material Certificates EN10204 2.2	SC	N.A.	Material Code	Material Certificates	R	R	R
7.16.2	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.16.3	Functional test certificate	ISO-10304	SC	Manufacturer std	Manufacturer std	Manufacturer std	R	R	R
7.16.4	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.17 PRESSURE SAFETY VALVES

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.17	**PSV**								
7.17.1	Material certificates	Chem. Analysis & mech. Test EN10204 3.1 (where applicable)	SC	N.A.	Material Code	Material Certificates	R	R	R
7.17.2	Visual dimensional check (painting not applicable)	Manufacturer Drawing	SC	Manufacturer drawing	Manufacturer drawing	Manufacturer drawing	H	W	W
7.17.3	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	1724000448-PR-PID-00013	H	W	W
7.17.4	Calibration test report	N.A.	SC	1724000448-IN-LIS-00021	1724000448-IN-LIS-00021	1724000448-IN-LIS-00021	R	R	R
7.17.5	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.18 FIRE & GAS SYSTEM

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.18	**Fire & Gas System**								
7.18.1	Quality assurance system & Environmental safety system certification	ISO 9001:2015 ISO14001:2015	SC	Manufacturer drawing	CODE	N.A.	R	R	R
7.18.2	Wiring CheckCheck (performed during FAT test of the container)	N.A	SC	Manufacturer drawing	Manufacturer drawing	N.A.	H	W	W
7.18.3	Calibration certificate (where applicable)	N.A	SC	Manufacturer datasheet	Manufacturer datasheet	N.A.	R	R	R
7.18.4	SIL Certificate	N.A	SC	N.A.	CODE	N.A.	R	R	R
7.18.5	ATEX Certificate	N.A	SC	N.A.	CODE	N.A.	R	R	R
7.18.6	CE declaration	N.A.	SC	N.A.	N.A.	N.A.	R	R	R

7.19 CONTAINER

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.19	**Container**								
7.19.1	Container Certificate	China Classification Society	SC	N.A.	N.A.	N.A.	R	R	R
7.19.2	Visual Dimensional Check	N.A.	SC	1724000448-MAC-DA-00005	1724000448-MAC-DA-00005	N.A.	H	W	W
7.19.3	Manufacturer Lifting Drawing	N.A.	SC	1724000448-MAC-DA-00005	1724000448-MAC-DA-00005	N.A.	R	R	R
7.19.4	Painting certificate (Only external surface)	Painting Specification	SC	1724000448-MAT-PRO-00023	1724000448-MAT-PRO-00023	N.A.	H	R	R
7.19.5	Conformity Certificate CE SIL2 for Panic door	N.A.	SC	1724000448-MAC-DA-00005	1724000448-MAC-DA-00005	N.A.	R	R	R

7.20 PLC & MCC CABINET

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.20	**PLC & MCC Cabinet 50-LP-001**								
7.20.1	Visual & Dimensional Check	N.A.	SC	1724000448-IN-DG-00014	FAT Procedure	N.A.	H	W	W
7.20.2	Functional Check	N.A.	SC	PSC internal FAT Procedure	PSC internal FAT Procedure	N.A.	H	W	W
7.20.3	Electrical Check	N.A.	SC	PSC internal FAT Procedure	PSC internal FAT Procedure	N.A.	H	W	W
7.20.4	Name Plate tag check	N.A.	SC	1724000448-IN-DG-00014	PSC internal FAT Procedure	N.A.	H	W	W
7.20.5	CE declaration	N.A.	SC	PSC internal FAT Procedure	PSC internal FAT Procedure	N.A.	H	R	R

7.21 PIPING

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.16	**Piping**								
7.21.1	Material certificates	Chem. Analysis & mech. Test EN10204 2.2 (in contact with fluid)	SC	N.A.	Material Code	Material Certificates	R	R	R
7.21.2	Visual Dimensional Check	N.A.	SC	1724000448-MAC-DA-00005	1724000448-MAC-DA-00005	N.A.	H	W	W
7.21.3	Leakage test	Manufacturer procedure	SC	Manufacturer Std.	Manufacturer Procedure	N.A.	H	R	R

7.22 MANUAL VALVES

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.22	**Manual Valves**								
7.22.1	Material certificates	Chem. Analysis & mech. Test EN10204 2.2 (in contact with fluid)	SC	1724000448-MAC-DA-00005	Material Code	Material Certificates	R	R	R
7.22.2	Visual dimensional check	N.A.	SC	1724000448-MAC-DA-00005	1724000448-MAC-DA-00005	N.A.	H	R	R
7.22.3	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	N.A.	H	W	W

7.23 PACKAGE FINAL ASSEMBLY

Step	Step Description	Inspection/Test Requirement	Resp.	Reference Document	Acceptance Criteria	Ref. Record	Intervention Point		
							SC (PSC)	CTR (RM)	CPY
7.23	**Package final assembly**								
7.23.1	Visual & Dimensional Check	Manufacturer std.	SC	1724000448-MAC-DA-00005	1724000448-MAC-DA-00005	N.A.	H	W	W
7.23.2	Leakage test with air	Manufacturer std.	SC	Manufacturer Std.	Manufacturer Std	N.A.	H	W	W
7.23.3	Tagging check	N.A.	SC	1724000448-PR-PID-00013	1724000448-PR-PID-00013	N.A.	H	W	W
7.23.4	Wiring Diagram check including cable glang check	N.A.	SC	1724000448-EL-DG-00015	1724000448-EL-DG-00015	N.A.	H	W	W
7.23.5	Complete Functional check of instrumentation (1)	N.A.	SC	1724000448-QC-PRO-00025	1724000448-QC-PRO-00025	N.A.	H	W	W
7.23.5	Release note	N.A.	SC	CTR release note	N.A.	N.A.	R	H	R
7.23.6	Manufacturer data book	N.A.	SC	1724000448-QC-DB-00029	1724000448-QC-DB-00029	N.A.	R	W	R

(1) During FAT test motor power on will be not performed. It will be included in SAT test

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE A-50000

SYSTEM FUNCTIONAL DESCRIPTION (50-LP-001)

Document Number: 1724000448-MAC-SP-00003

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.MURA	18-08-2025

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Revision / Change Log

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01	Issue for Information (IFI)
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05	Issue for Information (IFI)

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None

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

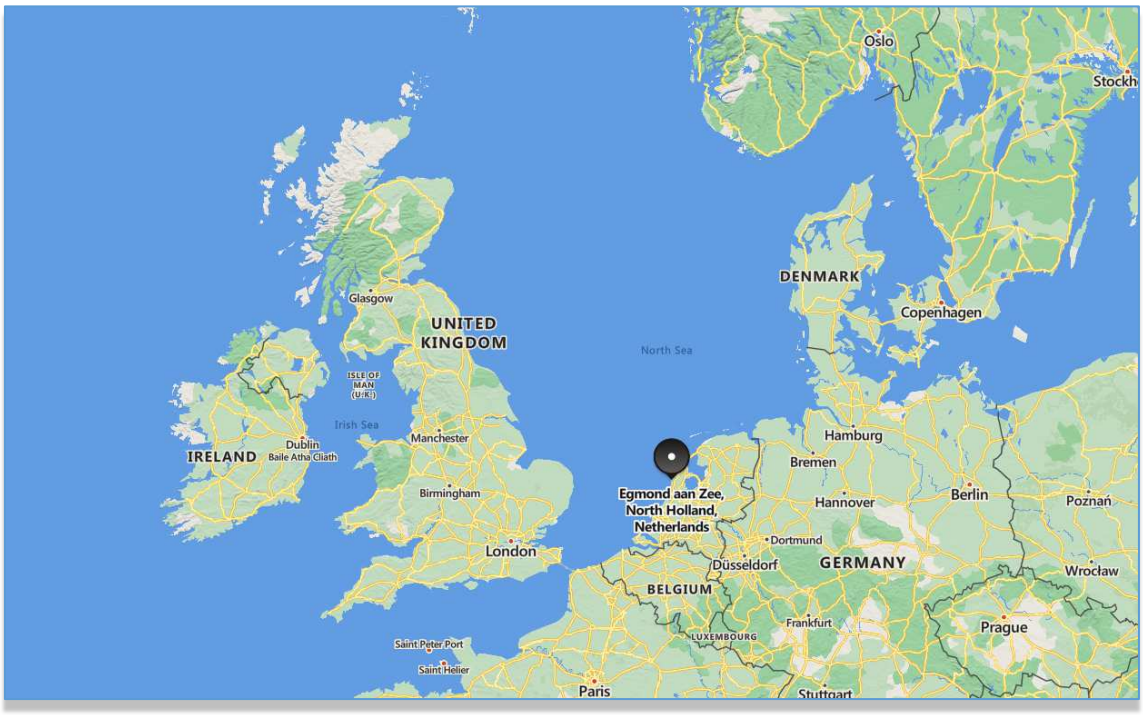


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

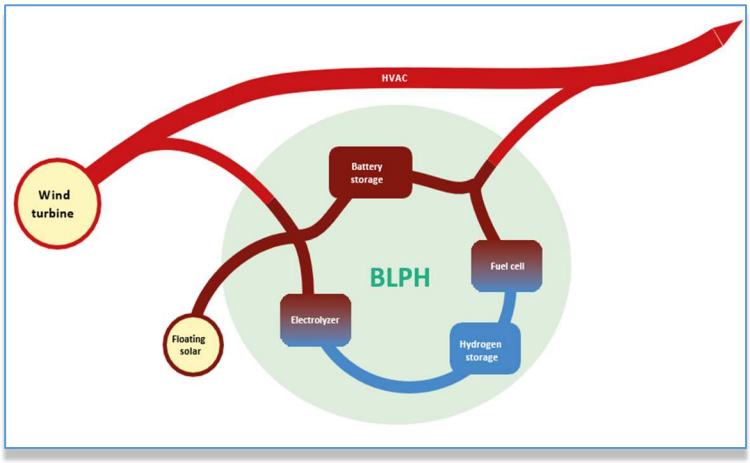


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 DOCUMENT SCOPE

Scope of this document is to provide the process and control system description and the details on how the Water Treatment Package operates. The above-mentioned package will be supplied to Rosetti Marino S.p.A. for Crosswind Off-shore project, producing fresh water from sea water.

2.1 REFERENCES

Doc. No.	Description
1724000448-PR-PID-00013 rev.4 - Sheets 1, 2 and 3 - Sheet 4 - Sheet 5 - Sheet 6 - Sheet 7	P&I Diagram – Water Treatment Package: - Seawater Fine Filtration - Seawater Reverse Osmosis - Fresh Water Storage - Chemical Dosage - Biocide Dosage
1724000448-MAC-CE-00004 rev.4	Package Cause & Effect Matrix
1724000448-IN-LIS-00019 rev.4	I & O List
VR no: PSC_002_08052024 In Rosetti Marino Scope	MoM dated 8/5/2024 between PSC and RM, pos.2

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	CROSSWIND
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
HKN:	Hollansdse Kust Noord
BLPH:	Base Load Power Hub
VooW:	Van Oord Offshore Wind
HC:	High Cube Container
SW:	Sea Water
SWRO:	Sea Water Reverse Osmosis
RO:	Reverse Osmosis
UV:	Ultraviolet

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UV-C:	A Subtype of Ultraviolet Light
PLC:	Programmable Logic Controller
DCS:	Distributed Control System
SIS:	Safety Instrumented System
TP:	Terminal Point
F&G:	Fire and Gas
LP:	Local Panel
pH:	Potential of Hydrogen
PV:	Photovoltaics
BESS:	Battery Energy Storage System
ΔP:	Difference Pressure
VFD:	Variable Frequency Driver
SCR:	Silicon Controller Rectifier

Table 2 - Definitions and Abbreviations

3 GENERAL

Scope of the Water Treatment Package is to treat the sea water to supply 0.8 m^3/h of fresh water to feed the Hydrogen Electrolyser. Platform will operate normally unmanned with minimal maintenance every 6 months. The operation is discontinuous: it is estimated to operate the package 45 times in 6 months, each operation lasts 8 -12 hours (ref. A).

The Water Treatment Package mainly consists of three process sections:

- Pretreatments
- Sea Water Reverse Osmosis
- Post-treatments.

The desalination plant is mounted inside a container, 40 feet HC; it will have its own independent control system. Other accessories to Water Treatment Package are:

- F&G detection system
- Container Electric Heaters HHS-50003A/B and Container Air Fans HFA-50001A/B/C.

General notes:

- All automatic logics and power feeding distribution described in the next sections are performed by supplied MCC & PLC Panel 50-LP-0001.
- Each stand-by unit and device are automatically switched to service in order to balance running time and to optimize the wearing parts required maintenance.
- PLC collects all running and failure signals from each pump and electric heater, all limit switches position and fault signals from each automatic valve, all fault alarms from each field instrument.
- All package's sections are displayed and controlled by dedicated HMI video pages, where process alarms and trends are available. Alarms thresholds, setpoints, valves and pumps can be changed/manually operated by authorized logged user.
- 3 different HMI users are available, with different control ability:
    - OPERATOR
    - MAINTAINER
    - ADMINISTRATOR
- In order to let the package be controlled by remote client's DCS, all relevant PLC signals and commands are sent to client's system by Modbus communication.

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3.1 PRETREATMENTS

Sea water feeds the container inlet battery limit (A-50000, TP-017) by means of Sea Water Pump P-50001A/B provided by Rosetti Marino.

The automatic flow control valve 50-FV-020 is installed downstream the Sea Water Coarse Filter A-50003, to keep constant the design flowrate 2.5 m^3/h to Electric Heater and Sand Filter, discharging any excess flow rate to drain point.

3.1.1 Sea Water Coarse Filter (A-50003)

Sea water feeds the Sea Water Coarse Filter (A-50003), a self-cleaning filter that eliminates coarse particles greater than 125 micron. Water enters the filter through the (IN) inlet and goes through the internal and vertical filtering element (1) from the inside to the outside. This will retain all non-deformable suspended solids, same size or bigger than the filtration degree installed (i.e. 125 micron). Filtered water leaves through the outlet pipe (OUT).

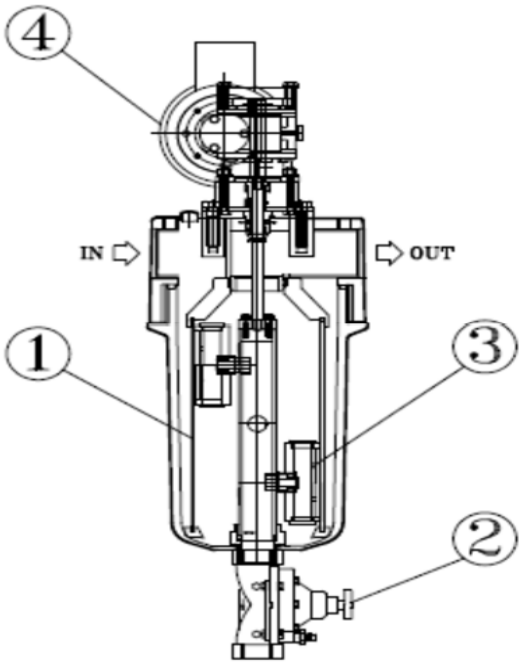


Figure 4 – Sea Water Coarse Filter

The continuous settling of suspended solids layer increasing over the internal filter element reduces the water flow passage, which results in a pressure difference (ΔP). At a preset value of ΔP (range 0.7 - 1 bar) an automatic backwash cycle will start to clean the filter element. The backwash sequence begins with a signal that opens quickly the bottom discharge valve (2) and creates a vacuum condition from the suction nozzles (3) taking the filtered clean water (due to differential hydraulic pressure condition 1.5 barg towards atmospheric value). At the same time, the electric motor (4) drives the internal, vertical rotating arm with suction nozzles to clean the full filtering surface. Deposit solid layer is hydraulic removed by rotating suction nozzles from internal filter element (4) and then discharged through the bottom discharge valve (2) and goes to the water drain header. The self-cleaning cycle lasts approximately 15 seconds.

A local switchboard (LP-A-50003) controls the washing phases. The signal that starts the cleaning cycle is given by an internal differential pressure switch. The switchboard gives a "general alarm" signal in case of problems in the washing system. The washing phase can also be controlled also by a timer (filtration time to be set).

During filter backwashing, the filtered water accumulated in the Filtered Water Tank T-50006 allows the following reverse osmosis section to be fed.

3.1.2 Electric Heater (H-50001)

Site data conditions: Sea Water Temperature (min/max) 1.3 / 20.2 °C.

Since sea water minimum temperature is too low to feed the Water Treatment Package, an Electric Heater (H-50001) is installed downstream Sea Water Coarse Filter (A-50003) to increase sea water temperature up to minimum 10°C during cold season. Sea water inlet temperature is measured by 50-TT-021 and controlled by 50-TIC-021.

3.1.3 Container Ventilation (HFA-50001A/B/C) and Heating (HHS-50003A/B)

Site data conditions: Ambient Temperature (min/norm/max) -8.4 / 10.5 / 25 °C.

Since ambient minimum temperature is too low, Container Electric Heaters (HHS-50003 A/B) are installed inside container to increase ambient temperature up to minimum 10°C during cold season. Inlet temperature is measured by 50-TT-023 and controlled by 50-TIC-023.

The ventilation inside container is maintained with HFA-50001A/B/C fans (3 x 50%, two in operation and one stand-by) that provide enough air change per hour (minimum 15 air change per hour).

3.1.4 Sand Filter (S-50001)



Sand bed filtration is the physic process to remove suspended particles from water.

Sand (dual media layers) Filter S-50001 is installed with automatic backwash of the filtering bed by means filtered water. The media filter includes several layers of selected quartz-sand with different size, and anthracite as upper layer. As the filter retains particles, the resistance to the passage of water and thus the pressure drop between inlet and outlet increases. The maximum permissible pressure drop is 1 bar. Backwashing means restoring the efficiency of the filter bed by removing from it the suspended solid particles retained during operation. Backwashing is commanded by PLC after a settable service time or when a pressure drop of 0.7 bar is reached. A local switchboard (LP-S-50001) controls the washing phases.

Backwashing is performed with filtered water stored in T-50006 with pumps P-50002A or P-50002B. A flow transmitter (50-FT-020) is installed at the inlet of the filter and gives an alarm in case of low and high flow. Spent filter backwash goes to water drain header.

Figure 5-Sand Filter

3.1.5 Antiscalant Dosage

Antiscalant is dosed upstream cartridge filters, in order to avoid the occurrence of scaling phenomena on Sea Water Reverse Osmosis.

An antiscalant continuous dosage is foreseen on the filtered water to avoid clogging and scaling phenomena on RO membranes.

Antiscalant Dosing Pumps P-50006 A/B shall be equipped with a manual stroke adjustment which allow to regulate the dosage flow.

Antiscalant Dosing Pumps shall be fed from Antiscalant Storage Tank T-50003 equipped with a level transmitter 50-LT-023, which provides an alarm for the refilling requirement (50-LAL-023) and the trip (50-LALL-023) for avoid the dry running of the pumps.

The chemical Storage Tank T-50003 shall be manually re-filled opening the top inspection cover.

3.1.6 Cartridge Filters (S-50002A/B, S-50003A/B)

Filtered water is stored in Filtered Water Tank T-50006 equipped with level transmitter 50-LT-020, which provides the alarms and trip for the SW Booster Pumps P-50003A/B and Backwash Pumps P-50002A/B.

Filtered sea water conductivity is measured by analyser 50-AT-023 upstream cartridge filters: High level conductivity shall give an alarm.

Two lines (2x100%) of cartridge filters and SWRO are installed: line A operates when valve 50-XV-021 opens (and 50-XV-022 closes), line B operates when valve 50-XV-022 opens (and 50-XV-021 closes).

A double stage of fine filtration system is foreseen with cartridge filters having size poring of 20 and 5 microns to protect the RO membranes from very fine solids clogging phenomena. Each SWRO line has two cartridge filters: S-50002A 20 micron and S-50003A 5 micron for line A, S-50002B 20 micron and S-50003B 5 micron for line B. Cartridges are not reusable type and the substitution is required after reaching high differential pressure value. Cartridges substitution is scheduled every six months, even if differential pressure does not reach high value.

At SW Booster Pump P-50003A delivery, a pressure transmitter, 50-PT-025 is installed to report the pressure value to PLC. At the outlet of Cartridge Filter S-50003A a pressure transmitter, 50-PT-026 is installed to report the pressure value to PLC. When pressure difference between 50-PT-025 and 50-PT-026 is more than 2 bar cartridge filters S-50002A and S-50003A need to be changed.

At SW Booster Pump P-50003B delivery, a pressure transmitter, 50-PT-027 is installed to report the pressure value to PLC. At the outlet of Cartridge Filter S-50003B a pressure transmitter, 50-PT-028 is installed to report the pressure value to PLC. When pressure difference between 50-PT-027 and 50-PT-028 is more than 2 bar cartridge filters S-50002B and S-50003B need to be changed.

3.1.7 Biocide Dosage

Non-oxidant biocide is dosed to inhibit bacterial growth and the formation of organic silt. Non-oxidant biocide is dosed in three different points:

- A continuous dosage is foreseen at the inlet of Water Treatment Package.
- A shock dosage (20 min every two days) is foreseen on the Intake Sea Water Pumps P-50001 A/B.
- A shock dosage (60 min every week) is foreseen on Waste Water Tank T-55001.

Biocide Dosing Pumps shall be equipped with a manual stroke adjustment which allow to regulate the dosage flow.

All dosing pumps shall be fed from Biocide Storage Tank T-50004 equipped with a level transmitter 50-LT-024, which provides an alarm for the refilling requirement (50-LAL-24) and the trip (50-LALL-24) for avoid the dry running of the pumps.

Dosing Pumps P-50007A/B dose the biocide at the inlet of container, upstream SW Coarse Filter A-50003, continuously when the plant is in operation.

Dosing Pumps P-50008A/B dose the biocide to sea water intake: every two days one pump starts for 20 minutes. It may be necessary to do the shock dosing when the Water Treatment Package is not in operation, because the permeate may contain slightly elevated levels of organics to promote the biological growth.

Dosing Pumps P-50010A/B dose the biocide to Waste Water Tank T-55001: every week one pump starts for 60 minutes.

The chemical Storage Tank T-50004 shall be manually re-filled opening the top inspection cover.

3.2 SEA WATER REVERSE OSMOSIS

Sea Water Reverse Osmosis will be used to provide the removal of dissolved solids and ions from the feed filtered water. Reverse osmosis membranes reject the salts contained in the feed water in a salt concentrated stream leaving a low salinity stream called “permeate”.

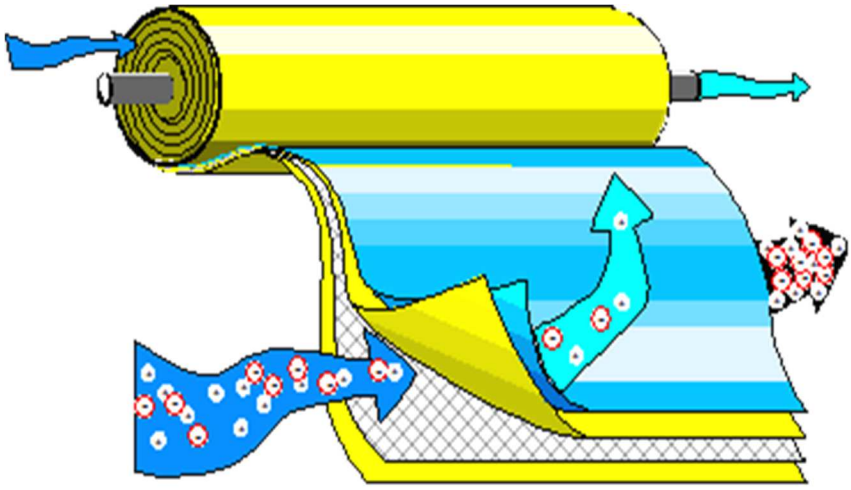


Figure 6 – Reverse Osmosis Membrane

In normal condition Reverse Osmosis unit shall operate with one line in operation and the second in conservation.

Chemically conditioned and filtered water will reach the suction side of the RO High Pressure Pumps

(P-50004 A or P-50004B) and will be fed to the RO units (A-50007 A or A-50007B).

These pumps shall operate in a fixed pressure range and are protected from the suction low pressure (and therefore from low flow) by the pressure transmitter 50-PT-026 / 50-PT-028, which give an alarm.

RO High Pressure Pumps P-50004A/B are protected from high suction pressure by pressure transmitter 50-PT-026 / 50-PT-028, which give an alarm and from safety valves 50-PSV-034 / 50-PSV-037 that will open in case of overpressure.

RO High pressure pumps P-50004A/B are equipped with VFD in order to maintain the constant RO water recovery flow rate (permeate). Pumps delivery pressure is controlled by 50-PIC-030/ 50-PIC-032, that operates on pump's VFD. Then set pressure point value could be re-adjusted by 50-FIC -024 that measures the permeate flowrate.

SWRO membranes are protected from the high-high delivery pressure by installed pressure safety valves 50-PSV-035 / 50-PSV-038 while pressure transmitters 50-PT-030 / 50-PT-032 give alarm when high pressure is reached (62 barg).

The SWRO desalinated permeate water (fresh water) will be sent directly to the Fresh Water Tank T-50008, whereas the concentrated brine will be sent to water drain.

Permeate quality of both lines is checked by a conductivity meter (50-AT-024), which reports a value on PLC: if conductivity exceeds the design product value (High conductivity alarm, High High conductivity discharge), permeate is automatically discharged, through the opening of the automatic off-spec valve 50-XV-026 and closing the automatic valve 50-XV-025. When the conductivity value will return below the proper value, the treated water is automatically diverted at the Fresh Water tank, closing 50-XV-026 and opening 50-XV-025.

3.2.1 Automatic Flushing

In case of shutdown for a period longer than 1- 3 hours, the SWRO unit must be flushed at low pressure, to displace the salt water after the SWRO Line A or B stop. Flushing is automatically performed with RO permeate through SW Booster Pumps P-50003A or P-50003B and Pumps P-50004A or P-50004B when one RO line has finished its operation. For SWRO Line A, automatic valves

50-XV-023 (flushing inlet), 50-XV-027 (flushing outlet) and 50-XV-026 (off-spec) shall be opened, while

50-XV-025 (permeate outlet) shall be closed. For SWRO Line B automatic valves 50-XV-024 (flushing inlet), 50-XV-030 (flushing outlet) and 50-XV-026 (off-spec) shall be opened, while 50-XV-025 (permeate outlet) shall be closed.

During the flushing all the chemical dosing units shall be stopped. Flushing shall operate for 10-15 minutes to remove the brine. During flushing of one line the plant does not produce fresh water. Flushing discharge is collected into water drain.

3.3 POST-TREATMENTS

SWRO permeate is stored in Fresh Water Tank T-50008 equipped with level transmitter 50-LT-021, which provides alarms for the Fresh Water Pumps P-50009A/B.

The Fresh Water Pumps feed the SWRO permeate to post treatment and are automatically started and stopped, according to the water demand required to electrolyser.

3.3.1 Softening Filter (S-50004)

Softening is a chemical process to reduce any residual calcium and magnesium (hardness) content from water. These two elements, together with the presence of carbonates, are the main causes of limescale build-up.

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Figure 7-Softening Filter

Softening is achieved by passing the water through a bed of cation ion exchange resin. The resin in the columns exchange sodium ions, with which they are charged, against calcium and magnesium ions. The softened water will therefore be free of hardness and have an increased sodium content.

When the resin is exhausted, i.e. fully charged with Ca^{++} and Mg^{++} ions and now have no Na^{+} to exchange, it is necessary to regenerate them. Regeneration means restoring the sodium level in the resins: this is available in the regenerant sodium chloride (NaCl). Frequency of regeneration is approx. every 20 -40 m^3 of produced fresh water, i.e. approx. every two weeks.

The device automatically prepares the required brine from tables salt. This Softening Fiter package contains vessel resins and brine tank assembled in a compact unit. A local switchboard (LP-S-50004) controls the resin regeneration and brine saturated preparation.

3.3.2 UV Sterilizer (S-50010)

Softened permeate is treated with sterilization system, consisting of special low pressure mercury germicidal lamp. The light emitted from this lamp is concentrated (90%) into the luminous spectrum around 254 nm wavelength and is able to destroy or inactivate microorganisms such as bacteria, viruses, yeasts and moulds. The UV-C light emitted by this lamp penetrates the cells wall of microorganism.

The lamp is immersed, inside the disinfection chamber, in the treating fluid and is separated from it with quartz sleeves, transparent for more than 98% to UV-C rays.

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A local switchboard (LP-S-50010) controls the operation.

At the outlet of UV are installed the following instruments:

- Hardness 50-AT-026: high level gives and alarm and high high level opens off-spec valve 50-XV-032 and closes 50-XV-031.
- pH 50-AT-027: high level or low level give and alarm and high high level or low low level open off-spec valve 50-XV-032 and closes 50-XV-031.(No longer in use, pH control and related logics have been disabled)
- Pressure 50-PT-041: gives alarm for high and low pressure.
- Temperature 50-TT-024 only for indication
- Flow rate 50-FT-026: gives alarm for high and low flow.

Figure 8-UV-Sterilizer

The following software information are sent to electrolyser through control system PCS via Modbus:

- Total Hardness 50-AI-026.
- pH 50-AI-027.
- Temperature 50-TI-024.
- Flowrate 50-FI-026.

3.3.3 Caustic Soda Dosage (NO LONGER IN USE)

Caustic soda (2% solution) is continuously dosed downstream the softener, to increase the pH of fresh water up to value of 7 – 7.9 as required by the Electrolyser.

Caustic Soda Dosing Pumps P-50005A/B shall be equipped with an automatic dosing stroke adjustment regulator which allow to regulate the dosage flow.

pH through analyser 50-AT-027 is measured downstream UV system: low level pH and high level pH shall give an alarm, while high high and low low level alarm open off-spec valve 50-XV-032 to discharge the flow to drain and close valve 50-XV-031.

Caustic Soda Dosing shall be fed from Caustic Soda Storage Tank T-50002 equipped with a level transmitter 50-LT-022, which provides an alarm for the refilling requirement (50-LAL-022) and the trip (50-LALL-022) for avoid the dry running of the pumps.

The chemical Storage Tank T-50002 shall be manually re-filled opening the top inspection cover.

Note: Fresh water is not sent to Electrolyzer, but it feeds a second water treatment stage that accept pH values around 6, so the dosage of caustic soda is no longer required)

4 FUNCTIONAL DESCRIPTION / PROCESS CONTROL NARRATIVES

4.1 SEA WATER PRE-TREATMENT SYSTEM

4.1.1 Purpose of the Process Control

The purpose of process control of the Sea Water Pre-Treatment System is to ensure the correct filtration and heating of the stream of sea water entering the package. The Sea Water Coarse Filter A-50003 (see Section 3.1.1) is a self-cleaning filter and provides the first filtration of the inlet sea water stream.

The Electric Heater H-50001 (see Section 3.1.2), heats the sea water up to 10°C and operates in cold time when the sea water temperature entering the system is low.

The Sand Filter S-50001 (see Section 3.1.3) provides a better filtration of the sea water. The Sand Filter requires periodic backwash for cleaning.

The filtered water is stored in the Filtered Water Tank T-50006 and the Backwash Pumps P-50002A/B (one operating and the other stand-by) provide water at required pressure for the Sand Filter backwash.

4.1.2 Description of the Process Operation

A stream of sea water enters the package at the required conditions of 2-5 barg and 2.5 m^3/h.

A small flow of biocide is added to the stream before coarse filtration. The flow of biocide is stopped if valve 50-XV-020 is closed, see Section 4.6.

The stream passes through the shutoff valve 50-XV-020, that is opened during the normal operation of the Sea Water Treatment System and it's closed when the Sea Water Filter is in backwash.

The position of the shutoff valve is indicated by the limit switches 50-XZSH-020 (open) and 50-XZSL-020 (closed).

The pressure of the inlet stream is measured and indicated by pressure transmitter 50-PT-020. An alarm is activated in case of low inlet pressure 50-PAL-020.

Automatic tank refilling sequence

Filter Water Tank T-50006 shall be every time filled from low level to high level set points as per the following automatic sequence:

- Open the inlet shutoff valve 50-XV-020.
- Restart Sea Water Intake Pump P-50001A/B, (signal tag 50-HS-001S "Sea Water Pump start request").
- Start again the Biocide Dosing Pump P-50007A or P-50007B.
- Start the Electric Heater H-50001 and temperature controller 50-TIC-021.
- Seawater Coarse Filter A-50003 and Sand Filter S-50001 are already available and in service, no PLC commands from PLC are needed.

When Tank T-50006 high level threshold is achieved, sequence will proceed with the following steps:

- Stop the electric heater H-50001;
- If 50-TI-020 is >50°C, wait 120 sec for heater cooling;
- Stop Sea Water Intake Pump P-50001 A/B (50-HS-005S stop signal by ROSETTI);

- Stop the Biocide Dosing Pump P-50007A or P-50007B;
- Close the inlet shutoff valve 50-XV-020;

The Sea Water Coarse Filter A-50003 is a self-operating package. A pressure switch starts the self-cleaning operation in case of high differential pressure and activates the rotation of cleaning system while opening the bottom discharge valve to flush out the filtered solid and cleans the filter surface.

A dedicated timer (15-30 minutes or more as frequency and 15 sec as duration of self-cleaning) is provided adjustable on PLC, to start the self-cleaning of Sea Water Coarse Filter.

PLC will send the relevant command to local switchboard LP-A-50003 for self-cleaning activation.

The Sea Water Coarse Filter A-50003 package generates a cumulative alarm output 50-XA-A50003.

The sea water pressure downstream the Sea Water Coarse Filter A-50003 is indicated the pressure gauge 50-PI-048.

The temperature downstream the Electric Heater H-50001 is controlled by 50-TIC-021. The temperature is measured by temperature transmitter 50-TT-021. If the temperature measured by 50-TT-021 is below set point of 12°C (adjustable), the controller 50-TIC-021 increases the power of the electric heater (controlled via SCR). If the temperature measured by 50-TT-021 is above set point the controller 50-TIC-021 decreases the power of the electric heater.

The pressure at Sand Filter S-50001 inlet is indicated by pressure gauge 50-PI-022.

The sea water flowrate at Sand Filter S-50001 inlet is measured and indicated by flow transmitter 50-FT-020. An alarm is activated in case of low or high flowrate, 50-FAL-020 / 50-FAH-020.

General notes:

1) Delay time for low flow alarm shall be longer than 30 sec. Alarm is inhibited during self-cleaning filter backwash
2) Set point of alarms during normal operation are different than during sand filter backwash.

The above flow transmitter 50-FT-020 sends the set point value to flow controller 50-FIC-020, that adjusts the Flow Control Valve 50-FV-020, to divert the exceeding flow rate to the drain and to keep constant flow rate to Electric Heater H-50001 and Sand Filter S-50001.

If the measured flowrate value is higher than set point 2.5 m^3/h, then Flow Control Valve 50-FCV-020 is increased opened and vice-versa.

Pressure is measured at inlet and outlet Sand Filter S-50001 by pressure transmitters 50-PT-050 and 50-PT-051.

The differential pressure across Sand Filter S-50001 is computed by control system with the following formula:

[50-PDI-052] = [50-PI-050] - [50-PI-051].

An alarm is activated in case of high differential pressure 50-PDI-052.

Sand filter backwash sequence

The Sand Filter S-50001 is a self-operating package for automatic service and backwashing sequences.

The backwash operation is only performed by PLC control, based on computed differential pressure 50-PDI-052 above a set point of 0.7 bar (adjustable) or based on elapsed service time (settable). Local settings on local switchboard

LP-S-50001 are disable for backwash activation.

Sand Filter S-50001 backwash will be as per following automatic sequence:

- Check the T-50006 level. Wait for high level > 80% to have enough water holdup for backwash; otherwise the Sand Filter is kept in operation until high level is achieved in the tank;
- Automatic tank refilling sequence is inhibited
- Stop the electric heater H-50001;
- If 50-TI-020 is >50°C, wait 120 sec for heater cooling;
- Stop the Sea Water Intake Pump P-50001A/B, (50-HS-005S stop signal by ROSETTI).
- Close the inlet shutoff valve 50-XV-020. In case of valve position failure, the backwash sequence cannot proceed and an alarm is displayed;
- Start the Sand Filter backwash sequence, via PLC command signal to local switchboard LP-S-50001.
- Start the Backwash Pump P-50002A (or P-50002B);
- Differential pressure high alarm from 50-PDI-052 is disabled during backwash (50-PDI-052 is high during sand filter backwash).
- Pressure inlet sand filter is measured by pressure transmitter 50-PT-050
- Flow rate inlet sand filter is measured by flow transmitter 50-FT-020, with another set-point alarms of low or high flowrate, 50-FAL-020 / 50-FAH-020
- Wait for complete backwash cycle (timer 28min, adjustable);
- Inhibit the automatic opening
- Stop the Backwash Pump P-50002A (or P-50002B)
- Automatic tank refilling sequence is restarted once T-50006 low level is reached

The filtered water is collected in the Filtered Water Tank T-50006. The level of this tank is measured and indicated by level transmitter 50-LT-020.

The following alarms are activated in case of following thresholds:

- Low level or very low level, 50-LAL-020, 50-LALL-020
- High level or very high level 50-LAH-020, 50-LAHH-020

4.1.3 Safeguarding Intent

The main safeguarding of the system are:

- Prevent overheating of water downstream Electric Heater H-50001
- Prevent heater H-50001 element's overheating and damage

- Prevent dry running of Backwash Pumps P-50002A/B and SW Booster Pumps P-50003A/B
- Prevent high level of chlorides in fresh water.

In order to prevent overheating of water downstream H-50001and high level of chlorides in fresh water, temperature transmitter 50-TT-022 measures the seawater temperature and the following events will happen:

- In case of temperature > 25 °C, an alarm 50-TIH-022 is displayed and interlock I-020 is activated to open off-spec valve 50-XV-026, close forward valve 50-XV-025;
- For high temperature > 40° C an alarm 50-TIHH-022 is displayed and interlock I-001 is activated to stop Electric Heater H-50001.

In order to prevent Heater H-50001 element's overheating, a temperature element 50-TE-020 is embedded in one of the heater's element. In case of high high temperature (> 110°C) 50-TSHH-020 interlock I-011 trips the electric heater and very high temperature alarm is alerted.

In order to prevent dry running of pumps P-50002A/B and P-50003A/B, Filtered Water Tank T-50006 level is monitored by 50-LT-020, in case of low low level 50-LILL-20 activates interlock I-002 that stops pumps P-50002A/B, P-50003A/B and 50004A/B , and Antiscalant Dosing Pump P-50006A/B.

4.1.4 Start-up of the Section

At startup the following automatic valves shall be closed:

- Main inlet valve 50-XV-020;
- Drains valves 50-XV-033, 50-XV-034, 50-XV-035

Start Sea Water Pump P-50001 A/B (tag signal 50-HS-001S by ROSETTI), then valve 50-XV-020 is then opened to allow the flow of seawater.

Once the inlet flowrate is established and is controlled (check 50-FT-020 and adjustment 50-FIC-020) and the feed pressure is at minimum 1.5 barg switch on the Electric Heater H-50001 and start control loop 50-TIC-021.

Coarse Filter A-50003 and Sand Filter are already for service by means of logic inside the local switchboards LP-A-50003, LP-S-50001 (PLC controls only their start backwash sequence).

Biocide Dosing Pump P-50007A or P-50007B is started.

Adjust manual valve MV-509 (outlet of sand filter) to have a back pressure of 1.3 barg at the outlet of Sea Water Coarse Filter A-50003 by reading pressure gauge 50-PI-048 and a flowrate of 2.5 m^3/h. Re-check that the feed pressure is 1.5 barg.

Once the above manual valve MV-509 is set adjusted during only first start-up, not continuously and no need any operator intervention.

Check also the proper operation of the air vent valve MV-635, at only first start up. This valve shall only release the entrapped air and then be re-closed and not remaining always opened.

4.1.5 Normal Process Shut down of the Section

In case of normal shutdown of the section, turn off the control loop 50-TIC-021 and the Electric Heater H-50001. After 5 minutes demand to DCS to stop the Sea Water Pump P-50001 A/B (tag signal 50-HS-005S by ROSETTI) and stop Biocide Dosing Pump P-50007A or P-50007B, close inlet shutoff valve 50-XV-020.

4.1.6 Equipment Failure or Fault

The backwash pumps (P-50002A/B) operate in a redundant configuration to ensure process continuity. If one of the pumps fails, the standby pump will automatically start when the sand filter backwash is requested. An alarm will be triggered to indicate the fault in the affected pump.

If both pumps are in fault, an alarm will be generated, and the backwash cycle will either not be performed or will be interrupted. However, the system will continue to operate normally.

Pump switching also occurs based on operating hours: when a backwash is requested, the pump with fewer operating hours will start to ensure balanced usage.

Coarse Filter S-50003 will send a common fault alarm (50-XA-50003) to PLC, in case of failure.

The self-cleaning filter is not considered critical for system operation. However, if filtration is insufficient, it may reduce the availability of filtered water. If the water level drops too low, the SWRO Lines A/B will automatically shut down for protection.

Also Sand Filter S-50001 will send a common fault alarm (50-XA-50001) to PLC, in case of automatic backwash sequence failure.

Each automatic valve failure blocks the involved automatic sequence such as tank filling, emptying, sand filter backwash.

Each field instrument fault is transmitted to PLC for diagnostic target with relevant displayed alarm.

4.2 SEA WATER REVERSE OSMOSIS SYSTEM

4.2.1 Purpose of the Process Control

The purpose of process control of the Sea Water Reverse Osmosis System is to control the sea water correct parameters (mainly pressure and flowrate) at SWRO module inlet and to the outlet fresh water characteristics and flowrate.

The Sea Water Reverse Osmosis System is composed by 2x100% SWRO trains, one operating and the other in stand-by.

In normal operation the switchover of the lines is periodically to keep all the lines ready for operation.

The Sea Water Booster Pump P-50003A (P-50003B) pumps water from Filtered Water Tank T-50006 through the 1st and 2nd Cartridge Filters S-50002A (S-50002B) and S-50003A (S-50003B) and to the Sea Water High Pressure Pump P-50004A (P-50004B).

The Sea Water High Pressure Pump P-50004A (P-50004B) is controlled to ensure the correct inlet pressure at SWRO membranes inlet.

The produced fresh water passes through a conductivity analyzer and then is collected in the Fresh Water Tank T-50008 while the SWRO membrane reject (brine) is discharged.

4.2.2 Description of the Process Operation

The seawater coming from Filtered Water Tank T-50006 passes through the conductivity analyzer 50-AT-023. Alarm is activated in case of high conductivity, 50-AAH-023.

A small flow of antiscalant is added to the stream before filtration. The flow of antiscalant is stopped if both valves 50-XV-021 and 50-XV-022 are closed (see Section 4.5) and both SW Booster Pump P-50003A/B are stopped.

There are 2x100% lines of SWRO in parallel, the selection of the operating line is made with shutoff valves 50-XV-021 and 50-XV-022, one is open and the other is closed.

The position of valve 50-XV-021 is indicated by the limit switches 50-XZSH-021 (open) and 50-XZSL-021 (closed).

The position of valve 50-XV-022 is indicated by the limit switches 50-XZSH-022 (open) and 50-XZSL-022 (closed).

Automatic shutoff valves are installed on the fresh water flushing line on the SW Booster Pumps P-50003A/B suctions: 50-XV-023 and 50-XV-024.

The position of valve 50-XV-023 is indicated by the limit switches 50-XZSH-023 (open) and 50-XZSL-023 (closed).

The position of valve 50-XV-024 is indicated by the limit switches 50-XZSH-024 (open) and 50-XZSL-024 (closed).

50-XV-023 and 50XV-024 are closed during the system normal operation.

SW Booster Pump P-50003A (P-50003B) feeds water to the Cartridge Filters S-50002A (S-50002B) and S-50003A (S-50003B).

The pressure at pump discharge is measured by 50-PT-025 (50-PT-027). Alarm is activated in case of low pressure, 50-PAL-025 (50-PAL-027).

Flowrate at pump's discharge is measured by 50-FT-022 (50-FT-023). Alarm is activated in case of low or high flowrate, 50-FAL-022 (50-FAL-023), 50-FAH-022 (50-FAH-023).

The pressure downstream Cartridge Filters S-50002A and S-50003A (S-50002B and S-50003B) is measured by 50-PT-026 (50-PT-028). Alarm is activated in case of low pressure, 50-PAL-026 (50-PAL-028).

Differential pressure across filters 50002A and S-50003A (S-50002B and S-50003B) is calculated by control system with the following formula:

[50-PDI-024] = [50-PI-025] - [50-PI-026]

([50-PDI-029] = [50-PI-027] – [50-PI-028])

Alarm is activated in case of high differential pressure, 50-PDAH-024 (50-PDAH-029) >2bar.

High Pressure Pump P-50004A (P-50004B) delivers high pressure fluid to SWRO membranes.

Pressure at pump's discharge is measured by 50-PT-030 (50-PT-032) and controlled by cascade control loop 50-PIC-030 (50-PIC-032) as slave controller and 50-FIC-024 as master controller.

If the pressure measured by 50-PT-030 (50-PT-032) is below set point (60 barg - adjustable), 50-PIC-030 (50-PIC-032) increases the rotation speed of pump P-50004A (P-50004B) by means frequency changing of the variable frequency drive.

If the pressure measured by 50-PT-030 (50-PT-032) is above set point, 50-PIC-030 (50-PIC-032) decreases the rotation speed of pump P-50004A (P-50004B), by means control of variable frequency drive.

Alarm is activated in case of high and low pressure, 50-PAH-030 (50-PAH-032) 50-PAL-030 (50-PAL-032).

The flowrate of fresh water at common SWRO membranes outlet is measured by 50-FT-024. Alarm is activated in case of low flow and in case of high flow, 50-FAL-024 and 50-FAH-024.

To guarantee the permeate flow rate production all the time, the master controller 50-FIC-024 overrides the pressure set point of 50-PIC-030 (50-PIC-032).

In case of measured flow rate is lower than set point value, then 50-FIC-024 will command to increase the actual feed pressure and consequent the higher rotation speed of the pump P-50004A (P-50004B) and vice-versa.

Pressure at brine outlet of SWRO membranes is measured by pressure gauge 50-PI-031 (50-PI-033).

Automatic shutoff valves are installed on the SWRO membrane brine discharge line: 50-XV-027 and 50-XV-030.

The position of valve 50-XV-027 is indicated by the limit switches 50-XZSH-027 (open) and 50-XZSL-027 (closed).

The position of valve 50-XV-030 is indicated by the limit switches 50-XZSH-030 (open) and 50-XZSL-030 (closed).

50-XV-027 and 50XV-030 are closed during normal system operation.

The seawater coming from both lines of SWRO membranes passes through the conductivity analyzer 50-AT-024 and then flows to Fresh Water Tank T-50008. Alarm is activated in case of high conductivity, 50-AAH-024.

Automatic shutoff valve 50-XV-025 is installed on the freshwater line to Fresh Water Tank T-50008.

The position of valve 50-XV-025 is indicated by the limit switches 50-XZSH-025 (open) and 50-XZSL-025 (closed).

Automatic shutoff valve 50-XV-026 is installed on the fresh water line to drain (off-spec).

The position of valve 50-XV-026 is indicated by the limit switches 50-XZSH-026 (open) and 50-XZSL-026 (closed).

4.2.3 Safeguarding Intent

The main safeguarding of the system are:

- Prevent cavitation at suction side of SW Booster Pump P-50003A (P-50003B)
- Prevent any seawater gravity flow contamination to Tank T-50008;
- Prevent overpressure at suction side of HP Pump P-50004A (P-50004B);
- Prevent overpressure at SWRO membranes A-50007A (A-50007B) inlet;
- Prevent overpressure at SWRO membranes A-50007A (A-50007B) permeate outlet

- Prevent very low pressure at suction side of HP Pump P-50004A (P-50004B);
- Prevent off-spec fresh water to Fresh Water Tank T-50008.

To avoid cavitation at suction side of SW Booster Pumps:

- An Interlock I-025 stops or blocks the SW Booster Pump P-50003A, if automatic valves 50-XV-021 and 50-XV-023 are simultaneously closed
- An Interlock I-026 stops or blocks the SW Booster Pump P-50003B, if automatic valves 50-XV-022 and 50-XV-024 are simultaneously closed

To exclude any seawater flow gravity contamination to Fresh Water Tank T-50008, the following interlocks will be foreseen:

- An Interlock I-021 closes fresh water inlet automatic valve 50-X-023, if the seawater feed automatic valve 50-XV-021 is open and vice-versa (closes automatic valve 50-X-021 if automatic valve 50-X-023 is open)
- An Interlock I-023 closes fresh water inlet automatic valve 50-X-024, if the seawater feed automatic valve 50-XV-022 is open and vice-versa (closes automatic valve 50-X-022 if automatic valve 50-X-024 is open)

In order to prevent overpressure of suction side of HP Pump P-50004A, a pressure safety valve 50-PSV-034 with set point of 4 barg is installed at pump inlet.

In order to prevent overpressure at suction side of HP Pump P-50004B, a pressure safety valve 50-PSV-037 with set point of 4 barg is installed at pump inlet.

In order to prevent overpressure of SWRO membranes A-50007A (A-50007B) a pressure safety valve

50-PSV-035 (50-PSV-038) with set point of 65 barg is installed at membranes inlet, displaying the relevant high pressure alarm. 50-PAH-030 (50-PAH-032)

In case of very low pressure at suction of HP Pump P-50004A, an alarm is advice 50-PALL-026, that activates interlock I-013 to stop the HP Pump.

In case of very low pressure at suction side of HP Pump P-50004B, an alarm is advise 50-PALL-028, that activates interlock I-014 to stop the HP Pump.

In order to prevent overpressure of SWRO membranes A-50007A (A-50007B) a pressure safety valve

50-PSV-036 (50-PSV-039) with set point of 6 barg is installed at permeate outlet.

In order to prevent off-spec fresh water flowing into the Fresh Water Tank T-50008:

- In case of high high conductivity alarm 50-AIHH-024, interlock I-003 closes the shutoff valve to Fresh Water Tank T-50008, 50-XV-025 and open off-spec drain valve 50-XV-026.
- In case of temperature > 22 °C, an alarm 50-TIH-022 is displayed and interlock I-020 is activated to open off-spec valve 50-XV-026, close forward valve 50-XV-025, to avoid any high chlorides in the fresh water, due to expected low membrane salt rejection.

4.2.4 Start-up of the Section

- Open the inlet shutoff valve of the selected line, 50-XV-021 or 50-XV-022;
- Open the off-spec valve 50-XV-026;
- SW Booster Pumps P-50003A or P-50003B shall not start if PLC recognizes the following abnormal conditions:
  - ✓ Simultaneous closure of 50-XV-025 and 50-XV-026 by limit switches signal feedback.
  - ✓ Failure opening of inlet shutoff valve of the selected line 50-XV-021 or 50-XV-022; by means limit switches signal feedback.
  - ✓ Automatic flush inlet valves 50-HV-023 and 50-HV-024 remained in open position, during the production period
- Start the SW Booster Pump P-50003A or P-50003B, when the water level into Fresh Water Tank T-50008 is low, in case of low level into Filtered Water Tank T-50006 is achieved and no signal inhibition is activated by very low level threshold;
- One Antiscalant Dosing Pump P-50006A or P-50006B shall be started;
- Check properly operation of air vent valves MV-640 and MV-641 (at the first start up);
- When the pressure at downstream Cartridge Filters measured by 50-PT-026 or 50-PT-028 is higher than 2 barg and stable, it is allowed to start one High Pressure Pump P-50004A/B;
- Start slowly by VFD ramp the High Pressure Pump P-50004A or P-50004B;
- Gradually throttle manual valve MV-550 or MV-558 until permeate flowrate, measured by 50-FT-024, is 0.8 m^3/h and in same time the 50-PIC-030 or 50-PIC-032 will adjust the feed pressure up to set-point value, changing the pump speed rotation. This manual adjustment is required only for first start-up and after no need operator intervention;
- 50-FIC-024 shall re-adjust the set-point value from 50-PIC-030 or 50-PIC-032 if the permeate flow rate is not kept constant and especially expected after several start-up, not at first start-up period;
- Check the properly operation of air vent valves MV-642 and MV-645 (at the first start up);
- Check the flow and pressure for correct parameters readings: 50-PT-025/026/030, 50-PI-031 and 50-FT-022/024 or 50-PT-027/028/032, 50-PI-033 and 50-FT-023/024;
- Check the conductivity analyzer 50-AI-024: if the value is below the maximum allowable value, then it's possible to open the valve 50-XV-025 to the Fresh Water Tank T-50008 and close the off-spec valve 50-XV-026.

During the production, SWRO Line A-50007A or A-50007B will be normal stopped when high level into Fresh Water Tank T-50008 is achieved (set point expected at 80%).

4.2.5 Normal Process Shut down of the Section

The sequence for normal shutdown of SWRO Line A-50007A or A-50007B is as per following positions:

- Stop Antiscalant Dosing Pump P-50006A or P-50006B (if Both SWRO Lines A/B are stopped);

- Open brine drain valve 50-XV-027 or 50-XV-030 of SWRO Line A/B to be shut down;
- Close the fresh water valve 50-XV-025 and open off-spec valve 50-XV-026;
- High Pressure Pump P-50004A or P-50004B must be slowly stopped by VFD deceleration ramp;
- Stop SW Booster Pump P-50003A or P-50003B;
- Close the filtered water inlet valve 50-XV-021 or 50-XV-022;
- Wait period 1 - 3 h or longer (timer adjustable) before proceeding to next flushing sequence. If DCS client's signal requires again fresh water within waiting period, then the previous stopped SWRO Line A/B shall be again ready for service and must not be flushed, otherwise the flushing sequence is activated.

4.2.6 Automatic Flushing of the Section

To avoid scaling and corrosion issues to the installed equipment and SWRO membrane, the long stopped SWRO Line A/B must be mandatorily flushed by fresh water.

Fresh water from tank T-50008 flows in the SWRO Line A-50007A/B to displace the brine through the brine outlet to the drain.

When automatic flushing is activated, the following sequence will be as per below described:

- Check if the water level inside the Fresh Water Tank T-50008 is approximately 80%, otherwise the SWRO Lines A/B shall be kept in operation until to achieve high level threshold into Tank T-50008;
- Very low level stop the SW Booster pump P-50003A or P-50003/B in case of the automatic flushing sequence;
- Fresh Water Pumps P-50009A or P-50009B and Caustic Soda Dosing Pumps P-50005A orP-50005 B was already stopped;
- UV lamp of Sterilizer S-50010 was already switch-off and stopped any new automatic analysis cycle of Total Hardness Analyzer 50-AT-025;
- Open automatic flushing inlet valves 50-XV-023 (SWRO Line A), or 50-XV-024 (SWRO Line B);
- Only one brine drain valve 50-XV-027 or 50-XV-030 of the SWRO Line in stand-by must be closed;
- Start the SW Booster Pump P-50003A or P-50003B;
- High Pressure Pump P-50004A or P-50004B is slowly started by VFD acceleration ramp;
- Wait for 10-15 minutes for a complete flushing

Then the automatic flushing of SWRO Line A or B shall be stopped according to following sequence:

- Let brine drain valve 50-XV-027 or 50-XV-030 of SWRO Line A/B in open position;
- High Pressure Pump P-50004A or P-50004B must be slowly stopped by means VFD deceleration ramp;
- Stop SW Booster Pump P-50003A or P-50003B;

- Close the fresh water inlet valve 50-XV-023 or 50-XV-024;
- Close the brine drain valve 50-XV-027 or 50-XV-030.

At next fresh water production, the last flushed SWRO Line will be in stand-by and the other SWRO Line will be switched from stand-by to service or ready for the running. Equipment Failure or Fault

If one of the SWRO line pumps P-50003A/B or P-50004A/B is in fault, the affected line will not start or will shut down, and no flushing will be performed. Alarms will be displayed accordingly.

Only the SWRO line with operational pumps will remain available, or it will start in place of the stopped one due to a fault. If both SWRO lines are unavailable, the pre-treatment and fresh water sections will remain active, provided that the level transmitters in the storage tanks are functional and providing reliable measurements.

If any fault happens due to dedicated field instrumentation for an SWRO Line A-50007A/B, this affected line must shut down and generate a fault alarm.

This scenario includes the following instruments failures:

- Flow transmitters: 50-FT-022 or 50-FT-023
- Pressure transmitters: 50-PT-025 or 50-PT-026 or 50-PT-027 or 50-PT-028 or 50-PT-030 or 50-PT-032.

If a SWRO Line A-50007A/B has instrumentation in fault and was not yet started, the PLC will not authorize its startup. However, if the line was already in operation when the failure occurred, the system must immediately stop the line and initiate a normal stop procedure as per section 4.2.5.

If below conditions are met, the flushing procedure as per section 4.2.6 will activate, otherwise the sequence is disable.

- Pressure transmitter 50-PT-026 or 50-PT-028 is healthy
- Level transmitter 50-LT-021 is healthy

The following field instruments and analyzers are critical for both SWRO Lines A-50007A/B operation and for fresh water production:

- Flow transmitter 50-FT-024 (permeate flow measurement)
- Conductivity transmitter 50-AT-024 (permeate conductivity measurement)
- Level transmitter 50-LT-020 (filtered water tank T-50006)
- Permeate conductivity analyzer 50-AT-024
- Fresh water hardness analyzer 50-AT-026
- Fresh water pH analyzer 50-AT-027 (No longer involved)

Any fault happens due to the above listed instruments, both SWRO Lines A/B must be stopped or prevented from starting, while the automatic flushing will still be alone allowed both SWRO Lines A/B.

Each field instrument fault is transmitted to PLC for diagnostic target with relevant displayed alarm.

In case of any automatic switching valves failure, (feedback limits switch signals), the relevant involved automatic sequence is immediately interrupted, SW Booster Pump and High Pressure Pump are stopped and advise alarm is displayed.

4.3 FRESH WATER STORAGE AND POST-TREATMENT

4.3.1 Purpose of the Process Control

The purpose of the process control of the Fresh Water Storage and Post-Treatment System is to collect the produced fresh water, pump it to the user at battery limits while performing the final treatments and check on the water quality.

The fresh water flows from the Fresh Water Tank T-50008 to the Fresh Water Pumps P-50009A/B (one operating and the other stand-by).

The pump discharge flows into a softening filter, an UV Sterilizer, it's added with a sodium hydroxide solution to control the pH (caustic dosage for pH control has been disabled) and then goes to the battery limit after a series of transmitters and analyzers to monitor the following water physical and chemical parameters:

- Total Hardness
- pH (pH is only monitored)
- Temperature
- Pressures at upstream and downstream Softener Filter and UV Sterilizer
- Flowrate

A dedicated shutoff valve discharges the fresh water to the drain in case of off-spec.

4.3.2 Description of the Process Operation

The Fresh Water Tank T-50008 shall be filled every time from low level to high level set points, starting one SWRO Line A or B.

The level in the Fresh Water Tank T-50008 is measured by level transmitter 50-LT-021, providing the following controls signals to PLC:

- An alarm is activated in case of low low level, 50-LLAH-021: trips Fresh Water Pumps P-50009A or P-50009B and SW Booster Pumps P-50003A or P-50003B in case of the automatic flushing of SWRO Lines A or B
- An alarm is activated in case of low level, 50-LAL-021: PLC starts the SW Booster Pumps P-50003A/B and HP Pressure Pumps P-50004A/B for the Tank Refilling and fresh water production
- An alarm is activated in case of high level 50-LAH-021: PLC stops the SW Booster Pump P-50003A or P-50003B and HP Pump P-50004A or P-50004B

  Elapsed waiting period 1 – 3 h and if other fresh water is not requested by DCS, the automatic flushing sequence of previous running SWRO Line A/B will be started,

- An alarm is activated in case of high high level 50-LAHH-021: PLC stops the SW Booster Pump and HP Pressure Pump as additional safety control guard P-50003A or P-50003B and P-50004A or P-5000B.

Fresh Water Pump P-50009A or P-50009B is started when low level setpoint achieved and PLC receives the relevant DCS's start command signal.

The same Fresh Water Pump P-50009A or P-50009B is stopped when PLC receives the relevant DCS's stop command signal or in case of very low level into a Tank T-50008.

The new sequence implemented during commissioning activities for start and stop the feeding of fresh water to the next package is described below (Ovivo Package is the package next to the Water treatment package supply by PSC):

1) The production On/Off 50-XV-031 is opened and the Off spec On/Off valve 50-XV-032 is closed
2) On/Off Valve to Ovivo Package, tag 1EBV1(not installed in PSC package) is opened and feedback open signal is sent to PLC panel 50-LP-001

When the above configuration is achieved Pump P-50009A or P-50009B is started and the sequence continue with the following steps

3) Fresh water tank recycle valve 50-XV-036 is opened
4) Pump 1ROP1 installed in the Ovivo Package is started and the running signal is sent to PLC panel 50-LP-001
5) After 25 sec of delay the On/Off recycle valve 50-XV-036 is closed

With point nr.5 the sequence is complete and Ovivio package is correctly fed with fresh water from the Water Treatment Package.

The stop sequence is described below:

1) The pump 1ROP1 installed in the Ovivo Package is stopped and the stop (not running) signal is sent to PLC panel 50-LP-001
2) Pump P-50009A or P-50009B is stopped
3) On/Off Valve to Ovivo Package, tag 1EBV1(not installed in PSC package) is closed and feedback not open signal is sent to PLC panel 50-LP-001
4) The production On/Off 50-XV-031 is closed

The pressure downstream the Fresh Water Pumps P-50009A/B is measured by pressure transmitter 50-PT-047. An alarm is activated in case of high or low pressure, 50-PAH-047, 50-PAL-047.

The Softening Filter S-50004 is a package and includes all the equipment for regeneration. Regeneration is activated from PLC control system on the basis of the totalized flow or off-spec residual hardness concentration.

When the softener regeneration is activated by PLC and sends the command to the local switchboard

LP-S-50004 to perform the resin backwashing by fresh water and then to transfer the brine solution hydraulically to resin. The brine solution not consumed by the resin is discharged to the drain. As a last sequence step, the regenerated resin is fresh water rinsed again to displace the exceeding brine solution.

During the regeneration sequence, a status indication is displayed to HMI and the Fresh Water Pump

P-50009A or P-50009B is in service.

To reduce the service water consumption and instantaneous flow for the resin regeneration, at the upstream the Softening Filter S-50004, the Automatic On/Off Valve 50-XV-036 is opened to recycle the exceeding flow to back the Fresh Water Storage Tank T-50008.

At the end of the regeneration, the Softening Filter S-50004 returns in service and the above Automatic On/Off Valve 50-XV-036 is reclosed.

The UV Sterilizer S-50010 ensures final sterilization of the fresh water.

Fresh Water outlet temperature is measured by temperature transmitter 50-TT-024, without any alarms.

Fresh Water outlet pressure is measured by pressure transmitter 50-PT-041. An alarm is activated in case of high and low pressure, 50-PAH-041 and 50-PAL-041.

Fresh Water outlet total hardness is measured by analyzer 50-AT-026. An alarm is activated in case of high hardness, 50-AAH-026.

Fresh Water outlet pH is measured by analyzer 50-AT-027 and controlled by pH controller 50-AIC-027. An alarm is activated in case of high and low pH, 50-AAH-027 and 50-AAL-027.

Fresh Water outlet flow is measured and totalized by 50-FT-026. Alarm is activated in case of high and low flow, 50-FAH-026 and 50-FAL-026.

pH controller 50-AIC-027 automatically controls the flowrate sodium hydroxide dosing pump P-50005A/B, basing to gap annulling between measured and set-point values. (pH control and caustic soda injection has been disabled, currently the pH parameter is only monitored)

Automatic shutoff valve 50-XV-031 is installed on the fresh water line to battery limit.

The position of valve 50-XV-031 is indicated by the limit switches 50-XZSH-031 (open) and 50-XZSL-031 (closed).

Automatic shutoff valve 50-XV-032 is installed on the fresh water line to drain (off-spec).

The position of valve 50-XV-032 is indicated by the limit switches 50-XZSH-032 (open) and 50-XZSL-032 (closed).

4.3.3 Safeguarding Intent

The main safeguarding of the system includes the following safeguard protection:

- Prevent dry running of Fresh Water Pumps P-50009A/B and pumps SW Booster Pumps P-50003A/B;
- Prevent off-spec fresh water (high pH) to battery limit;(alarm disabled no longer required)
- Prevent off-spec fresh water (low pH) to battery limit; (alarm disabled no longer required)
- Prevent off-spec fresh water (high total hardness) to battery limit;

- Prevent Fresh Water Pumps P-50009A and P-50009B running simultaneously;
- Prevent overpressure and pump shut-off condition;
- Prevent Fresh Water Tank T-50008 overfilling.
- Prevent UV Lamp Sterilizer lifetime

To prevent dry running, in case of low low level of Fresh Water Tank T-50008, 50-LILL-021 activates interlock I-004 that stops Fresh Water Pumps P-50009A/B.

To prevent off spec (high pH) fresh water to battery limit, in case of high high pH 50-AIHH-027, interlock I-006 closes shutoff valve to battery limit 50-XV-031 and opens off-spec valve 50-XV-032.

To prevent off spec (low pH) fresh water to battery limit, in case of low low pH 50-AILL-027, interlock I-007 closes shutoff valve to battery limit 50-XV-031 and opens off-spec valve 50-XV-032.

To prevent off spec (high total hardness) fresh water to battery limit, in case of high high total hardness 50-AIHH-026, interlock I-005 closes shutoff valve to battery limit 50-XV-031 and opens off-spec valve 50-XV-032.

To prevent pumps P-50009A and P-50009B running simultaneously, interlock I-018 stops pump P-50009 if P-50009B is running and interlock I-019 stops pump P-50009B if P-50009A is running.

In order to prevent overpressure and shut-off condition of HP Pump P-50009A or P-50009B, a pressure safety valve 50-PSV-053 with set point of 6 barg is installed at common pump delivery and high pressure alarms 50-PAH-047 and 50-PAH-041 are triggered.

To extend the UV Lamp lifetime, command to the device is given only when fresh water pumps P-50009A/B are running.

4.3.4 Start-up of the Section

At startup the valves 50-XV-031/032 are closed.

- Open the off-spec valve 50-XV-032;
- If PLC recognizes the simultaneous closure of 50-XV-032 and 50-XV-031 by limit switches, Fresh Water Pump P-50009A or P-50009B shall not start;
- Start the Fresh Water Pump P-50009A or P-50009B;
- Check the flowrate, temperature and pressure indicator for correct parameters readings: 50-FT-026, 50-PT-041 and 50-TT-024;
- Caustic Soda Dosing Pump P-50005A or P-50005B is started (disabled no longer required)
- Switch on the UV Sterilizer Lamp S-50010;

- Start the total hardness analyzer 50-AI-026 and check its value and check pH analyzer 50-AI-027: if the value of total hardness is below the maximum allowable value and the value of pH is inside the acceptable range, then it's possible to open the valve 50-XV-031 and close the off-spec valve 50-XV-032.

  Total Hardness Analyzer 50-AT-026 must be in service, as soon as Fresh Water Pump P-50009A or P-50009B running and correct pressure measured by 50-PT-041. (Expected water analysis cycle is every 2 h interval and a few minutes for test analysis result).

  The water analysis done by the analyzer cannot start when Fresh Water Pump P-50009A or P-50009B is stopped. Its relevant analysis cycle timer shall be reset.
- Check the proper operation of air vent valves MV-652, (requested only at first start-up)

4.3.5 Normal Process Shut down of the Section

- Switch-off the UV Sterilizer Lamp S-50010;
- Stop the Fresh Water Pump P-50009A or P-50009B on DCS's command request or in case of very low level inside Tank T-50008;
- Stop Caustic Soda Dosing Pump P-50005A or P-50005B; (Caustic Soda dosing pumps are currently disabled)
- Total Hardness Analyzer 50-AT-026 must stop the automatic cycle water analysis
- Close fresh water valve 50-XV-031

The Softening Filter S-50004 regeneration is scheduled during normal shutdown and without fresh water production request from DCS, as per following sequence

- Check if totalized flow is above 20 - 40 m^3 (adjustable) or AT-026 high alarm is activated, then proceed with Softening Filter regeneration.
- Check if the high level of fresh water inside the Fresh Water Tank T-50008 is active; otherwise, the Softener Filter regeneration is postponed until high level is achieved;
- Open off-spec valve 50-XV-032 and close the fresh water valve 50-XV-031;
- Open exceeding recycle flow valve 50-XV-036 to reduce the feed pressure;
- Total Hardness Analyzer 50-AT-026 must stop the automatic cycle water analysis;
- Start the Fresh Water Pump P-50009A or P-50009B;
- PLC send a command to local switchboard LP-S-0004, to start the softener filter regeneration sequence;
- Fresh water from tank T-50008 flows in the Softening Filter S-50004 to perform regeneration;
- After 45 minutes (adjustable) the regeneration is complete;
- The regenerated Softener Filter is available for service;
- Close exceeding recycle flow valve 50-XV-036;

- Stop Fresh Water Pump P-50009A or P-50009B;
- The previous totalized volume shall be reset and re-counted;

4.3.6 Equipment Failure or Fault

In case of one Fresh Water Pump P-50009A/B failure, the other stand-by pump will be available for the operation or started on DCS's demand and relevant alarm will be displayed.

Each automatic valve failure blocks the involved automatic sequence such as tank filling, emptying, Softening Filter regeneration.

Each field instrument fault is transmitted to PLC for diagnostic target with relevant displayed alarm.

In case of Softener Filter regeneration failure, an alarm fault will be displayed to local switchboard LP-S-50004.

4.4 CAUSTIC SODA DOSING SYSTEM (CURRENTLY DISABLED AND NO MORE REQUIRED)

4.4.1 Purpose of the Process Control

The purpose of the process control of the Caustic Soda Dosing System is to store and dose sodium hydroxide for pH correction of the fresh water at package outlet.

Sodium Hydroxide solution (from 1 % to 5% based on the sea water characteristic and sodium hydroxide consumption) is stored in Caustic Soda Dosing Tank T-50002 and dosed by Caustic Soda Dosing Pumps P-50002A/B (one operating and the other in stand-by).

4.4.2 Description of the Process Operation

The level of Sodium Hydroxide tank T-50002 is measured by 50-LT-022. Alarm is activated in case of low level, 50-LAL-022.

Sodium Hydroxide from T-50002 is dosed by Caustic Soda Dosing Pumps P-50005A (P-50005B) to fresh water pipe downstream Softening Filter S-50004.

P-50005A (P-50005B) dosing speed is linked to operation of Fresh Water Pumps and dosing speed is automatically controlled by 50-AIC-027, comparing the measured value with set point value (7.5 adjustable).

Available range is between pH 7.1 to 7.9.

Pressure downstream P-50005A/B is indicated by pressure gauge 50-PI-042.

4.4.3 Safeguarding Intent

The main safeguarding of the system is:

- Prevent dry running of pumps P-50005A/B.
- Prevent overdosage of chemicals.

In case of low low level of tank T-50002, 50-LALL-022, interlock I-008 stops pumps P-50005A/B.

Dosing pump start/stop is linked to Fresh Water Pump P-50009A/B running.

Fault alarm of pH analyser is displayed in case of instrument failure and dosage control is automatically interrupted.

4.4.4 Start-up of the Section

Check if level in T-50002 is above minimum level and start dosing pump P-50005A or P-50005B.

4.4.5 Normal Process Shut down of the Section

Stop Caustic Soda Dosing Pumps P-50005A or P-50005B.

5.2.6 Equipment Failure or Fault

The stand-by pump will be automatically switched in service, in case of not availability or any failure of selected operating pump.

If level instrument is in fault, the Caustic Dosing Pump will be automatically stopped and alarm will be displayed to PLC

4.5 ANTISCALANT DOSING SYSTEM

4.5.1 Purpose of the Process Control

The purpose of the process control of the Antiscalant Dosing System is to store and dose antiscalant agent upstream the SWRO system (at T-50006 outlet to SW Booster Pumps P-50003A/B).

Antiscalant is stored in Antiscalant Dosing Tank T-50003 tank and dosed by dosing pumps Antiscalant Dosing Pumps P-50006A/B (one operating and the other in stand-by).

4.5.2 Description of the Process Operation

The level of Antiscalant tank T-50003 is measured by 50-LT-023. Alarm is activated in case of low level, 50-LAL-023.

Antiscalant from T-50003 is dosed by Antiscalant Dosing Pumps P-50006A (P-50006B) at Filtered Water Tank T-50006 outlet to SW Booster Pumps P-50003A/B and linked to these pumps operation to produce fresh water.

Antiscalant Dosing Pump P-50006A (P-50006B) dosing speed is fixed and pre-set during commissioning.

Pressure downstream P-50006A/B is indicated by pressure gauge 50-PI-043.

4.5.3 Safeguarding Intent

The main safeguarding of the system are:

- Prevent dry running of pumps Antiscalant Dosing Pumps P-50006A/B.
- Prevent antiscalant dosing when SWRO is not operating.

In case of low low level of tank T-50003, 50-LILL-023, interlock I-009 stops Antiscalant Dosing Pumps P-50006A/B.

If shutoff valves 50-XV-021 and 50-XV-022 are contemporaneously both closed interlock I-015 stops Antiscalant Dosing Pumps P-50006A/B.

4.5.4 Start-up of the Section.

Check if level in Antiscalant Dosing Tank T-50006 is above minimum level and start Antiscalant Dosing Pumps P-50006A or P-50006B.

4.5.5 Normal Process Shut down of the Section.

Stop Antiscalant Dosing Pumps P-50006A or P-50006B.

4.5.6 Equipment Failure or Fault

The stand-by pump will be automatically switched in service, in case of not availability or any failure of selected operating pump.

If level instrument is in fault, the Caustic Dosing Pump will be automatically stopped and alarm will be displayed to PLC

4.6 BIOCIDE DOSING SYSTEM

4.6.1 Purpose of the Process Control

The purpose of the process control of the Biocide Dosing System is to store and dose biocide agent to several positions:

- To Sea Water Package Inlet, upstream Coarse Filter A-50003 – continuous dosing.
- To Sea water Intake System (outside our scope of supply) – shock dosing (20 minutes every 2 days).
- To Waste Water Tank (T-55001, outside our scope of supply) – shock dosing (1 hour every week).

Shock dosages are controlled by PLC on a time basis.

Biocide is stored in Biocide Dosing Tank T-50004 and dosed by Biocide Dosing Pumps P-50007A or P-50007B (package inlet), P-50008A or P-50008B (sea water intake), P-50010A or P-50010B (Waste Water Tank T-55001). At each injection point, one pump is operating and the other is as ~~in~~ stand-by.

4.6.2 Description of the Process Operation

The level of Biocide Dosing Tank T-50004 is measured by 50-LT-024. Alarm is activated in case of low level, 50-LAL-024.

Biocide from Biocide Dosing Tank T-50004 is dosed by Biocide Dosing Pumps P-50007A (P-50007B) to package inlet, upstream Coarse Filter A-50003. P-50007A (P-50007B) dosing speed is fixed and pre-set during commissioning. Pressure downstream P-50007A/B is indicated by pressure gauge 50-PI-044.

Biocide from Biocide Dosing Tank T-50004 is dosed by dosing pump P-50008A (P-50008B) to sea water intake system. P-50008A (P-50008B) dosing speed is fixed and pre-set during commissioning. Pressure downstream P-50008A/B is indicated by pressure gauge 50-PI-045.

Biocide from Biocide Dosing Tank T-50004 is dosed by dosing pump P-50010A (P-50010B) to Waste Water Tank T-55001. P-50010A (P-50010B) dosing speed is fixed and pre-set during commissioning. Pressure downstream P-50010A/B is indicated by pressure gauge 50-PI-046.

4.6.3 Safeguarding Intent

The main safeguarding of the system are:

- Prevent dry running of pumps Biocide Dosing Pumps P-50007A/B, P-50008A/B, P-50010A/B.
- Prevent biocide dosing when package is not operating.

In case of low low level of tank Biocide Dosing Tank T-50004, 50-LALL-024, interlock I-010 stops pumps - 50007A/B, P-50008A/B, P-50010A/B.

If shutoff valves 50-XV-020 is closed, interlock I-012 stops pumps P-50007A or P-50007B.

Biocide dosing pumps P-50008A or P-50008B and P-50010A or P-50010B will continue dosing biocide to sea water intake and Waste Water Tank, with the dosing pre-set during startup, even if the Water Treatment Package is stopped for any reason. Start-up of the Section

Check if level in Biocide Dosing Tank T-50004 is above minimum level and start Biocide Dosing Pumps

P-50007A or P-50007B, P-50008A or P-50008B, P-50010A or P-50010B.

4.6.4 Normal Process Shut down of the Section

Stop Biocide Dosing Pumps P-50007A or P-50007B, P-50008A or P-50008B, P-50009A or P-50009B.

4.6.5 Equipment Failure or Fault

The stand-by pump will be automatically switched in service, in case of not availability or any failure of selected operating pump.

If level instrument is in fault, the Caustic Dosing Pump will be automatically stopped and alarm will be displayed to PLC.

4.7 CONTAINER VENTILATION (HFA-50001A/B/C) AND HEATING (HHS-50003A/B)

4.7.1 Purpose and Description of the Process control

Container Electric Heaters (HHS-50003 A/B) are installed inside container to increase ambient temperature up to minimum 10°C during cold season.

Inlet temperature is measured by 50-TT-023 and controlled by 50-TIC-023.

If the temperature inside container is lower than 10°C, 50-TIC-023 switch on the Container Electric Heater HHS-50003A or HHS-50003B.

If the temperature inside container is higher than 12°C, 50-TIC-023 switch off the Container Electric Heaters HHS-50003A and HHS-50003B.

The automatic drainage of Water Treatment Package will be activated by a timer or when air ambient temperature is lower than 2°C inside container (measured by temperature transmitter 50-TT-023).

The ventilation inside container is maintained with HFA-50001A/B/C fans (3 x 50%, two in operation and one stand-by) that provide enough air change per hour (minimum 15 air change per hour).

The ventilation is automatically started when signal "Switch ON/OFF container lighting/fan" 50-HSA-50001 is on and automatically stop when the above signal is off.

The same ventilation is automatically started in case of high high ambient temperature and stop in case of low temperature

4.7.2 Safeguarding Intent

N/A

4.7.3 Start-up of the Section

Container ventilation is always in operation.

Heating is started up when required by the ambient temperature (50-TIC-023). If after starting up of one Container Electric Heater it does not start automatically according to ambient temperature (due to default or various problems), after a certain delay switch on the other heater that was in stand-by in automatic.

4.7.4 Normal Process Shut down of the Section

N/A

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4.8 WATER TREATMENT PACKAGE SHUTDOWN

4.8.1 Purpose of the Process Control

The normal shutdown of each package section is described in the relevant chapters above.

In some cases, it's necessary a particular shutdown of the whole Water Treatment Package:

- Long Period Stop of Water Treatment Package or very cold ambient air temperature;
- SIS Shutdown
- Fire & Gas detection

4.8.2 Long Period Stop Safeguarding Intent

Interlock I-012.

The package will be automatically drained, in case of:

- A long stop of the water treatment package, longer than one month, (50-XV-020 is closed)

From various equipment water will be discharged into water drain collector.

The following actions will be done:

- Open drain valve 50-XV-033
- Open drain valve 50-XV-034
- Open drain valve 50-XV-027
- Open drain valve 50-XV-030
- Open drain valve 50-XV-035
- Open off-spec valve 50-XV-026
- Open off-spec valve 50-XV-032
- Close inlet main valve 50-XV-020
- Close forward valve 50-XV-031

4.8.3 SIS Shutdown Safeguarding Intent

Shutdown signal 50-XS-001 from ROSETTI SIS System or Emergency PB signal from 50-HS-020 or Container Flooding signal from 196SL1 activate Interlock I-017 performing the following actions to following items:

- Close inlet battery limit valves 50-XV-020
- Close forward valve 50-XV-031
- Any backwash Coarse Filter A-50003 interrupted or not allowed
- Any backwash Sand Filter S-50001 interrupted or not allowed
- Any Softening Filter S-50004 regeneration interrupted or not allowed
- Trip Container Electric Heater HHS-50003A/B
- Trip Container Air Fan HFA-50001A/B/C
- Switch-off UV Lamp S-50010, LP-S-50010
- Trip Heater H-50001

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- Stop Pump P-50002A/B
- Stop Pump P-50003A/B
- Stop Pump P-50009A/B
- Stop Pump P-50004A/B
- Stop Pump P-50005A/B
- Stop Pump P-50006A/B
- Stop Pump P-50007A/B
- Stop Pump P-50008A/B
- Stop Pump P-50010A/B
- Open drain valve 50-XV-033
- Open drain valve 50-XV-034
- Open drain valve 50-XV-027
- Open drain valve 50-XV-030
- Open drain valve 50-XV-035
- Open off-spec valve 50-XV-026
- Send 50-XA-003 common container fault

4.8.4 Fire & Gas detection Safeguarding Intent

Fire & Gas are monitored by N° 3 Fire detectors and N° 3 Gas Hydrogen detectors, located in different zones inside the container.

In case of fire or gas event, the dedicated detector alerts any presence to F&G Panel 50-LP-002:

- 50-AT-020A, 50-AT-020B, 50-AT-020C
- 50-AT-021A, 50-AT-021B, 50-AT-021C

In case of fire or gas detection into container, the following actions are realized:

- Sounder and visual alarm lamps activated
- SIS signal should cut off the main power supply and the UPS feeding line based on detected level threshold

A Manual call point is provided to activate and advise the hazardous conditions and not access to container.

Base Load Power Hub (BLPH)

Water Treatment Package A-50000
Cause & effect Matrix

Document Number: 1724000448-MAC-CE-00004

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ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
F.MURA	10-07-2025

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03	25/11/2024	Issue for Information (IFI)	PSC	WR	RM
02	04/10/2024	Issue for Information (IFI)	PSC	WR	RM
01	22/08/2024	Issue for Information (IFI)	PSC	WR	RM
00	03/06/2024	Issue for Information (IFI)	PSC	WR	RM

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Revision / Change Log

Rev.	Description
00	ISSUE FOR INFORMATION (IFI)
01	ISSUE FOR INFORMATION (IFI)
02	ISSUE FOR INFORMATION (IFI)
03	ISSUE FOR INFORMATION (IFI)
04	ISSUE FOR INFORMATION (IFI)

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Notes:

1) Abbreviation

CCR = CENTRAL CONTROL ROOM (ONSHORE)
OER = ONSHORE EQUIPMENT ROOM
ITER = OFFSHORE CONTROL ROOM
R = RESET
EL = EVENT LOG
F = FLASHING LIGHT INDICATION ON CAP
T = TIME DELAY

2) Voting logic degradation (to be applied to F&G detection):

1) In case of a MooN Loop, the F&G logic degradation will be as follow:
a) Detector in fault condition: (M-1)oo(N-1) if N≤3
b) 2 (Two) Detectors in fault condition→ "Trip Logic" if N≤3
c) Detector in fault condition: Moo(N-1) if N>3
d) Detector in by-pass condition: (M-1)oo(N-1) if N≤3 (with Loop 2oo3)
e) Detector in by-pass condition: Moo(N-1) if N≤3 (with Loop 1oo2)
f) Detector in by-pass condition: Moo(N-1) if N>3

5) Software push button for RESET F&G logics on HMI is provided

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4	NOTES	X	X	X	X	X			
5	WATER TREATMENT PACKAGE	X	X	X	X	X			
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Water Treatment Package A-50000
Cause & effect Matrix

FZ-01= FUEL CELL AREA
FZ-02= H_2 STORAGE VESSELS AREA
FZ-03= ELECTROLYZER AREA
FZ-04= B-200/B-300/B-400 CONTAINERS AREA
FZ-05= BESS AREA
FZ-06= B-100 CONTAINER AREA
FZ-07= MASTER POINT AREA
FZ-08= TRANSITION PIECE AREA

EFFECT — SYS: OTHER

TAG Nos	REV.	CAUSE DESCRIPTION	VOTING	INHIBITION	REMARK		33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
						NOTES			Note 6	Note 6															Note 1	Note 1									Note 7	Note 7	Notes 2, 7	Notes 2, 7	Note 7	Note 7	Note 7	Note 7	Note 7	Note 7									
						DESCRIPTION	OPEN DRAIN VALVE 50-XV-033	OPEN DRAIN VALVE 50-XV-034	OPEN DRAIN VALVE 50-XV-027	OPEN DRAIN VALVE 50-XV-030	OPEN DRAIN VALVE 50-XV-035	CLOSE BATTERY LIMIT VALVE 50-XV-020	TRIP COARSE FILTER A-50003	TRIP SAND FILTER S-50001	TRIP SOFTENING FILTER S-50004	CONTAINER ELECTRICAL HEATER TRIP	CONTAINER ELECTRICAL HEATER TRIP	CONTAINER AIR FAN TRIP	CONTAINER AIR FAN TRIP	CONTAINER AIR FAN TRIP	TRIP UV LAMP S-50010	TRIP HEATER H-50001	STOP PUMP P-50002A	STOP PUMP P-50002B	STOP PUMP P-50003A	STOP PUMP P-50003B	CLOSE FORWARD VALVE 50-XV-025	OPEN OF-SPEC VALVE 50-XV-026	STOP PUMP P-50009A	STOP PUMP P-50009B	CLOSE FORWARD VALVE 50-XV-031	OPEN OFF-SPEC VALVE 50-XV-032	STOP PUMP P-50004A	STOP PUMP P-50004B	STOP PUMP P-50005A	STOP PUMP P-50005B	STOP PUMP P-50006A	STOP PUMP P-50006B	STOP PUMP P-50007A	STOP PUMP P-50007B	STOP PUMP P-50008A	STOP PUMP P-50008B	STOP PUMP P-50010A	STOP PUMP P-50010B	CLOSE SEAWATER INLET VALVE TO SW BOOSTER PUMP P-50003A	CLOSE SEAWATER INLET VALVE TO SW BOOSTER PUMP P-50003B	CLOSE FLUSH INLET VALVE TO SW BOOSTER PUMP P-50003A	CLOSE FLUSH INLET VALVE TO SW BOOSTER PUMP P-50003B	STOP SEA WATER PUMPS	NO START PUMP P-50009A	NO START PUMP P-50009B	CLOSE VALVE	OPEN VALVE
						TAG No.	50-XV-033	50-XV-034	50-XV-027	50-XV-030	50-XV-035	50-XV-020	A-50003	S-50001	S-50004	HHS-50003A	HHS-50003B	HFA-50001A	HFA-50001B	HFA-50001C	S-50010	H-50001	P-50002A	P-50002B	P-50003A	P-50003B	50-XV-025	50-XV-026	P-50009A	P-50009B	50-XV-031	50-XV-032	P-50004A	P-50004B	P-50005A	P-50005B	P-50006A	P-50006B	P-50007A	P-50007B	P-50008A	P-50008B	P-50010A	P-50010B	50-XV-021	50-XV-022	50-XV-023	50-XV-024	50-HS-005S	P-50009A	P-50009B	50-FV-020	50-FV-020
50-TIHH-022	4	H-50001 OUTLET TEMPERATURE HIGH HIGH (> 40°C)			I-001	1																X			X	X							X	X			X	X															
50-LILL-020	4	T-50006 LOW LOW LEVEL			I-002	2																	X	X	X	X							X	X			X	X															
50-AIHH-024	1	CONDUCTIVITY VALUE HIGH HIGH			I-003	3																					X	X																									
50-LILL-021	4	T-50008 LOW LOW LEVEL			I-004	4																							X	X					X	X																	
50-AIHH-026 OR 1EBV1 CLOSED	1	TOTAL HARDNESS VALUE HIGH HIGH			I-005	5																									X	X																					
50-AIHH-027 OR 1EBV1 CLOSED	1	pH VALUE HIGH HIGH			I-006	6																									X	X																					
50-AILL-027 OR 1EBV1 CLOSED	1	pH VALUE LOW LOW			I-007	7																									X	X																					
50-LILL-022	1	T-50002 LOW LOW LEVEL			I-008	8																													X	X																	
50-LILL-023	1	T-50003 LOW LOW LEVEL			I-009	9																															X	X															
50-LILL-024	1	T-50004 LOW LOW LEVEL			I-010	10																																	X	X	X	X	X	X									
50-TSHH-020	1	HEATER (H-50001) ELEMENT SKIN TEMPERATURE HIGH HIGH			I-011	11																X																															
50-XZAL-020	4	50-XV-020 CLOSED			I-012	12	X(4)	X(4)	X(4)	X(4)	X(4)											X						X(4)			X(4)	X(4)							X	X									X				X(4)
50-PILL-026	1	PRESSURE LOW LOW VALUE			I-013	13																											X																				
50-PILL-028	1	PRESSURE LOW LOW VALUE			I-014	14																												X																			
50-XZAL-021 AND 50-XZAL-022	1	50-XV-021 AND 50-XV-022 CLOSED			I-015	15																															X	X															
DELETED	3	(DELETED)			I-016	16																																															
50-XS-001 OR 50-HS-020 OR 196SL1 <4>	4	SHUTDOWN SIGNAL OR EMERGENCY STOP BY LOCAL PUSH BUTTON OR CONTAINER FLOODING			I-017	17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X				X
50-XI-500009A	4	P-50009A RUNNING			I-018	18																																													X		
50-XI-500009B	4	P-50009B RUNNING			I-019	19																																												X			
50-TIH-022	4	H-50001, SEA WATER OUTLET TEMPERATURE HIGH HIGH (> 25 °C)			I-020	20																					X	X																									
50-XZAH-021	4	50-XV-021 OPEN (DURING PRODUCTION)			I-021	21																																									X						
50-XZAH-023	4	50-XV-023 OPEN (DURING FLUSHING)			I-022	22																																							X								
50-XZAH-022	4	50-XV-022 OPEN (DURING PRODUCTION)			I-023	23																																										X					
50-XZAH-024	4	50-XV-024 OPEN (DURING FLUSHING)			I-024	24																																								X							
50-LILL-021 AND 50-XZAH-023	4	T-50008 LOW LOW LEVEL AND 50-XV-023 OPEN			I-025	25																			X								X																				
50-LILL-021 AND 50-XZAH-024	4	T-50008 LOW LOW LEVEL AND 50-XV-024 OPEN			I-026	26																				X								X																			
50-XI-500002A OR 50-XI-500002B	4	P-50002A RUNNING OR P-50002B RUNNING			I-027	27						X																																								X	
50-XZAL-020 AND TAL-023	4	50-XV-020 CLOSED AND PACKAGE INLET LOW TEMP			I-028	28	X	X	X	X	X											X						X			X	X							X	X									X				X
						29																																															
						30																																															
						31																																															
						32																																															
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						36																																															
						37																																															

NOTES:

1. Deleted. Dedicated interlock added
2. Deleted. Dedicated interlock added
3. In column named "remark" interlock tag numbers are indicated
4. With delay timer of 30 days (Long period shutdown or couple days with very low ambient temperature 4 °C)
5. Note deleted
6. 50-XV-027 or 50-XV-030 will be opened at initial time during start-up, during all flushing period and during SWR Line normal shutdown
7. Chemical Dosing Pumps will start when the relevant SWRO Lines restart and Fresh Water Pump restart
8. Deleted. Dedicated interlock added

LEGEND

Rev.	Date	Status	Description	DRN	CHKD	APPD
00	03/06/2024	IFI	Issue for Information (IFI)	PSC	WR	RM
01	22/08/2024	IFI	Issue for Information (IFI)	PSC	WR	RM
02	04/10/2024	IFI	Issue for Information (IFI)	PSC	WR	RM
04	13/06/2025	IFI	Issue for Information (IFI)	RC	WR	RM

CROSSWIND — ROSETTI MARINO

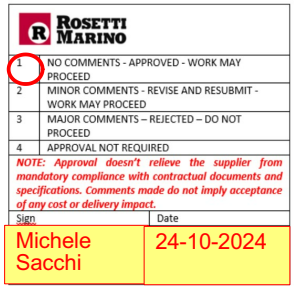
Water Treatment Package A-50000 Cause & effect Matrix	DATE	13/06/2025
HOLLANDSE KUST NOORD WIND PARK Project Contract No. CW-I-WP4-2023-05	Sheet. 5 of 5	Rev. 04

Base Load Power Hub (BLPH)

Painting specification for container

Document Number: 1724000448-MAT-PRO-00023

Document Class: 2



3	22/10/2024	Accepted for Construction (AFC)	SM	WR	RM
2	16/09/2024	Issue for Review (IFR)	SM	WR	RM
1	05/06/2024	Issue for Review (IFR)	SM	WR	RM
0	24/04/2024	Issue for Review (IFR)	SM	WR	RM
Rev.	Date	Description	Prepared	Reviewed	Approved

PSC DOC. REF.: PK2885-Q-006

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Revision / Change Log

Rev.	Description
0	Issue for Review (IFR)
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2	Issue for Review (IFR)
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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

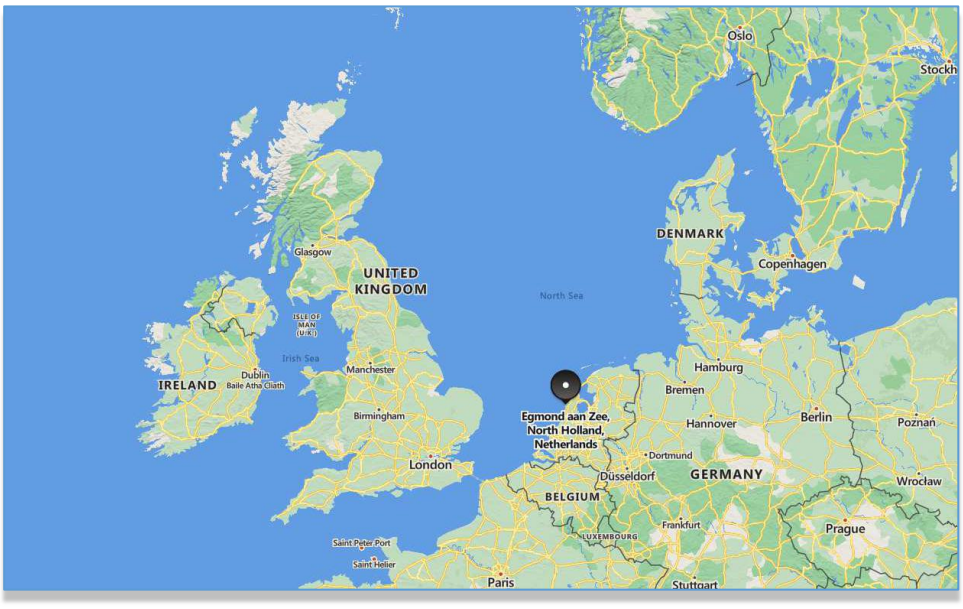


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

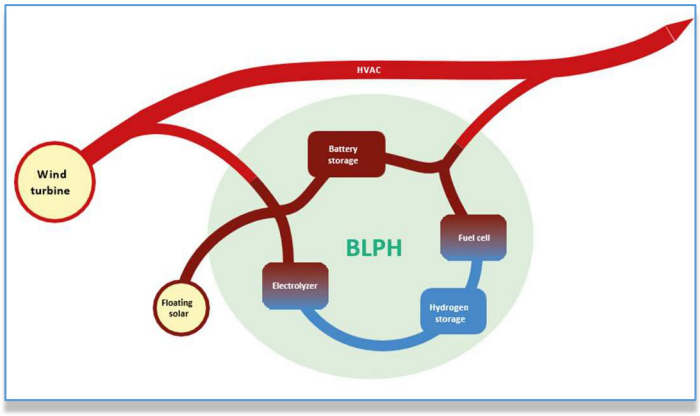


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 DOCUMENT SCOPE

This specification covers the control of materials and the procedure to be followed in the course of surface preparation, painting/coating application, inspection and safety requirements for corrosion proofing of the metallic surfaces from atmospheric attack by means of protective coating, installed outdoor.

Detailed applicable painting cycles are also described in this procedure.

2.1 REFERENCES

This specification has been developed considering the client requirement of environment corrosivity category C3 according to EN ISO 12944

3 SURFACE PREPARATION

All steel components, prior to forming, will be shot-blasted to a SA 2.5 standard surface by means of an automatic centrifugal shot surface cleaning machine. A weld-able primer compatible to the paint system will be applied immediately to a thickness of 10 micron to preserve the surface integrity during the assembly process. After the container is assembled it is shot-blasted again manually to clean all the welds and any other area that was contaminated during the assembly process. Slags and spatters are removed by means of grinding or needle hammers

The surfaces hot dip galvanized shall be prepared as per SSPC-SP 16.

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4 APPLICATION

Coats shall be thinned and/or mixed according to manufacturer's product data sheet. The mixing shall be very accurate and carried out by a mechanical mixer. The coat shall be used only within the limits of its pot-life and shall be discharged before the pot-life time has expired. The pot-life of any coat is specified in product data sheet.
Coating application shall be carried out only at the following conditions:
- Air temperature: 5 ÷ 40 °C. Min value of 10 °C for two components catalyzes coats
- Air relative humidity: < 85%. Min value of 50% for zinc primer application
- Steel temperature: at least 3 °C above the dew point temperature of the surrounding air
- Max steel temperature during application: 40 °C, unless a different value is declared in writing by Coat Manufacturer

Temperature and humidity shall be continuously monitored.
Primer application shall be performed before any visible rusting occurs and within maximum 4 hours from surface preparation. Should the surface be contaminated prior to coating, the surface shall be restored before primer application.
The primer shall be applied on the welds only after completion of all required pressure testing unless allowed by mechanical code.
Coating application shall be carried out, preferably, by airless spray.
Stripe coating method, by brush or roller, shall be applied on all the areas difficult to reach such as: welds, bolts holes, corners, edges, etc. Stripe coating is requested for each layer of coating.
Intermediate and/or finish coating application shall be performed only if the previous coat is in perfect condition.
The application of the whole coating system shall occur without sag, runs, blistering, wrinkling and spots. The color shade and the gloss shall be even. Each coat shall have a different color from the previous one, to prevent uncoated areas and to facilitate inspection. The min dry film thickness shall suit to the requested value. The max dry film thickness shall suit to the value indicated in the product data sheet of the product.

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5 INSPECTION SAND ACCEPTANCE CRITERIA

The following tables shows a guideline for planning the inspection test of coating process and the quality control (where applicable).

Test type	Method	Frequency	Acceptance criteria	Consequence
Visual examination	Visual for sharp edges weld spatter slivers, rust grade EN ISO 8501-3	100% of all surfaces	P2 extensive preparation: the surface is free from significant visible imperfections. Where defects are noted on pressure retaining equipment such as pipe work, these items shall be quarantined, and the CONTRACTOR advised prior to repair	Defects to be repaired
Cleanliness	a) ISO 8501-1 b) ISO 8502-3	a) 100% visual of all surface b) Spot checks	a) The required blast standard shall be minimum SA 2.5 for all coating systems b) Maximum quantity and size rating 2	a) Reblasting b) Recleaning and retesting until acceptable
Salt test	The ISO 8502-9 method shall used	Test shall be carried out on each fabricated item	Maximum conductivity corresponding to 20 mg/m2 NaCl	Repeated washing with potable water and retesting until acceptance
Roughness	Comparator, stylus instrument (preferred) or tester tape (ISO 8503) Surface profile comparators in accordance with ISO8501-2 may be used but only as an inspection tool to supplement DFT measurements.	Each component or once per 10 m2	As specified	Reblasting
Visual examination of coating	Visual to determine curing, contamination, solvent retention, Pinholes/popping, sagging and surface defects	100 % of surface after each coat	According to specified requirements	Repair of defects

Test type	Method	Frequency	Acceptance criteria	Consequence
Film thickness	ISO 19840 calibration on a smooth surface. Measurement of DFT reading on non magnetic (e.g. DSS) surfaces shall be subjected to agreement with COMPANY. Supplier shall select suitable instrument and demonstrate accuracy of readings (against precision foils and against test plate and micrometer)	ISO 19840	ISO 19840and coating system data sheet	Repair, additional coats or recoating as appropriate

6 PAINTING SPECIFICATION TABLES

6.1.1 Container External Surface

Unit		WATER TREATMENT PACKAGE
Part(s)		Container Surface
Applicable Paint System		System 1
Material		Ferritic Steel
Operating Temperature		-8C° to 25°C not insulated
New		
Surface	Methods	Dry abrasive grit blasting
	Applicable Standard	Sa 2 ½ (SSPC-SP10)
	Profile	As per Product datasheet
Primer	Product Type	Epossidic Zinc Primer
	Product Manufacturer / Name	PPG / SIGMAZINC 102 HS
	Color	N.A.
	Dry Film Thickness [µm]	60 µm
Intermediate Coat	Product Type	High Build Epoxy
	Product Manufacturer / Name	PPG / SIGMACOVER 350
	Color	-
	Dry Film Thickness [µm]	100 µm (minimum)
Top Coat	Product Type	Chlorinated rubber or Acrylic top coat
	Product Manufacturer / Name	PPG / SIGMADUR 550
	Color	RAL 7035
	Dry Film Thickness [µm]	40 µm (minimum)

Maintenance (Touch-up)		
Surface	Methods	Dry abrasive grit blasting
	Applicable Standard	Sa 2 ½ (SSPC-SP10)
	Profile	As per Product datasheet
Primer	Product Type	Epossidic Zinc Primer
	Product Manufacturer / Name	PPG / SIGMAZINC 102 HS
	Color	N.A.
	Dry Film Thickness [µm]	60 µm
Intermediate Coat	Product Type	High Build Epoxy
	Product Manufacturer / Name	PPG / SIGMACOVER 350
	Color	-
	Dry Film Thickness [µm]	100 µm (minimum)
Top Coat	Product Type	Chlorinated rubber or Acrylic top coat
	Product Manufacturer / Name	PPG / SIGMADUR 550
	Color	RAL 7035
	Dry Film Thickness [µm]	40 µm (minimum)

NOTE:

1) The following surface will be not painted:
   - Stainless steel and Super Duplex surface
   - PVC-U, GRP or PP surface
2) Bolts nuts screw used for equipment or piping assembling will be HDG
3) Technical data sheet of the selected product will be filled in upon selected by painter.
   The selected product shall be approved before proceeding.

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SIGMAZINC™ 102 HS

DESCRIPTION

Two-component, high solids polyamide cured zinc rich epoxy primer

PRINCIPAL CHARACTERISTICS

- High build anticorrosive zinc epoxy primer
- Designed as a system primer for various paint systems
- Quick-drying, can be overcoated after a short interval
- Complies with the compositional requirements of SSPC-Paint 20, Level 3

COLOR AND GLOSS LEVEL

- Gray, redbrown
- Flat

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	2.4 kg/l (20.0 lb/US gal)
Volume solids	66 ± 2%
VOC (Supplied)	Directive 2010/75/EU, SED: max. 120.0 g/kg max. 286.0 g/l (approx. 2.4 lb/US gal) China GB 30981-2020 (tested) 316.0 g/l (approx. 2.6 lb/gal)
Recommended dry film thickness	60 - 150 µm (2.4 - 6.0 mils) depending on system
Theoretical spreading rate	11.0 m^2/l for 60 µm (441 ft^2/US gal for 2.4 mils)
Dry to touch	2 hours
Overcoating Interval	Minimum: 6 hours Maximum: 3 months
Full cure after	7 days
Shelf life	Base: at least 24 months when stored cool and dry Hardener: at least 24 months when stored cool and dry

Notes:
- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Immersion exposure

- Steel; shot blast cleaned to ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- Steel with approved zinc silicate shop primer; sweep blasted to SPSS-Ss

SIGMAZINC™ 102 HS

Atmospheric exposure conditions

- Steel; blast cleaned to ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- Steel with approved zinc silicate shop primer; sweep blasted to SPSS-Ss or power tool cleaned to SPSS-Pt3

Substrate temperature and application conditions

- Substrate temperature during application and curing should be above 5°C (41°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 80:20 (4:1)

- The temperature of the mixed base and hardener should preferably be above 15°C (59°F), otherwise extra thinner may be required to obtain application viscosity
- Adding too much thinner results in reduced sag resistance and slower cure
- Thinner should be added after mixing the components

Induction time

None

Pot life

8 hours at 20°C (68°F)

Air spray

Recommended thinner

THINNER 91-92

Volume of thinner

5 - 15%, depending on required thickness and application conditions

Nozzle orifice

1.8 – 2.2 mm (approx. 0.070 – 0.087 in)

Nozzle pressure

0.3 - 0.6 MPa (approx. 3 - 6 bar; 44 - 87 p.s.i.)

SIGMAZINC™ 102 HS

Airless spray

Recommended thinner
THINNER 91-92

Volume of thinner
0 - 10%, depending on required thickness and application conditions

Nozzle orifice
Approx. 0.43 – 0.48 mm (0.017 – 0.019 in)

Nozzle pressure
15.0 MPa (approx. 150 bar; 2176 p.s.i.)

Brush/roller

Recommended thinner
THINNER 91-92

Volume of thinner
0 – 10%

Cleaning solvent
THINNER 90-53

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
60 µm (2.4 mils)	11.0 m^2/l (441 ft^2/US gal)
75 µm (3.0 mils)	8.8 m^2/l (353 ft^2/US gal)
100 µm (4.0 mils)	6.6 m^2/l (265 ft^2/US gal)
150 µm (6.0 mils)	4.4 m^2/l (176 ft^2/US gal)

Overcoating interval for DFT up to 100 µm (4.0 mils)					
Overcoating with...	**Interval**	**10°C (50°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
subsequent coating	Minimum	10 hours	6 hours	4 hours	3 hours
	Maximum	3 months	3 months	3 months	3 months

Notes:
- Zinc rich primers can form zinc salts on the surface; preferably they should not be weathered for long periods before overcoating
- An interval of several months can be allowed under clean interior exposure conditions
- Before overcoating any visible surface contamination must be removed by high-pressure water cleaning, sand washing, sweep blasting or mechanical cleaning

SIGMAZINC™ 102 HS

Curing time for DFT up to 100 µm (4.0 mils)			
Substrate temperature	**Dry to touch**	**Dry to handle**	**Full cure**
10°C (50°F)	5 hours	6 hours	20 days
15°C (59°F)	3 hours	4 hours	10 days
20°C (68°F)	2 hours	3 hours	7 days
30°C (86°F)	1 hour	1.5 hours	5 days

Note: Adequate ventilation must be maintained during application and curing

SAFETY PRECAUTIONS

- See Safety Data Sheet and product label for complete safety and precaution requirements
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

REFERENCES

- EXPLANATION TO PRODUCT DATA SHEETS — INFORMATION SHEET — 1411

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SIGMACOVER™ 350

DESCRIPTION

Two-component, high-build polyamide cured epoxy primer/coating based upon pure epoxy technology

PRINCIPAL CHARACTERISTICS

- Surface tolerant primer/coating for wide use in Marine and Protective Coatings
- Marine use: suitable on topsides, decks, superstructures and cargo holds
- Excellent corrosion resistance
- Compatible with various aged coatings
- Suitable as floor coating for pedestrian traffic with dry to walk on time of 6 hours at 20°C (68°F)
- Good impact and abrasion resistance
- Smooth film, easy to clean
- Resistant to splash and spillage of a wide range of chemicals

COLOR AND GLOSS LEVEL

- Standard and custom colors, including aluminum
- For Cargo holds gray (5177) and redbrown (6179) only
- Semi-gloss

Notes:

- Epoxy coatings will chalk and fade upon exposure to sunlight, elevated temperatures, or chemical exposure. Discoloration and normal chalking do not impact performance. Light colors will darken over time. Some batch-to-batch variation in color is to be expected. Color matches are approximate.
- The addition of a UV stable topcoat should be considered when using epoxy coatings in cosmetic areas

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.4 kg/l (11.7 lb/US gal)
Volume solids	72 ± 2%
VOC (Supplied)	Directive 2010/75/EU, SED: max. 263.0 g/kg max. 361.0 g/l (approx. 3.0 lb/US gal) China GB 30981-2020 (tested) 299.0 g/l (approx. 2.5 lb/gal)
Recommended dry film thickness	100 - 150 µm (4.0 - 6.0 mils) for airless spray
Theoretical spreading rate	5.8 m^2/l for 125 µm (231 ft^2/US gal for 5.0 mils) 4.8 m^2/l for 150 µm (192 ft^2/US gal for 6.0 mils)
Dry to touch	2 hours
Overcoating Interval	Minimum: 6 hours See overcoating tables
Full cure after	7 days

SIGMACOVER™ 350

Data for mixed product	
Shelf life	Base: at least 24 months when stored cool and dry Hardener: at least 24 months when stored cool and dry

Notes:
- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Steel; blast cleaned to ISO-Sa2½ for excellent corrosion protection, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- Steel; blast cleaned to ISO-Sa2, blasting profile 40 – 70 µm (1.6 – 2.8 mils) or power tool cleaned to minimum ISO-St2 for good corrosion protection
- Coated steel; hydrojetted to VIS WJ2/3L
- Surface must be dry and free from any contamination
- Existing sound epoxy systems and most sound alkyd coating system; sufficiently roughened

Substrate conditions of concrete for thinned version

- Dried for at least 28 days in good ventilation conditions
- Moisture content should not exceed 4.5%
- Concrete must be sound, dry, free from laitance and any contamination
- Rough surface; eventually abraded by power tool or diamond abrading tool

Coated concrete

- Existing sound coating systems; sufficiently roughened, dry and cleaned
- To ensure compatibility, rub the existing coating with a cloth with Xylene or MEK for 10 seconds, and remove existing coatings if dissolving occurs
- Rough surface; eventually abraded by power tool or diamond abrading tool

Substrate temperature and application conditions

- Substrate temperature during application and curing should be above 5°C (41°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point

SYSTEM SPECIFICATION

- SIGMACOVER 350: 2 x 125 µm (5.0 mils) DFT

SIGMACOVER™ 350

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 80:20 (4:1)

- The temperature of the mixed base and hardener should preferably be above 15°C (59°F), otherwise extra thinner may be required to obtain application viscosity
- Adding too much thinner results in reduced sag resistance
- Thinner should be added after mixing the components

Induction time

None

Pot life

3 hours at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

Air spray

Recommended thinner

THINNER 91-92

Volume of thinner

5 - 10%, depending on required thickness and application conditions

Nozzle orifice

1.8 – 2.0 mm (approx. 0.070 – 0.079 in)

Nozzle pressure

0.3 - 0.4 MPa (approx. 3 - 4 bar; 44 - 58 p.s.i.)

Airless spray

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 5%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.48 – 0.53 mm (0.019 – 0.021 in)

Nozzle pressure

15.0 MPa (approx. 150 bar; 2176 p.s.i.)

SIGMACOVER™ 350

Brush/roller

Recommended thinner
THINNER 91-92

Volume of thinner
0 – 5%

Note: 10 - 15% when applied as a primer direct to concrete

Cleaning solvent
THINNER 90-53

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
100 µm (4.0 mils)	7.2 m^2/l (289 ft^2/US gal)
125 µm (5.0 mils)	5.8 m^2/l (231 ft^2/US gal)
150 µm (6.0 mils)	4.8 m^2/l (192 ft^2/US gal)

Note: Maximum DFT when brushing: 100 µm (4.0 mils)

Overcoating interval for DFT up to 150 µm (6.0 mils) For application in atmospheric exposure and industrial PC						
Overcoating with...	**Interval**	**5°C (41°F)**	**10°C (50°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself and various two-pack epoxy coatings	Minimum Maximum	16 hours Extended	9 hours Extended	6 hours Extended	4 hours Extended	3 hours Extended
polyurethanes	Minimum Maximum	48 hours 6 months	30 hours 5 months	18 hours 2.5 months	9 hours 1.5 months	5 hours 14 days
various single pack coatings (such as alkyds and acrylics)	Minimum Maximum	24 hours 14 days	24 hours 14 days	16 hours 14 days	8 hours 7 days	5 hours 4 days

Notes:
- Actual maximum overcoating times will be influenced by local conditions
- A detergent wash with PREP 88 or equivalent is recommended prior to application of topcoats after 30 days of exposure if chalking or contamination is present
- To ensure optimal adhesion of the next coat, the surface must be dry and free from all contaminations (oil, grease, chalking, etc...) which would require cleaning and/or abrading

SIGMACOVER™ 350

Overcoating interval for DFT up to 150 µm (6.0 mils) For application in cargo holds, on decks and marine areas subject to non-permanent splash and spillage of seawater and/or chemicals						
Overcoating with...	**Interval**	**5°C (41°F)**	**10°C (50°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself and various two-pack epoxy coatings	Minimum	16 hours	9 hours	6 hours	4 hours	3 hours
	Maximum	1 month	1 month	21 days	14 days	7 days
polyurethanes	Minimum	48 hours	30 hours	18 hours	9 hours	5 hours
	Maximum	1 month	21 days	14 days	7 days	3 days

Curing time for DFT up to 150 µm (6.0 mils)			
Substrate temperature	**Dry to touch**	**Dry to handle**	**Full cure**
5°C (41°F)	12 hours	16 hours	25 days
10°C (50°F)	6 hours	9 hours	15 days
20°C (68°F)	2 hours	6 hours	7 days
30°C (86°F)	1 hour	4 hours	4 days
40°C (104°F)	1 hour	3 hours	48 hours

Notes:

- For cargo hold application: for full cure for hard angular cargoes, please contact your nearest PPG Protective & Marine Coatings sales office
- Adequate ventilation must be maintained during application and curing
- Should SIGMACOVER 350 or the total coating system (2 x 125 µm/2 x 5.0 mils) be applied in excess of the specified dry film thickness, then the time necessary to reach full cure will be increased

Pot life (at application viscosity)	
Mixed product temperature	**Pot life**
15°C (59°F)	4 hours
20°C (68°F)	3 hours
30°C (86°F)	2 hours
40°C (104°F)	1 hour

SAFETY PRECAUTIONS

- See Safety Data Sheet and product label for complete safety and precaution requirements
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

SIGMACOVER™ 350

REFERENCES

- EXPLANATION TO PRODUCT DATA SHEETS INFORMATION SHEET 1411

WARRANTY

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SIGMADUR™ 550

DESCRIPTION

Two-component, aliphatic acrylic polyurethane finish

PRINCIPAL CHARACTERISTICS

- Unlimited recoatable
- Excellent resistance to atmospheric exposure conditions
- Good color and gloss retention
- Cures at temperatures down to -5°C (23°F)
- Resistant to splash of mineral and vegetable oils, paraffins, aliphatic petroleum products and mild chemicals
- Can be recoated even after long atmospheric exposure
- Good application properties

COLOR AND GLOSS LEVEL

- White and various other colors (see also SIGMACARE shade card)
- Gloss

Note: Certain colors, especially red, orange, and yellow may require additional coats for adequate hiding, especially if applied over primers with a significant color contrast

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.3 kg/l (10.8 lb/US gal)
Volume solids	55 ± 2%
VOC (Supplied)	Directive 2010/75/EU, SED: max. 334.0 g/kg EUR Directive: 2004/42/IIA(i)(500) 459 g/l max. 430.0 g/l (approx. 3.6 lb/US gal) China GB 38469-2019 (tested) 409.0 g/l (approx. 3.4 lb/gal)
Recommended dry film thickness	50 - 60 µm (2.0 - 2.4 mils) depending on system
Theoretical spreading rate	11.0 m^2/l for 50 µm (441 ft^2/US gal for 2.0 mils)
Dry to touch	1 hour
Overcoating Interval	Maximum: 6 hours Maximum: Unlimited
Full cure after	4 days
Shelf life	Base: at least 36 months when stored cool and dry Hardener: at least 24 months when stored cool and dry

SIGMADUR™ 550

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Previous coat (epoxy or polyurethane) must be dry and free from any contamination
- Previous coat: surface should be sufficiently roughened if necessary

Substrate temperature and application conditions

- Substrate temperature during application at -5°C (23°F) is acceptable; provided the substrate is free from ice and dry
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point
- Relative humidity during application and curing should not exceed 85%
- Should condensation on the surface occur during, or soon after application, this could result in color and gloss change

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 88:12

- The temperature of the mixed base and hardener should be above 10°C (50°F), otherwise extra thinner may be required to obtain application viscosity
- Thinner should be added after mixing the components
- Adding too much thinner results in reduced sag resistance

Induction time

None

Pot life

5 hours at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

Air spray

Recommended thinner

THINNER 21-06

Volume of thinner

3 - 5%, depending on required thickness and application conditions

Nozzle orifice

1.0 - 1.5 mm (approx. 0.040 - 0.060 in)

Nozzle pressure

0.3 - 0.4 MPa (approx. 3 - 4 bar; 44 - 58 p.s.i.)

SIGMADUR™ 550

Airless spray

Recommended thinner
THINNER 21-06

Volume of thinner
3 - 5%, depending on required thickness and application conditions

Nozzle orifice
Approx. 0.43 – 0.48 mm (0.017 – 0.019 in)

Nozzle pressure
20.0 MPa (approx. 200 bar; 2901 p.s.i.)

Brush/roller

Recommended thinner
THINNER 21-06

Volume of thinner
0 – 5%

Cleaning solvent
THINNER 90-53

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
50 µm (2.0 mils)	11.0 m^2/l (441 ft^2/US gal)
60 µm (2.4 mils)	9.2 m^2/l (368 ft^2/US gal)

Overcoating interval for DFT up to 50 µm (2.0 mils)							
Overcoating with...	**Interval**	**-5°C (23°F)**	**0°C (32°F)**	**10°C (50°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself	Minimum	24 hours	16 hours	8 hours	6 hours	5 hours	3 hours
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited

Note: Surface should be dry and free from any contamination

SIGMADUR™ 550

Curing time for DFT up to 60 µm (2.4 mils)		
Substrate temperature	**Dry to handle**	**Full cure**
-5°C (23°F)	24 hours	15 days
0°C (32°F)	16 hours	11 days
10°C (50°F)	8 hours	6 days
20°C (68°F)	6 hours	4 days
30°C (86°F)	5 hours	3 days
40°C (104°F)	3 hours	48 hours

Notes:
- Adequate ventilation must be maintained during application and curing
- Premature exposure to early condensation and rain may cause color and gloss change

Pot life (at application viscosity)	
Mixed product temperature	**Pot life**
10°C (50°F)	7 hours
20°C (68°F)	5 hours
30°C (86°F)	3 hours
40°C (104°F)	2 hours

SAFETY PRECAUTIONS

- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes
- Contains a toxic polyisocyanate curing agent
- Avoid at all times inhalation of aerosol spray mist

WORLDWIDE AVAILABILITY

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SIGMADUR™ 550

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	17-12-2024

Base Load Power Hub (BLPH)

Hydrostatic test procedure for Water treatment package A-50000 (Duplex piping)

Document Number: 1724000448-QC-PRO-00024

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
02	06/12/2024	Accepted for Construction (AFC)	FCM	PSC	RM
01	15/11/2024	Issue for Review (IFR)	FCM	PSC	RM
00	26/07/2024	Issue for Review (IFR)	PG	PSC	RM

PSC

PSC dod. Ref: PK2885-Q-003

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File: 1724000448-QC-PRO-00024_Rev.02_Hydrostatic andor pneumatic test procedure_Cover.indd Once printed shall be considered as "NOT CONTROLLED" copy

Table of Contents

SH.	DESCRIPTION	REVISIONS								
		00	01	02						
1	Cover	X	X	X						
2	Table of Contents	X	X							
3	Revision / Change Log	X	X	X						
4	Manufacturer Procedure	X	X							

Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
02	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

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PRESSURE TESTING PROCEDURE

REV	DESCRIPTION	DATE	SIGNATURE	DATE	SIGNATURE	DATE	SIGNATURE
		ISSUED		CONTROLLED		APPROVED	
2	Review	02/01/23	Ricchiuti	02/01/23	Ripamonti	02/01/23	Ciacci
1	Review	29/08/17	Ricchiuti	29/08/17	Ripamonti	29/08/17	Castiglioni
0	Issue	02/01/14	Russo	02/01/14	Ripamonti	02/01/14	Castiglioni

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4. BASE DOCUMENTS
5. DESCRIPTION OF THE ACTIVITY
6. RESPONSIBILITIES

1 SCOPE

This instruction defines methods and requirements for pressure testing of :

1) piping systems
2) pressure vessel
3) reactor
4) exchanger
5) filter
6) tanks

The code requirements are summarized in the end of this procedure

For each project the checklist with applicable code, types of testing and deviations based on client specifications shall be prepared. This checklist is part of the Quality Plan.

The testing scope and pressures are based on the line list.

2 FIELD OF APPLICATION

Proof strength and leak testing of equipments fabricated by FCM

3 PURPOSE

To assure correct and safe testing of equipments fabricated by FCM

4 BASE DOCUMENTS

- Quality Management System
- ASME VIII Div. 1
- ASME B 31.1: Power Piping
- ASME B 31.3: Process Piping
- ASME B 31.8: Gas Transmission and Distribution Piping Systems
- EN 13480: Metallic Industrial Piping
- PED 2014-68 EU

5 DESCRIPTION OF THE ACTIVITY

5.1 PRE-TESTING OPERATIONS

5.1.1 Documentation: Test packages:

FCM shall prepare test packages, minimum standard content is:

a) As-built isometric(s)

b) Piping list(s)

c) List with items to be removed during the test

d) Pressure test certificate

e) Leak test certificate (if applicable)

f) Post test check list (if applicable)

g) Pneumatic / gas testing checklist (if applicable)

h) Safety distance and test step chart, for pneumatic leak tests (if applicable)

5.1.2 Preparation of the test system

The test package contains a list of items which must be removed for testing

- **Instruments**: Before pressure testing, all instruments that might be damaged shall be removed, isolated or protected
  - Internals of strainers and filters shall be removed
  - Orifice plates or rupture discs shall not be installed until flushing and testing is completed.
- **Valves**: Safety, thermal relief and control valves shall be removed
  - All in-line valves shall be in the fully open position during the flushing and testing, with the exception of ball valves, which shall be partially open during testing
  - Piping and associated components containing check valves shall have the check valve disc removed or jacked open
  - Valves may be used to isolate provided valve closure is suitable for proposed test pressure
  - For on-valves with packed glands, it may be necessary to tighten the gland nuts to retain test pressures. If so, these shall be readjusted after the test to maintain operating conditions
- **Painting of welds before testing:** See the contract if this is allowed for the specific project
- **Other test systems:** Piping with lower maximum allowable test pressure shall be isolated from the test system
- **Pressure gauges**: One pressure gauge shall be installed, in principle at the highest point
- **Expansion joints:** Expansion joints shall be provided with temperature restraint if required for the additional pressure load under test, or they shall be isolated during system test
- **Spring hangers and pots:** Spring hangers and pots shall be blocked (in cold position)
- **Gas & vapor piping**: Piping designed for vapor or gas shall be provided with additional temporary supports, if necessary
- **Test temperature:** Tests shall be made at a temperature that will minimize the possibility of brittle fracture (an elevated test temperature may be required for systems designed to operate at high temperatures). Test pressure shall not be

applied until system and pressure fluid is at approximately same temperature. The minimum test temperature (of water and steel) is 5°C

5.1.3 Test limits

The allowed methods will be determined per project, and described on the checklist Piping system test limits can be done by:

- Valves: A valve may be used for test system limitation, provided it is suitable for the test pressure
- Blind flanges and spades: Suitably rated blinds and spades shall be used to contain the test pressure (thickness to the applicable pipe class).
-
- Caps and flat plates: Pneumatic testing shall always be performed against caps, never flat plates. Pressure testing against flat plates shall only be allowed, if fully documented and approved, on a case by case basis. Approval shall be based on verification calculation. Every fabricated cap / flat plate shall be identified and added to a list after visual and ultrasonic inspection of the circumferential weld (s). When end caps / flat plates need to be welded to the piping system, they shall be identified and listed in order to use the appropriate end cap / flat plate for the intended pressure.
- Each weld shall be welded by a qualified welder, using a qualified welding procedure specification. In all cases, the welds shall be full penetration welds, also when flat plates are used. The sacrificial pipe material directly connected to the tested component shall be from the same material
- Test plugs: test plugs shall be suitable for the test pressure. Plugs are subject to the regular inspection and certification system. Plugs are allowed for hydro-testing only.

5.1.4 Test equipment

◆ **Pressure test gauges**:

- Calibration certificates are available for review
- Pressure gauges shall be calibrated every 12 months
- Temperature recorders shall be calibrated annually
- If the system cannot be observed during the test, pressure recorders may be used

◆ **Pumps, hoses etc**:

- Testing equipment must be clean
- Testing equipment must be suitable for the test pressure, for pressures above 100 bar and for pneumatic testing this shall be checked

5.1.5 Combining test systems

FCM may combine test systems based on maximum allowable test pressure,which is based on the maximum design pressure/temperature of the pipe specification. If FCM

applies higher test pressures, the test system shall be verified for non standard pipe specification items.

5.1.6 Verification and release of test systems

Piping systems will be checked (punched out) and released by FCM QC inspectors

Leak testing of reinforcing plates

If specified by the Customer, reinforcing plates (or each segment thereof) and similar attachments shall be tested with air.

5.2 HYDROSTATIC TESTING

5.2.1 Performance

- Ensure the air is out of the system as much as possible
- Ensure that the pressure shall not be higher as the test pressure + 5%
- During hydro-testing, the pressure shall be monitored continuously.

5.2.2 Testing above 100 bar/P*V>10000 m3bar

For testing above 100 bars or in case Pressure*volume is >10000 m3bar, additional safety precautions are applicable.

- A safety distance shall be respected. This safety distance shall be marked, no people, except pressure testing operators or inspectors are allowed in the safety zone!
- The pressure shall be gradually increased

5.3 PNEUMATIC TESTING

Testing with air or gas is dangerous

The compressed gas stores a lot of energy which may cause explosion-like effects when a leak or rupture occurs

The hazard can be split into two main effects: A shockwave effect and a missile effect.

The shockwave effect is the pressure wave, which will occur when a lot of gas is released at once

The missile effect will occur when objects are launched by the gas release; this is further called the UFO effect

Both effects shall be controlled by the sequence:

Priority	Control method	Shockwave effect	UFO effect
1	**Eliminate the risk**	Inspection of piping system, test equipment	Inspection of all possible items which may be launched
2	**Shield the effect**	Locate the test crew at the opposite side, compared with the test system	Locate the test crew at the opposite side, shield and attach items (if possible)
3	**Protect personnel**	Keep safety distance. Limit the number of personnel	Cover up personnel. Limit the number of personnel

A work permit shall be established by HSE department after verification of the safety protections put in place, especially for pneumatic testing.

For pneumatic testing the checklist (attachment VII) shall be put in the test package and verified and signed by the relevant persons.

For each test package, the safety distance (safety area) and test step chart shall be prepared by the work preparation department.

The safety area shall be marked with signs.

All control shall be performed outside the safety area.

The pressure shall be controlled as per pressure test diagram

In case P*V>1000 m3 bar a safety valve shall be installed

The use of air for testing shall be limited to a maximum pressure of 20 barg

Above this pressure nitrogen shall be used, and a kick-off meeting organized

Only necessary test personnel shall be permitted within a safety radius of the piping system which is to be tested

The inspectors will check the system during test preparation and identify objects which may be launched after a collapse of the system (UFO's)

Based on the analyses of possible UFO's the test equipment should be repositioned in a safe area (test system at the opposite side of the test) and/or items may be shielded.

During testing a HSE officer will be on site

The expression used in the calculation of safety distance and waiting delays

$$L=\text{MAXIMUM}\left[30 \text{ or } 3{,}6 \sqrt[3]{V\{ (Pt+1) - (Pt+1)^{0.714} \}}\right]$$

T= MAXIMUM [10L or 300s]

in which :

L = safety distance (m)

V = volume in m3

Pt = test pressure in bar

T = waiting delay (s)

The formula to calculate the safety distance and the waiting delays is based on the Dutch Rules for pressure vessels. The formula is based on: Assuming an adiabatic explosion of the gas filled space then following the equation with data on explosives the average damage at the indicated distance is limited to windows and doors.

5.4 FLUSHING

Hydrostatic tested lines shall be flushed after testing if applicable

On request of the Customer, piping shall be high pressure water jet cleaned. High pressure jet cleaning shall not be made through any sensitive equipment i.e. soft sealed valves and instruments etc.

Pneumatic tested lines may be flushed during pressure release at pressures lower that 6 barg

5.5 DRAINING AND REINSTATEMENT

5.5.1 Draining

The water has to be drained out completely after hydrostatic testing

Hydrostatic tested piping shall be drained (taking care to vent adequately avoiding any vacuum conditions).

The systems shall be blown out and dried as defined in the Customer's specification.

5.5.2 Reinstatement

All temporary connections, spools and blanks shall be removed

All other items removed for testing shall be reinstalled

All temporary restraints, supports and blocks on variable supports shall be removed and the system shall be checked out for completeness and compliance with the Customer's drawings and specifications

If the Customer's specification requires replacement of gaskets or test gaskets have been used, the correct gaskets shall be installed after testing

Test pressure equipment shall be removed and all vents and drains shall be plugged (if any)

Flanged joints broken during the test shall be made up using new gaskets. Ring type joint type gaskets, except API BX type, may be re-used if undamaged.

5.5.3 Welding after hydro test

Seal welds of vents and drains (if applicable) shall be welded after hydro test. Seal welds shall be documented on separate seal welding certificates per hydro test.

6 RESPONSIBILITIES

The Shop Foreman for prefabrication in the workshop and the Test Supervisor on site, in co-ordination with the Test Engineer and the QC Engineer, are responsible for the implementation of this procedure

Order nr.	
Project	

Nr.	**Item**	Checked:	
		Name	**Signature**
1	Test type identified on line list		
2	Test pressure/medium identified on line list		
3	Code :		
4	Number and type of pressure gauges: Calibration requirements (deviations): Location:		
5	Formal test pack release		
6	Limitations with respect to test limits		
7	Required water quality: CS/SS		
8	Painting of welds limitations		
9	Additional requirements for pneumatic testing		
10	Minimum testing temperature		

ASME B31.3

Leak test choice		Where the owner considers both hydrostatic and pneumatic leak testing impracticable : • All circumferential, longitudinal, and spiral groove welds shall be 100% radiographed or 100% ultrasonically examined • All welds, including structural attachment welds, not volumetric examined, shall be examined using the liquid penetrant method, or, for magnetic materials, the magnetic particle method • A flexibility analysis shall have been made • System shall be subject to a sensitive leak test. ASME B31.3 category D fluid : At the owner's option, a piping system in category D fluid service may be subject to an initial service leak test, in lieu of the hydrostatic leak test. ASME B31.3 category M fluid : A sensitive leak test shall be included in the required leak test. ASME B31.3 high pressure piping : None of the following leak tests may be used : • Initial service leak test • Sensitive leak test • Alternative leak test
Painting		All joints may be primed and painted prior to leak testing.
Pressure relief valves		pneumatic test : Pressure relief devices shall be provided, having set pressure less than test pressure plus the minimum of 3,45 barg or 10%.
Pre-tests		A pre-test using air at no more than 1,7 barg may be made prior to testing to locate major leaks.
Maximum test pressure		Test pressure may be reduced to the maximum pressure that will not exceed yield strength at test temperature.
Inspection pressure and inspection time		A leak test shall be maintained for at least 10 minutes. Inspection shall be done at design pressure.
Range		Use gauges between 35 and 90% of the full scale.
Test fluid		The fluid shall be water unless there is the possibility of damage due to freezing or adverse effects on piping or process. In that case, another non-toxic fluid may be used.
Hydrostatic test pressure		The test pressure at any point in the piping system shall not be less than 1,5 times the design pressure
PNEUMATIC Test	Test gas	Non-flammable and non-toxic gas.
	PRESSURE	110 % OF THE DESIGN PRESSURE
TIE-IN WELDS		Closure welds : final weld connecting piping systems which have been successfully tested need not be leak tested provided weld is examined and passes with 100% radiographic examination or 100% ultrasonic examination

R1

ASME B31.1

Leak test choice		ASME B31.1: Except for pre-testing, pneumatic testing shall not be used unless owner specifies pneumatic testing or permits its use.
Painting		ASME B31.1: All joints inclusive welds shall be left un-insulated and exposed for examination.
Pressure relief valves		ASME B31.1: If a test pressure is to be maintained during which test medium is subject to thermal expansion, pressure relief device set at 1 1/3 test pressure is recommended.
Pre-tests		ASME B31.1: A preliminary test not to exceed 1,75 barg may be executed to locate major leaks.
Maximum test pressure		ASME B 31.1: At no time during pressure test shall any part of the piping system be subject to a stress greater than 90 % of the yield strength at test temperature.
Inspection pressure and inspection time		ASME B31.1 hydro test: The test pressure shall be continuously maintained for minimum time of 10 minutes and may then be reduced to design pressure. ASME B31.1 pneumatic test: The test pressure shall be continuously maintained for minimum time of 10 minutes and may then be reduced to lesser than design pressure or 7 barg. Examination for leakage detected by soap bubble shall be made at all joints and connections.
R1 Range		Use gauges between 35 and 90% of the full scale.
Test fluid		ASME B31.1: Water shall normally be used as test medium. Further recommended precautions on quality of test water used for hydro testing of austenitic and ferritic stainless steel are in non-mandatory appendix IV.
Hydrostatic test pressure		The test pressure at any point in the piping system shall not be less than 1,5 times the design pressure
PNEUMATIC TEST	Test gas	ASME B31.1: Test medium shall be non-flammable and non-toxic.
	PRESSURE	The test pressure shall not be less than 1,2 nor more than 1,5 times the design pressure
TIE-IN WELDS		

EN13480

Leak test choice		EN 13480: The proof test shall be a hydrostatic pressure test except where a hydrostatic pressure test is harmful or impractical. In these instances, a pneumatic pressure test or other tests shall be performed. Pneumatic tests shall only be permitted where hydrostatic pressure test is detrimental to piping system or is not practical eg. in processes where even small traces of liquids are intolerable, following consultation at design stage on adequacy of safety precautions proposed by piping manufacturer.
Painting		EN 13480: Painting for corrosion protection shall be permitted, provided, it does not prevent the clear examination of the joint under test.
Pressure relief valves		EN 13480 hydro test: It is recommended a small pressure relief valve set to 1,1 test pressure is attached.
Pre-tests		
Maximum test pressure		EN 13480: Test pressure shall be limited to such a level that it does not generate a design stress greater than that given in EN 13480-3 for testing conditions.
Inspection pressure and inspection time		EN 13480 hydro test: Piping system shall be held at test pressure for period of at least 30 minutes. Pressure shall then be reduced to design pressure and all components and welded joints subject to a close visual examination. EN 13480 pneumatic test: Pressure shall be reduced after 10 minutes to inspection pressure (= PS * (fa / ft)), where PS = design pressure, ftest = nominal design stress for design conditions at test temperature, f = nominal design stress for design conditions at design temperature.
Range		EN 13480: Pressure gage range: 1,5 – 4 intended maximum pressure. All indicating and recording type gages used shall be calibrated to the appropriate gage standard.
Test fluid		EN 13480: Hydrostatic test may be performed with general supply water. For hydrostatic test of austenitic stainless steel piping systems, the halogen concentration of the water shall be controlled and not exceed a volume fraction of 50 ppm.
Hydrostatic test pressure		The test pressure shall not be less than the maximum of 1,25 times the maximum allowable pressure (taking into account the rate nominal stress at test temperature compared to design temperature), and 1,43 times the maximum allowable pressure
PNEUMATIC test	Test gas	EN 13480: Where a pressurizing fluid other than water is used, care shall be taken to identify any additional hazards associated with the fluid. The fluid shall be non-toxic and non-flammable
	Additional requirements	– Metal temperature at which shall be at least 25 °C above brittle fracture temperature in EN 13480-2 annex B – Non destructive examination
	PRESSURE	The test pressure shall not be less than the maximum of 1,25 times the maximum allowable pressure (taking into account the rate nominal stress at test temperature compared to design temperature), and 1,43 times the maximum allowable pressure
TIE-IN WELDS		

R1

ASME VIII

Leak test choice		ASME VIII : A pneumatic test may be used in lieu of hydro test only when any of the following condition exists : • When they are so designed or supported that they cannot safely be filled with liquid • When they are not readily dried are to be used in services where traces of testing medium cannot be tolerated.
Painting		ASME VIII: All joints shall be left un-insulated and exposed for examination during test. Except the weld areas which shall be left with the primer coat only.
Pressure relief valves		
Pre-tests		ASME VIII: A pressure test at pressure not to exceed 25% of design pressure may be applied to locate leaks.
Maximum test pressure		ASME VIII: The maximum test pressure shall be limited as defined in NB-6222 (NC-6222 / ND-6222).
Inspection pressure and inspection time		ASME VIII: The test pressure shall be maintained a minimum of 10 minutes. Leakage examination shall be made at pressure equal the greater of design pressure or ¾ test pressure.
Calibration		ASME VIII: Test gages shall be calibrated before each test or series of test. Series of tests is that group using same pressure test age which is conducted at same site within period not exceeding 2 weeks.
Range		Analogue manometer: not less then 1,5 times nor more than 4 times the test pressure. Digital manometer: may be used without range restriction provided the combined error due to calibration and readability does not exceed1% of the test pressure.
Test fluid		ASME VIII: Water or an alternative fluid, as permitted by the design specification, shall be used. If water temperature is below 5°C and Customer approval has been obtained, an antifreeze solution such as methanol or inhibited glycol can be added to the test water according to the Manufacturer instructions.
Hydrostatic test pressure		The test pressure shall not be less than 1,25 times the lowest design pressure
PNEUMATIC test	Test gas	ASME VIII: Gas used shall be non-flammable.
	PRESSURE	The test pressure shall not be less than 1,1 times the lowest design pressure of any component
TIE-IN WELDS		

R1

FCM	**PRESSURE TEST CERTIFICATE**

CERTIFICATE N°:

Project :
Customer :
Ref. Customer :
Ref. FCM :

Spec./Proc. :
Area :
Test pack :
Test Medium :
Temperature : Celsius
Test pressure : barg
Duration : hour(s)
Gauge n° 1 :
Gauge n° 2 :

ISOMETRIC or DRAWING	LINE NUMBER or ITEM NUMBER	MATERIAL SPEC.	PID	REMARKS

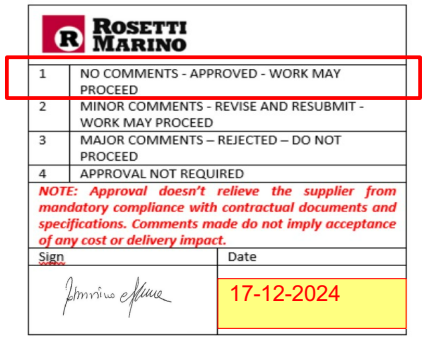
QUALITY CONTROL	CLIENT	III° PART		
DATE	DATE	DATE		

Base Load Power Hub (BLPH)

FAT PROCEDURE – WATER TREATMENT PACKAGE
TAG. No. A-50000

Document Number: 1724000448-QC-PRO-00025

Document Class: 2


ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	17-12-2024

02	06/12/2024	Accepted for Construction (AFC)	WR	RM	RM
01	11/11/2024	Issue for Review (IFR)	WR	RM	RM
00	23/07/2024	Issue for Review (IFR)	WR	RM	RM
Rev.	**Date**	**Description**	**Prepared**	**Reviewed**	**Approved**

PSC DOC. REF.: PK2885-Q-001

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Issue for Review (IFR)
02	Accepted for Construction (AFC)

HOLDS LIST

No.	Description
1	
2	
3	
4	

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Attachment 1: FAT TEST REPORTS

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 PROJECT LOCATION

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

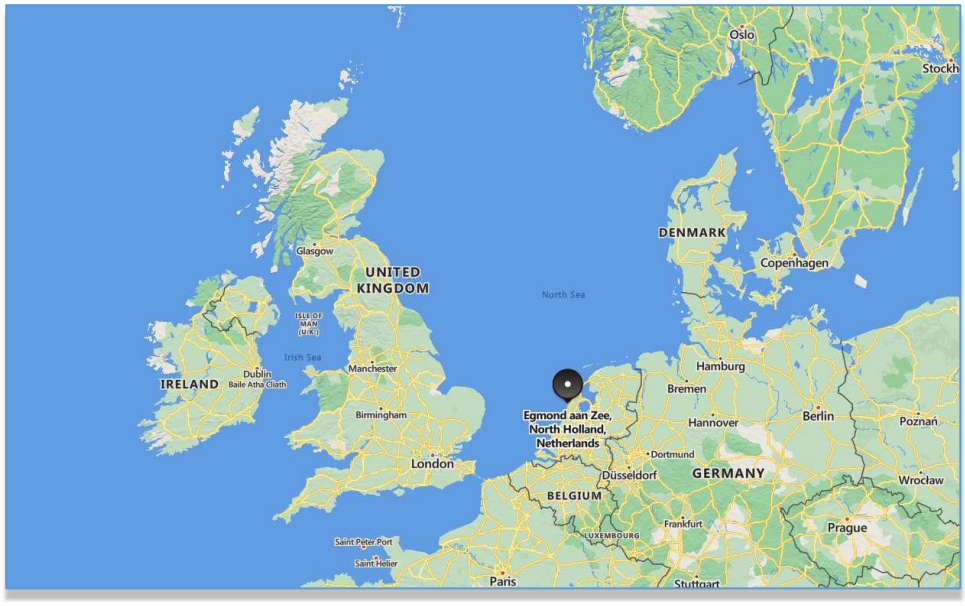


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 PROJECT CONCEPT

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

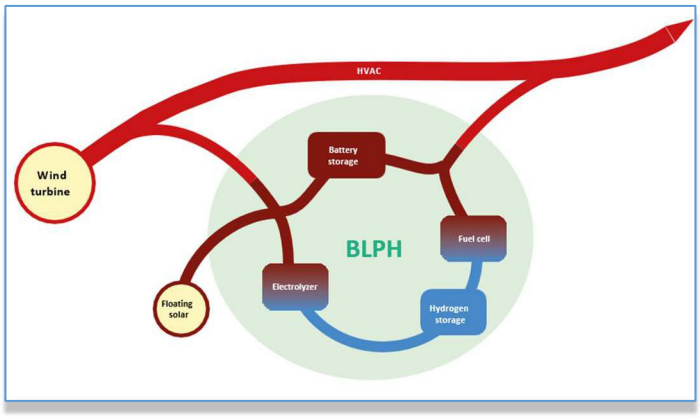


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 DOCUMENT SCOPE

The final Factory Acceptance Test (FAT) for the Water Treatment Package (Unit A-50000) shall be performed in accordance with the test procedure described in this document.
The scope of FAT shall include:

- visual check on workmanship,
- functional checks in accordance to reference engineering documents

The procedure of this document only refers to the above equipment with strict reference to this project.

NOTES

1) This procedure does not refer to hydrostatic test for equipment/piping, or any other test or inspections applicable to each single component of the system
2) It is assumed that, before this FAT of Water treatment package, assembly intermediate checks and tests foreseen in the inspection test plan have been already carry out
3) During installation it is possible to prove the functionality of instrumentation and the correct wiring after their installation in the Water Treatment package
4) During the FAT test the power on of pumps / Heater / Filters / and in general equipment wired to the MCC cabinet, will be not performed.
5) Performance test is out of the scope this procedure.
   Please refer to document 1724000448-QC-PRO-00028 “PERFORMANCE TEST PROCEDURE” for the performance test

2.1 PROJECT REFERENCE

Doc. No.	Description
1724000448-PR-PID-00013	P&IDs
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS AND FOUNDATIONS LAODING CALCULATIONS
1724000448-IN-LIS-00021	INSTRUMENT LIST WITH SET POINTS/CONTROL/ALARM/SHUTDOWN
1724000448-EL-LIS-00022	CABLE LIST
1724000448-IN-LIS-00019	I/O LIST
1724000448-IN-DG-00014	PACKAGE WIRING DIAGRAM LCP
1724000448-MAT-PRO-00023	PAINTING SPECIFICATION FOR CONTAINER

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
HKN	Hollandse Kust Noord
BLPH	Base Load Power Hub
BESS	Battery Energy Storage System
PV	Photovoltaic
VooW	Van Oord Offshore Wind
FAT	Factory Acceptance Test
P&ID	Piping & Instrumentation Diagram
GA	General Arrangement
DFT	Dry Film Thickness
ICS	Industrial Control System
PLC	Programmable Logic Controller
COG	Center Of Gravity

I/O	Input / Output
LCP	Local Control Panel
RAL	Reichs-Ausschuß für Lieferbedingungen und Gütesicherung (National Commission for Delivery Deadlines and Quality Assurance)

Table 2 - Definitions and Abbreviations

3 FAT TESTS DESCRIPTION

3.1 VISUAL DIMENSIONAL TEST

The scope of visual and dimensional inspection is to verify that main Water Treatment package overall quotes and connections at battery limits and pre-fabricated piping correspond to figures shown on general arrangement drawings.
The dimensional inspection will be done using a bend meter.
The dimensional inspection will give a satisfactory result if sizes will be in accordance with those shown on general arrangement drawings.
If any dimension deviates to the approved G.A. drawing, with the approval of customer, a final as-built drawing will be issued.
All inspected items shall be free from visible defect and/or damages
The visual and dimensional inspection will include the checking of the correct positioning of the local panels supplied with the package and the checking of the cable routes installed to connect these local panels to the package equipment (where available). The visual and dimensional check of the individual local panels will only be subject to documentary review because already covered by the Factory Acceptance Test of each single local panel carried out prior to the installation in the package.
As per the rest of the package, the visual check of the local panel and cable routes will give positive results if all the inspected items correspond to the engineering documents, are clean ad free from visible defect or damages.

3.2 PAINTING TEST

The scope of painting inspection (applicable only to the external surface of the container) is to verify final color (RAL) of the container and to spot Dry Film Thickness (DFT) to be in accordance to reference painting procedure.
The spot DFT inspection will be done using a coating thickness gauge.
The painting inspection will give a satisfactory result if the color of the container external surface and DFT as well as paint report review, will be in accordance with the reference painting procedure.

3.3 LEAKAGE TEST

The scope of leakage test is to verify good assembly and absence of leakages of bolted / threaded joints / fittings (where possible).
The leakage test (hydro test) has already performed on the duplex piping, instead the leakage test with process fluid (water) will be performed during the site acceptance test during the power on of the pumps and equipment.
Please refer to document number 1724000448-QC-PRO-00024 for hydrostatic test procedure
Please refer to document number 1724000448-QC-PRO-00028 for site acceptance test procedure

3.4 FUNCTIONAL TEST OF THE ICS

An industrial control system (ICS) is an electronic control system and associated instrumentation used for industrial process control. The scope of the functional test for the whole ICS supplied for

the package (that include instrumentation, logic solver and actuators) is to verify the correct operation of each electronic equipment/instruments when fully connected and powered from the local PLC panel.

In details:

1) For each transmitter the correct tagging and cables wiring shall be verified. The transmitter shall be powered from the local panel and evidence of congruence between the signal generated by the instrument and the value read on the PLC operator interface must be verified (including the correctness of the instrument's scale range).
2) For each discrete sensor (switch) the correct tagging and cables wiring shall be verified. The sensor shall be manually operated/forced to change its status and evidence of congruence between the signal generated by the switch and the indication read on the PLC operator interface must be verified.
3) For each actuator in field the correct tagging and cables wiring shall be verified. The actuator shall be powered from the local panel by mean of operator manual commands on the PLC operator interface and evidence of congruence between the command generated by the PLC and the behaviour of the actuator. If the actuator provides position feedback to the PLC, the feedback signals must also be verified in accordance with point 1 or 2.
4) For each electrical load powered by the power section of the local panel it will not be possible to check the operation of the motors because it will not be possible to connect the correct power supply to the switchboard. It will, however, be possible to supply power to the auxiliary circuits and to simulate the switching (run/stop) of each motor from the PLC operator interface, without supplying power to the field equipment.

Please note that the functional test of the electrical equipment (pumps / heaters / fans) will be performed at the site acceptance test. The electric equipment certifications released by equipment manufacturers will be collected in the final manufacturer data book.

All the above functional tests will give a positive result if all tested instruments and actuators are free of errors due to instrument malfunction, wrong interconnection or misconfiguration on the logic solver.

Please note that the scope of the test is to prove the functionality of instrumentation after installation on the Water Treatment Package. The calibration of instruments is assumed corresponding to the relevant Manufacturer's certification.

Please note that the verification of the proper serial communication between Client's ICS and Vendor's PLC will be testes at the site acceptance test.

4 INSPECTION REPORTS

The following test and inspection will be used during the tests

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Project Name	:	**123A90A – Base load Power Hub Platform**
Purchase Order No.	:	**1724000448 123A90A**
Project ID No.	:	**1724000448 123A90A**
PSC Project ID No.	:	**PK2885**

EQUIPMENT TESTED	
Item No.	Item Description
A-50000	Water Treatment Package

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

ATTACHMENTS	
☐	Appendix A1 – Water Treatment Package VISUAL AND DIMENSIONAL CHECK
☐	Appendix A2 – Water Treatment Package LEAKAGE TEST WITH AIR
☐	Appendix A3 – Water Treatment Package INSTRUMENTS CHECK
☐	Appendix A4 – Water Treatment Package SHUT OFF VALVES
☐	Appendix A5 – Water Treatment Package Grounding check
☐	Appendix B1 – PUNCH LIST

DATE	PSC	CUSTOMER	END CUSTOMER

APPENDIX "A"

FAT REPORTS

Test performed	VISUAL AND DIMENSIONAL CHECK

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Container dimensions check	GA drawing **1724000448-MAC-DA-00005**	☐	☐	
2	Container painting RAL check (only external surface)	Painting Specification **1724000448-MAT-PRO-00023**	☐	☐	
3	Container painting DFT check (only external surface)	Painting Specification **1724000448-MAT-PRO-00023**	☐	☐	
4	Water Treatment Package Terminal points dimension check	GA drawing **1724000448-MAC-DA-00005**	☐	☐	
5	Valves nameplate check	P&ID **1724000448-PR-PID-00013**	☐	☐	
6	Equipment nameplate check	P&ID **1724000448-PR-PID-00013**	☐	☐	
7			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES	

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

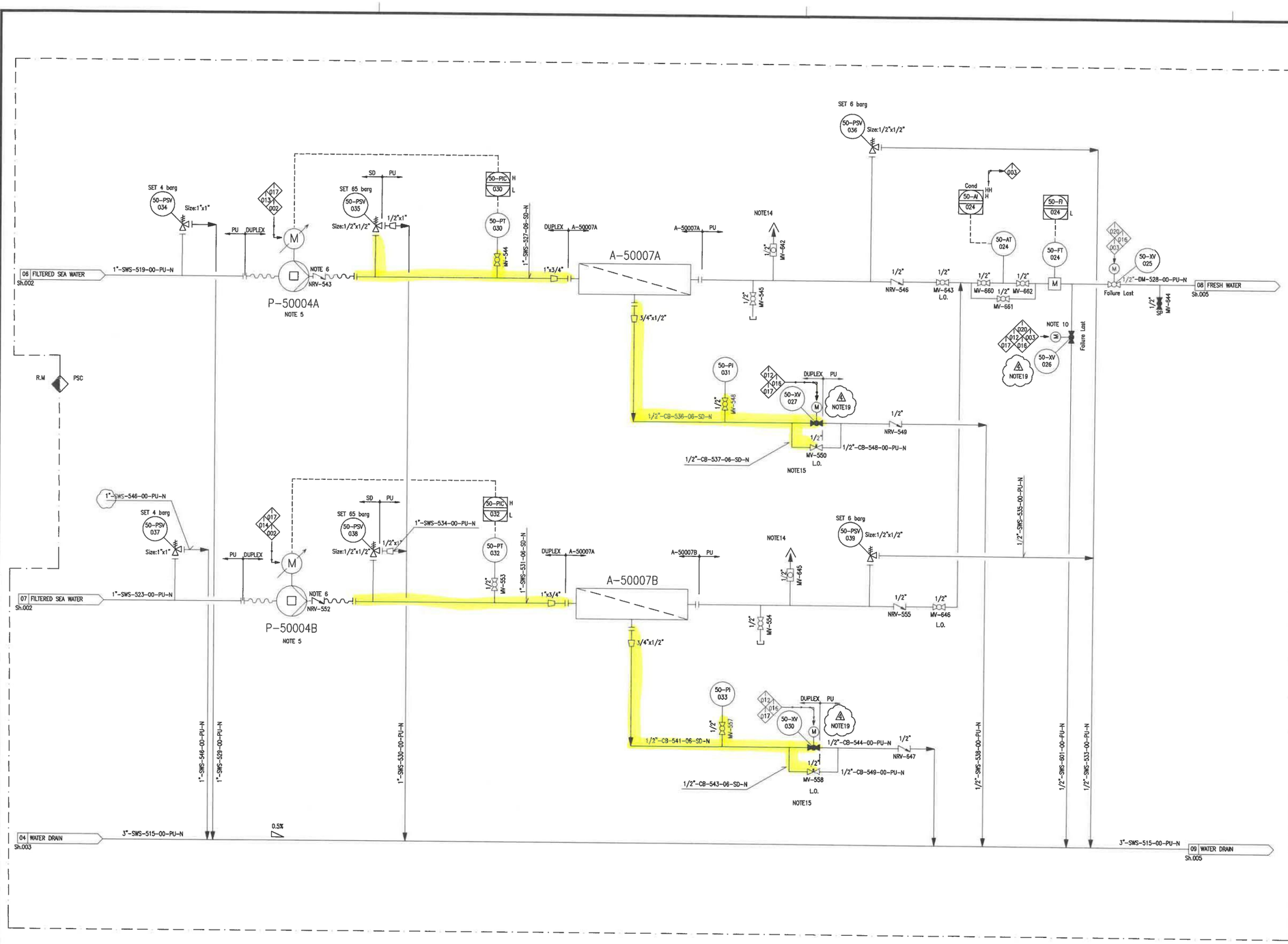
ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER

Test performed	**LEAKAGE TEST WITH AIR**

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Piping leakage test with pneumatic air (0.5 barg) Note: The leakage test for the PCV and PP piping will be performed directly at the Site Acceptance Test. At the Site acceptance test all the assembled piping and system will be also tested. The Hydraulic test has been already performed on duplex piping and the certification of its hydraulic test will be available in the final MDR book. For reference, please find at the following page the tested duplex piping part highlighted on the P&ID	FAT Procedure **1724000448-QC-PRO-00025**	☐	☐	

DRAWING NO. 1724000448-PR-PID-00013 REV. 04



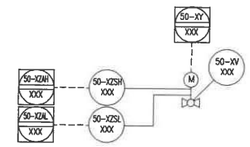
P-50004A/B	
HP PUMP	
TYPE	AXIAL ROTATING PISTONS
DES PRESSURE	83 barg
CAPACITY	2 m3/h
HEAD	64.5 bar(a)
DES. TEMP.	50° C
MATERIAL	SS DUPLEX

A-50007A/B	
SEA WATER REVERSE OSMOSIS UNITS	
CAPACITY	0.8 m3/h
DES. PRESS.	69 barg
DES. TEMP.	45° C
MATERIAL	FRP

TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE -
DRAWN UR	CHECKED WR	APPROVED RM	DATE 11/11/24
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 004	REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

NOTES	

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER

Test performed	**INSTRUMENTS CHECK**

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Instruments nameplate tag check	P&ID **1724000448-PR-PID-00013**	☐	☐	
2	Instrument wiring check (Cable gland installation / wire type will be checked and verified)	Package wiring diagram LCP **1724000448-IN-DG-00014**	☐	☐	
3	PLC wiring check (Including verification of continuity of the protective bonding circuit / wire type / ingress protection of enclosure / cable gland / wire tag/ Panel tag)	Package wiring diagram LCP **1724000448-IN-DG-00014**	☐	☐	
4	Instruments functional electric test	Package wiring diagram LCP **1724000448-IN-DG-00014**	☐	☐	
5			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES	

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER

Test performed	SHUT OFF VALVES CHECK

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Shut off valves functional electric test (Including limit switches)	Package wiring diagram LCP **1724000448-IN-DG-00014**	☐	☐	
2			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES	

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER

Test performed	GROUNDING CHECK

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Instruments & Panel grounding check, including Container grounding test	N.A.	☐	☐	
2			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES	

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER

APPENDIX "B"

PUNCH LIST

NOTES	

Base Load Power Hub (BLPH)

SITE ACCEPTANCE TEST PROCEDURE
WATER TREATMENT PACKAGE (A-50000)

Document Number: 1724000448-QC-PRO-00028

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	03-03-2025

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
01	15/02/2025	Accepted for Construction (AFC)	PSC	WR	RM
00	12/11/2024	Issue for Review (IFR)	PSC	WR	RM

PSC DOC. REF.: PK2885-Q-005

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Accepted for Construction (AFC)

HOLDS LIST

No.	Description
1	
2	
3	
4	

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5 km off the coast of the Netherlands near the town of Egmond aan Zee.

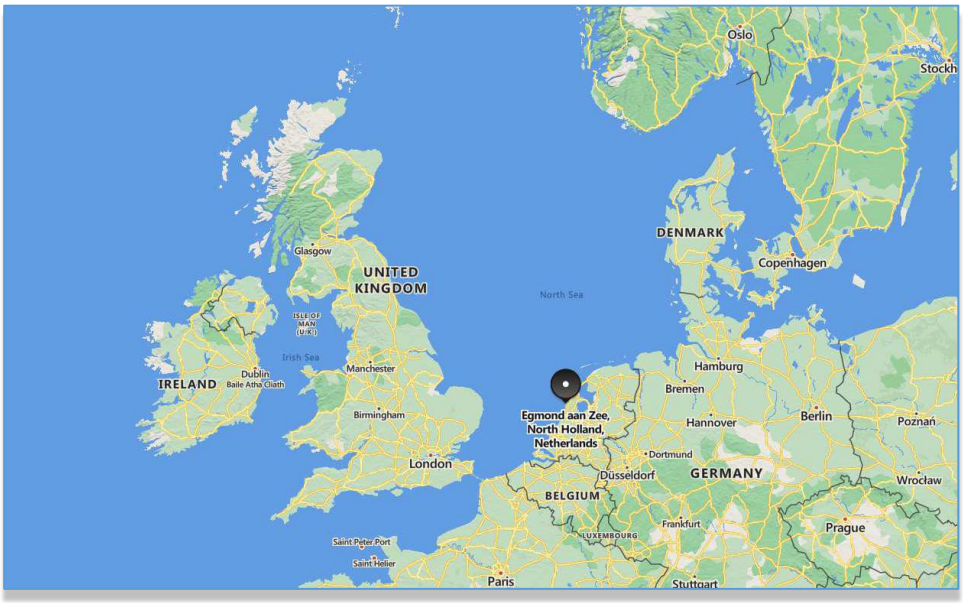


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map



Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

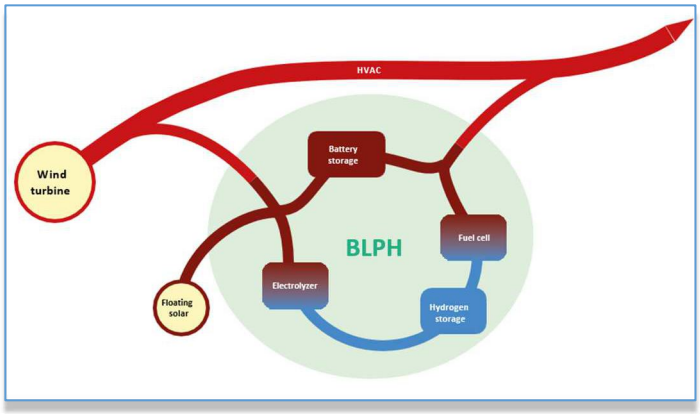


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting

wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 DOCUMENT PURPOSE AND SCOPE

The purpose of this document is to define the procedure of the functional test to be held at Rosetti Marino's yard (Marina di Ravenna) of the Water Treatment Package built by PSC Engineering & Contracting for the Hollandsee Kust Noord Wind Park Project.

The Site Acceptance Test is verified by multidisciplinary engineers to check the following aspects:

- Compliance of the installed equipment with all client's project specification and with PSC's documentations.
- Operation and functionality of entire Water Treatment Package.
- Check of the contractual parameters at the outlet of the Water Treatment Package, please refer to paragraph 5.6 of this document.

2.1 REFERENCES

Last revision of the following document as minimum shall be used as reference to perform the SAT test:

Doc. No.	Description
1724000448-PR-PID-00013	P&ID
1724000448-MAC-DA-00005	GENERAL ARRANGEMENT DRAWINGS
1724000448-MAC-MAN-00032	OPERATION & MAINTENANCE MANUAL
1724000448-IN-LIS-00021	INSTRUMENT LIST
1724000448-MAC-SP-00003	SYSTEM FUNCTIONAL DESCRIPTION
	As built technical drawings (electrical, mechanical & process schemes)
MSDS Antiscalant MSDS Non oxidant biocide MSDS Caustic soda	EVERBLUE 600 - Everblue EB BIOCIDE PLUS - Everblue Caustic soda 6 mol/l - Merck

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY)	Crosswind
CONTRACTOR (CTR)	ROSETTI MARINO S.p.A.
PROJECT	HOLLANDSE KUST NOORD WIND PARK Project
CA	Certification Agency
DCS	Distributed Control System
DS	Surveyor
EXP	Expediting dept.
LOG	Logistic Dept.
NDE	Non Destructive Examination
NTU	Nephelometric Turbidity Unit
PLC	Programmable Logic Controller
PQR	Procedure Qualification Record
QC	Quality Control Dept.
QCI	Quality Control Inspector
SC	PSC Engineering S.p.A.
SWRO	Sea Water Reverse Osmosis
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TSS	Total Suspended Solids
UPS	Uninterruptible Power Supply
WI	Welding Inspector
WLD	Welding Dept.
WQR	Welder Qualification Record
WPS	Welding Procedure Specification

Table 2 - Definitions and Abbreviations

2.3 RESPONSIBILITIES

Good construction safety practices must be in place and followed all times during site acceptance test to reduce possibility of injury.

PSC shall not be liable for physical injury, damage or delays caused by a failure to observe the instruction contained in the operating and installation manuals.

PSC will conduct the site acceptance test with client Rosetti Marino as witness and based on the following procedure.

All commissioning teams and maintenance staff shall be available to attend the present test.

All portable instruments and common mechanical and electrical tools shall be available on site and provided by Client.

3 TEST UTILITIES AND CHEMICALS

The following utilities and chemicals will be available at yard during the Water Treatment Package Functional Test:

3.1 ELECTRIC POWER

The following Electric Energy supply will be made available by Rosetti Marino to feed the Water Treatment Plant:

- 2 kW – 230V / 50Hz
- 65 kW – 400V / 50Hz

Cables, cable glands and switch as required to connect and power up the package.

3.2 COMPRESSED AIR

A compressed dried and filtered air pipeline, from workshop internal air distribution system, will be made available by Rosetti Marino only for cleaning and drying purposes.

3.3 SERVICE WATER

Cleaned service water at 3-5 barg, from workshop internal water distribution system, will be made available by Rosetti Marino for cleaning and flushing purposes.

3.4 SEA WATER

Sea water, supplied by Rosetti Marino, will have the following inlet characteristics:

COMPOSITION	CONCENTRATION (mg/l)
Sodium, Na	11150
Potassium, K	420
Calcium, Ca	432
Magnesium, Mg	1410
Barium, Ba	0.1
Strontium, Sr	6.6
Chloride, Cl	20310
Sulphate, SO_4	2800
Bicarbonate, HCO_3	150

TDS	36682
Silica, Si	1
Iron, Fe	<0.02
Manganese, Mn	<0.01
Oil	<0.1
TSS	<10
TOC	<10
Temperature	10-23°C

Table 3 – Sea water composition

Before starting the Site Acceptance Test at yard it is mandatory to reach the above parameters, or at least: TSS, Oil, Iron, Silica, Calcium, Magnesium, TOC, Turbidity < 10 NTU, temperature.

Please note that the laboratory analysis of the samples are out of PSC scope and will be performed by Rosetti Marino.

3.5 CHEMICALS

The partial first filling of chemicals will be provided by PSC to allow the dosing pumps operation and test:

Biocide: 10 kg

Antiscalant: 10 kg

NaOH solution: due to the variable value of the pH of the sea water at the package inlet, the solution with the proper Caustic soda concentration shall be prepared according to the following table:

Sea water pH	Caustic soda concentration	Caustic soda available at 20%	Demi water	Dosing pump flowrate
8.2	2%	1 liter	10.8 liters	0.04 l/h
7.8	5%	1 liter	3.5 liters	0.04 l/h

Table 4 – Caustic soda dosage

Please contact PSC SpA for sea water pH evaluation and caustic soda concentration value in case the detected sea water pH values turn out to be different from those indicated in the above table

4 EQUIPMENTS

The following equipment and machinery will be available at yard during the test:

4.1 FEEDING PUMP

Sea water will be supplied by Rosetti Marino at inlet battery limit at constant flow rate 2.5 m^3/h and at feed pressure up to 4 barg – 5 barg max by N.1 package feed pump.

Inlet/outlet flexible pipes, valves and dedicated feed incoming powers will be available by Rosetti Marino.

4.2 TERMINAL POINTS

Flexible pipes to be provided by Rosetti Marino:

4.2.1 Hydraulic Terminal Points

TERMINAL POINT	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1 ½"	FLG	150#	RF	PVC	Sea water from intake pumps
TP-002	1"	FLG	150#	RF	PVC	Fresh water
TP-003	3"	FLG	150#	RF	PVC	Sea water drain
TP-005	1"	FLG	150#	RF	PP	Biocide to sea water intake
TP-006	1"	FLG	150#	RF	PP	Biocide to wastewater tank
TP-007	1 ½"	FLG	150#	RF	PVC	Chemical drain
TP-008	½"	FLG	150#	RF	PVC	Container open drain

4.2.2 Sampling Points

Intermediate sampling points have been provided inside container suitable to get specimen for analysis in case water characteristics do not cope with expected results, in order to find the origin of the fault:

SAMPLING POINT NUMBER	SAMPLING POINT VALVE	DESCRIPTION
1	MV-501 ½"	Sea water inlet
2	MV-510 ½"	Filtered sea water downstream S-50001
3	MV-644 ½"	SWRO permeate
4	MV-572 ½"	Fresh water outlet

Please note that the laboratory analysis of the samples is out of PSC scope and will be performed by Rosetti Marino.

4.2.3 Electrical Terminal Points

TERMINAL POINT	DESCRIPTION
Terminal strips	For Main power feeding, analog, digital, motors
Junction Box 1	Panel Feeding 400 V, 50 Hz
Junction Box 2	UPS Feeding 230 V, 50Hz
Communication Card	Signals from/to ICCS
Communication Card	Signals from/to Fire & Gas Panel

5 TEST PROCEDURE

5.1 PRE-REQUIREMENT AND BASIC INSTRUCTION

The purchaser shall comply with the instructions and information given in this document, and all personnel associated with the equipment of this plant shall be made familiar with the information contained herein.

All people involved in the erection, tests, start-up and service of the plant should be fully qualified, skilled and totally informed about the correct service and the relevant hazard, fluids and raw materials of plant.

Installation, pre-commissioning and commissioning activities shall be successfully carried out, before starting any test described in the present procedure.

All relevant defects, failures and damages shall be listed and recorded during pre-commissioning and commissioning to be agreed and resolved by action plan, especially for the critical part or component required to the start-up and plant operation.

Documents and Manuals supplied by the equipment manufacturers may supplement and complete the information given in this procedure.

The working space required for the execution of the tests shall be accessible and not be used for storage but shall be clean and free of debris. Any tools or test instruments must not be left unattended.

Before and during test executions, all safety requirements shall be strictly followed and suitable PPE used.

5.2 TEST SEQUENCE

Completed the commissioning and start-up periods, the plant shall be started and operated within design parameters as per PSC's operation manual and relevant sub-vendor's manuals.

The sea water will feed the plant as per Section 3.4.

All required utilities shall be always supplied as per Section 3.

Check that the plant is controlled automatically.

All stand-by items (pumps, fans, heater, SWRO etc.) will be checked in operation.

The package start-up will follow the normal procedure.

The following subsystem has been already tested during the pre-commissioning and commissioning activities.

- Self cleaning coarse filter A-50003 operation and backwash
- Operation of electric heater H-50001
- Sand filter S-50001 operation and backwash
- SWRO system operation A-50007A/B
- SWRO system flushing
- Fresh water pumps P-50009A/B
- Softening filter S-50004 operation and regeneration
- Biocide dosing
- Antiscalant dosing
- NaOH dosing
- Automatic draining systems

Please refer to SAT REPORT - ATTACHMENT A – EQUIPMENT and SAT REPORT - ATTACHMENT C – SEQUENCES for the acceptance criteria

The scope of the SAT test is to verify that the freshwater parameters reported at the paragraph 5.6 are met.

The water treatment package A-50000 is equipped with nr.4 sample points.

Sample point nr.1 shall be used to verify the chemical characteristic of the feed water

Sample point nr.2 is used to verify the water quality after the sand filter filtration

Sample point nr. 3 is used to verify the RO water quality

Sample point nr. 4 shall be used to verify the freshwater parameters reported at paragraph 5.6

It is suggested to sample the water every 4 hours during the system operation.

The samplings shall be marked at least with sample point nr. (as for the table shown at paragraph 4.2.2) and with the time of sampling.

It is suggested that all the 4 samples taken will be analyzed each time to have constant monitoring of all the main water chemical characteristics at the inlet and after the treatment points. However, if that is not possible it is strictly necessary to analyze at least sampling nr.1 e nr.4 (water parameters at the system inlet and outlet)

It is also important to record the parameters reported by the instruments installed in the package. The parameters must be reported using the tables (process data and contractual data) in the annexes to this document. At the end of the day, final tables will then be filled in showing the average of the values obtained in the three daily inspections as the measured values.

5.3 DURATION

Test duration will be 4 consecutive days for 12 hours/day switching on line A to Line B every 12 h

5.4 TEST PARAMETERS

The following parameters will be monitored and recorded during the test:

- Pressure, Temperature, Level and Flow as per package instruments
- Filtered sea water conductivity (50-AT-023)
- SWRO outlet fresh water conductivity (50-AT-024)
- Fresh water outlet pH (50-AT-027)
- Fresh water outlet total hardness (50-AT-026)

5.5 ACCEPTANCE CRITERIA

The Site Acceptance Test will be successfully passed according to the following acceptance criteria:

- Water Treatment Package shall be started and operated continuously and in steady conditions with the following requirements:
  - a) No visible damage, deformation, hydraulic leakage and corrosion for main components (piping, valves, pumps, tanks, filter, SWRO, pressure vessel, softener, electric heater, UV sterilizer, instrument)
  - b) No interruption in production
  - c) Absence of malfunction and failure (mechanical, electrical)
  - d) No visual alarm or fault
  - e) No excessive vibrations
  - f) No overheating of the power equipment (electrical heaters, motors, local panels, local control and power panels)
  - g) Reliable instrument measurement (calibration and within operating measurement range), checking by portable instruments where they are available
  - h) Correct automatic sequence as per system description and operation of the automatic valves (no valve misalignment)
  - i) Correct interlocks activation as per C&E
  - j) All measured values and equipment status are monitored properly and recorded by the local control panel
  - k) Operating parameters shall be within design values
  - l) All set points values shall be as per instrument list and can be adjustable
  - m) Checking all transmission signals to/from DCS.

- Other requirements to be successfully tested:

a) Correct start-up sequence of the plant (especially the high pressurization step of the HP Pressure Pumps)

b) Normal shutdown sequence of the plant

c) Emergency shutdown of the plant, power failure and fire gas failure

d) F&G detection system by positive simulation.

5.6 SYSTEM PERFORMANCE GUARANTEES

Fresh water quality shall be as per Spec. K559-2254-PM-PLN-003, par. 8.3.2.

• SWRO permeate flow rate	:	0.8 m^3/h	50-FT-026
• SWRO permeate conductivity	:	703 µS/cm	50-AT-024
• SWRO permeate hardness	:	0.9 °F	50-AT-026
• pH	:	7-7.9	50-AT-027
• Temperature	:	10-23	50-TT-024

The Test will be considered successful if the above acceptance criteria are met and the quality of fresh water and its flow rate meet the contractual guarantees. Immediately after a test report shall be signed by the parties.

6 CLEANING

At the end of the test the package will be emptied and rinsed with fresh water to remove all the seawater inside equipment and pipes.

Where possible the pipes will be cleaned and dried with compressed air.

Chemicals will be removed from their storage tanks, tanks and pumps will be cleaned, rinsed with fresh water and dried with compressed air. The chemicals solution will be correctly disposed.

7 TEST REPORT

A Site Acceptance Test Report will be issued after test, complete with all following reference documentation:

7.1 PHOTO REPORTAGE

A photo reportage will be done at site, including the following sections:

- Photo of external view of container with relevant installation, hydraulic and electrical connection
- Photo of internal view of the container with all installed equipment
- Photo of Video page HMI, with all operating process parameters of the tested items and operating SWRO line A and SWRO Line B
- Photo of any displayed alarm and failure
- Photo of Seawater, Permeate water and Freshwater samples.

7.2 TECHNICAL ATTACHMENTS

The following attachment shall be filled and signed by PSC's staff and Client:

- SAT REPORT - ATTACHMENT A – EQUIPMENT
- SAT REPORT - ATTACHMENT B - PROCESS PARAMETERS

Process parameters to be reported for the three reading prior to declaring the mean value

- SAT REPORT - ATTACHMENT C - SEQUENCES
- Laboratory analysis certificated of the water samples.

Once the test will be completed, a Site Acceptance Test certification shall be signed by Customer within 48 hours from successful test.

In case of fail of the Site Acceptance Test, the first step is to identify which parameter does not comply with requirements. Then, check the correct operation and calibration of instruments.

Finally, if the instruments work properly, through sampling points listed in Section 4.2.2., water analysis will be taken and values recorded to identify where the issue occurs.

PARAMETER	CONTRACTUAL VALUE	WATER SAMPLE
SWRO permeate conductivity	703 µS/cm	Sea water inlet, SWRO permeate (to check salt rejection of membranes), Fresh water outlet
Fresh water hardness	0.9 °F	Sea water inlet, SWRO permeate (to check membranes rejection of Ca and Mg), Fresh water outlet (to check operation of Softener)
pH	7-7.9	Sea water inlet, SWRO permeate (to check rejection of membranes and check the set dosage of caustic soda), Fresh water outlet (to check dosage of caustic soda)

In case of fail of the Site Acceptance Test, PSC will submit a dedicated report with actions to identify and resolve any deficiency, failure.

The test will be rescheduled after revision and implementation applied to the tested plant.

8 REFERENCE LIST

8.1 MODBUS LIST

For complete information please refer to document number: 1724000448-IN-LIS-00019

	ROSETTI MARINO	PSC	
	DOCUMENT TITLE: PERFORMANCE TEST	**Doc. No.:** PK2885-Q-005	
	DOCUMENT No: 1724000448-QC-PRO-00028		**Page: 1 of 6**
ATTACHMENT: 05	**Modbus List**		

FIELD TAG/DEVICE	SERVICE	ICSS I/O TYPE	FORMAT	MODBUS REGISTER	REGISTER BIT
50-AT-020A	H2 gas detection in container	SAI	FLOATING	40001	-
50-AT-020B	H2 gas detection in container	SAI	FLOATING	40003	-
50-AT-020C	H2 gas detection in container	SAI	FLOATING	40005	-
50-AT-023	Filtered seawater conductivity to P-50003A/B	SAI	FLOATING	40007	-
50-AT-024	Fresh water conductivity from A-50007A/B	SAI	FLOATING	40009	-
50-AT-026	Fresh water outlet total hardness	SAI	FLOATING	40011	-
50-AT-027	Fresh water outlet pH	SAI	FLOATING	40013	-
50-FT-020	Seawater flow to S-50001	SAI	FLOATING	40015	-
50-FT-022	Filtered seawater flow from P-50003A	SAI	FLOATING	40019	-
50-FT-023	Filtered seawater flow from P-50003B	SAI	FLOATING	40021	-
50-FT-024	Fresh water flow from A-50007A/B	SAI	FLOATING	40023	-
50-FT-026	Fresh water outlet flow	SAI	FLOATING	40017	-
50-LT-020	T-50006 level	SAI	FLOATING	40025	-
50-LT-021	T-50008 level	SAI	FLOATING	40027	-
50-LT-022	T-50002 level	SAI	FLOATING	40029	-
50-LT-023	T-50003 level	SAI	FLOATING	40031	-
50-LT-024	T-50004 level	SAI	FLOATING	40033	-
50-PDT-023	dP across S-50001	SAI	FLOATING	40035	-
50-PT-020	Seawater inlet pressure	SAI	FLOATING	40037	-

FIELD TAG/DEVICE	SERVICE	ICSS I/O TYPE	FORMAT	MODBUS REGISTER	REGISTER BIT
50-PT-025	Filtered seawater pressure from P-50003A	SAI	FLOATING	40039	-
50-PT-026	Filtered seawater pressure to P-50004A	SAI	FLOATING	40041	-
50-PT-027	Filtered seawater pressure from P-50003B	SAI	FLOATING	40043	-
50-PT-028	Filtered seawater pressure to P-50004B	SAI	FLOATING	40045	-
50-PT-030	Filtered seawater pressure from P-50004A	SAI	FLOATING	40047	-
50-PT-032	Filtered seawater pressure from P-50004B	SAI	FLOATING	40049	-
50-PT-041	Fresh water outlet pressure	SAI	FLOATING	40051	-
50-PT-047	Softening filter inlet pressure	SAI	FLOATING	40053	-
50-SI-P50004A	HP pump speed feedback	SAI	FLOATING	40055	-
50-SI-P50004B	HP pump speed feedback	SAI	FLOATING	40057	-
50-TT-021	Seawater temperature from H-50001	SAI	FLOATING	40059	-
50-TT-022	Seawater temperature from H-50001	SAI	FLOATING	40061	-
50-TT-023	Ambient air temperature inside container	SAI	FLOATING	40063	-
50-TT-024	Fresh water outlet temperature	SAI	FLOATING	40065	-
50-AT-023	Filtered seawater conductivity to P-50003A/B high	SDI	BOOLEAN	40101	0
50-AT-024	Fresh water conductivity from A-50007A/B high	SDI	BOOLEAN	40101	1
50-AT-024	Fresh water conductivity from A-50007A/B very high	SDI	BOOLEAN	40101	2
50-AT-026	Fresh water outlet total hardness high	SDI	BOOLEAN	40101	3
50-AT-026	Fresh water outlet total hardness very high	SDI	BOOLEAN	40101	4
50-AT-027	Fresh water outlet pH very low	SDI	BOOLEAN	40101	5
50-AT-027	Fresh water outlet pH low	SDI	BOOLEAN	40101	6
50-AT-027	Fresh water outlet pH high	SDI	BOOLEAN	40101	7
50-AT-027	Fresh water outlet pH very high	SDI	BOOLEAN	40101	8
50-FT-020	Seawater flow to S-50001 low	SDI	BOOLEAN	40101	9
50-FT-020	Seawater flow to S-50001 high	SDI	BOOLEAN	40101	10
50-FT-022	Filtered seawater flow from P-50003A low	SDI	BOOLEAN	40101	11
50-FT-022	Filtered seawater flow from P-50003A high	SDI	BOOLEAN	40101	12
50-FT-023	Filtered seawater flow from P-50003B low	SDI	BOOLEAN	40101	13
50-FT-023	Filtered seawater flow from P-50003B high	SDI	BOOLEAN	40101	14

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FIELD TAG/DEVICE	SERVICE	ICSS I/O TYPE	FORMAT	MODBUS REGISTER	REGISTER BIT
50-FT-024	Fresh water flow from A-50007A/B low	SDI	BOOLEAN	40101	15
50-FT-026	Fresh water outlet flow low	SDI	BOOLEAN	40102	0
50-LT-020	T-50006 level very low	SDI	BOOLEAN	40102	1
50-LT-020	T-50006 level low	SDI	BOOLEAN	40102	2
50-LT-020	T-50006 level high	SDI	BOOLEAN	40102	3
50-LT-021	T-50008 level very low	SDI	BOOLEAN	40102	4
50-LT-021	T-50008 level low	SDI	BOOLEAN	40102	5
50-LT-021	T-50008 level high	SDI	BOOLEAN	40102	6
50-LT-022	T-50002 level very low	SDI	BOOLEAN	40102	7
50-LT-022	T-50002 level low	SDI	BOOLEAN	40102	8
50-LT-023	T-50003 level very low	SDI	BOOLEAN	40102	9
50-LT-023	T-50003 level low	SDI	BOOLEAN	40102	10
50-LT-024	T-50004 level very low	SDI	BOOLEAN	40102	11
50-LT-024	T-50004 level low	SDI	BOOLEAN	40102	12
50-PDT-023	dP across S-50001 high	SDI	BOOLEAN	40102	13
50-PT-020	Seawater inlet pressure low	SDI	BOOLEAN	40102	14
50-PT-025	Filtered seawater pressure from P-50003A low	SDI	BOOLEAN	40102	15
50-PT-026	Filtered seawater pressure to P-50004A low	SDI	BOOLEAN	40103	0
50-PT-027	Filtered seawater pressure from P-50003B low	SDI	BOOLEAN	40103	1
50-PT-028	Filtered seawater pressure to P-50004B low	SDI	BOOLEAN	40103	2
50-PT-030	Filtered seawater pressure from P-50004A low	SDI	BOOLEAN	40103	3
50-PT-030	Filtered seawater pressure from P-50004A high	SDI	BOOLEAN	40103	4
50-PT-032	Filtered seawater pressure from P-50004B low	SDI	BOOLEAN	40103	5
50-PT-032	Filtered seawater pressure from P-50004B high	SDI	BOOLEAN	40103	6
50-PT-041	Fresh water outlet pressure low	SDI	BOOLEAN	40103	7
50-PT-041	Fresh water outlet pressure high	SDI	BOOLEAN	40103	8
50-PT-047	Softening filter inlet pressure low	SDI	BOOLEAN	40103	9
50-PT-047	Softening filter inlet pressure high	SDI	BOOLEAN	40103	10
50-TT-022	Seawater temperature from H-50001 low	SDI	BOOLEAN	40103	11
50-TT-022	Seawater temperature from H-50001 high	SDI	BOOLEAN	40103	12

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FIELD TAG/DEVICE	SERVICE	ICSS I/O TYPE	FORMAT	MODBUS REGISTER	REGISTER BIT
50-TT-022	Seawater temperature from H-50001 very high	SDI	BOOLEAN	40103	13
50-XV-020	Seawater inlet valve open	SDI	BOOLEAN	40111	0
50-XV-020	Seawater inlet valve closed	SDI	BOOLEAN	40111	1
50-XV-020	Seawater inlet valve failure	SDI	BOOLEAN	40111	2
50-XV-021	P-50003A suction valve open	SDI	BOOLEAN	40111	3
50-XV-021	P-50003A suction valve closed	SDI	BOOLEAN	40111	4
50-XV-021	P-50003A suction valve failure	SDI	BOOLEAN	40111	5
50-XV-022	P-50003B suction valve open	SDI	BOOLEAN	40111	6
50-XV-022	P-50003B suction valve closed	SDI	BOOLEAN	40111	7
50-XV-022	P-50003B suction valve failure	SDI	BOOLEAN	40111	8
50-XV-023	P-50003A flushing valve open	SDI	BOOLEAN	40111	9
50-XV-023	P-50003A flushing valve closed	SDI	BOOLEAN	40111	10
50-XV-023	P-50003A flushing valve failure	SDI	BOOLEAN	40111	11
50-XV-024	P-50003B flushing valve open	SDI	BOOLEAN	40111	12
50-XV-024	P-50003B flushing valve closed	SDI	BOOLEAN	40111	13
50-XV-024	P-50003B flushing valve failure	SDI	BOOLEAN	40111	14
50-XV-025	Fresh water from A-50007A/B valve open	SDI	BOOLEAN	40111	15
50-XV-025	Fresh water from A-50007A/B valve closed	SDI	BOOLEAN	40112	0
50-XV-025	Fresh water from A-50007A/B valve failure	SDI	BOOLEAN	40112	1
50-XV-026	Fresh water drain from A-50007A/B valve open	SDI	BOOLEAN	40112	2
50-XV-026	Fresh water drain from A-50007A/B valve closed	SDI	BOOLEAN	40112	3
50-XV-026	Fresh water drain from A-50007A/B valve failure	SDI	BOOLEAN	40112	4
50-XV-027	Brine from A-50007A valve open	SDI	BOOLEAN	40112	5
50-XV-027	Brine from A-50007A valve closed	SDI	BOOLEAN	40112	6
50-XV-027	Brine from A-50007A valve failure	SDI	BOOLEAN	40112	7
50-XV-028	Fresh water from A-50007B valve open	SDI	BOOLEAN	40112	8
50-XV-028	Fresh water from A-50007B valve closed	SDI	BOOLEAN	40112	9
50-XV-028	Fresh water from A-50007B valve failure	SDI	BOOLEAN	40112	10
50-XV-029	Fresh water drain from A-50007B valve open	SDI	BOOLEAN	40112	11
50-XV-029	Fresh water drain from A-50007B valve closed	SDI	BOOLEAN	40112	12

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FIELD TAG/DEVICE	SERVICE	ICSS I/O TYPE	FORMAT	MODBUS REGISTER	REGISTER BIT
50-XV-029	Fresh water drain from A-50007B valve failure	SDI	BOOLEAN	40112	13
50-XV-030	Brine from A-50007B valve open	SDI	BOOLEAN	40112	14
50-XV-030	Brine from A-50007B valve closed	SDI	BOOLEAN	40112	15
50-XV-030	Brine from A-50007B valve failure	SDI	BOOLEAN	40113	0
50-XV-031	Fresh water outlet valve open	SDI	BOOLEAN	40113	1
50-XV-031	Fresh water outlet valve closed	SDI	BOOLEAN	40113	2
50-XV-031	Fresh water outlet valve failure	SDI	BOOLEAN	40113	3
50-XV-032	Fresh water off-spec valve open	SDI	BOOLEAN	40113	4
50-XV-032	Fresh water off-spec valve closed	SDI	BOOLEAN	40113	5
50-XV-032	Fresh water off-spec valve failure	SDI	BOOLEAN	40113	6
50-P-50002A	Backwash pump running	SDI	BOOLEAN	40121	0
50-P-50002A	Backwash pump failure	SDI	BOOLEAN	40121	1
50-P-50002B	Backwash pump running	SDI	BOOLEAN	40121	2
50-P-50002B	Backwash pump failure	SDI	BOOLEAN	40121	3
50-P-50003A	SW booster pump running	SDI	BOOLEAN	40121	4
50-P-50003A	SW booster pump failure	SDI	BOOLEAN	40121	5
50-P-50003B	SW booster pump running	SDI	BOOLEAN	40121	6
50-P-50003B	SW booster pump failure	SDI	BOOLEAN	40121	7
50-P-50004A	HP pump running	SDI	BOOLEAN	40121	8
50-P-50004A	HP pump failure	SDI	BOOLEAN	40121	9
50-P-50004B	HP pump running	SDI	BOOLEAN	40121	10
50-P-50004B	HP pump failure	SDI	BOOLEAN	40121	11
50-P-50005A	Caustic soda dosing pump running	SDI	BOOLEAN	40121	12
50-P-50005A	Caustic soda dosing pump failure	SDI	BOOLEAN	40121	13
50-P-50005B	Caustic soda dosing pump running	SDI	BOOLEAN	40121	14
50-P-50005B	Caustic soda dosing pump failure	SDI	BOOLEAN	40121	15
50-P-50006A	Antiscalant dosing pump running	SDI	BOOLEAN	40122	0
50-P-50006A	Antiscalant dosing pump failure	SDI	BOOLEAN	40122	1
50-P-50006B	Antiscalant dosing pump running	SDI	BOOLEAN	40122	2
50-P-50006B	Antiscalant dosing pump failure	SDI	BOOLEAN	40122	3
50-P-50007A	Non-oxidant biocide dosing pump - container inlet running	SDI	BOOLEAN	40122	4
50-P-50007A	Non-oxidant biocide dosing pump - container inlet failure	SDI	BOOLEAN	40122	5

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FIELD TAG/DEVICE	SERVICE	ICSS I/O TYPE	FORMAT	MODBUS REGISTER	REGISTER BIT
50-P-50007B	Non-oxidant biocide dosing pump - container inlet running	SDI	BOOLEAN	40122	6
50-P-50007B	Non-oxidant biocide dosing pump - container inlet failure	SDI	BOOLEAN	40122	7
50-P-50008A	Non-oxidant biocide dosing pump - sea water intake running	SDI	BOOLEAN	40122	8
50-P-50008A	Non-oxidant biocide dosing pump - sea water intake failure	SDI	BOOLEAN	40122	9
50-P-50008B	Non-oxidant biocide dosing pump - sea water intake running	SDI	BOOLEAN	40122	10
50-P-50008B	Non-oxidant biocide dosing pump - sea water intake failure	SDI	BOOLEAN	40122	11
50-P-50009A	Fresh water pump running	SDI	BOOLEAN	40122	12
50-P-50009A	Fresh water pump failure	SDI	BOOLEAN	40122	13
50-P-50009B	Fresh water pump running	SDI	BOOLEAN	40122	14
50-P-50009B	Fresh water pump failure	SDI	BOOLEAN	40122	15
50-P-50010A	Non-oxidant biocide dosing pump - waste water tank running	SDI	BOOLEAN	40123	0
50-P-50010A	Non-oxidant biocide dosing pump - waste water tank failure	SDI	BOOLEAN	40123	1
50-P-50010B	Non-oxidant biocide dosing pump - waste water tank running	SDI	BOOLEAN	40123	2
50-P-50010B	Non-oxidant biocide dosing pump - waste water tank failure	SDI	BOOLEAN	40123	3
50-H-50003A	Container electrical heater start/stop command	SDI	BOOLEAN	40131	0
50-H-50003B	Container electrical heater start/stop command	SDI	BOOLEAN	40131	1
50-H-50003A	Container air fan start/stop command	SDI	BOOLEAN	40131	2
50-H-50003B	Container air fan start/stop command	SDI	BOOLEAN	40131	3
50-A-50003	Seawater coarse filter regeneration command	SDI	BOOLEAN	40131	4
50-S-50001	Sand filter regeneration command	SDI	BOOLEAN	40131	5
50-S-50004	Softening Filter regeneration command	SDI	BOOLEAN	40131	6
50-S-50010	UV sterilizer start/stop command	SDI	BOOLEAN	40131	7

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SEA WATER CORSE FILTER A-50003**

Filter in operation parameters:

- Valve 50-XV-020 — Status OPEN
- Flow transmitter 50-FT-020 — Flowrate value 2,5 m^3/h
- Pressure transmitter 50-PT-020 — Pressure value 2,0 barg minimum (out of PSC scope)
- Pressure Gauge 50-PI-048 — Pressure Value > 1.5 barg
- Number of backwash per day — < 4 (depend on the inlet water quality)

Filter in backwash operation:
(Note: if required backwash sequence will be simulated managing the set parameters)

- Backwash duration — nearly 20 seconds
- Flow transmitter 50-FT-020 — Flowrate value 0,4 / 0,5 m^3/h

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	**PSC**	**CUSTOMER**	**END CUSTOMER**

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SAND FILTER S-50001 – BACKWASH PUMPS P-50002A/B**

Filter in operation parameters:

- Flow transmitter 50-FT-020 — Flowrate value 2,5 m^3/h
- Differential pressure 50-PDI-052 — < 1 bar
- Pressure Gauge 50-PI-048 — Pressure Value > 1.5 barg
- Number of backwash per day — 1 (depend on the inlet water quality)

Filter in backwash operation:
(Note: if required backwash sequence will be simulated managing the set parameters)

- Valve 50-XV-020 — Status: closed
- Backwash duration — nearly 20 minutes
- Backwash Pumps P-50002A/B — Status: in operation
- Flow transmitter 50-FT-020 — Flowrate value 5 m^3/h
- Level transmitter 50-LV-020 — 100% full before backwash start

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	**PSC**	**CUSTOMER**	**END CUSTOMER**

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**ELECTRIC HEATER H-50001**

Heater in operation parameters:

- Valve 50-XV-033 — Status CLOSED
- Heater status — In operation (not fault signal)
- Temperature Transmitter 50-TT-021 — Temperature min 10°C (set point value)

(Note: if required in case the temperature value of water inlet will be above the set point, the set point only for the test will be increased in order verify the heater operation Tmax < 25°C)

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SOFTENING FILTER S-50004 – FRESH WATER PUMPS P-50009A/B**

Filter in operation parameters:

- Flow transmitter 50-FT-025 — Flowrate value 0,8 m^3/h
- Fresh Water Pumps P-50009A/B — Status on
- Pressure 50-PT-047 — ≤ 5barg
- TH transmitter 50-AT-026 — < 0.9 °F
- Number of regeneration per day — 1 (depend on the inlet water quality)

Filter in regeneration operation:
(Note: if required regeneration sequence will be simulated managing the set parameters)

- S-50004 — Status: Regeneration
- Regeneration duration — nearly 60 minutes

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	**PSC**	**CUSTOMER**	**END CUSTOMER**

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SEA WATER REVERSE OSMOSIS UNITS: A-50007A/B** **HIGH PRESSURE PUMPS:P-50004A/B** **BOOSTER PUMPS: P-50003A/B**

Sea water reverse osmosis unit parameters:

- Conductivity transmitter 50-AT-023 < 55000 mS/cm [@ 25°C]
- Booster pumps P-50003A/B Status On
- High pressure pumps P-50004A/B Status On
- Valve 50-XV-021 Open (line A in operation) / Close (line B in operation)
- Valve 50-XV-022 Open (line B in operation) / Close (line A in operation)
- Valve 50-XV-023 Closed
- Valve 50-XV-024 Closed
- Valve 50-XV-027 Closed
- Valve 50-XV-030 Closed
- Valve 50-XV-026 Closed
- Valve 50-XV-025 Open
- Flow transmitter 50-FT-024 ≥ 0.8 m^3/h
- Conductivity transmitter 50-AT-024 < 703 mS/cm [@ 25°C]

NOTE: Line A and Line B will be tested one at a time.

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	**PSC**	**CUSTOMER**	**END CUSTOMER**

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**CAUSTIC SODA DOSING PUMPS: P-50005A/B** **ANTISCALANT DOSING PUMPS: P-50006A/B** **BIOCIDE DOSING PUMPS: P-50007A/B; P-50008A/B; P-50010A/B**

Sea water reverse osmosis unit parameters:

- Caustic Soda P-50005A/B — Status On
- pH transmitter 50-AT-027 — pH 7 – 7,9 (according to the set point value)
- Antiscalant dosing pumps P-50005A/B — Status On (0,01 l/h dosage)
- Biocide dosing pumps P-50007A/B — Status On (0,03 l/h dosage)
- Biocide dosing pumps P-50008A/B — Status On (0,85 l/h dosage)
- Biocide dosing pumps P-50010A/B — Status On (0,33 l/h dosage)

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	**PSC**	**CUSTOMER**	**END CUSTOMER**

PSC	**SAT REPORT** **Attachment B – Process Parameters**	Project	123A90A- Base Load Power Hub Platform
		Doc. No.	1724000448-QC-PRO-00028
		PSC Doc No.	PK2885-Q-005
		Page	1 of 8

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**PROCESS PARAMETERS**
Line Used	:	**.....**
Date / hour	:	**..... / .....**
Operator Name	:	**.....**

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-PT-020	SEAWATER INLET PRESSURE	PRESSURE TRANSMITTER	**4 barg**				

DATE	PSC	CUSTOMER	END CUSTOMER

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-TT-021	SEAWATER TEMPERATURE FROM H-50001	TEMPERATURE TRANSMITTER	**10 / 23°C**				
50-TT-022	SEAWATER TEMPERATURE FROM H-50001	TEMPERATURE TRANSMITTER	**10 / 23°C**				
50-FT-020	SEAWATER FLOW FROM H-50001	MAGNETIC FLOW TRASMITTER	**2.5 m^3/h**				
50-FT-020	SEAWATER FLOW FROM H-50001	MAGNETIC FLOW TRASMITTER	**5 m^3/h (Only Backwash)**				

DATE	PSC	CUSTOMER	END CUSTOMER

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-PT-050	PRESSURE INLET S-50001	PRESSURE TRANSMITTER	**1 / 2 barg**				
50-PT-051	PRESSURE OUTLET S-50001	PRESSURE TRANSMITTER	**1 barg**				
50-PT-025	FILTERED SEAWATER PRESSURE FROM P-50003A	PRESSURE TRANSMITTER	**4 barg**				
50-PT-026	FILTERED SEAWATER PRESSURE TO P-50004A	PRESSURE TRANSMITTER	**3.5 barg**				

DATE	PSC	CUSTOMER	END CUSTOMER

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-PT-027	FILTERED SEAWATER PRESSURE FROM P-50003B	PRESSURE TRANSMITTER	**4 barg**				
50-PT-028	FILTERED SEAWATER PRESSURE TO P-50003B	PRESSURE TRANSMITTER	**3.5 barg**				
50-FT-022	FILTERED SEAWATER FLOW FROM P-50003A	MAGNETIC FLOW TRASMITTER	**2 m^3/h**				
50-FT-023	FILTERED SEAWATER FLOW FROM P-50003B	MAGNETIC FLOW TRASMITTER	**2 m^3/h**				

DATE	PSC	CUSTOMER	END CUSTOMER

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-AT-023	FILTERED SEAWATER CONDUCTIVITY TO P-50003A/B	ANALYZER TRANSMITTER - CONDUCTIVITY	**55000 mS/cm**				
50-PT-030	FILTERED SEAWATER PRESSURE FROM P-50004A	PRESSURE TRANSMITTER	**55 / 64 barg**				
50-PT-032	FILTERED SEAWATER PRESSURE FROM P-50004B	PRESSURE TRANSMITTER	**55 / 64 barg**				
50-AT-024 (contractual parameter)	**FRESH WATER CONDUCTIVITY FROM A-50007A/B**	**ANALYZER TRANSMITTER - CONDUCTIVITY**	**≤ 703 mS/cm**				

DATE	PSC	CUSTOMER	END CUSTOMER

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-FT-024	FRESH WATER FLOW FROM A-50007A/B	MAGNETIC FLOW TRASMITTER	**0.8 m^3/h**				
50-PT-047	FRESH WATER PRESSURE FROM P-50009A/B	PRESSURE TRANSMITTER	**4,5 / 5 barg**				
50-PT-041	FRESH WATER OUTLET PRESSURE	PRESSURE TRANSMITTER	**3,5 / 4,5 barg**				
50-AT-026 (contractual parameter)	**FRESH WATER CONDUCTIVITY FROM A-50007A**	**ANALYZER TRANSMITTER - TOTAL HARDNESS**	**< 9 ppm $CaCO_3$**				

DATE	PSC	CUSTOMER	END CUSTOMER

TAG NUMBER	SERVICE	INSTRUMENT TYPE	EXPECTED VALUE	MEASURED VALUE hr:	MEASURED VALUE hr:	MEASURED VALUE hr:	MEAN VALUE
50-TT-024 (contractual parameter)	FRESH WATER OUTLET TEMPERATURE	TEMPERATURE TRANSMITTER	10 / 23 °C				
50-FT-026 (contractual parameter)	FRESH WATER FLOW FROM S-50010	MAGNETIC FLOW TRASMITTER	0.8 m^3/h				
50-AT-027 (contractual parameter)	FRESH WATER OUTLET pH	ANALYZER TRANSMITTER - pH	7 – 7.9				

Note: Test results applicable only for "contractual parameters"

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

DATE	PSC	CUSTOMER	END CUSTOMER

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SAND FILTER S-50001 – BACKWASH**

1. Valve 50-XV-020	Status from Open to close
2. Sea water pump stop request	Signal 50-XS-005S
3. Stop sea water feeding pump	By Rosetti Marino
4. Start backwash pumps P-50002A/B	Status On
5. Flow Transmitter 50-FT-020	5 m^3/h
6. Level Transmitter 50-LT-020 enough to complete the backwash.	100% full before backwash start, liquid is
7. Duration time	20 min

After the backwash time

8. Stop backwash pumps P-50002A/B	Status Off
9. Valve 50-XV-020	Status from Close to Open
10. Sea water pump start request	Signal 50-HS-001S

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SWRO SYSTEM START UP LINE A**

1.	Valve 50-XV-021	Status from Close to Open
2.	Valve 50-XV-022	Status Close
3.	Valve 50-XV-026	Status from Close to Open
4.	Valve 50-XV-027	Status from Close to Open
5.	Valve 50-XV-023	Status Close
6.	Valve 50-XV-025	Status Close
7.	Level transmitter 50-LT-020	Above low level set point
8.	Start Pump P-50003A	Status in operation
9.	Start Pump P-50004A	Status in operation
10.	Valve 50-XV-027	Status from Open to close
11.	Flow Transmitter 50-FT-024	Flowrate ≥ 0.8 m^3/h
12.	Conductivity Transmitter 50-AT-024	Cond. Value ≤ set point value
13.	Valve 50-XV-025	Status from Close to Open
14.	Valve 50-XV-026	Status from Open to Close

Note: If line A is in operation Line B is in standby

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**SWRO SYSTEM START UP LINE B**

1.	Valve 50-XV-021	Status Close
2.	Valve 50-XV-022	Status from Close to Open
3.	Valve 50-XV-026	Status from Close to Open
4.	Valve 50-XV-030	Status from Close to Open
5.	Valve 50-XV-024	Status Close
6.	Valve 50-XV-025	Status Close
7.	Level transmitter 50-LT-020	Above low level set point
8.	Start Pump P-50003B	Status in operation
9.	Start Pump P-50004B	Status in operation
10.	Valve 50-XV-030	Status from Open to close
11.	Flow Transmitter 50-FT-024	Flowrate ≥ 0.8 m^3/h
12.	Conductivity Transmitter 50-AT-024	Cond. Value ≤ set point value
13.	Valve 50-XV-025	Status from Close to Open
14.	Valve 50-XV-026	Status from Open to Close

Note: If line B is in operation Line A is in standby

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**FLUSHING LINE A**

1. Stop Pump P-50003A	Status Off
2. Stop Pump P-50004A	Status Off
3. Level transmitter 50-LT-021	100%
4. Valve 50-XV-027	Status from Close to Open
5. Valve 50-XV-023	Status from Close to Open
6. Valve 50-XV-021	Status Close
7. Start Pump P-50003A	Status On
8. Start Pump P-50004A	Status On
9. Duration time	10 – 15 minutes
10. Stop Pump P-50004A	Status off
11. Stop Pump P-50003A	Status off
12. Valve 50-XV-023	Status from Close to Open

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**FLUSHING LINE B**

1. Stop Pump P-50003B	Status Off
2. Stop Pump P-50004B	Status Off
3. Level transmitter 50-LT-021	100%
4. Valve 50-XV-030	Status from Close to Open
5. Valve 50-XV-024	Status from Close to Open
6. Valve 50-XV-022	Status Close
7. Start Pump P-50003B	Status On
8. Start Pump P-50004B	Status On
9. Duration time	10 – 15 minutes
10. Stop Pump P-50004B	Status off
11. Stop Pump P-50003B	Status off
12. Valve 50-XV-024	Status from Close to Open

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	PSC	CUSTOMER	END CUSTOMER

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Equipment tested	:	**INTERLOCK SEQUENCES**

Please refer to document nr. 1724000448-MAC-CE-00004_Rev.3_Package Cause Effect matrix to check the correct interlock sequences activation

TEST RESULTS		
☐ Pass	☐ Pass with comments	☐ Fail

COMMENTS	

DATE	**PSC**	**CUSTOMER**	**END CUSTOMER**

Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE
MANUFACTURERS RECORD BOOK (FINAL DOSSIER) INDEX

Document Number: 1724000448-QC-LIS-00030

Document Class: 2

03	13/05/2025	Accepted for Construction (AFC)	MS	WR	RM
02	06/12/2024	Accepted for Construction (AFC)	MS	WR	RM
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Rev.	Date	Description	Prepared	Reviewed	Approved

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Revision / Change Log

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02	ACCEPTED FOR CONSTRUCTION (AFC)
03	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

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1.	page numbers will be updated in the final MDR with the book assembling
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Base Load Power Hub (BLPH)

A-50000 ATEX REGISTER

Document Number:1724000448-MAC-LIS-00031

ROSETTI MARINO

ıment Class: 2

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	17-03-2024

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02	03/03/2025	ACCEPTED FOR CONSTRUCTION (AFC)	MS	WR	RM
01	10/12/2024	Issue for Review (IFR)	MS	WR	RM
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PSC

PSC DOC. REF.: PK2885-Q-011

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
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02	ACCEPTED FOR CONSTRUCTION (AFC)

HOLDS LIST

No.	Description
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3.	
4.	

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable
1	01	50-AT-021A	Intrinsically Safe Smoke Detector	Inside container A-50000	Hochiki	SOC-E-IS + YBN-R/4(IS)	4014000100	II 1 G Ex-ia IIC T5 Ga	1724000448-IN-DG-00014	Baseefa19ATEX0143X EC	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	YES
2	01	50-AT-021B	Intrinsically Safe Smoke Detector	Inside container A-50000	Hochiki	SOC-E-IS + YBN-R/4(IS)	4014000097	II 1 G Ex-ia IIC T5 Ga	1724000448-IN-DG-00014	Baseefa19ATEX0143X EC	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	YES
3	01	50-AT-021C	Intrinsically Safe Smoke Detector	Inside container A-50000	Hochiki	SOC-E-IS + YBN-R/4(IS)	4041000098	II 1 G Ex-ia IIC T5 Ga	1724000448-IN-DG-00014	Baseefa19ATEX0143X EC	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	YES
4	01	50-HS-001	Manual alarm Call Point	Inside container A-50000	E2S	BExCP3CBGSSNAP2A1RN24E4K7RS820R	1CP3CBG000753	II 2 GD Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75oC Db Ta = (-40°C to +65°C)	1724000448-IN-DG-00014	Sira 09ATEX3286X	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	YES
5	01	50-AT-020A	Hydrogen Gas Detector	Inside container A-50000	Sensitron	SMART3GC2 S2097H2	D89251	II 2 G Ex db IIC T5 Gb	1724000448-IN-DG-00014	CESI 02 ATEX 084X	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	NO
6	01	50-AT-020B	Hydrogen Gas Detector	Inside container A-50000	Sensitron	SMART3GC2 S2097H2	D89257	II 2 G Ex db IIC T5 Gb	1724000448-IN-DG-00014	CESI 02 ATEX 084X	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	NO
7	01	50-AT-020C	Hydrogen Gas Detector	Inside container A-50000	Sensitron	SMART3GC2 S2097H2	D89252	II 2 G Ex db IIC T5 Gb	1724000448-IN-DG-00014	CESI 02 ATEX 084X	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	NO
8	01	950-JE-05104	Combination Unit (Sounder/Beacons)	Inside container A-50000	E2S	D1xC3J21A1RS1FDC024GN1AWR	01DC3200482	II 2G Ex db IIC T3/T4/T5 Gb Ta -55°C to +75°C (AC: +65°C) II 2D Ex tb IIIC T169°C Db Ta -55°C to +75°C (AC: T141°C +60°C)	1724000448-IN-DG-00014	DEMKO 19 ATEX 2141X DEMKO 19 ATEX 2009X	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	YES
9	01	950-MFA-05201	Manual Fire Alarm	Inside container A-50000	E2S	STExCP8PTSPLAS2A1RN	1CP8PTS001178	II 2G Ex db IIC T6 Gb Ta -55°C to +70°C	1724000448-IN-DG-00014	DEMKO 15 ATEX 1589X	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A (SIA)	A-50000	N.A.	NO	YES
10	01	JB-500E8	Junction box	Outside container A-50000	STAHL	8146/1083	2421159980440001	II 2 G Ex eb IIC T6 Gb II 2 D Ex tb IIIC T80°C Db	1724000448-IN-DG-00014	PTB 01 ATEX 1016	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A. (STAHL)	A-50000	N.A.	NO	NO
11	01	JB-500F8	Junction box	Outside container A-50000	STAHL	8146/1051	2421217190440001	II 2 G Ex eb IIC T6 Gb II 2 D Ex tb IIIC T80°C Db	1724000448-IN-DG-00014	PTB 01 ATEX 1016	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A. (STAHL)	A-50000	N.A.	NO	NO
12	01	50-HS-020	Emergency push button	Outside container A-50000	STAHL	8040	1180X-10L07SA05	II 2 G Ex db eb IIC T6 Gb II 2 D Ex tb IIIC T80°C Db	1724000448-IN-DG-00014	PTB 01 ATEX 1105	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A. (STAHL)	A-50000	N.A.	NO	NO
13	01	NL-001	Emergency lamp	Inside container A-50000	STAHL	6409/4128	4128-5203-162-1110-11-850011	II 3 G Ex db ec IIC T4 Gc II 3 D Ex tc IIIC T100°C Dc II 2 D Ex tb op is IIIC T100°C Db	1724000448-IN-DG-00014	IBExU 16 ATEX 1233	Safe Area	N.A.	1724000448 123A90A	PSC S.p.A. (STAHL)	A-50000	N.A.	NO	NO

EU DECLARATION OF CONFORMITY

Issued in accordance with ATEX Directive 2014/34/EU at sole responsibility of the manufacturer



Declartion Number :	Baseefa19ATEX0143X EC
Product(s) :	SOC-E-IS & SOC-E-IS(WHT)
Manufacturer :	Hochiki Europe(UK) Limited Grosvenor Road Gillingham Business Park Gillingham Kent ME8 0SA
Description :	Conventional intrinsically safe photoelectric smoke detector for fire detection
Intended Use :	For use in fire detection and alarm systems for buildings.
Conditions or Limitations of Use :	Used with the YBN-R/4IS & YBN-R/4IS(WHT) mounting base

This declaration is issued under the sole responsibility of the manufacturer and we hereby declare that the product identified above meets the requirements of the following:

Standards

EN 60079-0:2018	Electrical apparatus for potentially explosive atmospheres. General requirements.
EN 60079-11:2012	Electrical apparatus for potentially explosive atmospheres – Intrinsic safety ‘i’
EN 80079-34:2018	Application of quality management systems for Ex Product manufacture

Directives

ATEX Directive	2014/34/EU

EC Type Examination

Assessed By :	SGS Fimko Oy, Takomotie 8, FI-00380 Helsinki, Finland. **Notified Body Number 0598** has performed type testing of the product, initial inspection of the manufacturing plant and of factory production control with continuous surveillance, assessment and evaluation of factory production control and issued following certificate of conformity: **Baseefa19ATEX0143X EC**
Certificate Number :	Baseefa19ATEX0143X EC
Relevent Provisions	Intrinsic Safety to classification Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C)
Authorised representative:	Mirco Damoli, Hochiki Italia Srl a s.u.

Please see additional conformity information on page 2.

For further information visit www.hochikieurope.com/esp

Hochiki Europe (UK) Ltd. Reserves the right to alter the specification of its products from time to time without notice. Although every effort has been made to ensure the accuracy of the information contained in this document it is not warranted or represented by Hochiki Europe (UK) Ltd. To be a complete and up-to-date description.

Additional Performance Details

- Compatible with YBN-R/4IS & YBN-R/4IS(WHT) mounting devices.
- Supported by a range of barriers

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications.

Signed for and on behalf Hochiki Europe (UK) Limited:

Mirco Damoli
EU Authorised Representative
Hochiki Italia Srl a s.u
Verona, Italy
9th June 2021

Shane Bartlett
Compliance Manager
Hochiki Europe (UK) Ltd
Gillingham, UK
9th June 2021

Issued at Hochiki Europe (UK) Limited

Ex CE	The performance of the above mentioned products are in conformity with the performance and essential characteristics declared within this certificate. This declaration of performance is issued under the sole responsibility of Hochiki Europe (UK) Ltd. This certificate will remain valid as long as the test methods and/or factory production control requirements included in harmonized standard, used to assess performance of the declared characteristics, do not change, and the product, and the manufacturing conditions are not modified significantly.

THIS DOCUMENT IS TO BE RETAINED FOR LEGAL PURPOSES

This certificate will remain valid as long as the test methods and/or factory production control requirements included in harmonized standard, used to assess performance of the declared characteristics, do not change, and the product, and the manufacturing conditions are not modified significantly.

Hochiki Europe (UK) Ltd. Reserves the right to alter the specification of its products from time to time without notice. Although every effort has been made to ensure the accuracy of the information contained in this document it is not warranted or represented by Hochiki Europe (UK) Ltd. To be a complete and up-to-date description.

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa19ATEX0143X**

4 Product: **SOC-E-IS Conventional Optical Smoke Detector**

5 Manufacturer: **Hochiki Europe**

6 Address: **Grosvenor Road, Gillingham Business Park, Gillingham, Kent, ME8 0SA**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR19.0330/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

Ⓔx II 1G Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C)

SGS Baseefa Customer Reference No. **3642** Project File No. **19/0288**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and the Supplementary Terms and Conditions accessible at http://www.sgs.com/SGSBaseefa/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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Registered in England No. 4305578.
Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

D BREARLEY
Certification Manager

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa19ATEX0143X**

15 Description of Product

The SOC-E-IS Conventional Optical Smoke Detector is designed to detect combustion products in the air within a hazardous area and provides an alarm indication on a locally mounted LED and to equipment located in the non-hazardous area via a suitable interface.

The SOC-E-IS comprises various components, including LEDs and a photodetector, mounted on a printed circuit board (PCB) which is encapsulated and housed within a plastic enclosure. A perforated metal sheet permits access for the combustion products to the photodetector. The smoke detector sub-assembly is mounted on a Base Unit Type YBN-R/4(IS) which incorporates the field terminals. Cable entry to the field terminals is from the base of the enclosure.

This certificate covers the following variants:

SOC-E-IS, all variants

SOC-E-IS (WHT), all variants

Input/output parameters

Both variants

U_i	=	30V	C_i	=	0
I_i	=	100mA	L_i	=	0
P_i	=	750mW			

16 Report Number

GB/BAS/ExTR19.0330/00

17 Specific Conditions of Use

1. The plastic enclosure may present a potential electrostatic ignition hazard; the equipment must not be rubbed or cleaned with a dry cloth or solvents or installed within a dust laden airflow.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	LVD type requirements	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
1212330-00	1 – 6	1	05/19	SOC-E-IS GA Drawing
1212330-00	1 & 2	1	15/01/2020	SOC-E-IS GA Parts List
1212330-20	1 & 2	1	15/01/2020	SOC-E-IS(WHT) GA Parts List

Number	Sheet	Issue	Date	Description
2-1-2-320	1 & 2	1	04/19	SOC-E-IS PCB Assembly Drawing
2-1-2-320	1 – 3	1	02/10/2019	SOC-E-IS PCB Parts List
2-2-9-187	1 – 3	1	04/19	SOC-E-IS Drill Drawing
2-3-0-2805	1 & 2	1	12/19	SOC-E-IS Outer Cover Marking
2-3-0-2806	1 of 1	1	11/19	SOC-E-IS Product Label
2-3-0-2807	1 of 1	1	11/19	SOC-E-IS(WHT) Product label
2-3-2-434	1 – 4	1	05/19	SOC-E-IS Outer Cover
2-3-2-435	1 – 4	1	05/19	SOC-E-IS(WHT) Outer Cover

All drawings are common to, and with, IECEx BAS 19.0122X

EC DECLARATION OF PERFORMANCE

Issued in accordance with the Construction Products Regulation EU N° 305/2011



This is to certify that in compliance the Council Directive 305/2011 Construction Products Regulation, this declaration applies to :

Declartion Number :	2831-CPR-F4344
Product(s) :	SOC-E-IS & SOC-E-IS(WHT)
Manufacturer :	Hochiki Europe(UK) Limited Grosvenor Road Gillingham Business Park Gillingham Kent ME8 0SA
Description :	Conventional intrinsically safe photoelectric smoke detector for fire detection
Intended Use :	For use in fire detection and alarm systems for buildings.

This declaration is issued under the sole responsibility of the manufacturer and we hereby declare that the product identified above meets the requirements of the following:

Standards

EN54-7:2018	Fire detection and fire alarm systems. Smoke detectors. Point detectors using scattered light, transmitted light or ionization.
for the intended uses indicated above have been determined (1) See Annex A for the Essential Characteristics details (2) See Annex B for additional performance details	

Directives

Construction Products Regulation	EU 305/2011
Please refer to seperate Declartion of Conformity in respect of EU 768/2008/EC Annex III (DofC) Please refer to seperate Declartion of Conformity in respect of EU Regulation 2014/34/EU (ATEX) Please refer to seperate Declartion of Conformity in respect of EU Regulation 2014/90/EU (MED)	

EC Type Examination

Assessed by :	BRE Global Limited (Notified Body 2831) has performed type testing of the product, initial inspection of the manufacturing plant and of factory production control with continuous surveillance, assessment and evaluation of factory production control under system 1 and issued following certificate of conformity : **2831-CPR-F4344**
System of Assessment	System 1
Authorised representative:	Mirco Damoli, Managing Director, Hochiki Italia Srl a s.u

Please see additional conformity information on page 2.

For further information visit https://store.hochikieurope.com/

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Annex A – Essential Characteristics

Essential Characteristics	EN 54-7:2018 (Clause)	Performance
Operational reliability	4.2.1 to 4.2.8	Pass
Nominal activation conditions/Sensitivity.	4.3.1 to 4.3.3	Pass
Reproducibility	N/A	Pass
Additional test for suffix S point heat detectors	N/A	Pass
Additional test for suffix R heat detectors	N/A	Pass
Tolerance to supply voltage (variation in supply)	4.5	Pass
Air Movement	4.4.1	Pass
Dazzling	4.4.2	Pass
Repeatability	N/A	Pass
Rapid changes in attenuation	N/A	Pass
Performnace parameters under fire conditions		
Fire sensitivity	4.6	Pass
Durability of Nominal activation		
Cold (operational)	4.7.1.1	Pass
Dry Heat (endurance)	N/A	Pass
Dry Heat (operational)	4.7.1.2	Pass
Damp heat, cyclic (operational)	N/A	Pass
Damp heat, cyclic (endurance)	N/A	Pass
Damp heat, steady state (operational)	4.7.2.1	Pass
Damp heat, steady state (endurance)	4.7.2.2	Pass
Enclosure protection	N/A	Pass
Corrosion resistance		
Sulphur dioxide (SO2) corrosion (endurance)	4.7.3	Pass
Vibration Resistance		
Shock (operational)	4.7.4.1	Pass
Impact (operational)	4.7.4.2	Pass
Vibration, sinusoidal (operational)	4.7.4.3	Pass
Vibration, sinusoidal (endurance)	4.7.4.4	Pass
Vibration (endurance)	N/A	Pass
Electrical stability		
EMC, immunity (operational)	4.7.5	Pass
Variat8:36ion in supply	N/A	Pass

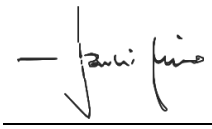
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Annex B – Additional Performance Details

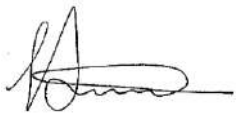
- Compatible with YBN-R/4IS & YBN-R/4IS(WHT) mounting devices.
- Supported by a range of IS barriers

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications.

Signed for and on behalf Hochiki Europe (UK) Limited:



Mirco Damoli
EU Authorised Representative
Hochiki Italia Srl a s.u
Verona, Italy
1st June 2023



Shane Bartlett
Compliance Manager
Hochiki Europe (UK) Ltd
Gillingham, UK
1st June 2023

Issued at Hochiki Europe (UK) Limited

CE	The performance of the above mentioned products are in conformity with the performance and essential characteristics declared within this certificate. This declaration of conformity is issued under the sole responsibility of Hochiki Europe (UK) Ltd. This certificate will remain valid as long as the test methods and/or factory production control requirements included in harmonized standard, used to assess performance of the declared characteristics, do not change, and the product, and the manufacturing conditions are not modified significantly.

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EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	BExCP3A-BG, BExCP3A-PB, BExCP3A-PT, BExCP3B-BG, BExCP3B-PB, BExCP3B-PT, BExCP3C-BG, BExCP3C-PB, BExCP3C-PT, BExCP3D-BG, BExCP3D-PB, BExCP3D-PT, BExCP3E-BG, BExCP3E-PB, BExCP3E-PT

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):		Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
EU-type Examination Certificate (Module B):		SIRA 09ATEX3286X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):		Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
Quality Assurance Notification (Module D):		SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	BExCP3A:	II 2G Ex db eb IIC T6 Gb (-40°C ≤ Ta ≤ +70°C) II 2D Ex tb IIIC T75°C Db (-40°C ≤ Ta ≤ +70°C) or
	BExCP3B:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +50°C) II 2D Ex tb IIIC T60°C Db (-40°C ≤ Ta ≤ +50°C) or
	BExCP3C:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +65°C) II 2D Ex tb IIIC T75°C Db (-40°C ≤ Ta ≤ +65°C) or
	BExCP3D:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +70°C) II 2D Ex tb IIIC T80°C Db (-40°C ≤ Ta ≤ +70°C) or
	BExCP3E:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +65°C) II 2D Ex tb IIIC T75°C Db (-40°C ≤ Ta ≤ +65°C)
Standards applied:		EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015/A1:2108 IEC 60079-18:2015/AC:2018 EN 60079-31: 2014 IP6X Dust Protection to EN60079-0 / EN 60079-31

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1:2011

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

EU Declaration of Conformity

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66
Construction and design requirements according to EN54-11:2001 clause 4.7 – BExCP3A-BG / B-BG / C-BG / D-BG only (fitted with burning house symbol shown in figure 3a and no lift flap)

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Martin Streetz
Quality Assurance Manager

Document No.: DC-007_Issue_N
Date and Place of Issue: London, 23/12/2020

1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 09ATEX3286X** Issue: **7**

4 Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

5 Applicant: **European Safety Systems Limited**

6 Address: Impress House, Mansell Road, Acton, London W3 7QH, UK

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015/A1:2018
EN 60079-18:2015/AC:2018 EN 60079-31:2014

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 2GD

BExCP3A Call Points:	Ex db eb IIC T6 Gb Ta = (-40°C +70°C) Ex tb IIIC T75°C Db Ta = (-40°C +70°C)
BExCP3B Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C +50°C) Ex tb IIIC T60°C Db Ta = (-40°C +50°C)
BExCP3C Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)
BExCP3D Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40ºC to +70ºC) Ex tb IIIC T80ºC Db Ta = (-40ºC to +70ºC)
BExCP3E Call Points	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)
GNExCP6A Call Points:	Ex db eb IIC T6 Gb Ta = (-40°C +70°C) Ex tb IIIC T75°C Db Ta = (-40°C +70°C)
GNExCP6B Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C +50°C) Ex tb IIIC T80°C Db Ta = (-40°C +50°C)
GNExCP6C Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)
GNExCP6D Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40ºC to +70ºC) Ex tb IIIC T80ºC Db Ta = (-40ºC to +70ºC)

Project Number 80035511

Signed: J A May

Title: Director of Operations

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
Issue 7

GNExCP6E Call Points	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
Issue 7

13 **DESCRIPTION OF EQUIPMENT**

The equipment is a range of manual call points, as described below:

In all cases, external connections are made via 'Ex e' terminals mounted within the enclosure, the cables entering the enclosure via certified cable glands.

Model	Description of Enclosure	Mode of Operation	Contents Includes
BExCP3A-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch
BExCP3A-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3A-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3B-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (2W) Diode Module Zener Diode Module
BExCP3B-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3B-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3C-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (1.5W) Diode Module Zener Diode Module
BExCP3C-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3C-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3D-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (1.0W)

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
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Model	Description of Enclosure	Mode of Operation	Contents Includes
BExCP3D-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	Diode Module Zener Diode Module
BExCP3D-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3E-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (1.75W) Diode Module Zener Diode Module
BExCP3E-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3E-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6A-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two
GNExCP6A-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6A-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6B-BG	Plastic enclosure fitted with a glass window	Break glass	''Ex d' switch (S) – up to two And up to two of the following: Resistor Module (2.0W) Diode Module Zener Diode Module With/without one: LED Indicator Assembly
GNExCP6B-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
Issue 7

Model	Description of Enclosure	Mode of Operation	Contents Includes
GNExCP6B-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6C-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two And up to two of the following: Resistor Module (1.5W) Diode Module Zener Diode Module With/without one: LED Indicator Assembly
GNExCP6C-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6C-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6D-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two And up to two of the following: Resistor Module (1.0W) Diode Module Zener Diode Module
GNExCP6D-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6D-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6E-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two And up to two of the following: Resistor Module (1.75W) Diode Module Zener Diode Module
GNExCP6E-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6E-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	

In all cases, external connections are made via 'Ex e' terminals mounted within the enclosure, the cables entering the enclosure via certified cable glands.

The following ratings are applicable:

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
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BExCP3A Range of Call Points	BExCP3B, BExCP3C, BExCP3E and BExCP3D Range of Call Points
AC Voltage 250V Max Current 5A Max	Voltage #V DC Max Current #A Max
DC Voltage **125V Max Current 0.5A Max resistive load: 0.03A inductive load** **250 Vdc, 0.25A Max resistive load: 0.03A inductive load** 75V Max Current 0.75A 50V Max Current 1.0A 30V Max Current **5.0A** Max resistive load: 3.0A Inductive load 12V Max Current 5.0A	(# Due to the large number of options, it is not practical to detail a full list of available values, therefore, the manufacturer marks the actual figures applicable to each specific device on the product label in accordance with their drawings)
GNExCP6A Range of Call Points	GNExCP6B, GNExCP6C, GNExCP6D and GNExCP6E Range of Call Points
AC Voltage 250V Max Current 5A Max	Voltage #V DC Max Current #A Max
DC Voltage **125V Max Current 0.5A Max resistive load: 0.03A inductive load** **250 Vdc, 0.25A Max resistive load: 0.03A inductive load** 75V Max Current 0.75A 50V Max Current 1.0A 30V Max Current **5.0A** Max resistive load: 3.0A Inductive load 12V Max Current 5.0A	(# Due to the large number of options, it is not practical to detail a full list of available values, therefore, the manufacturer marks the actual figures applicable to each specific device on the product label in accordance with their drawings)

Variation 1 - This variation introduced the following changes:

i. The option to use of an alternative type of terminal in the BExCP3A-BG, BExCP3A-PB, BExCP3A-PT, BExCP3B-BG, BExCP3B-PB and BExCP3B-PT Manual Call points.
ii. The introduction of type GNExCP6A-BG, GNExCP6A-PB, GNExCP6A-PT, GNExCP6B-BG, GNExCP6B-PB and GNExCP6B-PT Manual Call Points; these utilise a plastic enclosure and house an extended range of optional modules. The description was amended accordingly.

In all cases, external connections are made via 'Ex e' terminals mounted within the enclosure, the cables entering the enclosure via certified cable glands.

Variation 2 - This variation introduced the following change:

i. To allow the use of diode and Zener diode packs (as used in the GNExCP6 Call Point to this certificate) with the BExCP3B Call Point; and revisions to the relevant controlled drawings to support this. The description was amended accordingly.

Variation 3 - This variation introduced the following changes:

i. The introduction of the BExCP3C-BG, BExCP3C-PB, BExCP3C-PT, GNExCP6C-BG, GNExCP6C-PB & GNExCP6C-PT Manual Call Points. The description, Specific Conditions of Use and Conditions of Manufacture were amended accordingly.

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ii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 61241-1:2004 was replaced by EN 60079-31:2014. The marking has been updated in accordance with the latest standard.

Variation 4 - This variation introduced the following changes:

i. Microswitch (applicable to all variants)
- Update the equipment to permit the microswitch electrical ratings, permitted in the microswitch certificate, which introduces a 3A (maximum) inductive load in the switch.
- Update the microswitch service temperature range to -50ºC to +80ºC, from -50ºC to 65ºC, as per the latest microswitch certificate.

ii. For GNExCP6B, separate the LED indicator assembly from modules
- Permit the use up to 2x2W modules with LED or LED on its own. This has already been justified and included in the assessments, but now included as part of this variation

iii. Weidmüller DIN rail option
- Add Weidmüller DIN rail option to GNExCP6 variants.

iv. All variant
- Permit a change in ambient temperature range for all variants, using previous and new testing performed; The following changes are made with regards to call point variant.
- <u>Modified Version:</u>
  BExCP3C and GNExCP6C previously contained/now contains the following options:
  Was:
  Ex d microswitch with up to two resistor modules (1W each) OR LED indicator assembly (1W)
  Now:
  'Ex d' microswitch and up to two of the following:
  Resistor Module (1.75W each)
  Diode Module
  Zener Diode Module
- <u>New variant Resistor Power Ratings</u>
  BExCP3D and GNExCP6D has been added to include
  'Ex d' microswitch and up to two of the following:
  Resistor Module (1.0W each)
  Diode Module
  Zener Diode Module

v. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, IEC 60079-0:2007 Ed 5, EN 60079-1:2004, EN 60079-7:2007 and IEC 60079-18:2009 Ed 3 were replaced by EN 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015/A1:2018 and EN 60079-18:2015/AC:2018, the markings were updated accordingly to recognise the new standards.

Variation 5 - This variation introduced the following changes:

i. Clarification of the product coding and marking:
   a. Types of protection placed in alphabetical order in the labels;
   b. Correction of amperage associated with 30Vdc rating for the BExCP3A and GNExCP6A Call Points in the certificates from the previous variation

ii. Permit the following modifications after performing temperature measurement tests (where necessary) as part of this variation:

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a. Recognise the existing BExCP3C and GNExCP6C call points variants with new BExCP3E and GNExCP6E variants, with the contents remaining unchanged;
b. Recognise a new variant, as the new BExCP3C and GNExCP6C call point, the same contents of the previous BExCP3C/GNExCP6C variant, with the exception of introducing a LED to the contents (GNExCP6C only) and limiting the resistor modules and the LED/resistor to 1.5W;
c. Modification to the permitted maximum input voltage and corresponding resistance values for applicable variants;
d. Permit the use of a 125VDC and 250VDC maximum voltage options for the micro-switch in the BExCP3A and GNExCP6A variants;
e. Correction of a typographical error, to represent the optional resistor/diode as R2/D2, instead of R1/D1, which is already used in the circuit diagram;
f. Permit modification of the LED resistances and the corresponding maximum input voltages for the GNExCP6B and GNExCP6C variants.
g. The description was modified to reflect these changes.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	9 December 2009	R18381A	The release of the prime certificate.
1	19 December 2011	R25199A/00	The introduction of Variation 1.
2	17 February 2012	R25199A/01	Report no. R25199A/01 replaced R25199A/00.
3	17 June 2016	R70064462A	This Issue covers the following changes: • EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. *(In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)* • The introduction of Variation 2.
4	17 November 2017	R70130211A	The introduction of Variation 3.
5	15 October 2019	0686	Transfer of certificate Sira 09ATEX3286X from Sira Certification Service to CSA Group Netherlands B.V.
6	07 January 2020	R70213896A	The introduction of Variation 4.
7	14 August 2020	R80035511A	The introduction of Variation 5.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 The terminals shall be fitted only with wires that have cross-sectional area falling within the following limitations:

BExCP3A and GNExCP6A Call Points fitted with Weidmüller terminal; 0.5 mm^2 to 4 mm^2
BExCP3A and GNExCP6A Call Points fitted with Phoenix terminal; 0.2 mm^2 to 4 mm^2
GNExCP6A Call Point fitted with Weidmüller rail mounted terminals; 0.5 mm^2 to 2.5 mm^2

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BExCP3B and GNExCP6B Call Points fitted with Weidmüller terminal; 0.5 mm^2 to 4 mm^2
BExCP3B and GNExCP6B Call Points fitted with Phoenix terminal; 0.2 mm^2 to 4 mm^2
BExCP3B and GNExCP6B Call Points fitted with Weidmüller rail mounted terminals; 0.5 mm^2 to 2.5 mm^2
BExCP3C and GNExCP6C Call Points fitted with Weidmüller terminal; 0.5mm^2 to 4mm^2
BExCP3C and GNExCP6C Call Points fitted with Phoenix terminal; 0.2mm^2 to 4mm^2
BExCP3C and GNExCP6C Call Points fitted with Weidmüller rail mounted terminals; 0.5mm^2 to 2.5mm^2
BExCP3D and GNExCP6D Call Points fitted with Weidmüller terminal; 0.5mm^2 to 4mm^2
BExCP3D and GNExCP6D Call Points fitted with Phoenix terminal; 0.2mm^2 to 4mm^2
BExCP3D and GNExCP6D Call Points fitted with Weidmüller rail mounted terminals; 0.5mm^2 to 2.5mm^2
BExCP3E and GNExCP6E Call Points fitted with Weidmüller terminal; 0.5mm^2 to 4mm^2
BExCP3E and GNExCP6E Call Points fitted with Phoenix terminal; 0.2mm^2 to 4mm^2
BExCP3E and GNExCP6E Call Points fitted with Weidmüller rail mounted terminals; 0.5mm^2 to 2.5mm^2

15.2 The following apply to the Call Points fitted with Weidmüller Terminals:

- Not more than one single or multiple strand lead shall be connected to a terminal, unless multiple conductors have been joined in a suitable manner, e.g. two conductors into a single insulated crimped boot lace ferrule.
- Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1mm of the metal of the terminal throat.
- During installation, the terminals shall be only wired with cable in an ambient temperature range between -10°C to 80°C.

15.3 The following apply to the Call Points fitted with Phoenix Terminals:

- The number of conductors per clamping shall be either 1 conductor per clamping unit, 0.2 – 4 mm^2 or 2 conductors with the same cross section and the same conductor type 0.2 – 1.5 mm^2. If 2 conductors are fitted in one clamping unit they may be joined in a suitable manner, e.g. two conductors into a single insulated crimped boot lace ferrule.

15.4 All terminal screws, used or unused, shall be fully tightened down.

15.5 The GNExCP6 Call Points are supplied with M20 threaded entries, the BExCP3 Call Points have plain, M20 holes. All of these shall be fitted with either a cable gland or certified blanking element that is suitable for the application and has been certified by a notified body. These shall provide and maintain a minimum enclosure ingress protection of IP66.

15.6 For BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6B, GNExCP6C, GNExCP6D and GNExCP6E Call Points that have a maximum rated current marked, the prospective short-circuit current of the circuit connected shall be limited to the marked rated current.

15.7 The enclosure of the GNExCP6 Call Points is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

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Certificate Annexe

Certificate Number: **Sira 09ATEX3286X**

Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

Applicant: **European Safety Systems Limited**

Issue 0

Drawing	Sheets	Rev	Date (Sira stamp)	Title
D150-00-001-SC	1 of 1	C	08 Dec 09	BExCP3A-BG & BExCP3B-BG Manual Call Point Assembly
D150-00-001-CD-SC	1 of 1	A	08 Dec 09	BExCP3-XX and BExCP3-XX Call Point Circuit Operation Diagram
D150-00-101-SC	1 of 1	B	08 Dec 09	BExCP3-PB & BExCP3B-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	B	08 Dec 09	BExCP3-PT & BExCP3B-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	B	09 Dec 09	BExCP3B/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	C	08 Dec 09	BExCP3A and BExCP3B Label Drawings

Issue 1

Drawing	Sheets	Rev	Date (Sira stamp)	Title
D150-00-001-SC	1 of 1	D	22 Dec 11	BExCP3A-BG & BExCP3B-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	C	22 Dec 11	BExCP3A-PB & BExCP3B-PB manual Call Point Assembly
D150-00-201-SC	1 of 1	C	22 Dec 11	BExCP3A-PT & BExCP3B-PT Manual Call Point Assembly
D154-00-001-SC	1 of 1	B	22 Dec 11	GNExCP6A-BG & GNExCP6B-BG & -PB –PT Manual Call Point Assembly
D154-00-101-SC	1 of 1	A	22 Dec 11	GNExCP6A-PB & GNExCP6B-PB Manual Call Point Assembly
D154-00-201-SC	1 of 1	A	22 Dec 11	GNExCP6A-PT & GNExCP6B-PT Manual Call Point Assembly
D154-00-001-CD-SC	1 of 1	B	22 Dec 11	GNExCP6A-XX and BExCP6B-XX Call Point Circuit Operation Diagram
D154-10-910-SC	1 of 1	A	22 Dec 11	GNExCP6B & BExCP3B – BG/PB/PT Call Point Diode Potting Drawings
D154-10-920-SC	1 of 1	A	22 Dec 11	GNExCP6B & BExCP3B – BG/PB/PT Call Point Zener Diode Potting
D154-10-930-SC	1 of 1	B	22 Dec 11	GNExCP6B-BG/PB/PT Call Point LED & Resistor Potting
D154-99-001-SC	1 of 1	C	22 Dec 11	BExCP6A and BExCP6B Label Drawings

Issue 2 (No new drawings were introduced.)

Issue 3

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	B	06 Apr 16	BExCP3A-XX and BExCP3B-XX Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	E	06 Apr 16	BExCP3A-BG and BExCP3B-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	D	06 Apr 16	BExCP3A-PB and BExCP3B-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	D	06 Apr 16	BExCP3A-PT and BExCP3B-PT Manual Call Point Assembly
D150-99-001-SC	1 of 1	D	06 Apr 16	BExCP3A and BExCP3B Label Drawings

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Certificate Annexe

Certificate Number: **Sira 09ATEX3286X**

Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

Applicant: **European Safety Systems Limited**

Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	C	27 Oct 17	BExCP3A, BExCP3B & BExCP3C Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	F	27 Oct 17	BExCP3A-BG, BExCP3B-BG & BExCP3C-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	E	27 Oct 17	BExCP3A-PB, BExCP3B-PB & BExCP3C-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	E	27 Oct 17	BExCP3A-PT, BExCP3B-PT & BExCP3C-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	C	27 Oct 17	BExCP3B/C-BG/PB/PT & GNExCP6B/C- BG/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	E	14 Nov 17	BExCP3A, BExCP3B & BExCP3C Label Drawing
D154-00-001-CD-SC	1 of 1	C	27 Oct 17	GNExCP6A, GNExCP6B & GNExCP6C Call Point Circuit Operation Diagram
D154-00-001-SC	1 of 1	C	27 Oct 17	GNExCP6A-BG, GNExCP6B-BG & GNExCP6C-BG Manual Call Point Assembly
D154-00-101-SC	1 of 1	B	27 Oct 17	GNExCP6A-PB, GNExCP6B-PB & GNExCP6C-PB Manual Call Point Assembly
D154-00-201-SC	1 of 1	B	27 Oct 17	GNExCP6A-PT, GNExCP6B-PT & GNExCP6C-PT Manual Call Point Assembly
D154-10-930-SC	1 of 1	C	27 Oct 17	GNExCP6B/C-BG/PB/PT Call Point LED & Resistor Potting
D154-99-001-SC	1 of 1	D	14 Nov 17	GNExCP3A, GNExCP3B & GNExCP3C Label Drawings

Issue 5. No new drawings were introduced.

Issue 6

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	D	10 Dec 19	BExCP3A-XX, BExCP3B-XX, BExCP3C-XX and BExCP3D-XX Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	G	10 Dec 19	BExCP3A-BG, BExCP3B-BG, BExCP3C-BG and BExCP3D-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	F	10 Dec 19	BExCP6A-PB, BExCP6B-PB, BExCP6C-PB & BExCP6D-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	F	10 Dec 19	BExCP6A-PT, BExCP6B-PT, BExCP6C-PT & BExCP6D-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	D	10 Dec 19	BExCP3B/C/D-BG/PB/PT & GNExCP6B/C/D- BG/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	F	12 Dec 19	ExCP3A, BExCP3B, BExCP3C & BExCP3D Label Drawing
D154-00-001-CD-SC	1 of 1	D	10 Dec 19	GNExCP6A, GNExCP6B, GNExCP6C & GNExCP6D Call Point Circuit Operation Diagram
D154-00-001-SC	1 of 1	D	10 Dec 19	GNExCP6A-BG, GNExCP6B-BG, GNExCP6C-BG & GNExCP6D-BG Manual Call Point Assembly
D154-00-101-SC	1 of 1	C	10 Dec 19	GNExCP6A-PB, GNExCP6B-PB, GNExCP6C-PB & GNExCP6D-PB Manual Call Point Assembly

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Certificate Annexe

Certificate Number: **Sira 09ATEX3286X**

Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

Applicant: **European Safety Systems Limited**

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D154-00-201-SC	1 of 1	C	10 Dec 19	GNExCP6A-PT, GNExCP6B-PT, GNExCP6C-PT & GNExCP6D-PT Manual Call Point Assembly
D154-10-910-SC	1 of 1	B	10 Dec 19	GNExCP6B/C/D & BExCP3B/C/D – BG/PB/PT Call Point Diode Potting Drawings
D154-10-920-SC	1 of 1	B	10 Dec 19	GNExCP6B & BExCP3B – BG/PB/PT Call Point Zener Diode Potting
D154-10-930-SC_	1 of 1	D	10 Dec 19	GNExCP6B-BG/PB/PT CALL POINT LED & RESISTOR
D154-99-001-SC	1 of 1	E	12 Dec 19	GNExCP3A, GNExCP3B, GNExCP3C & GNExCP3D Label Drawings

Issue 7

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	E	27 Jul 20	BExCP3A-XX, BExCP3B-XX, BExCP3C-XX, BExCP3D-XX and BExCP3E-XX Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	H	27 Jul 20	BExCP3A-BG, BExCP3B-BG, BExCP3C-BG, BExCP3D-BG and BExCP3E-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	G	27 Jul 20	BExCP6A-PB, BExCP6B-PB, BExCP6C-PB, BExCP6D-PB and BExCP6E-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	G	27 Jul 20	BExCP6A-PT, BExCP6B-PT, BExCP6C-PT, BExCP6D-PT and BExCP6D-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	E	27 Jul 20	BExCP3B/C/D/E-BG/PB/PT & GNExCP6B/C/D/E-BG/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	G	28 Jul 20	ExCP3A, BExCP3B, BExCP3C, BExCP3D and BExCP3E Label Drawing
D154-00-001-CD-SC	1 of 1	E	27 Jul 20	GNExCP6A, GNExCP6B, GNExCP6C, GNExCP6D and GNExCP6E Call Point Circuit Operation Diagram
D154-00-001-SC	1 of 1	E	27 Jul 20	GNExCP6A-BG, GNExCP6B-BG, GNExCP6C-BG, GNExCP6D-BG and GNExCP6E-BG Manual Call Point Assembly
D154-00-101-SC	1 of 1	D	27 Jul 20	GNExCP6A-PB, GNExCP6B-PB, GNExCP6C-PB, GNExCP6D-PB and GNExCP6E-BG Manual Call Point Assembly
D154-00-201-SC	1 of 1	D	27 Jul 20	GNExCP6A-PT, GNExCP6B-PT, GNExCP6C-PT, GNExCP6D-PT and GNExCP6DEPT Manual Call Point Assembly
D154-10-910-SC	1 of 1	C	27 Jul 20	GNExCP6B/C/D/E & BExCP3B/C/D/E – BG/PB/PT Call Point Diode Potting Drawings
D154-10-920-SC	1 of 1	C	27 Jul 20	GNExCP6B/C/D/E & BExCP3B/C/D/E – BG/PB/PT Call Point Zener Diode Potting
D154-10-930-SC	1 of 1	E	27 Jul 20	GNExCP6B/C-BG/PB/PT CALL POINT LED & RESISTOR
D154-99-001-SC	1 of 1	F	28 Jul 20	GNExCP3A, GNExCP3B, GNExCP3C, GNExCP3D and GNEXCP3E Label Drawings

This certificate and its schedules may only be reproduced in its entirety and without change

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

Sensitron S.r.L., Viale Della Repubblica, 48, IT-20007 Cornaredo MI, ITALY

hereby declares under its sole responsibility that the gas detection unit here below

dichiara sotto la propria esclusiva responsabilità che il rilevatore di gas sotto indicato

Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89251**
Lot	Lotto	**24091114**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**366**
Span points	Punti di span	**629**
Calibration coefficient	Coefficiente di taratura	**3255**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

EMC Directive 2014/30/EU / Direttiva EMC 2014/30/UE

and the following harmonised standards / *ed alle seguenti norme armonizzate:*
EN 50270:2015
EN 61000-6-4:2007

RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

Sensitron S.r.l. declares that all of our gas detectors are RoHS3 compliant and do not contain any of the restricted substances listed below in concentrations and applications banned by EU Directive 2011/65/EU, Restriction of Hazardous Substances, "RoHS2 Directive" and the revised directive 2015/863/EU.

Restricted substances:
Pb - Lead (for Oxygen detectors, Lead is contained, in a quantity less than 1%, accepted as exemption from RoHS2 and RoHs3 directives devices Category 9 – industrial monitoring and control instruments)
Cd - Cadmium
Hg - Mercury
CrVI - Hexavalent Chromium
PBB - Polybrominated Biphenyls
PBDE - Polybrominated Diphenylethers
DEHP - Bis(2-ethylhexyl)phthalate
BBP - Butyl benzyl phthalate
DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

Sensitron S.r.l. dichiara che tutti i nostri rilevatori gas sono conformi alla direttiva RoHS3 e non contengono nessuna delle sostanze soggette a restrizioni elencate di seguito secondo la Direttiva UE 2011/65 / UE, Restrizione di sostanze pericolose, "Direttiva RoHS2" e direttiva rivista 2015/863 / UE.

Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

Sensitron S.r.L., Viale Della Repubblica, 48, IT-20007 Cornaredo MI, ITALY

hereby declares under its sole responsibility that the gas detection unit here below

dichiara sotto la propria esclusiva responsabilità che il rilevatore di gas sotto indicato

Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89252**
Lot	Lotto	**24091114**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**375**
Span points	Punti di span	**642**
Calibration coefficient	Coefficiente di taratura	**3206**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

EMC Directive 2014/30/EU / Direttiva EMC 2014/30/UE

and the following harmonised standards / *ed alle seguenti norme armonizzate:*
EN 50270:2015
EN 61000-6-4:2007

RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

Sensitron S.r.l. declares that all of our gas detectors are RoHS3 compliant and do not contain any of the restricted substances listed below in concentrations and applications banned by EU Directive 2011/65/EU, Restriction of Hazardous Substances, "RoHS2 Directive" and the revised directive 2015/863/EU.

Restricted substances:
Pb - Lead (for Oxygen detectors, Lead is contained, in a quantity less than 1%, accepted as exemption from RoHS2 and RoHs3 directives devices Category 9 – industrial monitoring and control instruments)
Cd - Cadmium
Hg - Mercury
CrVI - Hexavalent Chromium
PBB - Polybrominated Biphenyls
PBDE - Polybrominated Diphenylethers
DEHP - Bis(2-ethylhexyl)phthalate
BBP - Butyl benzyl phthalate
DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

Sensitron S.r.l. dichiara che tutti i nostri rilevatori gas sono conformi alla direttiva RoHS3 e non contengono nessuna delle sostanze soggette a restrizioni elencate di seguito secondo la Direttiva UE 2011/65 / UE, Restrizione di sostanze pericolose, "Direttiva RoHS2" e direttiva rivista 2015/863 / UE.

Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

Sensitron S.r.L., Viale Della Repubblica, 48, IT-20007 Cornaredo MI, ITALY

hereby declares under its sole responsibility that the gas detection unit here below

dichiara sotto la propria esclusiva responsabilità che il rilevatore di gas sotto indicato

Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89257**
Lot	Lotto	**24091115**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**366**
Span points	Punti di span	**654**
Calibration coefficient	Coefficiente di taratura	**2972**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

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and the following harmonised standards / *ed alle seguenti norme armonizzate:*
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RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

Sensitron S.r.l. declares that all of our gas detectors are RoHS3 compliant and do not contain any of the restricted substances listed below in concentrations and applications banned by EU Directive 2011/65/EU, Restriction of Hazardous Substances, "RoHS2 Directive" and the revised directive 2015/863/EU.

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PBB - Polybrominated Biphenyls
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DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

Sensitron S.r.l. dichiara che tutti i nostri rilevatori gas sono conformi alla direttiva RoHS3 e non contengono nessuna delle sostanze soggette a restrizioni elencate di seguito secondo la Direttiva UE 2011/65 / UE, Restrizione di sostanze pericolose, "Direttiva RoHS2" e direttiva rivista 2015/863 / UE.

Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	D1xS1, D1xS2 D1xL1, D1xL2 D1xC1X05, D1xC1X10, D1xC2X05, D1xC2X10 D1xB2XH1, D1xB2XH2

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX) - D1xS1, D1xS2, D1xL1, D1xL2, D1xC1X05, D1xC1X10, D1xC2X05 and D1xC2X10 only

Notified Body for EU type Examination (Module B):	UL International Demko A/S Borupvang 5A 2750 Ballerup Denmark
EU-type Examination Certificate (Module B):	DEMKO 19 ATEX 2141X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 Unit 6, Hawarden Industrial Park, Hawarden, Deeside, CH5 3US, UK
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex db IIC T6…T3 GB II 2D Ex tb IIIC T82˚C…145˚C Db
Standards applied:	EN 60079-0:2018 EN 60079-1:2014 EN60079-31:2014

Regulation EU No. 305/2011: Construction Products Regulation (CPR) – D1xS1FDC024***A1R & D1xS1FDC024***A1G only – tones 1, 2, 5, 8, 40, 44, 53 only

Notified Product Certification Body for Certificate of Constancy of Performance or EC Type Examination Certificate and continuous surveillance, assessment and evaluation of factory production control:	BRE Global Assurance (Ireland) Limited Notified Body No.: 2831 DCU Alpha, Old Finglas Road, Glasnevin, Dublin, D11 KXN4
Certificate of Constancy of Performance or EC Type Examination Certificate:	2831-CPR-F4858
Standards applied:	EN 54-3:2001 + A1:2002 + A2:2006

Directive 2014/90/EU: Marine Equipment Directive (MED) – part codes specified below only - D1xS1FDC024***A1R & D1xS1FDC024***A1G only

Notified Body for EU type Examination (Module B) and Conformity to EU-type based on quality assurance of the production process (Module D):	DNV AS Notified Body No.: 0575 DNV Høvik, Norway
EU-Certificate Type Examination (Module B):	MEDB000085K
EU Certificate of Conformity for the Quality Assurance System (Module D):	MEDD00000GV
Standards applied:	EN 54-3:2014 incl. A1: 2019 IEC 60092-504: 2016 IEC 60533: 2015

EU Declaration of Conformity

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1: 2011

Directive 2014/35/EU: Low Voltage Directive (LVD)

Standards applied:	EN 60947-1:2007 + A2:2014

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66/67

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Desmond Gayler
Quality Assurance Manager

Document No.: DC-067_Issue_K
Date and Place of Issue: London, 18/03/2024

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	D1xB2X05, D1xB2X10, D1xB2X15, D1xB2X21, D1xB2LD2, D1xJ2

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):	UL International Demko A/S Notified Body No.: 0539 Borupvang 5A, 2750 Ballerup, Denmark
EU-type Examination Certificate (Module B):	DEMKO 19 ATEX 2009X Rev. 1
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex d IIC T6…T3 Gb II 2D Ex tb IIIC T95°C…T169°C Db
Standards applied:	EN 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014 IP6X Dust Protection to EN60079-0 / EN60079-31

Regulation EU No. 305/2011: Construction Products Regulation (CPR) –part codes listed below only – 1Hz Flash Mode only

Notified Product Certification Body for Certificate of Constancy of Performance or EC Type Examination Certificate and continuous surveillance, assessment and evaluation of factory production control:	BRE Global Assurance (Ireland) Limited Notified Body No.: 2831 DCU Alpha, Old Finglas Road, Glasnevin, Dublin, D11 KXN4
Certificate of Constancy of Performance or EC Type Examination Certificate:	2831-CPR-F4859 (D1xB2X05DC024***A1R/C, D1xB2X05DC024***A1G/C only) 2831-CPR-F4899 (D1xB2X05DC024***A1R/R, D1xB2X05DC024***A1G/R only)
Standards applied:	EN 54-23:2010

Directive 2014/90/EU: Marine Equipment Directive (MED) – part codes specified only – D1xB2X05DC024***A1R/C ; D1xB2X05DC024***A1R/R ; D1xB2X05DC024***A1G/C ; D1xB2X05DC024***A1G/R

Notified Body for EU type Examination (Module B) and Conformity to EU-type based on quality assurance of the production process (Module D):	DNV AS Notified Body No.: 0575 DNV Høvik, Norway
EU-Certificate Type Examination (Module B):	MEDB000085K
EU Certificate of Conformity for the Quality Assurance System (Module D):	MEDD00000GV
Standards applied:	EN 54-3:2014 incl. A1: 2019 EN 54-23:2010 IEC 60092-504: 2016

EU Declaration of Conformity

IEC 60533: 2015

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN IEC 61000-6-1:2019 & IEC 61000-6-1:2016 EN IEC 61000-6-2:2019 & IEC 61000-6-2:2016 EN IEC 61000-6-3:2021 & IEC 61000-6-3:2020 EN IEC 61000-6-4:2019 & IEC 61000-6-4:2018

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1991 + A1:2000 + A2:2013. - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66/67

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Desmond Gayler
Quality Assurance Manager

Document No.: DC-077_Issue_G
Date and Place of Issue: London, 01/09/2023

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 19 ATEX 2009X Rev. 3**

[4] Product: **D1xB2X - Xenon Beacons, D1xB2LD - LED Beacons, D1xJ2 - Junction Boxes, D2xH1-I/IR - Heat Detectors and D1xH1-A/H/E - Heat Detectors**

[5] Manufacturer: **European Safety Systems Limited**

[6] Address: **Impress House, Mansell Road, Acton, London W3 7QH United Kingdom**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report no. **DK/ULD/ExTR19.0006/03.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1:2014** **EN IEC 60079-7:2015/A1:2018**
EN 60079-11:2012 **EN IEC 60079-31:2024**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the “Specific Conditions of Use” listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II 1 G	**Ex ia IIC T6 Ga** (Heat Detectors – D2xH1-I)	**II 1 G**	**Ex ia IIC T4 Ga** (Heat Detectors – D2xH1-IR)
II 2 G	**Ex db IIC T6….T3 Gb** (D1xB2)	**II 2 G**	**Ex db IIC T6….T4 Gb** (D1xJ2, D1xH1-A/H)
II 2 G	**Ex eb IIC T6…T5 Gb** (D1xJ2-E)	**II 2 G**	**Ex db eb IIC T6…T5 Gb** (D1xH1-E)
II 2 D	**Ex tb IIIC T85˚C …T169˚C Db** (D1xB2, D1xJ2, D1xH1, D2xH1)		

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein (“Certified Product”) has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL’s prior written approval.

Date of issue: 2019-05-03

Re-issued: 2024-08-02

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

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Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2009X Rev. 3

[15] Description of Product

D1xB2 series are a range of Electronic Strobe Beacons housed in a flameproof / dust protected aluminium enclosure that are intended to be used as visual warning / signalling devices. The enclosure is accessible via the threaded cover which incorporates a glass dome, the glass dome is cemented into the cover. A stainless steel lens guard and non-metallic lens diffuser are optional. Additionally the 5J, 10J and 15J 24VDC models may be fitted with an additional PCB for SIL monitoring. The range is supplemented by a D1xJ2 Junction Box which is based on the D1xB2 Series enclosure, D1xH Heat Detector and D2xH Heat Detector.. The Junction Box and Heat Detector are closed with a single piece moulded threaded cover instead of the beacon lens and may be fitted with optional indicator LED module (except for Ex eb models).

The intrinsically safe heat detector consists of the D2xJ1 enclosure, heat detector and wiring terminals. D2xH1-IR models may also be fitted with optional EOL Series devices including optional LED module.

Nomenclature (Beacons):

Model	Beacon energy (Joules)	Voltage	Suffixes
D1xB2X	05	DC012	Up to 4 alpha numeric characters, not associated with equipment certification
		DC024	
		DC048	
		AC115	
		AC230	
D1xB2X	10	DC024	
		DC048	
		AC115	
		AC230	
D1xB2X	15	DC024	
		DC048	
		AC115	
		AC230	
D1xB2X	21	DC024	
		DC048	
		AC115	
		AC230	
D1xB2LD2 (LED beacon)	-	DC024	
	-	AC115	
	-	AC230	

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Nomenclature (Junction boxes):

Model	Suffix
D1xJ2	T01 = Terminal block
	D01 = Din Rail AKZ
	M01 = Module mounted on internal bracket
	-E = Increased safety

Nomenclature (Heat Detectors):

Model	Suffix
D1xH1-	A = Ex db / Ex tb model
	H = Ex db / Ex tb high temperature model
	E = Ex db eb / Ex tb model
D2xH1-	I = Ex ia model / Ex tb model
	IR = Ex ia, with resistor model / Ex tb with resistor model

Performance testing

The optical radiation output of the beacon products with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is not covered in this certificate.

The optical radiation output of the LED indicator included in this product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1 to the scope of EN 60079-28:2015.

Temperature ratings (Beacons):

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xB2X05DC012 D1xB2X05DC024 D1xB2X05DC048	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +75˚C
		T6	-55˚C to +60˚C
	Ex tb IIIC	T104˚C	-55˚C to +80˚C
D1xB2X05AC115 D1xB2X05AC230	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +50˚C
	Ex tb IIIC	T116˚C	-55˚C to +70˚C
D1xB2X10DC024 D1xB2X10DC048	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +45˚C
	Ex tb IIIC	T135˚C	-55˚C to +80˚C
D1xB2X10AC115 D1xB2X10AC230	Ex db IIC	T3	-55˚C to +70˚C
		T4	-55˚C to +65˚C
	Ex tb IIIC	T139˚C	-55˚C to +70˚C
D1xB2X15DC024 D1xB2X15DC048	Ex db IIC	T3	-55˚C to +80˚C
		T4	-55˚C to +65˚C
	Ex tb IIIC	T146˚C	-55˚C to +80˚C
D1xB2X15AC115 D1xB2X15AC230	Ex db IIC	T3	-55˚C to +70˚C
		T4	-55˚C to +65˚C
	Ex tb IIIC	T139˚C	-55˚C to +70˚C
D1xB2X21DC024 D1xB2X21DC048	Ex db IIC	T3	-55˚C to +80˚C
		T4	-55˚C to +45˚C
	Ex tb IIIC	T169˚C	-55˚C to +80˚C

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Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xB2X21AC115 D1xB2X21AC230	Ex db IIC	T3	-55˚C to +60˚C
		T4	-55˚C to +50˚C
	Ex tb IIIC	T141˚C	-55˚C to +60˚C
D1xB2LD2	Ex db IIC	T5	-55˚C to +80˚C
		T6	-55˚C to +70˚C
	Ex tb IIIC	T95˚C	-55˚C to +80˚C

Temperature ratings (Junction Boxes):

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xJ2***	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +70˚C
		T6	-55˚C to +55˚C
	Ex tb IIIC	T106˚C	-55˚C to +80˚C
D1xJ2-E	Ex eb IIC	T5	-55˚C to +80˚C
		T6	-55˚C to +75˚C
	Ex tb IIIC	T85˚C	-55˚C to +80˚C

Temperature ratings (Heat Detectors):

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xH1-A	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +70˚C
		T6	-55˚C to +55˚C
	Ex tb IIIC	T106 ˚C	-55˚C to +80˚C
D1xH1-H	Ex db IIC	T4	-55˚C to +125˚C
		T5	-55˚C to +90˚C
		T6	-55˚C to +75˚C
	Ex tb IIIC	T130 ˚C	-55˚C to +125˚C
		T85 ˚C	-55˚C to +80˚C
D1xH1-E	Ex db eb IIC	T5	-55˚C to +80˚C
		T6	-55˚C to +75˚C
		T85˚C	-55˚C to +80˚C
D2xH1-I	Ex ia IIC	T6	–40°C to +50°C
	Ex tb IIIC	T75˚C	–40°C to +50°C
D2xH1-IR	Ex ia IIC	T4	–40°C to +50°C
	Ex tb IIIC	T75˚C	–40°C to +50°C

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Electrical Data (Beacons):

Model	Voltage DC	Voltage AC	Freq. Hz	Maximum Current mAmps
D1xB2X05DC012	10-14	-	-	600
D1xB2X05DC024	20-28	-	-	350
D1xB2X05DC048	42-54	-	-	150
D1xB2X05AC115	-	110-120	50/60	200
D1xB2X05AC230	-	220-240	50/60	100
D1xB2X10DC024	20-28	-	-	710
D1xB2X10DC048	42-54	-	-	250
D1xB2X10AC115	-	110-120	50/60	300
D1xB2X10AC230	-	220-240	50/60	180
D1xB2X15DC024	20-28	-	-	920
D1xB2X15DC048	42-54	-	-	360
D1xB2X15AC115	-	110-120	50/60	420
D1xB2X15AC230	-	220-240	50/60	230
D1xB2X21DC024	20-28	-	-	1240
D1xB2X21DC048	42-54	-	-	560
D1xB2X21AC115	-	110-120	50/60	530
D1xB2X21AC230	-	220-240	50/60	270
D1xB2LD2DC024	18-54	-	-	500
D1xB2LD2AC115	-	110-120	50/60	180
D1xB2LD2AC230	-	220-240	50/60	100

Electrical Data (Junction Boxes):

Model	Voltage DC	Voltage AC	Freq. Hz	Maximum power Watts	Maximum Current Amps
D1xJ2***	60VDC Max	260VAC Max	50/60	10 Watts	-
D1xJ2-E	60VDC Max	260VAC Max	50/60	-	5A

Electrical Data (Heat Detectors):

Model	Voltage DC	Voltage AC	Freq. Hz	Maximum power Watts	Maximum Current Amps
D1xH1-A	125Vdc	125Vac	50/60	10 Watts	-
D1xH1-H				1.25 Watts	-
D1xH1-E	24Vdc	-	--	-	2A
	32Vdc	-	-	-	1A
	-	32Vac	50/60	-	5A

For Intrinsic Safety models D2xH1-I and D2xH1-IR:
Ui = 30V
Ii = 500mA
Pi = 1100mW
Ci = 0
Li = 0

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[13] **Schedule**

[14] **EU-TYPE EXAMINATION CERTIFICATE No.**

DEMKO 19 ATEX 2009X Rev. 3

Routine tests

Routine tests according to EN 60079-1, cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

The cemented lead seal of the LED modules shall be subjected to a batch overpressure test of at least 363 psi / 25.02 bar for at least 10 s in accordance with Clause 16.6 of IEC 60079-1, 7th Edition.

Heat Detector probe integrity of welds is to be verified by one of the inspection methods in accordance with Clause 16.3 of IEC 60079-1, 7th Edition.

All D1xH1-E shall be routinely dielectrically strength tested between live/neutral and earth/enclosure. The tests shall be performed as described in IEC 60079-7, clause 6.1, at 500V rms for at least 1 minute (or 600V rms for at least 100 ms).

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

- The enclosure coating is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- Repair of the flamepaths is not permitted.

For Ex ia Intrinsically Safe installation of models D2xH1-I and D2xH1-IR:

- End user shall adhere to the manufacturer's installation and instruction when performing housekeeping to avoid the potential for hazardous electrostatic charges during cleaning, by using a damp cloth.
- The equipment does not provide 500V isolation between the intrinsically safe circuit and parts which may be earthed. This shall be considered in the end-use application to ensure the possibility of an earth connection will not compromise intrinsic safety. Refer to EN/IEC 60079-14.
- Avoid impact or friction with the equipment.

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark e2S warning signals will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

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[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 19 ATEX 2141X Rev. 2**

[4] Product: **Loudspeakers (D1xL*), Sounders (D1xS*) and Combined Sounder Beacons (D1xC*)**

[5] Manufacturer: **European Safety Systems Limited**

[6] Address: **Units 18 & 20, Impress House, Mansell Road, Acton, London W3 7QH United Kingdom**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **DK/ULD/ExTR19.0008/02.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018	**EN 60079-1:2014**
EN 60079-31:2014	**IEC 60079-31, Edition 3.0 (2022-01)**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the “Specific Conditions of Use” listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II 2 G Ex db IIC T6 …T3 Gb

II 2 D Ex tb IIIC T82°C …T145°C Db

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein (“Certified Product”) has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL’s prior written approval.

Date of issue: 2019-04-30
Re-issued: 2023-09-06

Notified Body
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Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

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Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2141X Rev. 2

[15] Description of Product

D1xS* (sounder) comprises an Aluminium enclosure housing components to generate selectable tones. Up to three M20 threaded entries may be provided for installation of appropriately certified cable entry devices by the end user.
The D1xL* (loudspeaker) utilizes the same enclosures and houses components to amplify sound.
D1xC* (sounder beacon) is the same housing as the D1xS* except on one end the beacon assembly is mounted. The lamp is protected by a glass lens and a stainless steel wire guard. Additional electrical components associated with the operation of the 5 and 10 Joule beacon are installed within the housing and reflected by the nomenclature with “AC” or “DC” followed by the voltage.

Model Nomenclature:

Sounder:

Example - D1xS1-DC024-A

Model	**Model Voltage** (refer to electrical tables below)	**Suffix**
D1xS1 – low power	AC230	-A – Standard Unit -S – SIL Unit (DC024 only)
	DC024	
D1xS2 – medium and high power	AC230	
	DC024	

All models detailed are permitted to use any radial or flare horn.

Sounder Beacon:

Example - D1xC1X05-DC024-A

Model	**Beacon Energy**	**Model Voltage** (refer to electrical input tables)	**Suffix**
D1xC1X – low power sounder	05- 10-	AC115	-A – Standard Unit
D1xC2X – medium and high power sounder		AC230	
		DC024	

All models detailed are permitted to use any radial or flare horn.

Loudspeaker:

Example - D1xL1FV070-A

Model	
D1xL1FV725-A	15W, 25V to 70V loudspeaker, standard unit
D1xL2FV725-A	25W, loudspeaker, small flare
D1xL2HV725-A	25W, loudspeaker, large flare
D1xL1FV070	15W 70V loudspeaker
D1xL1FV070-A	15W 70V loudspeaker, standard unit
D1xL2FV070	25W 70V loudspeaker, small flare
D1xL2HV070	25W 70V loudspeaker, large flare
D1xL2FV070-A	25W 70V loudspeaker, standard unit, small flare
D1xL2HV070-A	25W 70V loudspeaker, standard unit, large flare
D1xL1FV100-A	15W 100V loudspeaker, standard unit
D1xL2FV100-A	25W 100V loudspeaker, standard unit, small flare
D1xL2HV100-A	25W 100V loudspeaker, standard unit, large flare
D1xL1FR008-A	15W, 8 ohm resistance loudspeaker, standard unit
D1xL1FR016-A	15W, 16 ohm resistance loudspeaker, standard unit
D1xL2FR008-A	25W 8 ohm resistance loudspeaker, standard unit, small flare
D1xL2FR016-A	25W 16 ohm resistance loudspeaker, standard unit, small flare
D1xL2HR008-A	25W 8 ohm resistance loudspeaker, standard unit, large flare
D1xL2HR016-A	25W 16 ohm resistance loudspeaker, standard unit, large flare
D1xL1-AXIS-A	12.95W PoE input, loudspeaker, small flare
D1xL2-AXIS-A	12.95W PoE input, loudspeaker, large flare

All models detailed are permitted to use any radial or flare horn.

Performance testing

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 2 to the scope of EN 60079-28:2015.

Temperature range:
The relation between ambient temperature and the assigned temperature class is as follows:

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Loudspeaker:

Models	Temperature Class (Gas)	Temperature Class (Dust)	Associated Maximum Ambient Temperature
D1xL1-V070 (-A) D1xL1-R008 (-A) D1xL1-R016 (-A) D1xL1-AXIS-A	T5	T86°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xL2-V070 (-A) D1xL2-R008 (-A) D1xL2-R016 (-A) D1xL2-AXIS-A	T5	T91°C	-55°C to +75°C
	T6	-	-55°C to +55°C
D1xL1-V100-A	T5	T92°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xL2-V100-A	T4	T98°C	-55°C to +75°C
	T5	-	-55°C to +70°C
	T6	-	-55°C to +55°C
D1xL1-V725-A	T6	-	-55°C to +60°C
	T5	T91°C	-55°C to +75°C
D1xL2-V725-A	T6	-	-55°C to +55°C
	T5	-	-55°C to +70°C
	T4	T97°C	-55°C to +75°C

Sounder Temperature Range:

Model	Temperature Class (Gas)	Temperature Class (Dust)	Associated Maximum Ambient Temperature
D1xS1-DC024-A	T5	T84°C	-55°C to +75°C
	T6	-	-55°C to +70°C
D1xS1-DC024-S	T5	T84°C	-55°C to +75°C
	T6	-	-55°C to +70°C
D1xS1-AC230-A	T5	T82°C	-55°C to +75°C
	T6	-	-55°C to +70°C
D1xS2-DC024-A	T5	T95°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xS2-DC024-S	T5	T95°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xS2-AC230-A	T5	T93°C	-55°C to +75°C
	T6	-	-55°C to +60°C

Sounder Beacon Temperature Range:

Model	Temperature Class (Gas)	Temperature Class (Dust)	Associated Maximum Ambient Temperature
D1xC1X05-DC024-A	T4	T115°C	-55°C to +75°C
	T5	-	-55°C to +55°C
	T6	-	-55°C to +40°C
D1xC1X05-AC115-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC1X05-AC230-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC2X05-DC024-A	T4	T115°C	-55°C to +75°C
	T5	-	-55°C to +55°C
	T6	-	-55°C to +40°C
D1xC2X05-AC115-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC2X05-AC230-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC1X10-DC024-A	T3	T137°C	-55°C to +75°C
	T4	-	-55°C to +65°C
D1xC1X10-AC115-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C
D1xC1X10-AC230-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C
D1xC2X10-DC024-A	T3	T137°C	-55°C to +75°C
	T4	-	-55°C to +65°C
D1xC2X10-AC115-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C
D1xC2X10-AC230-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C

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Electrical data

Loudspeakers:

Model	Voltage Range	Frequency
D1xL1-V725, D1xL2-V725, D1xL1-V725-A, D1xL2-V725-A	70V Line / 25V Line	N/A
D1xL1-V070, D1xL2-V070, D1xL1-V070-A, D1xL2-V070-A	70V Line	N/A
D1xL1-V100-A, D1xL2-V100-A	100V Line	N/A
D1xL1-R008, D1xL1-R008-A	10.95V Max. I/P	N/A
D1xL1-R016, D1xL1-R016-A	15.49V Max. I/P	N/A
D1xL2-R008, D1xL2-R008-A	14.14V Max. I/P	N/A
D1xL2-R016, D1xL2-R016-A	20.00V Max. I/P	N/A
D1xL1-AXIS-A, D1xL2-AXIS-A	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3 (Max. 12.95 W)	N/A

'-' Horn Type

Sounders:

Model	Sounder PCBA Power Mode	Voltage Range	Frequency
D1xS1-DC024-A	Low	11.5-54VDC	-
D1xS2-DC024-A	Medium & High		
D1xS1-DC024-S	Low	20-28VDC	-
D1xS2-DC024-S	Medium & High		
D1xS1-AC230-A	Low	100-240VAC	50/60Hz
D1xS2-AC230-A	Medium & High		

'-' Horn Type

Sounder Beacons:

Model	Sounder PCBA Power Mode	Voltage Range	Frequency
D1xC1X05-DC024-A, D1xC1X10-DC024-A	Low	20-28VDC	-
D1xC2X05-DC024-A, D1xC2X10-DC024-A	Medium & High		
D1xC1X05-AC115-A, D1xC1X10-AC115-A,	Low	110-120VAC	50/60Hz
D1xC2X05-AC115-A, D1xC2X10-AC115-A	Medium & High		
D1xC1X05-AC230-A D1xC1X10-AC230-A	Low	220-240VAC	50/60Hz
D1xC2X05-AC230-A, D1xC2X10-AC230-A	Medium & High		

'-' Horn Type

Routine tests

D1xC* Units only:

Routine overpressure tests in accordance with EN 60079-1:2014 shall be conducted on a number of units (detailed below) in accordance with clause 16.6, at a pressure of 222 psi / 15.3 bar for a duration of not less than 10 seconds. There shall be no sign of damage, deformation or rupture that will invalidate the concept of protection. The cement joint is not permitted to leak. If there are any non-compliant results, all remaining samples in the batch and future batches shall be tested at 1.5 times the reference pressure until confidence is established to reconsider batch testing.

- For a production batch up to 100, a sampling of 8 needs to be tested at 1.5 times the reference pressure with no failure.
- For a production batch from 101-1000, a sampling of 32 needs to be tested at 1.5 times the reference pressure with no failures.
- For a production batch from 1001 up to 10,000, a sampling of 80 needs to be tested at 1.5 times the reference pressure with no failures.
- Batches above 10,000 must be subdivided into smaller batches.

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

This certificate may only be reproduced in its entirety and without any change.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2141X Rev. 2

[17] Specific conditions of use:

- No repair to the flameproof joints is permitted.

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark e2S warning signals will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

This certificate may only be reproduced in its entirety and without any change.

DECLARATION OF PERFORMANCE

Manufacturer: European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

Equipment Type: D1xS1FDC024***A1R & D1xS1FDC024***A1G
Electronic Sounder

Intended Use: Fire Safety (Fire Detection and Fire Alarm Systems – Alarm Devices – Sounders, installed in and around buildings)

System of Assessment and Verification of Constancy of Performance: 1

Notified Body for EC type Examination and Factory Production Control: BRE Global Assurance (Ireland) Ltd
Notified Body No.: 2831
DCU Alpha, Old Finglas Road, Glasnevin
Dublin 11 D11 KXN4 Ireland

EC-type Examination Certificate: 2831-CPR-F4858

Notified Body for UKCA Examination and Factory Production Control: BRE Global Ltd
Notified Body No.: 0832
Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

UKCA Examination Certificate: 0832-UKCA-CPR-F1782

Standards: EN 54-3:2001 / A1:2002 / A2:2006
Units tested to EN 54-3:2014 / A1:2019

Declared Performance:

Essential Characteristics	Performance	Standard
Performance parameters under fire conditions		EN 54-3:2001 / A1:2002 / A2:2006
- Sound level	Pass	Clause 4.2
- Frequencies and sound pattern	Pass	Clause 4.3
- Reproducibility	Pass	Clause 5.2
- Operational Performance	Pass	Clause 5.3
- Attention drawing signal and message broadcast sequences	Not applicable	Clause C.3.1
- Synchronisation	Not applicable	Clause C.3.2
- Broadcast message performance	Not applicable	Clause C.5.1
- Attention drawing signal/silence/message sequence timing	Not applicable	Clause C.5.2
- Message synchronisation testing	Not applicable	Clause C.5.3
Operational reliability		EN 54-3:2001 / A1:2002 / A2:2006
- Durability	Pass	Clause 4.4
- Construction	Pass	Clause 4.5
- Marking and data	Pass	Clause 4.6
- Durability	Pass	Clause 5.4
- General testing	Not applicable	Clause C.4
Durability of operational reliability, temperature resistance		EN 54-3:2001 / A1:2002 / A2:2006
- Dry heat (operational)	Pass	Clause 5.5
- Dry heat (endurance)	Pass	Clause 5.6
- Cold (operational)	Pass	Clause 5.7
- Damp heat. Cyclic (operational)	Pass	Clause 5.8
Damp heat, steady state (endurance) Durability of operational reliability, humidity resistance	Pass	Clause 5.9
- Damp heat, cyclic (operational)	Pass	Clause 5.8
- Damp heat, steady state (endurance)	Pass	Clause 5.9
- Damp heat, cyclic (endurance)	Pass	Clause 5.10
Durability of operational reliability, corrosion resistance		
- Sulphur dioxide (SO2) corrosion (endurance)	Pass	Clause 5.11
Durability of operational reliability, shock and vibration resistance		
- Shock (operational)	Pass	Clause 5.12
- Impact (operational)	Pass	Clause 5.13
- Vibration, sinusoidal (operational)	Pass	Clause 5.14
- Vibration, sinusoidal (endurance)	Pass	Clause 5.15
Durability of operational reliability, electrical stability		
- Electromagnetic compatibility (EMC), immunity (operational)	Pass	Clause 5.16
Durability of operational reliability, resistance to ingress		
- Enclosure protection	Pass	Clause 5.17

DECLARATION OF PERFORMANCE

Manufacturer:

European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

The performance of the product identified above is in conformity with the declared performance. This declaration of performance is issued under the sole responsibility of the manufacturer identified above.



Martin Streetz
Quality Assurance Manager

Date and Place of Issue: London, 25/07/2023
Document No: DP-2831-CPR-F4858
Issue: B

DECLARATION OF PERFORMANCE

Manufacturer: European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

Equipment Type: D1xB2X05DC024 Beacon

Intended Use: Fire Safety (Fire Detection and Fire Alarm Systems – Alarm Devices – VAD, installed in and around buildings)

System of Assessment and Verification of Constancy of Performance: 1

Notified Body for EC type Examination and Factory Production Control:
BRE Global Assurance (Ireland) Ltd
Notified Body No.: 2831
DCU Alpha, Old Finglas Road, Glasnevin
Dublin 11 D11 KXN4 Ireland

EC-type Examination Certificate:
2831-CPR-F4859 for clean lens models
D1xB2X05DC024***A1R/C & D1xB2X05DC024***A1G/C
D1xB2X05DC024***ATR/C & D1xB2X05DC024***ATG/C

2831-CPR-F4899 for red lens models
D1xB2X05DC024***A1R/R & D1xB2X05DC024***A1G/R
D1xB2X05DC024***ATR/R & D1xB2X05DC024***ATG/R

Notified Body for UKCA Examination and Factory Production Control:
BRE Global Ltd
Notified Body No.: 0832
Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

UKCA Examination Certificate:
0832-UKCA-CPR-F1783 for clear lens models
D1xB2X05DC024***A1R/C & D1xB2X05DC024***A1G/C
D1xB2X05DC024***ATR/C & D1xB2X05DC024***ATG/C

0832-UKCA-CPR-F1854 for red lens models
D1xB2X05DC024***A1R/R & D1xB2X05DC024***A1G/R
D1xB2X05DC024***ATR/R & D1xB2X05DC024***ATG/R

Standards: EN54-23:2010

Declared Performance:

Essential Characteristics	Performance	Standard / Clause
Operational Reliability		EN 54-23:2010
- Duration of Operation	Pass	Clause 4.2.1
- Provision for external conductors	Pass	Clause 4.2.2
- Flammability of Materials	Pass	Clause 4.2.3
- Enclosure Protection	Pass	Clause 4.2.4
- Access	Pass	Clause 4.2.5
- Manufacturer's adjustments	Pass	Clause 4.2.6
- On-site adjustment of behaviour	Pass	Clause 4.2.7
- Requirements for Software controlled devices	Pass	Clause 4.2.8
Performance Parameters under fire conditions		EN 54-23:2010
- Coverage Volume	Pass	Clause 4.3.1
- Variation of Light Output	Pass	Clause 4.3.2
- Minimum and Maximum light intensity	Pass	Clause 4.3.3
- Light colour	Pass	Clause 4.3.4
- Light temporal pattern and frequency of flashing	1Hz	Clause 4.3.5
- Marking and Data	Pass	Clause 4.3.6
- Synchronisation	Pass	Clause 4.3.7
Durability, Temperature Resistance		EN 54-23:2010
- Dry Heat (operational)	Pass	Clause 4.4.1.1
- Dry Heat (endurance)	Pass	Clause 4.4.1.2
- Cold (operational)	Pass	Clause 4.4.1.3
Durability, Humidity resistance		
- Damp heat, cyclic (operational)	Pass	Clause 4.4.2.1
- Damp heat, steady state (endurance)	Pass	Clause 4.4.2.2
- Damp heat cyclic (endurance)	Pass	Clause 4.4.2.3
Durability, Shock and vibration resistance	Pass	Clause 4.4.3.1
- Shock (operational)		

DECLARATION OF PERFORMANCE

Manufacturer: European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

- Impact (operational)	Pass	Clause 4.4.3.2
- Vibration, sinusoidal (operational)	Pass	Clause 4.4.3.3
- Vibration, sinusoidal (endurance)	Pass	Clause 4.4.3.4
Durability, Corrosion Resistance		
- Sulphur Dioxide (SO2) corrosion (endurance)	Pass	Clause 4.4.4
Durability, Electrical stability		
- Electromagnetic compatibility (EMC), immunity (operational)	Pass	Clause 4.4.5

The performance of the product identified above is in conformity with the declared performance. This declaration of performance is issued under the sole responsibility of the manufacturer identified above.

Martin Streetz
Quality Assurance Manager

Date and Place of Issue: London, 25/07/2023
Document No: DP-2831-CPR-F4859
Issue: B

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	STExCP8-BG-S, STExCP8-BG-D, STExCP8-BG-S-L or C, STExCP8-BG-D-L or C STExCP8-PB-S, STExCP8-PM-S, STExCP8-PT-S, STExCP8-PB-S-L or C, STExCP8-PM-S-L or C, STExCP8-PT-S-L or C, STExCP8-PB-D, STExCP8-PM-D, STExCP8-PT-D STExCP8-PB-D-L or C, STExCP8-PM-D-L or C, STExCP8-PT-D-L or C

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):	UL International Demko A/S Notified Body No.: 0539 Borupvang 5A, 2750 Ballerup, Denmark
EU-type Examination Certificate (Module B):	DEMKO 15ATEX1589X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex db IIC T4 Gb II 2G Ex db IIC T5 Gb II 2G Ex db IIC T6 Gb
Standards applied:	EN 60079-0: 2012 + A11: 2013 EN 60079-1: 2014

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1: 2011

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66

EU Declaration of Conformity

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.



Martin Streetz
Quality Assurance Manager

Document No.: DC-071_Issue_E
Date and Place of Issue: London 10/09/2023

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 15 ATEX 1589X Rev. 4**

[4] Product: **Call Point Switch, Model STExCP8- PT-S / PM-S / PB-S / PT-D / PM-D / PB-D / BG-S / BG-D / PT-I / PM-I / PB-I / BG-I / PT-IR / PM-IR / PB-IR / BG-IR**

[5] Manufacturer: **European Safety Systems Limited**

[6] Address: **Impress House, Mansell Road, Acton, London W3 7QH United Kingdom**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **DK/ULD/ExTR15.0019/04.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1:2014** **EN 60079-11:2012**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II 2 G Ex db IIC T4 Gb
Ex db IIC T5 Gb
Ex db IIC T6 Gb

II 1 G Ex ia IIC T6 Ga (models STExCP8--I)**

II 1 G Ex ia IIC T4 Ga (models STExCP8--IR)**

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2016-03-17
Re-issued: 2023-12-19

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

This certificate may only be reproduced in its entirety and without any change.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 15 ATEX 1589X Rev. 4

[15] Description of Product

The STExCP8 range of Call Point Switches are manual call points are for the activation of fire and gas alarm systems.

Available as Dual Action Push Button (PB), Momentary Push Button (PM), Tool Reset Push Button (PT) or Break Glass (BG) with a single (S) or dual (D) micro-switch switching capability. An indicator LED may be fitted in one of the M20 threaded entries.

All models can be fitted with series resistors, end-of-line monitoring resistors, monitoring diodes and zener diodes if supplied with direct current of up to 48 Vdc.

The STExCP8-xx-I and STExCP8-xx-IR range of Call Point Switches are as described above and provide Ex ia type of protection when used with suitable Zener Barrier or Galvanic Isolators. Terminal blocks are either DIN rail mounted or PCB mounted. End of line and series monitoring resistors or diodes may be fitted in the factory or by the installer/end-user. There is also an option for an LED module to be fitted. All components are considered as a single intrinsically safe circuit.

Product Nomenclature:

Ex db Product Nomenclature:

STEx	CP8-	PB-	S	-L
I	II	III	IV	V

I – Enclosure Series
- STEx – Primary Enclosure Series

II – Certifications
- CP8- - Call Point 8

III – Type of Enclosure
- BG- - Break Glass
- PB- - Push Button
- PM- - Momentary Push Button
- PT- - Push Button & Tool Reset

IV – Switch configuration Width of Enclosure
- S - Single microswitch
- D - Dual microswitch

V – LED option
- Blank – No LED
- -C – LED, without resistor
- -L – LED, with resistor

Ex ia Product Nomenclature:

STEx	CP8-	PB-	I
I	II	III	IV

I – Enclosure Series
- STEx – Primary Enclosure Series

II – Certifications
- CP8- - Call Point 8

III – Type of Enclosure
- BG- - Break Glass
- PB- - Push Button
- PM- - Momentary Push Button
- PT- - Push Button & Tool Reset

IV – Product Version
- I – Intrinsically Safe Version with Single or Double Switch with no EOL or Series Devices
- IR - Intrinsically Safe Version with Single or Double Switch with optional EOL Series devices including optional LED module.

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1) to the scope of EN 60079-28:2015.

This certificate may only be reproduced in its entirety and without any change.

[13]

[14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 15 ATEX 1589X Rev. 4

Temperature range

The relation between ambient temperature and the assigned temperature class for Ex db and Ex ia models is as follows:

Model	Maximum Ambient (-55ºC to xxºC)			
	50°C	+60ºC	+65ºC	+70ºC
STExCP8-PB-S	-	-	-	T6
STExCP8-PB-S-L STExCP8-PB-S-C	-	-	T6	T5
STExCP8-PB-D	-	T6	-	T5
STExCP8-PB-D-L STExCP8-PB-D-C	T6	-	T5	T4
STExCP8-PB-I	-	-	-	T6
STExCP8-PB-IR	-	-	-	T4
STExCP8-PM-S	-	-	-	T6
STExCP8-PM-S-L STExCP8-PM-S-C	-	-	T6	T5
STExCP8-PM-D	-	T6	-	T5
STExCP8-PM-D-L STExCP8-PM-D-C	T6	-	T5	T4
STExCP8-PM-I	-	-	-	T6
STExCP8-PM-IR	-	-	-	T4
STExCP8-PT-S	-	-	-	T6
STExCP8-PT-S-L STExCP8-PT-S-C	-	-	T6	T5
STExCP8-PT-D	-	T6	-	T5
STExCP8-PT-D-L STExCP8-PT-D-C	T6	-	T5	T4
STExCP8-PT-I	-	-	-	T6
STExCP8-PT-IR	-	-	-	T4
STExCP8-BG-S	-	-	-	T6
STExCP8-BG-S-L STExCP8-BG-S-C	-	-	T6	T5
STExCP8-BG-D	-	T6	-	T5
STExCP8-BG-D-L STExCP8-BG-D-L	T6	-	T5	T4
STExCP8-BG-I	-	-	-	T6
STExCP8-BG-IR	-	-	-	T4

Electrical data

For Ex db models:

Note: The DC models are limited to maximum 6.224W controlled by the allowable component configuration.
The AC models are limited to 5W by design.

250Vac max / 5.0A max (for units without any series resistor or end of line devices only)
48Vdc max / 1.0A max
24Vdc max / 3.0A max

For Ex ia intrinsic safety models:

Ui	=	30V
Ii	=	500mA
Pi	=	1100mW
Ci	=	0
Li	=	0

Routine tests

Routine tests according to EN 60079-1:2014 cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

This certificate may only be reproduced in its entirety and without any change.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 15 ATEX 1589X Rev. 4

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

For Ex db models:

- Special precautions are necessary to reduce the risk due to electro-static discharge in fixed installations. Refer to the installation/operation instructions.
- No repair to the flameproof joints is permitted.

For Ex ia Intrinsically Safe models:

- The equipment does not provide 500V isolation between the intrinsically safe circuit and parts which may be earthed. This shall be considered in the end-use application to ensure the possibility of an earth connection will not compromise intrinsic safety. Refer to EN/IEC 60079-14.
- Special precautions are necessary to reduce the risk due to electro-static discharge in fixed installations. Refer to the installation/operation instructions.

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark e2S warning signals will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

This certificate may only be reproduced in its entirety and without any change.

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration de Conformité UE

R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany
erklärt in alleiniger Verantwortung / *declares in its sole responsibility / déclare sous sa seule responsabilité,*

dass das Produkt: *that the product:* *que le produit:*	**Befehls- und Meldegeräte** *Control station* *Appareil de commande*
Typ(en), *type(s), type(s):*	**8040/*****

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) / *Directive(s) / Directive(s)*	Norm(en) / *Standard(s) / Norme(s)*
2014/34/EU **ATEX-Richtlinie** *2014/34/EU* *ATEX Directive* *2014/34/UE* *Directive ATEX* (OJ L 96, 29/03/2014, p. 309–356)	EN IEC 60079-0:2018; EN 60079-1:2014; EN IEC 60079-7: 2015 / A1:2018; EN 60079-11:2012; EN 60079-18:2015 / A1:2017; EN 60079-31:2014
Kennzeichnung, *marking, marquage:*	**Ex II 2 G Ex db eb ia ib mb IIA, IIB, IIC T6, T5 Gb** **II 2 D Ex tb IIIC T80 °C, T95 °C Db** **CE 0158**
EU-Baumusterprüfbescheinigung: *EU Type Examination Certificate:* *Attestation d'examen UE de type:*	**PTB 01 ATEX 1105** (Physikalisch-Technische Bundesanstalt, Bundesallee 100, 38116 Braunschweig, Germany, NB0102)
Produktnormen nach Anhang II ATEX (aus Niederspannungsrichtlinie): *Product standards according to Low Voltage Directive:* *Normes des produit pour la Directive Basse Tension:*	EN 60947-1:2007 / A1:2011 / A2:2014 EN 60947-5-1:2017 + AC:2020 EN 60947-5-5:1997 / A1:2005 / A11:2013 / A2:2017
2006/42/EG **Maschinen-Richtlinie** *2006/42/EC* *Machinery Directive* *2006/42/CE* *Directive Machines* (OJ L 157, 09.06.2006, p.24-86)	EN ISO 13850:2015
2014/30/EU **EMV-Richtlinie** *2014/30/EU* *EMC Directive* *2014/30/UE* *Directive CEM* (OJ L 96, 29/03/2014, p. 79–106)	EN 60947-1:2007 / A1:2011 / A2:2014 EN 60947-5-1:2017 + AC:2020 EN 60947-5-5:1997 / A1:2005 / A11:2013 / A2:2017
2011/65/EU & (EU) 2015/863 RoHS-Richtlinien *2011/65/EU & (EU) 2015/863 RoHS Directives* *2011/65/UE & (UE) 2015/863 Directives RoHS* (OJ L 174, 1/07/2011, p. 88–110 & OJ L 137, 04/06/2015, p. 10-12)	EN IEC 63000:2018

Unterzeichnet für und im Namen von: / *signed for and on behalf of: / signé pour et au nom de:*

R. STAHL Schaltgeräte GmbH

Waldenburg, 2024-09-13

Ort und Datum
Place and date
Lieu et date

Holger Semrau
Leiter Entwicklung Schaltgeräte
Director R&D Switchgear
Directeur R&D Appareillage

Daniel Groth
Leiter Qualitätsmanagement Systeme
Director Quality Management Systems
Directeur Systèmes de Management de la Qualité

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-Baumusterprüfbescheinigung

(2) Geräte oder Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 2014/34/EU**

(3) EU-Baumusterprüfbescheinigungsnummer

PTB 01 ATEX 1105 **Ausgabe: 2**

(4) Produkt: Befehls- und Meldegerät Typ 8040/*****_** *** * ***_** *** * ***_** *** * *** und 8040/**-V30-***-*

(5) Hersteller: R. STAHL Schaltgeräte GmbH

(6) Anschrift: Am Bahnhof 30, 74638 Waldenburg, Deutschland

(7) Die Bauart dieses Produkts sowie die verschiedenen zulässigen Ausführungen sind in der Anlage und den darin aufgeführten Unterlagen zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die Physikalisch-Technische Bundesanstalt, notifizierte Stelle Nr. 0102 gemäß Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014, bescheinigt, dass dieses Produkt die grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie erfüllt.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht PTB Ex 21-11127 festgehalten.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-18:2015+A1:2017, EN 60079-31:2014

(10) Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Produkts in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Prüfung des festgelegten Produkts gemäß Richtlinie 2014/34/EU. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Bereitstellen auf dem Markt. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.

(12) Die Kennzeichnung des Produkts muss die folgenden Angaben enthalten:

Ex **II 2 G Ex db eb ia ib mb IIA, IIB, IIC T6, T5 Gb**

Ex **II 2 D Ex tb IIIC T80 °C, T95 °C Db**

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, 5. Oktober 2021
Im Auftrag

Dr.-Ing. D. Markus
Direktor und Professor

ZSEx10100d c

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(13) # Anlage

(14) **EU-Baumusterprüfbescheinigung PTB 01 ATEX 1105, Ausgabe: 2**

(15) Beschreibung des Produkts

Das Befehls- und Meldegerät Typ 8040 besteht aus einem oder mehreren Gehäusen aus Kunststoff in der Zündschutzart Erhöhte Sicherheit "e". Er kann mit Flanschen ausgestattet werden.

Die Gehäuse können mit Befehls- und Anzeigekomponenten sowie mit Klemmen für eigensichere und nichteigensichere Stromkreise bestückt werden. Der Kastenbereich für eigen-sichere Stromkreise ist gekennzeichnet, z.B. mit hellblauer Farbe.

Der Anschluss erfolgt über Ex-Kabel- und Leitungseinführungen.

Alle ein- und angebauten Bauteile sind nach gesonderter Prüfbescheinigung geprüft und bescheinigt.

Typschlüssel

Allgemeiner Typschlüssel

8040	/	*	*	*	*	*	-	**	**	*	**	-	**	**	*	**	-	**	**	*	**
a	/	b	c	d	e	f		g													

a	Typenreihe		
b	Gehäusehöhe	1	= 72 mm (niedriger Deckel)
		2	= 97 mm (hoher Deckel)
		3	= Kombination von Höhe 1 und 2
c	Gehäuse Größe	1	= 1-Weg
		2	= 2-Wege
		3	= 3-Wege
		4	= Kombination der Größen
d	KLE 8161/7-.LT	1	= ohne
		2	= (n/n)
		3	= M20x1.5 (Seite C: 1x und Seite D: 1x)
		4	= M25x1.5 (Seite C: 1x und Seite D: 1x)
		5	= (n/n)
		6	= M20x1.5 (Seite D: 2x – nur mit Flansch)
		7	= M20x1.5 (Seite D: 1x)
		8	= M25x1.5 (Seite D: 1x)
		9	= alle anderen (gemäß Kundenauftrag)
e	Flansch	0	= ohne Flansch
		1	= Geschäumter Flansch (Seite D)
		2	= Metall Flansch (Side D)
		3	= Geschäumter Flansch (Seite C)

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4	= Metall Flansch (Seite C)
5	= Geschäumter Flansch (Seite C und D)
6	= Metall Flansch (Seite C und D)
7	= Metall Platte (Seite C: mit PE Anschluss innen)
8	= Metall Platte (Seite D: mit PE Anschluss innen)
9	= Metall Platte (Seite C und D: mit PE Anschluss innen)

f Zusätzliche Information
X = ohne (wie im Typschlüssel)
Z = mit Information (wie im Kundenauftrag dokumentiert)

g Weitere Informationen zu den Einbaukomponenten und Betätigter (nicht Ex relevant).

Komponentenliste siehe 8040 0 000 030 0.

Information zu Ziffer "4) ... 7)", wie im allgemeinen Typschlüssel beschrieben, wird in den Produktionsdokumenten beschrieben. Die Produktionsdokumentation ist über die Seriennummer und den Barcode auf dem Typschild nachzuvollziehen.

Serien-Typschlüssel

8040	/	*	*	-	V30	-	* * *	-	*
a	/	b	c	-	d	-	e	-	f

a	Typenreihen		
b	Gehäusehöhe	1	= 72 mm (niedriger Deckel)
		2	= 97 mm (hoher Deckel)
c	Gehäusegröße	1	= 1-Weg
		2	= 2-Weg
		3	= 3-Weg
d	Gehäusetyp	V30	= Installationsschalter
e	Montageplan	033	= 2-poliger Ein/Aus-Schalter
		035	= Umschalter

f Weitere Informationen zu den Einbaukomponenten und Betätigter (nicht Ex relevant).

Technische Daten

Abmessungen des Gehäuses:

Typ	Länge [mm]	Breite [mm]	Tiefe [mm]
8040/11	93	80	72
8040/12	139	80	72
8040/13	185	80	72
8040/22	139	80	95
8040/23	185	80	95

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Anlage zur EU-Baumusterprüfbescheinigung PTB 01 ATEX 1105, Ausgabe: 2

Elektrische Daten

Bemessungsspannung*:	Max. 690 V
Bemessungsstrom*:	Max. 6 A...16 A
Leistungsaufnahme für Meldeleuchten:	Max. 1.5 W
Bemessungsquerschnitt Einbauelemente:	Max. 6 mm²
Bemessungsquerschnitt Reihen- / Verbindungsklemmen:	Max. 4 mm²

*) je nach Klemmentyp und verwendeten Ex-Komponenten

Umgebungstemperaturbereich

-60 °C bis +74 °C

Temperaturklasse nach der max. Umgebungstemperatur

Typ 8040/11

Maximale installierte Konfiguration						
Strom [A]	8082-8082-8082		8082-8010-8082		8008 (2-pole)	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2	73 °C	73 °C	62 °C	71 °C	-	-
4	72 °C	72 °C	60 °C	71 °C	74 °C	74 °C
6	68 °C	71 °C	59 °C	70 °C	-	-
10	-	-	-	-	70 °C	71 °C
16					55 °C	60 °C

Typ 8040/12

Maximale installierte Konfiguration										
Strom [A]	8082-8082-8082 8082-8082-8082		8082-8010-8082 8082-8010-8082		8008 (2-pole)		8405/6		8082-8082-8082-8082	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2	74 °C	74 °C	61 °C	70 °C	-	-	-	-	73 °C	73 °C
4	71 °C	71 °C	58 °C	70 °C	74 °C	74 °C	74 °C	74 °C	71 °C	71 °C
6	64 °C	68 °C	56 °C	66 °C	-	-	-	-	65 °C	69 °C
10	-	-	-	-	70 °C	71 °C	73 °C	73 °C	-	-
15	-	-	-	-	-	-	64 °C	68 °C	-	-
16					59 °C	62 °C				

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Anlage zur EU-Baumusterprüfbescheinigung PTB 01 ATEX 1105, Ausgabe: 2

Typ 8040/13

Maximale installierte Konfiguration						
Strom [A]	8082-8082-8082 8082-8082-8082 8082-8082-8082		8082-8010-8082 8082-8010-8082 8082-8010-8082		8082-8082-8082-8082 80828082-8082-8082	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2	74 °C	74 °C	60 °C	69 °C	74 °C	74 °C
4	70 °C	70 °C	57 °C	67 °C	71 °C	71 °C
6	61 °C	65 °C	54 °C	63 °C	64 °C	66 °C

Maximale installierte Konfiguration				
Strom [A]	8082-8010-8082 8008 (2-pole)		8405/6 8008 (2-pole)	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2 / 4	62 °C	72 °C	-	-
4 / 10	54 °C	62 °C	-	-
6 / 16	44 °C	45 °C		
4 / 4	-	-	74 °C	74 °C
10 / 10	-	-	68 °C	70 °C
15 / 15	-	-	52 °C	57 °C

Typ 8040/23

Maximale installierte Konfiguration		
Strom [A]	8405/6 8008 (3-pole+Aux)	
	T6 / T80 °C	T5 / T95 °C
4 / 4	74 °C	74 °C
10 / 10	65 °C	67 °C
15 / 16	41 °C	48 °C

Hinweis: Nennstrom des Hilfskontakts ist ≤ 1 A.

Für weitere Informationen siehe Testprotokoll 11568.

Schutz durch Gehäuse nach IEC EN 60079-0, EN 60079-7 und EN 60079-31:
IP66 ohne Flansch
IP65 mit Flansch
IP64 für Gehäusekombination mit Silikon-Dichtung D0130-01 oder D0308-00

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Die Bemessungswerte sind Höchstwerte, die tatsächlichen elektrischen Werte werden von den eingebauten elektrischen Betriebsmitteln bestimmt. Der Hersteller legt im Rahmen dieser Grenzwerte bei Einhaltung der zutreffenden Normen und abhängig von Netzbedingungen, Betriebsart, Gebrauchskategorie usw. die endgültigen Bemessungswerte fest. Die Kennwerte der eigensicheren Stromkreise werden vom Hersteller in eigener Verantwortung festgelegt.

Der maximal zulässige Bereich der Umgebungstemperatur des Klemmenkastens kann durch die maximal zulässige Betriebstemperatur der getrennt bescheinigten Komponenten eingeschränkt werden.

Die Zusammensetzung des Zündschutzart-Kennzeichnung richtet sich nach den Zündschutzarten der jeweils verwendeten Komponenten.

Die Anordnung der Ex-Kennzeichnung richtet sich nach dem Schutzgrad der verwendeten Komponenten.

Änderungen

1) Normen-Update auf den neuesten ATEX Normenstand
2) Kombination von Gehäusen möglich
3) Wandstärke angepasst

(16) Prüfbericht PTB Ex 21-11127

(17) Besondere Bedingungen

Keine

Hinweise für die Herstellung und Betrieb

Für den Ein- und Anbau von Komponenten sind nur solche zugelassen, die auf dem Deckblatt angegebenen Normenstand technischen entsprechen, für die Einsatzbedingungen geeignet sind und eine gesonderte Bescheinigung besitzen. Die besonderen Bedingungen der Komponenten sind zu beachten und die Komponenten sind ggf. mit in die Typprüfung einzubeziehen. Dies gilt auch für die bereits in der technischen Beschreibung genannten Komponenten.

Um den IP-Schutzgrad zu gewährleisten, müssen der Deckel des Leergehäuses, das Flanschgehäuse, der Dichtungsrahmen und andere Ex-Komponenten ordnungsgemäß installiert und mit dem entsprechenden Drehmoment montiert werden.
Die Befestigungskraft der Verbindungstück zwischen zwei Gehäuse ist ordnungsgemäß mit dem richtigen Drehmoment zu befestigt und darf nicht von anderen Kräften (z.B. die Wandmontage) beeinfluss werden.

Der Einbau der Betriebsmittel in der Zündschutzart Eigensicherheit "i" muss so erfolgen, dass die nach EN 60079-11 geforderten Abstände sowie die Luft- und Kriechstrecken zwischen eigensicheren und nichteigensicheren Stromkreisen eingehalten sind.

Bei Verwendung von mehr als einem eigensicheren Stromkreis sind die Regeln der Zusammenschaltung zu beachten.

Wenn Komponenten in das Leergehäuse eingebaut werden, müssen die Luft- und Kriechstrecken nach der Norm EN 60079-7 und EN 60079-11 eingehalten werden.

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Das Gehäuse mit einer Beschichtung aus Polyester-Pulverlack darf nicht in Bereichen eingesetzt werden, in denen stark ladungserzeugende Prozesse, maschinelle Reib- und Trennprozesse, das Sprühen von Elektronen (z.B. im Umfeld von elektrostatischen Lackiereinrichtungen) stattfinden sowie pneumatisch geförderter Staub austritt.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Erfüllt durch Übereinstimmung mit den vorgenannten Normen.

Konformitätsbewertungsstelle, Sektor Explosionsschutz — Braunschweig, 5. Oktober 2021
Im Auftrag

Dr.-Ing. D. Markus
Direktor und Professor

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE
(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 01 ATEX 1105 **Issue: 2**

(4) Product: Control and Signal Device type 8040/*****-** *** * ***-** *** * ***-** *** * *** and 8040/**-V30-***-*

(5) Manufacturer: R. STAHL Schaltgeräte GmbH

(6) Address: Am Bahnhof 30, 74638 Waldenburg, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 21-11127.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-18:2015+A1:2017, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex db eb ia ib mb IIA, IIB, IIC T6, T5 Gb

II 2 D Ex tb IIIC T80 °C, T95 °C Db

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, October 5, 2021
On behalf of PTB:

Dr.-Ing. D. Markus
Direktor und Professor

ZSEx001e c

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 01 ATEX 1105, Issue: 2**

(15) Description of Product

The Control and Signal Device, type 8040, consists of one or several plastic enclosures designed to type of protection Increased Safety "e". It can be equipped with flanges.

The enclosures can accommodate control and indicator components as well as terminals for intrinsically safe and non-intrinsically safe circuits. The area designated for intrinsically safe circuits will be marked, e.g. by means of light-blue colour.

Connection is by means of Ex-type cable glands.

All the installed and attached elements will be tested and certified under separate examination certificates.

Nomenclature

General Type Code

8040	/	*	*	*	*	*	-	* *	* *	*	* *	-	* *	* *	*	* *	-	* *	* *	*	* *
a	/	b	c	d	e	f		g													

a Type series

b Enclosure height
- 1 = 72 mm (low cover)
- 2 = 97 mm (high cover)
- 3 = combination of height 1 and 2

c Enclosure size
- 1 = 1-way
- 2 = 2-way
- 3 = 3-way
- 4 = combination of sizes

d Cable gland 8161/7-.LT
- 1 = without
- 2 = (n/n)
- 3 = M20x1.5 (Side C: 1x and Side D: 1x)
- 4 = M25x1.5 (Side C: 1x and Side D: 1x)
- 5 = (n/n)
- 6 = M20x1.5 (Side D: 2x – with flange, only)
- 7 = M20x1.5 (Side D: 1x)
- 8 = M25x1.5 (Side D: 1x)
- 9 = all other (according to customer order)

e Flange
- 0 = without flange
- 1 = Moulded flange (Side D)
- 2 = Metal flange (Side D)
- 3 = Moulded flange (Side C)
- 4 = Metal flange (Side C)

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5 = Moulded flange (Side C and D)
6 = Metal flange (Side C and D)
7 = Metal plate (Side C: with PE connection inside)
8 = Metal plate (Side D: with PE connection inside)
9 = Metal plate (Side C and D: with PE connection inside)

f Additional information X = without (according to type code)
Z = with information (according to customer order)

g Further information of built in components and actuators (not ex-relevant).

For list of components see 8040 0 000 030 0.

Information for items "4) ... 7)", as defined in the general type code, is documented in the product documentation. The product documentation is available via the serial number and the barcode on the name-plate.

Series Type Code

8040	/	*	*	-	V30	-	* * *	-	*
a	/	b	c	-	d	-	e	-	f

a Type series

b Enclosure height
1 = 72 mm (low cover)
2 = 97 mm (high cover)

c Enclosure size
1 = 1-way
2 = 2-way
3 = 3-way

d Design
V30 = Installation switch

e Assembly plan
033 = 2-pole on/off switch
035 = change over switch

f Further information of built-in components and actuators (not ex-relevant).

Technical data

Dimensions of the enclosures:

Type	Length [mm]	Width [mm]	Depth [mm]
8040/11	93	80	72
8040/12	139	80	72
8040/13	185	80	72
8040/22	139	80	95
8040/23	185	80	95

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 01 ATEX 1105, Issue: 2

Electrical data

Rated voltage*:	Max. 690 V
Rated current*:	Max. 6 A...16 A
Power input for indicator lights:	Max. 1.5 W
Rated cross section, installations:	Max. 6 mm²
Rated cross section, terminal block / connection terminals:	Max. 4 mm²

* depending on type of terminal and Ex components used.

Ambient temperature range

-60 °C to +74 °C

Temperature class acc. to the max. ambient temperature

Type 8040/11

Maximum installed configuration						
Current [A]	8082-8082-8082		8082-8010-8082		8008 (2-pole)	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2	73 °C	73 °C	62 °C	71 °C	-	-
4	72 °C	72 °C	60 °C	71 °C	74 °C	74 °C
6	68 °C	71 °C	59 °C	70 °C	-	-
10	-	-	-	-	70 °C	71 °C
16					55 °C	60 °C

Type 8040/12

Maximum installed configuration										
Current [A]	8082-8082-8082 8082-8082-8082		8082-8010-8082 8082-8010-8082		8008 (2-pole)		8405/6		8082-8082-8082-8082	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2	74 °C	74 °C	61 °C	70 °C	-	-	-	-	73 °C	73 °C
4	71 °C	71 °C	58 °C	70 °C	74 °C	74 °C	74 °C	74 °C	71 °C	71 °C
6	64 °C	68 °C	56 °C	66 °C	-	-	-	-	65 °C	69 °C
10	-	-	-	-	70 °C	71 °C	73 °C	73 °C	-	-
15	-	-	-	-	-	-	64 °C	68 °C	-	-
16					59 °C	62 °C				

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 01 ATEX 1105, Issue: 2

Type 8040/13

Maximum installed configuration						
Current [A]	8082-8082-8082 8082-8082-8082 8082-8082-8082		8082-8010-8082 8082-8010-8082 8082-8010-8082		8082-8082-8082-8082 80828082-8082-8082	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2	74 °C	74 °C	60 °C	69 °C	74 °C	74 °C
4	70 °C	70 °C	57 °C	67 °C	71 °C	71 °C
6	61 °C	65 °C	54 °C	63 °C	64 °C	66 °C

Maximum installed configuration				
Current [A]	8082-8010-8082 8008 (2-pole)		8405/6 8008 (2-pole)	
	T6 / T80 °C	T5 / T95 °C	T6 / T80 °C	T5 / T95 °C
2 / 4	62 °C	72 °C	-	-
4 / 10	54 °C	62 °C	-	-
6 / 16	44 °C	45 °C		
4 / 4	-	-	74 °C	74 °C
10 / 10	-	-	68 °C	70 °C
15 / 15	-	-	52 °C	57 °C

Type 8040/23

Maximum installed configuration		
Current [A]	8405/6 8008 (3-pole+Aux)	
	T6 / T80 °C	T5 / T95 °C
4 / 4	74 °C	74 °C
10 / 10	65 °C	67 °C
15 / 16	41 °C	48 °C

Note: Rated current of auxiliary contact is ≤ 1 A.

For further information see test protocol 11568.

Ingress protection according to EN IEC 60079-0, EN 60079-7 and EN 60079-31:
without flanges IP66
with flanges IP65
for enclosure combination IP64 with silicon gasket D0130-01 or D0308-00

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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The rated values are maximum values, the actual electrical values depend on the electrical equipment incorporated. Within the scope of these maximum permissible values and with due regard to the standards, the manufacturer specifies the final rated values dependent on the system conditions, mode of operation, utilization category, etc. The characteristic values of the intrinsically safe circuits are to be given by the manufacturer on his own responsibility.

The maximum permissible ambient temperature range of the terminal enclosure can be limited by the maximum permissible service temperature ranges of the separately certified components.

The composition of the type of protection marking will be based on the types of protection of components actually used.

The arrangement of the Ex marking will be based on the level of protection of components used.

Changes

1) Standard update to latest ATEX standards
2) Combination of enclosures possible
3) Wall thickness adjusted

(16) Test Report PTB Ex 21-11127

(17) Specific conditions of use

None

Notes for manufacturing and operation

Components attached or installed have to be of a technical standard that complies with the specifications on the cover sheet. They must be suited for the operating conditions and have a separate examination certificate. The special conditions specified for the components must be complied with and may have to be included in the type test. This also applies to components already specified in the technical description.

In order to ensure the ingress protection IP, the cover of the empty enclosure, the flange enclosure, the sealing frame and other Ex-components must be properly installed and with the appropriate torque. The fastening force of the connecting piece between two enclosures must be properly fastened with the correct torque and must not be influenced by other forces (e.g. wall mounting).

Equipment of the type of protection intrinsic safety "i" is to be installed in such a way that the distances, creepage distances and clearances between intrinsically safe circuits and non-intrinsically safe circuits comply with the requirements of EN 60079-11.

When more than one intrinsically safe circuit is used, the rules for interconnection are to be observed.

When components are installed into the empty enclosure, clearance and creepage distances specified in the standard EN 60079-7 and EN 60079-11 shall duly be complied with.

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 01 ATEX 1105, Issue: 2

The enclosure with a coating of polyester powder must not be used in areas affected by charge-producing processes, mechanical friction and separation processes, electron emission (e.g. in the vicinity of electrostatic coating equipment), and pneumatically conveyed dust.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Dr.-Ing. D. Markus
Direktor und Professor

Braunschweig, October 5, 2021

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
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EU Konformitätserklärung
EU Declaration of Conformity
EU-Izjava o sukladnosti

R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany
erklärt in alleiniger Verantwortung, *declares in its sole responsibility, izjavljuje u isključivoj odgovornosti,*

dass das Produkt: *that the product:* *da je proizvod:*	**Klemmenkästen** *Terminal Boxes* *Razvodna kutija*
Typ(en), *type(s), tip(ovi):*	**8146/1** **8146/2**

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
u skladu sa sljedećim direktivama i normama.

Richtlinie(n) / *Directive(s) / Direktiva(e)*	Norm(en) / *Standard(s) / Norma(e)*
2014/34/EU **ATEX-Richtlinie** *2014/34/EU* *ATEX Directive* *2014/34/UE* *Direktiva ATEX*	EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015 + A1:2018 EN 60079-11:2012 EN 60079-18:2015 + A1:2017 + AC:2018 EN 60079-28:2015 EN 60079-31:2014
Kennzeichnung, *marking, Oznaka:*	**II 2 G Ex db eb ia mb op pr IIC T6...T4 Gb** **II 2 G Ex ia IIC T6...T4 Gb** **CE0158** **II 2 D Ex tb IIIC T80 °C...T130 °C Db**
EU Baumusterprüfbescheinigung: *EU Type Examination Certificate:* *EU Potvrda o ispitivanju tipa:*	**PTB 01 ATEX 1016** (Physikalisch-Technische Bundesanstalt, Bundesallee 100, 38116 Braunschweig, Njemačka, NB0102)
Produktnormen nach Niederspannungsrichtlinie: *Product standards according to Low Voltage Directive:* *Standardi proizvoda prema Direktivi o niskom naponu:*	EN 61439-1:2011 EN 61439-2:2011
2014/30/EU **EMV-Richtlinie** *2014/30/EU* *EMC Directive* *2014/30/EU* *Direktiva o elektromagnetsko kompatibilnosti*	Nicht zutreffend nach Artikel 2, Absatz (2) d). *Not applicable according to article 2, paragraph (2) d).* Nije primjenjivo prema članku 2. stavak (2) d).
2011/65/EU **RoHS-Richtlinie** *2011/65/EU* *RoHS Directive* *2011/65/EU* *Direktiva RoHS*	EN IEC 63000:2018

Waldenburg, 2022-06-07

Ort und Datum
Place and date
Mjesto i datum

i.V.

Holger Semrau
Leiter Entwicklung Schaltgeräte
Director R&D Switchgear
Voditelj za razvoj sklopnih uređaja

i.V.

Jürgen Freimüller
Leiter Qualitätsmanagement
Director Quality Management
Voditelj upravljanja kvalitetom

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-Baumusterprüfbescheinigung

(2) Geräte oder Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 2014/34/EU**

(3) EU-Baumusterprüfbescheinigungsnummer

PTB 01 ATEX 1016 **Ausgabe: 1**

(4) Produkt: Klemmenkasten Typ 8146/1***-* und 8146/2***-*

(5) Hersteller: R. STAHL Schaltgeräte GmbH

(6) Anschrift: Am Bahnhof 30, 74638 Waldenburg (Württ.), Deutschland

(7) Die Bauart dieses Produkts sowie die verschiedenen zulässigen Ausführungen sind in der Anlage und den darin aufgeführten Unterlagen zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die Physikalisch-Technische Bundesanstalt, notifizierte Stelle Nr. 0102 gemäß Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014, bescheinigt, dass dieses Produkt die grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie erfüllt.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht PTB Ex 21-10099 festgehalten.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit
EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-18:2015+A1:2017, EN 60079-28:2015, EN 60079-31:2014

(10) Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Produkts in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Prüfung des festgelegten Produkts gemäß Richtlinie 2014/34/EU. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Bereitstellen auf dem Markt. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.

(12) Die Kennzeichnung des Produkts muss die folgenden Angaben enthalten:

II 2 G Ex db eb ia mb op pr IIA, IIB, IIC T6, T5, T4 Gb

II 2 D Ex tb IIIC T80 °C, T95 °C, T130 °C Db

Konformitätsbewertungsstelle, Sektor Explosionsschutz
Im Auftrag

Braunschweig, 22. März 2021

Dr.-Ing. D. Markus
Direktor und Professor

PHYSIKALISCH-TECHNISCHE BUNDESANSTALT

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EU-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
Diese EU-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden.
Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.

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(13) # Anlage

(14) **EU-Baumusterprüfbescheinigung PTB 01 ATEX 1016 , Ausgabe: 1**

(15) Beschreibung des Produkts

Der Klemmenkasten Typ 8146/1***-* und 8146/2***-* besteht aus einem Gehäuse aus Polyesterharz in der Zündschutzart Erhöhte Sicherheit "eb" und Schutz durch Gehäuse „tb", das mit Ex-Typ zertifizierten Flanschen ausgestattet werden kann.

Es können mehrere Klemmenkästen miteinander kombiniert werden. Der Anschluss erfolgt über Ex-Kabel- und Leitungseinführungen.

Der Klemmenkasten ist mit Klemmen für Stromkreise in der Zündschutzart Erhöhte Sicherheit "eb" oder Eigensicherheit "ia" oder Kombinationen aus beiden ausgestattet. Er kann optional mit Trennklemmen und Sicherungen ausgestattet sein. Die Komponenten für eigensichere Stromkreise sind gekennzeichnet, z. B. in hellblau.

Es können auch Bolzenklemmen mit Anschluss an Sammelschienen installiert werden.

Das Gehäuse sowie alle ein- und angebauten Komponenten sind nach ATEX-Prüfbescheinigung geprüft und bescheinigt.

Änderungen

1) Zusätzliche Ex-Komponenten zur Komponentenliste hinzugefügt
2) Normen-Update auf den neuesten ATEX Normenstand
3) Neue Zertifizierungsbetriebsanleitung

Typschlüssel

8146	/	*	*	*	*	-	*
a	/	b	c		d	-	e

a Typenreihen

b Gehäusetyp:
- 1 – Klemmenkasten Ex e (oder kombiniert Ex e und Ex i)
- 2 – Klemmenkasten Ex i

c Gehäuselänge x Breite [mm]:
- 00 – Kombination
- 03 – 112,5 x 112,5
- 04 – 170,0 x 112,5
- 24 – 227,0 x 112,5
- 05 – 170,0 x 170,0

EU-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
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06 – 227,0 x 170,0
07 – 340,5 x 170,0
B7 – 340,5 x 170,0
S7 – 340,5 x 170,0
08 – 340,5 x 340,5
09 – 681,5 x 340,5

d Gehäusehöhe [mm]:
0 – Kombination
1 – 91 (Gehäusehöhe 76 mm, Deckelhöhe 15 mm)
2 – 131 (Gehäusehöhe 76 mm, Deckelhöhe 55 mm)
3 – 150 (Gehäusehöhe 135 mm, Deckelhöhe 15 mm)
4 – 171 (Gehäusehöhe 76 mm, Deckelhöhe 95 mm)
5 – 190 (Gehäusehöhe 135 mm, Deckelhöhe 55 mm)
6 – 230 (Gehäusehöhe 135 mm, Deckelhöhe 95 mm)
7 – 104 (Gehäusehöhe 76 mm, Deckelhöhe 28 mm)

e Weitere Informationen ohne Relevanz für den Explosionsschutz

Elektrische Daten

Rated voltage*	Max 1100 V AC/DC
	Max. 750 V with bolt-type screw terminals
Rated current*	Max. 500 A
	Max. 315 A for T6 with bolt-type screw terminals
	Max. 400 A for T5 with bolt-type screw terminals
Rated cross section (conductor)*	Max. 300 mm²
	Max. 185 mm² with bolt-type screw terminals and connection with cable lugs
*) depending on terminal type and Ex components used	

Umgebungstemperaturbereich

Umgebungstemperaturbereich abhängig von der verwendeten Dichtung:

Dichtung 1 (D0075)	-60 °C bis +100 °C
Dichtung 2 (D0121)	-20 °C bis +60 °C

EU-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
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Schutz durch Gehäuse nach IEC EN 60079-0, EN 60079-7 und EN 60079-31:
abhängig von den verbauten Ex-Komponenten oder Ex Geräten

Die Bemessungswerte sind Höchstwerte, die tatsächlichen elektrischen Werte werden von den eingebauten elektrischen Betriebsmitteln bestimmt. Der Hersteller legt im Rahmen dieser Grenzwerte bei Einhaltung der zutreffenden Normen und abhängig von Netzbedingungen, Betriebsart, Gebrauchskategorie usw. die endgültigen Bemessungswerte fest. Die Kennwerte der eigensicheren Stromkreise werden vom Hersteller in eigener Verantwortung festgelegt.

Der maximal zulässige Bereich der Umgebungstemperatur des Klemmenkastens kann durch die maximal zulässige Betriebstemperatur der getrennt bescheinigten Komponenten eingeschränkt werden.

Die Zusammensetzung des Zündschutzart-Kennzeichnung richtet sich nach den Zündschutzarten der jeweils verwendeten Komponenten.

(16) Prüfbericht PTB Ex 21-10099

(17) Besondere Bedingungen

Keine.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen

Erfüllt durch Übereinstimmung mit den vorgenannten Normen.

Nach Artikel 41 der Richtlinie 2014/34/EU dürfen EG-Baumusterprüfbescheinigungen nach Richtlinie 94/9/EG, die bereits vor dem Datum der Anwendung von Richtlinie 2014/34/EU (20. April 2016) bestanden, so betrachtet werden, als wenn sie bereits in Übereinstimmung mit der Richtlinie 2014/34/EU ausgestellt wurden. Mit Genehmigung der Europäischen Kommission dürfen Ergänzungen zu solchen EG-Baumusterprüfbescheinigungen und neue Ausgaben solcher Zertifikate weiterhin die vor dem 20. April 2016 ausgestellte originale Zertifikatsnummer tragen.

Konformitätsbewertungsstelle, Sektor Explosionsschutz — Braunschweig, 22. März 2021
Im Auftrag

Dr.-Ing. D. Markus
Direktor und Professor

EU-Baumusterprüfbescheinigungen ohne Unterschrift und ohne Siegel haben keine Gültigkeit.
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Auszüge oder Änderungen bedürfen der Genehmigung der Physikalisch-Technischen Bundesanstalt.

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Nationales Metrologieinstitut

(1) # EU-TYPE EXAMINATION CERTIFICATE

(Translation)

(2) Equipment or Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 01 ATEX 1016 **Issue: 1**

(4) Product: Terminal box type 8146/1***-* und 8146/2***-*

(5) Manufacturer: R. STAHL Schaltgeräte GmbH

(6) Address: Am Bahnhof 30, 74638 Waldenburg (Württ.), Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 21-10099.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60079-18:2015+A1:2017, EN 60079-28:2015, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex db eb ia mb op pr IIA, IIB, IIC T6, T5, T4 Gb

II 2 D Ex tb IIIC T80 °C, T95 °C, T130 °C Db

Konformitätsbewertungsstelle, Sektor Explosionsschutz Braunschweig, March 22, 2021
On behalf of PTB:

Dr.-Ing. D. Markus
Direktor und Professor

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EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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(13) # SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 01 ATEX 1016 , Issue: 1**

(15) Description of Product

The Terminal Box type 8146/1***-* and 8146/2***-* consists of enclosures out of polyester resin in the type of protection Increased Safety "eb" and Protection by Enclosure “tb”, which may be provided with Ex-type certified flanges. Several boxes can be combined with each other. The connection is made by Ex-cable entries.

The Terminal Box is equipped with terminals for circuits in the type of protection Increased Safety "eb" or Intrinsic Safety "ia" or combinations of both. It may optionally be provided with isolating terminals and fuses. The components for intrinsically safe circuits are marked, e.g. in light blue.

Stud terminals connected to busbars can also be installed.

The empty enclosures as well as all mounted and attached components have been tested and certified under an ATEX examination certificate.

Changes

1) Additional Ex components added to list of components
2) Standard update to latest ATEX standards
3) New Certification Instruction

Nomenclature

8146	/	*	*	*	*	-	*
a	/	b	c		d	-	e

a Type series

b Design:
- 1 – Terminal Box Ex e (or combined Ex e and Ex i)
- 2 – Terminal Box Ex i

c Enclosure length x width [mm]:
- 00 – Combination
- 03 – 112.5 x 112.5
- 04 – 170.0 x 112.5
- 24 – 227.0 x 112.5
- 05 – 170.0 x 170.0
- 06 – 227.0 x 170.0
- 07 – 340.5 x 170.0
- B7 – 340.5 x 170.0

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 01 ATEX 1016 , Issue: 1

S7 – 340.5 x 170.0
08 – 340.5 x 340.5
09 – 681.5 x 340.5

d Enclosure height [mm]:
0 – Combination
1 – 91 (Enclosure height 76 mm, Cover height 15 mm)
2 – 131 (Enclosure height 76 mm, Cover height 55 mm)
3 – 150 (Enclosure height 135 mm, Cover height 15 mm)
4 – 171 (Enclosure height 76 mm, Cover height 95 mm)
5 – 190 (Enclosure height 135 mm, Cover height 55 mm)
6 – 230 (Enclosure height 135 mm, Cover height 95 mm)
7 – 104 (Enclosure height 76 mm, Cover height 28 mm)

e Further information without relevance to explosion protection

Electrical data

Rated voltage*	Max 1100 V AC/DC
	Max. 750 V with bolt-type screw terminals
Rated current*	Max. 500 A
	Max. 315 A for T6 with bolt-type screw terminals
	Max. 400 A for T5 with bolt-type screw terminals
Rated cross section (conductor)*	Max. 300 mm²
	Max. 185 mm² with bolt-type screw terminals and connection with cable lugs
*) depending on terminal type and Ex components used	

Ambient temperature range

Ambient temperature range dependent on the gasket:

Gasket 1 (D0075)	-60 °C to +100 °C
Gasket 2 (D00121)	-20 °C to +60 °C

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 01 ATEX 1016 , Issue: 1

Ingress protection according to IEC 60079-0, IEC 60079-7 and IEC 60079-31:
depends on the assembled Ex components or Ex equipments

The rated values are maximum values, the actual electrical values depend on the electrical equipment incorporated. Within the scope of these maximum permissible values and with due regard to the standards, the manufacturer specifies the final rated values dependent on the system conditions, mode of operation, utilization category, etc. The characteristic values of the intrinsically safe circuits are to be given by the manufacturer on his own responsibility.

The maximum permissible ambient temperature range of the terminal enclosure can be limited by the maximum permissible service temperature ranges of the separately certified components.

The composition of the type of protection marking will be based on the types of protection of components actually used.

(16) Test Report PTB Ex 21-10099

(17) Specific conditions of use

None.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz — Braunschweig, March 22, 2021
On behalf of PTB:

Dr.-Ing. D. Markus
Direktor und Professor

EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt.
In case of dispute, the German text shall prevail.

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EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration de Conformité UE

R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany
erklärt in alleiniger Verantwortung, *declares in its sole responsibility, déclare sous sa seule responsabilité,*

dass das Produkt: *that the product:* *que le produit:*	**LED Notlichtleuchte** *LED Emergency Luminaire* *LED Luminaire de secours*
Typ(en), *type(s), type(s):*	**6409/4...**

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) / *Directive(s) / Directive(s)*	**Norm(en)** / *Standard(s) / Norme(s)*
2014/34/EU **ATEX-Richtlinie** *2014/34/EU ATEX Directive* *2014/34/UE Directive ATEX*	EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015+A1:2018 EN 60079-18:2015+A1:2017 EN 60079-28:2015 EN 60079-31:2014
Kennzeichnung, *marking, marquage:*	**II 3 G Ex db ec IIC T4 Gc** **II 3 G Ex db ec mb IIC T4 Gc** **II 3 D Ex tc IIIC T100 °C Dc** **II 2 D Ex tb op is IIIC T100 °C Db** CE 0158
EU-Baumusterprüfbescheinigung: *EU Type Examination Certificate:* *Attestation d'examen UE de type:*	**IBExU 16 ATEX 1233** (IBExU Institut für Sicherheitstechnik GmbH Fuchsmühlenweg 7, 09599 Freiberg, Germany)
Produktnormen nach Niederspannungsrichtlinie: *Product standards according to Low Voltage Directive:* *Normes des produit pour la Directive Basse Tension:*	EN 60598-1:2015+A1:2018 EN IEC 60598-2-22:2022 EN 62471:2008
2014/30/EU **EMV-Richtlinie** *2014/30/EU EMC Directive* *2014/30/UE Directive CEM*	EN 61547:2009 EN IEC 55015:2019+A11:2020 EN 61000-3-2:2014 EN 61000-3-3:2013
2011/65/EU **RoHS-Richtlinie** *2011/65/EU RoHS Directive* *2011/65/UE Directive RoHS*	EN IEC 63000:2018

Waldenburg, 2023-03-07

Ort und Datum
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[1] EU-BAUMUSTERPRÜFBESCHEINIGUNG

[2] Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen, Richtlinie 2014/34/EU

[3] EU-Baumusterprüfbescheinigung Nummer **IBExU16ATEX1233** | Ausgabe 3

[4] Produkt: **LED-Notlichtleuchte**
Typ: 6409/1. und 6409/4.

[5] Hersteller: R. STAHL Schaltgeräte GmbH

[6] Anschrift: Am Bahnhof 30
74638 Waldenburg
GERMANY

[7] Dieses Produkt sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Bescheinigung sowie den darin aufgeführten Unterlagen festgelegt.

[8] IBExU Institut für Sicherheitstechnik GmbH, notifizierte Stelle mit der Nummer 0637 in Übereinstimmung mit Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014, bestätigt, dass dieses Produkt die wesentlichen Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen aus Anhang II der Richtlinie erfüllt.

Die Untersuchungs- und Prüfergebnisse werden in dem vertraulichen Prüfbericht IB-18-3-0162 festgehalten.

[9] Die Beachtung der wesentlichen Sicherheits- und Gesundheitsanforderungen wurde in Übereinstimmung mit folgenden Normen gewährleistet:
EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015 EN 60079-18:2015
EN 60079-28:2015 EN 60079-31:2014
Hiervon ausgenommen sind jene Anforderungen, die unter Punkt [18] der Anlage aufgelistet werden.

[10] Ein „X" hinter der Bescheinigungsnummer weist darauf hin, dass das Produkt den besonderen Bedingungen für die Verwendung unterliegt, die in der Anlage zu dieser Bescheinigung festgehalten sind.

[11] Diese EU-Baumusterprüfbescheinigung bezieht sich ausschließlich auf die Konzeption und den Bau des angegebenen Produkts. Für den Fertigungsprozess und die Bereitstellung dieses Produkts gelten weitere Anforderungen der Richtlinie. Diese fallen jedoch nicht in den Anwendungsbereich dieser Bescheinigung.

[12] Die Kennzeichnung des Produkts muss Folgendes beinhalten:

Ex II 3G Ex db ec IIC T4 Gc
Ex II 3G Ex db ec mb IIC T4 Gc
Ex II 3D Ex tc IIIC T100°C Dc
Ex II 2D Ex tb op is IIIC T100°C Db
$-30\ °C \leq T_a \leq +50/+55/+60\ °C$

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A. Henker

Dipl.-Ing. (FH) A. Henker

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH * Kenn-Nr. 0637 *
- Siegel -
(notifizierte Stelle Nummer 0637)

Bescheinigungen ohne Siegel und Unterschrift haben keine Gültigkeit. Bescheinigungen dürfen nur vollständig und unverändert vervielfältigt werden.

Freiberg, 04.07.2019

[13] **Anlage**

[14] **Bescheinigung Nummer IBExU16ATEX1233** | Ausgabe 3

[15] **Beschreibung des Produkts**

Die LED-Notlichtleuchte Typ 6409/1. und 6409/4. ist eine LED-Leuchte mit Notlichtfunktion für den Einsatz in gas- und staubexplosionsgefährdeten Bereichen der Zonen 2, 21 und 22. Die Leuchte besteht aus einem Polyestergehäuse, einer Montageplatte / Reflektor mit LED-Baugruppen, LED-Betriebsgerät und Anschlussklemmen sowie einer transparenten Abdeckung aus Polycarbonat. Die Leuchte ist zusätzlich mit einem austauschbaren Batterieblock für die Notlichtfunktion ausgestattet. Der Batterieblock (7 Ah oder 4 Ah) wird in einem separaten Gehäuse montiert, das seitlich an der Leuchte angebracht ist. Alternativ kann der kleinere Batterieblock (4 Ah) mit angepasster Bauform auch direkt in das Leuchtengehäuse integriert werden. Die Leuchte ist für den Einsatz im Innen- und Außenbereich vorgesehen.

Technische Daten:

- Nenneingangsspannung: 110 V...240 V AC
  110 V...250 V DC
- Nenneingangsleistung: 15 W (Typ 6409/11.)
  28 W (Typ 6409/12. und 6409/412.)
  52 W (Typ 6409/14. und 6409/414.)
- Batterie: NiCd 6 V / 7 Ah
  NiCd 6 V / 4 Ah
- Optionale DALI-Schnittstelle: (gemäß IEC 62386-207): ≤ 22,5 V DC; typ. ≤ 2 mA (250 mA kurzzeitig)
- Durchverdrahtung: bis 3 x 16 A
- Umgebungstemperatur: -30 °C...+60 °C (ohne Durchverdrahtung)
  -30 °C...+55 °C (Durchverdrahtung 3 x 10 A)
  -30 °C...+50 °C (Durchverdrahtung 3 x 16 A)

Varianten:

Leuchtentyp	6409/11.	6409/12. und 6409/412.	6409/14. und 6409/414.
Anzahl LEDs	12 LEDs	24 LEDs (6409/12.) 96 oder 120 LEDs (6409/412.)	48 LEDs (6409/14.) 192 oder 240 LEDs (6409/414.)
Nenneingangsleistung	15 W	28 W	52 W
Leuchtengröße*	Größe 2	Größe 2	Größe 4

(*) Größe 2 mit Batteriekasten: 857 mm × 184 mm × 125 mm (Länge × Breite × Höhe)
mit innenliegender Batterie: 700 mm × 184 mm × 125 mm (Länge × Breite × Höhe)
Größe 4 mit Batteriekasten: 1467 mm × 184 mm × 125 mm (Länge × Breite × Höhe)
mit innenliegender Batterie: 1310 mm × 184 mm × 125 mm (Länge × Breite × Höhe)

Änderungen gegenüber der Ausgabe 2 dieser Bescheinigung:

Änderung 1
Hinzufügen neuer Batteriezellentypen

Änderung 2
Hinzufügen einer neuen Leuchtenvariante ohne externen Batteriekasten. Der Batterieblock (4 Ah) mit angepasster Bauform wird direkt in das Leuchtengehäuse integriert.

Änderung 3
Die LED-Module des Leuchtentyps 6409/4. können mit einem neuen Typ von Mid-Power-LEDs ausgestattet werden. Die Gesamtzahl der LEDs erhöht sich auf 120 bzw. 240 pro Leuchte (abhängig vom Typ).

Änderung 4
Übereinstimmung mit der aktuellen Norm EN IEC 60079-0:2018

[16] **Prüfbericht**
Die Prüfergebnisse sind im vertraulichen Prüfbericht IB-18-3-0162 vom 28.06.2019 festgehalten.

Die Prüfunterlagen sind Teil des Prüfberichts und werden darin aufgelistet.

Zusammenfassung der Prüfergebnisse
Die LED-Notlichtleuchte Typ 6409/1. und 6409/4. genügt den Anforderungen des Explosionsschutzes für Geräte der Gruppe II, Kategorie 3G in der Zündschutzart erhöhte Sicherheit „e" für die Explosionsgruppe IIC sowie Kategorie 3D und 2D in der Zündschutzart Schutz durch Gehäuse „t" und inhärent sichere optische Strahlung „op is" für die Explosionsgruppe IIIC.

Sicherheitstechnische Hinweise:

- Das Kunststoffgehäuse ist gegen intensive elektrostatische Aufladevorgänge zu schützen. Die Oberfläche darf nur feucht gereinigt werden.
- Beim Austausch der Batterie sind die Hinweise des Herstellers in der Betriebsanleitung zu beachten.

[17] **Besondere Bedingungen für die Verwendung**
Keine

[18] **Wesentliche Sicherheits- und Gesundheitsanforderungen**
Zusätzlich zu den wesentlichen Sicherheits- und Gesundheitsanforderungen, die in den Anwendungsbereich der unter Punkt [9] genannten Normen fallen, wird Folgendes für dieses Produkt als relevant angesehen und die Konformität wird im Prüfbericht dargelegt:
Keine

[19] **Zeichnungen und Unterlagen**
Die Dokumente sind im Prüfbericht aufgelistet.

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09599 Freiberg, GERMANY

Im Auftrag

A. Henker

Dipl.-Ing. (FH) A. Henker

Freiberg, 04.07.2019

[1] EU-TYPE EXAMINATION CERTIFICATE - Translation

[2] Equipment or protective systems
intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-type examination certificate number **IBExU16ATEX1233** | Issue 3

[4] Product: **LED Emergency Light Fitting**
Type: 6409/1. and 6409/4.

[5] Manufacturer: R. STAHL Schaltgeräte GmbH

[6] Address: Am Bahnhof 30
74638 Waldenburg
GERMANY

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, notified body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-18-3-0162.

[9] Compliance with the essential health and safety requirements has been assured by compliance with:
EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015 EN 60079-18:2015
EN 60079-28:2015 EN 60079-31:2014
except in respect of those requirements listed at item [18] of the schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

Ⓔx II 3G Ex db ec IIC T4 Gc
Ⓔx II 3G Ex db ec mb IIC T4 Gc
Ⓔx II 3D Ex tc IIIC T100°C Dc
Ⓔx II 2D Ex tb op is IIIC T100°C Db
$-30\ °C \leq T_a \leq +50/+55/+60\ °C$

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order

Dipl.-Ing. (FH) A. Henker

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH * Kenn-Nr. 0637 *
- Seal -
(notified body number 0637)

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Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2019-07-04

[13] **Schedule**

[14] **Certificate number IBExU16ATEX1233** | Issue 3

[15] **Description of product**

The LED Emergency Light Fitting of type 6409/1. and 6409/4. is a LED luminaire with emergency light function that is suitable for use in areas with potentially explosive gas and dust atmospheres of zone 2, 21 and 22. The luminaire consists of a polyester enclosure, an assembly plate / reflector with LED modules, LED control gear and terminals, and a light-transmitting cover made of polycarbonate. Additionally, the luminaire is equipped with a replaceable battery pack for emergency light function. The battery pack (7 Ah or 4 Ah) is mounted in a separate enclosure that is attached to the side of the luminaire. Alternatively, the smaller battery pack (4 Ah) with adapted shape can also be integrated directly into the luminaire enclosure. The luminaire is intended for indoor and outdoor use.

Technical data:

- Nominal input voltage: 110 V...240 V AC
110 V...250 V DC
- Rated input power: 15 W (type 6409/11.)
28 W (type 6409/12. and 6409/412.)
52 W (type 6409/14. and 6409/414.)
- Battery: NiCd 6 V / 7 Ah
NiCd 6 V / 4 Ah
- Optional DALI interface: (acc. to IEC 62386-207) ≤ 22.5 V DC; typ. ≤ 2 mA (250 mA short-time)
- Through-wiring: up to 3 x 16 A
- Ambient temperature: -30 °C...+60 °C (without through-wiring)
-30 °C...+55 °C (through-wiring 3 x 10 A)
-30 °C...+50 °C (through-wiring 3 x 16 A)

Variants:

Luminaire type	6409/11.	6409/12. and 6409/412.	6409/14. and 6409/414.
Number of LEDs	12 LEDs	24 LEDs (6409/12.) 96 or 120 LEDs (6409/412.)	48 LEDs (6409/14.) 192 or 240 LEDs (6409/414.)
Rated input power	15 W	28 W	52 W
Luminaire size*	Size 2	Size 2	Size 4

(*) Size 2 with battery enclosure: 857 mm × 184 mm × 125 mm (length × width × height)
with internal battery: 700 mm × 184 mm × 125 mm (length × width × height)
Size 4 with battery enclosure: 1467 mm × 184 mm × 125 mm (length × width × height)
with internal battery: 1310 mm × 184 mm × 125 mm (length × width × height)

Variations compared to issue 2 of this certificate:

Variation 1
Addition of new battery cell types

Variation 2
Addition of a new version of the luminaire without external battery enclosure. The battery pack (4 Ah) with adapted shape is integrated directly into the luminaire enclosure.

Variation 3
The LED modules of luminaire type 6409/4. can also be equipped with a new type of mid-power LEDs. The total number of LEDs increases to 120, or resp., 240 per luminaire (depends on type).

Variation 4
Conformity with current standard EN IEC 60079-0:2018

[16] **Test report**
The test results are recorded in the confidential test report IB-18-3-0162 of 2019-06-28.

The test documents are part of the test report and they are listed there.

Summary of the test results
The LED Emergency Light Fitting type 6409/1. and 6409/4. complies with the requirements of explosion protection for electrical equipment of group II, category 3G in type of protection increased safety "e" for explosion group IIC, as wells as category 3D and 2D in type of protection dust ignition protection by enclosure "t" and inherently safe optical radiation "op is" for explosion group IIIC.

Safety instructions:

- The plastic housing has to be protected against intense electrostatic charging processes. Cleaning is permitted only with a damp cloth.
- For battery replacement see manufacturer's instructions in the operation manual.

[17] **Specific conditions of use**
None

[18] **Essential health and safety requirements**
In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:
None

[19] **Drawings and Documents**
The documents are listed in the test report.

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg, GERMANY

By order

Dipl.-Ing. (FH) A. Henker

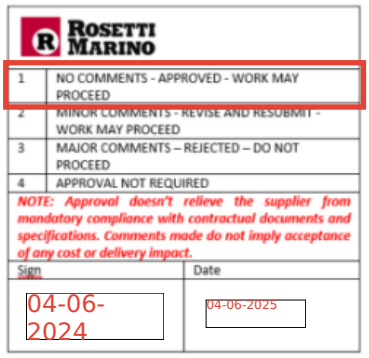
Freiberg, 2019-07-04

Base Load Power Hub (BLPH)

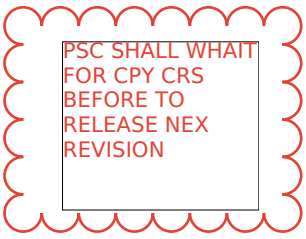
WATER TREATMENT PACKAGE A-50000

INSTALLATION, OPERATING AND MAINTENANCE MANUAL

Document Number: 1724000448-MAC-SP-00032



Document Class: 3



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00	28/11/2024	Issue for Information (IFI)	PSC	WR	RM

PSC DOC. REF. PK2885-G-007

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Revision / Change Log

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1	
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Refer to Table 2 and Table 3.

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

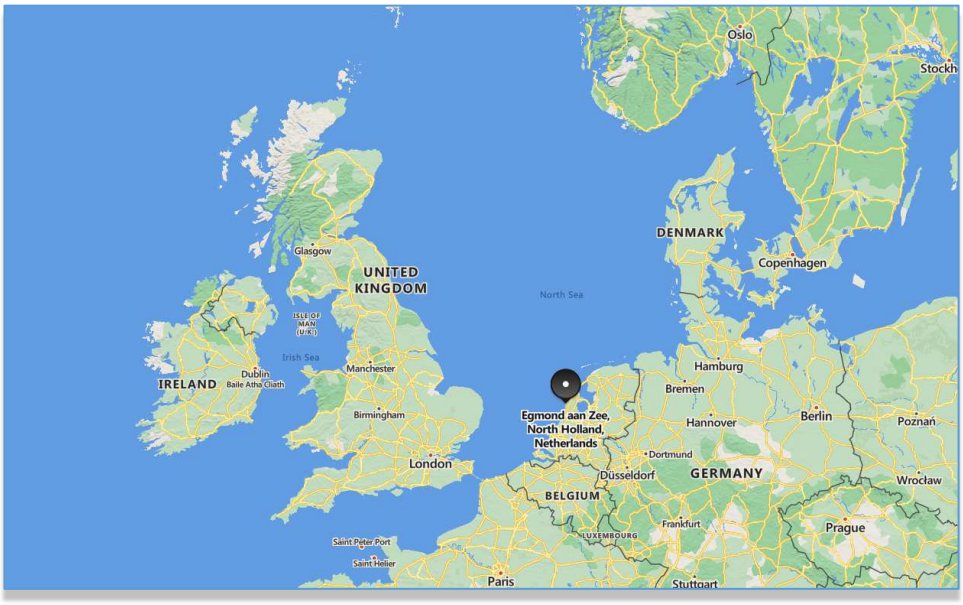


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

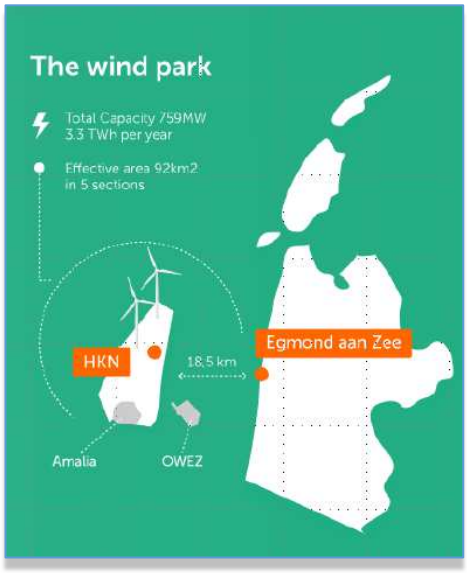


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

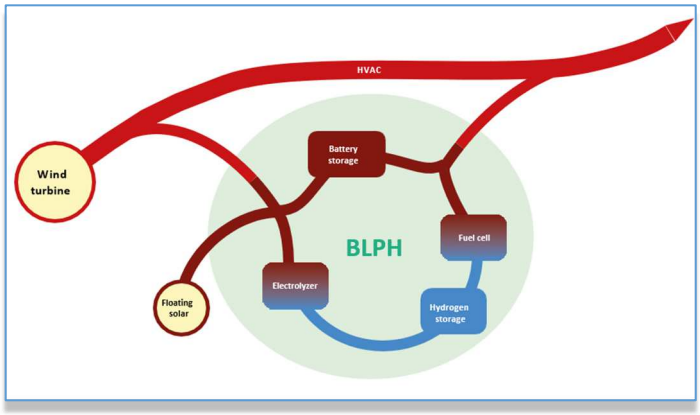


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 DOCUMENT SCOPE

This Operation & Maintenance Manual describes the procedures recommended by PSC Engineering & Contracting S.p.A. for operation, maintenance and repairing of the supplied Water Treatment Package and/or its components.

PSC reserves the right to modify such procedures and/or instructions.

All the instructions must be carefully read by the personnel that will be in charge for the use of the unit prior to start up. A careful use of the procedures described in this manual will guarantee the best and long lasting performance of the equipment.

The Operating and Maintenance Manual must be kept with care and must be forwarded along with the equipment in case of property change. The manual must be kept clean and fully readable. No portion of the manual must be removed, teared or modified. The manual must be stored in a dry clean place, far from heating sources and as close as possible to the related equipment.

The User accepts the responsibility of any operation trouble or warranty void due to incorrect use of the procedures and instructions described in this manual.

The User can ask assistance to PSC for any trouble connected with the use of the manual.

In case of revisions of the manual in one or more chapters, it is responsibility of the User to replace the old parts of the manual with the new ones and to update the revision index.

The manual is dedicated to: Installer, Operator and all qualified personnel in charge of equipment use and maintenance.

We specify that "OPERATOR" is intended as the person in charge of equipment use, set up, cleaning and ordinary maintenance execution.

"QUALIFIED PERSONNEL or QUALIFIED OPERATOR" is intended as persons who have attended specialization courses, etc. and have experience regarding the installation, use, maintenance, repairing and transport of the equipment.

"EXPOSED PERSON" is intended as the person whose presence in areas near or within the unit that may be dangerous for the safety and health of the person himself.

Water Treatment Package is supplied for professional use therefore its operation must be executed only by qualified personnel that must be:

- adult;
- physically and mentally able to make technical operations;
- trained and instructed about the use and maintenance of the equipment;

- able to fully understand the manual and all safety prescriptions.
- aware of emergency procedures.

2.1 PROPERTY CLAUSE

All what included in this manual is property of PSC and cannot be copied, forwarded or used for other scopes neither directly or indirectly.

It can be used only as a reference guide for the supplied equipment and shall not be forwarded to third party for examination without written approval from PSC.

2.2 RESPONSIBILITY

PSC's supply is guaranteed against defects in materials and workmanship for a period defined under contract from the date of the FAT (or from the "goods ready for shipment" date if no FAT has been performed).

PSC accepts, during the validity of the warranty period, to repair and, if necessary, to replace within a reasonable number of days and free of charge the defective parts of PSC's supply - the costs to arrange and send the material(s) to PSC designated workshop shall be at Client' care.

PSC warranty does not cover defects or damages caused by mishandling, improper use, improper operation or caused by events of force majeure.

PSC warranty does not cover the intervention or services at site of PSC's technician(s) but only the repair of the part c/o PSC designated workshop (or the replacement of the damaged part that cannot be repaired) – transport arrangement and costs shall be at Client' care.

PSC warranty will expire if any personnel intervention occurs without the previous written approval of PSC.

Commissioning or Start-Up performed without written approval of PSC shall be considered as acts of invalidation of the warranty, from the date of commissioning or start-up, whichever may happen.

ATTENTION:

- Activities of dismantling, reassembling, modifying, handling of chemicals (or powders), changes to the supply (including software or hardware), replacing of parts, performing of technical assistance, provision and installation of spare parts and/or devices that may alter the original supply, maintenance and/or repair to be performed on PSC's package(s) or part(s) of PSC products or supply that are not authorized without PSC written consent, will result in an immediate termination of contractual guarantees.
- Any part must be supplied by PSC and any work shall be performed by PSC' authorized personnel during the contract warranty period.
- During warranty period any site activity of dismantling, remounting, modifying, handling chemicals (or powders), changes to the supply (software or hardware), replacing of parts, technical assistance shall be performed by PSC authorized personnel or under PSC's personnel supervision who will be available at daily rate(s).

- Using parts supplied through alternative sources will have the following consequences:

1. voiding of any remaining warranties
2. invalidation of any compliance certifications (e.g., RoHS, CE, ATEX, IECEx, UKCA, INMETRO, Division 2, UL, etc.)
3. improper operation / misuse of equipment
4. reduced lifetime of equipment and associated components.

PSC will not guarantee the performance(s) of the equipment from the date of replacement of any part supplied through alternative sources without PSC's previous written consent during the contractual warranty period.

3 GENERAL INFORMATION

3.1 MANUFACTURER DATA

PSC Engineering & Contracting S.p.A.

Via S. Antonio da Padova, 6/A

20813 Bovisio Masciago

Monza e Brianza, Italy

www.pscengineering.com

Tel.: +39.0362.571113

Fax: +39.0362.571115

The warranty period of the unit is according to contractual conditions (36 calendar months from the issuance of Completion Certificate issued by Client, or 48 calendar months from the date of actual delivery of the goods, whichever expires first). Warranty conditions for repair/replace of defective components are according to contractual conditions.

Any modification done by the user without written authorization from PSC will void the warranty and will release PSC from any responsibility in case of damages to equipment or persons. Same applies when non-original spare parts are used.

For all the above we strongly recommend contacting our after-sale office for information or technical assistance.

3.2 SAFETY RULES

Customer shall make sure that installation, start up, maintenance and operation are executed according to the safety rules applicable in the country where the unit is operating.



WARNING: the following manual sections contain safety information, warnings and cautions both mechanical and electrical that can result in bodily harm and/or equipment damage if ignored!

DO NOT operate or service this equipment until after reading this Operation and Maintenance Manual and the safety information it contains. When installing, operating, or performing maintenance on this equipment, always observe caution and warning notices.

Design and Manufacture of all PSC equipment is with due consideration and care for generally accepted safety standards. However, like any mechanical device, the proper and safe performance of this equipment depends upon using sound and prudent operating, maintenance, and servicing procedures by properly trained personnel.

For personal protection and the protection of others:

- Follow the safety guidelines outlined in this manual.
- Form safe working habits by incorporating and abiding by these guidelines in the daily work routine.
- Keep this manual available for review.

Always operate the system within the safety operating guidelines of this manual and the facility where the system is located.

DO NOT:

- Prevent the operation of any safety features.
- Remove the safety guards.
- Operate this equipment with any of the safety devices bypassed or the guards removed. Only qualified personnel should operate this machine.
- Perform service or maintenance procedures when the equipment/machine is running or toxic materials are present.

3.2.1 Safety and operation indicators and symbols

The following highlighted boxes indicate important safety and process instructions or information.

IMPORTANT:



These statements indicate special attention be given a particular procedure or information to prevent damage to equipment, false readings, or disruption to a process.

CAUTION:



Caution indicators identify that potential personal hazards and hardware, or product damage exist with

the procedure and provide information for prevention.

CAUTION:



This lightning symbol indicates that a dangerous voltage or other electrical hazard is present and may constitute a risk of electrical shock with the potential for BODILY HARM.

WARNING:



THIS INDICATES THAT THERE IS AN IMMEDIATE DANGER ASSOCIATED WITH A PARTICULAR PROCEDURE THAT COULD CAUSE BODILY HARM. EXTREME CAUTION MUST BE EXERCISED.

IMPORTANT:



The above symbols and their combinations thereof, provide emphasis to important aspects of safety and the operation of this system.

NOTE: ALL information contained in this document is important for the safe and efficient operation of this system.

3.2.2 Operation safety

Only qualified or authorized personnel should be within the operating zone when there is power applied to the equipment control circuits or when the equipment is in operation. Use a brightly painted guardrail and/or warning strips to define an operating zone. Always operate the system within the safety guidelines of the facility and/or country where the system is located.



CAUTION: Follow all site procedures regarding toxic, bio-hazardous, or corrosive process materials. Any solution drained from the system into a common drain must meet the requirements and/or standards set by the governing authority for waste disposal in the affected community/area.

DO NOT:

- Operate any equipment until thoroughly trained in all facets of its operation.
- Operate faulty or damaged equipment. Make sure that the performance of proper service and maintenance procedures on all equipment is up to date.
- Start any equipment until issuing warnings to all non-essential personnel in the area. After issuing warnings, verify that all non-essential personnel have moved outside the operating zone.

- Have loose clothing, neckties, necklaces, or unrestrained long hair near any operating equipment. These restricted items include rings, watches, bracelets, and other jewelry.
- Place fingers, hands, or any other part of your body on or into any equipment or near moving parts when the power is on.
- Touch surfaces that are in temperature range above 120°F (49°C) or below 0°F (-18°C).
- Operate any equipment if the removal or disconnection of a safety device or guard has occurred.
- Operate any equipment above or below specified speeds, pressures, or temperatures.
- Remove warning labels or signs that appear on any equipment. Replace torn, worn, and unreadable warning markers immediately.
- Sit, stand, kneel, or lay on anything that may cause you to fall against the equipment.
- Perform any unauthorized activity around or on any equipment at any time. This is both dangerous and prohibited.

Attempt to clean any equipment while it is in operation. Always check that the equipment to be cleaned is in a safe condition (not powered, at temperature extremes, etc.) and that approved warning signs are posted and other personnel are aware that cleaning is in progress. Use lockout/tag-out procedures when applicable. Always use approved cleaning materials and dispose of properly.

ALWAYS:

- Remove any tools or other unauthorized objects from the operating zone before starting the equipment.
- Keep the operating zone free of obstacles that could cause a person to trip or fall against the equipment.
- Keep alert. Observe indicator lights, warnings, and alarms displayed on any equipment.
- Know the procedures for shutting down and starting up the system.
- Wear required safety equipment, including gloves, goggles and protective clothing.



SAFETY SHOES USE IS MANDATORY



GLOVES USE IS MANDATORY



SAFETY SCREEN USE IS MANDATORY



SAFETY CLOTHES USE IS MANDATORY

NOTE: air, nitrogen, hydraulic, steam and electrical power must be off when the equipment is not in use unless it is required for maintenance, testing, or troubleshooting purposes.

3.2.3 Safety inspection

BEFORE START-UP OR RE-START MAKE SURE THAT ALL:

- Guards and safety devices are installed and operative.
- Non-required personnel are clear of the equipment.
- Materials, tools, or other foreign objects that could cause bodily injury to personnel and/or damage the equipment are removed from the operating zone.
- Equipment is in operating condition by checking that:
  - ✓ All gas and fluids connections are tight and leak free
  - ✓ All moving components are properly lubricated
  - ✓ All process monitoring lights, horns, pressure gauges, and safety devices or indicators, detectors are in good working order.

3.2.4 Electrical safety

CAUTION:



PSC requires that licensed electricians or those authorized by the facility and/or country of installation perform all required electrical work.

This work includes but is not limited to:

- All electrical/electronic maintenance and service, including cleaning.
- Maintenance of the electrical system to avoid bodily harm to other personnel. All electrical power must be OFF before servicing the equipment unless required for maintenance, testing, or troubleshooting procedures.
- If power is required, EXTREME CAUTION must be observed by all personnel. If applicable, turn the MAIN DISCONNECT switch to the OFF (OPEN) position.
- If a MAIN DISCONNECT switch is not present, isolate (de-energize) the equipment of all power sources before any service takes place unless required for maintenance, testing, or troubleshooting procedures.

Under circumstances where maintenance, testing, or troubleshooting requires the power to be ON, make sure:

- Your tools and body are clear of the chassis.
- Proper grounding is in place.
- To take extra safety precautions in damp areas.
- To be alert and avoid outside distractions.

- To post proper ELECTRICAL HAZARD warning signs.
- To inform all personnel in the area that work is taking place with the electrical power turned on and applied to the equipment.

Always assume that the power is ON.

To remove the load from a circuit or equipment:

- OPEN the disconnect switch or the appropriate circuit breaker and lock it in the open position.
- Make sure that the circuit is OPEN by using the proper test equipment.

IMPORTANT: Check all test equipment at regular intervals for proper calibration and that it is functioning properly. Always check the calibration date tag on the instrument for last calibration date. If the test equipment does not have a tag listing the last calibration date,DO NOT USE IT and report it to management.

- It is mandatory that the power source be LOCKED OUT using a lock for which only the operator has the key. This prevents anyone from accidentally turning on the power while the operator is servicing the equipment/machine.
- Whenever locking-out any power source, always use standard LOCKOUT/TAG- OUT procedures (or the procedures required by the country of installation) when servicing the equipment, or the appropriate procedures of the governing body in the country where the equipment is located.

WARNING: DANGER – USING A POWER SOURCE OTHER THAN THAT SPECIFIED IN THIS MANUAL OR THE SYSTEM DRAWINGS CAN CAUSE BODILY HARM AND/OR PRODUCT DAMAGE! MAKE SURE THE POWER SUPPLY MEETS THE REQUIREMENTS AS SPECIFIED. IMPROPER GROUNDING CAN CAUSE ELECTRICAL SHOCK HAZARDS. MAKE SURE THAT PROPER GROUNDING, BONDING, AND OVERLOAD PROTECTIONS ARE IN FORCE. DO NOT DEFEAT THE GROUNDING OR POLARIZATION OF THE EQUIPMENT/MACHINE.

3.2.5 Chemical safety

This system uses chemicals which may need to be handled during installation and operation.

It is recommended, being chemicals used in the operation, to follow all storage and handling instructions and recommendation shown in the material safety data sheets (MSDS) of each chemical.

CAUTION:



Follow all site procedures regarding toxic, bio-hazardous, or corrosive process materials. Any solution drained during installation, or from the system, into a common drain must meet the requirements and/or standards set by the governing authority for waste disposal in the affected community/area.







WARNING:



CARE IS TO BE TAKEN WHEN HANDLING CHEMICAL CONTAINERS AND COMPONENTS. PERSONNEL HANDLING CHEMICAL CONTAINERS AND COMPONENTS ARE TO WEAR SUITABLE PERSONAL PROTECTION EQUIPMENT (PPE), E.G. – GLOVES, GOGGLES AND PROTECTIVE CLOTHING.

WARNING:



DO NOT USE ANY CHEMICALS OTHER THAN THOSE EXPLICITLY MENTIONED IN THIS MANUAL.

DO NOT MIX CHEMICALS.

3.2.6 Behavior in the event of fire and accidents

Precautions

- Always be prepared for accidents or fire!
- Ensure that first aid supplies (box of dressings, blankets etc.) and fire extinguishers are completely functional and ready to hand.
- Ensure that personnel are familiar with accident reporting, first aid and rescue equipment.
- Check fire and gas detector system is activated
- Check first aid and rescue equipment regularly.

- Keep access routes clear for emergency service.

Actions in the event of accidents

- Immediately use the emergency stop device to trigger an emergency stop.
- Activate the manual call point in case of fire or gas presence to signal the danger zone
- Evacuate and rescue people from the danger zone.
- Initiate first aid measures.
- Notify the rescue services.
- Notify those responsible at the place of use.
- Clear access routes for emergency service.

Precautions for accident prevention

- Safe handling of process additives (Provided by the customer).
- Incorrect handling of process additives can result in damage to health.
- Observe the safety data sheet issued by the manufacturer.
- Wear the personnel protective equipment.
- Remove any chemical spillage and leakage by clean water to dedicated drain
- Only eat, drink and smoke in the allowed areas for these.
- Keep eyewash bottles in the system area ready for use.
- Wash hands thoroughly after completion of the work, before breaks and going to the toilet.

Handling and Storage

The working area should also be well ventilated and equipped with functioning air supply. The following reservations must be maintained:

- Protect against heat and direct sunlight.
- Keep away from strong acid and alkaline materials and oxidation agents in order to avoid exothermal reactions.
- Keep away from ignition sources.

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4 REFERENCE DOCUMENTS

4.1 PSC DOCUMENTS

Doc. No.	Description
1724000448-MD-LIS-00001	SMIR - Supplier Master Information Register
1724000448-PR-PID-00013	P&I Diagram – Water Treatment Package
1724000448-MAC-CE-00004	Package Cause & Effect Matrix
1724000448-MAC-SP-00003	System Functional Description
1724000448-MAC-LIS-00020	Utilities, chemicals, consumables, lubricants consumption list
1724000448-IN-LIS-00021	Instrument list with set point/control/alarm/shutdown
1724000448-PP-DD-00012	Package 3D model
1724000448-EL-DG-00015	Package Interconnecting Diagram
1724000448-MAC-DA-00005	Container General Arrangement
1724000448-QC-PRO-00028	Performance Test Procedure at yard
1724000448-QC-PRO-00035	Handling, shipping, site installation

Table 1 – PSC Documents

4.2 SUBVENDOR IOM MANUALS

ITEM	SUPPLIER
Sea Water Coarse filter	ELFI
Electric Heater	MASTERWATT
Sand Filter	NOBEL
RO Pressure Vessels	PHOENIX / LG CHEM
Reverse Osmosis membranes	LG CHEM
Cartridge filters	EVERBLUE
Backwash pumps	GEMMECOTTI
SW Booster pumps	GEMMECOTTI
Fresh water pumps	GRUNDFOS
High pressure pumps	DANFOSS
Dosing pumps	GRUNDFOS

UV sterilizer	NOBEL
Softening Filter	NOBEL
Container Air Fan	STEGO
Container Electrical Heater	AC GRAF
F&G Detectors	SIA
Emergency luminaire	STAHAL
Pressure gauges	NUOVA FIMA
Ball valves	TRUST
Ball valves plastic	+GF+
PSV	COI TECHNOLOGY
Temperature sensor	+GF+
Conductivity sensor	+GF+
Pressure sensor	+GF+
Transmitter (P and T)	+GF+
pH meter	BÜRKERT
pH probe	BÜRKERT
Insertion fittings	BÜRKERT
Pressure gauges	NUOVA FIMA
Flow transmitter	BÜRKERT
Level transmitter	BÜRKERT
Conductivity meter	BÜRKERT
Conductivity meter	BÜRKERT
Hardness analyser	BÜRKERT
Pressure transmitter	WIKA
Variable frequency driver	SCHNEIDER
Multi-functional valve	GRUNDFOS

Table 2 – Subvendor IOM Manuals

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4.3 SAFETY DATA SHEET

POS.	ITEM	SUPPLIER
a	Antiscalant – EVERBLUE 600	EVERBLUE
b	Non oxidant biocide – EB BIOCIDE PLUS	EVERBLUE
c	Caustic soda	N.A.

Table 3 – MSDS

5 GENERAL DESCRIPTION

The purpose of this section is to describe the Water Treatment Package, treating sea water to supply 0.8 m^3/h of fresh water to feed the Electrolyser. The desalination plant is mounted inside a container, 40 feet High Cube, and will operate normally unmanned with minimal maintenance, approx. every 6 months. The operation is discontinuous: it is estimated to operate the package 45 times in 6 months, each operation lasts 8-12 hours.

The Water Treatment Package mainly consists of three process sections:

- Pretreatments
- Sea Water Reverse Osmosis
- Post-treatments

Other accessories to Water Treatment Package are:

- Container Electric Heaters and Container Air Fans
- F&G detection system

5.1 DESIGN DATA

Area classification:		safe area
Design temperature (mechanical):	+40	°C
Design low pressure (mechanical):	6	barg
Design high pressure (mechanical):	69	barg

5.1.1 Water quality inlet/outlet

PARAMETERS	MEASURING UNIT	SEA WATER INLET	FRESH WATER OUTLET
Flow Rate	(m^3/h)	2.5	0.8
Pressure	(barg)	4-5	4
TDS	(mg/l)	36682	540
Temperature	(°C)	1.3-23	10-23

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PARAMETERS	MEASURING UNIT	SEA WATER INLET	FRESH WATER OUTLET
TOC	(mg/l)	10	3
TSS	(mg/l)	10	
pH	(-)	8.2	7-7.9
Sulphates	(mg/l)	2800	
Bicarbonate	(mg/l)	150	
Chloride	(mg/l)	20310	
Calcium	(mg/l)	435	
Magnesium	(mg/l)	1410	
Sodium	(mg/l)	11150	
Potassium	(mg/l)	420	
Barium	(mg/l)	0.1	
Strontium	(mg/l)	0.6	
Total Iron	(mg/l)	0.02	0.1
Manganese	(mg/l)	0.01	0.05
Silica as SiO_2	(mg/l)	1	
Oil and grease	(mg/l)	0.1	0.1
Total Hardness	(°F)		0.9
Conductivity	(µS/cm)		703

Table 4 – Water quality inlet/outlet

5.1.2 Battery limits

TERMINAL POINT	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1 ½"	FLG	150#	RF	PVC	Sea water from intake pumps
TP-002	1"	FLG	150#	RF	PVC	Fresh water
TP-003	3"	FLG	150#	RF	PVC	Sea water drain
TP-005	1"	FLG	150#	RF	PP	Biocide to sea water intake
TP-006	1"	FLG	150#	RF	PP	Biocide to waste water tank
TP-007	1 ½"	FLG	150#	RF	PVC	Chemical drain
TP-008	½"	FLG	150#	RF	PVC	Container open drain

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TERMINAL POINT	DESCRIPTION
Terminal strips	For Main power feeding, analog, digital, motors
Junction Box 1	Panel Feeding 400 V, 50 Hz
Junction Box 2	UPS Feeding 230 V, 50Hz
Communication Card	Signals from/to ICCS
Communication Card	Signals from/to Fire & Gas Panel

Table 5 – Battery limits

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6 PRE-COMMISSIONING AND COMMISSIONING

6.1 UNIT RECEIPT AND INSPECTION

At time of receiving the Water Treatment Package, check immediately if there is any evident damage to any equipment due to transportation. Transportation damages shall be signaled immediately to the shipper.

The plant is delivered already installed inside the container.

In case of long term storage, please contact PSC to check the proper storage solution and procedure. Make sure that SWRO membranes are stored in a sheltered area, according to manufacturer's indication as per Attachment N° 7.

6.1.1 Visual inspection

After complete installation and placing of the container, the following site checks shall be done:

a) Visual checking of the outside of container, referring to construction drawing, including the following:
   - No visible damages to the following parts: walls, roof, floor, protection hood of the air intake, air fans and junction boxes.
   - External painting integrity.
   - Proper hydraulic tie-ins points connection (inlet, outlet, drainage, chemical dosage, etc.) specified in the P&IDs and lay-out documents. Drainage points to be free and at lowest point to assure a free flow.
   - All external interconnecting pipes shall have proper supports, to avoid stress loading to internal pipes inside the container.
   - Correct installation in horizontal level.
   - Correct opening and closing of each access door.
   - Check proper wiring of the two junction boxes on the container roof to client's DCS. For further detail see document 1724000448-EL-DG-00015 "Package Interconnecting Diagram".
   - Check container earthing connection to primary earthing system.

b) Visual checking of the items installed inside container, with reference project documents (drawings P&ID general Arrangement), including the following:
   - all equipment shall be properly located and well fixed.
   - all flanged and threaded connections shall be tight and aligned.
   - check opening and closing of each manual valve (including instrument root valve, drain and sampling points).

6.2 PRE-COMMISSIONING

Pre-commissioning phase occurs after construction and installation, and before the plant is put into operation. Pre-commissioning involves various activities to ensure all systems and components of the facility are properly installed, tested and ready for operation.

This section does not substitute the installation, operation and maintenance manuals for each equipment, but must be considered as general guidelines.

6.2.1 All the TP must be connected :

- TP-017: Sea water
- TP-02 Fresh water
- TP 03 Water drain to brine discharge caisson

6.2.2 Power UP



Electrical connections must be done by technical qualified personnel.

Before electrical power feeding, the wiring of power control panel 50-LP-001 shall be verified .

Power up the MCC and control panel (main power switch on) following this sequence step by step: Switch on internal lighting system;

- Switch on ambient electric heaters;
- Switch on PLC system;
- Switch on electronic field instruments and local panels (including F&G panel);
- Switch on motorized valves;
- Switch on pumps and process heater;

6.2.3 Pre-commissioning

The scope of this paragraph is to describe a procedure for the flushing and cleaning of the entire Water Treatment Package to be used as guideline.

After complete installation of the Water Treatment Package, all piping lines shall be flushed to remove any solid deposit and dirty matter (dust, plastic residue, organic matter, glue, grease, etc.) before installing SWRO membranes, cartridges and sand media filling.

The flushing shall be done by means of service water with low turbidity (5 NTU), no TSS presence or other substance and low salinity (TDS < 500 mg/l).

Service water shall be available at TP-017 at a minimum pressure of 4 barg and flowrate 2.5 m^3/h.

In the pre-commissioning phase, the main purpose is to flush the piping, to remove dust and residues, and check for any leakage. Before the activities it's necessary to perform a visual inspection and check again that:

- all manual isolation valves of any process equipment (pump, filter, tank, etc.) are closed.
- all manual isolation valves of any field instrument (transmitter, on-line analyzer and gauge) are opened.
- all manual drain valves and motorized drain valves (installed on storage tanks, chemical dosing tanks, lines and each filter, lines, etc.) are closed.
- All vent manual valves are open

Here below are listed the pre-commissioning activities necessary for any part of the plant before starting the Commissioning activities.

A-50003 Coarse Filter (self-cleaning filter) and H-50001 Heater

Feed service water by opening MV-500. Water will be discharged from drain MV-501 (use a flexible hose/pipe to drain water to disposal). After a short flushing time open 50-XV-020 and close MV-501. Flush the piping and the equipment A-50003 and H-50001. Open 50-XV-033 and A-50003 XV drain valve to discharge the flushing fluid into the Water Treatment Package drain.

S – 50001 Sand filter and T-50006

Open the inlet valve MV-506, M-509 and close the drain valve 50-XV-033 to flush the sand filter S-50001 and the tank T-50006. Open the vessel drain valve 50-XV-034 to discharge the flushing fluid into the Water Treatment Package drain. When the flushing is completed, close the drain valve 50-XV-034 and fill the vessel with clean water.

P-50002 A/B

Fill the pumps with clean water (without running it) opening manual valves MV-514, MV-516, MV-517, MV-519 and purge the air from the impellers.

Close manual valve MV-506, open partially MV-637 and start pump P-50002A. After some time stop pump P-50002A and start P-50002B. when the flushing of both pumps is complete stop the pumps and drain tank T-50006 opening valve 50-XV-034.

When the vessel is empty repeat flushing of S-50001 to fill again vessel T-50006.

During the following operation leave this section in flushing with valve 50-XV-034 closed in order to have the tank T-50006 always filled with water. If water is not used in the flushing operating downstream the excess will be drained through the vessel T-50006 overflow.

P-50003 A/B (Pumps)

Fill the pumps with clean water (without running it) opening manual valves MV-514, MV-519, MV-657, MV-659, MV-658 and 50-XV-021 or 50-XV-022 (automatic valves shall be opened one at a time) and purge the air from the impellers.

S-50002 A/B and S-50003 A/B - Filters (to be flushed one at a time)

Open valves MV-527 or MV-535 and fill the filters with clean water purging the air from the valve on the top (MV-528 and MV-529, MV 536 and MV-537).

When all the air is purged from filter's vent it's possible to close the filter's vent valves.

Open the filters drain valves MV-667, MV-668 or MV-669, MV-670.

Start pump P-50003A to flush filters S-50002A/S-50003A. When the flushing is finished stop the pumps and repeat with pump P-50003B to flush filters S-50002B/S-50003B.

After this operation will be possible to insert the cartridge: close the filter inlet/outlet valves MV-527/MV-531/MV-535/MV-539, open the filters drain valves MV-667/MV-668/MV-669/MV-670 and then open the filters vent valves MV-528/MV-529/MV-536/MV-537

When the filters are depressurized and drained it's possible to install the cartridges. See manufacturer's IOM for further details.

P-50004 A/B Pumps and A-50007 A/B Vessel (to be flushed one at a time)

The vessels A-50007A/B shall be flushed before installing membranes. Open valve MV-531 or MV-539 and fill the pumps P-50004A/B with clean water (without running it) and purge the air from the impeller.

Open valve 50-XV-027 or 50-XV-030 and start pump P-50003A or P-50003B respectively. Flush the vessel and drain water into Water Treatment System drain.

When the reject side of the membrane vessel is flushes open valves MV-643, MV-660, MV-662, MV-661 and 50-XV-026 (MV-646 for line B).

Close the valve 50-XV-027 or 50-XV-030 to flush the permeate side of the A-50007A or A-50007B respectively.

T-50008 Tanks

When the flushing of vessels A-50007A/B is completed, leave one of the vessel in flushing mode, open valve 50-XV-025 and close 50-XV-026. Fill the tank with clean service water until it is filled (Till the overflow) to eliminate the presence of processing residues, then empty the vessel opening valve 50-XV-035.

Repeat the rinsing few times to complete the flushing of T-50008 tank.

When the flushing is completed, close the drain valve 50-XV-035 and fill the vessel. The water will be used to flush the section downstream or will be drained through the vessel's overflow pipe.

P-50009 A/B

Open valves MV-561 and MV-564 and fill the pump with clean water (without running it) purging the air from the impeller.

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S-50004 Softener, S-50010 UV System

Open the valves MV-563, MV-566, MV-569, MV-663, MV-665, MV-664 and 50-XV-032. Start pump P-50009A or P-50009B and flush all the line discharging water into Water Treatment System drain.

T- 50002, T-50003 and T-50004 Tanks

Fill the tank with clean water until it is completely filled (overflow) to eliminate any manufacturing debris, then empty through the drain valve MV-574 (T-50002), MV-586 (T-50003) and MV-602 (T-50004).

P-50005 A/B (Caustic soda) and P 50006 A/B (Antiscalant)

Open valves:

- MV-575, MV-576, MV-577, MV-578, MV-579 for P-50005A/B
- MV-587, MV-588, MV-589, MV-590, MV-591 for P-50006A/B.

Start the pumps. The dosing pumps are already calibrated.

P-50005A/B will work through a pulse regulation managed by the PLC.

P-50006A/B will work through a set point that is set on the pump according to the process condition

P-50007 A/B (Biocide to container), P-50008 A/B (Biocide to sea water intake) and P-50010 A/B (Biocide to waste water tank)

Open valves MV-603 and:

- MV-604, MV-610, MV-609, MV-614 for pumps P-50007A/BMV-615, MV-620, MV-655, MV-622 for pumps P-50008A/B
- MV-625, MV-630, MV-656, MV-632 for pumps P-50010A/B

Start the pumps. The dosing pumps are already calibrated.

P-50007A/B will work through a set point that is set on the pump according to the process condition

Chemical Dosing pipes flushing when the dosing pumps are flushed, open the outlet manual valves to the dosing pipes to complete the flushing:

MV-582/MV-583/MV-649 to flush the caustic soda dosing pipe;

MV-594/MV-595/MV-523 to flush the antiscalant dosing pipe;

MV-607/MV-613/MV-503 to flush the biocide dosing pipe to container;

MV-618/MV624 to flush the biocide dosing pipe to sea water intake.

MV-628/MV634 to flush the biocide dosing pipe to waste water tank.

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6.3 COMMISSIONING

The scope of the commissioning procedure is to verify that the whole plant, running with sea water, does not show any fault and the plant, when started up, will operate smoothly.

The commissioning fluid will be sea water: available sea water quality shall be analyzed before commissioning to check if it is in compliance with section 5.1.1.

The operations will be performed step by step from HMI by trained personnel.

It is important that the operators have become familiar with HMI system and it is suggested that the operating staff attend the pre commissioning activities.

Commissioning operations mainly consist of following steps:

6.3.1 General visual checking

- All by-pass manual valve of each on-line analyzer shall be closed.
- All manual isolation valves for each chemical injection line shall be opened.
- At least one of the motorized valves 50-XV-021 and 50-XV-022 at SW Booster Pumps suction is opened.
- All motorized valves 50-XV-023, 50-XV-024, 50-XV-025, 50-XV-027, 50-XV-030, dedicated to SWRO automatic flushing are closed.
- Off-spec automatic motorized valves 50 XV-026 and 50-XV-032 shall be opened.
- Manual control valve MV-550 and MV-558 of each SWRO brine stream is fully opened.

6.3.2 Start of Container Electrical Heaters and Air Fans

- Start/stop N° 3 Container Air Fans HFA-50001A/B/C from local control panel (only nr.2 fans at one time).
- Start Container Electric Heater HHS-50001A/B, one at a time, from local control panel to check correct operation.

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6.3.3 Initial operation

Service water shall be available at PSC' battery limit at 2.5 m^3/h as flow rate and 4 barg as feed pressure.

Procedure

To avoid any damage, fouling or plugging of delicate items such as sea water reverse osmosis membranes, high pressure pumps and dosing pumps, proceed with commissioning **only if flushing operation has been done during pre-commissioning phase.**,.

Here below are listed the activities to be carefully followed:

- Check that every filter element is placed inside each dosing pump suction strainer.
- Cartridge filter elements shall be installed inside each filter (refer to manufacturer procedure in Attachment N° 8).
- **Any hydraulic leakage occurrence shall be repaired as soon as possible to avoid splashing and flooding inside a container.**
- **Dry and clean any spillage on the container floor.**

6.3.4 Sand filter loading

Proceed as follow, see also manufacturer IOM (Attachment):

- Unscrew the control valve (top cover of the sand filter).
- Keep the distribution pipe with bottom nozzle, exactly in the center of the vessel, while loading the media. Take care that media do not fall inside the pipe; it can be useful to put on the hole a scotch tape or similar, during the loading. It suggested to use a hand trowel and special funnel (supplied with filter) to load the filtering media inside the filter.
- Filtering shall be loaded according to the following order:
    - Quartz sand 2-3 mm (1st layer)
    - Quartz sand 1-2 mm (2nd layer)
    - Quartz sand 0.4-0.7 mm (3rd layer)
    - Anthracite (upper layer)

  Take care to flatten the surface of each layer of sand, before loading the next one.

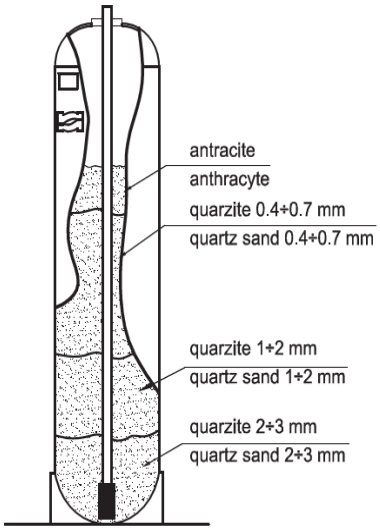


Figure 6 – Sand filter layers

- After the loading has been completed, remove the scotch tape, if used, and clean perfectly the thread hole of the vessel.
- Fill completely the Sand Filter with service water using a flexible hose pipe, without overflowing.
- Proceed in screwing on the control valve placed on top of the filter as before explained.
- Fill the Filtered Water Tank with service water and start the automatic backwashing sequence from local control panel to wash the filter media and to vent the entrapped air.
- Repeat the backwash sequence until that water outlet from filter has low turbidity.

6.3.5 SWRO membranes loading

- Depressurize and drain pressure vessel SWRO A-50007A/B opening valves 50-XV-027/MV-545 and 50-XV-030/MV-554. Remove both end caps of as per Sub-Vendor Instruction Manual (Attachment N° 6).
- Clean the inside of the pressure vessels if they are dirty. **Be careful not to scratch the inside surface of the pressure vessels.**
- Refer to Attachments, N° 6 and N° 7, Pressure vessel manual and element loading guidelines, TSB 102. Wear protective gloves during the membrane loading operation.
- Proceed to load six SWRO membranes in each SWRO pressure vessel, removing the original packing.

6.3.6 Chemical tanks first filling

- Protective clothing, gloves and glasses shall be worn during this operation.

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- Remove the tank top cover and, fill each chemical dosing tank with a portable drum pump up to half volume.
- To avoid chemicals cross contamination, the drum pump shall be washed and cleaned every time at the end of any refilling operation.
- Pay attention to avoid any chemical splashing and spillage. If they occur, dry and clean immediately.

6.3.7 Chemical dosing pumps filling and venting

- Turn the manual multifunctional valve in recycle position to vent air from the dosing pumps.
- Start each dosing pump from local control panel and wait for priming.
- Adjust manually the dosage flow rate of each dosing pump.
- When liquid only exits from the valve, then close it
- Check the pump calibration as per Sub-Vendor Manual
- Stop the dosing pumps.

6.3.8 Softener filter start up

The start-up of the unit consists of running a first regeneration cycle during which the column of resins and brine tank will be filled with water, all automatic features will be checked, and the unit will be prepared to start the service. During the start-up it is not required that salt is available inside the brine tank. At the end of the first regeneration, fill the brine tank with salt. See manufacturer IOM for further
To start up the unit, proceed as follows:

- Close both inlet and outlet valve
- Switch on electrical power
- Start a manual regeneration: press button "man/set" for 5 consecutive seconds, choose IMM using ▲ or ▼ and confirm with "man/set"
- Wait until the programmer reaches the backwash position, indicated on the display by 1C followed by a fixed number
- Disconnect electric power
- Open slowly and not completely the inlet valve. Water will enter from the bottom of the column as air will be expelled from the top to the drain
- When only water comes out, open completely the inlet valve and allow the water to flush until the water looks clear
- Using a pail, add water in the brine tank, until the water mark is approx. 30 cm from the bottom
- Switch on electrical power
- Wait until the regeneration is completed, checking that the suction of water from brine tank features correctly
- Open the outlet valve
- Put the salt into the brine tank (it can also be completely filled). Take care not to put salt inside the protection pipe.

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6.3.9 Sea water filling and venting of overall hydraulic circuit

- Check that no alarm is displayed to HMI, otherwise, recheck and resolve the relevant issue.
- Throttle the inlet manual valve MV-500 to reduce the inlet flow rate.
- Start Rosetti's seawater pump and flush the inlet line with seawater feeding, for approx. 10 min, draining it by sample point manual valve MV-501 and temporary connection with flexible hose to drain outside the container.
- Check feed seawater quality (visual low Turbidity, No significant TSS presence, Conductivity, No visible colour, NO visible free oil, NO odor).
- Check the operation of air vent valves MV-635.
- Close the previous sample point valve.
- Open automatic inlet valve 50-XV-020 to fill slowly the following items:
  - Coarse Filter A-50003
  - Process Electric Heater H-50001
  - Filtered Water Tank T-50006
- After 10 min open totally the inlet manual valve MV-500.
- Start biocide pump P-50007A or B to feed container, from local control panel.
- Before sending the filtered liquid to further steps, ensure through appropriate analysis (TSS -Total suspended solids, turbidity, particle count, Silt Density Index), that the quality of the filtered liquid is suitable to feed SWRO (refer to Attachment N° 7).
- When Filtered Water Tank level is high and the filtered water quality is within acceptable values, start SW Booster Pump P-50003A from local panel.
- Throttle the cartridge filters outlet manual valve MV-531.
- Check the operation of air vent valves MV-640 and MV-641.
- Fill the line and Cartridge Filters S-50002A, S-50003A and close the vent valve after only liquid overflowing.
- Open totally the manual outlet valve MV-531 and when the pressure is approx. > 2 barg at HP Pump suction, start the HP Pump P-50004A at low-speed rotation value from VFD panel.
- Proceed with the same steps described above to fill and vent SWRO line B.

6.3.10 Fresh water filling and venting of overall hydraulic circuit

- Fill the Fresh water tank T-50008 with service water.
- Throttle Fresh water pump delivery valves MV-563 and MV-566.
- Close 50-XV-031 valve and open 50-XV-032 valve.
- Start Fresh water pumps P-50009A/B, vent and prime the pump for 10 minutes.

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- Put the common pretreatment section and one SWRO line in automatic mode for plant start up from control panel.

6.4 PLANT ACTIVITIES AFTER START UP

Alter Water Treatment Package Plant started, the minimum activities required are the following:

- Remote monitoring of all process parameters (pressure, flowrate, conductivity, etc.).
- Increase High Pressure Pumps pressure in case of lower fresh water flowrate.
- Switch the SWRO line from stand-by to service and stop the previous operating SWRO line every week by remote, in order to use line A and line B for similar period.
- In case of any alarm signal or interlock activation, it is recommended a technical evaluation of the situation to identify the problem and plan the best solution procedure.

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7 MAINTENANCE

It is recommended to register all the checks and operations activities on a book. This kind of management will make easy to identify any unit malfunction.

Normal maintenance includes:

1. Replacement of cartridges in cartridge filters.
2. Check and refilling of chemicals.
3. Check of instrumentation (calibration of analysis instrument).
4. Check for any leakage.
5. Check the level of salt in the brine tank of the softener and refill it.
6. Replacement of RO membranes.

Extraordinary maintenance could include:

- Sand filter refilling or replacement.
- Maintenance or replacement of electric heating element.
- Maintenance or replacement of valves.
- Replacement of UV lamp.
- Maintenance of coarse filter

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7.1 REPLACEMENT OF CARTRIDGES

It is essential to replace the cartridges when the differential pressure (manometric difference between inlet of First stage CF and outlet of Second stage gauges) exceeds 2 bar, or every six months.

To extract the cartridges from the housing proceed as below:

- Close filters inlet and outlet valves.
- Open the ball valve installed on the drainage until the filters have been completely emptied.
- Open the vent valve.
- Make sure that there is no more pressure inside the filter and that all the liquid contained in it has been completely expelled.
- Unscrew the handwheel of the CLAMPING BAND, then remove it.
- Lift and remove the CAP.
- Remove the filter cartridge from the filter body.
- Insert the new cartridge into filter body.
- Position the clamping band on the cap, then tighten using the handwheel.
- Since some filtering elements may release particles when they are used for the first time, the discharge or recirculation of the first filtered liquid is recommended.
- Make sure that there is no leakage of liquid.

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7.2 CHECK AND REFILLING OF CHEMICALS

If the chemicals level is near to the minimum, the operator shall refill chemical tank.


CAUTION. Always use personal protection devices when chemicals are handled. Wear protective gloves / protective clothing / eye protection / face protection.


CAUTION. Before removing the hand hole cap make sure that the tank is:

- completely intercepted (by valves) and vented
- in absence of pressure
- connected pumps switched off.

Before filling the tank close the drain and delivery valves. After closing drain and delivery valves open the hand hole cap. Fill each tank with proper chemical solution at recommended dosage.

The recommended chemical concentrations are indicated below:

- Antiscalant (T-50003): commercial product 100%
- Non-oxidant biocide (T-50004): commercial product 100%
- Caustic soda solution (T-50002): NaOH (1% - 5%)

Caustic soda solution is prepared offshore depending of pH of sea water at the inlet of water treatment package and its consumption.

(E.g. to prepare 60 litres of a 2% soda solution mix 54 l of demi water and 6 l caustic soda 20%. Please contact PSC Engineering SpA in case of doubt)

1) Isolate the storage tank closing the outlet valve.
2) Check the opening and closing of the tank drain valve.
3) Check if suction and delivery valves of dosing pumps are fully opened.
4) Check the action of PSV closing the delivery valves, the water is flowing back the suction pipe.
5) Check the suction filters on metering pumps suction lines are clean.
6) Open the tank outlet valve and select the duty dosage pump to start it from local control panel.

Low and very low level are installed in the Dosing Tanks in order alarm for chemical refilling at low level set to the PLC system and stop the dosing pumps in case of very low level.

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7.3 ELECTRICAL MOTOR BEARING LUBRICATION

CAUTION. Before lubrication, the motor must be switched off.

CAUTION. Do not lubricate motors while in operation, since excess grease will be forced through the bearings and into the motor before it will force its way out of the drain plug. Excessive grease accumulation on windings reduces insulation life.

Re-lubricate bearing every six months, as follow:

1. Stop the motor. Lock out the switch.
2. Thoroughly clean off pipe plugs and remove from housings.
3. Remove hardened grease from drains with stiff wire or rod.
4. Add grease to inlet with hang gun until small amount of new grease is forced out of drain.
5. Remove excess grease from ports, replace inlet plug, and run motor ½ hour before replacing drain plug.
6. Put motor back in operation.

For further details please refer to the manufacturer instructions.

7.4 CHECK OF INSTRUMENTATION CALIBRATION

All instruments shall be recorded in a database along with details of calibration and the next scheduled calibration check. At the beginning of each maintenance visit a list of instruments due for calibration will be implemented. If the instrument calibration date has expired an appropriate label shall be attached to the instrument with the indication: “Uncalibrated”.

For further details please refer to the manufacturer instructions.

7.5 PUMPS OPERATING CHECK

Even if there is no noise or vibration, check the pump-motor unit alignment at least once per year.

At regular time intervals check the proper operation of the bearings, the seal system, pressure downstream from the pump, and power absorbed.

For further details please refer to the manufacturer instructions.

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7.6 CHECK OF TANK INTERNALS



CAUTION. Before removing any flange and/or connection make sure that the tank is:

- insulated from any electrical energy source
- its insulation is warranted
- completely intercepted (by valves and/or spectacle blinds), vented and drained
- in absence of pressure
- at ambient temperature

Tanks shall be internally checked in order to verify the integrity of the surfaces, internals and the absence of extraneous substance, debris, dust and dirt.

For further details please refer to the manufacturer instructions.

7.7 MEMBRANES REPLACEMENT

In case of membrane replacement, recommended every six months, ensure that the system is NOT pressurized before starting the work. Disconnect the pressure vessel piping, open and remove the end caps of each pressure vessel. Push the membrane out from the feeding inlet side to the outlet side (refer to the arrow on the pressure vessel). Once all membranes are removed, fill the new membranes following the procedure described below.

This is a summarized procedure. If in doubt, please refer to the Pressure Vessels and Membranes manufacturer's manual for detailed explanations.

7.7.1 Pressure Vessel preparation

The interior walls of the pressure vessels must be thoroughly cleaned prior to loading membrane elements in order to prevent dust, construction debris or other foreign matter from being deposited onto the membrane surface. Simply hosing down the interior of the vessels with freshwater is NOT adequate to clean the vessel thoroughly. Use a sponge ball wrapped in a cloth or towel that has been soaked in a 50% solution of glycerin and chlorine-free water. The cleaning ball may either be pulled through the vessel when attached to a rope or pushed through the vessel when mounted to a PVC flange affixed to an appropriate length of PVC pipe. Use appropriate caution to ensure that the inside surface of the vessel is not scratched or damaged during cleaning.

7.7.2 Element loading

1. Make sure that pressure vessel parts, fittings and connecting piping (especially permeate piping) are removed for RO element installation are protected from dirt and airborne dust and debris. Keep floors and parts clean during the RO element loading process. Cover the endcaps to minimize exposure to airborne

debris. Remember, the center port of the endcap carries RO permeate. Do not handle the endcap by touching the inside of the center port.

2. It is good practice to stage RO elements for each pressure vessel prior to loading. RO Elements with standard u-cup brine seals are loaded in the direction of process flow, so the first elements loaded is the concentrate end element. The feed end element will be the last to be loaded. It is strongly recommended to keep RO elements in their plastic bags during the staging process. While the elements are staged for each pressure vessel, record the elements serial numbers and the corresponding pressure vessel number. Make note of the position of each element in each pressure vessel.

3. Install endcap assembly in the concentrate (brine) end of the pressure vessel. Make sure the retaining ring is properly installed and the thrust cone installed downstream. Refer to pressure manufacturer's literature for installation instructions. Determine if it is preferable to install the concentrate endcap/element adapter into the concentrate endcap or concentrate element before loading. The adapter is supplied by the pressure vessel manufacturer. If it is preferred to have the adapter inserted in the endcap, make sure it is properly inserted and lubricated before installing the concentrate endcap assembly. Secure the concentrate endcap per the manufacturer's instruction.

4. Load the first element (concentrate end element) approximately 2/3rd of its length into the feed end of the pressure vessel. If the concentrate endcap/element adapter was not inserted into the concentrate endcap, make sure that it is properly lubricated and inserted in the concentrate face of the concentrate element before loading in the pressure vessel. Make sure that the u-cup brine seal is properly installed on the upstream (feed end) ATD (anti- telescoping device) of the RO element.

(NOTE: Only one u-cup seal is required per element. Never put u-cup seals at both ends of the RO element. U-Cups will only seal if properly oriented on the ATD).

5. Lubricate the u-cup seal with 50% glycerin / and chlorine-free water solution.
(NOTE: If silicone-based lubricant is used, only a small amount is needed. Using sparingly as excess amounts could foul the membrane surface.)

6. The product water tubes of each RO element are connected by an interconnector with pre-installed o-rings. Make sure that all o-rings are installed and lubricated properly. Firmly insert the interconnector in the product water tube of the first element with a gentle twisting motion. The interconnector will seat on a shoulder that is recessed about 3 inches inside the product water tube. Never use a hammer or pounding motion to insert interconnectors.

7. With another person holding the first elements stationary, slide the next element on to the interconnector of the first element. Make sure that the ATDs of the two elements touch each other and the interconnector

is fully seated within each element.

8. Slowly push the element stack into the vessel so that 1/3rd of the next element being loaded is overhanging the feed end of the pressure vessel.
(NOTE: Be careful not to push elements too fast as the ATDs can be damaged if they slide roughly over the retaining ring grooves in the pressure vessel.)
(NOTE: Never allow an interconnector to support the weight of an element.)

9. Repeat the steps above until the last element has been connected and extends only 1/3rd beyond the feed end of the pressure vessel. Make sure that concentrate endcap assembly is installed and secured.

10. Firmly push the entire element stack so that the concentrate end element seats against the concentrate endcap assembly.

11. In most cases, there will be space between the shoulder of the feed endcap adapter and the feed endcap itself that will allow movement of the elements during startups and shutdowns. Excessive movement can lead to o-ring leaks. Shims can easily be added to prevent excessive movement of the elements stack.

12. Follow pressure vessel manufacturer's and RO unit fabricator's instructions for installation of feed endcap assemblies and all interconnecting piping.

7.8 REPLACEMENT OF MEDIA FILTER

Whether the filtering bed is clogged and packed, in order that is impossible to backwash it properly, the replacing of the media filter is required. Proceed as follows for the emptying:

- Switch OFF the control panel
- Close the valves upstream and downstream of the filter
- Remove the automatic valve
- Extract the media from the column, using a syphon or an aspirator
- During the last part of the operation, take care not to damage the lower distributor
- Replace the damaged distributor, if necessary
- Disposal of filtration media shall be made according to local laws concerning the waste of the materials.

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7.9 REPLACEMENT OF SALT AND RESINS IN SOFTENING FILTER

Verify the level of salt inside the brine tank and every six months add more salt. During the operation of loading, pay attention that not any foreign body enters inside the tank. Place again the cover on the tank immediately after the loading of salt. It is recommended to use only food grade salt, preferably in the form of tablets. Tablet salt is usually very clean and avoids making the brine dirty.

If the brine tank appears dirty (foams, foreign bodies, sand, etc.) it is required to make an accurate cleaning, following supplier's manual.

When the softener does not supply softened water or the service cycle is by far lower than expected, although it works correctly hydraulically and mechanically, the replacement of resins is required. It is suggested to replace the resins, in any case, after 10 years of service.

Whether the replacement of the resins is required, proceed as follows for the emptying:

- Disconnect the power supply
- Close the valves upstream and downstream of the softener
- Remove the automatic valve
- Extract the resins from the column, using a syphon or an aspirator
- During the last part of the operation, take care not to damage the lower distributor
- Replace the damaged distributor, if necessary
- Disposal of resins shall be made according to local laws concerning the waste of the materials

7.10 REPLACEMENT OF UV LAMP

Change the lamp after 8000 hours of work and however not later than 24 months for discontinuous work.

WARNING:



Live parts

Disconnect the device from the power supply before opening it.

Disconnect damaged and defective devices or devices that have been tempered with from the mains power supply.

WARNING:



UV-C radiation

UV-C radiation is harmful to the eyes and skin.

Only start up the lamp when it is properly installed.

Install the UV lamp into the UV system in accordance with the regulations prior to commissioning.

CAUTION:



Fingerprints on the UV lamp

Only touch the glass of the UV lamp when wearing cotton gloves.

Fingerprints or impurities burn into the glass and can result in premature failure.

For this reason, always clean the lamp thoroughly with a cloth moistened with alcohol before installing it.

Then wipe the UV lamp with a soft, dry cloth.

NOTICE:



Clean the lamp protection tubes each time a lamp is replaced.

Dispose of used lamps in accordance with the applicable guidelines and directives. Usually they can be disposed of together with used fluorescent tubes.

1 Switch off the UV system.
2 Switch off the master switch or disconnect it from the main power supply.
3 Close the shut-off valve upstream and downstream of the reactor.
4 Fully remove the UV lamp and place it to one side.
5 Introduce the new lamp into the quartz sleeve living out the end side to be connected with the electric wire.
6 Connect the lamp with the electric 4-pin connector.
7 Be sure that the rubber cap is placed all around the lamp without folds.
8 Introduce the lamp into the quartz and push inside the plastic-plug with O-ring.

WARNING:



Insufficient treatment efficiency

Check the minimum radiation intensity and warning threshold.

Check and, if necessary, reset the safety and warning threshold when the UV lamp is replaced.

Only a correctly adjusted minimum radiation intensity will guarantee adequate treatment.

For other maintenance procedures on UV system refer to "Operating Manual" from Supplier.

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7.11 EXTRAORDINARY MAINTENANCE

The following activities are considered as extraordinary:

- Check all transmitter hook ups for physical damage and integrity of enclosure seal; make good any defects. Check calibration in accordance with manufacturer's instruction.
- Inspect all actuated valves, with reference to manufacturer instruction, confirm the correct operation of valves, limit switch and fail action.
- Check all process instrument isolation valves, check that there are no leaks and all manifold valves open and close satisfactorily.
- Check the tightness of bolting and security of pipe supports.
- Check oil level in all machineries, referring to the manufacturer's instructions enclosed in this O&M Documentation.
- Check right flow rate of chemicals; adjust, if necessary, by means of the relevant valves.
- Check operation of drain and vent valves to ensure there are no blockages.
- Inspect all painted equipment for physical damage or corrosion and repair where necessary.
- Check all earth connections and wiring for tightness of terminations, physical damage and corrosion, repair and test continuity resistance if necessary.
- Check condition of cable tray and supports, make good any defects, replace cable tray cover if any.
- Execute other inspections and maintenance operations particularly for each equipment, machinery, instrument, as recommended by the Manufacturer manuals included in this O&M Documentation.

Base Load Power Hub (BLPH)

HANDLING, PRESERVATION AND PACKING PROCEDURE

Document Number: 1724000448-QC-PRO-00035

Document Class: 3

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	21/11/2024

00	15/11/2024	Issue for Information (IFI)	PSC	WR	RM
Rev.	Date	Description	Prepared	Reviewed	Approved

PSC PSC doc. Nr. PK2885-G-004

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Revision / Change Log

Rev.	Description
00	Issue for Informatio (IFI)

HOLDS LIST

No.	Description
1	
2	
3	
4	

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1 INTRODUCTION

This document is aimed at providing the main requirements in the activities of handling and shipping of purchased or manufactured equipment, material and spare parts for onward delivery to the worksite.

The supply of the Water treatment package A-50000 is delivered through a 40-foot-high cube container

The spare parts goods are delivered with wooden cases

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2 HANDLING

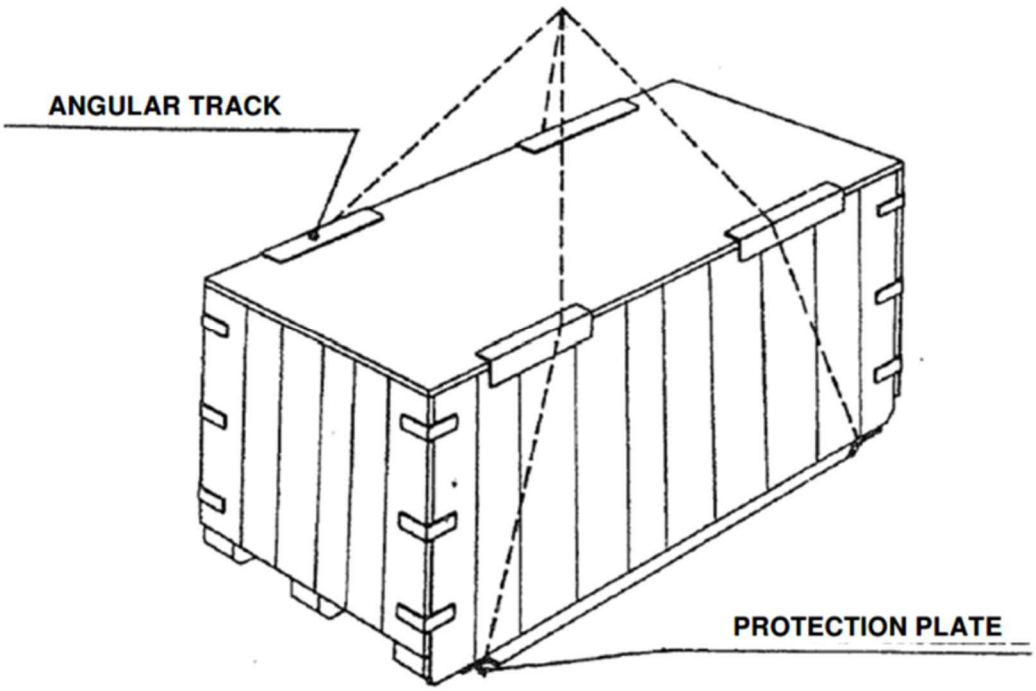
The container handling must be done according to the project document "1724000448-MAC-DD-00033 Lifting Drawing"

The container is equipped on its fourth angles with nr.4 lifting points those can be used for handling.

The container is designed to be lifted through lifting ropes (as reported in document 1724000448-MAC-DD-00033 Lifting Drawing) or reach stacker or straddle carrier

The handling of the wooden crate must be done according to international symbols printed directly on the crate, indicating where to sling to guarantee the balanced lifting of the packing, by means of ropes/chain/belts connected to a single lifting point.

Hooking and positioning of ropes / chain / belts must be done considering the position of protection plates and angular tracks to preserve the crate integrity.



3 PRESERVATION

Wooden crates must be stocked into a clean, dry store house with a temperature range between +5 °C to +40°C

Be sure that wooden crates have not been stored close to source of vibrations or machinery that could damage them by their operation.

Inspect the unit once a month checking the state of conservation of wooden cases and barrier bags and restore them to original condition in case of damages.

Silica gel bags that have not been stored airtight, or that are damaged, must be replaced.

Spread the bags in the pertinent area inside the box. Do not stack the bags or let them touch.

Keep normally closed all boxes, to avoid humidity, dust or atmospheric pollution entering the components of the package.

The storage period remains valid provided that the ambient condition remains normal (meaning no excesses of heat, cold, or high humidity).

If the unit is stored for a period longer than 6 months, then repeat the storage maintenance procedure once every subsequent 6 months.

The following instructions apply to equipment which is due for further transport (transit).

- Do not open (even partially) the packing.
- Do not remove silica bags or open the airtight seaworthy bag
- Apply the shipping data to the crate. Apply the markings on both sides.

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4 UNPACKING

Dismount the top part and the side of the crate. Take the plastic cover off the unit.

After the unpacking of the wooden boxes please refer to the document "1724000448-MAC-MAN-00032_INSTALLATION, OPERATING AND MAINTENANCE MANUAL"and its annexes for the correct maintenance of the equipment installed in the water treatment package A-50000

4.1 PRESERVATION ON SITE AFTER ASSEMBLING

Keep close the water treatment package doors and all battery limits (where applicable) to avoid that humidity, dust of atmospheric pollution enters into the components of the package

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

2.1

CERTIFICATION DOSSIER

2.1.1

CE DECLARATION

2.1.1.1

CENTRIFUGAL PUMPS GRUNDFOS

P-50009 A/B

GB: EC/EU declaration of conformity

We, Grundfos, declare under our sole responsibility that the products CR, CRI, CRN, CRT, to which the declaration below relates, are in conformity with the Council Directives listed below on the approximation of the laws of the EC/EU member states.

BG: Декларация за съответствие на ЕС/ЕО

Ние, фирма Grundfos, заявяваме с пълна отговорност, че продуктите CR, CRI, CRN, CRT, за които се отнася настоящата декларация, отговарят на следните директиви на Съвета за уеднаквяване на правните разпоредби на държавите-членки на ЕС/ЕО.

CZ: Prohlášení o shodě EU

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky CR, CRI, CRN, CRT, na které se toto prohlášení vztahuje, jsou v souladu s níže uvedenými ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství.

DE: EG-/EU-Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte CR, CRI, CRN, CRT, auf die sich diese Erklärung beziehen, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EG-/EU-Mitgliedsstaaten übereinstimmen.

DK: EF/EU-overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produkterne CR, CRI, CRN, CRT som erklæringen nedenfor omhandler, er i overensstemmelse med Rådets direktiver der er nævnt nedenfor, om indbyrdes tilnærmelse til EF/EU-medlemsstaternes lovgivning.

EE: EÜ/ELi vastavusdeklaratsioon

Meie, Grundfos, kinnitame ja kanname ainuisikulist vastutust selle eest, et toode CR, CRI, CRN, CRT, mille kohta all olev deklaratsioon käib, on kooskõlas Nõukogu Direktiividega, mis on nimetatud all pool vastavalt vastuvõetud õigusaktidele ühtlustamise kohta EÜ/ELi liikmesriikides.

ES: Declaración de conformidad de la CE/UE

Grundfos declara, bajo su exclusiva responsabilidad, que los productos CR, CRI, CRN, CRT a los que hace referencia la siguiente declaración cumplen lo establecido por las siguientes Directivas del Consejo sobre la aproximación de las legislaciones de los Estados miembros de la CE/UE.

FI: EY/EU-vaatimustenmukaisuusvakuutus

Grundfos vakuuttaa omalla vastuullaan, että tuotteet CR, CRI, CRN, CRT, joita tämä vakuutus koskee, ovat EY/EU:n jäsenvaltioiden lainsäädännön lähentämiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti.

FR: Déclaration de conformité CE/UE

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits CR, CRI, CRN, CRT, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des États membres CE/UE relatives aux normes énoncées ci-dessous.

GR: Δήλωση συμμόρφωσης ΕΚ/ΕΕ

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα CR, CRI, CRN, CRT, στα οποία αναφέρεται η παρακάτω δήλωση, συμμορφώνονται με τις παρακάτω Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΚ/ΕΕ.

HR: EC/EU deklaracija sukladnosti

Mi, Grundfos, izjavljujemo s punom odgovornošću da su proizvodi CR, CRI, CRN, CRT, na koja se izjava odnosi u nastavku, u skladu s direktivama Vijeća dolje navedene o usklađivanju zakona država članica EZ-a/EU-a.

HU: EU megfelelőségi nyilatkozat

Mi, a Grundfos vállalat, teljes felelősséggel kijelentjük, hogy a(z) CR, CRI, CRN, CRT termékek, amelyre az alábbi nyilatkozat vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak.

IT: Dichiarazione di conformità CE/UE

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti CR, CRI, CRN, CRT, ai quale si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE/UE.

LT: EB/ES atitikties deklaracija

Mes, Grundfos, su visa atsakomybe pareiškiame, kad produktai CR, CRI, CRN, CRT, kuriems skirta ši deklaracija, atitinka žemiau nurodytas Tarybos Direktyvas dėl EB/ES šalių narių įstatymų suderinimo.

LV: ES atbilstības deklarācija

Sabiedrība Grundfos ar pilnu atbildību paziņo, ka produkti CR, CRI, CRN, CRT, uz kuru attiecas tālāk redzamā deklarācija, atbilst tālāk norādītajām Padomes direktīvām par EK/ES dalībvalstu normatīvo aktu tuvināšanu.

NL: EG/EU-conformiteitsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten CR, CRI, CRN, CRT, waarop de onderstaande verklaring betrekking heeft, in overeenstemming zijn met de onderstaande Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgeving van de EG/EU-lidstaten.

PL: Deklaracja zgodności WE/UE

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze produkty CR, CRI, CRN, CRT, których deklaracja niniejsza dotyczy, są zgodne z następującymi dyrektywami Rady w sprawie zbliżenia przepisów prawnych państw członkowskich.

PT: Declaração de conformidade CE/UE

A Grundfos declara sob sua única responsabilidade que os produtos CR, CRI, CRN, CRT, aos quais diz respeito a declaração abaixo, estão em conformidade com as Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE/UE.

RO: Declaraţia de conformitate CE/UE

Noi Grundfos declarăm pe propria răspundere că produsele CR, CRI, CRN, CRT, la care se referă această declaraţie, sunt în conformitate cu Directivele de Consiliu specificate mai jos privind armonizarea legilor statelor membre CE/UE.

RS: Deklaracija o usklađenosti EC/EU

Mi, kompanija Grundfos, izjavljujemo pod punom vlastitom odgovornošću da je proizvod CR, CRI, CRN, CRT, na koji se odnosi deklaracija ispod, u skladu sa dole prikazanim direktivama Saveta za usklađivanje zakona država članica EC/EU.

RU: Декларация о соответствии нормам ЕЭС/ЕС

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия CR, CRI, CRN, CRT, к которым относится нижеприведённая декларация, соответствуют нижеприведённым Директивам Совета Евросоюза о тождественности законов стран-членов ЕЭС/ЕС.

SE: EG/EU-försäkran om överensstämmelse

Vi, Grundfos, försäkrar under ansvar att produkterna CR, CRI, CRN, CRT, som omfattas av nedanstående försäkran, är i överensstämmelse med de rådsdirektiv om inbördes närmande till EG/EU-medlemsstaternas lagstiftning som listas nedan.

SI: Izjava o skladnosti ES/EU

V Grundfosu s polno odgovornostjo izjavljamo, da je izdelek CR, CRI, CRN, CRT, na katerega se spodnja izjava nanaša, v skladu s spodnjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic ES/EU.

SK: EC/ES vyhlásenie o zhode

My, spoločnosť Grundfos, vyhlasujeme na svoju plnú zodpovednosť, že produkty CR, CRI, CRN, CRT na ktoré sa vyhlásenie uvedené nižšie vzťahuje, sú v súlade s ustanoveniami nižšie uvedených smerníc Rady pre zblíženie právnych predpisov členských štátov EC/EÚ.

GRUNDFOS CENTRIFUGAL PUMPS, model No. CRN1S-12, TAG No. P-50009 A/B

TR: EC/AB uygunluk bildirgesi

Grundfos olarak, aşağıdaki bildirim konusu olan CR, CRI, CRN, CRT ürünlerinin, EC/AB Üye ülkelerinin direktiflerinin yakınlaştırılmasıyla ilgili durumun aşağıdaki Konsey Direktifleriyle uyumlu olduğunu ve bununla ilgili olarak tüm sorumluluğun bize ait olduğunu beyan ederiz.

UA: Декларація відповідності директивам ЄС/EU

Ми, компанія Grundfos, під нашу одноосібну відповідальність заявляємо, що вироби CR, CRI, CRN, CRT, до яких відноситься нижченаведена декларація, відповідають директивам ЄС/EU, переліченим нижче, щодо тотожності законів країн-членів ЄС.

CN: 欧盟符合性声明

我们，格兰富，在我们的全权责任下声明，产品 CR, CRI, CRN, CRT 系列，其制造和性能完全符合以下所列欧盟委员会指令。

ID: Deklarasi kesesuaian Komunitas Eropa/Uni Eropa

Kami, Grundfos, menyatakan dengan tanggung jawab kami sendiri bahwa produk CR, CRI, CRN, CRT, yang berkaitan dengan pernyataan ini, sesuai dengan Petunjuk Dewan serta sedapat mungkin sesuai dengan hukum negara-negara anggota Komunitas Eropa/Uni Eropa.

MK: Декларација за сообразност на ЕЗ/ЕУ

Ние, Grundfos, изјавуваме под целосна одговорност дека производите CR, CRI, CRN, CRT на кои се однесува долунаведената декларација, се во согласност со овие директиви на Советот за приближување на законите на земјите-членки на ЕЗ/ЕУ.

AR: إقـرار مطابقـة الاتحـاد الأوروبـي (EC/EU)

نقـر نحـن، جرونـدفوس، بمقتضـى مسـؤوليتنا الفرديـة بـأن المنتجيـن CR, CRI, CRN، اللـذين يختـص بهمـا الإقـرار أدنـاه، يكونـان مطـابقين لتوجيهـات المجلـس المـذكورة أدنـاه بشـأن التقريـب بيـن قـوانين الـدول أعضـاء الاتحـاد الأوروبـي (EC/EU).

NO: EFs/EUs samsvarsærklæring

Vi, Grundfos, erklærer under vårt eneansvar at produktet CR, CRI, CRN, CRT, som denne erklæringen gjelder, er i samsvar med Det europeiske råds direktiver om tilnærming av forordninger i EF-/EU-landene.

IS: EB/ESB-samræmisyfirlýsing

Við, Grundfos, lýsum því yfir og ábyrgjumst að fullu að vörurnar CR, CRI, CRN, CRT, sem þessi yfirlýsing á við um, samræmist tilskipunum ráðs Evrópubandalaganna um samræmingu laga aðildarríkja EB/ESB.

- Machinery Directive (2006/42/EC).
  Standard used: EN 809:1998+A1:2009.
- Ecodesign Directive (2009/125/EC).
- RoHS Directives: 2011/65/EU and 2015/863/EU
  Standard used: EN IEC 63000:2018
- ATEX Directive (2014/34/EU)
  (Applies only to products with the ATEX mark on the nameplate).
  Standards used: EN 80079-36:2016 and EN 80079-37:2016
  (Declaration of conformity and installation and operating instructions of the motor are enclosed).
  Notified body holding copy of technical file:
  DEKRA Certification B.V., Meander 1051/P.O. Box 5185,
  6825 MJ ARNHEM / 6802 ED ARMHEM, The Netherlands.

This EC/EU declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions (publication numbers 96462123, 99343390, 400599, 99262913).

Bjerringbro, October 1, 2021

Jimm Feldborg
Head of PD Industry
Grundfos Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro, Denmark

Person authorised to compile the technical file and empowered to sign the EC/EU declaration of conformity.

2.1.1.2

DOSING PUMPS

GRUNDFOS

P-50008 A/B – P-50010 A/B

Declaration of conformity

GB: EU declaration of conformity

We, Grundfos, declare under our sole responsibility that the products SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, to which the declaration below relates, are in conformity with the Council Directives listed below on the approximation of the laws of the EU member states.

BG: Декларация за съответствие на ЕО

Ние, фирма Grundfos, заявяваме с пълна отговорност, че продуктите SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, за които се отнася настоящата декларация, отговарят на следните директиви на Съвета за уеднаквяване на правните разпоредби на държавите-членки на ЕО.

CZ: Prohlášení o shodě EU

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na které se toto prohlášení vztahuje, jsou v souladu s níže uvedenými ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství.

DE: EU-Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, auf die sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmen.

DK: EU-overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produkterne SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE som erklæringen nedenfor omhandler, er i overensstemmelse med Rådets direktiver der er nævnt nedenfor, om indbyrdes tilnærmelse til EU-medlemsstaternes lovgivning.

EE: EÜ vastavusdeklaratsioon

Meie, Grundfos, kinnitame ja kanname ainuisikulist vastutust selle eest, et toode SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, mille kohta all olev deklaratsioon käib, on kooskõlas Nõukogu Direktiividega, mis on nimetatud all pool vastavalt vastuvõetud õigusaktidele ühtlustamise kohta EÜ liikmesriikides.

ES: Declaración de conformidad de la UE

Grundfos declara, bajo su exclusiva responsabilidad, que los productos SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE a los que hace referencia la siguiente declaración cumplen lo establecido por las siguientes Directivas del Consejo sobre la aproximación de las legislaciones de los Estados miembros de la UE.

FI: EU-vaatimustenmukaisuusvakuutus

Grundfos vakuuttaa omalla vastuullaan, että tuotteet SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, joita tämä vakuutus koskee, ovat EU:n jäsenvaltioiden lainsäädännön lähentämiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti.

FR: Déclaration de conformité UE

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des États membres UE relatives aux normes énoncées ci-dessous.

GR: Δήλωση συμμόρφωσης ΕΕ

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, στα οποία αναφέρεται η παρακάτω δήλωση, συμμορφώνονται με τις παρακάτω Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ.

HR: EU deklaracija sukladnosti

Mi, Grundfos, izjavljujemo s punom odgovornošću da su proizvodi SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na koja se izjava odnosi u nastavku, u skladu s dolje navedenim direktivama Vijeća o usklađivanju zakona država članica EU-a.

HU: EU megfelelőségi nyilatkozat

Mi, a Grundfos vállalat, teljes felelősséggel kijelentjük, hogy a(z) SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE termékek, amelyre az alábbi nyilatkozat vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak.

IT: Dichiarazione di conformità UE

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, ai quale si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri UE.

LT: ES atitikties deklaracija

Mes, Grundfos, su visa atsakomybe pareiškiame, kad produktai SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, kuriems skirta ši deklaracija, atitinka žemiau nurodytas Tarybos Direktyvas dėl ES šalių narių įstatymų suderinimo.

LV: ES atbilstības deklarācija

Sabiedrība Grundfos ar pilnu atbildību paziņo, ka produkti SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, uz kuru attiecas tālāk redzamā deklarācija, atbilst tālāk norādītajām Padomes direktīvām par ES dalībvalstu normatīvo aktu tuvināšanu.

NL: EU-conformiteitsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, waarop de onderstaande verklaring betrekking heeft, in overeenstemming zijn met de onderstaande Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgeving van de EU-lidstaten.

PL: Deklaracja zgodności UE

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze produkty SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, których deklaracja niniejsza dotyczy, są zgodne z następującymi dyrektywami Rady w sprawie zbliżenia przepisów prawnych państw członkowskich.

PT: Declaração de conformidade UE

A Grundfos declara sob sua única responsabilidade que os produtos SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, aos quais diz respeito a declaração abaixo, estão em conformidade com as Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da UE.

RO: Declaraţia de conformitate UE

Noi Grundfos declarăm pe propria răspundere că produsele SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, la care se referă această declaraţie, sunt în conformitate cu Directivele de Consiliu specificate mai jos privind armonizarea legilor statelor membre UE.

RS: Deklaracija o usklađenosti EU

Mi, kompanija Grundfos, izjavljujemo pod punom vlastitom odgovornošću da je proizvod SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na koji se odnosi deklaracija ispod, u skladu sa dole prikazanim direktivama Saveta za usklađivanje zakona država članica EU.

RU: Декларация о соответствии нормам ЕС

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, к которым относится нижеприведённая декларация, соответствуют нижеприведённым Директивам Совета Евросоюза о тождественности законов стран-членов ЕС.

SE: EU-försäkran om överensstämmelse

Vi, Grundfos, försäkrar under ansvar att produkterna SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, som omfattas av nedanstående försäkran, är i överensstämmelse med de rådsdirektiv om inbördes närmande till EU-medlemsstaternas lagstiftning som listas nedan.

SI: Izjava o skladnosti EU

V Grundfosu s polno odgovornostjo izjavljamo, da je izdelek SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, na katerega se spodnja izjava nanaša, v skladu s spodnjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic EU.

SK: ES vyhlásenie o zhode

My, spoločnosť Grundfos, vyhlasujeme na svoju plnú zodpovednosť, že produkty SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE na ktoré sa vyhlásenie uvedené nižšie vzťahuje, sú v súlade s ustanoveniami nižšie uvedených smerníc Rady pre zblíženie právnych predpisov členských štátov EÚ.

TR: AB uygunluk bildirgesi

Grundfos olarak, aşağıdaki bildirim konusu olan SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE ürünlerinin, AB Üye ülkelerinin direktiflerinin yakınlaştırılmasıyla ilgili durumun aşağıdaki Konsey Direktifleriyle uyumlu olduğunu ve bununla ilgili olarak tüm sorumluluğun bize ait olduğunu beyan ederiz.

UA: Декларація відповідності директивам EU

Ми, компанія Grundfos, під нашу одноосібну відповідальність заявляємо, що вироби SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE, до яких відноситься нижченаведена декларація, відповідають директивам EU, переліченим нижче, щодо тотожності законів країн-членів ЄС.

CN: 欧盟符合性声明

我们，格兰富，在我们的全权责任下声明，产品 SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE 系列，其制造和性能完全符合以下所列欧盟委员会指令。

JP: EU 適合宣言

Grundfos は、その責任の下に、SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE 製品が EU 加盟諸国の法規に関連する、以下の評議会指令に適合していることを宣言します。

KO: EU 적합성 선언

Grundfos는 아래의 선언과 관련된 SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE 제품이 EU 회원국 법률에 기반하여 아래의 이사회 지침을 준수함을 단독 책임 하에 선언합니다.

NO: EUs samsvarsærklæring

Vi, Grundfos, erklærer under vårt eneansvar at produktene SMART Digital S DDA, SMART Digital S DDC, SMART Digital S DDE som denne erklæringen gjelder, er i samsvar med styrets direktiver om tilnærming av forordninger i EU-landene.

- Machinery Directive (2006/42/EC).
  Standard used:
  EN 809:1998-A1:2009.
- Low Voltage Directive (2014/35/EU).
  Standard used:
  EN 61010-1:2011-07+A1:2019.
- EMC Directive (2014/30/EU).
  Standards used:
  EN 61000-3-2:2014,
  EN 61000-3-3:2013,
  EN 61326-1:2013.
- RoHS Directives (2011/65/EU and 2015/863/EU).
  Standard used:
  EN IEC 63000:2018.

This EU declaration of conformity is only valid when published as part of the Grundfos safety instructions (publication numbers 98449782, 98449785).

Pfinztal, 26 April 2021



Jimm Feldborg
Head of PD IND
GRUNDFOS Water Treatment GmbH
Reetzstrasse 85
76327 Pfinztal, Germany

Person authorised to compile technical file and empowered to sign the EU declaration of conformity.

2.1.1.3

BOOSTER PUMPS GEMMECOTTI

P-50002A/B – P-50003A/B

GemmeCotti®
EUROPEAN PUMPS

ISO 9001 CERTIFIED

VIA PO 23-25-27
20031 CESATE (MI) ITALY
TEL. +39 02 96460406
www.gemmecotti.com - info@gemmecotti.com

CE DECLARATION OF CONFORMITY

We state under our own responsibility that the pump:

Supplier :	GEMMECOTTI
Type :	MAG DRIVE CENTRIFUGAL PUMP
Model :	HTM 15 PP
Serial Number:	855/1 855/2
Year:	2024

As per described in attached documentation, is in accordance with the Machine Directive CE 2006/42 (ex 89/392/CEE - 91/368/CEE - 93/44/CEE – 93/68/CEE- 98/37 CEE) only if it's used for the liquids communicated by the customer PSC S.P.A. ENGINEERING & CONTRACTING and for the pump characteristics required with regard to the order N. 2885/07/24/1 dated 07/06/24. If the pumped liquid and the needed performances have not been communicated to GemmeCotti and/or the pump is not properly installed, maintained and used for its intended purpose or under conditions which can reasonably be foreseen, the customer takes the whole responsibility of the products as indicated in our warranty Mod. 1.11.6E.

The conformity to the previously mentioned requirements is expressed by the marking:

CE

ENRICO GEMME
(Managing Director)

Cesate, 15/07/2024

Firma

GemmeCotti®
EUROPEAN PUMPS

ISO 9001 CERTIFIED

VIA PO 23-25-27
20031 CESATE (MI) ITALY
TEL. +39 02 96460406
www.gemmecotti.com - info@gemmecotti.com

CE DECLARATION OF CONFORMITY

We state under our own responsibility that the pump:

Supplier :	GEMMECOTTI
Type :	MAG DRIVE TURBINE PUMP
Model :	HTT 12000 PP
Serial Number:	854/1 854/2
Year:	2024

As per described in attached documentation, is in accordance with the Machine Directive CE 2006/42 (ex 89/392/CEE - 91/368/CEE - 93/44/CEE – 93/68/CEE- 98/37 CEE) only if it's used for the liquids communicated by the customer PSC S.P.A. ENGINEERING & CONTRACTING and for the pump characteristics required with regard to the order N. 2885/07/24/1 dated 07/06/24. If the pumped liquid and the needed performances have not been communicated to GemmeCotti and/or the pump is not properly installed, maintained and used for its intended purpose or under conditions which can reasonably be foreseen, the customer takes the whole responsibility of the products as indicated in our warranty Mod. 1.11.6E.

The conformity to the previously mentioned requirements is expressed by the marking:

CE

ENRICO GEMME
(Managing Director)

Cesate, 15/07/2024

Firma

2.1.1.4

HIGH PRESSURE PUMPS

DANFOSS

P-50004A – P-50004B

ENGINEERING TOMORROW

Danfoss A/S
6430 Nordborg
Denmark
CVR nr.: 20 16 57 15

Telephone: +45 7488 2222
Fax: +45 7449 0949

EU DECLARATION OF CONFORMITY

Danfoss A/S

High Pressure Pumps

declares under our sole responsibility that the

Product category:

High-pressure pumps, Energy recovery devices, Power packs

Type designation(s):

High-pressure pumps for ultra pure water of types PAHT, PAHB, PAHT C, PAHT G, PAHT X 674, PAHT 674
High-pressure pumps for tap water of types PAH, PAHF
High-pressure pumps for salt water of types APP, APPW, APP S, APP S 674, APPM
High-pressure pumps for chemical fluids of types CLP, CLP D, CLP 674/675, CLP D 674/675, CLP S X 675
High-pressure pumps with electric motor of types SWP, SWPE, MPU
Energy recovery devices of type iSave
Energy recovery devices with electric motor of type iSave
Energy recovery devices of type MPE
Energy recovery devices with electric motor of type MPE
Power packs of types PPH, PPHT, NPS CS, NPS VS, NWC, NSU

Covered by this declaration is in conformity with the following directive(s), regulation(s), standard(s) or other normative document(s), provided that the product is used in accordance with our instructions.

Machine Directive 2006/42/EC
- EN 12100: 2010 - Safety of machinery – General principles for design
- EN 60204-1:2018 - Safety of machinery – Electrical equipment of machines

Date 2021.06.09 **Place of issue:** Nordborg; DK	**Issued by** **Signature:** **Name: Søren B. Lassen** Developement Engineer	Date: 2021.06.09 **Place of issue:** Nordborg; DK	**Approved by** **Signature:** **Name: Georg H. Enevoldsen** Innovation Director

Danfoss only vouches for the correctness of the English version of this declaration. In the event of the declaration being translated into any other language, the translator concerned shall be liable for the correctness of the translation

ENGINEERING TOMORROW

Danfoss A/S
6430 Nordborg
Denmark
CVR nr.: 20 16 57 15

Telephone: +45 7488 2222
Fax: +45 7449 0949

UK DECLARATION OF CONFORMITY

Danfoss A/S

High Pressure Pumps

declares under our sole responsibility that the

Product category:

High-pressure pumps, Energy recovery devices, Power packs

Type designation(s):

High-pressure pumps for ultra pure water of types PAHT, PAHB, PAHT C, PAHT G, PAHT X 674, PAHT 674
High-pressure pumps for tap water of types PAH, PAHF
High-pressure pumps for salt water of types APP, APPW, APP S, APP S 674, APPM
High-pressure pumps for chemical fluids of types CLP, CLP D, CLP 674/675, CLP D 674/675, CLP S X 675
High-pressure pumps with electric motor of types SWP, SWPE, MPU
Energy recovery devices of type iSave
Energy recovery devices with electric motor of type iSave
Energy recovery devices of type MPE
Energy recovery devices with electric motor of type MPE
Power packs of types PPH, PPHT, NPS CS, NPS VS, NWC, NSU

Covered by this declaration is in conformity with the following directive(s), regulation(s), standard(s) or other normative document(s), provided that the product is used in accordance with our instructions.

Supply of Machinery (Safety) Regulations 2008:
- BS EN 12100: 2010 - Safety of machinery – General principles for design
- BS EN 60204-1:2018 - Safety of machinery – Electrical equipment of machines

Date: 2021.06.09 **Place of issue:** Nordborg, DK	**Issued by** **Signature:** **Name: Søren B. Lassen** Development Engineer	Date: 2021.06.09 **Place of issue:** Nordborg, DK	**Approved by** **Signature:** **Name: Georg H. Enevoldsen** Innovation Director

Danfoss only vouches for the correctness of the English version of this declaration. In the event of the declaration being translated into any other language, the translator concerned shall be liable for the correctness of the translation

2.1.1.5

STORAGE TANK

CMP

T-50002 – T-50003 – T-50004

DECLARATION OF CONFORMITY

HEREBY, OUR COMPANY DECLARES THE FOLLOWING:

TANK OUR TYPE	RV 105 da 3.000 lt
REFERENCE VS. ORDER	n° 2885/02/24/0 del 13/05/2024
CONSTRUCTION DRAWING	RV1053000_rev.1
STOCKED PRODUCT	SEA WATER
SPECIFIC WEIGHT	1,03
MAX CONCENTRATION	---------
PROJECT TEMPERATURE	50°
WORKING TEMPERATURE	25°
PRESSURE	ATM
NUMBER OF PIECES	1

IT IS COMPLETELY COMPLIANT WITH WHAT YOU ORDERED AND WITH THE CONSTRUCTION FEATURES ATTACHED BY US

Approved
C.M.P. S.p.A.
Manifatture Resine Poliestere

DECLARATION OF CONFORMITY

HEREBY, OUR COMPANY DECLARES THE FOLLOWING:

TANK OUR TYPE	RV 90 da 2.000 lt
REFERENCE VS. ORDER	n° 2885/02/24/0 del 13/05/2024
CONSTRUCTION DRAWING	RV902000_rev.1
STOCKED PRODUCT	SEA WATER
SPECIFIC WEIGHT	1,03
MAX CONCENTRATION	---------
PROJECT TEMPERATURE	50°
WORKING TEMPERATURE	25°
PRESSURE	ATM
NUMBER OF PIECES	1

IT IS COMPLETELY COMPLIANT WITH WHAT YOU ORDERED AND WITH THE CONSTRUCTION FEATURES ATTACHED BY US

Approved
C.M.P. S.p.A.

CMP S.p.A.
Manifatture Resine Poliestere

2.1.1.6

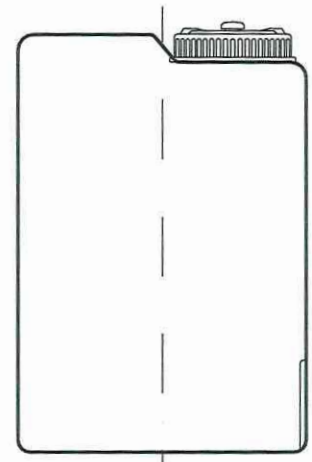
TANKS FOR DOSING PUMPS

ASTRO

T-50002 – T-50003 – T-50004

ASTRO CONTENITORI INDUSTRIALI

ASTRO s.r.l. - Realizzazioni Plastiche Civili e Industriali - Via Fornace 4 - 24050 Mornico al Serio (BG) - ITALIA
C.F. / P.IVA IT 01245600166 - R.E.A. 186825 - R.I. BG 01245600166 - Mecc. N. BG 010752 - Cap. Soc. € 98.800,00 i.v.
web: www.astrosrl.it - e-mail: astro@astrosrl.it - Tel. 035-844060 - Fax 035-844646



DS 05

DECLARATION of CONFORMITY

(UNI CEI EN 45014)

Society : PSC spa

Via San Vitale 61

20831 SEREGNO (MB)

Mod. : DS 05 STANDARD (T-50002)

Drawing n° 32287 SIN

We, ASTRO srl, with legal offices in Via Fornace 4, Mornico al Serio (Bergamo, Italy)

declare that the product supplied against :

Your Order n° 2885/30/24/0 of 24.07.2024 **our Conf. n°** 20241749 / 24.07.2024

- *Was produced in Italy*
- *Is made in conformity to your order cited above*
- *Was produced in **first quality Polyethylene** (REVOLVE 6402U), properties as stated on our raw material supplier's technical data, a copy of which is attached to this declaration*
- *Has been subjected to all the quality controls (weight, dimensions, thickness, threads, etc.), laid down in our internal procedure and in the detailed lists of the Quality Manual **EN ISO 9001:2015** - IT308769*
- *Product not subjected to CE regulations*

Attached : EN ISO 9001:2015 Certificate
Specifications certificate of the raw material

DATE 02/03/24

PRD

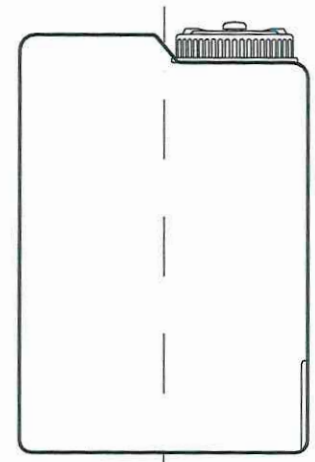
RSGI

IND

Agg. 17.10.23

ASTRO CONTENITORI INDUSTRIALI

ASTRO s.r.l. - Realizzazioni Plastiche Civili e Industriali - Via Fornace 4 - 24050 Mornico al Serio (BG) - ITALIA
C.F. / P.IVA IT 01245600166 - R.E.A. 186825 - R.I. BG 01245600166 - Mecc. N. BG 010752 - Cap. Soc. € 98.800,00 i.v.
web: www.astrosrl.it - e-mail: astro@astrosrl.it - Tel. 035-844060 - Fax 035-844646



DS 05

DECLARATION of CONFORMITY

(UNI CEI EN 45014)

Society : PSC spa

Via San Vitale 61

20831 SEREGNO (MB)

Mod. : DS 05 STANDARD (T-50003)

Drawing n° 32287 SIN

We, ASTRO srl, with legal offices in Via Fornace 4, Mornico al Serio (Bergamo, Italy)

declare that the product supplied against :

Your Order n° 2885/30/24/0 of 24.07.2024 **our Conf. n°** 20241749 / 24.07.2024

- *Was produced in Italy*
- *Is made in conformity to your order cited above*
- *Was produced in **first quality Polyethylene** (REVOLVE 6402U), properties as stated on our raw material supplier's technical data, a copy of which is attached to this declaration*
- *Has been subjected to all the quality controls (weight, dimensions, thickness, threads, etc.), laid down in our internal procedure and in the detailed lists of the Quality Manual **EN ISO 9001:2015** - IT308769*
- *Product not subjected to CE regulations*

Attached : EN ISO 9001:2015 Certificate
Specifications certificate of the raw material

DATE 02/08/24

PRD

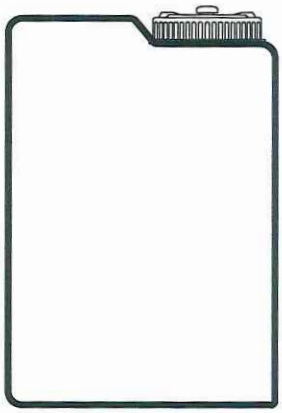
RSGI

IND

Agg. 17.10.23

ASTRO CONTENITORI INDUSTRIALI

ASTRO s.r.l. - Realizzazioni Plastiche Civili e Industriali - Via Fornace 4 - 24050 Mornico al Serio (BG) - ITALIA
C.F. / P.IVA IT 01245600166 - R.E.A. 186825 - R.I. BG 01245600166 - Mecc. N. BG 010752 - Cap. Soc. € 98.800,00 i.v.
web: www.astrosrl.it - e-mail: astro@astrosrl.it - Tel. 035-844060 - Fax 035-844646



DS 1

DECLARATION of CONFORMITY

(UNI CEI EN 45014)

Society : PSC spa

Via San Vitale 61

20831 SEREGNO (MB)

Mod. : DS 1 STANDARD (T-50004)

Drawing n° 32288 SIN

We, ASTRO srl, with legal offices in Via Fornace 4, Mornico al Serio (Bergamo, Italy)

declare that the product supplied against :

Your Order n° 2885/30/24/0 of 24.07.2024 **our Conf. n°** 20241749 / 24.07.2024

- *Was produced in Italy*
- *Is made in conformity to your order cited above*
- *Was produced in **first quality Polyethylene** (REVOLVE 6402U), properties as stated on our raw material supplier's technical data, a copy of which is attached to this declaration*
- *Has been subjected to all the quality controls (weight, dimensions, thickness, threads, etc.), laid down in our internal procedure and in the detailed lists of the Quality Manual **EN ISO 9001:2015** - IT308769*
- *Product not subjected to CE regulations*

Attached : EN ISO 9001:2015 Certificate
Specifications certificate of the raw material

DATE 02/05/24

PRD

RSGI

IND

Agg. 17.10.23

2.1.1.7

SELF-CLEANING FILTER

ELFI

A-50003

DECLARATION OF INCORPORATION

(Annex IIB)
Directive 2006/42/CE on the approximation of the laws of the Member States relating to the safety of machinery.

ELFI S.r.l.
Via Scodoncello 41/E– 43044 Collecchio (PR) - Italy

MODEL:	**FILTRO MSCR PP 112-7**
SERIAL NUMBER:	**24147083b**
YEAR OF CONSTRUCTION:	**2024**

I, the undersigned Colonna Omar
in my capacity as Legal Representative of ELFI S.r.l.
HEREBY DECLARE,
in full civil and criminal liability, that the material supplied is an **MSCR PP filter,**

which complies with all the applicable safety requirements.
(RES 1.1.1-1.1.2-1.1.3-1.1.5-1.1.6-1.1.7-1.2.1-1.2.2-1.2.3-1.3.1-1.3.2-1.3.3-1.3.4-1.3.6-1.3.7-1.3.8-1.3.9-1.4.1-1.4.2.1-1.4.3-1.5.1-1.5.2-1.5.3-1.5.4-1.5.6-1.5.8-1.5.10-1.5.11-1.5.13-1.6.1-1.6.4-1.6.5-1.7.1.1-1.7.1.2-1.7.2-1.7.4)
as well as with the applicable paragraphs of the following special provisions:

- **MACHINERY DIRECTIVE 2006/42/CE** (implemented in Italy with Law Decree 17/2010).
- **LOW VOLTAGE DIRECTIVE 2014/35/UE**
- **ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2014/30/UE**

Moreover, it complies with the following harmonized European standards:

- **UNI EN ISO 12100:2010 – Safety of machinery.**
- **EN 60204-1:2006: Safety of machinery. Electrical equipment on industrial machines.**

Moreover, I declare that the partly completed machinery must not be started until the machinery in which it will be installed and of which it will become a part, has been identified and its conformity with directive 2006/42/CE has been declared; i.e. until the partly completed machinery herein described and the final machinery form a single unit.
The relevant technical documentation has been prepared in compliance with annex VII B.
We undertake to send information regarding the partly completed machinery, by fax, email or other means, in response to adequately justified requests by National authorities.

Person authorized to prepare the technical dossier: Mr. Colonna Omar

COMPANY **date** **09/10/24**

Colonna Omar

2.1.1.8

SAND FILTER

NOBEL

S-50001

NOBEL® s.r.l.
via G.Galilei, 5 20090 Segrate (MI) - ITALY

TEL. +39 02 2827968
FAX +39 02 2610839
e-mail nobel@nobel.srl
www.nobel.srl

società italiana per lo studio e la realizzazione di apparecchiature ed impianti per il trattamento acqua
engineering and manufacturing of equipments and plants for water treatment

DICHIARAZIONE CE DI CONFORMITÀ
DECLARATION OF CONFORMITY

La Nobel srl dichiara che l'apparecchiatura (vedi etichetta in prima pagina)
delle serie
Nobel srl hereby declares that the equipment (see label on first page)
of series
FCV – FACV – FFV – FDV – FZV

è conforme alle seguenti Direttive Europee:

- 2006/42/CE – 2006/95/CE – 2004/108/CE

Principali Norme armonizzate osservate durante la progettazione e costruzione:

UNI EN ISO 12100:2010 – UNI EN 60204-1 (CEI 44-5)

Il direttore tecnico è autorizzato alla costituzione del fascicolo tecnico.

complies to the requirement of the following European Directives :

- *2006/42/CE – 2006/95/CE – 2004/108/CE*

Besides, the main regulations followed for the design and manufacturing are :

UNI EN ISO 12100:2010 – UNI EN 60204-1 (CEI 44-5)

The technical manager is authorized to manage the technical folder.

Direttore Tecnico
Technical Manager
Giorgio Da Dalt



Milano, 17 febbraio 2017

2.1.1.9

CARTRIDGE FILTER

EVERBLUE

S-50002A/B – S-2003A/B

Via Alberto Zanrè, 16
43051 - Loc. Gotra
Albareto (Parma) -Italy

+39 0525 1920100
info@everblue.it
www.everblue.it

DICHIARAZIONE DI CONFORMITA' ALL'ORDINE
DECLARATION OF CONFORMITY TO THE ORDER

Cliente - *Customer*	**PSC ENGINEERING SpA**

Riferimento ordine - *Reference order*	**2885/40/24/0**	**08/08/2024**
Rif. conferma d'ordine – *Ref. order confirmation*	**2148/00**	**09/08/2024**

With reference to the product FMXPAMX0113 – POLYAMIDE HOUSINGS FILTERMAX FMX-01 1x13"MX.

Everblue Srl hereby declares that these filters are free of the "CE" stamp since they are included in the article n. 4 para 3 of the P.E.D. 2014/68/EU of 15 May 2014.

These filters can be used only with the fluid and design that respect the conditions established by the directive above mentioned.

PED REFERENCES: PED 2014/68/EU
FLUID: NOT DANGEROUS
ARTICLES: 4.1 LETTER (a) (ii) 4.3 – 13

Data - *Date*	**28-10-2024**
Timbro e firma *Stamp and signature*	Everblue EVERBLUE SRL Via Alberto Zanrè, 16 - Frazione Gotra 43051 Albareto (Parma) - Italy Tel. +39-0525-1920100 C.F. / P.I.03049170347 - SDI: M5UXCR1

2.1.1.10

ELECTRICAL HEATER

MASTERWATT

H-50001

MASTERWATT
ELECTRIC HEATING SOLUTIONS

Pianezza 02/07/2024

Spett.le
PSC S.P.A.
VIA S.VITALE 61
20831 SEREGNO

DICHIARAZIONE DI CONFORMITÀ UE
UE DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE UE
KONFORMITÄTSERKLÄRUNG UE

Prodotto/Product/Produit/Produkt:

73U03000D000060 - Riscaldatore 400V/Trifase 30000 W
73U03000D000060 - Heater 400V/Three-phase 30000 W
73U03000D000060 - Réchauffeur 400V/Trois phases 30000 W
73U03000D000060 - Heizung 400V/ 30000 W

Conferma d'Ordine/Order Confirmation/Confirmation de Commande/Auftragsbestätigung:

1870-001-2024

Dichiariamo sotto la nostra esclusiva responsabilità che il prodotto al quale questa dichiarazione si riferisce è corforme alla Direttiva Bassa Tensione 2014/35/UE

We declare, under our sole responsability, that the product referred to in this declaration complies with the Low Voltage Directive 2014/35/UE

Nous Déclarons sous notre responsabilitè exclusive que le produit auquel cette déclaration se réfère est conforme à la Directive Basse Tension 2014/35/UE

Erklärt unter unserer ausschließlicheen Verantwortung, dass das in der vorliegender Erklärung beschriebene Prodikt deb Spannungsrichtlinien 2014/35/UE vorgesehenen Bestimmungen entspricht

Declaramos bajo nuestra exclusiva responsabilidad que el producto al que esta aclaración se refiere es conforme a la Directiva baja Tensión 2014/35/UE

Masterwatt S.r.l
A.Ravaglia
Rappresentante Legale/Legal Representative

Via Collegno 31 - 10044 PIANEZZA (TORINO) - ITALIA
Tel. (+39) 011/9661626 - Fax (+39) 011/9671422
Web site: www.masterwatt.it - E-mail: info@masterwatt.it

Codice Fiscale / Partita IVA: IT 02777110012
Reg. Tribunale TO N. 609/82 - REA N. 607746
Capitale sociale 10.000 Euro int. vers. - N. Export: TO 000843

2.1.1.11

VESSEL

SG PROJECT/PHOENIX VESSEL

A-50007 A/B

Phoenix Vessel Technology Ltd

Unit 2, The Old Bakery, Lower Tuffley Lane, Gloucester GL2 5DP
Tel: +44 (0) 1452 311673
Fax: +44 (0) 1452 310295

HYDROSTATIC TEST CERTIFICATE

Customer: SG PROJECTS	**Customer Order: PO-070-2024**
Address: SG Projects **Sg projects** **Strada Folciona 5/Bis** **Voghera** **27058** **Italy**	**Phoenix Order No: 120787** **Product Description** **GRP PRESSURE VESSELS**

Line	Product Description and Notes	Ship Quantity
1	**4" x 1000 psi x 6 elements (40") end port pressure vessel** Designed according to Sound Engineering Practice as described in PED 2014/68/EU	2

Vessel Body Serial Numbers
Line1: 4.AAXWW.1, 4.AAXWX.1

Phoenix Vessel Technology Limited Quality Statement

We certify that the above order has been manufactured to the requirements of the applicable standards and specifications, and found to conform with its requirements, and have been inspected and tested within the scope of our ISO9001 registration. Each Vessel has been tested to 1.1 design pressure as stated above.

Any unauthorised modification to these Pressure Vessels or their constituent parts will invalidate this Certificate of Conformity and any warranty applicable to this contract.

Signed: **G.Kus** **Position: Quality Inspector** **Date: 26.06.2024**

For and on behalf of Phoenix Vessel Technology Ltd

Registered in England No 05684863

2.1.1.12

UV STERILIZER

NOBEL

S-50010

NOBEL® s.r.l.
via G. Galilei 5 20090 Segrate (Milano) - ITALY

SISTEMA QUALITA' CERTIFICATO
ISO 9001:2015
CERTIFIED QUALITY SYSTEM

www.nobel.srl
e-mail nobel@nobel.srl
tel. +39 02 2827968

società italiana per lo studio e la realizzazione di apparecchiature ed impianti per il trattamento acqua
engineering and manufacturing of equipments and plants for water treatment

DICHIARAZIONE CE DI CONFORMITÀ
DECLARATION OF CONFORMITY

La Nobel srl dichiara che l'apparecchiatura delle serie
Nobel srl hereby declares that the equipment of series

Debatterizzatori UV delle serie:
S, L, HR60, W, FC, FC-D

UV rays sterilizers series:
S, L, HR60, W, FC, FC-D

sono conformi:
- **al D.M. n. 174 del 06/04/2004 "Regolamento concernente i materiali e gli oggetti che possono essere utilizzati negli Impianti fissi di captazione, trattamento, adduzione e distribuzione delle acque destinate al consumo umano"**
- **alla DIR. n. 2014/30/EU "Compatibilità elettromagnetica"**
- **alla DIR. n. 2014/35/EU "Bassa tensione"**

come da dichiarazione di conformità rilasciata dal fornitore in ns. possesso.

are in conformity with:
- ***the italian Ministery decree D.M. n. 174 del 06/04/2004 "Regulation about materials and objects that could be used in picking up, treatment, adduction and distribution of water for human consumption"***
- ***the DIR. n. 2014/30/EU "Electromagnetic Compatibility"***
- ***the DIR. n. 2014/35/EU "Low voltage"***

as resulting from declaration of conformity of supplier in our possession.

NOBEL S.R.L.

NOBEL S.r.l. MILANO APPROVED ITALY

Milano, 22/06/2020

sede legale: via dell'Unione 3 20122 Milano
C.C.I.A.A. 1250687 - EXPORT MI 044905 - Reg. Trib. Milano nº 272528 vol.7032 fasc.28
società a responsabilità limitata - cap. soc. € 99.000 i.v. - C.F. e P.I.: IT 08829620155

2.1.1.13

SOFTENER FILTER

NOBEL

S-50004

NOBEL® s.r.l.
via G.Galilei, 5 20090 Segrate (MI) - ITALY

TEL. +39 02 2827968
FAX +39 02 2610839
e-mail nobel@nobel.srl
www.nobel.srl

società italiana per lo studio e la realizzazione di apparecchiature ed impianti per il trattamento acqua
engineering and manufacturing of equipments and plants for water treatment

DICHIARAZIONE CE DI CONFORMITÀ
DECLARATION OF CONFORMITY

La Nobel srl dichiara che l'apparecchiatura (vedi etichetta in prima pagina)
delle serie
Nobel srl hereby declares that the equipment (see label on first page)
of series
AC – AS

è conforme alle seguenti Direttive Europee:

- 2006/42/CE – 2006/95/CE – 2004/108/CE

Principali Norme armonizzate osservate durante la progettazione e costruzione:

UNI EN ISO 12100:2010 – UNI EN 60204-1 (CEI 44-5)

Il direttore tecnico è autorizzato alla costituzione del fascicolo tecnico.

complies to the requirement of the following European Directives :

- *2006/42/CE – 2006/95/CE – 2004/108/CE*

Besides, the main regulations followed for the design and manufacturing are :

UNI EN ISO 12100:2010 – UNI EN 60204-1 (CEI 44-5)

The technical manager is authorized to manage the technical folder.

Direttore Tecnico
Technical Manager
Giorgio Da Dalt



Milano, 17 febbraio 2017

2.1.1.14

TRANSMITTERS

AMBIENT TEMPERATURE TRANSMITTER ENDRESS+HAUSER

50-TT-023

Endress+Hauser

People for Process Automation

EU Declaration of Conformity

(de) EU-Konformitätserklärung
(fr) Déclaration de conformité UE
(bg) ЕС Декларация за съвместимост
(es) Declaración CE de conformidad
(cs) EU prohlášení o shodě
(da) EF-overensstemmelseserklæring
(et) ELi vastavusdeklaratsioon
(el) Δήλωση συμμόρφωσης ΕΕ
(hr) EU Izjava o sukladnosti
(it) Dichiarazione di Conformità UE
(lt) ES atitikties deklaracija
(lv) ES atbilstības deklarācija
(hu) EU-megfelelőségi nyilatkozat
(nl) EG-conformiteitsverklaring
(pl) Deklaracja zgodności UE
(pt) Declaração de conformidade da CE
(ro) Declarație de conformitate UE
(sk) Vyhlásenie o zhode EÚ
(sl) EU izjava o skladnosti
(fi) EU-vaatimustenmukaisuusvakuutus
(sv EU-försäkran om överensstämmelse

Endress+Hauser Wetzer GmbH+Co. KG, Obere Wank 1, 87484 Nesselwang

declares as manufacturer under sole responsibility, that the product

(de) erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
(fr) déclare en tant que fabricant, sous sa seule responsabilité, que le produit
(bg) декларира като производител с изключителна отговорност, че продуктът
(es) declara, en calidad de fabricante y asumiendo en exclusiva la responsabilidad, que el producto
(cs) jakožto výrobce, prohlašuje na svou vlastní zodpovědnost, že výrobek
(da) erklærer som producent under eneansvar, at produktet
(et) kinnitab tootjana oma ainuvastutusel, et toode
(el) δηλώνει ως κατασκευαστής με αποκλειστική της ευθύνη, ότι το προϊόν
(hr) izjavljuje kao proizvođač s isključivom odgovornošću da je proizvod
(it) dichiara, sotto la propria esclusiva responsabilità in quanto fabbricante, che il prodotto
(lt) kaip gamintojas prisiimdamas atsakomybę patvirtina, kad gaminys
(lv) kā ražotājs un uzņemoties visu atbildību paziņo, ka izstrādājums
(hu) mint gyártó kizárólagos felelőssége mellett kijelenti, hogy a termék
(nl) verklaart als fabrikant onder volledige verantwoordelijkheid, dat het product
(pl) jako producent oświadcza, na swoją wyłączną odpowiedzialność, że wyrób
(pt) declara como fabricante sob responsabilidade exclusiva, que o produto
(ro) în calitate de producător, declară pe proprie răspundere că produsul
(sk) vyhlasuje ako výrobca na vlastnú zodpovednosť, že výrobok
(sl) kot proizvajalec z izključno odgovornostjo izjavlja, da je izdelek
(fi) ilmoittaa valmistajana yksinomaisella vastuullaan, että tuote
(sv) förkunnar som tillverkare med ensamansvar, att produkten

Thermometer
Txx-, TAF1x-, TAF12x-, TCxx-, TEC420-, THxx-, TM4xx-, TM1xx-, TMT1x2C-, TMT1x2R-, TRxx-, TSCxxx-, TSRxxx-, TSTxxx-, TST434B

Endress+Hauser
People for Process Automation

CE

conforms to following European Directives:

(de) den folgenden Europäischen Richtlinien entspricht:
(fr) est conforme aux directives européennes suivantes :
(bg) отговаря на следните европейски директиви:
(es) se ajusta a las siguientes directivas europeas:
(cs) vyhovuje následujícím evropským směrnicím:
(da) er i overensstemmelse med følgende direktiver:
(et) vastab järgmistele Euroopa direktiividele:
(el) συμμορφώνεται με τις ακόλουθες Ευρωπαϊκές Οδηγίες:
(hr) u skladu sa sljedećim europskim direktivama:
(it) è conforme alle seguenti direttive europee:
(lt) atitinka toliau nurodytas Europos Sąjungos direktyvas:
(lv) atbilst tālāk norādīto Eiropas direktīvu prasībām:
(hu) megfelel az alábbi európai irányelveknek:
(nl) voldoet aan de volgende Europese richtlijnen:
(pl) jest zgodny z następującymi dyrektywami europejskimi:
(pt) está em conformidade com as seguintes diretrizes europeias:
(ro) este în conformitate cu următoarele directive europene:
(sk) je v súlade s týmito európskymi smernicami:
(sl) skladen z naslednjimi evropskimi direktivami:
(fi) täyttää seuraavat eurooppalaiset direktiivit:
(sv) överensstämmer med följande europeiska direktiv:

EMC	2014/30/EU	(L96/79)
RoHS	2011/65/EU	(L174/88)

Endress+Hauser
People for Process Automation

CE

Applied harmonized standards or normative documents:

(de) Angewandte harmonisierte Normen oder normative Dokumente:
(fr) Normes harmonisées ou documents normatifs appliqués:
(bg) Приложени хармонизирани стандарти или нормативни документи:
(es) Normas armonizadas o documentos normativos aplicados:
(cs) Aplikované harmonizované normy nebo normativní dokumenty:
(da) Anvendte harmoniserede standarder eller normative dokumenter:
(et) Kohaldatud harmoneeritud standardid või normdokumendid:
(el) Εφαρμοσμένα εναρμονισμένα πρότυπα ή κανονιστικά έγγραφα:
(hr) Primijenjeni usklađeni standardi ili normativni dokumenti:
(it) Norme armonizzate o documenti normativi applicati:
(lt) Taikytini suderintieji standartai ar norminiai dokumentai:
(lv) Piemērotie saskaņotie standarti vai normatīvie dokumenti:
(hu) Alkalmazott harmonizált szabványok vagy normatív dokumentumok:
(nl) Toegepaste geharmoniseerde normen of normatieve documenten:
(pl) Zastosowane normy zharmonizowane lub dokumenty normatywne:
(pt) Normas harmonizadas aplicadas ou documentos normativos:
(ro) Standarde armonizate sau documente normative în vigoare:
(sk) Použité harmonizované normy alebo normatívne dokumenty:
(sl) Uporabljeni harmonizirani standardi ali normativni dokumenti:
(fi) Sovelletut yhdenmukaistetut standardit tai ohjeelliset asiakirjat:
(sv) Tillämpade harmoniserade standarder eller normativa dokument:

EN 61010-1	**(2010)**
EN 61326-1	**(2013)**
EN 61326-2-3	**(2013)**
EN 61326-2-5	**(2013)**
EN IEC 63000	**(2018)**

Harald Müller
Director Technology

ppa.

Nesselwang, 20.02.2024
Endress+Hauser Wetzer GmbH+Co. KG

CONDUCTIVITY ANALYZERS

BURKERT

50-AT-023 – 50-AT-024

EU Konformitäts-erklärung	EU Declaration of Conformity	Déclaration UE de Conformité
Originaldokument	Original document	Document original

Hersteller / Manufacturer / Constructeur:

Bürkert S.A.S.
Rue du Giessen
67220 Triembach au Val
www.burkert.com

Hiermit erklären wir, dass das unten beschriebene Produkt in seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Harmonisierungsvorschriften der EU entspricht. Die Anhänge, die wesentlicher Bestandteil dieser Erklärung sind, enthalten weitere Angaben zur Einhaltung dieser Richtlinie(n).	We hereby declare that the product described below, in its design and construction as well as in the version that we have placed on the market, is in conformity with the relevant EU harmonization legislation. The annexes, which are an integral part of this declaration of conformity, contain further information about the conformity to this Directive(s).	Nous déclarons par la présente que le produit spécifié ci-dessous, dans son développement et sa fabrication tel que mis sur le marché par nous, est conforme à la législation d'harmonisation de l'UE applicable. Les annexes, qui font partie intégrante de cette déclaration, contiennent des informations supplémentaires sur le respect de la ou des directives.

Typ / Type / Type:

8228

Produktbezeichnung / Product Description / Appellation d'un produit:

Induktiver Leitfähigkeits-Transmitter
Inductive conductivity transmitter
Transmetteur conductivité inductive

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS

Bei einer mit Bürkert nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.	If any unauthorized modifications are made to the product, this declaration will loose its validity.	Toute modification non autorisée apportée au produit fait perdre la validité de cette déclaration.
Eine Technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung in der Landessprache des Anwenders liegt vor (wenn erforderlich).	A complete technical documentation is available. The operating manual in the local language of the user is present (if necessary).	Une documentation technique com-plète est disponible. Le manuel d'utilisation du produit est présent (si nécessaire) dans la langue locale de l'utilisateur.
Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.	This declaration does not guarantee any specifications.	Cette déclaration ne garantit pas les spécifications.

Triembach, 10. Juin 2024

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i.A. Vincent Giroud
Engineering/Construction/Development

i.A. Stéphanie Dumollard
Approval Management

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.	This Declaration of Conformity is issued under the sole responsibility of the manufacturer.	Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

ABD 1000551231 ML Version: B Status: RL (released | freigegeben) printed: 13.05.2025

Anhang EMV zur EU Konformitätserklärung	Annex EMC for EU Declaration of Conformity	Annexe CEM à la Déclaration UE de
Originaldokument	Original document	Document original

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
Reference in the Official Journal of the EU: L 96 dated 29.3.2014		

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):
8228-****-****-**-*-**-*-***/**-*

Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2014/30/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit.	The object of the declaration described above is in conformity with Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.	L'objet de la déclaration décrit ci-dessus est conforme à la directive 2014/30/UE du Parlement européen et du Conseil du 26 février 2014 relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique.

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar):	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):
EN IEC 61000-6-2:2019, EN IEC 61000-6-3:2021		

ABD 1000551231 ML Version: B Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

Anhang ROHS zur EU Konformitätserklärung	Annex ROHS for EU Declaration of Conformity	Annexe ROHS à la Déclaration UE de
Originaldokument	Original document	Document original

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS
	Reference in the Official Journal of the EU: L 174 dated 07.11.2011	
2017/2102/EU	Reference in the Official Journal of the EU: L 305 dated 21.11.2017	
2015/863/EU	Reference in the Official Journal of the EU: L 137 dated 04.06.2015	

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):
8228-****-****-**-*-**-*-***/**-*

Das oben beschriebene Produkt erfüllt die Vorschriften der Richtlinie 2011/65/EU und deren Ergänzungen 2017/2102/EU und 2015/863/EU. Das Produkt erfüllt die Anforderungen zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (Liste der beschränkten Stoffe siehe Richtlinien).	The product described above complies with the provisions of Directive 2011/65/EU and its amendments 2017/2102/EU and 2015/863/EU The product complies with the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (for list of restricted substances see Directives).	Le produit décrit ci-dessus est conforme aux dispositions de la directive 2011/65/UE et de ses amendements 2017/2102/UE et 2015/863/UE. Le produit est conforme aux exigences relatives à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (pour la liste des substances restreintes, voir les Directives).

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar): EN IEC 63000:2018	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):

ABD 1000551231 ML Version: B Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

EU Konformitäts-erklärung	EU Declaration of Conformity	Déclaration UE de Conformité
Originaldokument	Original document	Document original

Hersteller / Manufacturer / Constructeur:

Bürkert S.A.S.
Rue du Giessen
67220 Triembach au Val
www.burkert.com

Hiermit erklären wir, dass das unten beschriebene Produkt in seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Harmonisierungsvorschriften der EU entspricht. Die Anhänge, die wesentlicher Bestandteil dieser Erklärung sind, enthalten weitere Angaben zur Einhaltung dieser Richtlinie(n).	We hereby declare that the product described below, in its design and construction as well as in the version that we have placed on the market, is in conformity with the relevant EU harmonization legislation. The annexes, which are an integral part of this declaration of conformity, contain further information about the conformity to this Directive(s).	Nous déclarons par la présente que le produit spécifié ci-dessous, dans son développement et sa fabrication tel que mis sur le marché par nous, est conforme à la législation d'harmonisation de l'UE applicable. Les annexes, qui font partie intégrante de cette déclaration, contiennent des informations supplémentaires sur le respect de la ou des directives.

Typ / Type / Type:

8222

Produktbezeichnung / Product Description / Appellation d'un produit:

Leitfähigkeits-Transmitter
Conductivity-transmitter
Transmetteur conductivité

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS

Bei einer mit Bürkert nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.	If any unauthorized modifications are made to the product, this declaration will loose its validity.	Toute modification non autorisée apportée au produit fait perdre la validité de cette déclaration.
Eine Technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung in der Landessprache des Anwenders liegt vor (wenn erforderlich).	A complete technical documentation is available. The operating manual in the local language of the user is present (if necessary).	Une documentation technique com-plète est disponible. Le manuel d'utilisation du produit est présent (si nécessaire) dans la langue locale de l'utilisateur.
Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.	This declaration does not guarantee any specifications.	Cette déclaration ne garantit pas les spécifications.

Triembach, 10. Juin 2024

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This document has been created and signed digitally and is valid without a handwritten signature.
Ce document a été créé et signé numériquement et est valable sans signature manuscrite.

i.A. Regis Testa
Engineering/Construction/Development

i.A. Stéphanie Dumollard
Approval Management

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.	This Declaration of Conformity is issued under the sole responsibility of the manufacturer.	Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

ABD 1000551219 ML Version: B Status: RL (released | freigegeben) printed: 13.05.2025

CE

bürkert
FLUID CONTROL SYSTEMS

Anhang EMV zur EU Konformitätserklärung	Annex EMC for EU Declaration of Conformity	Annexe CEM à la Déclaration UE de
Originaldokument	Original document	Document original

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
Reference in the Official Journal of the EU: L 96 dated 29.3.2014		

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):
8222-****-****-**-*-**-*-***/**-*

Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2014/30/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit.	The object of the declaration described above is in conformity with Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.	L'objet de la déclaration décrit ci-dessus est conforme à la directive 2014/30/UE du Parlement européen et du Conseil du 26 février 2014 relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique.

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar):	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):
EN IEC 61000-6-2:2019, EN IEC 61000-6-3:2021		

ABD 1000551219 ML Version: B Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

Anhang ROHS zur EU Konformitätserklärung	Annex ROHS for EU Declaration of Conformity	Annexe ROHS à la Déclaration UE de
Originaldokument	Original document	Document original

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS
	Reference in the Official Journal of the EU: L 174 dated 07.11.2011	
2017/2102/EU	Reference in the Official Journal of the EU: L 305 dated 21.11.2017	
2015/863/EU	Reference in the Official Journal of the EU: L 137 dated 04.06.2015	

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):
8222-****-****-**-*-**-*-***/**-*

Das oben beschriebene Produkt erfüllt die Vorschriften der Richtlinie 2011/65/EU und deren Ergänzungen 2017/2102/EU und 2015/863/EU. Das Produkt erfüllt die Anforderungen zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (Liste der beschränkten Stoffe siehe Richtlinien).	The product described above complies with the provisions of Directive 2011/65/EU and its amendments 2017/2102/EU and 2015/863/EU The product complies with the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (for list of restricted substances see Directives).	Le produit décrit ci-dessus est conforme aux dispositions de la directive 2011/65/UE et de ses amendements 2017/2102/UE et 2015/863/UE. Le produit est conforme aux exigences relatives à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (pour la liste des substances restreintes, voir les Directives).

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar): EN IEC 63000:2018	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):

ABD 1000551219 ML Version: B Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

EU Konformitäts-erklärung	EU Declaration of Conformity	Déclaration UE de Conformité
Originaldokument	Original document	Document original

Hersteller / Manufacturer / Constructeur:

Bürkert Werke GmbH & Co. KG
Werk 10
Christian-Bürkert-Straße 13-17
74653 Ingelfingen
www.burkert.com

Hiermit erklären wir, dass das unten beschriebene Produkt in seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Harmonisierungsvorschriften der EU entspricht. Die Anhänge, die wesentlicher Bestandteil dieser Erklärung sind, enthalten weitere Angaben zur Einhaltung dieser Richtlinie(n).	We hereby declare that the product described below, in its design and construction as well as in the version that we have placed on the market, is in conformity with the relevant EU harmonization legislation. The annexes, which are an integral part of this declaration of conformity, contain further information about the conformity to this Directive(s).	Nous déclarons par la présente que le produit spécifié ci-dessous, dans son développement et sa fabrication tel que mis sur le marché par nous, est conforme à la législation d'harmonisation de l'UE applicable. Les annexes, qui font partie intégrante de cette déclaration, contiennent des informations supplémentaires sur le respect de la ou des directives.

Typ / Type / Type:

KK02

Produktbezeichnung / Product Description / Appellation d'un produit:

Adapter elektrisch
Adapter electrical
Adaptateur électrique

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS

Bei einer mit Bürkert nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.	If any unauthorized modifications are made to the product, this declaration will loose its validity.	Toute modification non autorisée apportée au produit fait perdre la validité de cette déclaration.
Eine Technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung in der Landessprache des Anwenders liegt vor (wenn erforderlich).	A complete technical documentation is available. The operating manual in the local language of the user is present (if necessary).	Une documentation technique com-plète est disponible. Le manuel d'utilisation du produit est présent (si nécessaire) dans la langue locale de l'utilisateur.
Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.	This declaration does not guarantee any specifications.	Cette déclaration ne garantit pas les spécifications.

Ingelfingen, 24. Oktober 2022

Dieses Dokument wurde digital erstellt und unterschrieben und ist ohne handschriftliche Unterschrift gültig.
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i.A. Moritz Kampert
Engineering

i.A. Annegret Popp
Approval Management

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.	This Declaration of Conformity is issued under the sole responsibility of the manufacturer.	Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

ABD 1000497209 ML Version: A Status: RL (released | freigegeben) printed: 28.09.2023

CE

bürkert
FLUID CONTROL SYSTEMS

Anhang ROHS zur EU Konformitätserklärung	Annex ROHS for EU Declaration of Conformity	Annexe ROHS à la Déclaration UE de
Originaldokument	Original document	Document original

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS
	Reference in the Official Journal of the EU: L 174 dated 07.11.2011	
2017/2102/EU	Reference in the Official Journal of the EU: L 305 dated 21.11.2017	
2015/863/EU	Reference in the Official Journal of the EU: L 137 dated 04.06.2015	

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):

KK02-******-**-**-**-****-**-**-*-*-** (1)

(1) Variabler Code / Variable code / Variable Code:
nur in Verbindung mit / Only valid in combination with / Est uniquement valable en lien avec: KG08

Das oben beschriebene Produkt erfüllt die Vorschriften der Richtlinie 2011/65/EU und deren Ergänzungen 2017/2102/EU und 2015/863/EU. Das Produkt erfüllt die Anforderungen zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (Liste der beschränkten Stoffe siehe Richtlinien).	The product described above complies with the provisions of Directive 2011/65/EU and its amendments 2017/2102/EU and 2015/863/EU The product complies with the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (for list of restricted substances see Directives).	Le produit décrit ci-dessus est conforme aux dispositions de la directive 2011/65/UE et de ses amendements 2017/2102/UE et 2015/863/UE. Le produit est conforme aux exigences relatives à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (pour la liste des substances restreintes, voir les Directives).

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar):	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):
EN IEC 63000:2018		

ABD 1000497209 ML Version: A Status: RL (released | freigegeben) printed: 28.09.2023

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

HARDNESS ANALYZER

BURKERT

50-AT-026

CE DECLARATION OF CONFORMITY
(Low voltage and electromagnetic compatibility directive)

I, the undersigned, represent the following manufacturer.

manufacturer: Apura s.r.l.
Address: Piazza Porto, 3 – 25084 Gargnano (BS) Italy

hereby declares that the product.

Identification of the product: “DUROMAT”

results in compliance with the provisions of the following EU directives.
(including all applicable changes)

Refer to n°	Title
2014/30/UE 2014/35/UE	EMC (ELECTROMAGNETIC COMPATIBILITY) LVD (LOW VOLTAGE)

and that all the standards and / or technical specifications indicated on the back have been applied.

Last two digits of the year in which the CE marking was affixed.....19.....

Gargnano BS Italy, 11/01/2019



CE DECLARATION OF CONFORMITY

Reference to the standards and / or technical specifications, or parts of them, used for this declaration of conformity:

- harmonized standards:

nr	title
CEI EN 55014-1/2008 +A1/2002+A2/2010	Electromagnetic compatibility. Requirements for household appliances, electric tools, and similar appliances. Part 1: Issue.
CEI EN 55014-2/2015	Electromagnetic compatibility. Immunity requirements for household appliances, power tools and similar appliances. Part 2: Immunity.
CEI EN 61000-3-3/2014	Electromagnetic compatibility. Part 3: Limits - Section 3: Limitation of voltage fluctuations and flicker in low voltage power supply systems for equipment with rated current less than 16A and not subject to connection on condition.
CEI EN 61000-3-2/2015	Electromagnetic compatibility. Part 3: Limits - Section 2: Limits for harmonic current emissions (devices with input current less than 16A per phase).
CEI EN 60335-1 /2013-01	Safety of electrical appliances for domestic and similar use. Part 1: General rules.
CEI EN 30335-2-89/2011	Safety of electrical appliances for domestic and similar use. Part 2: Particular rules for commercial refrigeration appliances including a condensing unit of the refrigerating fluid or compressor, incorporated or remote.
CEI EN 50106/2010	Safety of electrical appliances for domestic and similar use Special rules for routine tests for appliances falling within the scope of EN 60335-1 and EN 60967
CEI EN 62233	Measurement methods for electromagnetic fields of electrical household appliances and similar with reference to human exposure.

Apura s.r.l.
Piazza Porto, 3
25084 Gargnano BS
Tel. 0365/642792
eMail: info@apura.it
www.apura.it

Date: 31/07/2024

Place: Nibionno (LC)

Certificato di taratura e collaudo
Calibration and test-certificate

Analizzatore tipo **Type of on-line monitor**	DUROMAT professional
Numero di produzione **Production number**	241162008

Test di misurazione / Measurement tests

Tipo d'indicatore **Type of on-line monitor**	**503/500**	
Numero di produzione **Charge number**	**2407.23.21.551**	
Soluzione di calibrazione **Calibration solution**	0,09-0,9°dH / 0,16-1,61°f/ 0,11-1,13°e / 1,60-16,02ppm / 1,60-16,02mg/l / 0,02-0,16mmol/l	
Durezza nota **Note hardness**	**Misurato / Measured**	
30 ppm	30,0	√
90 ppm	90,0	√
150 ppm	150,0	√
	Tester	A.F.

Test uscita analogica / Analog output test

Programmazione / programming	4 – 20 mA		
Valore massimo 20mA **Maximum value 20mA**	16,02 ppm		
Durezza nota **Note hardness**	**Alcalinità misurata dall'analizzatore** **Measured alkalinity by the analyzer**	**Uscita in mA** **Output in mA**	**Corrisponde** **Matcher**
3 ppm	3,22	2,9	√
9 ppm	9,06	8,7	√
15 ppm	15,15	14,6	√
		Tester	A.F.

Conformità / Conformity	OK
Etichetta / Label	OK
Data / Date	31/07/2024
Timbro/Firma	APURA s.r.l. Piazza Porto, 3 25084 Villa di Gargnano (BS) • Italy

APURA s.r.l.
Piazza Porto, 3 • 25084 Gargnano (BS) • Italy
Tel. ++39/0365-642792 • Fax ++39/0365-1892024
info@apura.it • www.apura.it • www.apura.ch
www.apura-wasser.de • www.biossido-di-cloro.it
Tecnical office ++39/333-7388380 • ++39/329-7915851

Dasa-Rägister
UNI EN ISO 9001:2015
IQ-0519-05

CERTIFICATO DI ANALISI
Certificate of analysis

Indicatore tipo / Indicator type: **503/500**

Set point di allarme / alarm set point : **DUROMAT XII**

0,3°dH	0,54°f	5,4 ppm CaCO3	0,05 mmol/l		

Range di misura / Misurazione range: **DUROMAT professional**

0,09-0,9°dH	0,16-1,61°f	1,60-26,02ppm	0,02-0,16mmol/l	1,60-26,02mg/l	0,11-1,13°e

Nr. di produzione / production nr.: **2407.23.21.551**
Expiration: **07/2026**

Analisi / analisis:	conforme / in specification	
	SI	NO
alcool polivalente / polyacohols	√	
acqua / water	√	
colori di indicatori / indicator dyes	√	
alifatico alcool di ammoniaca / aliphatic aminoalcohols	√	

Misurazione / misuration (DIN 38409):

Durezza dell'acqua / water hardness	Misurazione durezza / Measuring of the water harness	conforme / in specification	
		SI	NO
3,0 ppm	2,9 ppm	√	
7,5 ppm	7,6 ppm	√	
15,0 ppm	15,0 ppm	√	
25,0 ppm	25,3 ppm	√	

(*) tolleranza <= 10% del valore massimo tolerance <= 10% of the max. value

L'indicatore corrisponde alle specifiche chimici / The indicator is in specification chimical:

☒ SI ☐ NO

Analisi del 23.07.2024 presso il ns. laboratorio di Nibionno (LC)
Analysis from 23.07.2024 in our laboratory of Nibionno (LC), Italy
Responsabile dell'analisi: Ing. Funke
Responsible of analysis: Eng. Funke

APURA s.r.l.
Piazza Porto, 3
25084 Villa di Gargnano (BS) • Italy

MAGNETICAL FLOW TRANSMITTER

BURKERT

50-FT-020 – 50-FT-022 – 50-FT-023

50-FT-024 – 50-FT-026

CE

bürkert
FLUID CONTROL SYSTEMS

EU Konformitäts-erklärung	EU Declaration of Conformity	Déclaration UE de Conformité
Originaldokument	Original document	Document original

Hersteller / Manufacturer / Constructeur:

Bürkert S.A.S.
Rue du Giessen
67220 Triembach au Val
www.burkert.com

Hiermit erklären wir, dass das unten beschriebene Produkt in seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Harmonisierungsvorschriften der EU entspricht. Die Anhänge, die wesentlicher Bestandteil dieser Erklärung sind, enthalten weitere Angaben zur Einhaltung dieser Richtlinie(n).	We hereby declare that the product described below, in its design and construction as well as in the version that we have placed on the market, is in conformity with the relevant EU harmonization legislation. The annexes, which are an integral part of this declaration of conformity, contain further information about the conformity to this Directive(s).	Nous déclarons par la présente que le produit spécifié ci-dessous, dans son développement et sa fabrication tel que mis sur le marché par nous, est conforme à la législation d'harmonisation de l'UE applicable. Les annexes, qui font partie intégrante de cette déclaration, contiennent des informations supplémentaires sur le respect de la ou des directives.

Typ / Type / Type:

8045

Produktbezeichnung / Product Description / Appellation d'un produit:

Insertion MID Durchflusstransmitter
Insertion MID flow transmitter
Transmetteur débit inductif insertion

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
2014/35/EU - NSR	2014/35/EU - LVD	2014/35/UE - DBT
2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS

Bei einer mit Bürkert nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.	If any unauthorized modifications are made to the product, this declaration will loose its validity.	Toute modification non autorisée apportée au produit fait perdre la validité de cette déclaration.
Eine Technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung in der Landessprache des Anwenders liegt vor (wenn erforderlich).	A complete technical documentation is available. The operating manual in the local language of the user is present (if necessary).	Une documentation technique com-plète est disponible. Le manuel d'utilisation du produit est présent (si nécessaire) dans la langue locale de l'utilisateur.
Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.	This declaration does not guarantee any specifications.	Cette déclaration ne garantit pas les spécifications.

Triembach, 10. Juin 2024

Dieses Dokument wurde digital erstellt und unterschrieben und ist ohne handschriftliche Unterschrift gültig.
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Ce document a été créé et signé numériquement et est valable sans signature manuscrite.

i.A. Regis Testa
Engineering/Construction/Development

i.A. Stéphanie Dumollard
Approval Management

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.	This Declaration of Conformity is issued under the sole responsibility of the manufacturer.	Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

ABD 1000292043 ML Version: C Status: RL (released | freigegeben) printed: 13.05.2025

CE

bürkert
FLUID CONTROL SYSTEMS

Anhang EMV zur EU Konformitätserklärung	Annex EMC for EU Declaration of Conformity	Annexe CEM à la Déclaration UE de
Originaldokument	Original document	Document original

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
Reference in the Official Journal of the EU: L 96 dated 29.3.2014		

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):

8045-****-****-**-*-**-*-***/**-*

Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2014/30/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit.	The object of the declaration described above is in conformity with Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.	L'objet de la déclaration décrit ci-dessus est conforme à la directive 2014/30/UE du Parlement européen et du Conseil du 26 février 2014 relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique.

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar):	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):
EN IEC 61000-6-2:2019, EN IEC 61000-6-3:2021		

ABD 1000292043 ML Version: C Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

CE

bürkert
FLUID CONTROL SYSTEMS

Anhang NSR zur EU Konformitätserklärung	Annex LVD for EU Declaration of Conformity	Annexe DBT à la Déclaration UE de
Originaldokument	Original document	Document original

2014/35/EU - NSR	2014/35/EU - LVD	2014/35/UE - DBT
Reference in the Official Journal of the EU: L 96 dated 29.3.2014		

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):

8045-****-****-**-*-**-*-***/**-* (1)

(1) Spannungsebene / Voltage levels / Niveau de tension [V]:
NSR gilt nur, wenn Spannungsebene ≥ 50 V AC / ≥ 75 V DC und ≤ 1000 V AC / ≤ 1500 V DC
LVD only valid, if voltage level ≥ 50 V AC / ≥ 75 V DC and ≤ 1000 V AC / ≤ 1500 V DC
DBT uniquement pour les niveaux de tensions ≥ 50 V AC / ≥ 75 V DC et ≤ 1000 V AC / ≤ 1500 V DC

Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2014/35/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt.	The object of the declaration described above is in conformity with Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.	L'objet de la déclaration décrit ci-dessus est conforme à la directive 2014/35/UE du Parlement européen et du Conseil du 26 février 2014 relative à l'harmonisation des législations des États membres concernant la mise à disposition sur le marché du matériel électrique destiné à être employé dans certaines limites de tension.
Die Richtlinie 2014/35/EU ist nur bei Produkten anzuwenden, die nicht in den Anwendungsbereich der ATEX-Richtlinie fallen.	Directive 2014/35/EU applies only to products that do not fall inside the scope of the ATEX Directive.	La directive 2014/35/UE s'applique uniquement aux produits qui ne relèvent pas de la directive ATEX.

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar): EN 61010-1:2010/A1:2019	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):

ABD 1000292043 ML Version: C Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

Anhang ROHS zur EU Konformitätserklärung	Annex ROHS for EU Declaration of Conformity	Annexe ROHS à la Déclaration UE de
Originaldokument	Original document	Document original

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS
	Reference in the Official Journal of the EU: L 174 dated 07.11.2011	
2017/2102/EU	Reference in the Official Journal of the EU: L 305 dated 21.11.2017	
2015/863/EU	Reference in the Official Journal of the EU: L 137 dated 04.06.2015	

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):

8045-****-****-**-*-**-*-***/**-*

Das oben beschriebene Produkt erfüllt die Vorschriften der Richtlinie 2011/65/EU und deren Ergänzungen 2017/2102/EU und 2015/863/EU. Das Produkt erfüllt die Anforderungen zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (Liste der beschränkten Stoffe siehe Richtlinien).	The product described above complies with the provisions of Directive 2011/65/EU and its amendments 2017/2102/EU and 2015/863/EU The product complies with the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (for list of restricted substances see Directives).	Le produit décrit ci-dessus est conforme aux dispositions de la directive 2011/65/UE et de ses amendements 2017/2102/UE et 2015/863/UE. Le produit est conforme aux exigences relatives à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (pour la liste des substances restreintes, voir les Directives).

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar): EN IEC 63000:2018	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):

ABD 1000292043 ML Version: C Status: RL (released | freigegeben) printed: 13.05.2025

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

PH ANALYZER

BURKERT

50-AT-027

EU Konformitäts-erklärung	EU Declaration of Conformity	Déclaration UE de Conformité
Originaldokument	Original document	Document original

Hersteller / Manufacturer / Constructeur:

Bürkert S.A.S.
Rue du Giessen
67220 Triembach au Val
www.burkert.com

Hiermit erklären wir, dass das unten beschriebene Produkt in seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Harmonisierungsvorschriften der EU entspricht. Die Anhänge, die wesentlicher Bestandteil dieser Erklärung sind, enthalten weitere Angaben zur Einhaltung dieser Richtlinie(n).	We hereby declare that the product described below, in its design and construction as well as in the version that we have placed on the market, is in conformity with the relevant EU harmonization legislation. The annexes, which are an integral part of this declaration of conformity, contain further information about the conformity to this Directive(s).	Nous déclarons par la présente que le produit spécifié ci-dessous, dans son développement et sa fabrication tel que mis sur le marché par nous, est conforme à la législation d'harmonisation de l'UE applicable. Les annexes, qui font partie intégrante de cette déclaration, contiennent des informations supplémentaires sur le respect de la ou des directives.

Typ / Type / Type:

8202

Produktbezeichnung / Product Description / Appellation d'un produit:

pH/ORP-Transmitter
pH/ORP-transmitter
Transmetteur de pH/ORP

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS

Bei einer mit Bürkert nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.	If any unauthorized modifications are made to the product, this declaration will loose its validity.	Toute modification non autorisée apportée au produit fait perdre la validité de cette déclaration.
Eine Technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung in der Landessprache des Anwenders liegt vor (wenn erforderlich).	A complete technical documentation is available. The operating manual in the local language of the user is present (if necessary).	Une documentation technique com-plète est disponible. Le manuel d'utilisation du produit est présent (si nécessaire) dans la langue locale de l'utilisateur.
Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.	This declaration does not guarantee any specifications.	Cette déclaration ne garantit pas les spécifications.

Triembach, 10. Juin 2024

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i.A. Vincent Giroud
Engineering/Construction/Development

i.A. Stéphanie Dumollard
Approval Management

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.	This Declaration of Conformity is issued under the sole responsibility of the manufacturer.	Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

ABD 1000563489 ML Version: B Status: RL (released | freigegeben) printed: 03.09.2024

Anhang EMV zur EU Konformitätserklärung	Annex EMC for EU Declaration of Conformity	Annexe CEM à la Déclaration UE de
Originaldokument	Original document	Document original

2014/30/EU - EMV	2014/30/EU - EMC	2014/30/UE - CEM
Reference in the Official Journal of the EU: L 96 dated 29.3.2014		

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):
8202-****-****-**-*-**-*-***/**-*

Der oben beschriebene Gegenstand der Erklärung erfüllt die Vorschriften der Richtlinie 2014/30/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit.	The object of the declaration described above is in conformity with Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.	L'objet de la déclaration décrit ci-dessus est conforme à la directive 2014/30/UE du Parlement européen et du Conseil du 26 février 2014 relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique.

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar):	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):
EN IEC 61000-6-2:2019, EN IEC 61000-6-3:2021		

ABD 1000563489 ML Version: B Status: RL (released | freigegeben) printed: 03.09.2024

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

Anhang ROHS zur EU Konformitätserklärung	Annex ROHS for EU Declaration of Conformity	Annexe ROHS à la Déclaration UE de
Originaldokument	Original document	Document original

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS
	Reference in the Official Journal of the EU: L 174 dated 07.11.2011	
2017/2102/EU	Reference in the Official Journal of the EU: L 305 dated 21.11.2017	
2015/863/EU	Reference in the Official Journal of the EU: L 137 dated 04.06.2015	

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):
8202-****-****-**-*-**-*-***/**-*

Das oben beschriebene Produkt erfüllt die Vorschriften der Richtlinie 2011/65/EU und deren Ergänzungen 2017/2102/EU und 2015/863/EU. Das Produkt erfüllt die Anforderungen zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (Liste der beschränkten Stoffe siehe Richtlinien).	The product described above complies with the provisions of Directive 2011/65/EU and its amendments 2017/2102/EU and 2015/863/EU The product complies with the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (for list of restricted substances see Directives).	Le produit décrit ci-dessus est conforme aux dispositions de la directive 2011/65/UE et de ses amendements 2017/2102/UE et 2015/863/UE. Le produit est conforme aux exigences relatives à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (pour la liste des substances restreintes, voir les Directives).

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar): EN IEC 63000:2018	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):

ABD 1000563489 ML Version: B Status: RL (released | freigegeben) printed: 03.09.2024

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

CE

bürkert
FLUID CONTROL SYSTEMS

EU Konformitäts-erklärung	EU Declaration of Conformity	Déclaration UE de Conformité
Originaldokument	Original document	Document original

Hersteller / Manufacturer / Constructeur:

Bürkert Werke GmbH & Co. KG
Werk 10
Christian-Bürkert-Straße 13-17
74653 Ingelfingen
www.burkert.com

Hiermit erklären wir, dass das unten beschriebene Produkt in seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen Harmonisierungsvorschriften der EU entspricht. Die Anhänge, die wesentlicher Bestandteil dieser Erklärung sind, enthalten weitere Angaben zur Einhaltung dieser Richtlinie(n).	We hereby declare that the product described below, in its design and construction as well as in the version that we have placed on the market, is in conformity with the relevant EU harmonization legislation. The annexes, which are an integral part of this declaration of conformity, contain further information about the conformity to this Directive(s).	Nous déclarons par la présente que le produit spécifié ci-dessous, dans son développement et sa fabrication tel que mis sur le marché par nous, est conforme à la législation d'harmonisation de l'UE applicable. Les annexes, qui font partie intégrante de cette déclaration, contiennent des informations supplémentaires sur le respect de la ou des directives.

Typ / Type / Type:

KK02

Produktbezeichnung / Product Description / Appellation d'un produit:

Adapter elektrisch
Adapter electrical
Adaptateur électrique

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS

Bei einer mit Bürkert nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.	If any unauthorized modifications are made to the product, this declaration will loose its validity.	Toute modification non autorisée apportée au produit fait perdre la validité de cette déclaration.
Eine Technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung in der Landessprache des Anwenders liegt vor (wenn erforderlich).	A complete technical documentation is available. The operating manual in the local language of the user is present (if necessary).	Une documentation technique com-plète est disponible. Le manuel d'utilisation du produit est présent (si nécessaire) dans la langue locale de l'utilisateur.
Diese Erklärung beinhaltet keine Zusicherung von Eigenschaften.	This declaration does not guarantee any specifications.	Cette déclaration ne garantit pas les spécifications.

Ingelfingen, 24. Oktober 2022

Dieses Dokument wurde digital erstellt und unterschrieben und ist ohne handschriftliche Unterschrift gültig.
This document has been created and signed digitally and is valid without a handwritten signature.
Ce document a été créé et signé numériquement et est valable sans signature manuscrite.

i.A. Moritz Kampert
Engineering

i.A. Annegret Popp
Approval Management

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.	This Declaration of Conformity is issued under the sole responsibility of the manufacturer.	Cette déclaration de conformité est émise sous la seule responsabilité du fabricant.

ABD 1000497209 ML Version: A Status: RL (released | freigegeben) printed: 28.09.2023

CE

bürkert
FLUID CONTROL SYSTEMS

Anhang ROHS zur EU Konformitätserklärung	Annex ROHS for EU Declaration of Conformity	Annexe ROHS à la Déclaration UE de
Originaldokument	Original document	Document original

2011/65/EU - ROHS	2011/65/EU - ROHS	2011/65/UE - ROHS
	Reference in the Official Journal of the EU: L 174 dated 07.11.2011	
2017/2102/EU	Reference in the Official Journal of the EU: L 305 dated 21.11.2017	
2015/863/EU	Reference in the Official Journal of the EU: L 137 dated 04.06.2015	

Typ / Type / Type (Geräteschlüssel / product specification key / clé de spécification produit):

KK02-******-**-**-**-****-**-**-*-*-** (1)

(1) Variabler Code / Variable code / Variable Code:
nur in Verbindung mit / Only valid in combination with / Est uniquement valable en lien avec: KG08

Das oben beschriebene Produkt erfüllt die Vorschriften der Richtlinie 2011/65/EU und deren Ergänzungen 2017/2102/EU und 2015/863/EU. Das Produkt erfüllt die Anforderungen zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (Liste der beschränkten Stoffe siehe Richtlinien).	The product described above complies with the provisions of Directive 2011/65/EU and its amendments 2017/2102/EU and 2015/863/EU The product complies with the requirements on the restriction of the use of certain hazardous substances in electrical and electronic equipment (for list of restricted substances see Directives).	Le produit décrit ci-dessus est conforme aux dispositions de la directive 2011/65/UE et de ses amendements 2017/2102/UE et 2015/863/UE. Le produit est conforme aux exigences relatives à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (pour la liste des substances restreintes, voir les Directives).

Für die Bewertung wurden folgende Normen herangezogen (wenn anwendbar):	For evaluation of the conformity, the following standards were consulted (if applicable):	Pour l'évaluation de la conformité, les normes suivantes ont été utilisées (le cas échéant):
EN IEC 63000:2018		

ABD 1000497209 ML Version: A Status: RL (released | freigegeben) printed: 28.09.2023

Die Sicherheits- und Einbauhinweise der mitgelieferten Produktdokumentation sind zu beachten	The instructions for safety and installation of the enclosed product documentation have to be observed.	Les consignes de sécurité et d'installation décrites dans la documentation fournie avec le produit doivent être respectées.

PRESSURE TRANSMITTER

ISIFLEX/GEORG FISHER

50-PT-020 – 50-PT-025 – 50-PT-026

50-PT-027 – 50-PT-028 – 50-PT-041

50-PT-047 – 50-PT-050 – 50-PT-051

EU, UKCA Declaration of conformity

The undersigned, representing the following:

Manufacturer: Georg Fischer Signet LLC
5462 Irwindale Ave.
Irwindale, CA 91706

Manufacturing site(s): Same as above

herewith declares that the product: **159 001 a, GF Signet 3-9900-X Single Channel, Multi-Parameter Transmitter and optional accessory modules** are in conformity with the provisions of the EU Directives and UK Regulations shown below when installed in accordance with the installation instructions contained in the product documentation. Tests, according to the standards listed below, were performed as a system with a Georg Fischer Signet configuration.

Where a may be 695, 696, or 770 and X may be 1, 1P, or 1BC

Standard(s) Directive(s) and Regulation(s) to which the product conforms:

CE Standards	UK Regulations
Directive EMC 2014/30/EU EN 55011: 2016 EN 61326-1:2021 EN 61000-4-6: 2019	Electromagnetic Compatibility Regulation 2016 (S.I. 2016/1091)
Low Voltave Directive 2014/35/EU EN 61010-1:2010	Electrical Equipment (Safety) Regulations 2016 (S.I. 2016/1101)
RoHS Directive 2011/65/EU	RoHS Regulations 2012 (S.I. 2012/3032)
WEEE Directive 2019/19/EU	WEEE Regulations 2013

Quality Management System according to ISO 9001, ISO 14001, and ISO 45001

Description of the product:

159 001 a (3-9900-X) is a single channel interface for many different parameters that output a 4 to 20 mA signal.

This declaration of conformity is valid for the above-mentioned products manufactured from batch 2021/03 and later.

Signature



Name: Ed DeGrood
Position: Dir of Quality and Compliance
Date: 10/07/2022

TEMPERATURE TRANSMITTER ISIFLEX/GEORG FISHER

50-TT-021 – 50-TT-022 – 50-TT-024

EU, UKCA Declaration of conformity

The undersigned, representing the following:

Manufacturer: Georg Fischer Signet LLC
5462 Irwindale Ave.
Irwindale, CA 91706

Manufacturing site(s): Same as above

herewith declares that the product: **159 001 a, GF Signet 3-9900-X Single Channel, Multi-Parameter Transmitter and optional accessory modules** are in conformity with the provisions of the EU Directives and UK Regulations shown below when installed in accordance with the installation instructions contained in the product documentation. Tests, according to the standards listed below, were performed as a system with a Georg Fischer Signet configuration.

Where a may be 695, 696, or 770 and X may be 1, 1P, or 1BC

Standard(s) Directive(s) and Regulation(s) to which the product conforms:

CE Standards	UK Regulations
Directive EMC 2014/30/EU EN 55011: 2016 EN 61326-1:2021 EN 61000-4-6: 2019	Electromagnetic Compatibility Regulation 2016 (S.I. 2016/1091)
Low Voltave Directive 2014/35/EU EN 61010-1:2010	Electrical Equipment (Safety) Regulations 2016 (S.I. 2016/1101)
RoHS Directive 2011/65/EU	RoHS Regulations 2012 (S.I. 2012/3032)
WEEE Directive 2019/19/EU	WEEE Regulations 2013

Quality Management System according to ISO 9001, ISO 14001, and ISO 45001

Description of the product:

159 001 a (3-9900-X) is a single channel interface for many different parameters that output a 4 to 20 mA signal.

This declaration of conformity is valid for the above-mentioned products manufactured from batch 2021/03 and later.

Signature



Name: Ed DeGrood
Position: Dir of Quality and Compliance
Date: 10/07/2022

ULTRASONIC LEVEL TRANSMITTER VEGA

50-LT-020 – 50-LT-021 – 50-LT-022

50-LT-023 – 50-LT-024

EU-Konformitätserklärung
EU declaration of conformity
Déclaration UE de conformité

VEGAPULS 11, 21, 31

Two-wire 4 ... 20 mA/HART



Document ID: 61788

EU-Konformitätserklärung

EU declaration of conformity
Déclaration UE de conformité

Product	Version
VEGAPULS 11, 21, 31	Two-wire 4 … 20 mA/HART

VEGA Grieshaber KG erklärt hiermit in alleiniger Verantwortung, dass die Produkte mit den aufgeführten Richtlinien übereinstimmen. Diese Konformitätserklärung gilt nur in Zusammenhang mit den gültigen VEGA-Betriebsanleitungen und -Sicherheitshinweisen.

VEGA Grieshaber KG hereby declares, in sole responsibility, that the products comply with the listed directives. This declaration of conformity applies only in connection with the valid operating and safety instructions manuals from VEGA.

Par la présente, VEGA Grieshaber KG déclare sous sa seule responsabilité que les produits sont conformes aux directives citées. Cette Déclaration de Conformité est uniquement valable en application avec les notices de mise en service et les consignes de sécurité en cours de validité.

61788-04-240418

Directive	Issue	Standard
EMC	2014/30/EU	EN 61326-1: 2013[1)] EN 61326-2-3: 2013
LVD	2014/35/EU	EN 61010-1: 2010 / A1: 2019
RED	2014/53/EU	EN 300328 V2.2.2 EN 302372 V2.1.1 EN 302729 V2.1.1 EN 301489-1 V2.2.3 EN 301489-17 DRAFT V3.2.6 EN 301489-33 V2.1.1 EN 62368-1: 2014 + AC: 2015 + A11: 2017 EN 62311: 2008
RoHS	2011/65/EU	EN IEC 63000: 2018

Remarks:

[1)] Emission: Class B
Immunity: Industrial Area

Zusätzliche Angaben für Geräte mit Ex-Zulassung / For instruments with Ex-approval / Pour produits avec certificat Ex

Directive	Issue
ATEX	2014/34/EU

Standards

Product	Certificate	Standard[1)]
VEGAPULS 21, 31	KIWA 19 ATEX 0028 X	EN IEC 60079-0: 2018 EN 60079-11: 2012 EN 60079-26: 2015

Remarks:

[1)] Die in der Tabelle angegebenen Normenstände können von den Angaben in der EU-Baumusterprüfbescheinigung abweichen. In diesen Fällen erklärt der Hersteller auch die Übereinstimmung mit den Anforderungen der neuen Normenausgaben, da die veränderten Anforderungen der neuen Normenausgaben für dieses Produkt nicht relevant sind.

61788-04-240418

The standards listed in the table may differ from the information in the EU-Type Examination Certificate. In these cases, the manufacturer declares conformity with the requirements of the new standards because the changed requirements of the new standards are not relevant for this product.

Les valeurs présentes dans le tableau peuvent dévier des données du attestation d'examen UE de type. Dans ces cas, le fournisseur les déclare conforme aux exigences des nouvelles normes, car les exigences modifiées des nouvelles normes sont insignifiantes pour ce produit.

Anerkennung des Qualitätssicherungssystems / Production Quality Assessment Notification / Reconnaissance du Système-Aualité Notification	TÜV 96 ATEX 1142 Q
Benannte Stelle / Kennnummer Notified body / Identification number Organisme notifié / Numéro d'identification	TÜV Nord Cert./0044

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach

18.04.2024

Holger Sack
Head of Product Compliance & Safety

© VEGA Grieshaber KG, Schiltach/Germany 2024

CE

61788-04-240418

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2.1.1.15

PRESSURE GAUGES

NUOVA FIMA

50-PI-031 – 50-PI-033 – 50-PI-022

50-PI-042 – 50-PI-043 – 50-PI-048

50-PI-044 – 50-PI-045 – 50-PI-046

Industrial Instrumentation for Pressure and Temperature
Via C.Battisti 59 - 28045 INVORIO (NO) -Italy
Tel. +39 0322 253200 - Fax +39 0322 253232
www.nuovafima.com – info@nuovafima.com

DICHIARAZIONE UE DI CONFORMITA'
EU DECLARATION OF CONFORMITY

Direttiva 2014/68/UE - Attrezzature a Pressione
Directive 2014/68/EU - Pressure Equipment Directive (PED)

NUOVA FIMA s.r.l. dichiara sotto la propria responsabilità che i manometri a molla tubolare di seguito elencati sono in accordo con la direttiva.

NUOVA FIMA s.r.l. declare on its sole responsibility that the followings bourdon tube pressure gauges comply with the directive

Modello **Model**	**DN** **DS**	**Codice** **Code**	**Modello** ***Model***	**DN** ***DS***	**Codice** ***Code***
MS 1	50/150	01.01	MGS 32	125	01.32
MS 2	40/50/63	01.02	MGS 36	100/150	01.36
MS 4	100	01.04	MGS 37	100/150	01.37
MS 7	40/50/63	01.07	MGS 40	100/150	01.40
MGS 8	250	01.08	MGS 41	100/150	01.41
MGS 10	50/63/100	01.10	MGS 44	100	01.44
MGS 18	40/50/63/100/150	01.18	MGS 60	125	01.60
MGS 19	100/150	01.19	MGS 61	125	01.61
MGS 20	63/100/150	01.20	MN 15	150	01.15
MGS 21	100/150	01.21	MN 16	150	01.16
MGS 22	100/150	01.22	MN 17	150	01.17
MN 25	150	01.25	MN 17L	250	01.27
MGS 30	125	01.30	SP	63/100	01.SP.C/E

Gli strumenti con sovrappressione applicabile ≤200 bar (max pressione ammissibile - PS) sono progettati e fabbricati secondo criteri di buona prassi costruttiva, in accordo con l'articolo 4, par.3 della direttiva.
Gli strumenti con sovrappressione applicabile >200 bar (massima pressione ammissibile - PS) in aggiunta, sono classificati in CATEGORIA I e sottoposti a valutazione della conformità secondo il Modulo A – Controllo di fabbricazione interno e sono marcati CE

Instruments with allowable overpressure value ≤ 200 bar (maximum allowable pressure – PS) are designed and manufactured in accordance with sound engineering practice, according to article 4, par. 3 of the directive.
Instruments with allowable overpressure value >200 bar (maximum allowable pressure – PS) are additionally classified with CATEGORY I and *subjected to the conformity assessment procedure according to Module A - Internal production control and they are marked* CE

Norma di riferimento - *Reference standard*:
EN 837-1:1996 "Manometri a molla tubolare - *Bourdon tube pressure gauges".*

Il controllo della fabbricazione interna degli strumenti è assicurato dal Sistema Qualità secondo ISO 9001:2008 operante in azienda e certificato da ICIM S.p.A.
The control of internal manufacturing of the instruments is assured by the Quality System according to ISO 9001:2008 of the factory, certified from ICIM S.p.A.

Invorio,10.05.2018

Amministratore Delegato
Managing Director
F.Zaveri

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2.1.1.16

SHUT-OFF VALVES

TRUST

50-XV-027, 50-XV-030

EC and UKCA Declaration of Conformity / EG-und UKCA-Konformitätserklärung

The manufacturer GF Piping Systems, 8201 Schaffhausen (Switzerland) declares that the industrial valves listed below are pressure retaining equipment according to the Harmonised design standards listed below in the sense of the EC Pressure Equipment Directive 2014/68/EU, Category I, Module A, and that they comply with the requirements of this directive that apply to industrial valves. The CE marking on the industrial valves indicates this conformity.
According to the Pressure Equipment Directive (Art.4, Par.3), industrial valves with a DN less than or equal to 25 must not bear the CE marking. The commissioning of these directive valves is prohibited the entire plant in which the industrial valves are installed has been declared to be in conformity with the mentioned EC directive.
Der Hersteller GF Rohrleitungssysteme AG, 8201 Schaffhausen (Schweiz) erklärt, dass die nachfolgend genannten Industriearmaturen gemäss der aufgelisteten harmonisierten Bauart-Normen druckhaltende Ausrüstungsteile im Sinne der EG-Druckgeräterichtlinie 2014/68/EU, Kategorie I, Modul A sind, und solchen Anforderungen dieser Richtlinie entsprechen, die für Industriearmaturen zutreffen. Die CE-Kennzeichnung an den Industriearmaturen zeigt diese Übereinstimmung an.
Nach Druckgeräterichtlinie (Art.4, Abs.3) dürfen Industriearmaturen, deren DN kleiner oder gleich 25 ist, die CE-Kennzeichnung nicht tragen. Die Inbetriebnahme dieser Industriearmaturen ist so lange untersagt, bis die Konformität der Gesamtanlage, in die die Industriearmaturen eingebaut sind, mit der genannten EG-Richtlinie erklärt ist.

Product group Produktgruppe	Type designations Typenbezeichnungen	Harmonised design standards Harmonisierte Bauart-Normen	UK Regulation UK Verordnung
Thermoplastic ball valves Kugelhähne aus Thermoplasten	546 Pro, 542, 543 Pro, 523 Pro, 547	EN ISO 16135	
Thermoplastic butterfly valves Klappen aus Thermoplasten	563, 565, 567, 578	EN ISO 16136	
Thermoplastic diaphragm valves Membranventile aus Thermoplasten	317, 514, 515, 517, 519	EN ISO 16138	2016 No. 1105
Steel butterfly valves Metallische Klappen	038, 039, 044, 065	EN 593	
Backflow preventers Rückflussverhinderer	369	EN ISO 16137	

Modifications to the industrial valves which affect the specified technical data and the intended use make this declaration of conformity invalid.
Additional information can be found in the "GF Planning Fundamentals Industry".
Änderungen an den Industriearmaturen, die Auswirkungen auf die angegebenen technischen Daten und den bestimmungsgemässen Gebrauch haben, machen diese Konformitätserklärung ungültig.
Zusätzliche Informationen können den „GF Planungsgrundlagen Industrie" entnommen werden.

Schaffhausen, 08.08.2023
Bastian Lübke
Head of Global R&D
GF Piping Systems Ltd.
CH-8201 Schaffhausen (Switzerland)

Our general terms and conditions of sale apply.
Es gelten unsere allgemeinen Verkaufsbedingungen.

EC Manufacturer's Declaration / EG-Herstellererklärung

The manufacturer GF Piping Systems, 8201 Schaffhausen (Switzerland) declares that the industrial valves listed below do not fall within the scope of the Pressure Equipment Directive 2014/68/EU (Art.4, Par.3) due to the exclusion of their use with hazardous, flammable or gaseous media and because of their nominal size and pressure rating, and therefore may not bear the CE marking. The commissioning of these industrial valves is prohibited until the entire plant in which the industrial valves are installed has been declared to be in conformity with the mentioned EC directive.
Der Hersteller GF Rohrleitungssysteme AG, 8201 Schaffhausen (Schweiz) erklärt, dass die nachfolgend genannten Industriearmaturen durch den Ausschluss, diese bei gefährlichen, brennbaren oder gasförmigen Medien einzusetzen, aufgrund von Nennweite und Druckstufe nicht in den Geltungsbereich der Druckgeräterichtlinie 2014/68/EU fallen (Art.4, Abs.3) und somit die CE-Kennzeichnung nicht tragen dürfen. Die Inbetriebnahme dieser Industriearmaturen ist so lange untersagt, bis die Konformität der Gesamtanlage, in die die Industriearmaturen eingebaut sind, mit der genannten EG-Richtlinie erklärt ist.

Product group Produktgruppe	Type designations Typenbezeichnung	Design standards Bauart-Normen
Thermoplastic ball valves Kugelhähne aus Thermoplasten	373, 374, 375, 522	EN ISO 16135
Pressure regulating valves Druckregelventile	582, V82, 586, V86	
Thermoplastic valves Ventile aus Thermoplasten	305, 306, V251, P20	EN ISO 21787
Thermoplastic backflow preventers Rückflussverhinderer aus Thermoplasten	561, 562, 303, 304, 591, 595	EN ISO 16137

Modifications to the industrial valves which affect the specified technical data and the intended use make this manufacturer's declaration invalid.
Additional information can be found in the "GF Planning Fundamentals Industry".
Änderungen an den Industriearmaturen, die Auswirkungen auf die angegebenen technischen Daten und den bestimmungsgemässen Gebrauch haben, machen diese Herstellererklärung ungültig.
Zusätzliche Informationen können den „GF Planungsgrundlagen Industrie" entnommen werden.

Schaffhausen, 08.08.2023
Bastian Lübke
Head of Global R&D
GF Piping Systems Ltd.
CH-8201 Schaffhausen (Switzerland)

Our general terms and conditions of sale apply.
Es gelten unsere allgemeinen Verkaufsbedingungen.

Meaning of the signal words / Bedeutung der Signalwörter

⚠ **DANGER!** GEFAHR!
Imminent danger! Unmittelbar drohende Gefahr!
Failure to do so may result in death or serious injury.
Bei Nichtbeachtung drohen Tod oder schwerste Verletzungen.

⚠ **WARNING!** WARNUNG!
Possible danger! Möglicherweise drohende Gefahr!
Non-observance may result in serious injuries.
Bei Nichtbeachtung drohen schwere Verletzungen.

⚠ **CAUTION!** VORSICHT!
Dangerous situation! Gefährliche Situation!
Non-observance may result in minor injuries.
Bei Nichtbeachtung drohen leichte Verletzungen.

⚠ **NOTICE!** HINWEIS!
Avoid the situation! Situation vermeiden!
Non-observance will lead to a risk of damage to property.
Bei Nichtbeachtung droht Sachschaden.

General safety information / Allgemeine Sicherheitshinweise

The safety instructions apply to use as described under "Intended use".
The safety instructions do not cover the following cases:
- Incidental events occurring during installation, operation and maintenance.
- The operator is responsible for compliance with local and site-related safety regulations.

Die Sicherheitshinweise gelten für den Einsatz wie beschrieben unter „Bestimmungsgemässe Verwendung".
Die Sicherheitshinweise decken folgende Fälle nicht ab:
- Bei Installation, Betrieb und Wartung zufällig auftretende Ereignisse.
- Für die lokalen und ortsbezogenen Sicherheitsbestimmungen ist der Betreiber verantwortlich.

Observe the complete technical documentation! Vollständige technische Dokumentation beachten!
The complete technical documentation is part of the product and an important component within the safety concept. Non-observance may lead to severe injuries.
Die vollständige technische Dokumentation ist Teil des Produkts und ein wichtiger Bestandteil im Sicherheitskonzept. Nichtbeachtung kann zu schweren Verletzungen führen.
- ▶ Read and observe the complete technical documentation.
  Vollständige technische Dokumentation lesen und befolgen.
- ▶ Always have the instruction manual available by the product.
  Betriebsanleitung stets beim Produkt verfügbar halten.
- ▶ Give the instruction manual to all subsequent users of the product.
  Betriebsanleitung an alle nachfolgenden Verwender des Produkts weitergeben.

Commissioning, use and disassembly by qualified personnel only!
Inbetriebnahme, Benutzung und Demontage nur durch Fachpersonal!
- ▶ The product and accessories must only be put into operation by persons who have the required training, knowledge or experience.
  Produkt und Zubehör nur von Personen in Betrieb nehmen lassen, welche die erforderliche Ausbildung, Kenntnis oder Erfahrung haben.
- ▶ Regularly instruct personnel on all questions regarding the local regulations applying to occupational safety and environmental protection, especially for pressurised pipes.
  Personal regelmässig in allen zutreffenden Fragen der örtlich geltenden Vorschriften für Arbeitssicherheit und Umweltschutz, vor allem für druckführende Rohrleitungen, unterweisen.

Storage and transport! Lagerung und Transport!
The product must be handled, transported and stored with care. Please note the following points:
Das Produkt muss sorgfältig behandelt, transportiert und gelagert werden. Hierzu sind folgende Punkte zu beachten:
- ▶ Transport and store the product in its unopened original packing.
  Produkt in ungeöffneter Originalverpackung transportieren und lagern.
- ▶ Protect the product from harmful physical influences such as light, dust, heat, humidity and UV radiation.
  Produkt vor schädlichen physikalischen Einflüssen wie Licht, Staub, Wärme, Feuchtigkeit und UV-Strahlung schützen.
- ▶ The product and its components must not be damaged either by mechanical or thermal influences.
  Das Produkt und seine Komponenten dürfen weder durch mechanische, noch durch thermische Einflüsse beschädigt werden.
- ▶ Check the product for general damage prior to installation.
  Produkt vor Installation auf allgemeine Schäden untersuchen.

⚠ **CAUTION!** VORSICHT!
No product modifications! Keine Veränderungen am Produkt vornehmen!
Material damage and/or risk of injury due to modifications to the product or incompatible spare parts.
Materialschaden und/oder Verletzungsgefahr durch Veränderungen am Produkt oder nicht kompatible Ersatzteile.
- ▶ Do not make any internal or external modifications.
  Keine inneren oder äusseren Veränderungen vornehmen.
- ▶ Secure the system/device against unintentional actuation.
  Anlage/Gerät vor unbeabsichtigter Betätigung sichern.
- ▶ Only use original parts from GF Piping Systems with the specifications according to the type plate.
  Nur original-Ersatzteile von GF Piping Systems mit den Angaben gemäss Typenschild verwenden.
- ▶ Do not use defective spare parts.
  Keine defekten Ersatzteile einsetzen.

⚠ **WARNING!** WARNUNG!
Do not use damaged products! Beschädigte Produkte nicht verwenden!
Danger of injury or material damage through the use of defective or damaged products.
Verletzungsgefahr oder Sachschaden durch Verwendung von defekten oder beschädigten Produkten.
- ▶ Do not use a damaged or defective product.
  Kein beschädigtes oder defektes Produkt verwenden.
- ▶ Replace any damaged or defective products immediately.
  Beschädigtes oder defektes Produkt sofort austauschen.

⚠ **CAUTION!** VORSICHT!
Proper disposal! Ordnungsgemässe Entsorgung!
Safe and proper disposal of the valve must be ensured in accordance with local legal requirements and regulations. Parts of the product may be contaminated with media that are harmful to health and the environment, so that the product may only be disposed of in compliance with specific regulations.
Risk of personal injury or environmental damage due to these media.
Die sichere und ordnungsgemässe Entsorgung des Ventils muss gemäss den lokalen gesetzlichen Bestimmungen und Verordnungen gewährleistet sein. Teile des Produkts können mit gesundheits- und umweltschädlichen Medien kontaminiert sein, so dass das Produkt nur unter Einhaltung spezifischer Vorschriften entsorgt werden darf. Gefahr von Personen- oder Umweltschäden durch diese Medien.
- ▶ When using aggressive media: observe the safety data sheet of the medium used.
  Beim Einsatz aggressiver Medien: Sicherheitsdatenblatt des eingesetzten Mediums beachten.
- ▶ Neutralize any media residues in the product. Collect medium safely.
  Neutralisieren eventueller Medienrückstände im Produkt. Medium sicher auffangen.
- ▶ Separate materials (plastics, metals, hazardous waste etc.), observe local regulations.
  Werkstoffe (Kunststoffe, Metalle, Sondermüll usw.) trennen, dabei lokale Vorschriften beachten.

Warnings regarding valves in general / Warnhinweise zu Ventilen allgemein

⚠ **NOTICE!** HINWEIS!
Observe system requirements! Sicherheitsvorschriften beachten!
Valves are generally subject to the same safety regulations as the piping system in which they are installed.
Für Ventile gelten in der Regel dieselben Sicherheitsvorschriften, wie für das Rohrleitungssystem, in welches sie eingebaut werden.
- ▶ Observe the safety regulations for the piping system.
  Sicherheitsvorschriften für das Rohrleitungssystem beachten.

⚠ **CAUTION!** VORSICHT!
Leaks due to incompatible components! Undichtigkeiten durch nicht kompatible Bauteile!
Risk of injury and/or damage to property from leaking liquids due to incompatible components.
Verletzungsgefahr und/oder Sachschäden durch austretende Flüssigkeiten wegen nicht kompatibler Bauteile.
- ▶ Ensure compatibility of valve and piping system specifications before installation.
  Vor Einbau Kompatibilität der Spezifikationen von Ventil und Rohrleitungssystem sicherstellen.

⚠ **CAUTION!** VORSICHT!
Cavitation! Kavitation!
Material damage to the valve due to cavitation.
Sachschaden am Ventil durch Kavitation.
- ▶ Always use the valve in the optimum regulating mode.
  Ventil immer im optimalen Regelbetrieb einsetzen.

⚠ **DANGER!** GEFAHR!
Use of hazardous and non-approved media! Einsatz gefährlicher und nicht zugelassener Medien!
Non-approved chemically aggressive or hot media can attack materials, cause personal injury, and endanger the environment.
Components not in contact with the medium can be attacked by leakage inside the valve.
Nicht zugelassene chemisch aggressive oder heisse Medien können Werkstoffe angreifen, Personenschäden verursachen sowie die Umwelt gefährden.
Nicht medienberührende Bauteile können durch Leckagen innerhalb des Ventils angegriffen werden.
- ▶ Observe the safety data sheets or the applicable safety regulations for the media used.
  Beachten der Sicherheitsdatenblätter, bzw. die geltenden Sicherheitsvorschriften für verwendete Medien.
- ▶ Check the compatibility of the valve materials with the medium.
  Überprüfen der Kompatibilität der Ventilwerkstoffe mit dem Medium.
  Do not use non-approved media.
  Keine Verwendung nicht zugelassener Medien.
- ▶ Regularly check the valve for wear and, if necessary, carry out maintenance.
  Regelmässiges Prüfen des Ventils auf Verschleiss und ggf. Vornehmen einer Wartung.
- ▶ Wear suitable protective equipment.
  Tragen von geeigneter Schutzausrüstung.
- ▶ In case of hot media: Work only on a cooled-down plant.
  Bei heissen Medien: Arbeiten nur an abgekühlter Anlage.
- ▶ Contact the GF sales company in case of uncertainty regarding approved media.
  Bei Unsicherheiten bezüglich zugelassener Medien ist die GF Piping Systems Vertriebsgesellschaft zu kontaktieren.

⚠ **DANGER!** GEFAHR!
Valve not suitable for application! Ventil für Anwendung nicht geeignet!
The valve has product-specific characteristics, installation dimensions and connections. The use of a valve that is unsuitable for the application can cause personal injury and damage to property, as well as endanger the environment.
Das Ventil besitzt produktspezifische Eigenschaften, Einbaumasse und Anschlüsse. Die Verwendung eines für die Anwendung ungeeigneten Ventils kann Personen- und Sachschäden verursachen sowie die Umwelt gefährden.
- ▶ Check the compatibility of the valve materials with the medium.
  Überprüfen der Kompatibilität der Ventilwerkstoffe mit dem Medium.
- ▶ Match the dimensions of the piping system with the valve according to the type plate.
  Abgleichen der Dimensionen des Rohrleitungssystems mit dem Ventil gemäss Typenschild.
- ▶ Ensure that the pressure class, connection type and connection dimensions correspond to the operating conditions.
  Sicherstellen, dass Druckklasse, Anschlussart und Anschlussabmessungen den Einsatzbedingungen entsprechen.

⚠ **WARNING!** WARNUNG!
Connection of non-compatible materials! Verbindung inkompatibler Werkstoffe!
Risk of injury and/or material damage due to leaks in the piping system caused by connections of different, incompatible materials.
Verletzungsgefahr und/oder Sachschäden durch Undichtigkeiten des Rohrleitungssystems wegen Verbindungen nicht kompatibler Werkstoffe.
- ▶ Only identical materials may be joined together by means of welded and adhesive connections. Nur identische Werkstoffe dürfen durch Schweiss- und Klebeverbindungen miteinander verbunden werden.
- ▶ Pipe sections with adhesive connections must be flushed with water without pressure as soon as possible after completion of the connections.
  Rohrleitungsabschnitte mit Klebeverbindungen sind, so bald wie möglich, nach Fertigstellung der Verbindungen drucklos mit Wasser zu spülen.

⚠ **CAUTION!** VORSICHT!
Thermal expansion forces on piping system! Wärmeausdehnungs-Kräfte auf Rohrleitungssystem!
If thermal expansion is prevented during temperature changes, longitudinal or bending forces occur.
The piping system and valve can be damaged.
Wird bei Temperaturwechseln die Wärmeausdehnung verhindert, treten Längs- bzw. Biegekräfte auf. Rohrleitungssystem und Ventil können beschädigt werden.
- ▶ Ensure that forces are absorbed by suitable fixed points upstream or downstream of the valve.
  Sicherstellen, dass Kräfte durch geeignete Festpunkte vor, bzw. hinter dem Ventil aufgenommen werden.

⚠ **CAUTION!** VORSICHT!
Pipe not in alignment! Nicht fluchtende Rohrleitung!
Risk of injury and/or damage to property from leaks in the piping system due to stress forces in the piping system.
Verletzungsgefahr und/oder Sachschäden durch Undichtigkeiten des Rohrleitungssystems wegen Spannungskräften im Rohrleitungssystem.
- ▶ Make sure that the valve and the pipe are aligned with each other.
  Sicherstellen, dass Ventil und Rohrleitung zueinander fluchten.

⚠ **CAUTION!** VORSICHT!
Leaking flange connections! Undichte Flanschverbindungen!
Risk of injury and/or material damage due to leaks in the piping system.
Verletzungsgefahr und/oder Sachschäden durch Undichtigkeiten im Rohrleitungssystem.
- ▶ Periodical check that no medium is leaking to the outside.
  Periodische Überprüfung, dass nach aussen kein Medium austritt.
- ▶ If medium escapes at the flange connections, tighten them.
  Flanschverbindungen bei Mediumaustritt nachziehen.

⚠ **DANGER!** GEFAHR!
Operation of the valve as an end fitting with hazardous media! Betrieb des Ventils als Endarmatur mit gefährlichen Medien!
When the valve is used as an end fitting, aggressive media can escape in an uncontrolled manner and cause damage to property and personal injury, as well as endangering the environment.
Durch Einsatz des Ventils als Endarmatur können aggressive Medien unkontrolliertes Austreten und Sach- und Personenschäden verursachen sowie die Umwelt gefährden.
- ▶ Depressurise the piping system before opening the valve.
  Rohrleitungssystem vor dem Öffnen des Ventils drucklos machen.
- ▶ Only open the valve as a shut-off valve if the medium can be safely collected and drained.
  Ventil als Endarmatur nur öffnen, wenn Medium sicher aufgefangen und abgeleitet werden kann.
- ▶ Wear suitable protective equipment.
  Tragen von geeigneter Schutzausrüstung.

⚠ **CAUTION!** VORSICHT!
Contaminated sealing surfaces! Verunreinigte Dichtflächen!
Risk of injury by contact with medium due to leaking connections.
Verletzungsgefahr durch Kontakt mit Medium wegen undichten Verbindungen.
- ▶ Protect sealing surfaces and connecting parts from damage and contamination, especially from hard or sharp-edged particles.
  Dichtflächen sowie Anschlussteile vor Beschädigungen und Verunreinigungen, insbesondere vor harten oder scharfkantigen Partikeln, schützen.

⚠ **WARNING!**
Tighten union nuts up to DN50 only hand-tight! Überwurfmuttern bis DN50 nur handfest anziehen!
Risk of injury and/or material damage due to escaping liquids because of overtightened or defective union nuts.
Verletzungsgefahr und/oder Sachschäden durch austretende Flüssigkeiten wegen zu fest angezogenen, bzw. defekten Überwurfmuttern.
- ▶ Tighten union nuts up to DN50 only hand-tight, without auxiliary tool.
  Überwurfmuttern bis DN50 nur handfest, ohne Hilfswerkzeug, anziehen.
- ▶ Tighten union nuts from DN50 upwards with strap wrench according to the tightening torque specified in the technical documentation.
  Überwurfmuttern ab DN50 mit Bandschlüssel gemäss dem in der technischen Dokumentation angegebenen Anzugsmoment anziehen.

⚠ **DANGER!** GEFAHR!
Piping system leaking! Rohrleitungssystem undicht!
Leaky connections can cause media to leak out and cause property damage and personal injury, as well as endanger the environment.
Durch undichte Anschlüsse können Medien austreten und Sach- und Personenschäden verursachen sowie die Umwelt gefährden.
- ▶ Check the tightness of the connections before commissioning.
  Überprüfen der Dichtheit der Anschlüsse vor Inbetriebnahme.
- ▶ Periodically check that no medium leaks out to the outside.
  Periodische Prüfung, dass nach aussen kein Medium austritt.
- ▶ Wear suitable protective equipment.
  Tragen von geeigneter Schutzausrüstung.

Applicable documents / Mitgeltende Dokumente

Complete technical documentation Vollständige technische Dokumentation	
Data sheet / Datenblatt	www.gfps.com/is-manuals-valves
Full operating instructions / Vollständige Betriebsanleitung	www.gfps.com/is-manuals-valves
Planning Fundamentals Industry / Planungsgrundlagen Industrie	www.gfps.com

⚠ **DANGER!** GEFAHR!
Pressure too high! Zu hoher Druck!
Exceeding the maximum permissible pressure can damage the piping system, causing media to leak out and cause property damage and personal injury, as well as endangering the environment.
Durch Überschreitung des höchstzulässigen Drucks kann das Rohrleitungssystem beschädigt werden. Durch austrende Medien können Sach- und Personenschäden sowie Umweltgefahren entstehen.

- ▶ The component in the piping system with the lowest PN determines the maximum permissible test pressure in the piping section.
  Die Komponente im Rohrleitungssystem mit dem niedrigsten PN bestimmt den maximal zulässigen Prüfdruck im Leitungsabschnitt.
- ▶ Take precautions to prevent pressure surges.
  Treffen von Massnahmen zum Verhindern von Druckschlägen.
- ▶ Wear suitable protective equipment.
  Tragen von Geeigneter Schutzausrüstung.

⚠ **CAUTION!** VORSICHT!
Maximum permissible test pressure! Maximal zulässiger Prüfdruck!
For the pressure test of valves in open position, the same instructions apply as for the piping system (max. 1.5 x PN, and max. PN + 5 bar), but the test pressure in closed valve position must not exceed max. 1.1 x PN.
Für die Druckprobe von Ventilen in Offenstellung gelten dieselben Anweisungen wie für die Rohrleitungen (max. 1.5 x PN, bzw. max. PN + 5 bar), jedoch darf der Prüfdruck in Geschlossenstellung max. 1.1 x PN nicht überschritten werden.

- ▶ For detailed information, see the Georg Fischer Planning Fundamentals Industry.
  Detaillierte Informationen, siehe Georg Fischer Planungsgrundlagen Industrie.
- ▶ After successful pressure test: Remove test medium.
  Nach erfolgreicher Dichtheitsprüfung: Prüfmedium entfernen.
- ▶ Record the results.
  Ergebnisse protokollieren.

⚠ **WARNING!** WARNUNG!
Regularly check for wear! Regelmässige Kontrolle auf Verschleiss!
Components with medium contact are subject to wear during operation. Frequent positioning movements or the use of chemically aggressive or contaminated media make more frequent maintenance necessary.
Bauteile mit Mediumkontakt unterliegen im Betrieb einem Verschleiss. Häufige Stellbewegungen oder der Einsatz von chemisch aggressiven oder verschmutzten Medien machen eine häufigere Wartung nötig.

- ▶ Regularly carry out visual and functional checks of the valve in compliance with the conditions of use and the hazard potential to prevent leakage and damage.
  Regelmässiges Durchführen von Sicht- und Funktionskontrollen des Ventils entsprechend den Einsatzbedingungen und des Gefährungspotentials zur Vorbeugung von Undichtheit und Beschädigungen.
- ▶ Disassemble the valve and check the inside of the valve for wear at compliant intervals.
  Demontieren des Ventils und Prüfen vom Ventil-Inneren auf Verschleiss in entsprechenden Intervallen.
- ▶ Modify the frequency of maintenance according to the conditions of use and the resulting load on the valve.
  Anpassen der Wartungshäufigkeit an die Einsatzbedingungen und der daraus resultierenden Belastung des Ventils.
- ▶ Worn components inside the valve must be replaced immediately.
  Abgenutzte Bauteile im Inneren des Ventils müssen sofort ausgetauscht werden.
- ▶ Wear suitable protective equipment.
  Tragen von geeigneter Schutzausrüstung.

⚠ **WARNING!** WARNUNG!
Leaking gaskets! Undichte Dichtungen!
Risk of injury from leaking medium due to damaged, aged or incorrectly lubricated gaskets.
Verletzungsgefahr durch austretendes Medium aufgrund von beschädigter, gealterter oder falsch geschmierter Dichtungen.

- ▶ Store gaskets in a cool (room temperature), dry and dark place.
  Dichtungen möglichst kühl (Raumtemperatur), trocken und dunkel lagern.
- ▶ Before installation, check gaskets for possible ageing damage such as cracks and hardening. Vor dem Einbau Dichtungen auf mögliche Alterungsschäden, wie Anrisse und Verhärtungen, prüfen.
- ▶ Regularly check for damage and replace gaskets if necessary.
  Regelmässige Überprüfung auf Beschädigungen und ggf. Dichtungen ersetzen.
- ▶ Lubricate gaskets with silicone or polyol-based grease. Do not use mineral oil-based lubricants or Vaseline (Petrolatum).
  Schmieren der Dichtungen ausschliesslich mit Fett auf Silikon- oder Polyolbasis. Keine Schmiermittel auf Mineralölbasis oder Vaseline (Petrolatum) verwenden.
- ▶ Observe special manufacturers' instructions for valves free of paint wetting impairment substances (PWIS).
  Spezielle Herstellerhinweise für lackstörungsfreie Ventile (LABS-gereinigt) beachten.

⚠ **WARNING!** WARNUNG!
Uncontrolled leakage of the medium! Unkontrolliertes Austreten des Mediums!
Danger of injury due to uncontrolled escape of the medium and/or subsequent flow of the medium from an open pipe and/or valve.
Verletzungsgefahr durch unkontrolliertes Austreten des Mediums und/oder Nachfliessen des Mediums aus offener Leitung und/oder des Ventils.

- ▶ Completely relieve the pressure in the pipe before dismantling.
  Druck in der Rohrleitung vor einem Ausbau vollständig abbauen.
- ▶ In the case of hazardous, flammable or explosive media, completely empty and flush the pipe before removing it. Observe possible residues.
  Bei gesundheitsschädlichen, brennbaren oder explosiven Medien; Rohrleitung vor dem Ausbau vollständig entleeren und spülen. Dabei mögliche Rückstände beachten.
- ▶ Ensure safe collection of the subsequent medium by taking appropriate measures.
  Ein sicheres Auffangen des nachfliessenden Mediums durch entsprechende Massnahmen gewährleisten.
- ▶ Allow the valve to empty in vertical position and collect the medium.
  Ventil in senkrechter Lage leerlaufen lassen und Medium dabei auffangen.

⚠ **NOTICE!** HINWEIS!
Check functionality regularly! Funktionsfähigkeit regelmässig prüfen!
Prevent damage to property due to a stuck valve.
Sachschäden durch festsitzendes Ventil verhindern.

- ▶ Operate valve 1–2 times per year.
  Ventil 1–2 Mal pro Jahr betätigen.

⚠ **CAUTION!** VORSICHT!
Damage due to increased actuating torque! Schäden durch erhöhtes Betätigungsmoment!
Risk of injury and/or material damage due to the use of non-intended auxiliary means for increasing the actuating torque.
Verletzungsgefahr und/oder Sachschäden durch den Einsatz von nicht vorgesehenen Hilfsmitteln zur Erhöhung des Betätigungsmomentes.

- ▶ Operate the valve only with intended actuating means (lever, gearbox or actuator) according to the actuating torque specified in the technical documentation.
  Ventil nur mit vorgesehenen Betätigungsmitteln (Hebel, Getriebe oder Antrieb) gemäss dem in der technischen Dokumentation angegebenen Betätigungsmoment betätigen.
- ▶ Mount the valve as a fixed point, or fasten the associated pipe directly upstream and downstream of the valve with associated brackets.
  Ventil als Festpunkt montieren oder die zugehörige Rohrleitung direkt vor und nach dem Ventil mit zugehörigen Halterungen befestigen.
- ▶ If increased actuating torque occurs, check valve for damage or wear.
  Wenn erhöhtes Betätigungsmoment auftreten sollte, Ventil auf Beschädigung oder Verschleiss prüfen.

Warnings regarding ball valves / Warnhinweise zu Kugelhähnen

⚠ **CAUTION!** VORSICHT!
Do not use ball valve as an end armature! Kugelhahn nicht als Endarmatur verwenden!
If the ball valve is operated without a union nut and connecting part on one of the outlets, the ball valve may be damaged.
Wird der Kugelhahn ohne Überwurfmutter und Anschlussteil an einem der Abgänge betrieben, kann es zum Defekt des Kugelhahns kommen.

- ▶ Operate the ball valve only with connecting parts and union nuts on all outlets.
  Kugelhahn ausschliesslich mit Anschlussteilen und Überwurfmuttern an allen Abgängen betreiben.

⚠ **CAUTION!** VORSICHT!
Observe maximum screw-in depths! Maximale Einschraubtiefen beachten!
Material damage and/or risk of injury from leaking media due to damaged valve.
Sachschaden und/oder Verletzungsgefahr bei austretenden Medien wegen beschädigtem Ventil.

- ▶ Observe maximum screw-in depth.
  Maximale Einschraubtiefe beachten.
- ▶ Do not use damaged valves anymore and replace them immediately.
  Beschädigte Ventile nicht mehr verwenden und sofort austauschen.

Warnings regarding butterfly valves / Warnhinweise zu Absperrklappen

⚠ **DANGER!** GEFAHR!
Use at hazardous and diffusing media! Einsatz gefährlicher und diffundierender Medien!
Highly aggressive chemical media can attack materials, cause personal injury and endanger the environment. Components not in contact with media can be attacked by leakage and diffusion, which can cause the housing or inner disc to burst.
Chemisch hoch aggressive Medien können Werkstoffe angreifen, Personenschäden verursachen sowie die Umwelt gefährden. Nicht medienberührende Bauteile können durch Leckagen und Diffusion angegriffen werden, wodurch das Gehäuse oder der Innenteller bersten kann.

- ▶ Perform regular visual inspections of the valve to comply with the conditions of use and the hazard potential to prevent leakage and damage.
  Durchführen regelmässiger Sichtkontrollen des Ventils entsprechend den Einsatzbedingungen und des Gefährungspotenzials zur Vorbeugung von Leckagen und Beschädigungen.
- ▶ Disassemble and inspect the valve for wear at compliant intervals.
  Demontieren und Prüfen des Ventils auf Verschleiss in entsprechenden Intervallen.

⚠ **WARNING!** WARNUNG!
Wafer-style butterfly valve! Zwischeneinbauklappe!
Risk of injury and/or material damage due to improper use of the wafer-style butterfly valve.
Verletzungsgefahr und/oder Sachschaden durch nicht bestimmungsgemässe Verwendung der Zwischeneinbauklappe.

- ▶ Do not use the wafer-style butterfly valve as a lug-style butterfly valve.
  Zwischenbauklappe nicht als Endeinbauklappe einsetzen.

⚠ **WARNING!** WARNUNG!
Butterfly valve not self-locking! Absperrklappe nicht selbsthemmend!
Risk of injury and/or material damage due to loss of control of the valve.
Verletzungsgefahr und/oder Sachschaden durch Kontrollverlust des Ventils.

- ▶ Do not disassemble the hand lever, manual gear or actuator as long as the butterfly valve is flowed through or pressurised.
  Handhebel, Handgetriebe oder Antrieb nicht demontieren, solange die Absperrklappe durchströmt oder mit Druck beaufschlagt ist.

⚠ **CAUTION!** VORSICHT!
Avoid pressure shocks! Druckstösse vermeiden!
Material damage due to pressure surges if the butterfly valve is operated too quickly.
Sachschaden wegen Druckstössen bei zu schnellem Betätigen der Absperrklappe.

- ▶ Ensure that opening and closing does not occur jerkily.
  Sicherstellen, dass das Öffnen und Schliessen nicht ruckartig erfolgt.
- ▶ Take special care when operating the valve via hand lever.
  Besondere Vorsicht bei Betätigung über Handhebel.

Warnings regarding diaphragm valves / Warnhinweise zu Membranventilen

⚠ **DANGER!** GEFAHR!
Use of hazardous and diffusing media! Einsatz gefährlicher und diffundierender Medien!
Highly aggressive chemical media can attack materials, cause personal injury and endanger the environment. Components not in contact with media can be attacked by leakage and diffusion, which can cause the housing nut to burst.
Chemisch hoch aggressive Medien können Werkstoffe angreifen, Personenschäden verursachen sowie die Umwelt gefährden. Nicht medienberührende Bauteile können durch Leckagen und Diffusion angegriffen werden, wodurch die Gehäusemutter bersten kann.

- ▶ For applications with hazardous and diffusing media, it is recommended to contact the responsible GF representative.
  Für Anwendungen mit gefährlichen und diffundierenden Medien wird empfohlen die zuständige GF Vertretung zu kontaktieren.
- ▶ Regular visual inspection of all components of the diaphragm valve is recommended. For this purpose, the valve must be completely drained, uninstalled, and disassembled.
  Eine regelmässige visuelle Inspektion aller Bauteile des Membranventils wird empfohlen. Dazu muss das Ventil komplett entleert, deinstalliert und demontiert werden.
- ▶ Wear suitable protective equipment.
  Tragen von Geeigneter Schutzausrüstung.

⚠ **CAUTION!** VORSICHT!
Screw connections can become loose! Schraubverbindungen können sich lösen!
The preload force of diaphragm valves with screw connections can be reduced over time due to the setting of the diaphragm. The valve may become leaky and personal injury and material damage may occur. The function of the valve is no longer guaranteed.
Die Vorspannkraft von Membranventilen mit Schraubverbindungen kann sich durch das Setzen der Membrane über die Zeit reduzieren. Das Ventil kann undicht werden und es können Personen- sowie Sachschäden auftreten. Die Funktion des Ventils ist nicht mehr gewährleistet.

- ▶ Before commissioning and during normal operation, regularly tighten the screw connections crosswise according to the specifications in the complete technical documentation.
  Schraubverbindungen vor Inbetriebnahme und im Normalbetrieb regelmässig, gemäss Angaben in der vollständigen technischen Dokumentation, über Kreuz nachziehen.

⚠ **CAUTION!** VORSICHT!
Wrong tool for housing nut! Falsches Werkzeug für Gehäusemutter!
The use of incompatible tools can damage the housing nut. Leaking medium can cause personal injury and damage to property.
Der Einsatz von nicht kompatiblem Werkzeug kann die Gehäusemutter beschädigen. Durch austretendes Medium können Personen- sowie Sachschäden auftreten.

- ▶ Only open and close the housing nut with a strap or hook wrench.
  Gehäusemutter nur mit Bandschlüssel oder Hakenschlüssel öffnen und schliessen.

⚠ **NOTICE!** HINWEIS!
Breakage of the indicator pin! Bruch des Anzeigestifts!
If the spindle assembly is completely turned out via the handwheel, the indicator pin may break. This means that the valve position can no longer be displayed.
Wenn die Spindelbaugruppe über das Handrad komplett ausgedreht wird, kann der Anzeigestift brechen. Dadurch kann die Ventil-Stellung nicht mehr angezeigt werden.

- ▶ Only make a maximum of two turns of the handwheel to loosen the diaphragm from the inner housing.
  Nur maximal zwei Umdrehungen am Handrad vornehmen, um Membrane vom Innengehäuse zu lösen.
- ▶ If the indicator pin breaks, it must be replaced.
  Bei einem Bruch des Anzeigestiftes muss dieser ersetzt werden.

⚠ **NOTICE!** HINWEIS!
Diaphragm is a wearing part! Membrane ist Verschleissteil!
The diaphragm is subject to increased wear during heavy use and must be replaced more frequently. If the diaphragm is worn or leaking, personal injury and damage to property may occur.
Bei starker Einsatzbelastung unterliegt die Membrane einem erhöhten Verschleiss und muss öfter ausgetauscht werden. Bei verschlissener oder undichter Membrane können Personen- sowie Sachschäden auftreten.

- ▶ Check diaphragm and gaskets regularly depending on the operating load and replace if necessary. Membrane und Dichtungen je nach Einsatzbelastung regelmässig kontrollieren und ggf. ersetzen.
- ▶ Only use diaphragms that are compatible with the valve according to the type plate.
  Nur für das Ventil kompatible Membrane gemäss Typenschild einsetzen.

⚠ **WARNING!** WARNUNG!
Diaphragm screwed in incorrectly! Membrane falsch eingeschraubt!
If the diaphragm has not been correctly screwed into the inner housing, leaks and material damage may occur. The function of the valve is no longer guaranteed.
Wenn die Membrane nicht korrekt im Innengehäuse eingeschraubt wurde, können Undichtheiten und Materialschäden entstehen. Die Funktion des Ventils ist nicht mehr gewährleistet.

- ▶ Screw the diaphragm correctly into the inner housing.
  Membrane korrekt im Innengehäuse einschrauben.

⚠ **DANGER!** GEFAHR!
Do not lubricate the housing nut! Gehäusemutter nicht schmieren!
Use of lubricants can cause stress cracks on the valve body, especially with amorphous plastics. The consequence can be contact with hazardous medium. The functionality of the valve would no longer be guaranteed.
Verwendung von Schmiermitteln kann, speziell bei amorphen Kunststoffen, Spannungsrisse am Ventilkörper verursachen. Folgen können Kontakt mit gefährlichem Medium sein. Die Funktionsfähigkeit des Ventils wäre nicht mehr gewährleistet.

- ▶ Do not use lubricants on threaded connection between body nut and valve body.
  Keine Schmiermittel an Gewindeverbindung zwischen Gehäusemutter und Ventilkörper verwenden.

Warnings regarding pressure regulating valves (PRV) / Warnhinweise zu Druckregelventilen (DRV)

⚠ **WARNING!** WARNUNG!
Do not adjust the pressure gauge! Manometer nicht verstellen!
Material damage and/or risk of injury due to manipulation of the manometer.
Sachschaden und/oder Verletzungsgefahr durch Manipulation am Manometer.

- ▶ Manometer is preset and tested ex works.
  Manometer ist ab Werk voreingestellt und geprüft.
- ▶ Make sure that no changes are made to the manometer.
  Sicherstellen, dass keine Veränderungen am Manometer vorgenommen werden.

⚠ **CAUTION!** VORSICHT!
Adjust the spindle when tightening the lock nut! Verstellung der Spindel beim Anziehen der Kontermutter!
Damage to property due to unintentional adjustment of the set pressure.
Sachschaden durch unabsichtliche Verstellung des Solldrucks.

- ▶ Always fix the stem while the lock nut is being tightened.
  Spindel immer fixieren, während Kontermutter angezogen wird.

⚠ **CAUTION!** VORSICHT!
Maximum permissible test pressure for PRV! Maximal zulässiger Prüfdruck für PRV!
For the pressure test, the test pressure must not exceed max. 1.1 x PN.
Für die Druckprobe darf der Prüfdruck von max. 1.1 x PN nicht überschritten werden.

- ▶ For detailed information, see the Georg Fischer Planning Fundamentals Industry.
  Detaillierte Informationen, siehe Georg Fischer Planungsgrundlagen Industrie.

Warnings regarding check valves / Warnhinweise zu Rückschlagventilen

⚠ **CAUTION!** VORSICHT!
Do not use for solids! Nicht für Feststoffe einsetzen!
Damage to property in the piping system and damage to the valve when used with media containing solids.
Sachschaden im Rohrleitungssystem und Beschädigung des Ventils beim Einsatz mit feststoffhaltigen Medien.

- ▶ Check valves are not suitable for solids containing media.
  Rückschlagventile sind für Medien mit Feststoffen nicht geeignet.
- ▶ The density of the check valve plug must be higher than that of the medium.
  Die Dichte des Rückschlagventil-Kegels muss grösser als diejenige des Mediums sein.

⚠ **CAUTION!** VORSICHT!
Provide calming sections! Beruhigungsstrecken vorsehen!
Damage to property in the piping system and damage to the valve due to faulty operation.
Sachschaden im Rohrleitungssystem und Beschädigung des Ventils durch fehlerhafte Funktion.

- ▶ Ensure a uniform flow of the medium.
  Gleichmässige Anströmung des Mediums sicherstellen.
- ▶ Before or after pumps, other fittings or changes of direction, a calming section of 10x DN before and 5x DN after the valve must be provided.
  Vor oder nach Pumpen, anderen Ventilen oder Richtungsänderungen ist eine Beruhigungsstrecke von 10x DN vor, sowie 5x DN nach dem Rückschlagventil vorzusehen.
- ▶ Cavitation must be avoided.
  Kavitation ist zu vermeiden.

⚠ **CAUTION!** VORSICHT!
Observe arrow markings! Pfeilmarkierung beachten!
Shut-off function not guaranteed due to incorrect installation.
Absperrfunktion durch falschen Einbau nicht gewährleistet.

- ▶ Flow direction according to arrow marking on the body.
  Durchflussrichtung gemäss Pfeil-Markierung auf dem Gehäuse.
- ▶ With vertical flow, only the upward flow direction is permissible. The arrow must point upwards.
  Bei vertikalem Durchfluss ist nur die Durchflussrichtung aufwärts zulässig. Der Pfeil muss dabei nach oben zeigen.

Warnings regarding ventilation and bleed valves / Warnhinweise zu Belüftungs- und Entlüftungsventilen

⚠ **WARNING!** WARNUNG!
Observe arrow markings! Pfeilmarkierung beachten!
Function not guaranteed due to incorrect installation.
Funktion durch falschen Einbau nicht gewährleistet.

- ▶ The valve must be installed so that the arrow on the valve housing points upwards.
  Das Ventil muss so eingebaut werden, dass der Pfeil auf dem Ventilgehäuse nach oben zeigt.

+GF+

Important product information

Industrial valves, manually operated

Wichtige Produktinformationen

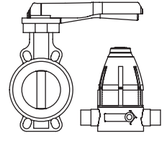
Industriearmaturen, handbetätigt

QR code for access to complete technical documentation

QR-Code für Zugriff auf vollständige technische Dokumentation

www.gfps.com/is-manuals-valves

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CH-8201 Schaffhausen/Schweiz
info.ps@georgfischer.com



Printed on recycled paper

3 Product description

3.1 Intended use

The EA15/25/45/120/250 electric actuators are designed for mounting on a valve and for connection to a control system provided by the plant and are intended to operate valves with swivel movements of up to 180° (e.g. ball valves and butterfly valves).
The product is not intended for any other type of use than those listed here. Failure to observe the instructions contained in this manual will void the manufacturer›s liability for the above-mentioned products. The Actuator is designed for integration into a complete machine/peripheral system. It is not intended for direct connection to a voltage supply system, but only to a regulated and fused power supply of a complete machine.

3.2 Use not in accordance with the intended use

Any use other than that described in the intended use is not in accordance with the intended use and is therefore not permitted.
If unsuitable products are installed or used in safety-relevant applications, unintended operating conditions may occur in the application that can cause personal injury and/or property damage.

Only use the product in safety-relevant applications if this use is expressly specified and permitted in the product documentation.
GF Piping Systems AG accepts no liability for damage resulting from improper use. The risks associated with improper use lie solely with the user.

3.3 EC Declaration of Incorporation

The manufacturer Georg Fischer Rohrleitungssysteme AG, 8201 Schaffhausen (Switzerland) declares that the following partly completed machines according to the listed harmonized type standards are partly completed machines in the sense of the EC Machinery Directive 2006/42/EC, Annex II B, and that they comply with the requirements of this directive that apply to partly completed machines. The commissioning of these partly completed machines, as well as their CE marking, is prohibited until the conformity of the complete installation into which the partly completed machines are built is declared with the mentioned EC directive. Furthermore, we declare that the special technical documentation was prepared in accordance with Annex VII, Part B of this directive.
Modifications to the products that affect the specified technical data and the intended use make this declaration invalid.
Additional information can be found in the “GF Planning Fundamentals”.

Product group	Type designation	Additional directives and harmonized design standards	
Electric Actuators	EA15	• 2006/42/EG, Annex II B	• 2008 No. 1597
	EA25	• 2014/35/EU*	• 2016 No. 1101
	EA45	• 2014/30/EU	• 2016 No. 1091
	EA120	• 2011/65/EU	• 2012 No. 3032
	EA250	• EN 60204-1	
		• EN ISO 12100	
		• EN 60947-1*	
		• EN 61010-1	

*valid for 100-230V types

Schaffhausen, 09.05.2023
Bastian Lübke
Head of Global R&D
Georg Fischer Piping Systems Ltd.
CH-8201 Schaffhausen (Switzerland)



Certificate

Quality Assurance System
acc. to Directive 2014/68/EU

Certificate no.: 01 202 CHN/Q-02 0058.00

Name and address of the certificate holder:
KCM Valve Co., Ltd.
No.999 Binhai Fourth Road, Binhai
Industrial Park, Wenzhou City,
325024 Zhejiang
P.R. China

Herewith we certify that the above -mentioned manufacturer operates a quality system according to the European Directive 2014/68/EU. The manufacturer has the permission to affix the following CE marking to pressure equipment described and manufactured in accordance to the scope covered by this Quality-Assurance System:

CE 0035

Test basis: **Directive 2014/68/EU: QA-System (Module H)**
(the QS-Modules E1, E, D1, D are covered by Module H)

Audit report no.: 01 202 CHN/Q-02 0058

Scope: **Design and Manufacturing of Industrial Valves, see annex to certificate: 01 202 CHN/Q-02 0058, revision 7 from July, 11, 2022**

Manufacturing plant: see certificate holder

Validity: **This certificate is valid until 2027-01-31.**

Cologne, 2024-01-18

Ines Krüger-Führ

TÜV Rheinland Industrie Service GmbH
Notified Body for Pressure Equipment, ID-No. 0035
Am Grauen Stein, D-51105 Cologne

MS-0037317 E-008-Rev01

www.tuv.com

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Cod. Fisc. e P. IVA/VAT NUMBER IT00113680037

UNI EN ISO 9001:2015

IT AEOF 16 1062

DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

In conformità alle Norme: EN 10204-2.1 - UNI EN ISO/IEC 17050-1
According to the Norms: EN 10204-2.1 - UNI EN ISO/IEC 17050-1

DICHIARIAMO SOTTO LA NOSTRA ESCLUSIVA RESPONSABILITÀ CHE I NOSTRI ATTUATORI ELETTRICI SERIE **AOX** SONO STATI VERIFICATI SECONDO STANDARD EN 61326-1:2013, EN 61010-1:2010+A1:2019, EN IEC 61010-2-201:2018, EN ISO 12100:2010 CON RIFERIMENTO ALLA DIRETTIVA MACCHINE 2006/42/EC, ALLA DIRETTIVA BASSA TENSIONE 2014/35/EU, ALLA DIRETTIVA COMPATIBILITA' ELETTROMAGNETICA 2014/30/EU E SONO CONFORMI AI REQUISITI TECNICI INDICATI SUL NOSTRO ULTIMO CATALOGO.

WE DECLARE HEREBY UNDER OUR EXCLUSIVE RESPONSIBILITY THAT OUR ELECTRIC ACTUATOR SERIES **AOX** THEY HAVE BEEN VERIFIED ACCORDING TO THE STANDARDS EN 61326-1: 2013, EN 61010-1: 2010 + A1: 2019, EN IEC 61010-2-201: 2018, EN ISO 12100: 2010 WITH REFERENCE TO THE MACHINERY DIRECTIVE 2006/42 / EC, TO THE LOW VOLTAGE DIRECTIVE 2014/35 / UE, TO THE ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2014/30 / UE AND COMPLY WITH THE TECHNICAL SPECIFICATIONS INDICATED IN OUR LAST CATALOGUE.

ROMAGNANO SESIA, 17/01/2023

BRANDONI S.p.A.

BRANDONI S.p.A.
ASSICURAZIONE QUALITA'
NICOLO' LACCA

2.1.1.17

PRESSURE SAFETY VALVES

COI TECHNOLOGY

50-PSV-034 – 50-PSV-035

50-PSV-036 – 50-PSV-037

50-PSV-038 – 50-PSV-039

50-PSV-053

CERTIFICATO
CERTIFICATE

CONFORMITÀ BASATA SULLA GARANZIA TOTALE DI QUALITÀ CON CONTROLLO DELLA PROGETTAZIONE

CONFORMITY BASED ON FULL QUALITY ASSURANCE PLUS DESIGN EXAMINATION

IN ACCORDO ALLA DIRETTIVA 2014/68/UE

ACCORDING TO DIRECTIVE 2014/68/EU

Certificato N. / ***Certificate No.*** **I-202-IT/Q-18 0006** **REV. 00**

Fabbricante / ***Manufacturer***
COI TECHNOLOGY S.r.l.
Via della Liberazione, 29/D
20098 San Giuliano Milanese (MI)
Italy

Si certifica che il sistema di qualità per la progettazione, la fabbricazione, l'ispezione del prodotto finito e le prove istituito dal Fabbricante soddisfa i requisiti della direttiva 2014/68/UE. Il Fabbricante è autorizzato a marcare i prodotti con:

We hereby certify that quality system for design, manufacture and final product inspection and testing established by the Manufacturer fulfills the requirements of directive 2014/68/EU. The Manufacturer is entitled to mark the products with:

CE 1936

Verificato in accordo alla direttiva 2014/68/UE / *Tested according to directive 2014/68/EU* **MODULO H1** / ***MODULE H1***

Accessori di Sicurezza / *Safety Accessories* **VALVOLE DI SICUREZZA** / ***SAFETY VALVES***

Rapporto n. / *Report no.* **P301170040/38002/DR**

Certificato di riferimento / *Reference certificate* **I-202-IT/H1-18 0007 REV. 00**
I-202-IT/H1-18 0008 REV. 00
Emesso da / *Issued by* **TÜV Rheinland Italia**

Scadenza / Valid until **01/03/2028** **01/03/2028**
O.N. n. / *No.Bo. no.* **1936**

Certificati di riferimento / *Reference certificates* Vedi Allegato I – parte integrante del presente certificato / *See Annex I – integral part of this certificate*

Sito di produzione / *Manufacturing plant*
COI TECHNOLOGY S.r.l.
Via della Liberazione, 29/D
20098 San Giuliano Milanese (MI)
Italy

Prima emissione / *First issue* **02/03/2018**

Valido fino al / *Valid until* **01/03/2021**

Condizioni di validità sul retro / *Validity term and conditions on reverse*

Luogo e Data di Emissione / *Issue place and date* **Pogliano M.se (MI) 02/03/2018**

TÜV Rheinland Italia S.r.l.

Ing. Paolo Caglio

Organismo Notificato n. 1936 / *Notified Body no. 1936*

TÜV Rheinland® 1936 Notified Body

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Mod. QMT_BSI_006.013 Rev. 02

www.tuv.com

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
PRD N° 251 B
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

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Condizioni di validità

Il presente Certificato non è da ritenersi valido se non completo di tutte le sue pagine e può essere sospeso o revocato in qualsiasi momento nel caso di inadempienze del Fabbricante. L'autenticità e la validità del presente attestato può essere verificata contattando TÜV Rheinland Italia.

L'approvazione del Sistema di Qualità è soggetta a verifiche ispettive periodiche e/o senza preavviso.
Il Fabbricante deve preventivamente informare TUV Rheinland Italia ogni qual volta intenda apportare modifiche al Sistema Qualità approvato.

L'autorizzazione è valida esclusivamente per i prodotti ed i limiti essenziali qui riportati.
Il Fabbricante è tenuto a mantenere informato TÜV Rheinland Italia sul programma di produzione previsto per le attrezzature oggetto del presente certificato. Il Fabbricante rimane obbligato a mantenere aggiornato e disponibile un registro con l'identificazione dei prodotti immessi sul mercato con il numero identificativo 1936 di TÜV Rheinland Italia.

Il presente certificato deve ritenersi nullo ed il Fabbricante se ne assumerà tutte le conseguenze del suo indebito utilizzo, in caso di modifiche apportate al Sistema di Qualità che influenzano la conformità ai requisiti essenziali di sicurezza e, in generale, se il Fabbricante non rispetta tutti e ciascuno degli obblighi a suo carico previsti dalla direttiva 2014/68/UE, come recepita dalla legislazione nazionale vigente.

Validity term and conditions

This Certificate is not valid without all its pages and can be suspended or withdrawn at any time in the event of Manufacturer's non fulfilment. To verify authenticity and validity of this Certificate please contact TÜV Rheinland Italia.

The approval of the Quality System is subjected to periodic and/or unexpected visits.
The Manufacturer shall preventively inform TUV Rheinland Italia whenever he intends to modify the approved Quality System.

The approval is only valid for the equipment and the essential limits here listed.
The Manufacturer shall inform TÜV Rheinland Italia about the production schedule. The Manufacturer remains obliged to maintain updated and available a register where items placed on the market with TÜV Rheinland Italia identification number 1936 are listed.

This certificate shall be deemed to be void and the Manufacturer shall alone bear any consequences pursuant to its use, in case of modifications where these may affect conformity to the essential safety requirements, and generally, where the Manufacturer fails to comply with each and every of his obligations under directive 2014/68/EU as transposed in the applicable national laws.

ALLEGATO I
ANNEX I

GAMMA DI APPROVAZIONE
RANGE OF APPROVAL

Certificato N. / ***Certificate No.*** **I-202-IT/Q-18 0006 REV. 00**

Descrizione / *Description*	Certificati di Esame UE del progetto di riferimento / *Reference EU Design Examination certificate*			
	Certificato N. / *Certificate no.*	Rev.	Scadenza / *Expiry date*	Emesso da / *Issued by*
1. VALVOLE DI SICUREZZA SERIE SLK / *SAFETY VALVES SERIE SLK*	I-202-IT/H1-18 0007	00	01/03/2028	TÜV Rheinland Italia No.Bo. 1936
2. VALVOLE DI SICUREZZA SERIE GLV / *SAFETY VALVES SERIE GLV*	I-202-IT/H1-18 0008	00	01/03/2028	TÜV Rheinland Italia No.Bo. 1936

TÜV Rheinland® 1936 Notified Body

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Organismo Notificato n. / *Notified Body no.* 1936

Mod. QMT_BSI_006.013 Rev. 02

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UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 1/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-034**
Matricola	(Serial n°):	**24-07148**
Codice valvola	(Valve code):	**GLVC-14BL57-128**
Codice molla	(Spring code n°):	**06-010B-14**

Ingresso	(Inlet):	**1" ANSI 150RF**	
Uscita	(Outlet):	**1" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**14**	mm
Orifizio area	(Orifice area):	**314,16**	mm^2
Alzata	(Lift):	**4,00**	mm
Pressione di taratura	(Set pressure):	**4,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**4,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**6,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**6,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

-The following declaration of conformity is issued under the manufacturer's sole responsability-

Data *(Date):*	***Luogo*** *(Locality):*	*Identification of signature:*
18/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 2/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-035**
Matricola	(Serial n°):	**24-07150**
Codice valvola	(Valve code):	**GLVC-10AL0C-134**
Codice molla	(Spring code n°):	**06-018A-14**

Ingresso	(Inlet):	**1/2" ANSI 600RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**65,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**65,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-20 +180**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**AISI 316L**
Boccaglio	(Nozzle):	**SUPERDUPLEX**
Otturatore	(Disc):	**SUPERDUPLEX**
Disco di tenuta	(Disc seat):	**PEEK**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**144,30**	Tenuta in accordo alle norme API 527 **SATISFACTORY**
Corpo	(Body)	barg	**144,30**	Valve seat tightness according to API 527 **SATISFACTORY**

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

-The following declaration of conformity is issued under the manufacturer's sole responsability-

Data *(Date):*	***Luogo*** *(Locality):*	*Identification of signature:*
28/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

MOD 03-2 REV.1 / 02/03/2018

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 3/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-036**
Matricola	(Serial n°):	**24-07152**
Codice valvola	(Valve code):	**GLVC-10AL2E-128**
Codice molla	(Spring code n°):	**06-009A-14**

Ingresso	(Inlet):	**1/2" ANSI 150RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**6,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**6,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**18,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**18,00**	Valve seat tightness according to API 527

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Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
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18/10/2024	San Giuliano Milanese (MI) - Italy	Simos Xeniadis (Sales Director)

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Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 1/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-037**
Matricola	(Serial n°):	**24-07149**
Codice valvola	(Valve code):	**GLVC-14BL57-128**
Codice molla	(Spring code n°):	**06-010B-14**

Ingresso	(Inlet):	**1" ANSI 150RF**	
Uscita	(Outlet):	**1" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**14**	mm
Orifizio area	(Orifice area):	**314,16**	mm^2
Alzata	(Lift):	**4,00**	mm
Pressione di taratura	(Set pressure):	**4,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**4,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**6,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**6,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 2/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-038**
Matricola	(Serial n°):	**24-07151**
Codice valvola	(Valve code):	**GLVC-10AL0C-134**
Codice molla	(Spring code n°):	**06-018A-14**

Ingresso	(Inlet):	**1/2" ANSI 600RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**65,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**65,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-20 +180**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**AISI 316L**
Boccaglio	(Nozzle):	**SUPERDUPLEX**
Otturatore	(Disc):	**SUPERDUPLEX**
Disco di tenuta	(Disc seat):	**PEEK**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**144,30**	Tenuta in accordo alle norme API 527 **SATISFACTORY**
Corpo	(Body)	barg	**144,30**	Valve seat tightness according to API 527 **SATISFACTORY**

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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MOD 03-2 REV.1 / 02/03/2018

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Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 3/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-039**
Matricola	(Serial n°):	**24-07153**
Codice valvola	(Valve code):	**GLVC-10AL2E-128**
Codice molla	(Spring code n°):	**06-009A-14**

Ingresso	(Inlet):	**1/2" ANSI 150RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**6,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**6,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI (materials)		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

***Prova idrostatica barg** (Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza** (Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**18,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**18,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità** (Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

***Principali norme di riferimento** (Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

***Controllo funzionale / dimensionale** (Dimensional / functional check):*	***Visto Cliente** (Client check)*	***Costruttore** (Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 4/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-053**
Matricola	(Serial n°):	**24-07154**
Codice valvola	(Valve code):	**GLVC-10AL2E-128**
Codice molla	(Spring code n°):	**06-009A-01**

Ingresso	(Inlet):	**1/2" ANSI 150RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**6,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**6,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Fresh water**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**AISI 316**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**18,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**18,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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18/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

2.1.1.18

FIRE & GAS SYSTEM

SIA

50-LP-002

FIRE & GAS DETECTION SYSTEM CERTIFICATE BOOK

0	17/01/2024	Issued for Approval	S.C.	D.O.	G.P.
Rev.	Data *Date*	Descrizione *Description*	Preparato *Prepared*	Controllato *Checked*	Approvato *Approved*

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1. SCOPE

The scope of this document is to collect the Certification relevant the items which are provided to develop the project.

2. CERTIFICATION

2.1 FIRE & GAS CONTROL PANEL

PERFORMANCE DECLARATION
In compliance with UE N° 305/2011 for Construction Products

DoP No. 157 SIA 5319_10333/24

1- Identification Code of the product:

SIA 5319

2- Type number, batch, series or any other element that identifies the construction product according to art. 11, paragraph 4:

SN 10333/24

3- Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:
Automatic electronic control panel for fixed fire fighting and detection systems.

4- Name, trade name or mark and address of the manufacturer according to art. 11, paragraph 5:

S.I.A. Safety Industrial Applications S.r.l.
Via Aldo Moro, 6
20005 Pogliano Milanese (MI) – ITALY

5- Where appropriate, name and address of the authorized representative whose mandate covers the tasks referred to art. 12, paragraph 2:

Not Applicable

6- System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

1

7- In case of a declaration of performance concerning a construction product covered by a harmonised standard:

MTIC INTERCERT S.r.l. – 0068

ran out the tests as per test reports no. 0297-2016 e nr. 0298-2016 and carried out monitoring for the factory production control according to the system 1 and issued the certificate of constancy of performance:

0068/CPR/157-2021

8- In case of a declaration of performance concerning a construction product, for which an European technical evaluation has been released:

Not Applicable – ref. to point 7

9- Declared performance:

all essential characteristics defined by specific harmonized rules for the use or intended use of paragraph 3:

- **EN 54-2:1997 + A1:2006.**
- **EN 54-4:1997 + A1:2002 + A2:2006.**
- **EN 12094-1:2003**
  are defined in the declaration here attached.

10- The performance of the product referred to in paragraphs 1 and 2 corresponds to the performance relevant to point 9. The manufacturer, as per point 4, releases this declaration of performance under his sole responsibility.

Pogliano Milanese,

S.I.A.
SAFETY INDUSTRIAL APPLICATIONS S.R.L.

Alessandro Masiero
Direttore Generale

PERFORMANCE DECLARATION
In compliance with UE N° 305/2011 for Construction Products

DoP No. 157 SIA 5319

List of main characteristics defined by specific harmonized rules for the intended use or uses in accordance with point 3.

DESCRIPTION	EN 12094-1:2003	EN 54-2:1997 + A1:2006 EN 54-4:1997 + A1:2002 + A2:2006
Maximum number of controlled zones	63	99
Environmental class	A	A
Activation time from incoming signal	< 3 s	< 10 s

EN 54-2:1997 + A1:2006- Prestazioni e caratteristiche dichiarate

EN 54-2:1997 + A1:2006- Characteristics and declared performance

Essential Characteristics	**Prestazioni** ***Performance***	**Rif. Capitolo norma** ***Standard clause ref.***
Performance under fire conditions		
General requirements	Conforme/*pass*	4
General requirements for indications	Conforme/*pass*	5
The fire alarm condition	Conforme/*pass*	7
Response delay (response time to fire)		
Reception and processing of fire signals	Conforme/pass	7.1
Output of the fire alarm condition	Conforme/pass	7.7
Delays to output	Conforme/pass	7.11
Dependencies on more than one alarm signal	Conforme/pass	7.12.3
Operational reliability		
General requirements	Conforme/pass	4
General requirements for indications	Conforme/pass	5
The quiescent condition	Conforme/pass	6
The fire alarm condition	Conforme/pass	7
Fault warning condition	Conforme/pass	8
Disabled condition	Conforme/pass	9
Test condition	Conforme/pass	10
Standardized input/output interface	Conforme/pass	11
Design requirements	Conforme/pass	12
Additional design requirements for software-controlled CIE	Conforme/pass	13
Marking	Conforme/pass	14
Durability of operational reliability, temperature resistance		
Cold (operational)	Conforme/pass	15.4
Durability of operational reliability, impact and vibration resistance		
Impact (operational)	Conforme/pass	15.6
Vibration, sinusoidal (operational)	Conforme/pass	15.7
Vibration, sinusoidal (endurance)	Conforme/pass	15.15
Durability of operational reliability, electrical stability		
Electromagnetic compatibility (EMC), immunity tests (operational)	Conforme/*pass*	15.8
Supply voltage variation	Conforme/*pass*	15.13
Durability of operational reliability, humidity resistance		
Damp heat, steady state (operational)	Conforme/*pass*	15.5
Damp heat, steady state (endurance)	Conforme/*pass*	15.14

EN 54-4:1997+A1:2002+A2:2006 - Prestazioni e caratteristiche dichiarate

EN 54-4:1997+A1:2002+A2:2006 - Characteristics and declared performance

Essential Characteristics	Prestazioni *Performance*	Rif. Capitolo norma *Standard clause ref.*
Performance of power supply		
- *General requirements*	Conforme/*pass*	4
- *Functions*	Conforme/*pass*	5
- *Materials, design and manufacture*	Conforme/*pass*	6
Operational reliability		
- *General requirements*	Conforme/*pass*	4
- *Functions*	Conforme/*pass*	5
- *Materials, design and manufacture*	Conforme/*pass*	6
- *Documentation*	Conforme/*pass*	7
- *Marking*	Conforme/*pass*	8
Durability of operational reliability, temperature resistance		
- *Cold (operational)*	Conforme/*pass*	9.5
Durability of operational reliability, impact and vibration resistance		
- *Impact (operational)*	Conforme/*pass*	9.7
- *Vibration, sinusoidal (operational)*	Conforme/*pass*	9.8
- *Vibration, sinusoidal (endurance)*	Conforme/*pass*	9.15
***Durability of operational reliability,* electrical stability**		
- *Electromagnetic compatibility (EMC), immunity tests (operational)*	Conforme/*pass*	9.9
Durability of operational reliability, humidity resistance		
- *Damp heat, steady state (operational)*	Conforme/*pass*	9.6
- *Damp heat, steady state (endurance)*	Conforme/*pass*	9.14

EN 12094-1:2003 - Prestazioni e caratteristiche dichiarate

EN 12094-1:2003 - Characteristics and declared performance

Essential Characteristics	Prestazioni *Performance*	Rif. Capitolo norma *Standard clause ref.*
Response delay (response time)		
- *Activated condition*	Conforme/pass	4.8
Operational reliability		
- *Functions requirements*	Conforme/pass	4
- *Design requirements*	Conforme/pass	5
- *Additional design requirements for software controlled ECDs*	Conforme/pass	6
Performance parameters under fire conditions		
- *Signal processing and indication*	Conforme/pass	4.3
- *Reception and processing of input triggering signals*	Conforme/pass	4.4
- *Transmission of extinguishing signal*	Conforme/pass	4.5
- *Activation of alarm devices*	Conforme/pass	4.6
Durability		
- *tests*	Conforme/pass	9

S.I.A. Safety Industrial Applications S.r.l.
Officina e Stabilimento: Via Aldo Moro, 6 - 20010 Pogliano Milanese (MI) - Italia
Tel. +39.02.35989611 - Fax +39.02.93541837 - e-mail: info@sia-italia.com - Sito Web: www.sia-italia.com
Capitale Sociale: Euro 2.500.000,00 i.v. - Codice Fiscale/Part. IVA IT: 06529110964

Elenco delle funzioni opzionali con requisiti inclusi nella CIE (rif. EN 54-2)

List of optional functions with requirements included in the C.I.E. (ref. EN 54-2)

Clause	Description	
7.8	*Output to fire alarm devices*	☒
7.9.1	*Output to fire alarm routing equipment*	☒
7.9.2	*Alarm confirmation input from fire alarm routing equipment*	☒
7.10	*Outputs to fire protection equipment*	☒
7.11	*Delays to outputs*	☒
7.12	*Dependencies on more than one alarm signal*	☒
7.13	*Alarm counter*	☐
8.3	*Fault signals from points*	☒
8.4	*Total loss of the power supply*	☒
8.9	*Output to fault warning routing equipment*	☒
9.5	*Disablement of addressable points*	☒
10	*Test condition*	☒
11	*Standardized input/output interface*	☒

Elenco delle funzioni opzionali con requisiti inclusi nella CIE (rif. EN 12094-1:2003)

List of optional functions with requirements included in the C.I.E. (ref. EN 12094-1:2003)

Clause	Description	
4.17	*Delay of extinguishing signal*	☒
4.18	*Signal representing the flow of extinguishing agent*	☒
4.19	*Monitoring of the status of components*	☒
4.20	*Emergency hold device*	☒
4.21	*Control of flooding time*	☒
4.22	*Initiation of secondary flooding*	☒
4.23	*Manual only mode*	☒
4.24	*Triggering signals to equipment within the system*	☒
4.25	*Extinguishing signals to spare cylinders*	☒
4.26	*Triggering signals to equipment outside the system*	☒
4.27	*Emergency abort device*	☒
4.28	*Control of extended discharge*	☒
4.29	*Release of the extinguishing media for selected flooding zone*	☒
4.30	*Activation of alarm devices with different signals*	☒

2.2 INSTRINSICALLY SAFE SMOKE DETECTOR

EU DECLARATION OF CONFORMITY

Issued in accordance with ATEX Directive 2014/34/EU at sole responsibility of the manufacturer



Declartion Number :	Baseefa19ATEX0143X EC
Product(s) :	SOC-E-IS & SOC-E-IS(WHT)
Manufacturer :	Hochiki Europe(UK) Limited Grosvenor Road Gillingham Business Park Gillingham Kent ME8 0SA
Description :	Conventional intrinsically safe photoelectric smoke detector for fire detection
Intended Use :	For use in fire detection and alarm systems for buildings.
Conditions or Limitations of Use :	Used with the YBN-R/4IS & YBN-R/4IS(WHT) mounting base

This declaration is issued under the sole responsibility of the manufacturer and we hereby declare that the product identified above meets the requirements of the following:

Standards

EN 60079-0:2018	Electrical apparatus for potentially explosive atmospheres. General requirements.
EN 60079-11:2012	Electrical apparatus for potentially explosive atmospheres – Intrinsic safety ‘i’
EN 80079-34:2018	Application of quality management systems for Ex Product manufacture

Directives

ATEX Directive	2014/34/EU

EC Type Examination

Assessed By :	SGS Fimko Oy, Takomotie 8, FI-00380 Helsinki, Finland. **Notified Body Number 0598** has performed type testing of the product, initial inspection of the manufacturing plant and of factory production control with continuous surveillance, assessment and evaluation of factory production control and issued following certificate of conformity: **Baseefa19ATEX0143X EC**
Certificate Number :	Baseefa19ATEX0143X EC
Relevent Provisions	Intrinsic Safety to classification Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C)
Authorised representative:	Mirco Damoli, Hochiki Italia Srl a s.u.

Please see additional conformity information on page 2.

For further information visit www.hochikieurope.com/esp

Hochiki Europe (UK) Ltd. Reserves the right to alter the specification of its products from time to time without notice. Although every effort has been made to ensure the accuracy of the information contained in this document it is not warranted or represented by Hochiki Europe (UK) Ltd. To be a complete and up-to-date description.

Additional Performance Details

- Compatible with YBN-R/4IS & YBN-R/4IS(WHT) mounting devices.
- Supported by a range of barriers

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications.

Signed for and on behalf Hochiki Europe (UK) Limited:

Mirco Damoli
EU Authorised Representative
Hochiki Italia Srl a s.u
Verona, Italy
9th June 2021

Shane Bartlett
Compliance Manager
Hochiki Europe (UK) Ltd
Gillingham, UK
9th June 2021

Issued at Hochiki Europe (UK) Limited

Ex CE	The performance of the above mentioned products are in conformity with the performance and essential characteristics declared within this certificate. This declaration of performance is issued under the sole responsibility of Hochiki Europe (UK) Ltd. This certificate will remain valid as long as the test methods and/or factory production control requirements included in harmonized standard, used to assess performance of the declared characteristics, do not change, and the product, and the manufacturing conditions are not modified significantly.

THIS DOCUMENT IS TO BE RETAINED FOR LEGAL PURPOSES

This certificate will remain valid as long as the test methods and/or factory production control requirements included in harmonized standard, used to assess performance of the declared characteristics, do not change, and the product, and the manufacturing conditions are not modified significantly.

Hochiki Europe (UK) Ltd. Reserves the right to alter the specification of its products from time to time without notice. Although every effort has been made to ensure the accuracy of the information contained in this document it is not warranted or represented by Hochiki Europe (UK) Ltd. To be a complete and up-to-date description.

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa19ATEX0143X**

4 Product: **SOC-E-IS Conventional Optical Smoke Detector**

5 Manufacturer: **Hochiki Europe**

6 Address: **Grosvenor Road, Gillingham Business Park, Gillingham, Kent, ME8 0SA**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR19.0330/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

Ⓔx II 1G Ex ia IIC T5 Ga (-20°C ≤ Ta ≤ +55°C)

SGS Baseefa Customer Reference No. **3642** Project File No. **19/0288**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and the Supplementary Terms and Conditions accessible at http://www.sgs.com/SGSBaseefa/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

D BREARLEY
Certification Manager

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa19ATEX0143X**

15 Description of Product

The SOC-E-IS Conventional Optical Smoke Detector is designed to detect combustion products in the air within a hazardous area and provides an alarm indication on a locally mounted LED and to equipment located in the non-hazardous area via a suitable interface.

The SOC-E-IS comprises various components, including LEDs and a photodetector, mounted on a printed circuit board (PCB) which is encapsulated and housed within a plastic enclosure. A perforated metal sheet permits access for the combustion products to the photodetector. The smoke detector sub-assembly is mounted on a Base Unit Type YBN-R/4(IS) which incorporates the field terminals. Cable entry to the field terminals is from the base of the enclosure.

This certificate covers the following variants:

SOC-E-IS, all variants

SOC-E-IS (WHT), all variants

Input/output parameters

Both variants

U_i	=	30V	C_i	=	0
I_i	=	100mA	L_i	=	0
P_i	=	750mW			

16 Report Number

GB/BAS/ExTR19.0330/00

17 Specific Conditions of Use

1. The plastic enclosure may present a potential electrostatic ignition hazard; the equipment must not be rubbed or cleaned with a dry cloth or solvents or installed within a dust laden airflow.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	LVD type requirements	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
1212330-00	1 – 6	1	05/19	SOC-E-IS GA Drawing
1212330-00	1 & 2	1	15/01/2020	SOC-E-IS GA Parts List
1212330-20	1 & 2	1	15/01/2020	SOC-E-IS(WHT) GA Parts List

Number	Sheet	Issue	Date	Description
2-1-2-320	1 & 2	1	04/19	SOC-E-IS PCB Assembly Drawing
2-1-2-320	1 – 3	1	02/10/2019	SOC-E-IS PCB Parts List
2-2-9-187	1 – 3	1	04/19	SOC-E-IS Drill Drawing
2-3-0-2805	1 & 2	1	12/19	SOC-E-IS Outer Cover Marking
2-3-0-2806	1 of 1	1	11/19	SOC-E-IS Product Label
2-3-0-2807	1 of 1	1	11/19	SOC-E-IS(WHT) Product label
2-3-2-434	1 – 4	1	05/19	SOC-E-IS Outer Cover
2-3-2-435	1 – 4	1	05/19	SOC-E-IS(WHT) Outer Cover

All drawings are common to, and with, IECEx BAS 19.0122X

EC DECLARATION OF PERFORMANCE

Issued in accordance with the Construction Products Regulation EU N° 305/2011



This is to certify that in compliance the Council Directive 305/2011 Construction Products Regulation, this declaration applies to :

Declartion Number :	2831-CPR-F4344
Product(s) :	SOC-E-IS & SOC-E-IS(WHT)
Manufacturer :	Hochiki Europe(UK) Limited Grosvenor Road Gillingham Business Park Gillingham Kent ME8 0SA
Description :	Conventional intrinsically safe photoelectric smoke detector for fire detection
Intended Use :	For use in fire detection and alarm systems for buildings.

This declaration is issued under the sole responsibility of the manufacturer and we hereby declare that the product identified above meets the requirements of the following:

Standards

EN54-7:2018	Fire detection and fire alarm systems. Smoke detectors. Point detectors using scattered light, transmitted light or ionization.
for the intended uses indicated above have been determined (1) See Annex A for the Essential Characteristics details (2) See Annex B for additional performance details	

Directives

Construction Products Regulation	EU 305/2011
Please refer to seperate Declartion of Conformity in respect of EU 768/2008/EC Annex III (DofC) Please refer to seperate Declartion of Conformity in respect of EU Regulation 2014/34/EU (ATEX) Please refer to seperate Declartion of Conformity in respect of EU Regulation 2014/90/EU (MED)	

EC Type Examination

Assessed by :	BRE Global Limited (Notified Body 2831) has performed type testing of the product, initial inspection of the manufacturing plant and of factory production control with continuous surveillance, assessment and evaluation of factory production control under system 1 and issued following certificate of conformity : **2831-CPR-F4344**
System of Assessment	System 1
Authorised representative:	Mirco Damoli, Managing Director, Hochiki Italia Srl a s.u

Please see additional conformity information on page 2.

For further information visit https://store.hochikieurope.com/

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Annex A – Essential Characteristics

Essential Characteristics	EN 54-7:2018 (Clause)	Performance
Operational reliability	4.2.1 to 4.2.8	Pass
Nominal activation conditions/Sensitivity.	4.3.1 to 4.3.3	Pass
Reproducibility	N/A	Pass
Additional test for suffix S point heat detectors	N/A	Pass
Additional test for suffix R heat detectors	N/A	Pass
Tolerance to supply voltage (variation in supply)	4.5	Pass
Air Movement	4.4.1	Pass
Dazzling	4.4.2	Pass
Repeatability	N/A	Pass
Rapid changes in attenuation	N/A	Pass
Performnace parameters under fire conditions		
Fire sensitivity	4.6	Pass
Durability of Nominal activation		
Cold (operational)	4.7.1.1	Pass
Dry Heat (endurance)	N/A	Pass
Dry Heat (operational)	4.7.1.2	Pass
Damp heat, cyclic (operational)	N/A	Pass
Damp heat, cyclic (endurance)	N/A	Pass
Damp heat, steady state (operational)	4.7.2.1	Pass
Damp heat, steady state (endurance)	4.7.2.2	Pass
Enclosure protection	N/A	Pass
Corrosion resistance		
Sulphur dioxide (SO2) corrosion (endurance)	4.7.3	Pass
Vibration Resistance		
Shock (operational)	4.7.4.1	Pass
Impact (operational)	4.7.4.2	Pass
Vibration, sinusoidal (operational)	4.7.4.3	Pass
Vibration, sinusoidal (endurance)	4.7.4.4	Pass
Vibration (endurance)	N/A	Pass
Electrical stability		
EMC, immunity (operational)	4.7.5	Pass
Variat8:36ion in supply	N/A	Pass

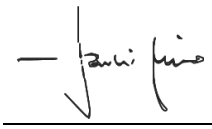
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Annex B – Additional Performance Details

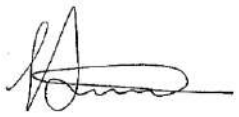
- Compatible with YBN-R/4IS & YBN-R/4IS(WHT) mounting devices.
- Supported by a range of IS barriers

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications.

Signed for and on behalf Hochiki Europe (UK) Limited:



Mirco Damoli
EU Authorised Representative
Hochiki Italia Srl a s.u
Verona, Italy
1st June 2023



Shane Bartlett
Compliance Manager
Hochiki Europe (UK) Ltd
Gillingham, UK
1st June 2023

Issued at Hochiki Europe (UK) Limited

CE	The performance of the above mentioned products are in conformity with the performance and essential characteristics declared within this certificate. This declaration of conformity is issued under the sole responsibility of Hochiki Europe (UK) Ltd. This certificate will remain valid as long as the test methods and/or factory production control requirements included in harmonized standard, used to assess performance of the declared characteristics, do not change, and the product, and the manufacturing conditions are not modified significantly.

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2.3 MANUAL CALL POINT

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	BExCP3A-BG, BExCP3A-PB, BExCP3A-PT, BExCP3B-BG, BExCP3B-PB, BExCP3B-PT, BExCP3C-BG, BExCP3C-PB, BExCP3C-PT, BExCP3D-BG, BExCP3D-PB, BExCP3D-PT, BExCP3E-BG, BExCP3E-PB, BExCP3E-PT

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):		Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
EU-type Examination Certificate (Module B):		SIRA 09ATEX3286X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):		Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
Quality Assurance Notification (Module D):		SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	BExCP3A:	II 2G Ex db eb IIC T6 Gb (-40°C ≤ Ta ≤ +70°C) II 2D Ex tb IIIC T75°C Db (-40°C ≤ Ta ≤ +70°C) or
	BExCP3B:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +50°C) II 2D Ex tb IIIC T60°C Db (-40°C ≤ Ta ≤ +50°C) or
	BExCP3C:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +65°C) II 2D Ex tb IIIC T75°C Db (-40°C ≤ Ta ≤ +65°C) or
	BExCP3D:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +70°C) II 2D Ex tb IIIC T80°C Db (-40°C ≤ Ta ≤ +70°C) or
	BExCP3E:	II 2G Ex db eb mb IIC T4 Gb (-40°C ≤ Ta ≤ +65°C) II 2D Ex tb IIIC T75°C Db (-40°C ≤ Ta ≤ +65°C)
Standards applied:		EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015/A1:2108 IEC 60079-18:2015/AC:2018 EN 60079-31: 2014 IP6X Dust Protection to EN60079-0 / EN 60079-31

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1:2011

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

EU Declaration of Conformity

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66
Construction and design requirements according to EN54-11:2001 clause 4.7 – BExCP3A-BG / B-BG / C-BG / D-BG only (fitted with burning house symbol shown in figure 3a and no lift flap)

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Martin Streetz
Quality Assurance Manager

Document No.: DC-007_Issue_N
Date and Place of Issue: London, 23/12/2020

1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 09ATEX3286X** Issue: **7**

4 Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

5 Applicant: **European Safety Systems Limited**

6 Address: Impress House, Mansell Road, Acton, London W3 7QH, UK

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015/A1:2018
EN 60079-18:2015/AC:2018 EN 60079-31:2014

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 2GD

BExCP3A Call Points:	Ex db eb IIC T6 Gb Ta = (-40°C +70°C) Ex tb IIIC T75°C Db Ta = (-40°C +70°C)
BExCP3B Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C +50°C) Ex tb IIIC T60°C Db Ta = (-40°C +50°C)
BExCP3C Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)
BExCP3D Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40ºC to +70ºC) Ex tb IIIC T80ºC Db Ta = (-40ºC to +70ºC)
BExCP3E Call Points	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)
GNExCP6A Call Points:	Ex db eb IIC T6 Gb Ta = (-40°C +70°C) Ex tb IIIC T75°C Db Ta = (-40°C +70°C)
GNExCP6B Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C +50°C) Ex tb IIIC T80°C Db Ta = (-40°C +50°C)
GNExCP6C Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)
GNExCP6D Call Points:	Ex db eb mb IIC T4 Gb Ta = (-40ºC to +70ºC) Ex tb IIIC T80ºC Db Ta = (-40ºC to +70ºC)

Project Number 80035511

Signed: J A May

Title: Director of Operations

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
Issue 7

GNExCP6E Call Points	Ex db eb mb IIC T4 Gb Ta = (-40°C to +65°C) Ex tb IIIC T75ºC Db Ta = (-40°C to +65°C)

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CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem Netherlands

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
Issue 7

13 **DESCRIPTION OF EQUIPMENT**

The equipment is a range of manual call points, as described below:

In all cases, external connections are made via 'Ex e' terminals mounted within the enclosure, the cables entering the enclosure via certified cable glands.

Model	Description of Enclosure	Mode of Operation	Contents Includes
BExCP3A-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch
BExCP3A-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3A-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3B-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (2W) Diode Module Zener Diode Module
BExCP3B-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3B-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3C-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (1.5W) Diode Module Zener Diode Module
BExCP3C-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3C-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3D-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (1.0W)

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Model	Description of Enclosure	Mode of Operation	Contents Includes
BExCP3D-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	Diode Module Zener Diode Module
BExCP3D-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
BExCP3E-BG	Aluminium enclosure fitted with a glass window	Break glass	'Ex d' switch And up to two of the following: Resistor Module (1.75W) Diode Module Zener Diode Module
BExCP3E-PB	Aluminium enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
BExCP3E-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6A-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two
GNExCP6A-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6A-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6B-BG	Plastic enclosure fitted with a glass window	Break glass	''Ex d' switch (S) – up to two And up to two of the following: Resistor Module (2.0W) Diode Module Zener Diode Module With/without one: LED Indicator Assembly
GNExCP6B-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 09ATEX3286X**
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Model	Description of Enclosure	Mode of Operation	Contents Includes
GNExCP6B-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6C-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two And up to two of the following: Resistor Module (1.5W) Diode Module Zener Diode Module With/without one: LED Indicator Assembly
GNExCP6C-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6C-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6D-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two And up to two of the following: Resistor Module (1.0W) Diode Module Zener Diode Module
GNExCP6D-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6D-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	
GNExCP6E-BG	Plastic enclosure fitted with a glass window	Break glass	'Ex d' switch (S) – up to two And up to two of the following: Resistor Module (1.75W) Diode Module Zener Diode Module
GNExCP6E-PB	Plastic enclosure fitted with a push button	Push button fitted with a spring-loaded cover that must be lifted before operating	
GNExCP6E-PT		Push button fitted with a spring-loaded cover that must be lifted before operating, the push button can only be reset by a tool	

In all cases, external connections are made via 'Ex e' terminals mounted within the enclosure, the cables entering the enclosure via certified cable glands.

The following ratings are applicable:

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BExCP3A Range of Call Points	BExCP3B, BExCP3C, BExCP3E and BExCP3D Range of Call Points
AC Voltage 250V Max Current 5A Max	Voltage #V DC Max Current #A Max
DC Voltage **125V Max Current 0.5A Max resistive load: 0.03A inductive load** **250 Vdc, 0.25A Max resistive load: 0.03A inductive load** 75V Max Current 0.75A 50V Max Current 1.0A 30V Max Current **5.0A** Max resistive load: 3.0A Inductive load 12V Max Current 5.0A	(# Due to the large number of options, it is not practical to detail a full list of available values, therefore, the manufacturer marks the actual figures applicable to each specific device on the product label in accordance with their drawings)
GNExCP6A Range of Call Points	GNExCP6B, GNExCP6C, GNExCP6D and GNExCP6E Range of Call Points
AC Voltage 250V Max Current 5A Max	Voltage #V DC Max Current #A Max
DC Voltage **125V Max Current 0.5A Max resistive load: 0.03A inductive load** **250 Vdc, 0.25A Max resistive load: 0.03A inductive load** 75V Max Current 0.75A 50V Max Current 1.0A 30V Max Current **5.0A** Max resistive load: 3.0A Inductive load 12V Max Current 5.0A	(# Due to the large number of options, it is not practical to detail a full list of available values, therefore, the manufacturer marks the actual figures applicable to each specific device on the product label in accordance with their drawings)

Variation 1 - This variation introduced the following changes:

i. The option to use of an alternative type of terminal in the BExCP3A-BG, BExCP3A-PB, BExCP3A-PT, BExCP3B-BG, BExCP3B-PB and BExCP3B-PT Manual Call points.
ii. The introduction of type GNExCP6A-BG, GNExCP6A-PB, GNExCP6A-PT, GNExCP6B-BG, GNExCP6B-PB and GNExCP6B-PT Manual Call Points; these utilise a plastic enclosure and house an extended range of optional modules. The description was amended accordingly.

In all cases, external connections are made via 'Ex e' terminals mounted within the enclosure, the cables entering the enclosure via certified cable glands.

Variation 2 - This variation introduced the following change:

i. To allow the use of diode and Zener diode packs (as used in the GNExCP6 Call Point to this certificate) with the BExCP3B Call Point; and revisions to the relevant controlled drawings to support this. The description was amended accordingly.

Variation 3 - This variation introduced the following changes:

i. The introduction of the BExCP3C-BG, BExCP3C-PB, BExCP3C-PT, GNExCP6C-BG, GNExCP6C-PB & GNExCP6C-PT Manual Call Points. The description, Specific Conditions of Use and Conditions of Manufacture were amended accordingly.

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ii. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 61241-1:2004 was replaced by EN 60079-31:2014. The marking has been updated in accordance with the latest standard.

Variation 4 - This variation introduced the following changes:

i. Microswitch (applicable to all variants)
- Update the equipment to permit the microswitch electrical ratings, permitted in the microswitch certificate, which introduces a 3A (maximum) inductive load in the switch.
- Update the microswitch service temperature range to -50ºC to +80ºC, from -50ºC to 65ºC, as per the latest microswitch certificate.

ii. For GNExCP6B, separate the LED indicator assembly from modules
- Permit the use up to 2x2W modules with LED or LED on its own. This has already been justified and included in the assessments, but now included as part of this variation

iii. Weidmüller DIN rail option
- Add Weidmüller DIN rail option to GNExCP6 variants.

iv. All variant
- Permit a change in ambient temperature range for all variants, using previous and new testing performed; The following changes are made with regards to call point variant.
- <u>Modified Version:</u>
  BExCP3C and GNExCP6C previously contained/now contains the following options:
  Was:
  Ex d microswitch with up to two resistor modules (1W each) OR LED indicator assembly (1W)
  Now:
  'Ex d' microswitch and up to two of the following:
  Resistor Module (1.75W each)
  Diode Module
  Zener Diode Module
- <u>New variant Resistor Power Ratings</u>
  BExCP3D and GNExCP6D has been added to include
  'Ex d' microswitch and up to two of the following:
  Resistor Module (1.0W each)
  Diode Module
  Zener Diode Module

v. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, IEC 60079-0:2007 Ed 5, EN 60079-1:2004, EN 60079-7:2007 and IEC 60079-18:2009 Ed 3 were replaced by EN 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015/A1:2018 and EN 60079-18:2015/AC:2018, the markings were updated accordingly to recognise the new standards.

Variation 5 - This variation introduced the following changes:

i. Clarification of the product coding and marking:
   a. Types of protection placed in alphabetical order in the labels;
   b. Correction of amperage associated with 30Vdc rating for the BExCP3A and GNExCP6A Call Points in the certificates from the previous variation

ii. Permit the following modifications after performing temperature measurement tests (where necessary) as part of this variation:

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a. Recognise the existing BExCP3C and GNExCP6C call points variants with new BExCP3E and GNExCP6E variants, with the contents remaining unchanged;
b. Recognise a new variant, as the new BExCP3C and GNExCP6C call point, the same contents of the previous BExCP3C/GNExCP6C variant, with the exception of introducing a LED to the contents (GNExCP6C only) and limiting the resistor modules and the LED/resistor to 1.5W;
c. Modification to the permitted maximum input voltage and corresponding resistance values for applicable variants;
d. Permit the use of a 125VDC and 250VDC maximum voltage options for the micro-switch in the BExCP3A and GNExCP6A variants;
e. Correction of a typographical error, to represent the optional resistor/diode as R2/D2, instead of R1/D1, which is already used in the circuit diagram;
f. Permit modification of the LED resistances and the corresponding maximum input voltages for the GNExCP6B and GNExCP6C variants.
g. The description was modified to reflect these changes.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	9 December 2009	R18381A	The release of the prime certificate.
1	19 December 2011	R25199A/00	The introduction of Variation 1.
2	17 February 2012	R25199A/01	Report no. R25199A/01 replaced R25199A/00.
3	17 June 2016	R70064462A	This Issue covers the following changes: • EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. *(In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)* • The introduction of Variation 2.
4	17 November 2017	R70130211A	The introduction of Variation 3.
5	15 October 2019	0686	Transfer of certificate Sira 09ATEX3286X from Sira Certification Service to CSA Group Netherlands B.V.
6	07 January 2020	R70213896A	The introduction of Variation 4.
7	14 August 2020	R80035511A	The introduction of Variation 5.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 The terminals shall be fitted only with wires that have cross-sectional area falling within the following limitations:

BExCP3A and GNExCP6A Call Points fitted with Weidmüller terminal; 0.5 mm^2 to 4 mm^2
BExCP3A and GNExCP6A Call Points fitted with Phoenix terminal; 0.2 mm^2 to 4 mm^2
GNExCP6A Call Point fitted with Weidmüller rail mounted terminals; 0.5 mm^2 to 2.5 mm^2

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BExCP3B and GNExCP6B Call Points fitted with Weidmüller terminal; 0.5 mm^2 to 4 mm^2
BExCP3B and GNExCP6B Call Points fitted with Phoenix terminal; 0.2 mm^2 to 4 mm^2
BExCP3B and GNExCP6B Call Points fitted with Weidmüller rail mounted terminals; 0.5 mm^2 to 2.5 mm^2
BExCP3C and GNExCP6C Call Points fitted with Weidmüller terminal; 0.5mm^2 to 4mm^2
BExCP3C and GNExCP6C Call Points fitted with Phoenix terminal; 0.2mm^2 to 4mm^2
BExCP3C and GNExCP6C Call Points fitted with Weidmüller rail mounted terminals; 0.5mm^2 to 2.5mm^2
BExCP3D and GNExCP6D Call Points fitted with Weidmüller terminal; 0.5mm^2 to 4mm^2
BExCP3D and GNExCP6D Call Points fitted with Phoenix terminal; 0.2mm^2 to 4mm^2
BExCP3D and GNExCP6D Call Points fitted with Weidmüller rail mounted terminals; 0.5mm^2 to 2.5mm^2
BExCP3E and GNExCP6E Call Points fitted with Weidmüller terminal; 0.5mm^2 to 4mm^2
BExCP3E and GNExCP6E Call Points fitted with Phoenix terminal; 0.2mm^2 to 4mm^2
BExCP3E and GNExCP6E Call Points fitted with Weidmüller rail mounted terminals; 0.5mm^2 to 2.5mm^2

15.2 The following apply to the Call Points fitted with Weidmüller Terminals:

- Not more than one single or multiple strand lead shall be connected to a terminal, unless multiple conductors have been joined in a suitable manner, e.g. two conductors into a single insulated crimped boot lace ferrule.
- Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1mm of the metal of the terminal throat.
- During installation, the terminals shall be only wired with cable in an ambient temperature range between -10°C to 80°C.

15.3 The following apply to the Call Points fitted with Phoenix Terminals:

- The number of conductors per clamping shall be either 1 conductor per clamping unit, 0.2 – 4 mm^2 or 2 conductors with the same cross section and the same conductor type 0.2 – 1.5 mm^2. If 2 conductors are fitted in one clamping unit they may be joined in a suitable manner, e.g. two conductors into a single insulated crimped boot lace ferrule.

15.4 All terminal screws, used or unused, shall be fully tightened down.

15.5 The GNExCP6 Call Points are supplied with M20 threaded entries, the BExCP3 Call Points have plain, M20 holes. All of these shall be fitted with either a cable gland or certified blanking element that is suitable for the application and has been certified by a notified body. These shall provide and maintain a minimum enclosure ingress protection of IP66.

15.6 For BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6B, GNExCP6C, GNExCP6D and GNExCP6E Call Points that have a maximum rated current marked, the prospective short-circuit current of the circuit connected shall be limited to the marked rated current.

15.7 The enclosure of the GNExCP6 Call Points is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

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Certificate Annexe

Certificate Number: **Sira 09ATEX3286X**

Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

Applicant: **European Safety Systems Limited**

Issue 0

Drawing	Sheets	Rev	Date (Sira stamp)	Title
D150-00-001-SC	1 of 1	C	08 Dec 09	BExCP3A-BG & BExCP3B-BG Manual Call Point Assembly
D150-00-001-CD-SC	1 of 1	A	08 Dec 09	BExCP3-XX and BExCP3-XX Call Point Circuit Operation Diagram
D150-00-101-SC	1 of 1	B	08 Dec 09	BExCP3-PB & BExCP3B-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	B	08 Dec 09	BExCP3-PT & BExCP3B-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	B	09 Dec 09	BExCP3B/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	C	08 Dec 09	BExCP3A and BExCP3B Label Drawings

Issue 1

Drawing	Sheets	Rev	Date (Sira stamp)	Title
D150-00-001-SC	1 of 1	D	22 Dec 11	BExCP3A-BG & BExCP3B-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	C	22 Dec 11	BExCP3A-PB & BExCP3B-PB manual Call Point Assembly
D150-00-201-SC	1 of 1	C	22 Dec 11	BExCP3A-PT & BExCP3B-PT Manual Call Point Assembly
D154-00-001-SC	1 of 1	B	22 Dec 11	GNExCP6A-BG & GNExCP6B-BG & -PB –PT Manual Call Point Assembly
D154-00-101-SC	1 of 1	A	22 Dec 11	GNExCP6A-PB & GNExCP6B-PB Manual Call Point Assembly
D154-00-201-SC	1 of 1	A	22 Dec 11	GNExCP6A-PT & GNExCP6B-PT Manual Call Point Assembly
D154-00-001-CD-SC	1 of 1	B	22 Dec 11	GNExCP6A-XX and BExCP6B-XX Call Point Circuit Operation Diagram
D154-10-910-SC	1 of 1	A	22 Dec 11	GNExCP6B & BExCP3B – BG/PB/PT Call Point Diode Potting Drawings
D154-10-920-SC	1 of 1	A	22 Dec 11	GNExCP6B & BExCP3B – BG/PB/PT Call Point Zener Diode Potting
D154-10-930-SC	1 of 1	B	22 Dec 11	GNExCP6B-BG/PB/PT Call Point LED & Resistor Potting
D154-99-001-SC	1 of 1	C	22 Dec 11	BExCP6A and BExCP6B Label Drawings

Issue 2 (No new drawings were introduced.)

Issue 3

Drawing	Sheets	Rev.	Date(Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	B	06 Apr 16	BExCP3A-XX and BExCP3B-XX Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	E	06 Apr 16	BExCP3A-BG and BExCP3B-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	D	06 Apr 16	BExCP3A-PB and BExCP3B-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	D	06 Apr 16	BExCP3A-PT and BExCP3B-PT Manual Call Point Assembly
D150-99-001-SC	1 of 1	D	06 Apr 16	BExCP3A and BExCP3B Label Drawings

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Certificate Annexe

Certificate Number: **Sira 09ATEX3286X**

Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

Applicant: **European Safety Systems Limited**

Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	C	27 Oct 17	BExCP3A, BExCP3B & BExCP3C Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	F	27 Oct 17	BExCP3A-BG, BExCP3B-BG & BExCP3C-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	E	27 Oct 17	BExCP3A-PB, BExCP3B-PB & BExCP3C-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	E	27 Oct 17	BExCP3A-PT, BExCP3B-PT & BExCP3C-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	C	27 Oct 17	BExCP3B/C-BG/PB/PT & GNExCP6B/C- BG/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	E	14 Nov 17	BExCP3A, BExCP3B & BExCP3C Label Drawing
D154-00-001-CD-SC	1 of 1	C	27 Oct 17	GNExCP6A, GNExCP6B & GNExCP6C Call Point Circuit Operation Diagram
D154-00-001-SC	1 of 1	C	27 Oct 17	GNExCP6A-BG, GNExCP6B-BG & GNExCP6C-BG Manual Call Point Assembly
D154-00-101-SC	1 of 1	B	27 Oct 17	GNExCP6A-PB, GNExCP6B-PB & GNExCP6C-PB Manual Call Point Assembly
D154-00-201-SC	1 of 1	B	27 Oct 17	GNExCP6A-PT, GNExCP6B-PT & GNExCP6C-PT Manual Call Point Assembly
D154-10-930-SC	1 of 1	C	27 Oct 17	GNExCP6B/C-BG/PB/PT Call Point LED & Resistor Potting
D154-99-001-SC	1 of 1	D	14 Nov 17	GNExCP3A, GNExCP3B & GNExCP3C Label Drawings

Issue 5. No new drawings were introduced.

Issue 6

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	D	10 Dec 19	BExCP3A-XX, BExCP3B-XX, BExCP3C-XX and BExCP3D-XX Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	G	10 Dec 19	BExCP3A-BG, BExCP3B-BG, BExCP3C-BG and BExCP3D-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	F	10 Dec 19	BExCP6A-PB, BExCP6B-PB, BExCP6C-PB & BExCP6D-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	F	10 Dec 19	BExCP6A-PT, BExCP6B-PT, BExCP6C-PT & BExCP6D-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	D	10 Dec 19	BExCP3B/C/D-BG/PB/PT & GNExCP6B/C/D- BG/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	F	12 Dec 19	ExCP3A, BExCP3B, BExCP3C & BExCP3D Label Drawing
D154-00-001-CD-SC	1 of 1	D	10 Dec 19	GNExCP6A, GNExCP6B, GNExCP6C & GNExCP6D Call Point Circuit Operation Diagram
D154-00-001-SC	1 of 1	D	10 Dec 19	GNExCP6A-BG, GNExCP6B-BG, GNExCP6C-BG & GNExCP6D-BG Manual Call Point Assembly
D154-00-101-SC	1 of 1	C	10 Dec 19	GNExCP6A-PB, GNExCP6B-PB, GNExCP6C-PB & GNExCP6D-PB Manual Call Point Assembly

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Certificate Annexe

Certificate Number: **Sira 09ATEX3286X**

Equipment: **BExCP3A, BExCP3B, BExCP3C, BExCP3D, BExCP3E, GNExCP6A, GNExCP6B GNExCP6C, GNExCP6D and GNExCP6E Manual Call Points**

Applicant: **European Safety Systems Limited**

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D154-00-201-SC	1 of 1	C	10 Dec 19	GNExCP6A-PT, GNExCP6B-PT, GNExCP6C-PT & GNExCP6D-PT Manual Call Point Assembly
D154-10-910-SC	1 of 1	B	10 Dec 19	GNExCP6B/C/D & BExCP3B/C/D – BG/PB/PT Call Point Diode Potting Drawings
D154-10-920-SC	1 of 1	B	10 Dec 19	GNExCP6B & BExCP3B – BG/PB/PT Call Point Zener Diode Potting
D154-10-930-SC_	1 of 1	D	10 Dec 19	GNExCP6B-BG/PB/PT CALL POINT LED & RESISTOR
D154-99-001-SC	1 of 1	E	12 Dec 19	GNExCP3A, GNExCP3B, GNExCP3C & GNExCP3D Label Drawings

Issue 7

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D150-00-001-CD-SC	1 of 1	E	27 Jul 20	BExCP3A-XX, BExCP3B-XX, BExCP3C-XX, BExCP3D-XX and BExCP3E-XX Call Point Circuit Operation Diagram
D150-00-001-SC	1 of 1	H	27 Jul 20	BExCP3A-BG, BExCP3B-BG, BExCP3C-BG, BExCP3D-BG and BExCP3E-BG Manual Call Point Assembly
D150-00-101-SC	1 of 1	G	27 Jul 20	BExCP6A-PB, BExCP6B-PB, BExCP6C-PB, BExCP6D-PB and BExCP6E-PB Manual Call Point Assembly
D150-00-201-SC	1 of 1	G	27 Jul 20	BExCP6A-PT, BExCP6B-PT, BExCP6C-PT, BExCP6D-PT and BExCP6D-PT Manual Call Point Assembly
D150-10-900-SC	1 of 1	E	27 Jul 20	BExCP3B/C/D/E-BG/PB/PT & GNExCP6B/C/D/E-BG/PB/PT Call Point Resistor Potting Drawing
D150-99-001-SC	1 of 1	G	28 Jul 20	ExCP3A, BExCP3B, BExCP3C, BExCP3D and BExCP3E Label Drawing
D154-00-001-CD-SC	1 of 1	E	27 Jul 20	GNExCP6A, GNExCP6B, GNExCP6C, GNExCP6D and GNExCP6E Call Point Circuit Operation Diagram
D154-00-001-SC	1 of 1	E	27 Jul 20	GNExCP6A-BG, GNExCP6B-BG, GNExCP6C-BG, GNExCP6D-BG and GNExCP6E-BG Manual Call Point Assembly
D154-00-101-SC	1 of 1	D	27 Jul 20	GNExCP6A-PB, GNExCP6B-PB, GNExCP6C-PB, GNExCP6D-PB and GNExCP6E-BG Manual Call Point Assembly
D154-00-201-SC	1 of 1	D	27 Jul 20	GNExCP6A-PT, GNExCP6B-PT, GNExCP6C-PT, GNExCP6D-PT and GNExCP6DEPT Manual Call Point Assembly
D154-10-910-SC	1 of 1	C	27 Jul 20	GNExCP6B/C/D/E & BExCP3B/C/D/E – BG/PB/PT Call Point Diode Potting Drawings
D154-10-920-SC	1 of 1	C	27 Jul 20	GNExCP6B/C/D/E & BExCP3B/C/D/E – BG/PB/PT Call Point Zener Diode Potting
D154-10-930-SC	1 of 1	E	27 Jul 20	GNExCP6B/C-BG/PB/PT CALL POINT LED & RESISTOR
D154-99-001-SC	1 of 1	F	28 Jul 20	GNExCP3A, GNExCP3B, GNExCP3C, GNExCP3D and GNEXCP3E Label Drawings

This certificate and its schedules may only be reproduced in its entirety and without change

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

2.4 HYDROGEN GAS DETECTOR

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

Sensitron S.r.L., Viale Della Repubblica, 48, IT-20007 Cornaredo MI, ITALY

hereby declares under its sole responsibility that the gas detection unit here below

dichiara sotto la propria esclusiva responsabilità che il rilevatore di gas sotto indicato

Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89251**
Lot	Lotto	**24091114**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**366**
Span points	Punti di span	**629**
Calibration coefficient	Coefficiente di taratura	**3255**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

EMC Directive 2014/30/EU / Direttiva EMC 2014/30/UE

and the following harmonised standards / *ed alle seguenti norme armonizzate:*
EN 50270:2015
EN 61000-6-4:2007

RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

Sensitron S.r.l. declares that all of our gas detectors are RoHS3 compliant and do not contain any of the restricted substances listed below in concentrations and applications banned by EU Directive 2011/65/EU, Restriction of Hazardous Substances, "RoHS2 Directive" and the revised directive 2015/863/EU.

Restricted substances:
Pb - Lead (for Oxygen detectors, Lead is contained, in a quantity less than 1%, accepted as exemption from RoHS2 and RoHs3 directives devices Category 9 – industrial monitoring and control instruments)
Cd - Cadmium
Hg - Mercury
CrVI - Hexavalent Chromium
PBB - Polybrominated Biphenyls
PBDE - Polybrominated Diphenylethers
DEHP - Bis(2-ethylhexyl)phthalate
BBP - Butyl benzyl phthalate
DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

Sensitron S.r.l. dichiara che tutti i nostri rilevatori gas sono conformi alla direttiva RoHS3 e non contengono nessuna delle sostanze soggette a restrizioni elencate di seguito secondo la Direttiva UE 2011/65 / UE, Restrizione di sostanze pericolose, "Direttiva RoHS2" e direttiva rivista 2015/863 / UE.

Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

Sensitron S.r.L., Viale Della Repubblica, 48, IT-20007 Cornaredo MI, ITALY

hereby declares under its sole responsibility that the gas detection unit here below

dichiara sotto la propria esclusiva responsabilità che il rilevatore di gas sotto indicato

Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89252**
Lot	Lotto	**24091114**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**375**
Span points	Punti di span	**642**
Calibration coefficient	Coefficiente di taratura	**3206**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

EMC Directive 2014/30/EU / Direttiva EMC 2014/30/UE

and the following harmonised standards / *ed alle seguenti norme armonizzate:*
EN 50270:2015
EN 61000-6-4:2007

RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

Sensitron S.r.l. declares that all of our gas detectors are RoHS3 compliant and do not contain any of the restricted substances listed below in concentrations and applications banned by EU Directive 2011/65/EU, Restriction of Hazardous Substances, "RoHS2 Directive" and the revised directive 2015/863/EU.

Restricted substances:
Pb - Lead (for Oxygen detectors, Lead is contained, in a quantity less than 1%, accepted as exemption from RoHS2 and RoHs3 directives devices Category 9 – industrial monitoring and control instruments)
Cd - Cadmium
Hg - Mercury
CrVI - Hexavalent Chromium
PBB - Polybrominated Biphenyls
PBDE - Polybrominated Diphenylethers
DEHP - Bis(2-ethylhexyl)phthalate
BBP - Butyl benzyl phthalate
DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

Sensitron S.r.l. dichiara che tutti i nostri rilevatori gas sono conformi alla direttiva RoHS3 e non contengono nessuna delle sostanze soggette a restrizioni elencate di seguito secondo la Direttiva UE 2011/65 / UE, Restrizione di sostanze pericolose, "Direttiva RoHS2" e direttiva rivista 2015/863 / UE.

Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

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hereby declares under its sole responsibility that the gas detection unit here below

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Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89256**
Lot	Lotto	**24091115**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**370**
Span points	Punti di span	**647**
Calibration coefficient	Coefficiente di taratura	**3090**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

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EN 61000-6-4:2007

RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

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Hg - Mercury
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DEHP - Bis(2-ethylhexyl)phthalate
BBP - Butyl benzyl phthalate
DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

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Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

EU Declaration of Conformity & Test Certificate
Dichiarazione UE di Conformità & Collaudo

Sensitron S.r.L., Viale Della Repubblica, 48, IT-20007 Cornaredo MI, ITALY

hereby declares under its sole responsibility that the gas detection unit here below

dichiara sotto la propria esclusiva responsabilità che il rilevatore di gas sotto indicato

Model	Modello	**S2097H2**
Detector Type	Tipo Sensore	**NETPEL21M(NP17S) - 2002 mV**
Serial Number	Numero di serie	**D89257**
Lot	Lotto	**24091115**
PWM4..20mA Value	Valore PWM4..20mA	**489**
4-20mA output	Uscita 4-20mA	**OK**
Alarms activation	Attivazione allarmi	**OK**
Active options	Opzioni attive	**Thresholds limit at 60% / Limite soglia al 60%**
Firmware version - date	Versione - Data firmware	**4.01 - BL: 1 - 22.11.2023**
Target gas	Gas rivelato	**H2 HYDROGEN (IDROGENO)**
Relative response	Fattore di conversione	**1.05**
Full scale	Fondo scala	**100 %LFL**
Thresholds	Soglie	**10 / 20 / 30 %LFL**
Hysteresis	Isteresi	**2**
Calibration gas concentration	Concentrazione gas di taratura	**50 %LFL**
Gas bottle S/N	S/N Bombola di taratura	**RISAM, CH4 S/N 15697072 CAL. EXP. 08/28**
Zero points	Punti di zero	**366**
Span points	Punti di span	**654**
Calibration coefficient	Coefficiente di taratura	**2972**
Calibration date	Data collaudo	**11.09.2024**
Surveyor	Collaudatore	**P. Lamagra**

complies with the Essential Health and Safety Requirements of the directives and standards listed below:

è conforme ai Requisiti Essenziali di Sicurezza e Salute delle direttive e delle norme sotto indicate:

ATEX Directive 2014/34/EU / Direttiva ATEX 2014/34/UE

Type of protection / modo di protezione	Harmonised standards / norme armonizzate
II 2G Ex db IIC T5 Gb	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-29-1:2016

Certificate No. / *Certificato n°*: **CESI 02 ATEX 084X**
Certified series / *Serie certificata*: **ST/L/E3/S2**
Released by the Notified Body No. 0722 / *Emesso dal Organismo Notificato N° 0722*:
CESI - Elettrotecnica Sperimentale "G.Motta" Spa, Via R. Rubattino 54, I-20134 Milano - Italy

EMC Directive 2014/30/EU / Direttiva EMC 2014/30/UE

and the following harmonised standards / *ed alle seguenti norme armonizzate:*
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EN 61000-6-4:2007

RoHS Directive 2015/863/EU (RoHS 3) / *Direttiva RoHS 2015/863/UE (RoHS 3)*

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PBB - Polybrominated Biphenyls
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DEHP - Bis(2-ethylhexyl)phthalate
BBP - Butyl benzyl phthalate
DBP - Dibutyl phthalate
DIBP - Diisobutyl phthalate

Sensitron S.r.l. dichiara che tutti i nostri rilevatori gas sono conformi alla direttiva RoHS3 e non contengono nessuna delle sostanze soggette a restrizioni elencate di seguito secondo la Direttiva UE 2011/65 / UE, Restrizione di sostanze pericolose, "Direttiva RoHS2" e direttiva rivista 2015/863 / UE.

Sostanze pericolose:
Pb - Piombo (per rilevatori di ossigeno è presente piombo, in quantità inferiore a 1%, approvato come eccezione dalle direttive RoHS2 e RoHs3 per dispositivi di Categoria 9 – industrial monitoring and control instruments)
Cd - Cadmio
Hg - Mercurio
CrVI - Cromo esavalente
PBB - Bifenili polibromurati
PBDE - Difenileteri polibromurati
DEHP - Di-2-etilesilftalato
BBP - Benzilbutilftalato
DBP - Dibutilftalato
DIBP - Diisobutilftalato

Ing. Marco Penso
(EX responsible / *Responsabile EX*)

Cornaredo, 20.12.2024

2.5 COMBINATION UNIT

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	D1xS1, D1xS2 D1xL1, D1xL2 D1xC1X05, D1xC1X10, D1xC2X05, D1xC2X10 D1xB2XH1, D1xB2XH2

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX) - D1xS1, D1xS2, D1xL1, D1xL2, D1xC1X05, D1xC1X10, D1xC2X05 and D1xC2X10 only

Notified Body for EU type Examination (Module B):	UL International Demko A/S Borupvang 5A 2750 Ballerup Denmark
EU-type Examination Certificate (Module B):	DEMKO 19 ATEX 2141X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 Unit 6, Hawarden Industrial Park, Hawarden, Deeside, CH5 3US, UK
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex db IIC T6…T3 GB II 2D Ex tb IIIC T82˚C…145˚C Db
Standards applied:	EN 60079-0:2018 EN 60079-1:2014 EN60079-31:2014

Regulation EU No. 305/2011: Construction Products Regulation (CPR) – D1xS1FDC024***A1R & D1xS1FDC024***A1G only – tones 1, 2, 5, 8, 40, 44, 53 only

Notified Product Certification Body for Certificate of Constancy of Performance or EC Type Examination Certificate and continuous surveillance, assessment and evaluation of factory production control:	BRE Global Assurance (Ireland) Limited Notified Body No.: 2831 DCU Alpha, Old Finglas Road, Glasnevin, Dublin, D11 KXN4
Certificate of Constancy of Performance or EC Type Examination Certificate:	2831-CPR-F4858
Standards applied:	EN 54-3:2001 + A1:2002 + A2:2006

Directive 2014/90/EU: Marine Equipment Directive (MED) – part codes specified below only - D1xS1FDC024***A1R & D1xS1FDC024***A1G only

Notified Body for EU type Examination (Module B) and Conformity to EU-type based on quality assurance of the production process (Module D):	DNV AS Notified Body No.: 0575 DNV Høvik, Norway
EU-Certificate Type Examination (Module B):	MEDB000085K
EU Certificate of Conformity for the Quality Assurance System (Module D):	MEDD00000GV
Standards applied:	EN 54-3:2014 incl. A1: 2019 IEC 60092-504: 2016 IEC 60533: 2015

EU Declaration of Conformity

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1: 2011

Directive 2014/35/EU: Low Voltage Directive (LVD)

Standards applied:	EN 60947-1:2007 + A2:2014

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66/67

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Desmond Gayler
Quality Assurance Manager

Document No.: DC-067_Issue_K
Date and Place of Issue: London, 18/03/2024

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	D1xB2X05, D1xB2X10, D1xB2X15, D1xB2X21, D1xB2LD2, D1xJ2

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):	UL International Demko A/S Notified Body No.: 0539 Borupvang 5A, 2750 Ballerup, Denmark
EU-type Examination Certificate (Module B):	DEMKO 19 ATEX 2009X Rev. 1
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex d IIC T6…T3 Gb II 2D Ex tb IIIC T95°C…T169°C Db
Standards applied:	EN 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014 IP6X Dust Protection to EN60079-0 / EN60079-31

Regulation EU No. 305/2011: Construction Products Regulation (CPR) –part codes listed below only – 1Hz Flash Mode only

Notified Product Certification Body for Certificate of Constancy of Performance or EC Type Examination Certificate and continuous surveillance, assessment and evaluation of factory production control:	BRE Global Assurance (Ireland) Limited Notified Body No.: 2831 DCU Alpha, Old Finglas Road, Glasnevin, Dublin, D11 KXN4
Certificate of Constancy of Performance or EC Type Examination Certificate:	2831-CPR-F4859 (D1xB2X05DC024***A1R/C, D1xB2X05DC024***A1G/C only) 2831-CPR-F4899 (D1xB2X05DC024***A1R/R, D1xB2X05DC024***A1G/R only)
Standards applied:	EN 54-23:2010

Directive 2014/90/EU: Marine Equipment Directive (MED) – part codes specified only – D1xB2X05DC024***A1R/C ; D1xB2X05DC024***A1R/R ; D1xB2X05DC024***A1G/C ; D1xB2X05DC024***A1G/R

Notified Body for EU type Examination (Module B) and Conformity to EU-type based on quality assurance of the production process (Module D):	DNV AS Notified Body No.: 0575 DNV Høvik, Norway
EU-Certificate Type Examination (Module B):	MEDB000085K
EU Certificate of Conformity for the Quality Assurance System (Module D):	MEDD00000GV
Standards applied:	EN 54-3:2014 incl. A1: 2019 EN 54-23:2010 IEC 60092-504: 2016

EU Declaration of Conformity

IEC 60533: 2015

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN IEC 61000-6-1:2019 & IEC 61000-6-1:2016 EN IEC 61000-6-2:2019 & IEC 61000-6-2:2016 EN IEC 61000-6-3:2021 & IEC 61000-6-3:2020 EN IEC 61000-6-4:2019 & IEC 61000-6-4:2018

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1991 + A1:2000 + A2:2013. - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66/67

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.

Desmond Gayler
Quality Assurance Manager

Document No.: DC-077_Issue_G
Date and Place of Issue: London, 01/09/2023

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 19 ATEX 2009X Rev. 3**

[4] Product: **D1xB2X - Xenon Beacons, D1xB2LD - LED Beacons, D1xJ2 - Junction Boxes, D2xH1-I/IR - Heat Detectors and D1xH1-A/H/E - Heat Detectors**

[5] Manufacturer: **European Safety Systems Limited**

[6] Address: **Impress House, Mansell Road, Acton, London W3 7QH United Kingdom**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report no. **DK/ULD/ExTR19.0006/03.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1:2014** **EN IEC 60079-7:2015/A1:2018**
EN 60079-11:2012 **EN IEC 60079-31:2024**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the “Specific Conditions of Use” listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II 1 G	**Ex ia IIC T6 Ga** (Heat Detectors – D2xH1-I)	**II 1 G**	**Ex ia IIC T4 Ga** (Heat Detectors – D2xH1-IR)
II 2 G	**Ex db IIC T6….T3 Gb** (D1xB2)	**II 2 G**	**Ex db IIC T6….T4 Gb** (D1xJ2, D1xH1-A/H)
II 2 G	**Ex eb IIC T6…T5 Gb** (D1xJ2-E)	**II 2 G**	**Ex db eb IIC T6…T5 Gb** (D1xH1-E)
II 2 D	**Ex tb IIIC T85˚C …T169˚C Db** (D1xB2, D1xJ2, D1xH1, D2xH1)		

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein (“Certified Product”) has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL’s prior written approval.

Date of issue: 2019-05-03

Re-issued: 2024-08-02

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

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[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2009X Rev. 3

[15] Description of Product

D1xB2 series are a range of Electronic Strobe Beacons housed in a flameproof / dust protected aluminium enclosure that are intended to be used as visual warning / signalling devices. The enclosure is accessible via the threaded cover which incorporates a glass dome, the glass dome is cemented into the cover. A stainless steel lens guard and non-metallic lens diffuser are optional. Additionally the 5J, 10J and 15J 24VDC models may be fitted with an additional PCB for SIL monitoring. The range is supplemented by a D1xJ2 Junction Box which is based on the D1xB2 Series enclosure, D1xH Heat Detector and D2xH Heat Detector.. The Junction Box and Heat Detector are closed with a single piece moulded threaded cover instead of the beacon lens and may be fitted with optional indicator LED module (except for Ex eb models).

The intrinsically safe heat detector consists of the D2xJ1 enclosure, heat detector and wiring terminals. D2xH1-IR models may also be fitted with optional EOL Series devices including optional LED module.

Nomenclature (Beacons):

Model	Beacon energy (Joules)	Voltage	Suffixes
D1xB2X	05	DC012	Up to 4 alpha numeric characters, not associated with equipment certification
		DC024	
		DC048	
		AC115	
		AC230	
D1xB2X	10	DC024	
		DC048	
		AC115	
		AC230	
D1xB2X	15	DC024	
		DC048	
		AC115	
		AC230	
D1xB2X	21	DC024	
		DC048	
		AC115	
		AC230	
D1xB2LD2 (LED beacon)	-	DC024	
	-	AC115	
	-	AC230	

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Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
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Nomenclature (Junction boxes):

Model	Suffix
D1xJ2	T01 = Terminal block
	D01 = Din Rail AKZ
	M01 = Module mounted on internal bracket
	-E = Increased safety

Nomenclature (Heat Detectors):

Model	Suffix
D1xH1-	A = Ex db / Ex tb model
	H = Ex db / Ex tb high temperature model
	E = Ex db eb / Ex tb model
D2xH1-	I = Ex ia model / Ex tb model
	IR = Ex ia, with resistor model / Ex tb with resistor model

Performance testing

The optical radiation output of the beacon products with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is not covered in this certificate.

The optical radiation output of the LED indicator included in this product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1 to the scope of EN 60079-28:2015.

Temperature ratings (Beacons):

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xB2X05DC012 D1xB2X05DC024 D1xB2X05DC048	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +75˚C
		T6	-55˚C to +60˚C
	Ex tb IIIC	T104˚C	-55˚C to +80˚C
D1xB2X05AC115 D1xB2X05AC230	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +50˚C
	Ex tb IIIC	T116˚C	-55˚C to +70˚C
D1xB2X10DC024 D1xB2X10DC048	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +45˚C
	Ex tb IIIC	T135˚C	-55˚C to +80˚C
D1xB2X10AC115 D1xB2X10AC230	Ex db IIC	T3	-55˚C to +70˚C
		T4	-55˚C to +65˚C
	Ex tb IIIC	T139˚C	-55˚C to +70˚C
D1xB2X15DC024 D1xB2X15DC048	Ex db IIC	T3	-55˚C to +80˚C
		T4	-55˚C to +65˚C
	Ex tb IIIC	T146˚C	-55˚C to +80˚C
D1xB2X15AC115 D1xB2X15AC230	Ex db IIC	T3	-55˚C to +70˚C
		T4	-55˚C to +65˚C
	Ex tb IIIC	T139˚C	-55˚C to +70˚C
D1xB2X21DC024 D1xB2X21DC048	Ex db IIC	T3	-55˚C to +80˚C
		T4	-55˚C to +45˚C
	Ex tb IIIC	T169˚C	-55˚C to +80˚C

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Schedule

EU-TYPE EXAMINATION CERTIFICATE No.

DEMKO 19 ATEX 2009X Rev. 3

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xB2X21AC115 D1xB2X21AC230	Ex db IIC	T3	-55˚C to +60˚C
		T4	-55˚C to +50˚C
	Ex tb IIIC	T141˚C	-55˚C to +60˚C
D1xB2LD2	Ex db IIC	T5	-55˚C to +80˚C
		T6	-55˚C to +70˚C
	Ex tb IIIC	T95˚C	-55˚C to +80˚C

Temperature ratings (Junction Boxes):

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xJ2***	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +70˚C
		T6	-55˚C to +55˚C
	Ex tb IIIC	T106˚C	-55˚C to +80˚C
D1xJ2-E	Ex eb IIC	T5	-55˚C to +80˚C
		T6	-55˚C to +75˚C
	Ex tb IIIC	T85˚C	-55˚C to +80˚C

Temperature ratings (Heat Detectors):

Model	Type of protection	Temperature Class	Associated Maximum Ambient Temperature
D1xH1-A	Ex db IIC	T4	-55˚C to +80˚C
		T5	-55˚C to +70˚C
		T6	-55˚C to +55˚C
	Ex tb IIIC	T106 ˚C	-55˚C to +80˚C
D1xH1-H	Ex db IIC	T4	-55˚C to +125˚C
		T5	-55˚C to +90˚C
		T6	-55˚C to +75˚C
	Ex tb IIIC	T130 ˚C	-55˚C to +125˚C
		T85 ˚C	-55˚C to +80˚C
D1xH1-E	Ex db eb IIC	T5	-55˚C to +80˚C
		T6	-55˚C to +75˚C
		T85˚C	-55˚C to +80˚C
D2xH1-I	Ex ia IIC	T6	–40°C to +50°C
	Ex tb IIIC	T75˚C	–40°C to +50°C
D2xH1-IR	Ex ia IIC	T4	–40°C to +50°C
	Ex tb IIIC	T75˚C	–40°C to +50°C

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Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2009X Rev. 3

Electrical Data (Beacons):

Model	Voltage DC	Voltage AC	Freq. Hz	Maximum Current mAmps
D1xB2X05DC012	10-14	-	-	600
D1xB2X05DC024	20-28	-	-	350
D1xB2X05DC048	42-54	-	-	150
D1xB2X05AC115	-	110-120	50/60	200
D1xB2X05AC230	-	220-240	50/60	100
D1xB2X10DC024	20-28	-	-	710
D1xB2X10DC048	42-54	-	-	250
D1xB2X10AC115	-	110-120	50/60	300
D1xB2X10AC230	-	220-240	50/60	180
D1xB2X15DC024	20-28	-	-	920
D1xB2X15DC048	42-54	-	-	360
D1xB2X15AC115	-	110-120	50/60	420
D1xB2X15AC230	-	220-240	50/60	230
D1xB2X21DC024	20-28	-	-	1240
D1xB2X21DC048	42-54	-	-	560
D1xB2X21AC115	-	110-120	50/60	530
D1xB2X21AC230	-	220-240	50/60	270
D1xB2LD2DC024	18-54	-	-	500
D1xB2LD2AC115	-	110-120	50/60	180
D1xB2LD2AC230	-	220-240	50/60	100

Electrical Data (Junction Boxes):

Model	Voltage DC	Voltage AC	Freq. Hz	Maximum power Watts	Maximum Current Amps
D1xJ2***	60VDC Max	260VAC Max	50/60	10 Watts	-
D1xJ2-E	60VDC Max	260VAC Max	50/60	-	5A

Electrical Data (Heat Detectors):

Model	Voltage DC	Voltage AC	Freq. Hz	Maximum power Watts	Maximum Current Amps
D1xH1-A	125Vdc	125Vac	50/60	10 Watts	-
D1xH1-H				1.25 Watts	-
D1xH1-E	24Vdc	-	--	-	2A
	32Vdc	-	-	-	1A
	-	32Vac	50/60	-	5A

For Intrinsic Safety models D2xH1-I and D2xH1-IR:
Ui = 30V
Ii = 500mA
Pi = 1100mW
Ci = 0
Li = 0

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[13] **Schedule**

[14] **EU-TYPE EXAMINATION CERTIFICATE No.**

DEMKO 19 ATEX 2009X Rev. 3

Routine tests

Routine tests according to EN 60079-1, cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

The cemented lead seal of the LED modules shall be subjected to a batch overpressure test of at least 363 psi / 25.02 bar for at least 10 s in accordance with Clause 16.6 of IEC 60079-1, 7th Edition.

Heat Detector probe integrity of welds is to be verified by one of the inspection methods in accordance with Clause 16.3 of IEC 60079-1, 7th Edition.

All D1xH1-E shall be routinely dielectrically strength tested between live/neutral and earth/enclosure. The tests shall be performed as described in IEC 60079-7, clause 6.1, at 500V rms for at least 1 minute (or 600V rms for at least 100 ms).

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

- The enclosure coating is non-conducting and may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- Repair of the flamepaths is not permitted.

For Ex ia Intrinsically Safe installation of models D2xH1-I and D2xH1-IR:

- End user shall adhere to the manufacturer's installation and instruction when performing housekeeping to avoid the potential for hazardous electrostatic charges during cleaning, by using a damp cloth.
- The equipment does not provide 500V isolation between the intrinsically safe circuit and parts which may be earthed. This shall be considered in the end-use application to ensure the possibility of an earth connection will not compromise intrinsic safety. Refer to EN/IEC 60079-14.
- Avoid impact or friction with the equipment.

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark e2S warning signals will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

This certificate may only be reproduced in its entirety and without any change.

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 19 ATEX 2141X Rev. 2**

[4] Product: **Loudspeakers (D1xL*), Sounders (D1xS*) and Combined Sounder Beacons (D1xC*)**

[5] Manufacturer: **European Safety Systems Limited**

[6] Address: **Units 18 & 20, Impress House, Mansell Road, Acton, London W3 7QH United Kingdom**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **DK/ULD/ExTR19.0008/02.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018	**EN 60079-1:2014**
EN 60079-31:2014	**IEC 60079-31, Edition 3.0 (2022-01)**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the “Specific Conditions of Use” listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II 2 G Ex db IIC T6 …T3 Gb

II 2 D Ex tb IIIC T82°C …T145°C Db

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein (“Certified Product”) has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL’s prior written approval.

Date of issue: 2019-04-30
Re-issued: 2023-09-06

Notified Body
UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

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[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2141X Rev. 2

[15] Description of Product

D1xS* (sounder) comprises an Aluminium enclosure housing components to generate selectable tones. Up to three M20 threaded entries may be provided for installation of appropriately certified cable entry devices by the end user.
The D1xL* (loudspeaker) utilizes the same enclosures and houses components to amplify sound.
D1xC* (sounder beacon) is the same housing as the D1xS* except on one end the beacon assembly is mounted. The lamp is protected by a glass lens and a stainless steel wire guard. Additional electrical components associated with the operation of the 5 and 10 Joule beacon are installed within the housing and reflected by the nomenclature with “AC” or “DC” followed by the voltage.

Model Nomenclature:

Sounder:

Example - D1xS1-DC024-A

Model	**Model Voltage** (refer to electrical tables below)	**Suffix**
D1xS1 – low power	AC230	-A – Standard Unit -S – SIL Unit (DC024 only)
	DC024	
D1xS2 – medium and high power	AC230	
	DC024	

All models detailed are permitted to use any radial or flare horn.

Sounder Beacon:

Example - D1xC1X05-DC024-A

Model	**Beacon Energy**	**Model Voltage** (refer to electrical input tables)	**Suffix**
D1xC1X – low power sounder	05- 10-	AC115	-A – Standard Unit
D1xC2X – medium and high power sounder		AC230	
		DC024	

All models detailed are permitted to use any radial or flare horn.

Loudspeaker:

Example - D1xL1FV070-A

Model	
D1xL1FV725-A	15W, 25V to 70V loudspeaker, standard unit
D1xL2FV725-A	25W, loudspeaker, small flare
D1xL2HV725-A	25W, loudspeaker, large flare
D1xL1FV070	15W 70V loudspeaker
D1xL1FV070-A	15W 70V loudspeaker, standard unit
D1xL2FV070	25W 70V loudspeaker, small flare
D1xL2HV070	25W 70V loudspeaker, large flare
D1xL2FV070-A	25W 70V loudspeaker, standard unit, small flare
D1xL2HV070-A	25W 70V loudspeaker, standard unit, large flare
D1xL1FV100-A	15W 100V loudspeaker, standard unit
D1xL2FV100-A	25W 100V loudspeaker, standard unit, small flare
D1xL2HV100-A	25W 100V loudspeaker, standard unit, large flare
D1xL1FR008-A	15W, 8 ohm resistance loudspeaker, standard unit
D1xL1FR016-A	15W, 16 ohm resistance loudspeaker, standard unit
D1xL2FR008-A	25W 8 ohm resistance loudspeaker, standard unit, small flare
D1xL2FR016-A	25W 16 ohm resistance loudspeaker, standard unit, small flare
D1xL2HR008-A	25W 8 ohm resistance loudspeaker, standard unit, large flare
D1xL2HR016-A	25W 16 ohm resistance loudspeaker, standard unit, large flare
D1xL1-AXIS-A	12.95W PoE input, loudspeaker, small flare
D1xL2-AXIS-A	12.95W PoE input, loudspeaker, large flare

All models detailed are permitted to use any radial or flare horn.

Performance testing

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 2 to the scope of EN 60079-28:2015.

Temperature range:
The relation between ambient temperature and the assigned temperature class is as follows:

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[14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2141X Rev. 2

Loudspeaker:

Models	Temperature Class (Gas)	Temperature Class (Dust)	Associated Maximum Ambient Temperature
D1xL1-V070 (-A) D1xL1-R008 (-A) D1xL1-R016 (-A) D1xL1-AXIS-A	T5	T86°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xL2-V070 (-A) D1xL2-R008 (-A) D1xL2-R016 (-A) D1xL2-AXIS-A	T5	T91°C	-55°C to +75°C
	T6	-	-55°C to +55°C
D1xL1-V100-A	T5	T92°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xL2-V100-A	T4	T98°C	-55°C to +75°C
	T5	-	-55°C to +70°C
	T6	-	-55°C to +55°C
D1xL1-V725-A	T6	-	-55°C to +60°C
	T5	T91°C	-55°C to +75°C
D1xL2-V725-A	T6	-	-55°C to +55°C
	T5	-	-55°C to +70°C
	T4	T97°C	-55°C to +75°C

Sounder Temperature Range:

Model	Temperature Class (Gas)	Temperature Class (Dust)	Associated Maximum Ambient Temperature
D1xS1-DC024-A	T5	T84°C	-55°C to +75°C
	T6	-	-55°C to +70°C
D1xS1-DC024-S	T5	T84°C	-55°C to +75°C
	T6	-	-55°C to +70°C
D1xS1-AC230-A	T5	T82°C	-55°C to +75°C
	T6	-	-55°C to +70°C
D1xS2-DC024-A	T5	T95°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xS2-DC024-S	T5	T95°C	-55°C to +75°C
	T6	-	-55°C to +60°C
D1xS2-AC230-A	T5	T93°C	-55°C to +75°C
	T6	-	-55°C to +60°C

Sounder Beacon Temperature Range:

Model	Temperature Class (Gas)	Temperature Class (Dust)	Associated Maximum Ambient Temperature
D1xC1X05-DC024-A	T4	T115°C	-55°C to +75°C
	T5	-	-55°C to +55°C
	T6	-	-55°C to +40°C
D1xC1X05-AC115-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC1X05-AC230-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC2X05-DC024-A	T4	T115°C	-55°C to +75°C
	T5	-	-55°C to +55°C
	T6	-	-55°C to +40°C
D1xC2X05-AC115-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC2X05-AC230-A	T4	T122°C	-55°C to +75°C
	T5	-	-55°C to +45°C
D1xC1X10-DC024-A	T3	T137°C	-55°C to +75°C
	T4	-	-55°C to +65°C
D1xC1X10-AC115-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C
D1xC1X10-AC230-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C
D1xC2X10-DC024-A	T3	T137°C	-55°C to +75°C
	T4	-	-55°C to +65°C
D1xC2X10-AC115-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C
D1xC2X10-AC230-A	T3	T145°C	-55°C to +75°C
	T4	-	-55°C to +60°C

This certificate may only be reproduced in its entirety and without any change.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2141X Rev. 2

Electrical data

Loudspeakers:

Model	Voltage Range	Frequency
D1xL1-V725, D1xL2-V725, D1xL1-V725-A, D1xL2-V725-A	70V Line / 25V Line	N/A
D1xL1-V070, D1xL2-V070, D1xL1-V070-A, D1xL2-V070-A	70V Line	N/A
D1xL1-V100-A, D1xL2-V100-A	100V Line	N/A
D1xL1-R008, D1xL1-R008-A	10.95V Max. I/P	N/A
D1xL1-R016, D1xL1-R016-A	15.49V Max. I/P	N/A
D1xL2-R008, D1xL2-R008-A	14.14V Max. I/P	N/A
D1xL2-R016, D1xL2-R016-A	20.00V Max. I/P	N/A
D1xL1-AXIS-A, D1xL2-AXIS-A	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3 (Max. 12.95 W)	N/A

'-' Horn Type

Sounders:

Model	Sounder PCBA Power Mode	Voltage Range	Frequency
D1xS1-DC024-A	Low	11.5-54VDC	-
D1xS2-DC024-A	Medium & High		
D1xS1-DC024-S	Low	20-28VDC	-
D1xS2-DC024-S	Medium & High		
D1xS1-AC230-A	Low	100-240VAC	50/60Hz
D1xS2-AC230-A	Medium & High		

'-' Horn Type

Sounder Beacons:

Model	Sounder PCBA Power Mode	Voltage Range	Frequency
D1xC1X05-DC024-A, D1xC1X10-DC024-A	Low	20-28VDC	-
D1xC2X05-DC024-A, D1xC2X10-DC024-A	Medium & High		
D1xC1X05-AC115-A, D1xC1X10-AC115-A,	Low	110-120VAC	50/60Hz
D1xC2X05-AC115-A, D1xC2X10-AC115-A	Medium & High		
D1xC1X05-AC230-A D1xC1X10-AC230-A	Low	220-240VAC	50/60Hz
D1xC2X05-AC230-A, D1xC2X10-AC230-A	Medium & High		

'-' Horn Type

Routine tests

D1xC* Units only:

Routine overpressure tests in accordance with EN 60079-1:2014 shall be conducted on a number of units (detailed below) in accordance with clause 16.6, at a pressure of 222 psi / 15.3 bar for a duration of not less than 10 seconds. There shall be no sign of damage, deformation or rupture that will invalidate the concept of protection. The cement joint is not permitted to leak. If there are any non-compliant results, all remaining samples in the batch and future batches shall be tested at 1.5 times the reference pressure until confidence is established to reconsider batch testing.

- For a production batch up to 100, a sampling of 8 needs to be tested at 1.5 times the reference pressure with no failure.
- For a production batch from 101-1000, a sampling of 32 needs to be tested at 1.5 times the reference pressure with no failures.
- For a production batch from 1001 up to 10,000, a sampling of 80 needs to be tested at 1.5 times the reference pressure with no failures.
- Batches above 10,000 must be subdivided into smaller batches.

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

This certificate may only be reproduced in its entirety and without any change.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 19 ATEX 2141X Rev. 2

[17] Specific conditions of use:

- No repair to the flameproof joints is permitted.

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark e2S warning signals will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

This certificate may only be reproduced in its entirety and without any change.

DECLARATION OF PERFORMANCE

Manufacturer: European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

Equipment Type: D1xS1FDC024***A1R & D1xS1FDC024***A1G
Electronic Sounder

Intended Use: Fire Safety (Fire Detection and Fire Alarm Systems – Alarm Devices – Sounders, installed in and around buildings)

System of Assessment and Verification of Constancy of Performance: 1

Notified Body for EC type Examination and Factory Production Control: BRE Global Assurance (Ireland) Ltd
Notified Body No.: 2831
DCU Alpha, Old Finglas Road, Glasnevin
Dublin 11 D11 KXN4 Ireland

EC-type Examination Certificate: 2831-CPR-F4858

Notified Body for UKCA Examination and Factory Production Control: BRE Global Ltd
Notified Body No.: 0832
Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

UKCA Examination Certificate: 0832-UKCA-CPR-F1782

Standards: EN 54-3:2001 / A1:2002 / A2:2006
Units tested to EN 54-3:2014 / A1:2019

Declared Performance:

Essential Characteristics	Performance	Standard
Performance parameters under fire conditions		EN 54-3:2001 / A1:2002 / A2:2006
- Sound level	Pass	Clause 4.2
- Frequencies and sound pattern	Pass	Clause 4.3
- Reproducibility	Pass	Clause 5.2
- Operational Performance	Pass	Clause 5.3
- Attention drawing signal and message broadcast sequences	Not applicable	Clause C.3.1
- Synchronisation	Not applicable	Clause C.3.2
- Broadcast message performance	Not applicable	Clause C.5.1
- Attention drawing signal/silence/message sequence timing	Not applicable	Clause C.5.2
- Message synchronisation testing	Not applicable	Clause C.5.3
Operational reliability		EN 54-3:2001 / A1:2002 / A2:2006
- Durability	Pass	Clause 4.4
- Construction	Pass	Clause 4.5
- Marking and data	Pass	Clause 4.6
- Durability	Pass	Clause 5.4
- General testing	Not applicable	Clause C.4
Durability of operational reliability, temperature resistance		EN 54-3:2001 / A1:2002 / A2:2006
- Dry heat (operational)	Pass	Clause 5.5
- Dry heat (endurance)	Pass	Clause 5.6
- Cold (operational)	Pass	Clause 5.7
- Damp heat. Cyclic (operational)	Pass	Clause 5.8
Damp heat, steady state (endurance) Durability of operational reliability, humidity resistance	Pass	Clause 5.9
- Damp heat, cyclic (operational)	Pass	Clause 5.8
- Damp heat, steady state (endurance)	Pass	Clause 5.9
- Damp heat, cyclic (endurance)	Pass	Clause 5.10
Durability of operational reliability, corrosion resistance		
- Sulphur dioxide (SO2) corrosion (endurance)	Pass	Clause 5.11
Durability of operational reliability, shock and vibration resistance		
- Shock (operational)	Pass	Clause 5.12
- Impact (operational)	Pass	Clause 5.13
- Vibration, sinusoidal (operational)	Pass	Clause 5.14
- Vibration, sinusoidal (endurance)	Pass	Clause 5.15
Durability of operational reliability, electrical stability		
- Electromagnetic compatibility (EMC), immunity (operational)	Pass	Clause 5.16
Durability of operational reliability, resistance to ingress		
- Enclosure protection	Pass	Clause 5.17

DECLARATION OF PERFORMANCE

Manufacturer:

European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

The performance of the product identified above is in conformity with the declared performance. This declaration of performance is issued under the sole responsibility of the manufacturer identified above.



Martin Streetz
Quality Assurance Manager

Date and Place of Issue: London, 25/07/2023
Document No: DP-2831-CPR-F4858
Issue: B

DECLARATION OF PERFORMANCE

Manufacturer: European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

Equipment Type: D1xB2X05DC024 Beacon

Intended Use: Fire Safety (Fire Detection and Fire Alarm Systems – Alarm Devices – VAD, installed in and around buildings)

System of Assessment and Verification of Constancy of Performance: 1

Notified Body for EC type Examination and Factory Production Control:
BRE Global Assurance (Ireland) Ltd
Notified Body No.: 2831
DCU Alpha, Old Finglas Road, Glasnevin
Dublin 11 D11 KXN4 Ireland

EC-type Examination Certificate:
2831-CPR-F4859 for clean lens models
D1xB2X05DC024***A1R/C & D1xB2X05DC024***A1G/C
D1xB2X05DC024***ATR/C & D1xB2X05DC024***ATG/C

2831-CPR-F4899 for red lens models
D1xB2X05DC024***A1R/R & D1xB2X05DC024***A1G/R
D1xB2X05DC024***ATR/R & D1xB2X05DC024***ATG/R

Notified Body for UKCA Examination and Factory Production Control:
BRE Global Ltd
Notified Body No.: 0832
Bucknalls Lane, Garston, Watford, Hertfordshire, WD25 9XX

UKCA Examination Certificate:
0832-UKCA-CPR-F1783 for clear lens models
D1xB2X05DC024***A1R/C & D1xB2X05DC024***A1G/C
D1xB2X05DC024***ATR/C & D1xB2X05DC024***ATG/C

0832-UKCA-CPR-F1854 for red lens models
D1xB2X05DC024***A1R/R & D1xB2X05DC024***A1G/R
D1xB2X05DC024***ATR/R & D1xB2X05DC024***ATG/R

Standards: EN54-23:2010

Declared Performance:

Essential Characteristics	Performance	Standard / Clause
Operational Reliability		EN 54-23:2010
- Duration of Operation	Pass	Clause 4.2.1
- Provision for external conductors	Pass	Clause 4.2.2
- Flammability of Materials	Pass	Clause 4.2.3
- Enclosure Protection	Pass	Clause 4.2.4
- Access	Pass	Clause 4.2.5
- Manufacturer's adjustments	Pass	Clause 4.2.6
- On-site adjustment of behaviour	Pass	Clause 4.2.7
- Requirements for Software controlled devices	Pass	Clause 4.2.8
Performance Parameters under fire conditions		EN 54-23:2010
- Coverage Volume	Pass	Clause 4.3.1
- Variation of Light Output	Pass	Clause 4.3.2
- Minimum and Maximum light intensity	Pass	Clause 4.3.3
- Light colour	Pass	Clause 4.3.4
- Light temporal pattern and frequency of flashing	1Hz	Clause 4.3.5
- Marking and Data	Pass	Clause 4.3.6
- Synchronisation	Pass	Clause 4.3.7
Durability, Temperature Resistance		EN 54-23:2010
- Dry Heat (operational)	Pass	Clause 4.4.1.1
- Dry Heat (endurance)	Pass	Clause 4.4.1.2
- Cold (operational)	Pass	Clause 4.4.1.3
Durability, Humidity resistance		
- Damp heat, cyclic (operational)	Pass	Clause 4.4.2.1
- Damp heat, steady state (endurance)	Pass	Clause 4.4.2.2
- Damp heat cyclic (endurance)	Pass	Clause 4.4.2.3
Durability, Shock and vibration resistance	Pass	Clause 4.4.3.1
- Shock (operational)		

DECLARATION OF PERFORMANCE

Manufacturer: European Safety Systems Ltd.
Impress House, Mansell Road, Acton
London, W3 7QH, UK

- Impact (operational)	Pass	Clause 4.4.3.2
- Vibration, sinusoidal (operational)	Pass	Clause 4.4.3.3
- Vibration, sinusoidal (endurance)	Pass	Clause 4.4.3.4
Durability, Corrosion Resistance		
- Sulphur Dioxide (SO2) corrosion (endurance)	Pass	Clause 4.4.4
Durability, Electrical stability		
- Electromagnetic compatibility (EMC), immunity (operational)	Pass	Clause 4.4.5

The performance of the product identified above is in conformity with the declared performance. This declaration of performance is issued under the sole responsibility of the manufacturer identified above.

Martin Streetz
Quality Assurance Manager

Date and Place of Issue: London, 25/07/2023
Document No: DP-2831-CPR-F4859
Issue: B

2.6 MANUAL ALARM CALL POINT

EU Declaration of Conformity

Manufacturer:	European Safety Systems Ltd. Impress House, Mansell Road, Acton London, W3 7QH United Kingdom
Authorised Representative:	E2S Warnsignaltechnik UG Charlottenstrasse 45-51 72764 Reutlingen Germany
Equipment Type:	STExCP8-BG-S, STExCP8-BG-D, STExCP8-BG-S-L or C, STExCP8-BG-D-L or C STExCP8-PB-S, STExCP8-PM-S, STExCP8-PT-S, STExCP8-PB-S-L or C, STExCP8-PM-S-L or C, STExCP8-PT-S-L or C, STExCP8-PB-D, STExCP8-PM-D, STExCP8-PT-D STExCP8-PB-D-L or C, STExCP8-PM-D-L or C, STExCP8-PT-D-L or C

Directive 2014/34/EU: Equipment and Protective Systems for use in Potentially Explosive Atmospheres (ATEX)

Notified Body for EU type Examination (Module B):	UL International Demko A/S Notified Body No.: 0539 Borupvang 5A, 2750 Ballerup, Denmark
EU-type Examination Certificate (Module B):	DEMKO 15ATEX1589X
Notified Body for Quality Assurance Notification / Conformity to EU-type based on quality assurance of the production process (Module D):	Sira Certification Service Notified Body No.: 2813 CSA Group Netherlands B.V, Utrechtseweg 310, 6812 AR, Arnhem, Netherlands
Quality Assurance Notification (Module D):	SIRA 05 ATEX M342
Provisions fulfilled by the equipment:	II 2G Ex db IIC T4 Gb II 2G Ex db IIC T5 Gb II 2G Ex db IIC T6 Gb
Standards applied:	EN 60079-0: 2012 + A11: 2013 EN 60079-1: 2014

Directive 2014/30/EU: Electromagnetic Compatibility Directive (EMC)

Standards applied:	EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 / A1:2011 / AC: 2012 EN 61000-6-4:2007 / A1: 2011

Directive 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The product and all the components contained within it are in accordance with the restriction of the use of hazardous substances in electrical and electronic equipment, including amendment by Directive 2015/863/EU.

Regulation (EC) 1907/2006: Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

The product and all the components contained within it are free from substances of very high concern.

Other Standards and Regulations

EN 60529:1992+A2:2013 - Degrees of protection provided by enclosures (IP code) – enclosure rated IP66

EU Declaration of Conformity

On behalf of European Safety Systems Ltd., I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives, regulations and standards.

This Declaration is issued under the sole responsibility of the manufacturer.



Martin Streetz
Quality Assurance Manager

Document No.: DC-071_Issue_E
Date and Place of Issue: London 10/09/2023

[1] # EU-TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] EU-Type Examination Certificate Number: **DEMKO 15 ATEX 1589X Rev. 4**

[4] Product: **Call Point Switch, Model STExCP8- PT-S / PM-S / PB-S / PT-D / PM-D / PB-D / BG-S / BG-D / PT-I / PM-I / PB-I / BG-I / PT-IR / PM-IR / PB-IR / BG-IR**

[5] Manufacturer: **European Safety Systems Limited**

[6] Address: **Impress House, Mansell Road, Acton, London W3 7QH United Kingdom**

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **DK/ULD/ExTR15.0019/04.**

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-1:2014** **EN 60079-11:2012**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This EU-Type Examination Certificate relates only to the technical design of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12] The marking of the product shall include the following (marking is provided in the Schedule as a part of item 15, if applicable):

II 2 G Ex db IIC T4 Gb
Ex db IIC T5 Gb
Ex db IIC T6 Gb

II 1 G Ex ia IIC T6 Ga (models STExCP8--I)**

II 1 G Ex ia IIC T4 Ga (models STExCP8--IR)**

Certification Manager
Thomas Wilson

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2016-03-17
Re-issued: 2023-12-19

Notified Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

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[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 15 ATEX 1589X Rev. 4

[15] Description of Product

The STExCP8 range of Call Point Switches are manual call points are for the activation of fire and gas alarm systems.

Available as Dual Action Push Button (PB), Momentary Push Button (PM), Tool Reset Push Button (PT) or Break Glass (BG) with a single (S) or dual (D) micro-switch switching capability. An indicator LED may be fitted in one of the M20 threaded entries.

All models can be fitted with series resistors, end-of-line monitoring resistors, monitoring diodes and zener diodes if supplied with direct current of up to 48 Vdc.

The STExCP8-xx-I and STExCP8-xx-IR range of Call Point Switches are as described above and provide Ex ia type of protection when used with suitable Zener Barrier or Galvanic Isolators. Terminal blocks are either DIN rail mounted or PCB mounted. End of line and series monitoring resistors or diodes may be fitted in the factory or by the installer/end-user. There is also an option for an LED module to be fitted. All components are considered as a single intrinsically safe circuit.

Product Nomenclature:

Ex db Product Nomenclature:

STEx	CP8-	PB-	S	-L
I	II	III	IV	V

I – Enclosure Series
- STEx – Primary Enclosure Series

II – Certifications
- CP8- - Call Point 8

III – Type of Enclosure
- BG- - Break Glass
- PB- - Push Button
- PM- - Momentary Push Button
- PT- - Push Button & Tool Reset

IV – Switch configuration Width of Enclosure
- S - Single microswitch
- D - Dual microswitch

V – LED option
- Blank – No LED
- -C – LED, without resistor
- -L – LED, with resistor

Ex ia Product Nomenclature:

STEx	CP8-	PB-	I
I	II	III	IV

I – Enclosure Series
- STEx – Primary Enclosure Series

II – Certifications
- CP8- - Call Point 8

III – Type of Enclosure
- BG- - Break Glass
- PB- - Push Button
- PM- - Momentary Push Button
- PT- - Push Button & Tool Reset

IV – Product Version
- I – Intrinsically Safe Version with Single or Double Switch with no EOL or Series Devices
- IR - Intrinsically Safe Version with Single or Double Switch with optional EOL Series devices including optional LED module.

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1) to the scope of EN 60079-28:2015.

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[13]

[14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 15 ATEX 1589X Rev. 4

Temperature range

The relation between ambient temperature and the assigned temperature class for Ex db and Ex ia models is as follows:

Model	Maximum Ambient (-55ºC to xxºC)			
	50°C	+60ºC	+65ºC	+70ºC
STExCP8-PB-S	-	-	-	T6
STExCP8-PB-S-L STExCP8-PB-S-C	-	-	T6	T5
STExCP8-PB-D	-	T6	-	T5
STExCP8-PB-D-L STExCP8-PB-D-C	T6	-	T5	T4
STExCP8-PB-I	-	-	-	T6
STExCP8-PB-IR	-	-	-	T4
STExCP8-PM-S	-	-	-	T6
STExCP8-PM-S-L STExCP8-PM-S-C	-	-	T6	T5
STExCP8-PM-D	-	T6	-	T5
STExCP8-PM-D-L STExCP8-PM-D-C	T6	-	T5	T4
STExCP8-PM-I	-	-	-	T6
STExCP8-PM-IR	-	-	-	T4
STExCP8-PT-S	-	-	-	T6
STExCP8-PT-S-L STExCP8-PT-S-C	-	-	T6	T5
STExCP8-PT-D	-	T6	-	T5
STExCP8-PT-D-L STExCP8-PT-D-C	T6	-	T5	T4
STExCP8-PT-I	-	-	-	T6
STExCP8-PT-IR	-	-	-	T4
STExCP8-BG-S	-	-	-	T6
STExCP8-BG-S-L STExCP8-BG-S-C	-	-	T6	T5
STExCP8-BG-D	-	T6	-	T5
STExCP8-BG-D-L STExCP8-BG-D-L	T6	-	T5	T4
STExCP8-BG-I	-	-	-	T6
STExCP8-BG-IR	-	-	-	T4

Electrical data

For Ex db models:

Note: The DC models are limited to maximum 6.224W controlled by the allowable component configuration.
The AC models are limited to 5W by design.

250Vac max / 5.0A max (for units without any series resistor or end of line devices only)
48Vdc max / 1.0A max
24Vdc max / 3.0A max

For Ex ia intrinsic safety models:

Ui	=	30V
Ii	=	500mA
Pi	=	1100mW
Ci	=	0
Li	=	0

Routine tests

Routine tests according to EN 60079-1:2014 cl. 16 are not required, as the enclosures have been successfully tested at four times the reference pressure.

This certificate may only be reproduced in its entirety and without any change.

[13] [14]

Schedule
EU-TYPE EXAMINATION CERTIFICATE No.
DEMKO 15 ATEX 1589X Rev. 4

[16] Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [8] on page 1 of this EU-Type Examination Certificate.

[17] Specific conditions of use:

For Ex db models:

- Special precautions are necessary to reduce the risk due to electro-static discharge in fixed installations. Refer to the installation/operation instructions.
- No repair to the flameproof joints is permitted.

For Ex ia Intrinsically Safe models:

- The equipment does not provide 500V isolation between the intrinsically safe circuit and parts which may be earthed. This shall be considered in the end-use application to ensure the possibility of an earth connection will not compromise intrinsic safety. Refer to EN/IEC 60079-14.
- Special precautions are necessary to reduce the risk due to electro-static discharge in fixed installations. Refer to the installation/operation instructions.

[18] Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The trademark e2S warning signals will be used as the company identifier on the marking label.

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

This certificate may only be reproduced in its entirety and without any change.

2.1.1.19

PLC & MCC SYSTEM

PSC

50-LP-001

Rosetti Marino S.p.A.
Via Trieste, 230
48112 Ravenna – Italy

Bovisio M.go, October 15th, 2024

Ns. Rif. PK2885

DECLARATION OF CONFORMITY

Ref. P.O.: **1724000448** Date: **March 18th, 2024**

We, PSC Engineering & Contracting, via S. Antonio da Padova 6/A in Bovisio Masciago (Monza e Brianza – Italy) hereby declare that:

- The following materials are in conformity with all requirements contents in technical documentation attached at the indicated order.
- The below materials are designed, checked and tested in conformity to:
  - ✓ Standard CEI EN 60204-1 (CEI 44-5): Safety of machinery – Electrical equipment of machines – Part 1 – General requirements.
  - ✓ Standard CEI EN 61439-1 (CEI 17-13/1): Low voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies.
- If the following materials are installed, maintained and used in accordance to manufacturer's standards and instructions, they are in conformity to:
  - ✓ European Union Directive Nr. 2014/35/UE (the Low Voltage Directive).
  - ✓ European Union Directive Nr. 2014/30/UE (the EMC Directive).

POS.	Q.TY	DESCRIPTION	DWG. NR.
01	01	Local Control Panel "50-LP-001"	• 1724000448-IN-DG-00014 Rev.2

PSC
CEO
Dario Zucchi

PSC S.p.A. Engineering & Contracting
Sede Legale: Via San Vitale, 61 – 20831 Seregno (MB) Italia
Amministrazione e Uffici Tecnici: Via Sant'Antonio da Padova, 6/A – 20813 Bovisio Masciago (MB) Italia
Tel. +39 0362 571113 r.a. – Fax +39 0362 571115 – e-mail: psc@pscengineering.com
Unità Produttiva: Corso Europa,12 – 20811 Cesano Maderno (MB) – Tel. +39 0362 550457
Cap. Soc. € 100.000,00 i.v. – C.C.I.A.A. Milano-Monza Brianza-Lodi 1314096 – C.F. 09747810159 – P. Iva 00977190966 – Tribunale di Monza 42231

2.1.2

RELEASE NOTE

ROSETTI MARINO	RELEASE NOTE	Nr. RN-0448-PSC-03	Sheet 1 of 1
		Date: 06/11/2024	Rev. 0

PROGETTO *Project*	CLIENTE: *Client*	COMMESSA *Job*
HOLLANDSE KUST NOORD WIND PARK	CROSSWIND	123A90

FORNITORE *Vendor*	NUMERO D' ORDINE *Purchase Order No.*
PSC	1724000448

Release Note	☐ FOR PAYMENT	☒ FOR SHIPMENT

~~RELEASE NOTE FOR PAYMENT~~

~~PO Art. 9.2.1~~	
~~Letter~~	

RELEASE NOTE FOR SHIPMENT

POS. Item	Q.TA' Quantity	DESCRIZIONE Description	Nr. TAG TAG No.	TIPO DI ISPEZIONE / Kind of Inspection	ESITO / Result
10	1	**Water Treatment Package** complete with all equipments, components and ancillaries requested in the Material Requisition n°123A90-DDL-MAC-MR-50016	n/a	n/a	n/a
20	1 set	Spare parts for pre-commissioning, commissioning, start-up,	n/a	FINAL	POSITIVE
30	1 set	Spare parts for two (2) years operation	n/a	FINAL	POSITIVE
40	1 set	CONSUMABLES as per EXHIBIT I	n/a	FINAL	POSITIVE
50	1 set	ANALYSERS Consisting of: pH on Outlet, Temperature on outlet, Hardness on outlet, Conductivity meter on outlet	n/a	n/a	n/a

Warehouse open Monday to Friday From 08.00 to12.00 and from 13.00 to 17.00.
Contact Mr Rota +39 3451608099

DOCUMENTI APPLICABILI / *APPLICABLE DOCUMENTS*

POSIZIONE *Items*	TIPO DI DOCUMENTO *Type of Document*	NUMERO DI DOCUMENTO *Document Number*	Rev.	COD. DI APPROV. *Approv. Code*
n/a	DDT	084 dated 28/10/2024		n/a
n/a	DDT	085 dated 04/11/2024		n/a

PUNCH LIST: ☐ SI / *YES* VEDI PUNCH LIST ALLEGATA N° / *REFER TO ATTACHED PUNCH LIST N°*
☒ NO/ *NO*

CONTROLLO VALIDITA' FIDEJUSSIONE / ***PERFORMANCE or WARRANTY BOND expiration date check***
Estensione Fidejussione Richiesta (*Performance or Warranty Bond Extension of Validity required*)
☐ SI / *YES* ☒ NO/ *NO*
Acceptance Method: *Performance or Warranty Bond valid if actually delivery date it's not greater than two weeks from contractual delivery date.*

RELEASE NOTE

RISULTATO / *RESULT*	FORNITURA / *SUPPLY*	DISTRIBUZIONE A: / *DISTRIBUTION TO:*	
☐ POSITIVO / *POSITIVE*	☒ COMPLETA / *COMPLETE*	☒ Project Manager	☒ Administration
☐ NEGATIVO / *NEGATIVE*	☐ PARZIALE / *PARTIAL*	☒ Project Quality Manager	☒ Project Eng-/Procurement Coord
☐ PUNTI PENDENTI / *PUNCH-LIST*	☐ ULTIMA / *FINAL*	☒ Warehouse	☒ Supplier

NOTE / *NOTES*

Note:
Final FAT of complete package will be executed at RM Yard Piomboni after completion of mounting of E&I components and F&G System, as agreed with RM Commissioning Manager and QC Dept. (Borghi W. and Linari S.)

L' INCARICATO /*Person in charge* ROSETTI MARINO *Supply Management dept.*		IL RAPPR. DEL CLIENTE / *Client Representative*	IL FORNITORE /*Vendor*	CONSTRUCTION MANAGER *Only requested for Punch List to be closed at Yard*
Nome Cognome *Name Surname*	**Firma** *Signature*			
Massimiliano Berghenti	Digitally signed by Massimiliano Berghenti DN: OU=Expediting Dept., O= ROSETTI MARINO Spa, CN= Massimiliano Berghenti, E= massimiliano.berghenti@rosetti.it Date: 2024.11.06 15:28:03+01'00'	N.A.	N.A.	N.A.

QUESTO DOCUMENTO NON SOLLEVA IL FORNITORE DALLA RESPONSABILITA' DI EVENTUALI DIFETTI E/O MALFUNZIONAMENTI RILEVATI DURANTE L'USO / *The present RELEASE NOTE does not relieve the Supplier of the responsibility of any possible defects and/or malfunctioning arising during the utilisation.*

2.2

MANUFACTURING AND TESTING RECORD

2.2.2

MATERIAL CERTIFICATES

MATERIAL CERTIFICATES
EQUIPMENT SUMMARY

DESCRIPTION	MANUFACTURER	Q.TY	TAG ITEM	REF. DRAWING	POS.
CENTRIFUGAL PUMPS	GRUNDFOS	2	P-50009 A/B	1724000448-MAC-DA-00005	18,19
DOSING PUMPSS	GRUNDFOS	4	P-50008 A/B, P-50010 A/B	1724000448-MAC-DA-00005	31,32, 33,34
BOOSTER PUMPS	GEMMECOTTI	4	P-50002A/B P-50003A/B	1724000448-MAC-DA-00005	05, 06, 07, 08
STORAGE TANKS	CMP	2	T-50006, T-50008	1724000448-MAC-DA-00005	04, 17
TANKS FOR DOSING PUMPS	ASTRO	3	T-50002, T-50003 T-50004	1724000448-MAC-DA-00005	22, 25, 28
ELECTRICAL HEATER	MASTERWATT	1	H-50001	1724000448-MAC-DA-00005	02
ELECTRICAL HEATER CONTAINER	PLASTIC GLASS	2	HHS-50003A, HHS-50003B	1724000448-MAC-DA-00005	35, 36
VESSELS	SG PROJECT/PHOENIX VESSEL	2	A-50007 A/B	1724000448-MAC-DA-00005	15, 16
PRESSURE GAUGES	NUOVA FIMA	9	50-PI-031, 50-PI-033, 50-PI-022, 50-PI-042, 50-PI-043, 50-PI-048, 50-PI-044, 50-PI-045, 50-PI-046	1724000448-PR-PID-00013	-
SHUT-OFF VALVES	TRUST	2	50-XV-027, 50-XV-030	1724000448-PR-PID-00013	-
PRESSURE SAFETY VALVES	COI TECHNOLOGY	7	50-PSV-034, 50-PSV-035, 50-PSV-036, 50-PSV-03,7 50-PSV-038, 50-PSV-039, 50-PSV-053	1724000448-PR-PID-00013	-
MANUAL VALVES	TRUST	6	MV-544, MV-548, MV-553, MV-557, MV-550, MV-558	1724000448-PR-PID-00013	-
PIPING	FCM/PLASTIC GLASSS	-	-	1724000448-PR-PID-00013	-

2.2.2.1

CENTRIFUGAL PUMPS GRUNDFOS

P-50009 A/B

Test certificate EN 10204 2.2

Nome cliente - Customer name	**PSC S.p.A.**
Nr. ordine cliente - Customer order no.	**2885/12/24/0** **02.07.2024**
Nr. ordine Grundfos - Grundfos order no.	**14041159**

***Pompa* - Pump**	***Motore* - Motor**
Tipo pompa - Pump type CRN1S-12 E-FGJ-A-E-HQQE	Maximum power input – 0.37 kW
Codice prodotto - Product number 99866825	Tensione e Frequenza - Voltage and frequency 3 x 220-240D/380-415Y V 50 Hz
Portata - Flow rate 0.9 m^3/h	Prevalenza – Head 47 m
Attacchi - Connections FGJ DIN / ANSI / JIS	Corrente - Current 1.74/1.00 A
Velocità nominale - Rated speed 2850-2880 rpm	Classe protezione - Enclosure Class 55 Dust/Jetting

Parti a contatto col liquido pompato **Pump wetted parts**	***Descrizione materiali*** **Material description**	**DIN / AISI**
Testa pompa - Pump head	Stainless steel EN 10283 1.4408 CF 8M equal to AISI 316	
Albero - Shaft	Stainless steel EN 10088 1.44012	
Girante - Impeller	Stainless steel EN 10088 1.4401 AISI 316	
Camera - Chamber	Stainless steel EN 10088 1.4401 AISI 316	
Camicia esterna - Outer sleeve	Stainless steel EN 10088 1.4401 AISI 316	
Corpo inferiore - Base	Stainless steel EN 1.4408 AISI 316	
Tenuta meccanica- Shaft seal	Silicon carbide/Silicon carbide E	

***Richiesta cliente* - Customer's requirements**	***Conformità alla prestazione* - Test report**
Portata - Flow rate (m^3/h)	*Portata* - Flow rate 0.9
Head - Prevalenza (m)	*Head* - Prevalenza 47

Noi sottoscritti dichiariamo e certifichiamo che i prodotti e/o i componenti sopra menzionati sono costruiti, testati, ispezionati e conformi ai requisiti dei relativi cataloghi, disegni e specifiche.
We the undersigned hereby guarantee and state that the materials and/or parts for the above mentioned products were manufactured, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.

GRUNDFOS POMPE ITALIA SRL

Data: 16/1/2025

Signature Name: Armando Pasqui

Industry Sales Manager

Dichiarazione di conformità alla Serie
Declaration of product conformity

Nome cliente - Customer name	**PSC S.p.A. Engineering & Contracting**
Nr. ordine cliente - Customer order no.	2885/12/24/0 del 01.07.2024
Nr. ordine Grundfos - Grundfos order no.	14041159

***Pompa* – Pump**		***Motore* – Motor**	
Tipo pompa Pump type	CRN 1S-12 E-FGJ-A-E-HQQE	*Potenza massima assorbita P1* Max. P1 input power	0,37 kW
Codice prodotto Product number	99866825	*Tensione e Frequenza* Voltage and frequency	3 x 220-240D/380-415Y V
Portata massima Max. Flow rate	0.9 (m3/h)	*Corrente massima assorbita* Max. input current	1.74/1.00 A
Pressione massima Max. Pressure	47 (m)	*Classe isolamento* Insulation class	IP 55 Dust/Jetting

Parti a contatto col liquido pompato **Pump wetted parts**	***Descrizione materiali*** **Material Description**
Testa pompa – Pump head	EN 1.4408
Guarnizioni – Gaskets	EPDM
Girante– Impeller	EN 1.4401
Cuscinetto – Bearing	SIC

Richiesta cliente **Costumer's requirements**		***Conformità alla prestazione*** **Test report**	
Portata Flow rate	(m3/h)	*Portata* Flow rate	0.9 (m3/h)

Contropressione Back pressure	(m)	*Massima contropressione* Max. back pressure	47 (m)

Noi sottoscritti dichiariamo e certifichiamo che i prodotti e/o i componenti sopra menzionati sono costruiti, testati, ispezionati e conformi ai requisiti dei relativi cataloghi, disegni e specifiche.

We the undersigned hereby guarantee and state that the materials and/or parts for the above mentioned products were manufactured, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.

GRUNDFOS POMPE ITALIA Srl

Date: 29/05/2025

Signature:

Name: **Armando Pasqui**

Dept.: **I/W Sales Manager**

Documento di proprietà Grundfos Pompe Italia s.r.l. – Vietata la riproduzione, diffusione ed utilizzo anche solo parziale senza autorizzazione scritta.

2.2.2.2

DOSING PUMPS

GRUNDFOS

P-50008 A/B – P-50010 A/B

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000001
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	30.6 °C
Backpressure (calibration)	9.8 Bars
Stroke volume at backpressure (calibration)	0.7594 ml
Capacity 100% at backpressure (calibration)	6.05 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018
Signature:
Name: C.LIPSKI
Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000002
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	29.7 °C
Backpressure (calibration)	9.8 Bars
Stroke volume at backpressure (calibration)	0.7405 ml
Capacity 100% at backpressure (calibration)	6.01 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018
Signature:
Name: C.LIPSKI
Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000003
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	29.7 °C
Backpressure (calibration)	9.9 Bars
Stroke volume at backpressure (calibration)	0.7537 ml
Capacity 100% at backpressure (calibration)	6.04 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018
Signature:
Name: C.LIPSKI
Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000004
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	28.5 °C
Backpressure (calibration)	9.9 Bars
Stroke volume at backpressure (calibration)	0.7244 ml
Capacity 100% at backpressure (calibration)	6.05 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018

Signature:

Name: C.LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000005
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	28.8 °C
Backpressure (calibration)	9.9 Bars
Stroke volume at backpressure (calibration)	0.7594 ml
Capacity 100% at backpressure (calibration)	6.04 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018

Signature:

Name: C.LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	13303908
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000006
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	26.0 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.786 ml
Capacity 100% at backpressure (calibration)	6.02 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 19/09/2019

Signature:

Name: P. BRISTIEL

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	14289313
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000007
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	26.0 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.809 ml
Capacity 100% at backpressure (calibration)	6.054 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 17/08/2020

Signature:

Name: Cathy LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	14289313
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000008
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	26.0 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.789 ml
Capacity 100% at backpressure (calibration)	6.032 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 17/08/2020

Signature:

Name: Cathy LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	14380709
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000009
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	23.8 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.764 ml
Capacity 100% at backpressure (calibration)	6.034 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 08/09/2020

Signature:

Name: DROUIN Joëlle

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	15721174
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000010
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	24.9 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.761 ml
Capacity 100% at backpressure (calibration)	6.024 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 05/10/2021

Signature:

Name: DROUIN Joëlle

Dept.: Quality dept

2.2.2.3

BOOSTER PUMPS GEMMECOTTI

P-50002A/B – P-50003A/B

GemmeCotti®
EUROPEAN PUMPS

ISO 9001 CERTIFIED

VIA PO 23-25-27
20031 CESATE (MI) ITALY
TEL. +39 02 96460406
www.gemmecotti.com - info@gemmecotti.com

CERTIFICATO MATERIALE 2.2
POMPE A TURBINA A TRASCINAMENTO MAGNETICO
REF. UNI EN 10204:2005

Cliente:	Ordine:	Nostra ref:
PSC S.P.A. ENGINEERING & CONTRACTING	N. 2885/07/24/1 del 07/06/24	240.502/GC
Tipo Pompa	N. matricola	Data:
HTT 12000 PP	854/1 854/2	15/07/2024

CON LA PRESENTE DICHIARIAMO CHE LE NOSTRE POMPE A TURBINA A TRASCINAMENTO MAGNETICO SONO COMPOSTE DAI SEGUENTI MATERIALI:

- CORPO POMPA PP
- O-RING EPDM
- DISCO SUPERIORE E INFERIORE PP
- ALBERO+ANELLO Al2O3
- GIRANTE PVDF
- MAGNETE INTERNO PP
- BOCCOLA PTFEC
- BICCHIERE PP+GF
- MAGNETE ESTERNO C40+NdFeb
- LANTERNA PP

Cesate, 15/07/2024

GemmeCotti srl

GemmeCotti® s.r.l
EUROPEAN PUMPS
Via Po 23-25-27, 20031 Cesate (MI)
Telefono 02.964.60.406
Codice Fiscale - Partita IVA 02057740124

GemmeCotti®
EUROPEAN PUMPS

ISO 9001 CERTIFIED

VIA PO 23-25-27
20031 CESATE (MI) ITALY
TEL. +39 02 96460406
www.gemmecotti.com - info@gemmecotti.com

CERTIFICATO MATERIALE 2.2
POMPE CENTRIFUGHE A TRASCINAMENTO MAGNETICO
REF. UNI EN 10204:2005

Cliente:	Ordine:	Nostra ref:
PSC S.P.A. ENGINEERING & CONTRACTING	N. 2885/07/24/1 del 07/06/24	240.502/GC
Tipo Pompa	N. matricola	Data:
HTM 15 PP	855/1 855/2	15/07/2024

CON LA PRESENTE DICHIARIAMO CHE LE NOSTRE POMPE CENTRIFUGHE A TRASCINAMENTO MAGNETICO SONO COMPOSTE DAI SEGUENTI MATERIALI:

- CORPO POMPA PP
- O-RING EPDM
- ANELLO REGGISPINTA ANTERIORE Al2O3 + EDPM O VITON
- ALBERO+ANELLO Al2O3
- BOCCOLA PTFEC
- GIRANTE PP
- MAGNETE INTERNO PP
- BICCHIERE PP+GF
- LANTERNA PP

Cesate, 15/07/2024

GemmeCotti srl

GemmeCotti® s.r.l
EUROPEAN PUMPS
Via Po 23-25-27, 20031 Cesate (MI)
Telefono 02.964.60.406
Codice Fiscale - Partita IVA 02057740124

2.2.2.4

STORAGE TANK

CMP

T-50002 – T-50003 – T-50004

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 90	*2.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV902000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOT. THICKNESS OF THE SIDE BOTTOMOS: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 90	*2.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV902000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOTAL THICKNESS OF THE CYLINDRICAL PART: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 105	*3.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV1053000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOT. THICKNESS OF THE SIDE BOTTOMOS: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 105	*3.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV1053000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOTAL THICKNESS OF THE CYLINDRICAL PART: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 90	*2.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV902000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOT. THICKNESS OF THE SIDE BOTTOMOS: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 90	*2.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV902000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOTAL THICKNESS OF THE CYLINDRICAL PART: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 105	*3.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV1053000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
SIDE BOTTOM	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOT. THICKNESS OF THE SIDE BOTTOMOS: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

TABLE OF MATERIALS USED

TANK TYPE	*CAPACITY*	*ORDER REFERENCE*	*DRAWING*
RV 105	*3.000 lt abiut*	*n° 2885/02/24/0 del 13/05/2024*	*RV1053000_rev.1*
Product to contain: ***Sea Water*** ***Specific weight max: 1,03*** ***Concentration max: -----***		***Project temperature max: 50° C*** ***Working temperature max: 25° C*** ***Pressure ATM*** ***Depression ATM***	

NAME	***RESISTANT CHEMICAL LAYER (Internal liner)***		
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CYLINDRICAL PART	ISOFTALIC RESIN	***SIRCA***	***3 mm***
	"C" GLASS tipo: C1777	***FREUDENBERG***	
	WIDE SPRAY CUT tipo: P207	***OWENS CORNING***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	

NAME	***RESISTANT MECHANICAL LAYER (External liner)***		
	MATERIAL	***SUPPLIER***	***THICKNESS***
CYLINDRICAL PART	ORTOFTALIC RESIN tipo: HA102BT20	***SIRCA***	***2/2,5 mm***
	ROVING WINDING tipo: SE1200	***OWENS CORNIGN***	
	CATALYST tipo: P120	***LAVESAN***	
	ACCELERANT CO 6% tipo: Ottoato di Cobalto	***AMIK***	
	"E" GLASS tipo: 1785	***FREUDENBERG***	
	MAT 500 gr/mq	***MANFIL***	

TOTAL THICKNESS OF THE CYLINDRICAL PART: 5/5,5 mm

The Department Head

CMP S.p.A. Manifatture Resine Poliestere

The Head of the Technical Department

CMP S.p.A. Manifatture Resine Poliestere

2.2.2.5

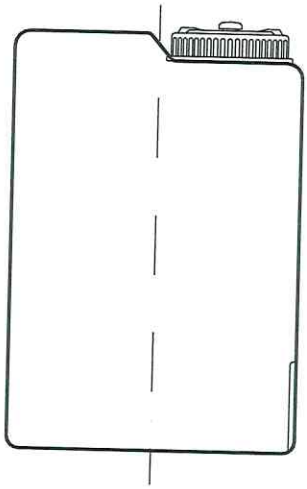
TANKS FOR DOSING PUMPS

ASTRO

T-50002 – T-50003 – T-50004

ASTRO CONTENITORI INDUSTRIALI

ASTRO s.r.l. - Realizzazioni Plastiche Civili e Industriali - Via Fornace 4 - 24050 Mornico al Serio (BG) - ITALIA
C.F. / P.IVA IT 01245600166 - R.E.A. 186825 - R.I. BG 01245600166 - Mecc. N. BG 010752 - Cap. Soc. € 98.800,00 i.v.
web: www.astrosrl.it - e-mail: astro@astrosrl.it - Tel. 035-844060 - Fax 035-844646



DS 05

DECLARATION of CONFORMITY

(UNI CEI EN 45014)

Society : PSC spa

Via San Vitale 61

20831 SEREGNO (MB)

Mod. : DS 05 STANDARD (T-50002)

Drawing n° 32287 SIN

We, ASTRO srl, with legal offices in Via Fornace 4, Mornico al Serio (Bergamo, Italy) **declare** that the product supplied against :

Your Order n° 2885/30/24/0 of 24.07.2024 **our Conf. n°** 20241749 / 24.07.2024

- *Was produced in Italy*
- *Is made in conformity to your order cited above*
- *Was produced in **first quality Polyethylene** (REVOLVE 6402U), properties as stated on our raw material supplier's technical data, a copy of which is attached to this declaration*
- *Has been subjected to all the quality controls (weight, dimensions, thickness, threads, etc.), laid down in our internal procedure and in the detailed lists of the Quality Manual **EN ISO 9001:2015** - IT308769*
- *Product not subjected to CE regulations*

Attached : EN ISO 9001:2015 Certificate
Specifications certificate of the raw material

DATE 02/08/24

PRD

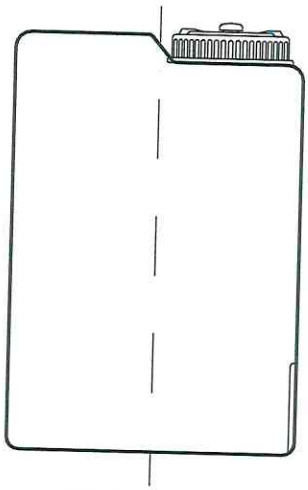
RSGI

IND

Agg. 17.10.23

ASTRO CONTENITORI INDUSTRIALI

ASTRO s.r.l. - Realizzazioni Plastiche Civili e Industriali - Via Fornace 4 - 24050 Mornico al Serio (BG) - ITALIA
C.F. / P.IVA IT 01245600166 - R.E.A. 186825 - R.I. BG 01245600166 - Mecc. N. BG 010752 - Cap. Soc. € 98.800,00 i.v.
web: www.astrosrl.it - e-mail: astro@astrosrl.it - Tel. 035-844060 - Fax 035-844646



DS 05

DECLARATION of CONFORMITY

(UNI CEI EN 45014)

Society : PSC spa

Via San Vitale 61

20831 SEREGNO (MB)

Mod. : DS 05 STANDARD (T-50003)

Drawing n° 32287 SIN

We, ASTRO srl, with legal offices in Via Fornace 4, Mornico al Serio (Bergamo, Italy)
declare that the product supplied against :

Your Order n° 2885/30/24/0 of 24.07.2024 **our Conf. n°** 20241749 / 24.07.2024

- *Was produced in Italy*
- *Is made in conformity to your order cited above*
- *Was produced in **first quality Polyethylene** (REVOLVE 6402U), properties as stated on our raw material supplier's technical data, a copy of which is attached to this declaration*
- *Has been subjected to all the quality controls (weight, dimensions, thickness, threads, etc.), laid down in our internal procedure and in the detailed lists of the Quality Manual **EN ISO 9001:2015** - IT308769*
- *Product not subjected to CE regulations*

Attached : EN ISO 9001:2015 Certificate
Specifications certificate of the raw material

DATE 02/09/24

PRD

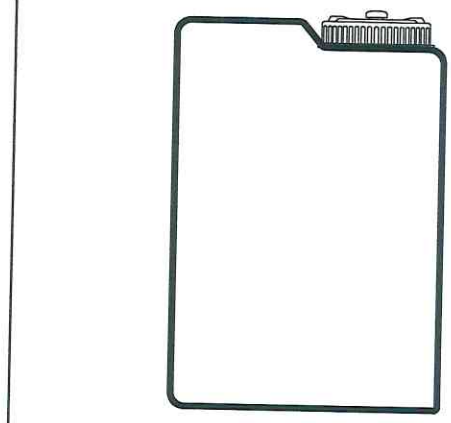
RSGI

IND

Agg. 17.10.23

ASTRO CONTENITORI INDUSTRIALI

ASTRO s.r.l. - Realizzazioni Plastiche Civili e Industriali - Via Fornace 4 - 24050 Mornico al Serio (BG) - ITALIA
C.F. / P.IVA IT 01245600166 - R.E.A. 186825 - R.I. BG 01245600166 - Mecc. N. BG 010752 - Cap. Soc. € 98.800,00 i.v.
web: www.astrosrl.it - e-mail: astro@astrosrl.it - Tel. 035-844060 - Fax 035-844646



DS 1

DECLARATION of CONFORMITY

(UNI CEI EN 45014)

Society : PSC spa

Via San Vitale 61

20831 SEREGNO (MB)

Mod. : DS 1 STANDARD (T-50004)

Drawing n° 32288 SIN

We, ASTRO srl, with legal offices in Via Fornace 4, Mornico al Serio (Bergamo, Italy)
declare that the product supplied against :

Your Order n° 2885/30/24/0 of 24.07.2024 **our Conf. n°** 20241749 / 24.07.2024

- *Was produced in Italy*
- *Is made in conformity to your order cited above*
- *Was produced in **first quality Polyethylene** (REVOLVE 6402U), properties as stated on our raw material supplier's technical data, a copy of which is attached to this declaration*
- *Has been subjected to all the quality controls (weight, dimensions, thickness, threads, etc.), laid down in our internal procedure and in the detailed lists of the Quality Manual **EN ISO 9001:2015** - IT308769*
- *Product not subjected to CE regulations*

Attached : EN ISO 9001:2015 Certificate
Specifications certificate of the raw material

DATE 02/08/24

PRD

RSGI

IND

Agg. 17.10.23

2.2.2.6

ELECTRICAL HEATER MASTERWATT

H-50001

ELECTRICAL HEATER CONTAINER PLASTIC GLASS

HHS-50003A, HHS-50003B

MASTERWATT

ELECTRIC HEATING SOLUTIONS

Materials Traceability Map in accordance with EN 10204 Ed. 2004 type 3.1

DRAWING NR: GD0000000000450 Rev. 01

Drawing Position	Qty.	Description	Specification and Grade	Dimensions(mm)	Heat / Plate Nr.	Supplier Name	Supplier Certificate Nr.	Ref.
1	6	Heating Element	ASTMB338 GR 2 (smls)	Ø16 mm(Ø19 before matching)	758-4	TITANIUM CONSULTING & TRADING	M088/22	1
2	1	Heater Blind Flange	SA 182 F53	DN200 PN16 - EN1092-1 /05A	568504	HERTECANT FLANGES	24702633-1	2
5	1	Thermoelement Pocket	ASTMB338 GR 2 (smls)	Ø10 Thk.1mm	758-4	TITANIUM CONSULTING & TRADING	M087/22	3
15	12	Heating Element Distancing Pipe	ASTMB338 GR 2 (smls)	Ø19,05 Thk.0,9 - L=37mm	758-4	TITANIUM CONSULTING & TRADING	M088/22	4
16	1	Thermoelement Pocket Distancing Pipe	ASTMB338 GR 2 (smls)	Ø12,7 Thk.0,9 - L=37mm	758-1	TITANIUM CONSULTING & TRADING	M265/22	5

Seal Gas Heater - Masterwatt Technical Code:	**F2500**
Masterwatt Job:	**1870/2024**
Serial Number:	**31532**
Customer Purchase Order:	**2885/04/24/0**

MASTERWATT S.r.l. Via Collegno, 31 – 10044 Pianezza (TO)
Tel. +39-011-9661626 - Fax. +39-011-9671422 - Fax Acquisti +39-011-9675549
C.C.I.A.A. Torino N. 607746 Tribunale Torino Reg. Soc. N. 609/82
Codice Fiscale / Partita IVA IT 02777110012 - N : Meccanografico Export TO 000843

Internet: www.masterwatt.it
e-mail: info@masterwatt.it

TITANIUM CONSULTING & TRADING s.r.l.

www.tct.it
E-mail: info@tct.it
R.E.A. FI 0477398
R.I. C.F. e P.IVA
IT 04752220485

Sede legale uffici Firenze:
Via A. Volta, 2/D - loc. Grassina
50012 Bagno a Ripoli - FI (Italy)
Tel. +39 055.64.25.43 r.a.
Fax +39 055.64.07.24

Uffici e magazzino Milano
Via dell'Industria, 20
20090 Buccinasco - MI (Italy)
Tel. +39 02.488.10.10 r.a.
Fax +39 02.488.03.21

CERTIFICATO DI COLLAUDO / INSPECTION CERTIFICATE N. M088/22
EN 10204/3.1. / PED2014/68/EU

CLIENTE / *PURCHASER*	Masterwatt S.r.l.		
ORDINE / *YOUR ORDER*	N° 517		
D.D.T. / *PACKING LIST*	N° 358/23	DATA / *DATE*	09/02/2023
QUANTITA' / *QUANTITY*	Mt 103,70		

Prodotto *Commodity*	SPECIFICHE *REQUIREMENTS*	GRADO *GRADE*	CONDIZIONI DI FORNITURA *SUPPLY COND.*
Seamless Titanium Tubes	**ASTM B338/ ASME SB338 & NACE MR0175**	**Grade 2**	Annealed

Art. Nr. *Item N°*	Colata *Heat Nr*	Lotto Nr. *Lot Nr*	Dimensione [mm] *Dimensions*	Quantità meters	Peso [kg] *Weight*
1	758-4	21253	19.05 x 0.89 x 6100	1518.9	357.5

ANALISI CHIMICA / *CHEMICAL COMPOSITION*

Art. *Item*	N≤0,03	C≤0,08	H≤0,015	Fe≤0,30	O≤0,25	/	/	Ti	Residuals	
									each ≤0,10	total ≤0,40
1	0,0047	0,007	0,0029	0,054	0,061	/	/	Balance	Acceptable	Acceptable

CARATTERISTICHE MECCANICHE / *MECHANICAL PROPERTY*

Art. *Item*	Rm Tensile Strenght ≥345	Rp0.2 Yield Strenght, 0,2% Offset 275~450 Mpa	A_{50mm} Elongation 50mm ≥ 20%	Hardness HRB
1	406	317	42	-

INFORMAZIONI, ESAMI O PROVE ADDIZIONALI / TEST/ *ADDITIONAL INFORMATION/ TESTS*

Technological Properties		Hydrostatic (Pneumatic) Test		Non destructiveTest		Surface Quality		Dimension Tolerance		
Flattening Test	Bend Test	Hydrostatic Test	Pneumatic Test	E.T.	U.T.	Inside Surf.	Outside Surf.	O.D.	W.T.	L
Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Milano, 02/03/2022

TITANIUM Consulting & Trading S.r.l.
Controllo Qualità / *Quality Dept.*
Piero Zeloni

Il presente certificato contiene dati ricavati dal certificato del produttore e/o dal laboratorio che ha eseguito le prove sul prodotto finito. La documentazione è disponibile c/o servizio qualità Titanium Consulting & Trading.
This is to certify that the above results are correct as per mill certificate and/for laboratory test certificate. The documentation is available c/o Titanium Consulting & Trading' Service QC Dept.

CBS
Forniture Ind.li S.r.l.

C.B.S. Forniture Industriali S.r.l.
20010 Cornaredo - MI - Via Vittime delle Foibe, 3/5/7
Tel. 02-93567479 Fax 02-93568667
E-mail: cbs.forniture@tin.it
Cod.Fisc./P.Iva: 11665480155

Company with quality system
ISO 9001:2015
certified by TÜV SÜD
Certificate n.° 50 100 11832

HERTECANT FLANGES

Tel.: +32 (0) 15 22 49 10
www.hertecantflanges.com

CERTIFICATE	No		Date	Your order	Our order
EN 10204 - 3.1	24702633-1	/	11/06/2024	422	67317

Buyer:	Requirements:	
C.B.S. FORNITURE IND. LI. SRL VIA VITTIME DELLE FOIBE 3/5/7 20007 CORNAREDO Italy	AD 2000 W2 W9 /EN 1092-1 Rockwell HRC acc to NACE MR 01-75/01-03 ISO 15156 ASME SA 182 SECT II PART A ED 2021, YEAR ASTM 2021	

Grade:	Heat treatment:	Brand mark	Inspectors stamp
1.4410 EN 10222-5 F53 ASTM A 182 / ASME SA 182	solution annealed at 1100°C quenched in water	H I S	P P

Marking: Heat + Prod.number / Description / Mark + Inspector stamp
568504 P90142 TYPE 05A DN 200 PN 16 1.4410 EN 1092-1

Quantity: 1

Mechanical properties:

	Rp 0,2 % [N/mm2]	Rp 1,0 [N/mm2]	Rm [N/mm2]	Elongation (4D) %	Elongation (5D) %	Reduction of area [%]	Impact test 20° [J]			Avg	Lateral expansion
TANG	632	724	828	34.2	32.7		235	232	245	237	2.44-2.48-2.52
	HARDNESS HB BRINELL 2.5/187.5 KG RESULTS:						269-286				

Tensile test at elevated temperature was not performed.

Chemical analysis (%) :

C	Si	Mn	P	S	Cr	Mo	Ni	Ti	N	Cu	Al
0.010	0.33	0.77	0.021	0.0005	24.96	3.85	6.89		0.293	0.12	
B	Co	Nb	W	V	Ta	Fe	PREN				
							42.35				

Melting process / Producer	E/ALLEIMA

Inspection and gauge measurement:	100% PMI test:	IGC test :
No remarks	Result :No remarks	EN ISO 3651-2: No remarks ASTM A262 Pract. E: No remarks

Approved acc. AD 2000-Merkblatt W0/TRD100 by TÜV SÜD Industrie Service GMBH
Certified acc. PED 2014/68/EU Annex 1, § 4.3 by certification Body -0036- of TÜV SÜD Industrie Service GMBH - Certificate Nr. 286/2006/MUC
Renounced of counter signature agreed by TÜV SÜD (20/08/2012)
The product mentioned herein complies with the specification and customers requirements.
Materials are free from mercury. Country of origin of the flanges is Belgium.
Materials are free of radio-active contamination.

Works inspector:
QUALITY CONTROL DEPARTMENT
Vets

TERMS AND CONDITIONS OF SALES ON OUR WEBSITE

HERTECANT FLANGES N.V.
Lossing 22
2260 Heultje - Westerlo (Belgium)
BTW/VAT/TVA N° BE 0466 169 726

Tel.: +32 (0) 15 22 49 10
www.hertecantflanges.com

Bank Belgium:
ING Lummen
IBAN BE89 3630 8481 1685
SWIFT-code: BBRUBEBB

KBC Westerlo
IBAN BE34 7330 4069 7590
SWIFT-code: KREDBEBB

Customer: MASTERWATT S.r.l.

Purchase Order nr.: 1922 - DDT nr.: 423 - Date: 13/06/24

Item/Pos nr.: 1 - Qty: 1 - Heat nr.:568504 - Description: FL. EN1092-1 05/A PN16 DN200 F53

Item/Pos nr.: - Qty: - Heat nr.: - Description:

Item/Pos nr.: - Qty: - Heat nr.: - Description:

QUALITY CONTROL DEPARTMENT

CERTIFIED TRUE COPY

TITANIUM CONSULTING & TRADING S.r.l.

www.tct.it
E-mail: info@tct.it
R.E.A. FI 0477398
R.I. C.F. e P.IVA
IT 04752220485

Sede legale uffici Firenze:
Via A. Volta, 2/D - Loc. Grassina
50012 Bagno a Ripoli - FI (Italy)
Tel. +39 055.64.25.43 r.a.
Fax +39 055.64.07.24

Uffici e magazzino Milano
Via dell'Industria, 20
20090 Buccinasco - MI (Italy)
Tel. +39 02.488.10.10 r.a.
Fax +39 02.488.03.21

CERTIFICATO DI COLLAUDO / INSPECTION CERTIFICATE N. M087/22

EN 10204/3.1. / PED2014/68/EU

CLIENTE / *PURCHASER*	Masterwatt S.r.l.		
ORDINE / *YOUR ORDER*	N° 2781		
D.D.T. / *PACKING LIST*	N° 1946/22	DATA / *DATE*	15/07/2022
QUANTITA' / *QUANTITY*	Mt 12,20		

Prodotto *Commodity*	SPECIFICHE *REQUIREMENTS*	GRADO *GRADE*	CONDIZIONI DI FORNITURA *SUPPLY COND.*
Seamless Titanium Tubes	**ASTM B338/ ASME SB338 & NACE MR0175**	**Grade 2**	Annealed

Art. Nr. *Item N°*	Colata *Heat Nr*	Lotto Nr. *Lot Nr*	Dimensione [mm] *Dimensions*	Quantità meters	Peso [kg] *Weight*
1	758-4	21252	10 x 1 x 6100	500.2	64

ANALISI CHIMICA / *CHEMICAL COMPOSITION*

Art. *Item*	N≤0,03	C≤0,08	H≤0,015	Fe≤0,30	O≤0,25	/	/	Ti	Residuals	
									each ≤0,10	total ≤0,40
1	0,0047	0,007	0,0029	0,054	0,061	/	/	Balance	Acceptable	Acceptable

CARATTERISTICHE MECCANICHE / *MECHANICAL PROPERTY*

Art. *Item*	Rm Tensile Strenght ≥ 345	Rp0.2 Yield Strenght, 0,2% Offset 275~450 Mpa	A_{50mm} Elongation 50mm ≥ 20%	Hardness HRB
1	435	329	41	-

INFORMAZIONI, ESAMI O PROVE ADDIZIONALI / TEST/ *ADDITIONAL INFORMATION/ TESTS*

Technological Properties		Hydrostatic (Pneumatic) Test		Non destructiveTest		Surface Quality		Dimension Tolerance		
Flattening Test	Bend Test	Hydrostatic Test	Pneumatic Test	E.T.	U.T.	Inside Surf.	Outside Surf.	O.D.	W.T.	L
Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Milano, 02/03/2022

TITANIUM Consulting & Trading S.r.l.
Controllo Qualità / *Quality Dept.*
Piero Zeloni

Il presente certificato contiene dati ricavati dal certificato del produttore e/o dal laboratorio che ha eseguito le prove sul prodotto finito. La documentazione è disponibile c/o servizio qualità Titanium Consulting & Trading.

This is to certify that the above results are correct as per mill certificate and/for laboratory test certificate. The documentation is available c/o Titanium Consulting & Trading' Service QC Dept.

TITANIUM CONSULTING & TRADING s.r.l.

www.tct.it
E-mail: info@tct.it
R.E.A. FI 0477398
R.I. C.F. e P.IVA
IT 04752220485

Sede legale uffici Firenze:
Via A. Volta, 2/D - Loc. Grassina
50012 Bagno a Ripoli - FI (Italy)
Tel. +39 055.64.25.43 r.a.
Fax +39 055.64.07.24

Uffici e magazzino Milano
Via dell'Industria, 20
20090 Buccinasco - MI (Italy)
Tel. +39 02.488.10.10 r.a.
Fax +39 02.488.03.21

CERTIFICATO DI COLLAUDO / INSPECTION CERTIFICATE N. M265/22
EN 10204/3.1. / PED2014/68/EU

CLIENTE / *PURCHASER*	Masterwatt S.r.l.		
ORDINE / *YOUR ORDER*	N° 2781		
D.D.T. / *PACKING LIST*	N° 1946/22	DATA / *DATE*	15/07/2022
QUANTITA' / *QUANTITY*	Mt 6,10		

Prodotto *Commodity*	SPECIFICHE *REQUIREMENTS*	GRADO *GRADE*	CONDIZIONI DI FORNITURA *SUPPLY COND.*
Seamless Titanium Tubes	**ASTM B338/ ASME SB338 & NACE MR0175**	**Grade 2**	Annealed

Art. Nr. *Item N°*	Colata *Heat Nr*	Lotto Nr. *Lot Nr*	Dimensione [mm] *Dimensions*	Quantità meters	Peso [kg] *Weight*
1	758-1	21385	12.7 x 0.89 x 6100	1024.8	154

ANALISI CHIMICA / *CHEMICAL COMPOSITION*

Art. *Item*	N≤0,03	C≤0,08	H≤0,015	Fe≤0,30	O≤0,25	/	/	Ti	Residuals	
									each ≤0,10	total ≤0,40
1	0,0059	0,008	0,002	0,056	0,048	/	/	Balance	Acceptable	Acceptable

CARATTERISTICHE MECCANICHE / *MECHANICAL PROPERTY*

Art. *Item*	Rm Tensile Strenght ≥ 345	Rp0.2 Yield Strenght, 0,2% Offset 275~450 Mpa	A_{50mm} Elongation 50mm ≥ 20%	Hardness HRB
1	420	311	38	-

INFORMAZIONI, ESAMI O PROVE ADDIZIONALI / TEST/ *ADDITIONAL INFORMATION/ TESTS*

Technological Properties		Hydrostatic (Pneumatic) Test		Non destructiveTest		Surface Quality		Dimension Tolerance		
Flattening Test	Bend Test	Hydrostatic Test	Pneumatic Test	E.T.	U.T.	Inside Surf.	Outside Surf.	O.D.	W.T.	L
Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Milano, 10/05/2022

TITANIUM Consulting & Trading S.r.l.
Controllo Qualità / *Quality Dept.*
Piero Zeloni

Il presente certificato contiene dati ricavati dal certificato del produttore e/o dal laboratorio che ha eseguito le prove sul prodotto finito. La documentazione è disponibile c/o servizio qualità Titanium Consulting & Trading.
This is to certify that the above results are correct as per mill certificate and/for laboratory test certificate. The documentation is available c/o Titanium Consulting & Trading' Service QC Dept.

Plastic Glass S.r.l.
Via Miles, 8
20873 Cavenago B.za –MB- Italia
Tel. +39 02 9506445 Fax +39 02 9506461
www.plastic-glass.com
E-mail: info@plastic-glass.com

Design, construction and sale of vessels, piping, fitting and equipments in glass fiber reinforced plastic (GRP) and thermoplastic lining with reinforced plastic.

MATERIALS CERTIFICATE

Client : **PSC S.p.A..**
P.O. number : **2885/77/24/0 dated 29/10/2024**

Cavenago B.za, 02/10/2024

Test Report N° PG.CM.24.059

DRAWING – CORPO RISCALDATORE.
GRP CONTAINER for HEATER (CONTENITORE per RISCALDATORE).

THE GRP CONTAINER for HEATER HAS BEEN REALIZED USING THE FOLLOWING RAW MATERIALS:

1. **EPOXY VINYL ESTER RESIN Type * SWANCOR CHEMPULSE 901 ***
   Produced by Soc. SWANCOR HIGHPOLYMER and distributed by Soc. GLOBAL COMPOSITES.
2. **VEIL * VILEDON T 1777 ***
   Produced and distributed by Soc. FREUDENBERG.
3. **WOVEN ROVING CLOTH - 500 g/m² * ST.500J***
   Produced and distributed by Soc. JERAGO COMPOSITE FIBERS .
4. **CHOPPED STRAND MAT - 450 g/m² * E6CRM450-1250-P20 ***
   Produced by Soc. JUSHI EGYPT and distributed by Soc. JUSHI ITALIA.

PLASTIC GLASS S.r.l. PG
S.Campa 02-10-24

SWANCOR HIGHPOLYMER CO., LTD.
No.9 Industry South 6 Road.Nantou City 54066, Taiwan
Tel: +886 49 225 5420 Fax:+886 49 225 1534
nantou@swancor.com
www.swancor.com

Certificate of Analysis

1.General Information :

Purchase Order NO	:	2024-006
Customer	:	GLOBAL COMPOSITES, S.L.
Product Name	:	SWANCOR CHEMPULSE 901
Manufacture Date	:	2024/06/18
Lot Number	:	N24061813
Quantity	:	7,000.00 KG

2.Test Result :

Item.	Unit	Lower Limit	Upper Limit	Results
Appearance		--	--	Accept
Viscosity	cps	250.00	450.00	380.0
Gel time	min	18.0	22.0	22.0
Peak time	min	--	--	40.0
Peak temperature	℃	0.0	160.0	152.8
Solid content	%	54.0	56.0	54.40
Acid value	mgKOH/g	8.0	11.0	9.8

Test Condition :	25℃,6%Co=0.3%/MEKPO=1.2%

Compliance to EN10204 type 3.1

3.Shelf Life : 2025/03/18

This report is to hereby certify that the product indicated has been inspected and tested in accordance with the test methods shown. Nothing stated here may be taken or construed as implying a breach of any existing patent ,and no liability for inability or infringement rising out of any such use is assumed.

Quality Manager : Inspector :

02-10-24

1

FREUDENBERG
PERFORMANCE MATERIALS

FREUDENBERG
INNOVATING TOGETHER

Freudenberg Performance Materials
Apparel S.a.s. - di ExternaHolding S.r.l.
Via dei Valtorta 48
I-20127 MILANO

November 28th, 2023

Test report
(EN 10204-2.2)*

Com. No.: 4223247/020
delivery note/ref. shipment of: 27038168/November 28th, 2023

Fax / email: barbara.rossetti@freudenberg-pm.com

STYLE: **T 1777** **Lot No.:** **339292**

Quality-Characteristics	Unit	$\bar{x}$	s
Grammage (EN 29073-01)*	g/m²	**26,2**	**1,0**
Thickness 12,5 mbar (DIN EN ISO 9073-2)*	mm	**0,312**	**0,006**
Tensile strength, md (EN 29073-03)*	N/50mm	**31**	**2,6**
Tensile strength, cd (EN 29073-03)*	N/50mm	**17,6**	**1,3**
Elongation md (EN 29073-03)*	%	**0,9**	**0,1**
Elongation cd (EN 29073-03)*	%	**1,0**	**0,1**

Without conditioning of the material.

Preceding information is not confined from the realisation of a goods incoming inspection.
* Internal test method similar to standard / ** Internal test methode

This document is issued by computer and acc to DIN EN 10204 valid without signature.

02-10-24

Freudenberg
Performance Materials GmbH & Co. KG

Freudenbergstrasse 1
79395 Neuenburg / Deutschland

Sitz der Gesellschaft: Höhnerweg 2-4, D-69469
Weinheim, Amtsgericht Mannheim, HRA 430904

Issued: Stephan Wittwer
Quality Control Department
Stephan.Wittwer@freudenberg-pm.com

Phone: + 49 (0)7631 71-387

Komplementär: Freudenberg Performance Materials Holding GmbH
D-69469 Weinheim, Amtsgericht Mannheim, HRB 746627

Geschäftsführung: Dr. Frank Heislitz, Thomas Herr

2

JERAGO
COMPOSITEFIBERS

CERTIFICATE OF ANALYSIS

Manufacturer	JERAGO COMPOSITE FIBERS
Customer	PLASTICGLASS SRL
Batch number	YD25-2061/2080
Pallet number	1
Quantity	1030
Shipping date - Delivery note	31/01/2024 109/J24
ɔneral description	STUOIA 500 GR/MQ J H=CM.120
Commercial name	ST.500J
Glass type	E-CR

CHARACTERISTICS	UNIT	NOMINAL VALUE	TESTING RESULTS	TESTING METHOD
Total square weight	gr/m²	504 +/- 5%	504,00	JCF-G001
Thickness	mm	0,42 +/-10%	0,42	JCF-S010
Loss on ignition (incl. PES stiching thread)	%	max 2,2	1,58	JCF-F009
Moisture content	%	max 0,15	0,07	JCF-U100

Quality control departement

Date
30/04/2024

02-10-24

巨石埃及玻璃纤维股份有限公司
JUSHI EGYPT FOR FIBERGLASS INDUSTRY S.A.E

Form Code:JSEG/04-2TQD-TE-33
Issue Date:2014/04/01
Issue No.:01

Jushi Egypt For Fiberglass Industry S.A.E

CERTIFICATE OF ANALYSIS

COA No:2403-63316 INVOICE NO.JSEG241569 B.N : 24-0470

Customer Name	JUSHI ITALIA S.R.L.	Sampling Dept.	Testing Center
Product Name	Chopped Strand Mat	Sampling Spot	TQD
Product Code	E6CRMC450-1250-P20	Production Date	2024.02.03
Total Amount	10080.00kg	Testing Date	2024.02.04

Various Tests Conducted	ACCEPTED STANDARDS		TEST RESULTS	
	Standard No.	Standard Value	Average Value	Passed?/Yes or No
Mass per Unit Area (g/㎡)	ISO 3374-2000	428-473	460	Yes
Loss On Ignition(%)	ISO 1887-2014	1.73-3.28	2.24	Yes
Moisture Content(%)	ISO 3344-1997	≤0.10	0.05	Yes
ensile Breaking Force(N)	ISO 3342-2011	≥120	440	Yes

Test Conditions	Testing Temperature	22℃	Relative Humidity	45%
Test Conclusions	Conformed to all above specification		Passed all above requirements	
Test Conducted By			Kalhy	
Test Supervisor	Fathy Torky		Date	2024/3/22

Jushi Egypt For Fiberglass Industry S.A.E JSEG TQD Technology & Quality Dept.

02.10.24

4

2.2.2.7

VESSEL

SG PROJECT/PHOENIX VESSEL

A-50007 A/B

Phoenix Vessel Technology Ltd

Unit 2, The Old Bakery, Lower Tuffley Lane, Gloucester GL2 5DP
Tel: +44 (0) 1452 311673
Fax: +44 (0) 1452 310295

HYDROSTATIC TEST CERTIFICATE

Customer: SG PROJECTS	**Customer Order: PO-070-2024**
Address: SG Projects **Sg projects** **Strada Folciona 5/Bis** **Voghera** **27058** **Italy**	**Phoenix Order No: 120787** **Product Description** **GRP PRESSURE VESSELS**

Line	Product Description and Notes	Ship Quantity
1	**4" x 1000 psi x 6 elements (40") end port pressure vessel** Designed according to Sound Engineering Practice as described in PED 2014/68/EU	2

Vessel Body Serial Numbers
Line1: 4.AAXWW.1, 4.AAXWX.1

Phoenix Vessel Technology Limited Quality Statement

We certify that the above order has been manufactured to the requirements of the applicable standards and specifications, and found to conform with its requirements, and have been inspected and tested within the scope of our ISO9001 registration. Each Vessel has been tested to 1.1 design pressure as stated above.

Any unauthorised modification to these Pressure Vessels or their constituent parts will invalidate this Certificate of Conformity and any warranty applicable to this contract.

Signed: **G.Kus** **Position: Quality Inspector** **Date: 26.06.2024**

For and on behalf of Phoenix Vessel Technology Ltd

Registered in England No 05684863

2.2.2.8

PRESSURE GAUGES

NUOVA FIMA

50-PI-031 – 50-PI-033 – 50-PI-022

50-PI-042 – 50-PI-043 – 50-PI-048

50-PI-044 – 50-PI-045 – 50-PI-046

NUOVA FIMA
Industrial Instrumentation for Pressure and Temperature

NUOVA FIMA S.r.l. – Cap. Soc. € 3.500.000 i.v.
Via C. Battisti, 59/61 – 28045 INVORIO (No) – Italy
Tel. +39 0322 253200 – Fax +39 0322 253232
www.nuovafima.com – e_mail: info@nuovafima.com
Codice Fiscale/Partita IVA 01719710038
Reg. Imp. Novara 10895/1999 –REA 193327

lunedì 9 settembre 2024

CERTIFICATI MATERIALE N° MAT-2024-000597

CLIENTE : NUOVA FIMA STORE SRL
RIF.CLIENTE : ORDFE 544/NS

INDEX	SUPPLIER	CERTIFICATE N°	TYPE OF PRODUCT	MATERIAL
1	T.A.I. SRL	2024/0067	ELEMENTO SENSIBILE	MONEL 400
2	ACCIAIERIE VALBRUNA SPA	MEST062507/2024/	ATTACCO FILETTATO	MONEL 400
3	ACCIAIERIE VALBRUNA SPA	MEST078266/2024/	ATTACCO FILETTATO	AISI 316L
4	T.A.I. SRL	2024/0081	ELEMENTO SENSIBILE	AISI 316L

ORDER DETAIL

ITEM N°	DESCRIPTION	Q.TY	CERTIFICATES
2	MGS40/3/A DN100 S6, 0...100 BAR,1/2" GAS MASCHIO,N° SERIE SUL QUADRANTE,CASSA/ANELLO AISI316L,TARGHETTA AISI316L,RAPPORTO DI TARATURA 1 CICLO, N°Serie dal D-58832 al D-58833	2,000	1 - 2
3	MGS20/2/A DN100, 0...6 BAR,1/2" GAS MASCHIO,N° SERIE SUL QUADRANTE,CASSA/ANELLO AISI316L,TARGHETTA AISI316L, N°Serie dal D-58834 al D-58837	4,000	3 - 4
4	MGS20/2/A DN100, 0...6 BAR,1/2" GAS MASCHIO,N° SERIE SUL QUADRANTE,CASSA/ANELLO AISI316L,TARGHETTA AISI316L, N°Serie dal D-58838 al D-58840	3,000	3 - 4

F.ZANETTI
(HEAD ENGINEERING/DOCUMENTATION/INSPECTION DPT.)

S 211

NUOVA FIMA

T.A.I. srl
Via Civati, 15- 22031 Albavilla (CO)
Tel. 031.628213 fax. 031.3353969
www.taisrl.it Mail info@taisrl.it

Test Certificate

EN 10204:2004-3:1

Certificate n° 2024/0067

Date 03/05/24

Customer	T.A.I. ref. n° 2018/223	Date 10/04/18
Nuova Fima SpA Via C. Battisti, 59 28045 – Invorio (NO)	Customer order n° 127	Date 25/01/24

Product finish: Seamless Tube Cold-Drawn

Standard - Tolerances: NUOVA FIMA ST - 047

Item	Steel grade	Dimension	Pcs	Mt	Length	Kg	Heat	Hollows source
01	TP UNS N 04400	6,00 x 0,75	27	108,80	4000 / 4018	11,88	113770	Salzgitter EAF+AOD/VOD

Mechanical properties		Sample	Lot. n°	Yield		Tensile	Elongation		Hardness Vickers Scale
Room temperature		Section mm²		Rp 0.2 N/mm²	Rp 1.0 N/mm²	Rm N/mm²	Lo50mm AL %	√So % Lo=5.65	
Item n°	Test n°								
						560	30		HV 130/160
							55		
01	67	12,40	01	255		521	38		131/146

Leak test: Eddy Current	Corrosion test	P.M.I.
OK 100% ASTM E426/16 (Drilled hole)		OK 100%

Flaring test: **Flattening test:** **Visual and dimensional control: OK**

Heat treatment:

Other test:

Note: Starting Material mm. 15,94 x 2,04 Heat: 113770 Supplier: Salzgitter

Marking:

Required	Chemical Analysis (P: Product)														
	C%	Mn%	Cr%	Ni%	Mo%	Si%	S%	P%	Ti%	N%	Cu%	Fe%	Al%		Pren%
Min:				63,00							28,00				
Max:	0,30	2,00				0,50	0,024				34,00	2,50			
P	0,11	0,90		64,24		0,14	0,002				32,65	1,64			

Tubes are free from mercury and radioactive contamination
We declare that the products comply with the order requirements.

Manufacturer approved ISO 9001:2015 Bureau Veritas Cert. Nr. IT304557-1
Manufacturer approved ISO 14001:2015 Bureau Veritas Cert. Nr. IT304555-1

Inspector

T.A.I. S.r.l.
Albavilla (CO)

T.A.I. S.r.l.
QUALITY CONTROL DEPT.

P. CASELLA
(Quality Manager)

This certificate is issued by a computerized system and is valid without signature. Any alteration and/or falsification will be subject to the law.

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

MA 074

NUOVA FIMA

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon

Certificato nr. MEST062507 / 2024 /
Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
NUOVA FIMA SRL
VIA C. BATTISTI, 59/61
28045 - INVORIO - NO

Ordine nr: 1077
Bestell
Your order
Commande

Conferma ordine nr: SP23001995
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-TO24001305
Lieferanzeige/Packing list/B.L.

Stato di fornitura : Laminato Solubilizzato Sgrassato Trafilato
Lieferzustand
Delivery state
Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration

Qualità: N04400
Werkstoff/Grade/Nuance

Marca: EG1
Markenbezeichnung
Brand / Nuance

Produttore :
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice

Punzone del Collaudatore: MR
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur

Punzonatura: N04400
Kennzeichnung
Marking
Marquage

SPECIFICHE :
Anforderungen / Requirements / Exigences

ST - 025 4 N04400 A,CF
ASTM B164 2003 N04400 (0)

Note:
Aufzeichnungen / Notes / Notes

(0)R2019 Chemical analysis only.

Tolleranza: h11 - DIN668/EN10278
Toleranz/Allowance/Tolerance

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Lunghezza - mm Lange Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0010	Quadro	22,000 x 22,000	3130/ 3130	294254		295,0	309103150

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°C	Posiz. Saggio Probentage Location Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %	Strizione Einschnürung Reduction of area Striction RA %	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Haerte Hardness Durete HRc
Valori richiesti Anforderungen/Required values Valeurs démandées		min max		170	-	480	- 15 40	- -	-	- 35,0
D	12,5	20 L		506		579	37	81		14,5

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	C %	Si %	Mn %	Cu %	Ni %	Co %	S %	Fe %
min -	-	-	-	28,00	63,00	-	-	-
max 0,30	0,50	2,00	34,00	70,00	-	0,024	2,50	-
294254	0,07	0,20	0,88	32,22	64,79	0,0040	0,001	1,57

Reduction ratio = 555,3 : 1
Material annealed 830°C for 1 h /water cooled.

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel à eté trouvé conforme aux exigences

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

Vicenza, 08/05/2024 VCQ052 - MEST062507	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 1 di 2

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a / Nach/According to/Selon: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai: MEST062507 / 2024 /

Cliente / Besteller/Purchaser/Client:
NUOVA FIMA SRL
VIA C. BATTISTI, 59/61
28045 - INVORIO - NO

Ordine nr: 1077
Bestell / Your order / Commande

Conferma ordine nr: SP23001995
Werks/Our Order/Ref nr.

Avviso di Spedizione: A-TO24001305
Lieferanzeige/Packing list/B.L.

Stato di fornitura: Laminato Solubilizzato Sgrassato Trafilato
Lieferzustand / Delivery state / Etat de livraison

Tipo di Elaborazione: E+AOD
Erschmelzungsart / Melting process / Mode d'elaboration

Qualità: N04400
Werkstoff/Grade/Nuance

Marca: EG1
Markenbezeichnung / Brand / Nuance

Produttore:
Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur

Punzonatura: N04400
Kennzeichnung / Marking / Marquage

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD`S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP9ED8B630DA641EA741EA741DA7FFFFD

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a / Nach/According to/Selon/De conformidad con: EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1

Certificato nr. / Prüfung/Test/Essai/Num. de certificado: MEST078266 / 2024 /

Cliente / Besteller/Purchaser/Client/Cliente:
NUOVA FIMA SRL
VIA C. BATTISTI, 59/61
28045 - INVORIO - NO

Ordine nr. / Bestell / Your order / Commande / Num. de pedido: 413

Conferma ordine nr. / Werks/Our Order/Ref nr. / Num. de confirmación de pedido: TO22001739

Avviso di Spedizione / Lieferanzeige/Packing list/B.L. / Aviso de embarque: A-TO24001652

Stato di fornitura / Lieferzustand / Delivery state / Etat de livraison / Estado de la entrega: Laminato Solubilizzato Sgrassato Trafilato

Tipo di Elaborazione / Erschmelzungsart / Melting process / Mode d'elaboration / Método de fusión: E+AOD

Qualità / Werkstoff/Grade/Nuance / Calidad: 1.4404/316L

Marca / Markenbezeichnung / Brand / Nuance / Marca: MVAPML (MAXIVAL)

Produttore / Hersteller/Item/Usine productrice/Productor:
ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica / Zeichen des Liefernwerkes / Trade marks / Sigles de l'usine productrice / Marcas de fábrica: AV

Punzone del Collaudatore / Stempel des Werkssachverständigen / Inspector's stamp/Poinçon de l'assayeur / Sello del Comprobador: MR

Punzonatura / Kennzeichnung / Marking / Marquage / Sello: 1.4404/316L

SPECIFICHE : / Anforderungen / Requirements / Exigences / Especificaciones

Note: / Aufzeichnungen / Notes / Notes / Notas

ST - 001 13 1.4404/316L A,CF
ASTM A276 2017 S31600/03 A,CF
ASTM A479 2021 S31600/03 A
EN 10088 PART 1 2005 1.4404

Tolleranza: h11 - DIN668/EN10278
Toleranz/Allowance/Tolerance/Tolerancia

Pos. nr. / Item nr. / Nr. de poste / Número de artículo	Oggetto / Gegenstand / Product description / Descrip. du produit / Descripción del producto	Dimensioni - mm / Abmessungen / Dimension / Dimension / Dimensiones	Lunghezza - mm / Lange / Length / Longueur / Longitud	Colata / Schmelze / Heat / Coulée / Colada	Pezzi / Stückzahl / Pieces / Pieces / Piezas	Peso - KG / Gewicht / Weight / Poids / Peso	Lotto nr. / Losnr. / Lot nr. / Lot nr. / Lote nro.
0010	Quadro	22,000 x 22,000	3030/ 3030	290018		1564,0	212203450

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüefung auf lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así come entregado

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab / Specimen/Eprouvette / Larg.diam Spess. Breite Diam. Dicke / Width Diam. Thickness / Larg. diam. epais / mm / Probeta	°C	Posiz. Saggio / Probentage / Location / Emplacement / Ubicación 1)	Snervamento / Streckgrenze/Yield Stress / Limite elastique / Limite elástico	Snervamento / Streckgrenze/Yield Stress / Limite elastique / Limite elástico	Resistenza / Zugfestigkeit/Tensile strength / Resistance à traction / Resistencia a la tracción	Allungamento / Bruchdehnung / Elongation / Allongement / Elongación		Strizione / Einschnürung / Reduction of area / Striction / Reducción de área		Resilienza / Kerbschlagarbeit / Impact Value/ Resilience / Prueba de impacto			Durezza / Haerte / Hardness / Durete / Dureza HB		
Valori richiesti / Anforderungen/Required values / Valeurs démandées / Valores requeridos		min / max		-	-	-	-	-	-	-	-			-		
A														232		

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	HRc		22,0	20,4

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüefung auf lieferbereitem produkt / Test a l'etat de fourniture / Prueba sobre el material así come entregado

TEST		min	max	
A	Dimensioni grano x ASTM E112			4

NUOVA FIMA S.p.A.
UFFICIO GQ

CODICE CERTIFICATO	DATA
AA 2514	10-6-24

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon/De conformidad con

Certificato nr. MEST078266 / 2024 /
Prüfung/Test/Essai/Num. de certificado

Cliente / Besteller/Purchaser/Client/Cliente
NUOVA FIMA SRL
VIA C. BATTISTI, 59/61
28045 - INVORIO - NO

Ordine nr: 413
Bestell
Your order
Commande
Num. de pedido

Conferma ordine nr: TO22001739
Werks/Our Order/Ref nr.
Num. de confirmación de pedido

Avviso di Spedizione: A-TO24001652
Lieferanzeige/Packing list/B.L.
Aviso de embarque

Stato di fornitura : Laminato Solubilizzato Sgrassato Trafilato
Lieferzustand
Delivery state
Etat de livraison
Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration
Método de fusión

Qualità: 1.4404/316L
Werkstoff/Grade/Nuance
Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance / Marca

Produttore :
Hersteller/Item/Usine productrice/Productor

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica: AV MR
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice
Marcas de fábrica

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector´s stamp/Poinçon de l´assayeur
Sello del Comprobador

Punzonatura: 1.4404/316L
Kennzeichnung
Marking
Marquage / Sello

Charpy per ISO 148-1

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probentage Location Emplacement Ubicación 1)	Resilienza Kerbschlagarbeit Impact Value Resilience / Prueba de impacto KV2 J			Espansione laterale - Lateral Expansion -			Shear - Shear -		
Valori richiesti Anforderungen/Required values Valeurs démandées / Valores requeridos		min max		40	40	40	-	-	-	-	-	-
D	10X10	-196	L	185	140	157						

Test allo stato di fornitura per ASTM A370

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangential

TEST	Provetta/ Probestab Specimen/Eprouvette Larg.diam Spess. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm / Probeta	°C	Posiz. Saggio Probentage Location Emplacement Ubicación 1)	Snervamento Streckgrenze/Yield Stress Limite elastique Limite elástico Rp 0,2% N/mm2	Snervamento Streckgrenze/Yield Stress Limite elastique Limite elástico	Resistenza Zugfestigkeit/Tensile strength Resistance à traction Resistencia a la tracción Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement / Elongación E 4d %		Strizione Einschnürung Reduction of area Striction / Reducción de área RA %		Resilienza Kerbschlagarbeit Impact Value/ Resilience Prueba de impacto			Durezza Haerte Hardness Durete / Dureza		
Valori richiesti Anforderungen/Required values Valeurs démandées / Valores requeridos		min max		205	-	515	-	30	-	40	-			-		
C	12,5	20	L	515		699		37		70						

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique/Análisis químico

Colata/Heat/Coulée	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %
Schmelze/Colada									
min	-	-	-	16,50	2,00	10,00	-	-	-
max	0,030	1,00	2,00	18,00	2,50	13,00	0,045	0,030	0,100
290018	0,015	0,51	1,51	16,87	2,00	10,00	0,030	0,028	0,065

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: UNI EN ISO 3651-2 Method A

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitized T1	20	boil	90	5	Absence of cracks	**SATISFACTORY**

Reduction ratio = 59,7 : 1
Solution annealed 1050°C for 180'(total time)/water cooled.

Sono state soddisfatte tutte le condizioni richieste
Die gestellen Anforderungen sind it. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le materiel â eté trouvé conforme aux exigences
El material cumple de acuerdo a los requisitos .

Controllo antimescolanza con tecnica XRF/OES portatile : OK
Verwechslungprüfung: durch XRF/QES Gerät geführt : OK
Antimixing testing performed with XRF/OES portable : OK
Contrôle antimélange svt technique XRF/QES portable : OK
Prueba de anti mezcla con técnica XRF/OES portátil: OK

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks:satisfactory
Contrôle visuel et dimensions: satisfaisant
Inspección visual y dimensional: cumple los requisitos

Vicenza, 07/06/2024
VCQ052 - MEST078266

Direzione Qualità
Qualitätsmanagement/Quality Management/Gestion Qualité/Gerente de calidad
R.BERTELLI

Direzione Prodotto
Produktmanagement/Product Management/Direction Produit/Gerente de producto
P.MESSORI

Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Telefono 0444.968211 - Fax 0444.963836
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497
https://www.valbruna-stainless-steel.com/

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION - CERTIFICADO DE INSPECCIÓN

In conformità a : EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1
Nach/According to/Selon/De conformidad con

Certificato nr. MEST078266 / 2024 /
Prüfung/Test/Essai/Num. de certificado

Cliente / Besteller/Purchaser/Client/Cliente
NUOVA FIMA SRL
VIA C. BATTISTI, 59/61
28045 - INVORIO - NO

Ordine nr: 413
Bestell
Your order
Commande
Num. de pedido

Conferma ordine nr: TO22001739
Werks/Our Order/Ref nr.
Num. de confirmación de pedido

Avviso di Spedizione: A-TO24001652
Lieferanzeige/Packing list/B.L.
Aviso de embarque

Stato di fornitura : Laminato Solubilizzato Sgrassato Trafilato
Lieferzustand
Delivery state
Etat de livraison
Estado de la entrega

Tipo di Elaborazione: E+AOD
Erschmelzungsart
Melting process
Mode d'elaboration
Método de fusión

Qualità: 1.4404/316L
Werkstoff/Grade/Nuance
Calidad

Marca: MVAPML (MAXIVAL)
Markenbezeichnung
Brand / Nuance / Marca

Produttore :
Hersteller/Item/Usine productrice/Productor

ACCIAIERIE VALBRUNA S.P.A.

Marchi di Fabbrica:
Zeichen des Liefernwerkes
Trade marks
Sigles de l'usine productrice
Marcas de fábrica

AV

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'assayeur
Sello del Comprobador

MR

Punzonatura: 1.4404/316L
Kennzeichnung
Marking
Marquage / Sello

Melted, poured and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination by the portal system when it leaves the production plant.

The Quality Management System is also Certified according to Pressure Equipment Directive 2014/68/EU Annex 1,chapt.4.3 by TÜV and LLOYD'S
The Quality Management System is also Certified according to PER 2016/1105, Schedule 2, Part 4, Para 31 (8) by Competent Body TÜV SUD BABT Unlimited.
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.
Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.
The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP4FDECB9611EB93554420DB8530EB9641

T.A.I. srl
Via Civati, 15- 22031 Albavilla (CO)
Tel. 031.628213 fax. 031.3353969
www.taisrl.it Mail info@taisrl.it

Test Certificate

EN 10204:2004-3:1

Certificate n° 2024/0081

Date 21/05/24

Y 924

NUOVA FIMA

Customer	T.A.I. ref. n°	Date
Nuova Fima SpA Via C. Battisti, 59 28045 – Invorio (NO)	2024/134	27/02/24
	Customer order n° 241	Date 13/02/24

Product finish: Seamless Semi-Hard Tube

Standard - Tolerances: NUOVA FIMA ST - 046

Item	Steel grade	Dimension	Pcs	Mt	Length mm	Kg	Heat	Hollows source
01	TP 316L 1.4435	Ovale 17 x 7 x 0,30	159	670	163	65,88	IK-577	Centravis EAF+AOD

Mechanical properties		Sample	Lot. n°	Yield		Tensile	Elongation		Hardness
Room temperature		Section mm²		Rp 0.2 N/mm²	Rp 1.0 N/mm²	Rm N/mm²	Lo50mm AL %	√So % Lo=5.65	Vickers Scale
Item n°	Test n°								
						550	40		HV 140/180
							50		
01	81	11,77	01			550	48		151/178

Leak test: Eddy Current

OK 100% ASTM E426/16 (Drilled hole)

Corrosion test

P.M.I.

OK 100%

Flaring test: **Flattening test:** **Visual and dimensional control: OK**

Heat treatment:

Other test:

Note: Starting Material mm. 20,00 x 1,00 Heat: IK-577 Supplier: Centravis

Marking:

Required	Chemical Analysis (P: Product)														
	C%	Mn%	Cr%	Ni%	Mo%	Si%	S%	P%	Ti%	N%	Cu%	Fe%	Al%		Pren%
Min:			17,00	12,50	2,50										
Max:	0,030	2,00	19,00	15,00	3,00	1,00	0,015	0,045		0,110					
P	0,029	1,59	17,51	12,80	2,55	0,03	0,007	0,026		0,039					

Tubes are free from mercury and radioactive contamination
We declare that the products comply with the order requirements.

Manufacturer approved ISO 9001:2015 Bureau Veritas Cert. Nr. IT304557-1
Manufacturer approved ISO 14001:2015 Bureau Veritas Cert. Nr. IT304555-1

Inspector

T.A.I. S.r.l.
Albavilla (CO)

T.A.I. S.r.l.
QUALITY CONTROL DEPT.

P. CASELLA
(Quality Manager)

This certificate is issued by a computerized system and is valid without signature. Any alteration and/or falsification will be subject to the law.

2.2.2.9

SHUT-OFF VALVES

TRUST

50-XV-027, 50-XV-030

Trust Valves S.r.l.
Via F. Petrarca,41/43 - 22070 Rovello Porro (CO) - Italy
Tel. +39 02 9675 4324 –quality@trust-valves.com - www.trust-valves.com

ISO 9001 BUREAU VERITAS Certification

Elenco riepilogativo certificati
Certificates summary list

Spettabile / *Messrs.*
PSC S.P.A. ENGINEERING AND CONTRACTING
VIA SAN VITALE, 61
20831 SEREGNO MB
ITALIA

Vs. Ordine e Data - *Your P.O. and Date*		Ns. Conferma e Data - *Our Job and Date*		N. Certificato - Certificate Nr.	Data - *Date*
PO 2885/34/24/0	25/07/2024	5732	26/07/2024	57324256-45499	14/10/2024

Pos. *Item*	Tag *Tag*	Descrizione | DN *Description | Size*	Q.tà Q.ty	Codice Articolo *Our item ref.*	Produttore *Manufacturer*	Cert.n. *Cert.no.*	Anno *Year*	Pos. *Item*	Corpo Body	Cappello / *Bonnet* Disco / *Disc* Sfera / *Ball*
10		01) BALL V WAF PN100 F51/DEL DN 15	2	Z5732-00-001-KC	KCM TECHNOLOGY	01	2024	1	X8305F	-
30	TAG: MV-544; MV-548; MV-553; MV-557	02) BALL V S800 NPT/F F55/R-PTFE DN 15	4	Z5732-00-002-KC	KCM TECHNOLOGY	01	2024	1	KL8305	-
40	TAG: MV-550; MV-558	03) NEEDLE V S3000 PSI NPT/F F55 DN 15	2	Z5732-00-003-KC	KCM TECHNOLOGY	01	2024	1	ST8305	-

Trust Quality Dept.

Customer Inspector

Third Part Inspector

INSPECTION CERTIFICATE

KCM TECHNOLOGY GROUP CO., LTD.
203#Haitang Road,Binhai Industry Park,Wenzhou,Zhejiang,China
COMMODITY:FLOATING BALL VALVE,F51 BODY AND TRIM,DEVLON SEAT,PN100 RF FLANGE END
BARE STEM,WAFER TYPE
BODY Material according to:ASTM A182 F51
Inspection&Testing Acc:DIN3230

Inspection Certificate(EN 10204-3.1)
To:Trust Valves S.r.l
P.O: 8305
Certificate No.:01
Test Date:September5,2024
Issue Date:September6,2024

PAGE NO.			DESCRIPTION			RATING		MATERIAL								PRESSURE TEST			
								BODY		STEM		BALL		SEAT		STRENGTH		SEALING	
																BODY		WATER	AIR
01			BALL VALVE			PN100		F51		F51		F51		DEVLON		15 (MPa)		11 (MPa)	0.6 (MPa)
ITEM NO.	**SIZE**	**QTY (PCS)**	**PARTS**	**HEAT NO.**	**MATERIAL**	**YIELD POINT (MPa)**	**TENSILE STRENGTH (MPa)**	**ELONGATION (%)**	**HB**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Ni**	**Mo**	**Cu**	**V**
1	DN15	2	BODY	X8305F	F51	425	640	34	200	0.02	0.04	0.8	0.02	0.01	22.5	4.9	3.10	-	-
			BONNET		F51	425	640	34	200	0.02	0.04	0.8	0.02	0.01	22.5	4.9	3.10	-	-
			BALL		F51	425	640	34	200	0.02	0.04	0.8	0.02	0.01	22.5	4.9	3.10	-	-

PRESSURE TEST	DIMENSION TEST	END TEST	SURFACE & APPERANCE	PAINTING TEST
GOOD	GOOD	GOOD	GOOD	ORIGINAL
RESULT		ACCEPTABLE		

INSPECTOR:Wang Ke

Q.A.MANAGER:Chen Xian Wang

2.2.2.10

PRESSURE SAFETY VALVES

COI TECHNOLOGY

50-PSV-034 – 50-PSV-035

50-PSV-036 – 50-PSV-037

50-PSV-038 – 50-PSV-039

50-PSV-053

PRESSURE SAFETY RELIEF VALVE
MATERIAL LIST SUMMARY

VALVE DESCRIPTION	Q.TY	TAG	S/N	CERTIFICATE TYPE	BODY	BODY CERTIFICATE No.	HEAT	BODY HYDRO TEST PRESSURE	NOZZLE	NOZZLE CERTIFICATE No.	HEAT3	NOZZLE HYDRO TEST PRESSURE
PRESSURE SAFETY RELIEF VALVE 1" ANSI 150RF	1	50-PSV-034	24-07148	2.2	POLIPROPILENE	-	-	6 barg	POLIPROPILENE	-	-	6 barg
PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 600RF x 150RF	1	50-PSV-035	24-07150	3.1	AISI361L	2023/002559	2MKZ	144,30 barg	SUPERDUPLEX	DTM 1913088	400771	144,30 barg
PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 150RF	1	50-PSV-036	24-07152	2.2	POLIPROPILENE	-	-	18 barg	POLIPROPILENE	-	-	18 barg
PRESSURE SAFETY RELIEF VALVE 1" ANSI 150RF	1	50-PSV-037	24-07149	2.2	POLIPROPILENE	-	-	6 barg	POLIPROPILENE	-	-	6 barg
PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 600RF x 150RF	1	50-PSV-038	24-07151	3.1	AISI361L	2023/002559	2MKZ	144,30 barg	SUPERDUPLEX	DTM 1913088	400771	144,30 barg
PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 150RF	1	50-PSV-039	24-07153	2.2	POLIPROPILENE	-	-	18 barg	POLIPROPILENE	-	-	18 barg
PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 150RF	1	50-PSV-053	24-07154	2.2	POLIPROPILENE	-	-	18 barg	POLIPROPILENE	-	-	18 barg

NOZZLE S/N 24-07148/49

PRESSURE SAFETY RELIEF VALVE 1" ANSI 150RF TAG No. 50-PSV-034, 50-PSV-037; NOZZLE

Werkszeugnis 2.2 / Test Report 2.2 DIN EN 10204

PLASTICS ENGINEERED BY GEHR

Coi Technology srl
Via della liberazione 29/d

20098 San Giuliano Milanese
Italien

Produkt / Product		Charge	Länge / Length
Ihre Bestellung vom / Your order	18.09.23		
Kd-Bestell-Nr. / Customer order	23/00330		
Unsere Auftrags-Nr. / Sales order	2346965		
GEHR PP Round Rods 60 mm natural			2.000 mm

Dichte / Specific gravity	ISO 1183	0,91 g/cm³
Zug E-Modul / Modulus of elasticity	ISO 527	1725 MPa
Streckspannung / Tensile Strength at yield	ISO 527	36 Mpa

Prüfung aus nichtspezifischer Kontrolle / Tests out of non specific Quality control.
Die Angaben befreien den Verarbeiter nicht von eigenen Prüfungen und Versuchen.
The mentioned values do not dispense the user from own application tests.

GEHR GmbH

Casterfeldstr. 172
68219 Mannheim

Tel: +49 621 - 87 89 - 0
Fax: +49 621 - 87 89 - 200

COI TECHNOLOGY SRL
Via Della Liberazione 29/d
20098 SAN GIULIANO MILANESE (MI)
Tel. 02.36689480 - Fax 02.99767875
P.I.-C.F.: 06359220966

Dieses Schreiben wurde maschinell bearbeitet und ist auch ohne Unterschrift gültig.
This letter has been type written and is valid without signature.

BODY S/N 24-07148/49

PRESSURE SAFETY RELIEF VALVE 1" ANSI 150RF TAG No. 50-PSV-034, 50-PSV-037; BODY

Werkszeugnis 2.2 / Test Report 2.2 DIN EN 10204

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Italien

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NOZZLE S/N 24-07150/51

PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 600RF x 150RF TAG No. 50-PSV-035, 50-PSV-038; NOZZLE

QUALITY IT CONTROL

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO (MI)

Zeugnis-Nr. 482416
Certificate no.
No. de certificat DTM 1913088

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.2
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes / Trade mark / Signe du fournisseur
Stempel des Werkssachverständigen / Inspector's stamp / Poincon de l'inspecteur

Kunden-Bestell-Nr. 88768
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 59397501/242479
BGH works no.
BGH référence

BGH Q408

Erzeugnisform / Product	Stab, rund, geschmiedet, geschält/poliert round bars, forged, peeled/polished
Werkstoff / Quality	UNS S32760 - F55
Anforderungen / Requirements	UNS S32760 ASTM A 276 /A276M -17 UNS S32760 ASTM A 479 /A479M -18 UNS S32760 ASME BPVC II. A SA- 276 2017 UNS S32760 ASME BPVC II. A SA- 479 /SA-479M 2017 1.4501 X2CrNiMoCuWN25-7-4 DIN EN 10088 -3 12/14 UNS S32760 NORSOK M 630 Edition 6 10/13 UNS S32760 NORSOK MDS - D 57 Rev. 5 10/13 UNS S32760 ANSI/NACE MR 0175/ISO15156-3 2015 UNS S32760 ANSI/NACE MR 0103 /ISO17945: 2015 Allg. Grundsätze für Werkstoff AD 2000 Merkblatt W 0 05/16 1.4501 - X2 CrNiMoCuWN 25-7-4 - F55 F55 (UNS S32760) ASTM A182/A182M - aktuelle Ausgabe (nur Chemische Zusammensetzung und mechanische Eigenschaften) F55 (UNS S32760) ASME BPVC.II.A SA 182 /182M - aktuelle Ausgabe (nur Chemische Zusammensetzung und mechanische Eigenschaften) Gefertigt nach QTR_F_32760 nach Norsok M-650 Edition 4 Abnahmeprüfzeugnis ausgestellt im Einvernehmen mit der TÜV SÜD Industrie Service GmbH (30.11.2009), QS entsprechend DGRL, Anhang I, Absatz 4.3 von Notified Body 0036 überprüft. Zertifikat Nr. DGR-0036-QS-W 010/2018/AN1-DRE. F55 (UNS S32760) ASTM A182/A182M - Lat. Rev. (Chemical Composition and mechanical properties only) F55 (UNS S32760) ASME BPVC.II.A SA 182 /182M - Lat. Rev. (Chemical Composition and mechanical properties only) Manufactured acc. to QTR_F_32760 acc. to Norsok M-650 Edition 4 Inspection Certificate issued in accordance with TÜV SÜD Industrie Service GmbH (11/30/2009), QA according to PED, Annex I, Point 4.3 verified by Notified Body 0036. Certificate no. DGR-0036-QS-W 010/2018/AN1-DRE.

Besichtigung und Maßnachprüfung Inspection and dimensional control Inspection et contrôle de dimension	Erschmelzung/Nachbehandlung Meltingprocess/secondary refining Mode d'élaboration/traitement ultérieur	Verwechslungsprüfung (spectroanalytisch) Identification test (spectral-analysis) examination d' identification(analyse spectrale)
ohne Beanstandung without objection	E- VOD	ohne Beanstandung without objection

Pos. Item Poste	Anzahl Quantity Quantité	Abmessung Dimension Dimensions	Gewicht Weight Poids	Schmelz-Nr. Heat-No. No. de coulée
1	39	69,85 RD (+0,19/-0,00) (3 to 6 mtr random lengths)	5830 kg	400771

Schmelze Heat %	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Al	N	W
400771	0,020	0,30	0,61	0,023	0,0005	25,62	3,45	7,55	0,57	0,007	0,2780	0,510
	PRE: 41,453											

Anlagen Encl. Annexe: US-Protokoll/UT report; Glühbesch./Heat treatment cer.; Gefügeaufnahme/micrograph

Freital,den Place and date Lieu et date 11.12.2019

Lloyd's Register EMEA
G. Knobloch
Rostock Office

13. Jan. 2020

Abnahmebeauftragter Inspector representative Inspecteur de réception
Müller

COI TECHNOLOGY SRL
Via Della Liberazione 29/d
20098 SAN GIULIANO MILANESE (MI)
Tel. 02.36689480 - Fax 02.99767875
P.I.-C.F.: 06359220966

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

CHUN & VOLLERIN SRL
VIA A. EINSTEIN 15
20090 CUSAGO (MI)

Zeugnis-Nr. 482416
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Signe du fournisseur

Stempel des Werkssachverständigen
Inspector's stamp
Poinçon de l'inspecteur

Kunden-Bestell-Nr. 88768
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 59397501/242479
BGH works no.
BGH référence

BGH Q408

Wärmebehandlungszustand: lösungsgeglüht
Condition of heat treat: solution annealed

Probe-Nr. / Test-No.	Lage / loc.	Temp. °C	Rp0,2 N/mm²		Rm N/mm²	A4 %	Z %	Kerbschlagarbeit / Impact value J			Probenform / Shape of test piece Charpy-V °C	Härte / Hardness HRC /HBW
Soll/Req.	L							>=100			RT	
	L	RT	>=550		>=750	>=25	>=45	>=45			-46	
	L	RT			<=895						-50	<=32 /<=290
	L										-101	
	T							>=45			-46	
	T										-50	
205LP1	L			(1)				293	303	297	RT	24 (4)
205LP1	L	RT	576	(2)	818	44	78	280	275	283	-46	(2) 254
205LP1	L			(2)				276	291	284	-50	
205LP1	L			(2)				61	60	55	-101	
205LP1	L	RT	593	(3)	816	43	77					
205LP1	T			(3)				152	149	155	-46	
205LP1	T			(3)				118	123	164	-50	
205LP2	L			(1)				298	306	308	RT	24 (4)
205LP2	L	RT	559	(2)	810	43	76	275	270	259	-46	(2) 255
205LP2	L			(2)				281	279	269	-50	
205LP2	L			(2)				62	77	66	-101	
205LP2	L	RT	589	(3)	811	41	78					
205LP2	T			(3)				110	118	113	-46	
205LP2	T			(3)				82	83	75	-50	
205LP1	L	190	437	(2)	692	46	78					
205LP2	L	190	424	(2)	684	46	78					

Prob-Nr / Test-No	Temp °C	later.Breitung mm / later.expansion			Scherbruchant. % / shear fracture			
205LP1	-46	2,0	2,0	2,0	100	100	100	(längs/longitudinal)
205LP1	-50	2,0	2,0	2,0	100	100	100	(längs/longitudinal)
205LP1	-101	0,7	0,7	0,7	55	55	55	(längs/longitudinal)
205LP2	-46	2,0	2,0	2,0	100	100	100	(längs/longitudinal)
205LP2	-50	2,0	2,0	2,0	100	100	100	(längs/longitudinal)
205LP2	-101	0,6	0,8	0,7	55	60	55	(längs/longitudinal)
205LP1	-46	1,3	1,3	1,3	80	80	80	(quer/transversal)
205LP1	-50	1,1	1,1	1,4	65	70	80	(quer/transversal)
205LP2	-46	1,1	1,1	1,1	70	70	70	(quer/transversal)
205LP2	-50	0,8	0,8	0,8	55	55	55	(quer/transversal)

Anlagen Encl. Annexe: US-Protokoll/UT report; Glühbesch./Heat treatment cer.; Gefügeaufnahme/micrograph

Freital,den Place and date Lieu et date 11.12.2019

Lloyd's Register EMEA
G Knobloch
Bestrek Office

13. Jan. 2020

Abnahmebeauftragter Inspector representative Inspecteur de réception
Müller

BGH

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital
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BGH works no.
BGH référence

BGH Q408

Prüfort/test location: (1) 12,5 mm
(2) D/4 / mid radius
(3) D/2 / mid thickness
(4) Rand / near surface

Zugprobenform/typ tensile specimen - Längsproben/longitudinal test specimen
ASTM A 370: Lo = 50 mm ; Do = 12,5 mm
Charpy-V 10 x 10 V = 2 mm
Längsproben/longitudinal test specimen + Querproben/transversal test specimen

Korros.-Test ASTM G48 Meth.A: 50°C/24h: kein Lochfraß/no pitting is observed
corrosion test Meth.A: Gewichtsverlust/weight loss: 0,028 g/m²
Beurteilung bei 20-facher Vergrößerung/assesment at 20 times magnification

	205LP1	205LP2
Deltaferrit/ferrite delta ASTM E 562: Rand/near surface:	37%	47%
relative Genauigkeit/relative accuracy:	17%	11%
Deltaferrit/ferrite delta ASTM E 562: D/4 / mid radius:	42%	45%
relative Genauigkeit/relative accuracy:	10%	10%

Messung des Austenitabstandes gem. DNV-RP-F112 10/2008 section 7/
The austenite spacing measured in acc. with section 7 of DNV-RP-F112:
D/4-mid radius: 205LP1: 23 µm +/- 18 µm
205LP2: 28 µm +/- 21 µm

Ferrit Gehalt wurde bestimmt gemäß ASTM E562 durch Punktzählung (30 Felder/16 Punkt).
Ferrit content determined acc. to ASTM E562 by point Counting (30 fields and 16 points).
Geätzt: V2A + NaOH elektrolytisch - ähnlich ASTM E407 Nr. 104 und 220.
Suitably etched: V2A + electrolytic NaOH - similar to ASTM E407 No 104 and No 220

Material wurde nicht reparaturgeschweißt.
Ursprungsland (Erschmelzung und Fertigung): Deutschland
Gefüge frei von intermetallischen und anderen schädlichen Phasen.
Material ist quecksilberfrei.
Kerbschlagprüfung gemäß ASTM E23.
ASTM A751 - Durchführung der Chemischen Analyse von Stahlprodukten
Visuelle Kontrolle: Material frei von Löcher und anderen Defekten/Fehlern
Probenstücke wurden vom Stabende entnommen.
Abstand vom Ende: D <= 50 mm: 50mm; D >50 .. 100 mm: D; D >100mm: 100 mm

Anlagen / Encl. / Annexe: US-Protokoll/UT report; Glühbesch./Heat treatment cer.; Gefügeaufnahme/micrograph

Freital,den / Place and date / Lieu et date: 11.12.2019

Lloyd's Register EMEA
G. Knoblich
Rostock Office

Abnahmebeauftragter / Inspector representative / Inspecteur de réception: Müller

13. Jan. 2020

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital
CHUN & VOLLERIN SRL
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BGH-Auftrags-Nr. 59397501/242479
BGH works no.
BGH référence

BGH Q408

(D = Durchmesser)
Gerichtet auf max. 2,0 mm/m

Material no weld repaired.
Country of manufacture and Country of melt: GERMANY
Microstructure free from intermetallic or other detrimental phases.
Material is free from mercury contamination.
Impact test acc. to ASTM E23.
ASTM A751 - 07a - Terminology for Chemical Analysis of Steel Products
Visual inspection: Material free of cracks and other derfects/blemishes.
Test pieces taken from bar prolongation.
Distance from end: D <= 50 mm: 50mm; D >50 .. 100 mm: D; D >100mm: 100 mm
(D is the diameter)
Straightness <=120,65 RD: max. 2,0 mm/m
Cold finished round bars from dia 74,00, forged & peeled k11.

Umformgrad/reduction ratio: 35:1

Stahlhersteller des Ausgangsmaterials: BGH Edelstahl Freital GmbH.
Steel manufacturer of starting material: BGH Edelstahl Freital GmbH.

Fertigung nach QM-System ISO 9001: 2015/ QM system in effect is ISO 9001: 2015
Zertifiziert nach / certificated AD2000 W0.

Kontrolle auf Radioaktivität ohne Befund, der Messwert liegt unter der Nachweisgrenze von 0,1 Bq/g.
Radioactivity inspection without objection, the measured value is below the detection limit of 0.1 Bq/g.

Kennzeichnung/marking:
- 400771
- 88768 (on label only)
- UNS S32760 - F55
- 69,85 (on label only)
- 205LP
- Q408
- Surveyor's Initials
- DTM 1913088
- 12 19
- LOGO

Lloyd's Register EMEA
G. Knobloch
Rostock Office

Anlagen Encl. Annexe	Freital,den Place and date Lieu et date	Abnahmebeauftragter Inspector representative Inspecteur de réception
US-Protokoll/UT report Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph	11.12.2019	Müller

BODY 24-07150/51

PRESSURE SAFETY RELIEF VALVE 1/2" ANSI 600RF x 150RF TAG No. 50-PSV-035, 50-PSV-038; BODY

ROLDAN, S.A. - Acciai Inossidabili

ACCIAIERIA

Santo Tomás de las Ollas, S/N
Apdo. de Correos 11
PONFERRADA (LEÓN)
TEL.: +34 987 44 61 00
FAX: +34 987 44 61 01
E-MAIL: rdn_fabrica@acerinox.com

SEDE CENTRALE

Santiago de Compostela, 100-3°
28035 MADRID (ESPAÑA)
TEL.: +34 913 98 52 57
FAX: +34 913 98 51 93
E-MAIL: roldan@acerinox.com

CERTIFICATO D'ISPEZIONE

EN 10204 3.1

Z01 Dichiarazione: il prodotto è conforme all'ordine

MADE IN SPAIN - EUROPEAN UNION

TÜVRheinland CERTIFICADO
Sistema de Gestión
ISO 9001:2015
ISO 14001:2015
ISO 50001:2018
www.tuv.com
ID 0091003143

CE
0432
11
0432-CPR-00190-01

CERTIFICATO N° 2023/002559	**DATA** 9/03/2023	**FOGLIO** 1	N° DOCUMENTO DI TRASPOSTO 2023/000756

MATERIALE ROLDAMAX-339 EN10088:3 (1.4401/1.4404.)

CLIENTE BONCATO S.R.L.

DIMENSIONI 70,00 mm. | Surface finish according EN10088-3 Table 7:1X

LUNGHEZZA 6.100 mm. **TOLLERANZA** ISO k12

PRODOTTO [30] Barra pelata

SPECIFICHE EN10088:3 **ORDINE DEL CLIENTE** EMAIL DEL 5/12/

PROVE DI TRAZIONE EN ISO 6892-1

CORRISPONDENTE EN 10272 **EDIZIONE** AD2000 W0, W2 & W10

CORROSIONE INTERGRANULARE EN ISO 3651-2 method A: SATISFACTORY WITHOUT OBJETIONS

CONTROLLO DIMENSIONALE E VISIVO WITHOUT OBJECTIONS Spektrometrical Identity Test: O.K.

PROVA DI RESILIENZA EN ISO 148-1 **MATERIAL FREE FROM RADIOACTIVITY**

EN 10.088:5

N° ORDINE	LAVORO N°	CASSA / BULTO	NUMERO COLATA	CAMPIONE	PESO
MA9 1		53067 / RK30017	2MKZ	2MKZ	558

PROCESSO DI FABBRICAZIONE

EAF + AOD +CC

MARCHIO DEL FORNITORE

RDN

MARCHIO

HEAT NUMBER

GRADE (ACX-339)

TIMBRO DI RICEZIONE

R3

ISPETTORE DI QUALITA

JUAN JOSE ALVAREZ RODRIGUEZ

QUALITY CONTROL REPRESENTATIVE

CARATTERISTICHE MECCANICHE

COLATA	CAMPIONE	DIMENSIONI DEL CAMPIONE mm.	Osserv. T°.	Rm MPa	Rp 0,2% MPa	Rp 1% MPa	Z %	A % L=5Ø	A % L=4Ø	Agt %	RESILIENZA ISO-V (J) 20°C	RESILIENZA ISO-V (J) -196°C		DUREZZA HB	PROVA DI FATICA	PROVA DI TORSIONE	AREA DELLA SEZIONE mm²	Kg / m
2MKZ	2MKZ	30,00	20°C	603	265	280	68	51	52		243			153				
REQUISITI DELLA NORMA		EN ISO 377		500 700	200	235		40			100			215				

COMPOSIZIONE CHIMICA %

COLATA	C	P	S	Si	Mn	Cr	Ni	Mo	Ti	N	Cu	Co			
2MKZ	0,0230	0,0290	0,0300	0,3170	1,3940	16,9800	10,3750	2,0550	0,0050	0,0350	0,4490	0,2000			
REQUISITI DELLA NORMA	0,0300	0,0450	0,0300	1,0000	2,0000	16,5000 18,5000	10,0000 13,0000	2,0000 2,5000		0,1000					

COI TECHNOLOGY SRL
Via Della Liberazione 29/d
20098 SAN GIULIANO MILANESE (MI)
Tel. 02.36689480 - Fax 02.99767875
P.I.-C.F.: 06359220966

OSSERVAZIONI

ASTM A-182. ASTM A-193 Class 1 Grade B8M. ASTM A-276 Condition A. ASTM A-320 Class 1 Grade B8M. ASTM A-479 Condition A. ASME SA-182. ASME SA-193 Class 1 Grade B8M. ASME SA-320 Class 1 Grade B8M. ASME SA-479 Condition A. AMS 5648. AMS 5653. AMS QQ-S-763. AISI 316/316L. UNS S31600/S31603. NACE MR0175 & MR0103. MADE IN SPAIN.

ALTRE PROVE **REQUISITI DELLA NORMA** AD2000 W0,W2,W10|2014/68/EU(PED)|UKCA PER 2016/1105

TRATTAMENTO TERMICO 1.050 °C AND WATERCOOLED | Crack tested acc. to EN10277 table 3 class 2

CER_IT4

BODY NOZZLE S/N 24-07152/3/4

PRESSURE SAFETY RELIEF VALVE 1" ANSI 150RF TAG No. 50-PSV-036, 50-PSV-039, 50-PSV-053; BODY & NOZZLE

Werkszeugnis 2.2 / Test Report 2.2 DIN EN 10204

PLASTICS ENGINEERED BY GEHR

Coi Technology srl
Via della liberazione 29/d

20098 San Giuliano Milanese
Italien

Produkt / Product		Charge	Länge / Length
Ihre Bestellung vom / Your order	18.09.23		
Kd-Bestell-Nr. / Customer order	23/00330		
Unsere Auftrags-Nr. / Sales order	2346965		
GEHR PP Round Rods 80 mm natural			2.000 mm

Dichte / Specific gravity	ISO 1183	0,91 g/cm³
Zug E-Modul / Modulus of elasticity	ISO 527	1725 MPa
Streckspannung / Tensile Strength at yield	ISO 527	36 Mpa

Prüfung aus nichtspezifischer Kontrolle / Tests out of non specific Quality control.
Die Angaben befreien den Verarbeiter nicht von eigenen Prüfungen und Versuchen.
The mentioned values do not dispense the user from own application tests.

GEHR GmbH

Casterfeldstr. 172
68219 Mannheim

Tel: +49 621 - 87 89 - 0
Fax: +49 621 - 87 89 - 200

COI TECHNOLOGY SRL
Via Della Liberazione 29/d
20098 SAN GIULIANO MILANESE (MI)
Tel. 02.36689480 - Fax 02.99767875
P.I.-C.F.: 06359220966

Dieses Schreiben wurde maschinell bearbeitet und ist auch ohne Unterschrift gültig.
This letter has been type written and is valid without signature.

2.2.2.11

MANUAL VALVES

TRUST

MV-544 – MV-548 – MV-553

MV-557 – MV-550 – MV-558

Trust Valves S.r.l.
Via F. Petrarca,41/43 - 22070 Rovello Porro (CO) - Italy
Tel. +39 02 9675 4324 –quality@trust-valves.com - www.trust-valves.com

ISO 9001 BUREAU VERITAS Certification

Elenco riepilogativo certificati
Certificates summary list

Spettabile / *Messrs.*
PSC S.P.A. ENGINEERING AND CONTRACTING
VIA SAN VITALE, 61
20831 SEREGNO MB
ITALIA

Vs. Ordine e Data - *Your P.O. and Date*		Ns. Conferma e Data - *Our Job and Date*		N. Certificato - Certificate Nr.	Data - *Date*
PO 2885/34/24/0	25/07/2024	5732	26/07/2024	57324256-45499	14/10/2024

Pos. *Item*	Tag *Tag*	Descrizione | DN *Description | Size*	Q.tà Q.ty	Codice Articolo *Our item ref.*	Produttore *Manufacturer*	Cert.n. *Cert.no.*	Anno *Year*	Pos. *Item*	Corpo Body	Cappello / *Bonnet* Disco / *Disc* Sfera / *Ball*
10		01) BALL V WAF PN100 F51/DEL DN 15	2	Z5732-00-001-KC	KCM TECHNOLOGY	01	2024	1	X8305F	-
30	TAG: MV-544; MV-548; MV-553; MV-557	02) BALL V S800 NPT/F F55/R-PTFE DN 15	4	Z5732-00-002-KC	KCM TECHNOLOGY	01	2024	1	KL8305	-
40	TAG: MV-550; MV-558	03) NEEDLE V S3000 PSI NPT/F F55 DN 15	2	Z5732-00-003-KC	KCM TECHNOLOGY	01	2024	1	ST8305	-

Trust Quality Dept.

Customer Inspector

Third Part Inspector

INSPECTION CERTIFICATE

KCM TECHNOLOGY GROUP CO., LTD.
203#Haitang Road,Binhai Industry Park,Wenzhou,Zhejiang,China
COMMODITY:FLOATING BALL VALVE,F55 BODY AND TRIM,RPTFE SEAT,800LB FNPT END LEVER OPERATED
BODY Material according to:ASTM A182 F55
Inspection&Testing Acc:API598

Inspection Certificate(EN 10204-3.1)
To:Trust Valves S.r.l
P.O: 8305
Certificate No.:01
Test Date:September5,2024
Issue Date:September6,2024

PAGE NO.			DESCRIPTION			RATING		MATERIAL								PRESSURE TEST			
								BODY		STEM		BALL		SEAT		STRENGTH	SEALING		
																BODY	WATER	AIR	
02			BALL VALVE			800LB		F55		F55		F55		RPTFE		21 (MPa)	15.4 (MPa)	0.6 (MPa)	
ITEM NO.	**SIZE**	**QTY (PCS)**	**PARTS**	**HEAT NO.**	**MATERIAL**	**YIELD POINT (MPa)**	**TENSILE STRENGTH (MPa)**	**ELONGATION (%)**	**Reduction of Area, min, %**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Ni**	**Mo**	**Cu**	**W**
1	DN15	4	BODY	KL8305	F55	580	810	28	47	0.01	0.04	0.8	0.01	0.005	25.1	7.1	3.20	0.300	1.60
			BONNET		F55	580	810	28	47	0.01	0.04	0.8	0.01	0.005	25.1	7.1	3.20	0.300	1.60
			BALL		F55	580	810	28	47	0.01	0.04	0.8	0.01	0.005	25.1	7.1	3.20	0.300	1.60

PRESSURE TEST	DIMENSION TEST	END TEST	SURFACE & APPERANCE	PAINTING TEST
GOOD	GOOD	GOOD	GOOD	ORIGINAL

RESULT ACCEPTABLE

INSPECTOR:Wang Ke

Q.A.MANAGER:Chen Xian Wang



INSPECTION CERTIFICATE

KCM TECHNOLOGY GROUP CO., LTD.
203#Haitang Road,Binhai Industry Park,Wenzhou,Zhejiang,China
COMMODITY:NEEDLE VALVE,F55 BODY AND TRIM,METAL SEAT,3000PSI FNPT END
HANDWHEEL OPERATED
BODY Material according to:ASTM A182 F55
Inspection&Testing Acc:API598

Inspection Certificate(EN 10204-3.1)
To:Trust Valves S.r.l
P.O: 8305
Certificate No.:01
Test Date:September5,2024
Issue Date:September6,2024

PAGE NO.			DESCRIPTION			RATING		MATERIAL								PRESSURE TEST			
								BODY		STEM		BALL		SEAT		STRENGTH		SEALING	
																BODY		WATER	AIR
03			NEEDLE VALVE			3000PSI		F55		F55		F55		METAL		37.5 (MPa)		27.5 (MPa)	0.6 (MPa)
ITEM NO.	**SIZE**	**QTY（PCS）**	**PARTS**	**HEAT NO.**	**MATERIAL**	**YIELD POINT (MPa)**	**TENSILE STRENGTH (MPa)**	**ELONGATION (%)**	**Reduction of Area, min, %**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Ni**	**Mo**	**Cu**	**W**
1	DN15	2	BODY	ST8305	F55	580	810	28	47	0.01	0.04	0.8	0.01	0.005	25.1	7.1	3.20	0.300	1.60
			BONNET		F55	580	810	28	47	0.01	0.04	0.8	0.01	0.005	25.1	7.1	3.20	0.300	1.60
			BALL		F55	580	810	28	47	0.01	0.04	0.8	0.01	0.005	25.1	7.1	3.20	0.300	1.60
PRESSURE TEST			DIMENSION TEST			END TEST				SURFACE & APPERANCE						PAINTING TEST			
GOOD			GOOD			GOOD				GOOD						ORIGINAL			
RESULT						ACCEPTABLE													

INSPECTOR:Wang Ke

Q.A.MANAGER:Chen Xian Wang

2.2.2.12

PIPING

FCM / PLASTIC GLASS

PIPING SUPER DUPLEX
MATERIAL LIST SUMMARY

DESCRIPTION	Q.TY	HEAT CODE	HEAT	CERTIFICATE No.
F538112100u1AA NIPPLE F51 1" 1/2 L=100 VICT/NPT XS	3	K123-3	48963	3934
F538112100u1AA NIPPLE F51 1" 1/2 L=100 VICT/NPT XS	1	EH1-1	48534	3934
FDSAFF55975127X11/2X175ASA FLANGE SUPERDUPLEX F55 #150 NPT 1"1/2	2		541082	24051238-EN-0
FDSAFF5597595.2X1/2X207ASA FLANGE SUPERDUPLEX F53 #600 NPT 1/2"	12		400735	2024035640
FDSAFF55975123.8X239ASA FLANGE SUPERDUPLEX F53 #600 NPT 1"	8		401101	2024036627
588A2.012 HEX. NUT AISI 304 M 12	16		WGRK201904	5507
FDSAFF55975105X1/2X20F FLANGE F55 EN1092-1 13 NPT 1/2" PN100	4		540948	24051240-EN-0
FDSAFF5597595X1/2X16F FLANGE F55 EN1092-1 13 NPT 1/2" PN10/40	2		541082	24051238-EN-0
FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F55 #600 NPT 1/2"	2		540948	24051240-EN-0
03700008 PIPE SS SAF2507 21,3X4,78	14		49004	708695
04364830 PIPE SS SAF2507 33,4X6,35	12,83		60419	749860
06029632 ELBOW F53 1" NPT S3000	6		EZA-546694	DEL/48494/10/224/1
07091386 ELBOW F53 1/2" NPT S3000	12		EV2-404249	DEL/48494/10/224/1
F043012000IHAA TEE F53 1/2" NPT S3000	6		EOW-258767	DEL/48494/10/224/1
00107650 TEE F53 1"X1/2" NPT S3000	4		EV9-546694	DEL/48494/10/224/1
COUPLING 1.1/2 3M NPT F55	2		276345	892
COUPLING 3/4 3M 338 F55	4		407494	892
EXTERNAL REDUCTION 1.1/2x1 NPT F53	2		100089	813
EXTERNAL REDUCTION 1x3/4 NPT F55	2		276345	813
COUPLING FM 1/2 3M 338xNPT F55...	4		407494	813
EXTERNAL REDUCTION 3/4x1/2 338xNPT F55	2		407494	813
NIPPLE THREADED F55 1.1/2 S160 L75 NPTxNPT	2		276345	813
NIPPLE THREADED F55 3/4 S160 L100 NPTx338	2		407494	813
NIPPLE THREADED F55 3/4 S160 L100 NPTx338	2		407494	813

CERTIFICATO DI COLLAUDO / TEST CERTIFICATE IN ACC. TO EN 10204 3.1 - 2004

Cliente/Customer: MATERIND SRL
Ordine cliente/Customer order n°: OF/STD/2404943 DEL 01/10/2024
DDT/Delivery note/Packing list: 2024/DDT/003934

Certificate N°: 003934
Omsa Job: 2024/ODV/016341
Data/Date: 03/10/2024

Item	Quantity	Descrizione	Material	Heat code	Heat n.	Steel mill	Mill cert	Country of origin
001	3	N. TUBO 80 1.1/2"x100 PE/NPT UNS-S31803	ASTM/ASME S/A790 UNS-S31803	K123	48963	TTI	611272	

ANALISI CHIMICA DI ACCIAIERIA / STEEL MILL CHEMICAL ANALYSIS

C%	Mn%	Si%	P%	S%	Ni%	Cr%	Mo%	Ti%	Al%	V%	Cu%	Nb%	N%	Zr%	Co%	Pb%	Fe%	Sn%	W%	C.E%	Pre%
0,0170	1,1700	0,3500	0,0300	0,0010	5,5500	22,7000	3,2000	0,0000	0,0000	0,0000	0,1200	0,0000	0,1745	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

R Tens. strengh N/mmq	S Yeld point N/mmq	A Elongation %	C Reduction od Area %	Bending T.	Flatting T.	Hydraulic T.	1^HBW Hardness	2^HBW Hardness	1^ Impact/cm2	2^ Impact/cm2	3^ Impact/cm2	Impact test temp °C	Heat treatment
798	641	33					241	244					SOLUTION AT 1075°C

RACCORDI SECONDO / FITTINGS IN ACC. TO

According with BS3799-74, ANSI B36.10-22, Marking in acc. with MSS SP25-18, NACE MR0175/ISO15156-18, NACE MR0103-18 - Intergranular corrosion test acc. with ASTM A-262 PR.E satisfactory

Item	Quantity	Descrizione	Material	Heat code	Heat n.	Steel mill	Mill cert	Country of origin
002	1	N. TUBO 80 1.1/2"x100 PE/NPT UNS-S32750	UNS-S32750	EH1	48534	TUBACEX	610316	

ANALISI CHIMICA DI ACCIAIERIA / STEEL MILL CHEMICAL ANALYSIS

C%	Mn%	Si%	P%	S%	Ni%	Cr%	Mo%	Ti%	Al%	V%	Cu%	Nb%	N%	Zr%	Co%	Pb%	Fe%	Sn%	W%	C.E%	Pre%
0,0150	0,6900	0,2800	0,0250	0,0003	6,7000	25,5500	3,5300	0,0000	0,0000	0,0000	0,3300	0,0000	0,2710	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

R Tens. strengh N/mmq	S Yeld point N/mmq	A Elongation %	C Reduction od Area %	Bending T.	Flatting T.	Hydraulic T.	1^HBW Hardness	2^HBW Hardness	1^ Impact/cm2	2^ Impact/cm2	3^ Impact/cm2	Impact test temp °C	Heat treatment
848	679	35	49										SOLUTION ANN AT 1100°C

RACCORDI SECONDO / FITTINGS IN ACC. TO

According with BS3799-74, ANSI B36.10-22, Marking in acc. with MSS SP25-18, NACE MR0175/ISO15156-18, NACE MR0103-18 - Intergranular corrosion test acc. with ASTM A-262 PR.E satisfactory

Item	Quantity	Descrizione	Material	Heat code	Heat n.	Steel mill	Mill cert	Country of origin
003	25	TAPPO M.T.ES. 1" NPT A105 B16	ASTM/ASME S/A105N	SX8	023597	RODACCIAI SPA	021926	Italia

ANALISI CHIMICA DI ACCIAIERIA / STEEL MILL CHEMICAL ANALYSIS

C%	Mn%	Si%	P%	S%	Ni%	Cr%	Mo%	Ti%	Al%	V%	Cu%	Nb%	N%	Zr%	Co%	Pb%	Fe%	Sn%	W%	C.E%	Pre%
0,1900	0,9720	0,2250	0,0130	0,0266	0,1250	0,0940	0,0250	0,0000	0,0280	0,0030	0,3110	0,0010	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,4060	0,0000

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

R Tens. strengh N/mmq	S Yeld point N/mmq	A Elongation %	C Reduction od Area %	Bending T.	Flatting T.	Hydraulic T.	1^HBW Hardness	2^HBW Hardness	1^ Impact/cm2	2^ Impact/cm2	3^ Impact/cm2	Impact test temp °C	Heat treatment
536	316	49	65				160	162	46,60	39,50	37,80	-29	Normalized at 900°C - cooled in still air

RACCORDI SECONDO / FITTINGS IN ACC. TO

According with ANSI B16.11 -21 & BS 3799-74, Marking in acc. with MSS SP25-18, NACE MR0175/ISO15156-18, NACE MR0103-18 - ANSI B1.20.1 -13 - UNI EN ISO 148-1-2016, Carbon steel fully killed & fine grained practice

The values of chemical analysis are a true and correct copy of the steel mill test certificate.
The mechanical tests are the correct records of the certificate issued from the company that has executed the last transformation of the material.
We declare that the certified material complies with the above standards and to the client's order requirements.

ANNUAL BOOK OF ASTM STANDARDS - 2024
MATERIAL DUAL CERTIFIED ASTM/ASME SEC. II PART A ED. 2023
MATERIAL MANUFACTURER APPROVED BY LRQA CERT. NR. 003001 PED 2014/68/EU ANNEX I CHAPTER 4.3

ENTE COLLAUDO / TPI INSPECTOR

C. QUALITA' / QUALITY CONTROL
O.M.S.A. SRL
Barbara Orlandi

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 3,000

DDT BL/VEN/7389 03/10/2024
Riferimento ordine cliente:. PK2885
Articolo: F53811210OU1AA NIPPLO F51 1"1/2 L=100 vict/NPT XS

N di colata:K123-3
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

Certificato N. 200808
0363-958244
MATERIND srl

CERTIFICATO DI COLLAUDO / TEST CERTIFICATE IN ACC. TO EN 10204 3.1 - 2004

Cliente/Customer: MATERIND SRL
Ordine cliente/Customer order n°: OF/STD/2404943 DEL 01/10/2024
DDT/Delivery note/Packing list: 2024/DDT/003934

Certificate N°: 003934
Omsa Job: 2024/ODV/016341
Data/Date: 03/10/2024

Item	Quantity	Descrizione	Material	Heat code	Heat n.	Steel mill	Mill cert	Country of origin
001	3	N. TUBO 80 1.1/2"x100 PE/NPT UNS-S31803	ASTM/ASME S/A790 UNS-S31803	K123	48963	TTI	611272	

ANALISI CHIMICA DI ACCIAIERIA / STEEL MILL CHEMICAL ANALYSIS

C%	Mn%	Si%	P%	S%	Ni%	Cr%	Mo%	Ti%	Al%	V%	Cu%	Nb%	N%	Zr%	Co%	Pb%	Fe%	Sn%	W%	C.E%	Pre%
0,0170	1,1700	0,3500	0,0300	0,0010	5,5500	22,7000	3,2000	0,0000	0,0000	0,0000	0,1200	0,0000	0,1745	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

R Tens. strengh N/mmq	S Yeld point N/mmq	A Elongation %	C Reduction od Area %	Bending T.	Flatting T.	Hydraulic T.	1^HBW Hardness	2^HBW Hardness	1^ Impact/cm2	2^ Impact/cm2	3^ Impact/cm2	Impact test temp °C	Heat treatment
798	641	33					241	244					SOLUTION AT 1075°C

RACCORDI SECONDO / FITTINGS IN ACC. TO

According with BS3799-74, ANSI B36.10-22, Marking in acc. with MSS SP25-18, NACE MR0175/ISO15156-18, NACE MR0103-18 - Intergranular corrosion test acc. with ASTM A-262 PR.E satisfactory

Item	Quantity	Descrizione	Material	Heat code	Heat n.	Steel mill	Mill cert	Country of origin
002	1	N. TUBO 80 1.1/2"x100 PE/NPT UNS-S32750	UNS-S32750	EH1	48534	TUBACEX	610316	

ANALISI CHIMICA DI ACCIAIERIA / STEEL MILL CHEMICAL ANALYSIS

C%	Mn%	Si%	P%	S%	Ni%	Cr%	Mo%	Ti%	Al%	V%	Cu%	Nb%	N%	Zr%	Co%	Pb%	Fe%	Sn%	W%	C.E%	Pre%
0,0150	0,6900	0,2800	0,0250	0,0003	6,7000	25,5500	3,5300	0,0000	0,0000	0,0000	0,3300	0,0000	0,2710	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

R Tens. strengh N/mmq	S Yeld point N/mmq	A Elongation %	C Reduction od Area %	Bending T.	Flatting T.	Hydraulic T.	1^HBW Hardness	2^HBW Hardness	1^ Impact/cm2	2^ Impact/cm2	3^ Impact/cm2	Impact test temp °C	Heat treatment
848	679	35	49										SOLUTION ANN AT 1100°C

RACCORDI SECONDO / FITTINGS IN ACC. TO

According with BS3799-74, ANSI B36.10-22, Marking in acc. with MSS SP25-18, NACE MR0175/ISO15156-18, NACE MR0103-18 - Intergranular corrosion test acc. with ASTM A-262 PR.E satisfactory

Item	Quantity	Descrizione	Material	Heat code	Heat n.	Steel mill	Mill cert	Country of origin
003	25	TAPPO M.T.ES. 1" NPT A105 B16	ASTM/ASME S/A105N	SX8	023597	RODACCIAI SPA	021926	Italia

ANALISI CHIMICA DI ACCIAIERIA / STEEL MILL CHEMICAL ANALYSIS

C%	Mn%	Si%	P%	S%	Ni%	Cr%	Mo%	Ti%	Al%	V%	Cu%	Nb%	N%	Zr%	Co%	Pb%	Fe%	Sn%	W%	C.E%	Pre%
0,1900	0,9720	0,2250	0,0130	0,0266	0,1250	0,0940	0,0250	0,0000	0,0280	0,0030	0,3110	0,0010	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,4060	0,0000

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

R Tens. strengh N/mmq	S Yeld point N/mmq	A Elongation %	C Reduction od Area %	Bending T.	Flatting T.	Hydraulic T.	1^HBW Hardness	2^HBW Hardness	1^ Impact/cm2	2^ Impact/cm2	3^ Impact/cm2	Impact test temp °C	Heat treatment
536	316	49	65				160	162	46,60	39,50	37,80	-29	Normalized at 900°C - cooled in still air

RACCORDI SECONDO / FITTINGS IN ACC. TO

According with ANSI B16.11 -21 & BS 3799-74, Marking in acc. with MSS SP25-18, NACE MR0175/ISO15156-18, NACE MR0103-18 - ANSI B1.20.1 -13 - UNI EN ISO 148-1-2016, Carbon steel fully killed & fine grained practice

The values of chemical analysis are a true and correct copy of the steel mill test certificate.
The mechanical tests are the correct records of the certificate issued from the company that has executed the last transformation of the material.
We declare that the certified material complies with the above standards and to the client's order requirements.

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MATERIAL DUAL CERTIFIED ASTM/ASME SEC. II PART A ED. 2023
MATERIAL MANUFACTURER APPROVED BY LRQA CERT. NR. 003001 PED 2014/68/EU ANNEX I CHAPTER 4.3

ENTE COLLAUDO / TPI INSPECTOR

C. QUALITA' / QUALITY CONTROL
O.M.S.A. SRL
Barbara Orlandi

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 1,000

DDT BL/VEN/7389 03/10/2024
Riferimento ordine cliente:. PK2885
Articolo: F53811210OU3AA NIPPLO F53 1"1/2 L=100 vict/NPT XS

N di colata:EH1-1
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

Certificato N. 200808
0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051238-EN-0

Invoice No. / Rechnung Nr. / N° de facture

Business Unit / QCM: BA Quarto Plate,Quarto Plate Europe

Date Datum Date: 21-May-2024

Load, Ladung, Charge No

Acknowledged ID, Bestätigung, Commande ID: 360026105

Your ref, Ihre Ref., Votre ref: 82536 REV 00

Buyer, Besteller, Acheteur

Requirements, Anforderungen, Exigences:
EN 10088-2:14
EN 10028-7 (PED 2014/68/EU):16
ASME SA-240M Code Sect. II. Part A:2023
NORSOK Standard MDS D55 Rev.6
NACE MR0103 / ISO 17945:2015
ASTM A240M / NACE MR0175/ ISO 15156-3:23a/2015
Additional requirement, see "Other information"

Consignee, Empfänger, Lieu de livraison: JACQUET INTERNATIONAL

Mark of Manufacturer / Zeichen des Lieferwerkes / Signe de producteur	Process / Erschmelzungsart / Mode de fusion	Inspector's stamp / Zeichen des Sachverständigen / Poinçon de l'expert	Grade, Werkstoff, Nuance
W	E+AOD	DJ 2	1.4501 UNS S32760

Product, Erzeugnisform, Produit: Stainless steel hot rolled, Plate, 1D/No.1, Cut edge

Line / Reihe / Ligne	Item / Position / Poste	Heat-Lot No / Schmelze-Lot Nr / Coulée n° - Lot No	Size / Abmessungen / Dimensions	Pieces / Stückzahl / Nombre	Quantity/unit, Menge/Einheit, Quantité/Unité
1	5	541082-463480:0	20.0 X 2000.0 X 6000.0 mm	1	

	Plate No, Blech Nr, Tôle No
1	5306 4301

Chemical composition – Chemische Zusammenzetzung – Composition chimique %
Heat – Schmelze – coulee No

	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	W
Min						24.00	6.00	3.00	0.50	0.20	0.50
Max	0.030	1.00	1.00	0.030	0.010	26.00	8.00	4.00	1.00	0.30	1.00
541082	0.015	0.34	0.63	0.023	0.001	25.52	6.80	3.49	0.56	0.28	0.57

Distribution: Certificate via e-Services.

Direct. T = Transverse L = Longitudinal | Top/Bot F = Front B = Back | Form P = Flat C = Round | Location 1 = Center 2 = Close to Surface 3 = Standard 4 = At ¼ of thickness

Test results - Prüfergebnisse - Résultats des essais (1N/mm² = 1MPa)

Mechanical properties

Tensile testing ASTMA370/Hardness Rockwell C ASTMA370

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa	Rm MPa	A5 %	A50 %	HB HBW	HRC HRC
Min						550	750	25	25		
Max							930			310	32
4301	T	F	2	P	20	609	842	43	47	262	24

Elevated temperature tensile test ASTM A370 (250 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa
Min						380
4301	T	F	2	C	250	425

Charpy impact test (V-notch) ASTM A370 (-46 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min						35	35	35	45
4301	T	F	1	P	-46	108	111	103	107

Charpy impact test (V-notch) EN ISO 148-1

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min									90
4301	T	F	2	P	20	270	283	285	279

The results comply with the Requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigences de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN
V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/8245 04/11/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975127X11/2X175ASA FLG SUPERDUPLEX F55 #150 NPT 1"1/2

Quantità: 2,000

N di colata:541082 PG1

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MATERIND srl
ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
☎ 0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051238-EN-0

Invoice No. / Rechnung Nr. / N° de facture

Business Unit / QCM
BA Quarto Plate,Quarto Plate Europe

Date / Datum / Date
21-May-2024

Load, Ladung, Charge No

Acknowledged ID, Bestätigung, Commande ID
360026105

Corrosion

ASTM A923 Method C 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate mdd
Max						10
4301	T	F	3	P	40	0

ASTM G48 Method A 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate g/m2*24h
Max						0.99
4301	T	F	3	P	50	0.00

Metallographic testing

Ferrite examination ASTM E1245

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						60
4301	T	F	3	P	20	52

Ferrite examination Fischer Feritscope

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						65
4301	T	F	2	P	20	48

Microstructure examination EN ISO 17781

Plate-no	Result
4301F	OK

Other Information

Country of melt: Sweden
Manufactured in Sweden.
Solution annealed at 1100°C and Quenched in water.
Dimensional control, visual inspection and grade check (PMI): Approved
Approved acc. to AD2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (2014/68/EU) by
TUEV NORD, notified body, reg.no. 0045.
Holding time approximately 1 minute/mm plate thickness.
Material conforms to NACE MR0175/ISO 15156 in supplied condition.
Material conforms to NACE MR0103/ISO 17945 in supplied condition.
Norsok M-650 QTR. No.:
UNS S32750: QTR_S32750 Rev.19
UNS S32760: QTR_S32760 Rev.4
Photograph of the microstructure in certificates 400X.
PREN=CR+3.3Mo+16N: 41.5 (Min:40.0)
PREW=Cr+3.3(Mo+0.5W)+16N: 42 (Min:41)

Additional testing:
Elevated temperature tensile test ASTM A370 250°C: Rp 0,2 Min=380 (MPa)
ASTM A923 Method C 24h 40°C: Cor.rate Max=10 (mdd)

Tolerance	Standard	Class
Flatness tolerance	EN ISO 18286/A480/A480M	EN ISO 18286 N/A480/A480M
Length	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M
Thickness	EN ISO 18286/A480/A480M	EN ISO 18286/A480/A480M
Width	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M

The results comply with the requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigencies de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN

V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/8245 04/11/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975127X11/2X175ASA FLG SUPERDUPLEX F55 #150 NPT 1"1/2

Quantità: 2,000

N di colata:541082 PG2

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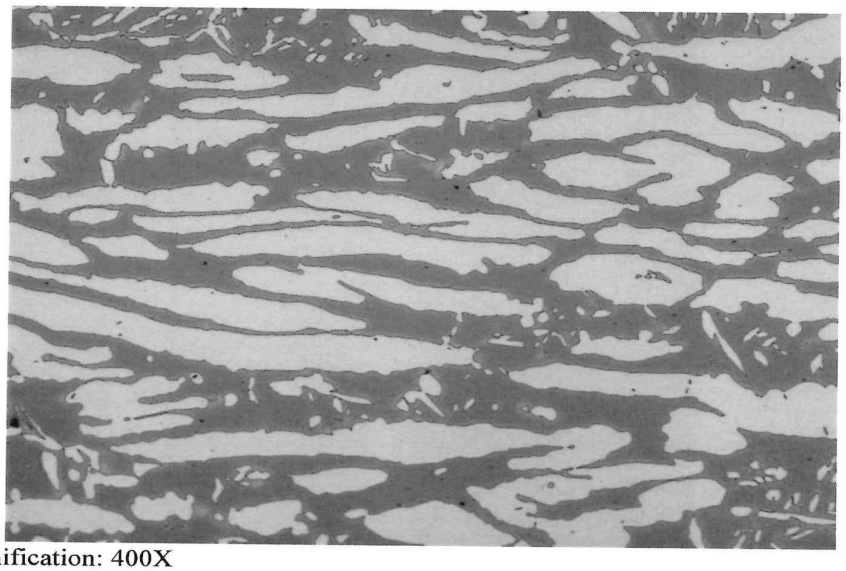
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high performance stainless steel

Microstructure
Provningskort 010

Date: 2024-05-21	Grade: 4501	MaterialId: 5306-43-01_1	Orderno:	LotNo: 463480	Heat: 541082
Grainsize:	Inter.faces:	Size: Tj x 25mm	Location: Transverse	Ferrite%:	Procedure: PRM-1533

Etch: NAOH



Magnification: 400X

[X] Approved

[ ] Not Approved

Signature: Dan Kalmar

DDT BL/VEN/8245 04/11/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975127X11/2X175ASA FLG SUPERDUPLEX F55 #150 NPT 1"1/2

Quantità: 2,000

N di colata:541082 PG3

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ISO 9001 BUREAU VERITAS Certification

Certificato N. 200808

☎ 0363-958244

DDT BL/VEN/8245 04/11/2024

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F53 #600 NPT 1/2"

Quantità: 12,000

Cliente:082292 FCM CONSTRUCTION SRL

N di colata:400735 PG1

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Certificato N. 200808

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CAP. SOC. 405.563.167,00 EUR INT. VERS.
C.F. 02167360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2024035640

CUSTOMER:			
CUSTOMER'S ORDER:	A2024711SSS		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	0025321030 / 000020		
MARK OF THE MANUFACTURER:	COGNE		
DISPATCH NOTE:	0081625290 / 000010 WEIGHT: 1866 KG / 4114 LB		
INTERNAL SPEC:	NORSOKREV5		
PRODUCT:	SPE ROUGHPEELED ROUND BARS TOLERANCE: + 1,500 - 0,0000 (+ 0,0591 - 0 in)		
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	110,000 (4,331 in)	LENGTH (mm)	04000 06000 (00157 00236 in)
GRADE:	F55 UNSS32760 1.4501	INTERNAL GRADE:	329S
IDENTIFICATION HEAT NO:	400735	IDENTIFICATION LOT NO:	241620
MARKING OF THE PRODUCT:	1.4501	TEST PIECE N:	162

STEELMAKING EAF + AOD
HEAT TREATMENT: SOLUTION ANNEALING AT 1120°C + WATER QUENCHING DOWN TO 260°C.MIN.SOAKING TIME 1,5 Min./mm THICKNESS.
ASTM G48 A/ASTM A923 C TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, no pitting at 20X. UNIT OF MEASURE: G/M2
MELTING PROCESS UHP + AOD + INGOT CASTING
HEAT TREATMENT PERFORMED IN CALIBRATED FURNACES ACCORDING TO INTERNAL PROCEDURE PR-GDQ.ITT COMPLYING WITH API6A Annex M Ed. 21st, API 6D annex H Ed. 25th & API 6DSS annex J Ed.3rd.
HOT FORGED
REDUCTION RATIO 32,4

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :21000001263 - 86.670 KG - 191.071 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
MEASUREMENT UNIT	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w
OBTAINED	0,010	0,41	0,60	0,021	0,0007	0,25	25,06	3,70	6,92	0,55

ELEMENTS	W	CV_F8
MEASUREMENT UNIT	% w/w	% w/w
OBTAINED	0,56	41

CV_F8 = CR+(3.3*MO)+(16*N2)

FL 1/2 VS ORD 4971

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD: 10/3000
OBTAINED 256

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION EN ISO 148-1-KV2 DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J
OBTAINED 435 432 433

DATE 25.07.2024 VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

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Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

DDT BL/VEN/8245 04/11/2024

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F53 #600 NPT 1/2"

Quantità: 12,000

Cliente:082292 FCM CONSTRUCTION SRL

N di colata:400735 PG2

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TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ASTMA370/E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

	Rm	Rp02%	Z	Al2
MEASUREMENT UNIT	MPA	MPA	%	%
				4,0 D
OBTAINED	796	574	77,7	44,9

CORROSION
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ASTM G48 A
OBTAINED 0,03077

FERRITE %
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ASTME562 --
OBTAINED 53,95

MICROSTRUCTURE
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION -- --
OBTAINED SATISFACTORY -

LATERAL EXPANSION
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ASTMA370 --
OBTAINED 1,1 1,1 0,9

SHEAR %
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ASTMA370 --
OBTAINED 50 50 40

FURNACE CALIBRATION ACCORDING TO API 6A ANNEX M Ed. 21th and API 6D ANNEX H Ed. 25th.
FERRITE CONTENT DETERMINED ACCORDING TO ASTM E 562 WITH 16 POINTS PER FIELD AND MINIMUM 30 FIELDS
HARDNESS TEST
Control lot No. - Weight :21000010985 - 3.854 KG - 8.496 LB
SPECIFICATION ASTMA370-E18 HARDNESS TEST HRC TESTING METHOD:
OBTAINED 22

DATE 25.07.2024 VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

IMPACT TEST						
Control lot No. - Weight	:21000010985	-		3.854 KG	-	8.496 LB
SPECIFICATION			ASTM A370-E23 TYPE A			DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE			KV			
TEST TEMPERATURE °C				50-		
MEASUREMENT UNIT			J			
OBTAINED		209	250	243		

IMPACT TEST						
Control lot No. - Weight	:21000010985	-		3.854 KG	-	8.496 LB
SPECIFICATION			ASTM A370-E23 TYPE A			DIRECTION OF THE TEST PIECE: T
TYPE OF TEST PIECE			KV			
TEST TEMPERATURE °C				50-		
MEASUREMENT UNIT			J			
OBTAINED		85	102	115		

TENSILE TEST						
Control lot No. - Weight	:21000010985	-		3.854 KG	-	8.496 LB
SPECIFICATION			ASTMA370-E8-0.5"SPEC			DIRECTION OF THE TEST PIECE: T

	TS	YS02	EL	RA	A12 B
MEASUREMENT UNIT	KSI	KSI	%	%	%
			5.0 D		4,0 D
OBTAINED	118	85	38,6	76,8	43,7

TENSILE TEST						
Control lot No. - Weight	:21000010985	-		3.854 KG	-	8.496 LB
SPECIFICATION			EN-ISO6892-1			DIRECTION OF THE TEST PIECE: L

	Rm_C	Rp02_C	A	Z_C
MEASUREMENT UNIT	MPA	MPA	%	%
			5.0 D	
OBTAINED	793	572	43,8	81,1

REFERENCE NORMS:EN 10088-3(14), EN 10272(16),ASTM A276(23) ASME SA276(21),ASTM A479(23) ASME SA479(21),ISO 15156-3(20)/NACE MR0175(21), ISO 17945(15)/NACE MR0103(15),NORSOK M-650 REV.4/M-630, MDS D57 REV.5. REFERENCE NORMS FOR CHEMICAL ANALYSIS, MECHANICAL PROPERTIES, HEAT TREATMENT: ASTM A182(23)/ASME SA182(21), API 6A-PSL3
REFERENCE NORMS ONLY FOR CHEMICAL COMPOSITION: EN 10222-5(17), ASTM A484(23).
VISUAL INSPECTION OF SURFACE AND DIMENSIONAL CONTROL ACCORDING TO EN 10221 CLASS C AND EN 10060: SATISFACTORY.
METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.
IMPACT TEST VALUES AT -46°C ARE NOT LESS THAN THOSE AT -50°C HERE STATED.
QTC ON PROLONGATION OF BARS TESTS AT MID RADIUS (CENTER POS. FOR SIZES <2 INCHES).
ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
WHERE NOT SPECIFIED ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS 252.225-7009 ALT 1.
THE PRODUCT SATISFIES THE DIRECTIVES: 2015/863/EU (ROHS3) - 2011/65/EU (ROHS2) - 2000/53/EU - 2002/95/EU(RoHS) - 2003/11/EU-

DATE 25.07.2024 VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

DDT BL/VEN/8245 04/11/2024
Riferimento ordine cliente:. PK2885
Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F53 Quantità: 12,000
#600 NPT 1/2"
Cliente:082292 FCM CONSTRUCTION SRL
N di colata:400735 PG3
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

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0363-958244
Certificato N. 200808

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C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

2005/618/EU AND PED 2014/68/EU (ANNEX I, SECTION 4.3).
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
ULTRASONIC TEST ACCORDING TO EN 10308 CLASS 3, EQUIVALENT TO ASTM A388 FBH 5 (Ø<250mm) FBH 8 (Ø>250mm): : SATISFACTORY
CORROSION TEST ACCORDING TO ASTM A262 Method E EN ISO 3651-2 A: SATISFACTORY. NO CRACKS AT 20X MAGNIFICATION

DATE 25.07.2024

VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

DDT BL/VEN/8245 04/11/2024
Riferimento ordine cliente:: PK2885
Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F53 #600 NPT 1/2"
Quantità: 12,000
Cliente:082292 FCM CONSTRUCTION SRL
N di colata:400735 PG4
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl
Certificato N. 200808
0363-958244

DDT BL/VEN/8245 04/11/2024

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975123.8X239ASA FLG SUPERDUPLEX F53 #600 NPT 1"

Quantità: 8,000

Cliente:082292 FCM CONSTRUCTION SRL

N di colata:401101 PG1

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Certificato N. 200808

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VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
DOCUMENT NUMBER 2024036627

CUSTOMER:			
CUSTOMER'S ORDER:	A20231000SSS		
MANUFACTURER'S WORKS:	AOSTA, VIA PARAVERA 16 - ITALY		
PRODUCER OF THE DOC:	QUALITY DEPARTMENT		
MANUFACTURER'S WORKS ORDER NO:	0025315485 / 000010		
MARK OF THE MANUFACTURER:	**COGNE**		
DISPATCH NOTE:	0081622410 / 000010 WEIGHT: 1594 KG / 3514 LB		
INTERNAL SPEC:	STOCKUSA		
PRODUCT:	SPE ROUGHPEELED ROUND BARS TOLERANCE: + 1,500 - 0,0000 (+ 0,0591 - 0 in)		
SURFACE FINISH:	1X Hot Finished		
PRODUCT DELIVERY CONDITION:	RS SOLUTION ANNEALED		
PRODUCT DIMENSIONS (mm):	140,000 (5,512 in)	LENGTH (mm)	04000 06000 (00157 00236 in)
GRADE:	F55 UNS S32760 1.4501	INTERNAL GRADE:	329S
IDENTIFICATION HEAT NO:	401101	IDENTIFICATION LOT NO:	359830
MARKING OF THE PRODUCT:	1.4501	TEST PIECE N:	983

REFERENCE NORMS: ASTM A484/A484M(14), ASME SA484(14), ASTM A276(13a), ASTM A479/A479M(14), ASME SA479(14), ISO15156-3 NACE MR0175,NACE MR0103, API 6A-PSL3 AND NORSOK M-650 Ed.4/M-630 Ed.6 MDS D57 REV5.
REFERENCE NORMS FOR CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES ONLY: ASTM A182/A182M(14a), ASME SA182(14)
STEELMAKING EAF + AOD
QTC ON PROLONGATION OF BARS TESTS AT MID RADIUS (CENTER POS. FOR SIZES <2 INCHES).
HEAT TREATMENT: SOLUTION ANNEALING AT 1100°C + WATER QUENCHING DOWN
TO 260°C.MIN.SOAKING TIME 1,5 Min./mm THICKNESS.
FURNACE CALIBRATION ACCORDING TO API 6A ANNEX M Ed. 21th and API 6D ANNEX H Ed. 25th.
DIMENSIONAL CONTROL ACCORDING TO EN 10278 AND ASTM A484: SATISFACTORY.
VISUAL INSPECTION OF SURFACE: SATISFACTORY.
HOT FORGED
REDUCTION RATIO 20,7

CHEMICAL LADLE ANALYSIS ACCORDING TO ASTM A751 - EN ISO 14284
Control lot No. - Weight :21000018107 - 84.533 KG - 186.360 LB

ELEMENTS	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
MEASUREMENT UNIT	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w	% w/w
OBTAINED	0,013	0,39	0,61	0,022	0,0009	0,25	24,97	3,69	7,00	0,55

ELEMENTS	W	CV_F8
MEASUREMENT UNIT	% w/w	% w/w
OBTAINED	0,54	41

CV_F8 = CR+(3.3*MO)+(16*N2)

FL 1" VS ORD 4971

HARDNESS TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTMA370-E18 HARDNESS TEST HRC TESTING METHOD:
OBTAINED 21,3

DATE 01.08.2024

VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

COGNE ACCIAI SPECIALI S.p.a.
ITALY - 11100 AOSTA - VIA PARAVERA, 18
TEL +39.0165.3021 - FAX +39.0165.302296
CAP. SOC. 405.563.167,00 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

DDT BL/VEN/8245 04/11/2024
Riferimento ordine cliente:. PK2885
Articolo: FDSAFF55975123.8X239ASA FLG SUPERDUPLEX F53 #600 NPT 1"
Quantità: 8,000
Cliente:082292 FCM CONSTRUCTION SRL
N di colata:401101 PG2
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl
Certificato N. 200808
0363-958244

IMPACT TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 20
MEASUREMENT UNIT J
OBTAINED 431 430 433

CORROSION
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTM G48 A
OBTAINED 0,12923

FERRITE %
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTME562 --
OBTAINED 53,32

LATERAL EXPANSION
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION -- --
OBTAINED 0,63 0,72 0,64

SHEAR %
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION --
OBTAINED 20 20 20

ULTRASONIC TEST: ACCORDING API6A PSL 3 AND ASTM A388 : ATTACHED CERTIFICATE
PHOTOMICROGRAPHS AND FURNACE CHARTS: ATTACHED.
IMPACT TEST
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: L
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 46-
MEASUREMENT UNIT J
OBTAINED 146 181 215

IMPACT TEST
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTM A370-E23 TYPE A DIRECTION OF THE TEST PIECE: T
TYPE OF TEST PIECE KV
TEST TEMPERATURE °C 50-
MEASUREMENT UNIT J
OBTAINED 63 65 58

DATE 01.08.2024 VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

COGNE ACCIAI SPECIALI S.p.a.
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CAP. SOC. 405.563.167,00 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AO-50474

Company with Management Systems certified according to ISO 9001, ITAF 16949, EN 9100, ISO 14001 and ISO 45001.

TENSILE TEST
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: L

	Rm B	Rp02 B	Z B	Al2 B
MEASUREMENT UNIT	KSI	KSI	%	%
OBTAINED	112	80	74,4	4,0 D 46,0

TENSILE TEST
Control lot No. - Weight :21000018660 - 3.875 KG - 8.543 LB
SPECIFICATION ASTMA370-E8-0.5"SPEC DIRECTION OF THE TEST PIECE: T

	Rm C	Rp02 C	A	Z C
MEASUREMENT UNIT	NMM	NMM	%	%
OBTAINED	774	554	5.0 D 39,1	71,4

ASTM G48 Met.A TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H20, T 50°C, 24h, no pitting at 20X
MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
100% ANTIMIX TEST CARRIED OUT.
NO WELDING REPAIR ON THE MATERIAL.
METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.
THE PRODUCT SATISFIES THE DIRECTIVES: 2015/863/EU (ROHS3) - 2011/65/EU (ROHS2) - 2000/53/EU - 2002/95/EU(RoHS) - 2003/11/EU-2005/618/EU AND PED 2014/68/EU (ANNEX I, SECTION 4.3).
THE MATERIAL IS FREE OF ANY MERCURY, MERCURY COMPOUNDS AND OR RADIUM CONTAMINATION AT TIME OF SHIPMENT AND WAS PRODUCED WITHOUT USING OZONE DEPLETING SUBSTANCES OF CLASS I AND II.
COUNTRY OF MELTING AND ORIGIN: ITALY, THE MATERIAL COMPLIES WITH FAR DFARS 252.225-7009 ALT 1.
THE ABOVE ARE TRUE AND CORRECT RESULTS OF TESTS ON SAMPLES OF THE MATERIAL. RESULTS ARE CONFORM TO THE SPECIFICATION(S) APPLICABLE AND ARE RECORDED.
THE RECORDING OF FALSE, FICTIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER U.S. FEDERAL STATUTES.
FERRITE CONTENT DETERMINED ACCORDING TO ASTM E 562 WITH 16 POINTS PER FIELD AND MINIMUM 30 FIELDS
WHERE NOT SPECIFIED ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LAST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.

DATE 01.08.2024 VALENTINA PRAZ VP(QUALITY CERTIFICATOR) - ELECTRONICALLY GENERATED CERTIFICATE -Cogne

DDT BL/VEN/8245 04/11/2024
Riferimento ordine cliente:. PK2885
Articolo: FDSAFF55975123.8X239ASA FLG SUPERDUPLEX F53 #600 NPT 1"
Quantità: 8,000
Cliente:082292 FCM CONSTRUCTION SRL
N di colata:401101 PG3
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl
Certificato N. 200808
0363-958244

tecnoviti s.r.l.
bulloneria

sede commerciale:
via vignone 17
20822 Seveso (MB)
tel 0362.503.781
fax 0362.522.535

produzione:
via cadore 2
20822 Seveso (MB)
www.tecnoviti.eu
tecnoviti@tecnoviti.eu

P. iva 03847540139
C.F. 03847540139

INSPECTION CERTIFICATE EN 10204 3.1

N. 5507 of 29-01-2024

COSTUMER: MATERIND S.r.l.
VIA UMBERTO I°, 36 24050 BARIANO

TO DELIVERY NOTE 417 DATE 29-01-2024

ORDER OF/STD/2400423 DATE 25-01-2024

Q.TY 12 **Nut UNI 5588/DIN 934 Cl. 8 ISO 898-2 M 10 Hex Zinc Plat.** **HEAT 1706546S** **LOT 147934**

MECHANICAL PROPERTY

	H HB	P.L. N/mm
REQUIRED MIN.	162/220	800
REQUIRED MAX.	287/334	
ACTUAL VALUES	234	positive

CHEMICAL ANALYSIS

	C %	Mn %	P %	S %	Si %
REQUIRED MIN.		0.25			
REQUIRED MAX.	0.5		0.060	0.15	
ACTUAL VALUES	0.160	0.420	0.020	0.006	0.040

Q.TY 16 **Nut UNI 5588/DIN 934 A2 ISO 3506 M 12 Hex** **HEAT WGRK201904** **LOT 157532**

MECHANICAL PROPERTY

	P.L. N/mm	H HB
REQUIRED MIN.	700	
REQUIRED MAX.		
ACTUAL VALUES	positive	289

CHEMICAL ANALYSIS

	C %	Mn %	P %	S %	Si %	Cr %	Ni %	N %	mark
REQUIRED MIN.						18	8		
REQUIRED MAX.	0.080	2	0.045	0.030	1	20	10.5		
ACTUAL VALUES	0.031	0.700	0.040	0.002	0.390	18.300	8.050	0.040	A2-70

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 16,000

DDT BL/VEN/8245 04/11/2024
Riferimento ordine cliente:. PK2885
Articolo: 5588A2.012 DADI ES. AISI 304 M 12

N di colata:WGRK201904-16 PG1
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

Certificato N. 200808
0363-958244

tecnoviti s.r.l.
bulloneria

sede commerciale:
via vignone 17
20822 Seveso (MB)
tel 0362.503.781
fax 0362.522.535

produzione:
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tecnoviti@tecnoviti.eu

P. iva 03847540139
C.F. 03847540139

INSPECTION CERTIFICATE EN 10204 3.1

N. 5507 of 29-01-2024

MECHANICAL TEST: where not varius specified, they are executed to room temperature +20 °C/68 °F. We certifies that the material, part, components or services supplied on this purchase order have been pocessed in accordance with, and therefore meet or exceed the quality requirements estabilished by the references or specifications in this order. I certify that these results are true and correct copy of records prepared and maintained by Tecnoviti in compliance with the requirements of the purchase order and specifications cited. Summary; YS=yeld UTS=tensile E=elongation R.A.=reduction I.T.=impact P.L.=poof load 24h=hard after 24 hours to 540/590 C, L.E.=lateral exp, HEAT SPECIFICATION; QT=quenched & tempered SA=solution annea A=aged SH=strain hard CST=carbide solution treated

Fabrizio Borghi

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 16,000

Certificato N. 200808
0363-958244

MATERIND srl

DDT BL/VEN/8245 04/11/2024
Riferimento ordine cliente:. PK2885
Articolo: 5588A2.012 DADI ES. AISI 304 M 12

N di colata:WGRK201904-16 PG2
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051240-EN-0

Invoice No. / Rechnung Nr. / N° de facture:
Page / Seite / Page: 1/2

Business Unit / QCM: BA Quarto Plate,Quarto Plate Europe
Date Datum Date: 21-May-2024
Load, Ladung, Charge No:
Acknowledged ID, Bestätigung, Commande ID: 360026105

Your ref, Ihre Ref., Votre ref: 82536 REV 00

Buyer, Besteller, Acheteur:

Consignee, Empfänger, Lieu de livraison: JACQUET INTERNATIONAL

Requirements, Anforderungen, Exigences:
EN 10088-2:14
EN 10028-7 (PED 2014/68/EU):16
ASME SA-240M Code Sect. II. Part A:2023
NORSOK Standard MDS D55 Rev.6
NACE MR0103 / ISO 17945:2015
ASTM A240M / NACE MR0175/ ISO 15156-3:23a/2015
Additional requirement, see "Other information"

Mark of Manufacturer / Zeichen des Lieferwerkes / Signe de producteur	Process / Erschmelzungsart / Mode de fusion	Inspector's stamp / Zeichen des Sachverständigen / Poinçon de l'expert	Grade, Werkstoff, Nuance
W	E+AOD	DJ 2	1.4501 UNS S32760

Product, Erzeugnisform, Produit: Stainless steel hot rolled, Plate, 1D/No.1, Cut edge

Line / Reihe / Ligne	Item / Position / Poste	Heat-Lot No / Schmelze-Lot Nr / Coulée n° - Lot No	Size / Abmessungen / Dimensions	Pieces / Stückzahl / Nombre	Quantity/unit, Menge/Einheit, Quantité/Unité
1	6	540948-464272:0	25.0 X 2000.0 X 6000.0 mm	1	

Plate No, Blech Nr, Tôle No: 1 — 5243 2907

Chemical composition – Chemische Zusammenzetzung – Composition chimique % Heat – Schmelze – coulee No

	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	W			
Min						24.00	6.00	3.00	0.50	0.20	0.50			
Max	0.030	1.00	1.00	0.030	0.010	26.00	8.00	4.00	1.00	0.30	1.00			
540948	0.015	0.28	0.64	0.023	0.001	25.14	6.90	3.59	0.60	0.26	0.61			

Distribution: Certificate via e-Services.

Direct. T = Transverse L = Longitudinal | Top/Bot F = Front B = Back | Form P = Flat C = Round | Location 1 = Center 2 = Close to Surface 3 = Standard 4 = At ¼ of thickness

Test results - Prüfergebnisse - Résultats des essais (1N/mm² = 1MPa)

Mechanical properties

Tensile testing ASTMA370/Hardness Rockwell C ASTMA370.

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa	Rm MPa	A5 %	A50 %	HB HBW	HRC HRC
Min						550	750	25	25		
Max							930			310	32
2907	T	F	2	C	20	555	809	35	37	262	20

Tensile testing ASTMA370/Hardness Rockwell C ASTMA370

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa	Rm MPa	A50 %	HRC HRC
Min						550	750	25	
Max									32
2907	T	F	1	C	20	556	811	36	20

Elevated temperature tensile test ASTM A370 (250 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa
Min						380
2907	T	F	2	C	250	424

The results comply with the Requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigences de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN
V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector
Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975105X1/2X20F FLG F55 EN1092-1 13 NPT 1/2" PN100

Quantità: 4,000

N di colata:540948 PG1

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051240-EN-0

Invoice No. / Rechnung Nr. / N° de facture

Page / Seite / Page 2/2

Business Unit / QCM: BA Quarto Plate,Quarto Plate Europe

Date Datum Date: 21-May-2024

Load, Ladung, Charge No

Acknowledged ID, Bestätigung, Commande ID: 360026105

Charpy impact test (V-notch) ASTM A370 (-46 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min						35	35	35	45
2907	T	F	1	P	-46	170	164	229	188

Charpy impact test (V-notch) EN ISO 148-1

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min									90
2907	T	F	2	P	20	300	329	333	321

Corrosion

ASTM A923 Method C 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate mdd
Max						10
2907	T	F	3	P	40	0

ASTM G48 Method A 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate g/m2*24h
Max						0.99
2907	T	F	3	P	50	0.00

Metallographic testing

Ferrite examination ASTM E1245

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						60
2907	T	F	3	P	20	48

Ferrite examination Fischer Feritscope

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						65
2907	T	F	2	P	20	49

Microstructure examination EN ISO 17781

Plate-no	Result
2907F	OK

Other Information

Country of melt: Sweden
Manufactured in Sweden.
Solution annealed at 1100°C and Quenched in water.
Dimensional control, visual inspection and grade check (PMI): Approved
Approved acc. to AD2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (2014/68/EU) by
TUEV NORD, notified body, reg.no. 0045.
Holding time approximately 1 minute/mm plate thickness.
Material conforms to NACE MR0175/ISO 15156 in supplied condition.
Material conforms to NACE MR0103/ISO 17945 in supplied condition.
Norsok M-650 QTR. No.:
UNS S32750: QTR_S32750 Rev.19
UNS S32760: QTR_S32760 Rev.4
Photograph of the microstructure in certificates 400X.
PREN=CR+3.3Mo+16N: 41.2 (Min:40.0)
PREW=Cr+3.3(Mo+0.5W)+16N: 42 (Min:41)

Additional testing:
Elevated temperature tensile test ASTM A370 250°C: Rp 0,2 Min=380 (MPa)
ASTM A923 Method C 24h 40°C: Cor.rate Max=10 (mdd)

Tolerance	Standard	Class
Flatness tolerance	EN ISO 18286/A480/A480M	EN ISO 18286 N/A480/A480M
Length	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M
Thickness	EN ISO 18286/A480/A480M	EN ISO 18286/A480/A480M
Width	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M

The results comply with the requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigencies de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN
V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975105X1/2X20F FLG F55 EN1092-1 13 NPT 1/2" PN100

Quantità: 4,000

N di colata:540948 PG2

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

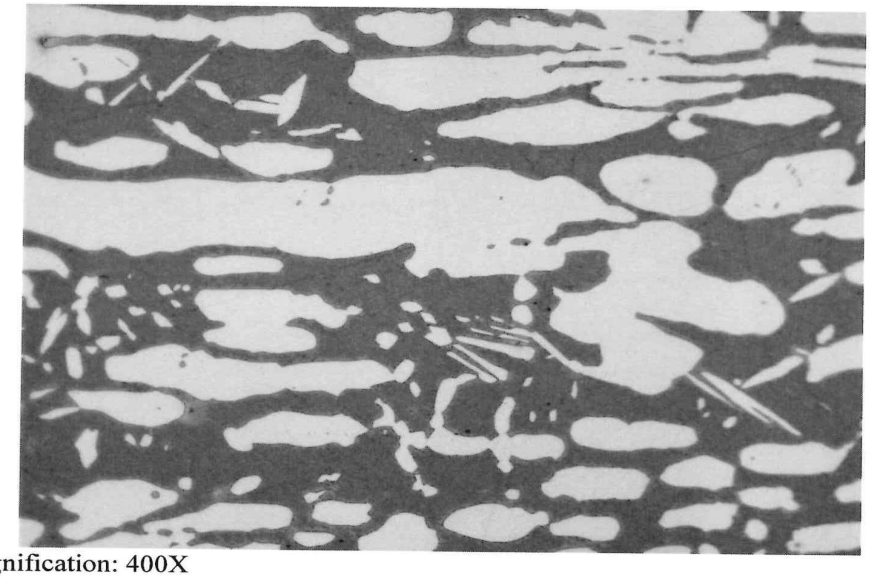
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ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
☎ 0363-958244

outokumpu
high performance stainless steel

Microstructure
Provningskort 010

Date: 2024-05-21	Grade: 4501	MaterialId: 5243-29-07_1	Orderno:	LotNo: 464272	Heat: 540948
Grainsize:	Inter.faces:	Size: Tj x 25mm	Location: Transverse	Ferrite%:	Procedure: PRM-1533

Etch: NAOH



Magnification: 400X

[X] Approved

[ ] Not Approved

Signature: Jacques Babi

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF55975105X1/2X20F FLG F55 EN1092-1 13 NPT 1/2" PN100

Quantità: 4,000

N di colata:540948 PG3

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification

Certificato N. 200808

☎ 0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051238-EN-0

Invoice No. / Rechnung Nr. / N° de facture

Business Unit / QCM: BA Quarto Plate,Quarto Plate Europe

Date Datum Date: 21-May-2024

Load, Ladung, Charge No

Acknowledged ID, Bestätigung, Commande ID: 360026105

Your ref, Ihre Ref., Votre ref: 82536 REV 00

Buyer, Besteller, Acheteur

Requirements, Anforderungen, Exigences:
EN 10088-2:14
EN 10028-7 (PED 2014/68/EU):16
ASME SA-240M Code Sect. II. Part A:2023
NORSOK Standard MDS D55 Rev.6
NACE MR0103 / ISO 17945:2015
ASTM A240M / NACE MR0175/ ISO 15156-3:23a/2015
Additional requirement, see "Other information"

Consignee, Empfänger, Lieu de livraison: JACQUET INTERNATIONAL

Mark of Manufacturer / Zeichen des Lieferwerkes / Signe de producteur	Process / Erschmelzungsart / Mode de fusion	Inspector's stamp / Zeichen des Sachverständigen / Poinçon de l'expert	Grade, Werkstoff, Nuance
W	E+AOD	DJ 2	1.4501 UNS S32760

Product, Erzeugnisform, Produit: Stainless steel hot rolled, Plate, 1D/No.1, Cut edge

Line / Reihe / Ligne	Item / Position / Poste	Heat-Lot No / Schmelze-Lot Nr / Coulée n° - Lot No	Size / Abmessungen / Dimensions	Pieces / Stückzahl / Nombre	Quantity/unit, Menge/Einheit, Quantité/Unité
1	5	541082-463480:0	20.0 X 2000.0 X 6000.0 mm	1	

Plate No, Blech Nr, Tôle No: 1 — 5306 4301

Chemical composition – Chemische Zusammenzetzung – Composition chimique %
Heat – Schmelze – coulee No

	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	W
Min						24.00	6.00	3.00	0.50	0.20	0.50
Max	0.030	1.00	1.00	0.030	0.010	26.00	8.00	4.00	1.00	0.30	1.00
541082	0.015	0.34	0.63	0.023	0.001	25.52	6.80	3.49	0.56	0.28	0.57

Distribution: Certificate via e-Services.

Direct. T = Transverse L = Longitudinal | Top/Bot F = Front B = Back | Form P = Flat C = Round | Location 1 = Center 2 = Close to Surface 3 = Standard 4 = At ¼ of thickness

Test results - Prüfergebnisse - Résultats des essais (1N/mm² = 1MPa)

Mechanical properties

Tensile testing ASTMA370/Hardness Rockwell C ASTMA370

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa	Rm MPa	A5 %	A50 %	HB HBW	HRC HRC
Min						550	750	25	25		
Max							930			310	32
4301	T	F	2	P	20	609	842	43	47	262	24

Elevated temperature tensile test ASTM A370 (250 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa
Min						380
4301	T	F	2	C	250	425

Charpy impact test (V-notch) ASTM A370 (-46 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min						35	35	35	45
4301	T	F	1	P	-46	108	111	103	107

Charpy impact test (V-notch) EN ISO 148-1

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min									90
4301	T	F	2	P	20	270	283	285	279

The results comply with the Requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigences de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN

V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595X1/2X16F FLG F55 EN1092-1 13 NPT 1/2" PN10/40

Quantità: 2,000

N di colata:541082 PG1

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

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Certificato N. 200808

☎ 0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051238-EN-0

Invoice No. / Rechnung Nr. / N° de facture

Business Unit / QCM
BA Quarto Plate,Quarto Plate Europe

Date Datum Date
21-May-2024

Load, Ladung, Charge No

Acknowledged ID, Bestätigung, Commande ID
360026105

Corrosion

ASTM A923 Method C 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate mdd
Max						10
4301	T	F	3	P	40	0

ASTM G48 Method A 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate g/m2*24h
Max						0.99
4301	T	F	3	P	50	0.00

Metallographic testing

Ferrite examination ASTM E1245

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						60
4301	T	F	3	P	20	52

Ferrite examination Fischer Feritscope

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						65
4301	T	F	2	P	20	48

Microstructure examination EN ISO 17781

Plate-no	Result
4301F	OK

Other Information

Country of melt: Sweden
Manufactured in Sweden.
Solution annealed at 1100°C and Quenched in water.
Dimensional control, visual inspection and grade check (PMI): Approved
Approved acc. to AD2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (2014/68/EU) by
TUEV NORD, notified body, reg.no. 0045.
Holding time approximately 1 minute/mm plate thickness.
Material conforms to NACE MR0175/ISO 15156 in supplied condition.
Material conforms to NACE MR0103/ISO 17945 in supplied condition.
Norsok M-650 QTR. No.:
UNS S32750: QTR_S32750 Rev.19
UNS S32760: QTR_S32760 Rev.4
Photograph of the microstructure in certificates 400X.
PREN=CR+3.3Mo+16N: 41.5 (Min:40.0)
PREW=Cr+3.3(Mo+0.5W)+16N: 42 (Min:41)

Additional testing:
Elevated temperature tensile test ASTM A370 250°C: Rp 0,2 Min=380 (MPa)
ASTM A923 Method C 24h 40°C: Cor.rate Max=10 (mdd)

Tolerance	Standard	Class
Flatness tolerance	EN ISO 18286/A480/A480M	EN ISO 18286 N/A480/A480M
Length	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M
Thickness	EN ISO 18286/A480/A480M	EN ISO 18286/A480/A480M
Width	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M

The results comply with the requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigencies de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN

V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595X1/2X16F FLG F55 EN1092-1 13 NPT 1/2" PN10/40

Quantità: 2,000

N di colata:541082 PG2

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

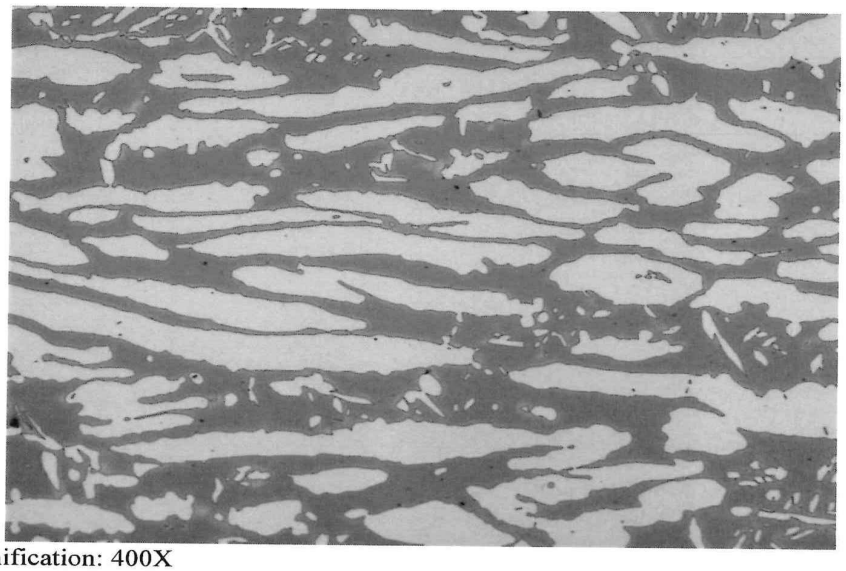
MATERIND srl
ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
☎ 0363-958244

outokumpu
high performance stainless steel

Microstructure
Provningskort 010

Date: 2024-05-21	Grade: 4501	MaterialId: 5306-43-01_1	Orderno:	LotNo: 463480	Heat: 541082
Grainsize:	Inter.faces:	Size: Tj x 25mm	Location: Transverse	Ferrite%:	Procedure: PRM-1533

Etch: NAOH



Magnification: 400X

[X] Approved

[ ] Not Approved

Signature: Daniela Palmas

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595X1/2X16F FLG F55 EN1092-1 13 NPT 1/2" PN10/40

Quantità: 2,000

N di colata:541082 PG3

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

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Certificato N. 200808

☎ 0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051240-EN-0

Invoice No. / Rechnung Nr. / N° de facture

Page / Seite / Page 1/2

Business Unit / QCM
BA Quarto Plate,Quarto Plate Europe

Date Datum Date
21-May-2024

Load, Ladung, Charge No

Acknowledged ID, Bestätigung, Commande ID
360026105

Your ref, Ihre Ref., Votre ref
82536 REV 00

Buyer, Besteller, Acheteur

Requirements, Anforderungen, Exigences
EN 10088-2:14
EN 10028-7 (PED 2014/68/EU):16
ASME SA-240M Code Sect. II. Part A:2023
NORSOK Standard MDS D55 Rev.6
NACE MR0103 / ISO 17945:2015
ASTM A240M / NACE MR0175/ ISO 15156-3:23a/2015
Additional requirement, see "Other information"

Consignee, Empfänger, Lieu de livraison
JACQUET INTERNATIONAL

Mark of Manufacturer / Zeichen des Lieferwerkes / Signe de producteur	Process / Erschmelzungsart / Mode de fusion	Inspector's stamp / Zeichen des Sachverständigen / Poinçon de l'expert	Grade, Werkstoff, Nuance
W	E+AOD	DJ 2	1.4501 UNS S32760

Product, Erzeugnisform, Produit
Stainless steel hot rolled, Plate, 1D/No.1, Cut edge

Line / Reihe / Ligne	Item / Position / Poste	Heat-Lot No / Schmelze-Lot Nr / Coulée n° - Lot No	Size / Abmessungen / Dimensions	Pieces / Stückzahl / Nombre	Quantity/unit, Menge/Einheit, Quantité/Unité
1	6	540948-464272:0	25.0 X 2000.0 X 6000.0 mm	1	

Plate No, Blech Nr, Tôle No
1 5243 2907

Chemical composition – Chemische Zusammenzetzung – Composition chimique %
Heat – Schmelze – coulee No

	C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N	W			
Min						24.00	6.00	3.00	0.50	0.20	0.50			
Max	0.030	1.00	1.00	0.030	0.010	26.00	8.00	4.00	1.00	0.30	1.00			
540948	0.015	0.28	0.64	0.023	0.001	25.14	6.90	3.59	0.60	0.26	0.61			

Distribution
Certificate via e-Services.

Direct. T = Transverse L = Longitudinal
Top/Bot F = Front B = Back
Form P = Flat C = Round
Location 1 = Center 2 = Close to Surface 3 = Standard 4 = At ¼ of thickness

Test results - Prüfergebnisse - Résultats des essais (1N/mm² = 1MPa)

Mechanical properties

Tensile testing ASTMA370/Hardness Rockwell C ASTMA370.

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa	Rm MPa	A5 %	A50 %	HB HBW	HRC HRC
Min						550	750	25	25		
Max							930			310	32
2907	T	F	2	C	20	555	809	35	37	262	20

Tensile testing ASTMA370/Hardness Rockwell C ASTMA370

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa	Rm MPa	A50 %	HRC HRC
Min						550	750	25	
Max									32
2907	T	F	1	C	20	556	811	36	20

Elevated temperature tensile test ASTM A370 (250 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Rp 0,2 MPa
Min						380
2907	T	F	2	C	250	424

The results comply with the Requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigences de la commande

Outokumpu Stainless AB
BA Quarto Plate,Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN
V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F55 #600 NPT 1/2"

Quantità: 2,000

N di colata:540948 PG1

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl
ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
☎ 0363-958244

outokumpu
high performance stainless steel

CERTIFICATE - ZEUGNIS - CERTIFICAT

EN 10204 - 3.1
24051240-EN-0

Invoice No. / Rechnung Nr. / N° de facture
Page / Seite / Page 2/2

Business Unit / QCM: BA Quarto Plate,Quarto Plate Europe
Date Datum Date: 21-May-2024
Load, Ladung, Charge No
Acknowledged ID, Bestätigung, Commande ID: 360026105

Charpy impact test (V-notch) ASTM A370 (-46 °C)

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min						35	35	35	45
2907	T	F	1	P	-46	170	164	229	188

Charpy impact test (V-notch) EN ISO 148-1

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Value1 J	Value2 J	Value3 J	Average J
Min									90
2907	T	F	2	P	20	300	329	333	321

Corrosion

ASTM A923 Method C 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate mdd
Max						10
2907	T	F	3	P	40	0

ASTM G48 Method A 24h

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Cor.rate g/m2*24h
Max						0.99
2907	T	F	3	P	50	0.00

Metallographic testing

Ferrite examination ASTM E1245

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						60
2907	T	F	3	P	20	48

Ferrite examination Fischer Feritscope

Plate-no	Direct.	Top/Bot	Location	Form	Temp. °C	Ferrite %
Min						35
Max						65
2907	T	F	2	P	20	49

Microstructure examination EN ISO 17781

Plate-no	Result
2907F	OK

Other Information

Country of melt: Sweden
Manufactured in Sweden.
Solution annealed at 1100°C and Quenched in water.
Dimensional control, visual inspection and grade check (PMI): Approved
Approved acc. to AD2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (2014/68/EU) by
TUEV NORD, notified body, reg.no. 0045.
Holding time approximately 1 minute/mm plate thickness.
Material conforms to NACE MR0175/ISO 15156 in supplied condition.
Material conforms to NACE MR0103/ISO 17945 in supplied condition.
Norsok M-650 QTR. No.:
UNS S32750: QTR_S32750 Rev.19
UNS S32760: QTR_S32760 Rev.4
Photograph of the microstructure in certificates 400X.
PREN=CR+3.3Mo+16N: 41.2 (Min:40.0)
PREW=Cr+3.3(Mo+0.5W)+16N: 42 (Min:41)

Additional testing:
Elevated temperature tensile test ASTM A370 250°C: Rp 0,2 Min=380 (MPa)
ASTM A923 Method C 24h 40°C: Cor.rate Max=10 (mdd)

Tolerance	Standard	Class
Flatness tolerance	EN ISO 18286/A480/A480M	EN ISO 18286 N/A480/A480M
Length	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M
Thickness	EN ISO 18286/A480/A480M	EN ISO 18286/A480/A480M
Width	EN ISO 18286/A480/A480M	EN ISO 18286 B/A480/A480M

The results comply with the requirements of the order - Die gestellten Anforderungen sind erfüllt - Les résultats sont conformes aux exigencies de la commande

Outokumpu Stainless AB
BA Quarto Plate Quarto Plate Europe
SE-, 693 81 DEGERFORS
SWEDEN
Regoffice: SWEDEN
V.A.T no: SE556001874801
, Regno: 556001-8748

Computer generated original
Quality Inspector

Mathilda Berkeroth

Mathilda Berkeroth

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F55 #600 NPT 1/2"

Quantità: 2,000

N di colata:540948 PG2

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

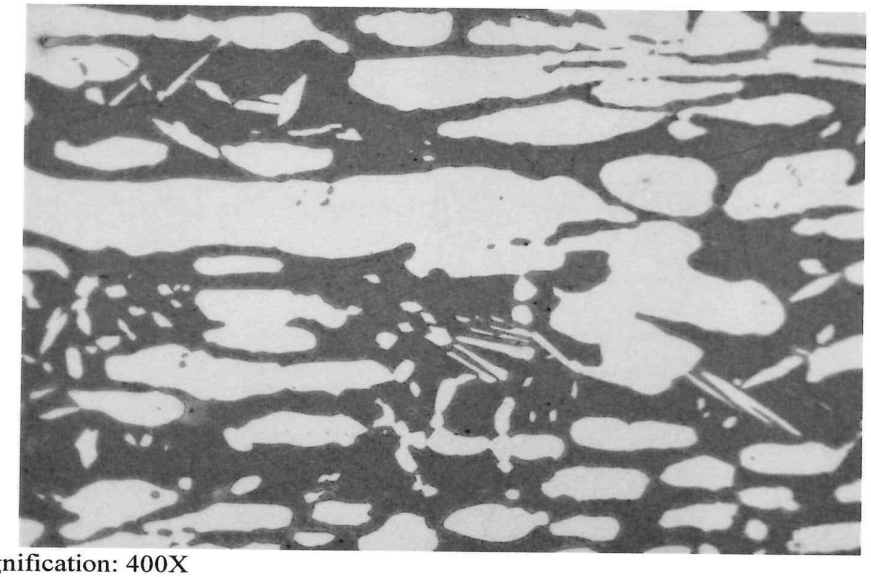
MATERIND srl
ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
0363-958244

outokumpu
high performance stainless steel

Microstructure
Provningskort 010

Date: 2024-05-21	Grade: 4501	MaterialId: 5243-29-07_1	Orderno:	LotNo: 464272	Heat: 540948
Grainsize:	Inter.faces:	Size: Tj x 25mm	Location: Transverse	Ferrite%:	Procedure: PRM-1533

Etch: NAOH



Magnification: 400X

[X] Approved

[ ] Not Approved

Signature: Jacques Babi

DDT BL/VEN/7987 23/10/2024

Cliente:082292 FCM CONSTRUCTION SRL

Riferimento ordine cliente:. PK2885

Articolo: FDSAFF5597595.2X1/2X207ASA FLG SUPERDUPLEX F55 #600 NPT 1/2"

Quantità: 2,000

N di colata:540948 PG3

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification

Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCIÓN
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 708695 Page: 1 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

SCHOELLER-BLECKMANN Edelstahlrohr GmbH
2630 Ternitz, Rohrstrasse 1
Austria

TL: +43 2630 316-810
FAX: +43 2630 316-894
E-MAIL: wolfgang.hecher@sber.co.at

CUSTOMER DESCRIPTION/DESCRIPCIÓN DEL CLIENTE/KUNDENBEZEICHNUNG/COMMETTANT

CLIENT SOLD TO/SOLICITANTE/AUFTRAGGEBER/COMMETTANT
TSS
TUBACEX SERVICE SOLUTIONS, S.A.U
POLIGONO INDUSTRIAL SARATXO
01470 AMURRIO
ESPAÑA

CLIENT ORDER/PEDIDO CLIENTE/KUNDEN AUFTRAGSNUMMER/NO.DE COMMANDE: I007046
SALES ORDER/PEDIDO VENTAS/AUFTRAGSNUMMER/NO.DE COMMANDE D'USINE:

TD100443108
Azienda:TLP Pozzo d'Adda
Tipo:Certificati di origine

TÜV SÜD

Certified Management System acc. to ISO 9001, ISO 14001 and ISO 45001 by LRQA

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies order#s requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted

SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

Tubo S/S ASTM A 790 UNS 32750 21,34x 4,78 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 49004 OUR ORDER: 2024 SC 79573/ 100 QTY: NR 2,00 MT 14,00 KG 28,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG1
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCIÓN
CERTIFICAT DE RECEPTION
ABNAHMEPRUFZEUGNIS
EN 10204:2004 / 3.1

Number: 708695 Page: 2 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

MATERIAL:SEAML. STAINL. STEEL TUBES/PIPES/TUBOS INOXIDABLES SIN SOLDADURA/TUBES INOX SANS SOUDURE/NAHTLOSE EDELSTAHLROHRE
HEAT-TREATED, PICKLED / TRATADO, DECAPADO / HYPERTREMPE, DECAPE / WÄRMEBEHANDELT, GEBEIZT, PASSIVATED / PASIVADO / PASSIVÉ / PASSIVIERT
GRADE / ACERO / GRADE / WERKSTOFF: S32750,1.4410,
STANDARD / NORMA / STANDARD / LIEFERUNG NACH: ASME SECT.II PART.A SA790/SA790M-2019 ED.
ASTM A790/A790M-20
EN 10216-5:2013 TC2
EN 10297-2:2005
NORSOK M650
NORSOK M630 REV.6 MDS D51 REV.5
RTX_D51S REV.4
CHECK ANALYSIS
CORROSION TESTED ACC. TO ASTM A262 PRACTICE E
CORROSION TESTED ACC. TO ASTM A923 TEST METHOD C
CORROSION TESTED ACC. TO ASTM G48 TEST METHOD A
CORROSION TESTED ACC. TO EN ISO 3651-2 PRACTICE B
SHELL ES/247 REV.2 EXCEPT DPI (TABLE 1) AND SURFACE REQUIREMENTS (POINT 9.1)
QAD 68 REV.0
SHELL MESC SPE 74/014 FEBRUARY 2019 EXCEPT:
NO LIQUID PENETRANT TEST (POINT 14.12.1),
TENSILE TEST ONLY IN LONGITUDINAL DIRECTION.
ULTRASONIC TEST ONLY FOR LONGITUDINAL DEFECTS.
IMPACT TEST (if applicable): Lateral expansion 0.38 mm. minimum.
ANSI/NACE MR0103/ISO 17945:2015
ULTRASONIC TEST ACC. TO ASTM A999/A999M / ASTM E213
ANSI/NACE MR0175/ISO15156-3:2015
HYDROTEST
TOLERANCES / TOLERANCIAS / TOLERANCES / TOLERANZEN NACH: ASME SECT.II PART.A SA999/SA999M-2019 ED.
ASTM A999/A999M-18
EN ISO 1127/03.97 D3/T3
PRODUCTION LENGTHS / LARGOS DE PRODUCCION / LONGUEUR DE PRODUCTION / HERSTELLÄNGE 6.000/7.000 MM
PLAIN ENDS / LISOS / EXTRÉMITÉ D'EQUERRE / GLATTE ENDEN,
DIMENSIONS/DIMENSIONES/DIMENSIONS/DIMENSIONS: 21,34 X 4,78 MM
COLD FINISHED/LAMINADOS EN FRIO/KALTGEFORMT/LAMINES A FROID
WAS MANUFACTURED WITH LOT NO.: 260978

Sales Item / Pos Ped. / AuftrgPos / Usine Pos	Client Item / Pos Clnt / Kunde Pos / Com. Pos	Delivery No / Nº Entrega / Lieferung / Avis. d'exp	Lot No. / Nº lote / Los Nr. / Lot d'inspection	Heat No / Colada / Schmelze / Coulée	Pieces / Piezas / Stück / Pcs	Weight / Peso / Gewicht / Poids	Tot Lgth / Long. Tot / Gesamtlänge / Tolength	Un Lgth / Long. Un / Längentyp / Long. Un
360		8170084634	276914	49004	5	70 KG	35,00 M	6000-7000 MM

RAW MATERIAL/DATOS MATERIAL/VORMATERIAL/MATIERE PREMIERE

Heat Nr:	Supplier	Method
49004	ACERALAVA (SPAIN)	Electric furnace+AOD

TÜV SÜD

Certified Management System acc. to ISO 9001, ISO 14001 and ISO 45001 by LRQA

We hereby certify that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies order#s requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for any unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

TSS S.A.U as commercial operation intermediary certifies that this certificate is a true copy of the manufacturer original certificate. TSS S.A.U makes a copy of the original certificate without changing the properties specified in the original purchase order and the product specification referenced.

Tubo S/S ASTM A 790 UNS 32750 21,34x 4,78 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 49004 OUR ORDER: 2024 SC 79573/ 100 QTY: NR 2,00 MT 14,00 KG 28,00

DDT BL/VEN/7142 26/09/2024
Cliente:082292 FCM CONSTRUCTION SRL
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78
Quantità: 14,000

N di colata:49004-14 PG2
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN
TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCIÓN
CERTIFICAT DE RÉCEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 708695 Page: 3 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

CHEMICAL COMPOSITION (%)/COMPOSICIÓN QUÍMICA (%)/CHEMISCHE ZUSAMMENSETZUNG (%)/COMPOSITION CHIMIQUE(%)

*L: Ladle C:Products

*	Heat	Seq	C	Mn	Si	P	S	Ni	Cr	Mo	Al	Cu
L	49004	1	0,013	0,60	0,370	0,021	0,0005	7,20	25,60	3,91	0,015	0,28
C	49004	1	0,014	0,60	0,420	0,021	0,0010	7,17	25,74	4,14	0,025	0,30
C	49004	16	0,017	0,58	0,420	0,024	0,0010	7,22	25,71	4,00	0,016	0,31
C	49004	15	0,016	0,57	0,420	0,023	0,0010	7,20	25,80	4,00	0,016	0,30

*	Heat	Seq	V	Nb	W	Co	N	Pren
L	49004	1	0,056	0,004	0,030	0,050	0,2740	42,8870
C	49004	1	0,050	0,010	0,060	0,050	0,2680	
C	49004	16	0,040	0,010	0,070	0,050	0,2860	43,4900
C	49004	15	0,040	0,010	0,070	0,050	0,2950	43,7200

HEAT TREATMENT/TRATAMIENTO TÉRMICO/WÄRMEBEHANDLUNG/TRAITEMENT THERMIQUE

HIPERTEMPLADOS A 1080 °C , 10 min , Agua
SOLUTION ANNEALED AT 1080 °C , 10 min , WATER
HYPERTREMPES 1080 °C , 10 min , L' EAU
LOESUNGSGEGLUEHT 1080 °C , 10 min , Wasser

TENSILE TEST/TEST DE TENSIÓN/ESSAI TRACTION/ZUGVERSUCH

Lot No	Sample	T	Rp0.2	Rp1.0	Rm	A2"	A5
		°C	MPa	MPa	MPa	%	%
Min		20	550	640	800	25	
Max		20					
276914	1	20	732	773	899	25	36
	2	20	719	755	908	26	36

HARDNESS TEST/TEST DE DUREZA/DUREE/HÄRTEPRÜFUNG

Lot No	Sample	HRC
Min		
Max		32
276914	1	26
	2	25
	3	25
	4	23
	5	22
	6	23
	7	24
	8	24
	9	24
	10	24
	11	25
	12	25
	13	22
	14	25
	15	23
	16	23
	17	24

TÜV SÜD

Certified Management System acc. to ISO 9001, ISO 14001 and ISO 45001 by LRQA

We hereby certy that the material herein described has been manufactured, sampled, tested, and inspected in accordance with above standards and specifications and satisfies order#s requirements. This certificate is issued by a computerized system and it is valid without original signature. In case the owner of the certificate would release as a copy of it, he must attest its conformity to the issued, assuming the responsibility for ny unlawful or TUBACEX, not allowed use. Any forgery or falsification of this certificate shall legally prosecuted.

SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

TSS S.A.U as commercial operation intermediary certifies that this certificate is a true copy of the manufacturer original certificate. TSS S.A.U makes a copy of the original certificate without changing the properties specified in the original purchase order and the product specification referenced.

Tubo S/S ASTM A 790 UNS 32750 21,34x 4,78 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 49004 OUR ORDER: 2024 SC 79573/ 100 QTY: NR 2,00 MT 14,00 KG 28,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG3
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCIÓN
CERTIFICAT DE RÉCEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 708695 Page: 4 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

HARDNESS TEST/TEST DE DUREZA/DUREE/HÄRTEPRÜFUNG

Lot No	Sample	HRC
Min		
Max		32
	18	24
	19	25
	20	24
	21	25
	22	23
	23	22
	24	23
	25	24
	26	24
	27	25
	28	26
	29	25
	30	23
	31	23
	32	25
	33	24
	34	25
	35	25
	36	24

METALURGICAL TESTS/ENSAYOS METALÚRGICOS/METALLURGISCHE PRÜFUNGEN/ESSAIS METALLURGIQUES

INTERGRANULAR CORROSION TEST ACC. TO ASTM A262 PRACT."E": SATISFACTORY
ENSAYO DE CORROSION INTERGRANULAR DE ACUERDO A ASTM A262 PRACT.E:
SATISFACTORIO
BESTÄNDIGKEIT GEGEN INTERKRISTALLINE KORROSION ENTSPRECHEND ASTM A262
PRACT.E: IN ORDNUNG
ESSAI DE CORR. INTERGR. SELON ASTM A262 PRACT.E:SATISFAISANT

INTERGRANULAR CORROSION TEST ACC.TO DIN EN ISO 3651-2 MET.B:
SATISFACTORY
ENSAYO DE CORROSION INTERGRANULAR DE ACUERDO A ISO 3651-2 MET.B:
SATISFACTORIO
BESTÄNDIGKEIT GEGEN INTERKRISTALLINE KORROSION ENTSPRECHEND ISO 3651-2
MET."B": IN ORDNUNG
ESSAI DE CORR. INTERGR. SELON ASTM ISO 3651-2 MET."B":SATISFAISANT

ETCH TEST ACC. TO ASTM A923 METH.A: UNAFFECTED STRUCTURE

PITTING CORROSION TEST ACCORDING TO ASTM G48 METHOD A
TEST TEMPERATURE 50°C TEST DURATION: 24 HRS
NO SIGNS OF PITTING ARE PRESENT. WEIGHT LOSS: 0,0480 g/m2

TÜV SÜD

Certified Management System acc. to ISO 9001, ISO 14001 and ISO 45001 by LRQA

SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

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Tubo S/S ASTM A 790 UNS 32750 21,34x 4,78 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 49004 OUR ORDER: 2024 SC 79573/ 100 QTY: NR 2,00 MT 14,00 KG 28,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG4
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification

Certificato N. 200808

☎ 0363-958244

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Number: 708695 Page: 5 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

CORROSION TEST ACC. TO ASTM A923 METHOD C (AT 50 °C DURING 24 H)
NO SIGNS OF PITTING ARE PRESENT. WEIGHT LOSS: : 0,4800 : MDD

NON-DESTRUCTIVE TESTS/ENSAYOS NO DESTRUCTIVOS/ZERSTÖRUNGSFREIE PRÜFUNGEN/ESSAIS NON DESTRUCTIFS

100% ULTRASONIC TEST ACC. TO ASTM A999/A999M / ASTM E213: SATISFACTORY
100% ENSAYO DE ULTRASONIDOS DE ACUERDO A ASTM A999/A999M / ASTM E213: SATISFACTORIO
100% ULTRASCHALLPRÜFUNG NACHASTM A999/A999M / ASTM E213:IN ORDNUNG
100% ESSAI D'ULTRASON D'ACCORD A ASTM A999/A999M / ASTM E213: SATISFAISANTE

POSITIVE MATERIAL IDENTIFICATION TEST ON EACH TUBE/PIPE BY "X-RAY-FLUORESCENCE-ANALYZER": SATISFACTORY
VERIFICACION DEL GRADO DE ACERO EN CADA TUBO MEDIANTE "ANALIZADOR DE FLUORESCENCIA DE RAYOS X": SATISFACTORIO
VERWECHSLUNGSPRUEFUNG AN JEDEM ROHR MIT "RÖNTGEN-FLUORESZENZ-ANALYSATOR": IN ORDNUNG
VERIFICATION DE LA NUANCE SUR CHAQUE TUBE PAR "X-RAY-FLUORESCENCE-ANALYZER": SATISFAISANT

HYDROSTATIC PRESSURE TESTED AT 172 bar, 2500 PSI DURING 5 SEC ON EACH TUBE/PIPE: SATISFACTORY
ENSAYO HIDROSTÁTICO A 172 bar, 2500 PSI DURANTE 5 SEC EN CADA TUBO: SATISFACTORIO
WASSERDRUCKPRÜFUNG BEI 172 bar, 2500 PSI HALTEZEIT 5 SEC JE ROHR: IN ORDNUNG
ESSAI DE PRESSION HYDROSTATIQUE À 172 bar, 2500 PSI PENDANT 5 SEC SUR CHAQUE TUBE: SATISFAISANT

WIRBELSTROMPRÜFUNG ENTSPR. ASTM A999 JE ROHR: IN ORDNUNG
EDDY CURRENT TEST TO ASTM A999 ON EACH TUBE: SATISFACTORY

TECHNOLOGICAL TESTS/ENSAYOS TECNOLÓGICOS/TECHNOLOGISCHE PRÜFUNGEN/TECHNOLOGICAL TESTS

FLARING TEST: SATISFACTORY
ABOCARDADO S.NORMA: SATISFACTORIO
AUFWEITVERSUCH: IN ORDNUNG
ESSAI D'EVASEMENT: SATISFAISANT

FLATTENING TEST: SATISFACTORY
APLASTADO S.NORMA: SATISFACTORIO
RINGFALTVERSUCH: IN ORDNUNG
ESSAI D'APLATISSEMENT: SATISFAISANT

TÜV SÜD

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HEAT 49004 OUR ORDER: 2024 SC 79573/ 100 QTY: NR 2,00 MT 14,00 KG 28,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG5
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MATERIND srl

ISO 9001 BUREAU VERITAS Certification
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Number: 708695 Page: 6 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

BESICHTIGUNG UND NACHMESSUNG: IN ORDNUNG
INSPECTION AND CHECKING OF DIMENSIONS: SATISFACTORY
INSPECTION ET CONTROL DES DIMENSIONS: SATISFAISANT

THE TUBES/PIPES CONFORM ALSO TO
ANSI/NACE MR0103/ISO 17945:2015
ANSI/NACE MR0175/ISO15156-3:2015

DIE ANZAHL DER PRÜFUNGEN ENTSPRECHEN DEN
ZULÄSSIGEN LOSGRÖSSEN IN FERTIGUNGSLÄNGEN.
THE NUMBER OF TESTS IS BASED ON THE SIZE OF THE
MANUFACTURING LOT BEFORE CUTTING TO LENGTHS.

GEFÜGEKONTROLLE: SIEHE ANLIEGENDEN REPORT.
FOR MICROGRAPHIC EXAMINATION SEE ENCLOSED REPORT.

QUALIFIED ACCORDING TO NORSOK M630 REV.6 MDS D51 REV.5 /NORSOK M650 /
QTR 010 / QTR 011 FOR COLD PILGERED/COLD DRAWN PRODUCTS

DIE WERKSTOFFWERTE ENSPRECHEN PUNKT 7.5 DER DRUCKGERÄTERICHTLINIE
2014/68/EU, ANHANG 1, MIT EINER BRUCHDEHNUNG VON MINDESTENS 14 % IM
ZUGVERSUCH UND EINER KERBSCHLAGARBEIT VON MINDESTENS 27 J AN EINER
ISO-V-KERBSCHLAGPROBE BEI 20° C.

MATERIAL CHARACTERISTICS COMPLY WITH POINT 7.5 OF ANNEX I TO PRESSURE
EQUIPMENT DIRECTIVE 2014/68/EU BY HAVING AN ELONGATION AFTER RUPTURE AT
TENSILE TEST NO LESS THAN 14 % AND A BENDING RUPTURE ENERGY AT IMPACT
TEST NO LESS THAN 27 J AT 20°C.

MARKING/ETIQUETADO/KENNZEICHNUNG/MARKSTEXT

SCHOELLER BLECKMANN / TUBACEX GROUP - SBS 21,34 X 4,78 MM ASME SA790 ASTM A790 EN 10216-5 TC2 EN 10297-2 S32750 1.4410 CFD CDSMLS HEAT/ PMI-AV LOT NO/ AUSTRIA T/A ZFP

REMARKS/OBSERVACIONES/ANMERKUNG/REMARQUES

MECHANICAL TESTS WERE PERFORMED IN LONGITUDINAL DIRECTION IF NOT OTHERWISE STATED.

REALIZADOS TEST MECÁNICOS EN DIRECCIÓN LONGITUDINAL SI NO HAY OTRAS INSTRUCCIONES.

DIE MECHANISCHEN PRÜFUNGEN WURDEN, SOWEIT NICHT ANDERS ANGEGEBEN, IN LÄNGSRICHTUNG DURCHGEFÜHRT.

LES ESSAIS MÉCHANIQUES ONT ÉTÉ FAITS, SI PAS SPÉCIFIÉ, EN DIRECTION

TÜV SÜD

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DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG6
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN
TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCION
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 708695 Page: 7 / 7	Rev: 02
Created on: Date: 31.10.2019	Modified on: 12.01.2021

REMARKS/OBSERVACIONES/ANMERKUNG/REMARQUES
LONGITUDINALE.

NO WELD REPAIR HAS BEEN PERFORMED ON THE MATERIAL.

SIN REPARACION POR SOLDADURA

AM MATERIAL WURDE NICHT GESCHWEISST.

SANS RÉPARATION AVEC SOUDURE

MATERIAL MANUFACTURER APPROVED WITH CERTIFICATE NR. 245/2004/MUC BY TÜV SÜDDEUTSCHLAND (NOTIFIED BODY 0036)TO ISSUE CERTIFICATES OF SPECIFIC PRODUCT CONTROL IN ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU.

FABRICANTE DE MATERIALES APROBADO CON CERTIFICADO Nº 245/2004/MUC EMITIDOPOR TUV SUDDEUTSCHLAND (ORGANISMO NOTIFICADO 0036) PARA LA EMISION DE CERTIFICADOS ESPECIFICOS DE CONTROL DE PRODUCTO DE ACUERDO DE LA DIRECTIVA DE EQUIPOS A PRESION 2014/68/EU.

WERKSTOFFHERSTELLER MIT BERECHTIGUNG ZUR AUSSTELLUNG VON BESCHEINIGUNGEN ÜBER SPEZIFISCHE PRÜFUNGEN AN DEN WERKSTOFFEN IM GELTUNGSBEREICH DER ZERTIFIZIERUNG UND IN ÜBEREINSTINSTIMMUNG MIT DER DRUCKGERÄTERICHTLINIE 2014/68/EU UND DEN ZUGRUNDE LIEGENDEN SPEZIFIKATIONEN ENTSPR. ZERTIFIKAT NR. 245/2004/MUC DER BENANNTEN STELLE NR.0036, TÜV SÜDDEUTSCHLAND

PRODUCTEUR DU MATERIEL APPROUVE SOUS CERTIFICATION Nº 245/2004/MUC PAR TUV SUDDEUTSCHLAND (N.B. 0036) POUR EMISSION DES CERTIFICATS SPECIFIQUE DE CONTROLE DE PRODUIT SELON LA DIRECTIVE DES EQUIPES A PRESION 2014/68/EU.

MATERIAL IS FREE OF RADIOACTIVE CONTAMINATION
EL MATERIAL ESTA LIBRE DE CONTAMINACION POR RADIACIONES
MATERIAL IST FREI VON RADIOAKTIVITÄT
MATÉRIEL LIBRE DE POLUTION RADIOACTIVE

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DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG7
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

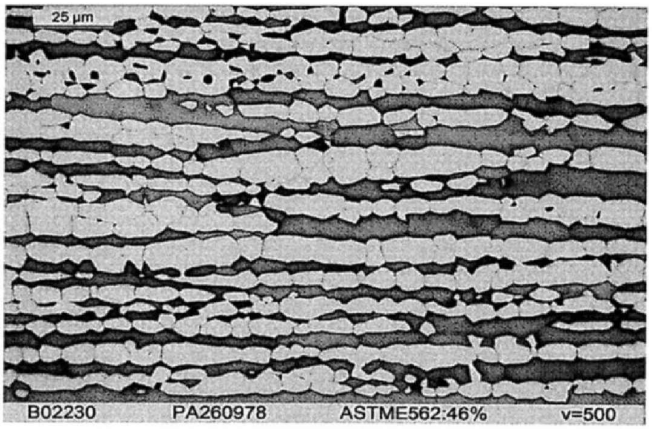
SCHOELLER BLECKMANN EDELSTAHLROHR TUBACEX GROUP	Anlage zu **ABNAHMEPRÜFZEUGNIS** EN 10204 3.1 Annex to **INSPECTION CERTIFICATE** EN 10204 3.1	Zertifikat Nr. Certificate No. **708695** Rev.: 00 Date: 12.03.2020

MICROGRAPHIC EXAMINATION REPORT

WORK ORDER NO.: I007046 / 360

MICROSTRUCTURE: UNIFORM STRUCTURE ACROSS FULL WALLTHICKNESS,
FREE FROM CARBIDES, NITRIDES AND INTERMETALLIC PHASES.

FERRITE CONTENT TO ASTM E562: 46%



SCHOELLER-BLECKMANN EDELSTAHLROHR GmbH
Rohrstraße 1
2630 Ternitz, AUSTRIA

TL.: +43 2630 316 601
FAX: +43 2630 316 894
E-MAIL: **qualitysber@sber.co.at**

Zeichen des Prüfers
Symbol of Inspector

Riegler
Nicole Riegler
Der Werkssachverständige
Works Inspector

Tubo S/S ASTM A 790 UNS 32750 21,34x 4,78 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 49004 OUR ORDER: 2024 SC 79573/ 100 QTY: NR 2,00 MT 14,00 KG 28,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 03700008 TUBO SS SAF2507 21,3X4,78

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 14,000

N di colata:49004-14 PG8
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

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CERTIFICAT DE RÉCEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 749860 Page: 1 / 6	Rev: 01
Created on: Date: 05.01.2024	Modified on: 15.01.2024

SCHOELLER-BLECKMANN Edelstahlrohr GmbH
2630 Ternitz, Rohrstrasse 1
Austria

TL: +43 2630 316-810
FAX: +43 2630 316-894
E-MAIL: wolfgang.hecher@sber.co.at

CUSTOMER DESCRIPTION/DESCRIPCIÓN DEL CLIENTE/KUNDENBEZEICHNUNG/COMMETTANT

CLIENT SOLD TO/SOLICITANTE/AUFTRAGGEBER/COMMETTANT
TSS
TUBACEX SERVICE SOLUTIONS, S.A.U
POLIGONO INDUSTRIAL SARATXO
01470 AMURRIO
ESPAÑA

CLIENT ORDER/PEDIDO CLIENTE/KUNDEN AUFTRAGSNUMMER/NO.DE COMMANDE: I011055
SALES ORDER/PEDIDO VENTAS/AUFTRAGSNUMMER/NO.DE COMMANDE D'USINE:

TD100443106
Azienda:TLP Pozzo d'Adda
Tipo:Certificati di origine

TÜV SÜD

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SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

Tubo S/S ASTM A 790 UNS 32750 33,40x 6,35 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 60419 OUR ORDER: 2024 SC 79573/ 200 QTY: NR 2,00 MT 12,83 KG 55,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 04364830 TUBO SS SAF2507 33,4X6,35

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 12,830

N di colata:60419-12,83 PG1
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

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ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

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EN 10204:2004 / 3.1

Number: 749860 Page: 2 / 6	Rev: 01
Created on: Date: 05.01.2024	Modified on: 15.01.2024

MATERIAL:SEAML. STAINL. STEEL TUBES/PIPES/TUBOS INOXIDABLES SIN SOLDADURA/TUBES INOX SANS SOUDURE/NAHTLOSE EDELSTAHLROHRE
HEAT-TREATED, PICKLED / TRATADO, DECAPADO / HYPERTREMPE, DECAPE / WÄRMEBEHANDELT, GEBEIZT, PASSIVATED AS PER ASTM A380 / PASIVADO SEGUN ASTM A380 / PASSIVÉ (ASTM A380) / PASSIVIERT (ASTM A380)
GRADE / ACERO / GRADE / WERKSTOFF: 1.4410,S32750,
STANDARD / NORMA / STANDARD / LIEFERUNG NACH: EN 10297-2:2005
NORSOK M650
NORSOK M630:2020 MDS D51 REV.6
ASME SECT.II PART.A SA790/SA790M-2021 ED.
EN 10216-5:2021 TC2
ASTM A790/A790M-22
RTX_D51S REV.6
CHECK ANALYSIS
CORROSION TESTED ACC. TO ASTM A262 PRACTICE E
CORROSION TESTED ACC. TO ASTM G48 TEST METHOD A
CORROSION TESTED ACC. TO EN ISO 3651-2 PRACTICE B
SHELL ES/247 REV.2 EXCEPT DPI (TABLE 1) AND SURFACE REQUIREMENTS (POINT 9.1)
QAD 68 REV.0
SHELL MESC SPE 74/014 FEBRUARY 2021 EXCEPT:
NO LIQUID PENETRANT TEST (POINT 14.12.1),
TENSILE TEST ONLY IN LONGITUDINAL DIRECTION.
ULTRASONIC TEST ONLY FOR LONGITUDINAL DEFECTS.
IMPACT TEST (if applicable): Lateral expansion 0.38 mm. minimum.
ANSI/NACE MR0103/ISO 17945:2015
ULTRASONIC TEST ACC. TO ASTM A999/A999M / ASTM E213
HYDROTEST
CORROSION TESTED ACC. TO ASTM A923-22 TEST METHOD C
ANSI/NACE MR0175/ISO15156-3:2020
TOLERANCES / TOLERANCIAS / TOLERANCES / TOLERANZEN NACH: EN ISO 1127/03.2019 D3/T3
ASTM A999/A999M-18
ASME SECT.II PART.A SA999/SA999M-2021 ED.
RANDOM LENGTHS / LARGOS VARIABLES / LONGUEUR COURANTE / EINGEENGTE LÄNGE 6.000/7.000 MM
PLAIN ENDS / LISOS / EXTRÉMITÉ D'EQUERRE / GLATTE ENDEN,
DIMENSIONS/DIMENSIONES/DIMENSIONS/DIMENSIONS: 33,40 X 6,35 MM
COLD FINISHED/LAMINADOS EN FRIO/KALTGEFORMT/LAMINES A FROID

Sales Item / Pos Ped. / AuftrgPos / Usine Pos	Client Item / Pos Clnt / Kunde Pos / Com. Pos	Delivery No / N° Entrega / Lieferung / Avis. d'exp	Lot No. / N° lote / Los Nr. / Lot d`inspection	Heat No / Colada / Schmelze / Coulée	Pieces / Piezas / Stück / Pcs	Weight / Peso / Gewicht / Poids	Tot Lgth / Long. Tot / Gesamtlänge / Tolength	Un Lgth / Long. Un / Längentyp / Long. Un
20		8170100937	297713	60419	9	249 KG	57,87 M	6000-7000 MM

RAW MATERIAL/DATOS MATERIAL/VORMATERIAL/MATIERE PREMIERE

Heat Nr:	Supplier	Method
60419	ACERALAVA (SPAIN)	Electric furnace+AOD

TÜV SÜD

Certified Management System acc. to ISO 9001, ISO 14001 and ISO 45001 by LRQA

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SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

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Tubo S/S ASTM A 790 UNS 32750 33,40x 6,35 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
HEAT 60419 OUR ORDER: 2024 SC 79573/ 200 QTY: NR 2,00 MT 12,83 KG 55,00

DDT BL/VEN/7142 26/09/2024
Cliente:082292 FCM CONSTRUCTION SRL
Riferimento ordine cliente:. PK2885
Articolo: 04364830 TUBO SS SAF2507 33,4X6,35
Quantità: 12,830

N di colata:60419-12,83 PG2
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCIÓN
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 749860 Page: 3 / 6	Rev: 01
Created on: Date: 05.01.2024	Modified on: 15.01.2024

CHEMICAL COMPOSITION (%)/COMPOSICIÓN QUÍMICA (%)/CHEMISCHE ZUSAMMENSETZUNG (%)/COMPOSITION CHIMIQUE(%)

*L: Ladle C:Products

*	Heat	Seq	C	Mn	Si	P	S	Ni	Cr	Mo	Al	Cu
L	60419	1	0,011	0,57	0,480	0,024	0,0004	6,71	25,67	3,54	0,012	0,11
C	60419	1	0,011	0,64	0,500	0,025	0,0010	6,61	25,66	3,57	0,021	0,13
C	60419	13	0,012	0,62	0,490	0,025	0,0010	6,67	25,61	3,55	0,016	0,17
C	60419	14	0,012	0,65	0,490	0,025	0,0010	6,67	25,59	3,57	0,016	0,17

*	Heat	Seq	V	Nb	W	Co	N	Pren
L	60419	1	0,073	0,001	0,050	0,070	0,2810	41,8480
C	60419	1	0,070	0,004	0,070	0,070	0,2820	41,9500
C	60419	13	0,070	0,004	0,090	0,080	0,2820	41,8400
C	60419	14	0,070	0,003	0,090	0,090	0,2830	41,9000

HEAT TREATMENT/TRATAMIENTO TÉRMICO/WÄRMEBEHANDLUNG/TRAITEMENT THERMIQUE

HIPERTEMPLADOS A 1120 °C , 5 min , Agua
SOLUTION ANNEALED AT 1120 °C , 5 min , WATER
HYPERTREMPES 1120 °C , 5 min , L' EAU
LOESUNGSGEGLUEHT 1120 °C , 5 min , Wasser

TENSILE TEST/TEST DE TENSIÓN/ESSAI TRACTION/ZUGVERSUCH

Lot No	Sample	T	Rp0.2	Rp1.0	Rm	A2"	A5
		°C	*MPa*	*MPa*	*MPa*	*%*	*%*
Min		*20*	*550*	*640*	*800*	*25*	
Max		*20*					
297713	1	20	761	795	935	26	29
	2	20	741	783	929	27	30

HARDNESS TEST/TEST DE DUREZA/DUREE/HÄRTEPRÜFUNG

Lot No	Sample	HRC
Min		
Max		*32*
297713	1	24
	2	24

IMPACT TEST/TEST DE IMPACTO/RESILIENCE/KERBSCHLAGVERSUCH

Lot No	Sample	T	Ecv	Type
		°C	*J*	
Min		*-51*	*65*	
Max		*-51*		
297713	1	-51	135	L
	2	-51	130	L
	3	-51	133	L

METALURGICAL TESTS/ENSAYOS METALÚRGICOS/
METALLURGISCHE PRÜFUNGEN/ESSAIS METALLURGIQUES

INTERGRANULAR CORROSION TEST ACC. TO ASTM A262 PRACT."E": SATISFACTORY
ENSAYO DE CORROSION INTERGRANULAR DE ACUERDO A ASTM A262 PRACT.E:
SATISFACTORIO

TÜV SÜD

Certified Management System acc. to ISO 9001, ISO 14001 and ISO 45001 by LRQA

SCHOELLER-BLECKMANN EDELSTAHLROHR GMBH

HR. W. HECHER

(WORKS INSPECTOR)

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DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 04364830 TUBO SS SAF2507 33,4X6,35

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 12,830

N di colata:60419-12,83 PG3
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification

Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN
TUBACEX GROUP

INSPECTION CERTIFICATE
CERTIFICADO DE INSPECCIÓN
CERTIFICAT DE RECEPTION
ABNAHMEPRÜFZEUGNIS
EN 10204:2004 / 3.1

Number: 749860 Page: 4 / 6	Rev: 01
Created on: Date: 05.01.2024	Modified on: 15.01.2024

BESTÄNDIGKEIT GEGEN INTERKRISTALLINE KORROSION ENTSPRECHEND ASTM A262
PRACT.E: IN ORDNUNG
ESSAI DE CORR. INTERGR. SELON ASTM A262 PRACT.E: SATISFAISANT

INTERGRANULAR CORROSION TEST ACC.TO DIN EN ISO 3651-2 MET.B:
SATISFACTORY
ENSAYO DE CORROSION INTERGRANULAR DE ACUERDO A ISO 3651-2 MET.B:
SATISFACTORIO
BESTÄNDIGKEIT GEGEN INTERKRISTALLINE KORROSION ENTSPRECHEND ISO 3651-2
MET."B": IN ORDNUNG
ESSAI DE CORR. INTERGR. SELON ASTM ISO 3651-2 MET."B": SATISFAISANT

PITTING CORROSION TEST ACCORDING TO ASTM G48 METHOD A
TEST TEMPERATURE 50°C TEST DURATION: 24 HRS
NO SIGNS OF PITTING ARE PRESENT. WEIGHT LOSS: 0,1224 g/m2

CORROSION TEST ACC. TO ASTM A923 METHOD C (AT 50 °C DURING 24 H)
NO SIGNS OF PITTING ARE PRESENT. WEIGHT LOSS: : 1,2240 : MDD

ETCH TEST ACC. TO ASTM A923 METH.A: UNAFFECTED STRUCTURE

NON-DESTRUCTIVE TESTS/ENSAYOS NO DESTRUCTIVOS/
ZERSTÖRUNGSFREIE PRÜFUNGEN/ESSAIS NON DESTRUCTIFS

100% ULTRASONIC TEST ACC. TO ASTM A999/A999M / ASTM E213: SATISFACTORY

POSITIVE MATERIAL IDENTIFICATION TEST ON EACH TUBE/PIPE BY
"X-RAY-FLUORESCENCE-ANALYZER": SATISFACTORY
VERIFICACION DEL GRADO DE ACERO EN CADA TUBO MEDIANTE "ANALIZADOR DE
FLUORESCENCIA DE RAYOS X": SATISFACTORIO
VERWECHSLUNGSPRUEFUNG AN JEDEM ROHR MIT
"RÖNTGEN-FLUORESZENZ-ANALYSATOR": IN ORDNUNG
VERIFICATION DE LA NUANCE SUR CHAQUE TUBE PAR
"X-RAY-FLUORESCENCE-ANALYZER": SATISFAISANT

HYDROSTATIC PRESSURE TESTED AT 172 bar, 2500 PSI DURING 5 SEC ON EACH
TUBE/PIPE: SATISFACTORY
ENSAYO HIDROSTÁTICO A 172 bar, 2500 PSI DURANTE 5 SEC EN CADA TUBO:
SATISFACTORIO
WASSERDRUCKPRÜFUNG BEI 172 bar, 2500 PSI HALTEZEIT 5 SEC JE ROHR: IN
ORDNUNG
ESSAI DE PRESSION HYDROSTATIQUE À 172 bar, 2500 PSI PENDANT 5 SEC SUR
CHAQUE TUBE: SATISFAISANT

EDDY CURRENT TEST TO ASTM A999/E426 ON EACH TUBE: SATISFACTORY
100% ENSAYO DE CORRIENTES INDUCIDAS DE ACUERDO ASTM A999/E426:

TÜV SÜD

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HEAT 60419 OUR ORDER: 2024 SC 79573/ 200 QTY: NR 2,00 MT 12,83 KG 55,00

DDT BL/VEN/7142 26/09/2024
Riferimento ordine cliente:. PK2885
Articolo: 04364830 TUBO SS SAF2507 33,4X6,35

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 12,830

N di colata:60419-12,83 PG4
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

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EN 10204:2004 / 3.1

Number: 749860 Page: 5 / 6	Rev: 01
Created on: Date: 05.01.2024	Modified on: 15.01.2024

SATISFACTORIO
WIRBELSTROMPRÜFUNG ENTSPR. ASTM A999/E426 JE ROHR: IN ORDNUNG
100% CONTROLE COURANTS FOUCAULT D'APRES ASTM A999/E426: BIEN

TECHNOLOGICAL TESTS/ENSAYOS TECNOLÓGICOS/
TECHNOLOGISCHE PRÜFUNGEN/TECHNOLOGICAL TESTS

FLARING TEST: SATISFACTORY
ABOCARDADO S.NORMA: SATISFACTORIO
AUFWEITVERSUCH: IN ORDNUNG
ESSAI D'EVASEMENT: SATISFAISANT

FLATTENING TEST: SATISFACTORY
APLASTADO S.NORMA: SATISFACTORIO
RINGFALTVERSUCH: IN ORDNUNG
ESSAI D'APLATISSEMENT: SATISFAISANT

THE TUBES/PIPES CONFORM ALSO TO
ANSI/NACE MR0103/ISO 17495:2015
ANSI/NACE MR0175/ISO15156-3:2015

BESICHTIGUNG UND NACHMESSUNG: IN ORDNUNG
INSPECTION AND CHECKING OF DIMENSIONS: SATISFACTORY
INSPECTION ET CONTROL DES DIMENSIONS: SATISFAISANT

QUALIFIED ACCORDING TO NORSOK M650 / QTR 010 / QTR 011
FOR COLD PILGERED/COLD DRAWN PRODUCTS

FOR MICROGRAPHIC EXAMINATION SEE ENCLOSED REPORT

DIE WERKSTOFFWERTE ENSPRECHEN PUNKT 7.5 DER DRUCKGERÄTERICHTLINIE 2014/68/EU, ANHANG 1, MIT EINER BRUCHDEHNUNG VON MINDESTENS 14 % IM ZUGVERSUCH UND EINER KERBSCHLAGARBEIT VON MINDESTENS 27 J AN EINER ISO-V-KERBSCHLAGPROBE BEI 20° C.

MATERIAL CHARACTERISTICS COMPLY WITH POINT 7.5 OF ANNEX I TO PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU BY HAVING AN ELONGATION AFTER RUPTURE AT TENSILE TEST NO LESS THAN 14 % AND A BENDING RUPTURE ENERGY AT IMPACT TEST NO LESS THAN 27 J AT 20°C.

MARKING/ETIQUETADO/KENNZEICHNUNG/MARKSTEXT

SCHOELLER BLECKMANN / TUBACEX GROUP - SBS 33,40 X 6,35 MM ASME SA790 ASTM A790 EN 10216-5 TC2 EN 10297-2 1.4410 S32750 CFD CDSMLS HEAT/ PMI-AV LOT NO/ MADE IN AUSTRIA T/A ZFP

REMARKS/OBSERVACIONES/ANMERKUNG/REMARQUES

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TUBACEX GROUP

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EN 10204:2004 / 3.1

Number: 749860 Page: 6 / 6	Rev: 01
Created on: Date: 05.01.2024	Modified on: 15.01.2024

REMARKS/OBSERVACIONES/ANMERKUNG/REMARQUES

MECHANICAL TESTS WERE PERFORMED IN LONGITUDINAL DIRECTION IF NOT OTHERWISE STATED.

REALIZADOS TEST MECÁNICOS EN DIRECCIÓN LONGITUDINAL SI NO HAY OTRAS INSTRUCCIONES.

DIE MECHANISCHEN PRÜFUNGEN WURDEN, SOWEIT NICHT ANDERS ANGEGEBEN, IN LÄNGSRICHTUNG DURCHGEFÜHRT.

LES ESSAIS MÉCHANIQUES ONT ÉTÉ FAITS, SI PAS SPÉCIFIÉ, EN DIRECTION LONGITUDINALE.

NO WELD REPAIR HAS BEEN PERFORMED ON THE MATERIAL.

SIN REPARACION POR SOLDADURA

AM MATERIAL WURDE NICHT GESCHWEISST.

SANS RÉPARATION AVEC SOUDURE

MATERIAL MANUFACTURER APPROVED WITH CERTIFICATE NR. 245/2004/MUC BY TÜV SÜDDEUTSCHLAND (NOTIFIED BODY 0036)TO ISSUE CERTIFICATES OF SPECIFIC PRODUCT CONTROL IN ACCORDING TO PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU.

FABRICANTE DE MATERIALES APROBADO CON CERTIFICADO Nº 245/2004/MUC EMITIDOPOR TUV SUDDEUTSCHLAND (ORGANISMO NOTIFICADO 0036) PARA LA EMISION DE CERTIFICADOS ESPECIFICOS DE CONTROL DE PRODUCTO DE ACUERDO DE LA DIRECTIVA DE EQUIPOS A PRESION 2014/68/EU.

WERKSTOFFHERSTELLER MIT BERECHTIGUNG ZUR AUSSTELLUNG VON BESCHEINIGUNGEN ÜBER SPEZIFISCHE PRÜFUNGEN AN DEN WERKSTOFFEN IM GELTUNGSBEREICH DER ZERTIFIZIERUNG UND IN ÜBEREINSTINSTIMMUNG MIT DER DRUCKGERÄTERICHTLINIE 2014/68/EU UND DEN ZUGRUNDE LIEGENDEN SPEZIFIKATIONEN ENTSPR. ZERTIFIKAT NR. 245/2004/MUC DER BENANNTEN STELLE NR.0036, TÜV SÜDDEUTSCHLAND

PRODUCTEUR DU MATERIEL APPROUVE SOUS CERTIFICATION Nº 245/2004/MUC PAR TUV SUDDEUTSCHLAND (N.B. 0036) POUR EMISSION DES CERTIFICATS SPECIFIQUE DE CONTROLE DE PRODUIT SELON LA DIRECTIVE DES EQUIPES A PRESION 2014/68/EU.

MATERIAL IS FREE OF RADIOACTIVE CONTAMINATION
EL MATERIAL ESTA LIBRE DE CONTAMINACION POR RADIACIONES
MATERIAL IST FREI VON RADIOAKTIVITÄT
MATÉRIEL LIBRE DE POLUTION RADIOACTIVE

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DDT BL/VEN/7142 26/09/2024
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Articolo: 04364830 TUBO SS SAF2507 33,4X6,35

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 12,830

N di colata:60419-12,83 PG6
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MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

SCHOELLER BLECKMANN EDELSTAHLROHR TUBACEX GROUP	Anlage zu **ABNAHMEPRÜFZEUGNIS** EN 10204 3.1 Annex to **INSPECTION CERTIFICATE** EN 10204 3.1	Zertifikat Nr. Certificate No. **749860** Rev.: 00 Date: 05.01.2024

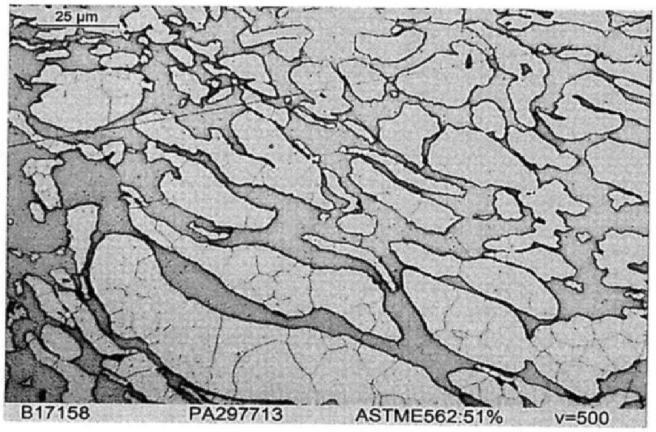
GEFÜGEKONTROLLE
MICROGRAPHIC EXAMINATION REPORT

WORK ORDER NO.: I011055 / 20

GEFÜGE: EINHEITLICHES GEFÜGE ÜBER DIE GANZE WANDDICKE, FREI VON KARBIDEN, NITRIDEN UND INTERMETALLISCHEN PHASEN.

MICROSTRUCTURE: UNIFORM STRUCTURE ACROSS FULL WALLTHICKNESS, FREE FROM CARBIDES, NITRIDES AND INTERMETALLIC PHASES.

FERRITGEHALT / FERRITE CONTENT TO ASTM E562: 51%



SCHOELLER-BLECKMANN
EDELSTAHLROHR GmbH
Rohrstraße 1
2630 Ternitz, AUSTRIA

TL.: +43 2630 316 601
FAX: +43 2630 316 894
E-MAIL: qualitysber@sber.co.at

Zeichen des Prüfers
Symbol of Inspector

Wolfgang Hecher
Der Werkssachverständige
Works Inspector

Tubo S/S ASTM A 790 UNS 32750 33,40x 6,35 Client Order: OF/STD/2404762 Your Code: Your Item: Your Job:
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DDT BL/VEN/7142 26/09/2024
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Articolo: 04364830 TUBO SS SAF2507 33,4X6,35

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 12,830

N di colata:60419-12,83 PG7
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MATERIND srl

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808

☎ 0363-958244

DELCORTE s.a.s
FORGED STEEL & STAINLESS STEEL
Quality system certified ISO9001
by TUV MS19 Q11118

17, Avenue du Corbeau CS 10597
59605 MAUBEUGE CEDEX FRANCE
Tél : +33 (0) 327 691 414 - FAX : +33 (0) 327 642 569
info@delcorte.com

CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE (EN 10204 : 2004 3.1)

Client / Customer

MATERIND SRL
VIA MONTE ROSA, 13

20066 MELZO (MI) ITALIE

N° Certificat/Certificate n° DEL/48494/10/224 / 1
07/10/2024

Commande / Order OF/STD/2404764

Bordereau / Dispatch note DEL/48494/10/224
04/10/2024

Spécification matière/Material Specification
ASTM A 182/A182M-23 F53 ASME SA182/SA182M Sect II Part A Ed.2023
PED 2014/68/EU (An.1 §4.3)

Traitement thermique/Heat Treatment
HYPERTREMPE 1025°C MINI

SOLUTION TREAT 1025°C MINI & QUENCH

Divers/Others

COMPOSITION CHIMIQUE /CHEMICAL ANALYSIS

Item	Qte/Qty	Désignation	N°Coulée/Heat Number	Identification	C %	Si %	Mn %	P %	S %	Ni %	Cr %	N %	Mo %	Cu %
mini										6.00	24.00	0.240	3.000	
maxi					0.030	0.800	1.200	0.035	0.0200	8.00	26.00	0.320	5.000	0.500
1	4	RED TEE 1"X1/2" NPT 3M F53	546694	EV9	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120
2	6	TEE 1/2" NPT 3M F53	258767	EOW	0.023	0.530	0.800	0.016	0.0010	6.20	25.70	0.310	3.400	0.180
3	6	90° ELBOW FF 1" NPT 3M F53	546694	EZA	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120
4	12	90° ELBOW FF 1/2" NPT 3M F53	404249	EV2	0.016	0.270	0.740	0.022	0.0005	7.16	25.20	0.281	3.800	0.130

ESSAIS MECANIQUES / MECHANICAL TEST

Item	Re (0,2%) N/mm²	Rm N/mm²	A%	Dureté/HB Hardness	Spécification dimensionnelle Dimensional specification
mini	515.00	730.0	15.00		
maxi					
1	605.00	799.0	39.00	25-27 HRC	ASME B16.11/21-ANSI/ASME B1.20.1/2013
2	603.00	791.0	36.80	263-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
3	605.00	799.0	39.00	258-259 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
4	598.00	857.0	45.00	262-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013

QUALITY DEPARTMENT · C. COSSE ·

07 OCT. 2024

Les valeurs reprises sur ce certificat sont celles données par notre fournisseur / The values mentioned on this test certificate are those given by the supplier

Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.
We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensionnal control.

Réalisation DECLIC 3000

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 6,000

DDT BL/VEN/7787 17/10/2024
Riferimento ordine cliente:. PK2885
Articolo: 06029632 GOM F53 1" NPT S3000

N di colata:EZA-546694-6
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

Certificato N. 200808
0363-958244
MATERIND srl

DELCORTE s.a.s
FORGED STEEL & STAINLESS STEEL
Quality system certified ISO9001
by TUV MS19 Q11118

17, Avenue du Corbeau CS 10597
59605 MAUBEUGE CEDEX FRANCE
Tél : +33 (0) 327 691 414 - FAX : +33 (0) 327 642 569
info@delcorte.com

CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE (EN 10204 : 2004 3.1)

Client / Customer

MATERIND SRL
VIA MONTE ROSA, 13

20066 MELZO (MI) ITALIE

N° Certificat/Certificate n° DEL/48494/10/224 / 1
07/10/2024

Commande / Order OF/STD/2404764

Bordereau / Dispatch note DEL/48494/10/224
04/10/2024

Spécification matière/Material Specification
ASTM A 182/A182M-23 F53 ASME SA182/SA182M Sect II Part A Ed.2023
PED 2014/68/EU (An.1 §4.3)

Traitement thermique/Heat Treatment
HYPERTREMPE 1025°C MINI

SOLUTION TREAT 1025°C MINI & QUENCH

Divers/Others

COMPOSITION CHIMIQUE /CHEMICAL ANALYSIS

Item	Qte/Qty	Désignation	N°Coulée/Heat Number	Identification	C %	Si %	Mn %	P %	S %	Ni %	Cr %	N %	Mo %	Cu %			
mini										6.00	24.00	0.240	3.000				
maxi					0.030	0.800	1.200	0.035	0.0200	8.00	26.00	0.320	5.000	0.500			
1	4	RED TEE 1"X1/2" NPT 3M F53	546694	EV9	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120			
2	6	TEE 1/2" NPT 3M F53	258767	EOW	0.023	0.530	0.800	0.016	0.0010	6.20	25.70	0.310	3.400	0.180			
3	6	90° ELBOW FF 1" NPT 3M F53	546694	EZA	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120			
4	12	90° ELBOW FF 1/2" NPT 3M F53	404249	EV2	0.016	0.270	0.740	0.022	0.0005	7.16	25.20	0.281	3.800	0.130			

ESSAIS MECANIQUES / MECHANICAL TEST

Item	Re (0,2%) N/mm²	Rm N/mm²	A%	Dureté/HB Hardness	Spécification dimensionnelle Dimensional specification
mini	515.00	730.0	15.00		
maxi					
1	605.00	799.0	39.00	25-27 HRC	ASME B16.11/21-ANSI/ASME B1.20.1/2013
2	603.00	791.0	36.80	263-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
3	605.00	799.0	39.00	258-259 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
4	598.00	857.0	45.00	262-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013

MADE IN FRANCE
FORGED STEEL & STAINLESS STEEL

QUALITY DEPARTMENT · C. COUSE ·

07 OCT. 2024

Les valeurs reprises sur ce certificat sont celles données par notre fournisseur / The values mentioned on this test certificate are those given by the supplier

Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.
We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensionnal control.

Réalisation DECLIC 3000

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 12,000

DDT BL/VEN/7787 17/10/2024

Riferimento ordine cliente:. PK2885

Articolo: 07091386 GOM F53 1/2" NPT S3000

N di colata:EV2-404249-12

CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
0363-958244

MATERIND srl

DELCORTE s.a.s
FORGED STEEL & STAINLESS STEEL
Quality system certified ISO9001
by TUV MS19 Q11118

17, Avenue du Corbeau CS 10597
59605 MAUBEUGE CEDEX FRANCE
Tél : +33 (0) 327 691 414 - FAX : +33 (0) 327 642 569
info@delcorte.com

CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE (EN 10204 : 2004 3.1)

Client / Customer

MATERIND SRL
VIA MONTE ROSA, 13

20066 MELZO (MI) ITALIE

N° Certificat/Certificate n° DEL/48494/10/224 / 1
07/10/2024

Commande / Order OF/STD/2404764

Bordereau / Dispatch note DEL/48494/10/224
04/10/2024

Spécification matière/Material Specification
ASTM A 182/A182M-23 F53 ASME SA182/SA182M Sect II Part A Ed.2023
PED 2014/68/EU (An.1 §4.3)

Traitement thermique/Heat Treatment
HYPERTREMPE 1025°C MINI

SOLUTION TREAT 1025°C MINI & QUENCH

Divers/Others

COMPOSITION CHIMIQUE /CHEMICAL ANALYSIS

Item	Qte/Qty	Désignation	N°Coulée/Heat Number	Identification	C %	Si %	Mn %	P %	S %	Ni %	Cr %	N %	Mo %	Cu %			
mini										6.00	24.00	0.240	3.000				
maxi					0.030	0.800	1.200	0.035	0.0200	8.00	26.00	0.320	5.000	0.500			
1	4	RED TEE 1"X1/2" NPT 3M F53	546694	EV9	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120			
2	6	TEE 1/2" NPT 3M F53	258767	EOW	0.023	0.530	0.800	0.016	0.0010	6.20	25.70	0.310	3.400	0.180			
3	6	90° ELBOW FF 1" NPT 3M F53	546694	EZA	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120			
4	12	90° ELBOW FF 1/2" NPT 3M F53	404249	EV2	0.016	0.270	0.740	0.022	0.0005	7.16	25.20	0.281	3.800	0.130			

ESSAIS MECANIQUES / MECHANICAL TEST

Item	Re (0,2%) N/mm²	Rm N/mm²	A%	Dureté/HB Hardness	Spécification dimensionnelle Dimensional specification
mini	515.00	730.0	15.00		
maxi					
1	605.00	799.0	39.00	25-27 HRC	ASME B16.11/21-ANSI/ASME B1.20.1/2013
2	603.00	791.0	36.80	263-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
3	605.00	799.0	39.00	258-259 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
4	598.00	857.0	45.00	262-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013

MADE IN FRANCE
FORGED STEEL & STAINLESS STEEL

QUALITY DEPARTMENT · C. COSSE ·

07 OCT. 2024

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Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.
We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensionnal control.

Réalisation DECLIC 3000

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 6,000

DDT BL/VEN/7787 17/10/2024
Riferimento ordine cliente:. PK2885
Articolo: F043012000IHAA TEE F53 1/2" NPT S3000

N di colata:EOW-258767-6
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

ISO 9001 BUREAU VERITAS Certification
Certificato N. 200808
0363-958244
MATERIND srl

DELCORTE s.a.s
FORGED STEEL & STAINLESS STEEL
Quality system certified ISO9001
by TUV MS19 Q11118

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info@delcorte.com

CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE (EN 10204 : 2004 3.1)

Client / Customer

MATERIND SRL
VIA MONTE ROSA, 13

20066 MELZO (MI) ITALIE

N° Certificat/Certificate n° DEL/48494/10/224 / 1
07/10/2024

Commande / Order OF/STD/2404764

Bordereau / Dispatch note DEL/48494/10/224
04/10/2024

Spécification matière/Material Specification
ASTM A 182/A182M-23 F53 ASME SA182/SA182M Sect II Part A Ed.2023
PED 2014/68/EU (An.1 §4.3)

Traitement thermique/Heat Treatment
HYPERTREMPE 1025°C MINI

SOLUTION TREAT 1025°C MINI & QUENCH

Divers/Others

COMPOSITION CHIMIQUE /CHEMICAL ANALYSIS

Item	Qte/Qty	Désignation	N°Coulée/Heat Number	Identification	C %	Si %	Mn %	P %	S %	Ni %	Cr %	N %	Mo %	Cu %			
mini										6.00	24.00	0.240	3.000				
maxi					0.030	0.800	1.200	0.035	0.0200	8.00	26.00	0.320	5.000	0.500			
1	4	RED TEE 1"X1/2" NPT 3M F53	546694	EV9	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120			
2	6	TEE 1/2" NPT 3M F53	258767	EOW	0.023	0.530	0.800	0.016	0.0010	6.20	25.70	0.310	3.400	0.180			
3	6	90° ELBOW FF 1" NPT 3M F53	546694	EZA	0.012	0.270	0.980	0.022	0.0005	6.85	25.06	0.264	3.810	0.120			
4	12	90° ELBOW FF 1/2" NPT 3M F53	404249	EV2	0.016	0.270	0.740	0.022	0.0005	7.16	25.20	0.281	3.800	0.130			

ESSAIS MECANIQUES / MECHANICAL TEST

Item	Re (0,2%) N/mm²	Rm N/mm²	A%	Dureté/HB Hardness	Spécification dimensionnelle Dimensional specification
mini	515.00	730.0	15.00		
maxi					
1	605.00	799.0	39.00	25-27 HRC	ASME B16.11/21-ANSI/ASME B1.20.1/2013
2	603.00	791.0	36.80	263-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
3	605.00	799.0	39.00	258-259 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013
4	598.00	857.0	45.00	262-265 HB	ASME B16.11/21-ANSI/ASME B1.20.1/2013

MADE IN FRANCE
FORGED STEEL & STAINLESS STEEL

QUALITY DEPARTMENT · C. COUSE ·
07 OCT. 2024

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Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.
We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensionnal control.

Réalisation DECLIC 3000

Cliente:082292 FCM CONSTRUCTION SRL

Quantità: 4,000

DDT BL/VEN/7787 17/10/2024
Riferimento ordine cliente:. PK2885
Articolo: 00107650 TEE F53 1"X1/2" NPT S3000

N di colata:EV9-546694-4
CERTIFICATO CONFORME ALL'ORIGINALE TRUE COPY

Certificato N. 200808
0363-958244
MATERIND srl

L'Officina®
OMS COLANGELO GERARDA & C. S.A.S.

Via A. Volta, 34 21040
Oggiona con S.Stefano VA
E info@lofficinaoms.it T 0331 735350
P.I. 03664800129 CF 03664800129

PRODUZIONE RACCORDI E COMPONENTI PER IMPIANTISTICA INDUSTRIALE PETROLCHIMICA

Cliente / Purchaser:
0000000000957
FCM CONSTRUCTION SRL
VIA PAVIA 12
21049 TRADATE (VA) (IT)

Certificato di Collaudo - Test Certificate

Doc. Number 813
Date 21/10/2024

Work Certificate EN 10204 3.1

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
20	RID ES 1.1/2x1 NPT F53	2,000	D27	100089	F53 - UNSS32750	COGNE

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,016	0,850	0,390	0,023	0,000	7,030	25,02	3,730	0,000	0,000	0,160	0,000	0,000	0,000	0,240	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
787,00	558,00	36,400	78,900	0,000	0,000	0,000	237,00	404-391-375	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

ELECT. FURN. SOLUT. ANNEALED AT.1100° MIN..WATER QUENCHED IMPACT TEST, J, -50 degrees C // NACE MR 0175

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
30	RID ES 1x3/4 NPT F55	2,000	D32	276345	UNS S32760	COGNE

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,014	0,610	0,390	0,018	0,000	6,910	24,93	3,720	0,000	0,000	0,590	0,000	0,000	0,000	0,240	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
802,00	565,00	43,500	80,000	0,000	0,000	0,000	235,00	306-289-271	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
40	MANIC FM 1/2 3M 338xNPT F55...	4,000	D31	407494	UNS S32760	BGH

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,017	0,550	0,270	0,019	0,000	7,570	25,50	3,480	0,000	0,000	0,590	0,000	0,000	0,000	0,252	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
837,00	592,00	37,000	82,000	0,000	0,000	0,000	255,00	343-328-360	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

W=0,540 - PRE = 41,016
S=0.0007 - TRATTAMENTO TERMICO : SOLUTION ANNEALED

OMS OFFICINA MECCANICA COLANGELO GERARDA

L'Officina®
OMS COLANGELO GERARDA & C. S.A.S.

Via A. Volta, 34 21040
Oggiona con S.Stefano VA
E info@lofficinaoms.it T 0331 735350
P.I. 03664800129 CF 03664800129

PRODUZIONE RACCORDI E COMPONENTI PER IMPIANTISTICA INDUSTRIALE PETROLCHIMICA

Cliente / Purchaser:
0000000000957
FCM CONSTRUCTION SRL
VIA PAVIA 12
21049 TRADATE (VA) (IT)

Certificato di Collaudo - Test Certificate

Doc. Number 813
Date 21/10/2024

Work Certificate EN 10204 3.1

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
50	RID ES 3/4x1/2 338xNPT F55	2,000	D31	407494	UNS S32760	BGH

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,017	0,550	0,270	0,019	0,000	7,570	25,50	3,480	0,000	0,000	0,590	0,000	0,000	0,000	0,252	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
837,00	592,00	37,000	82,000	0,000	0,000	0,000	255,00	343-328-360	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

W=0,540 - PRE = 41,016
S=0.0007 - TRATTAMENTO TERMICO : SOLUTION ANNEALED

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
60	NT F55 1.1/2 S160 L75 NPTxNPT	2,000	D32	276345	UNS S32760	COGNE

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,014	0,610	0,390	0,018	0,000	6,910	24,93	3,720	0,000	0,000	0,590	0,000	0,000	0,000	0,240	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
802,00	565,00	43,500	80,000	0,000	0,000	0,000	235,00	306-289-271	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
70	NT F55 3/4 S160 L100 NPTx338	2,000	D31	407494	UNS S32760	BGH

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,017	0,550	0,270	0,019	0,000	7,570	25,50	3,480	0,000	0,000	0,590	0,000	0,000	0,000	0,252	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
837,00	592,00	37,000	82,000	0,000	0,000	0,000	255,00	343-328-360	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

W=0,540 - PRE = 41,016
S=0.0007 - TRATTAMENTO TERMICO : SOLUTION ANNEALED

OMS OFFICINA MECCANICA COLANGELO GERARDA

L'Officina®
OMS COLANGELO GERARDA & C. S.A.S.

Via A. Volta, 34 21040
Oggiona con S.Stefano VA
E info@lofficinaoms.it T 0331 735350
P.I. 03664800129 CF 03664800129

PRODUZIONE RACCORDI E COMPONENTI PER IMPIANTISTICA INDUSTRIALE PETROLCHIMICA

Cliente / Purchaser:
0000000000957
FCM CONSTRUCTION SRL
VIA PAVIA 12
21049 TRADATE (VA) (IT)

Certificato di Collaudo - Test Certificate

Doc. Number 813
Date 21/10/2024

Work Certificate EN 10204 3.1

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
80	NT F55 3/4 S160 L100 NPTx338	2,000	D31	407494	UNS S32760	BGH

Order Reference : 190-2024

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,017	0,550	0,270	0,019	0,000	7,570	25,50	3,480	0,000	0,000	0,590	0,000	0,000	0,000	0,252	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
837,00	592,00	37,000	82,000	0,000	0,000	0,000	255,00	343-328-360	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

W=0,540 - PRE = 41,016
S=0.0007 - TRATTAMENTO TERMICO : SOLUTION ANNEALED

OMS OFFICINA MECCANICA COLANGELO GERARDA

L'Officina®
OMS COLANGELO GERARDA & C. S.A.S.

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E info@lofficinaoms.it T 0331 735350
P.I. 03664800129 CF 03664800129

PRODUZIONE RACCORDI E COMPONENTI PER IMPIANTISTICA INDUSTRIALE PETROLCHIMICA

Cliente / Purchaser:
0000000000957
FCM CONSTRUCTION SRL
VIA PAVIA 12
21049 TRADATE (VA) (IT)

Certificato di Collaudo - Test Certificate

Doc. Number 892
Date 13/11/2024

Work Certificate EN 10204 3.1

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
20	MANIC 1.1/2 3M NPT F55	2,000	D32	276345	UNS S32760	COGNE

Order Reference :

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,014	0,610	0,390	0,018	0,000	6,910	24,93	3,720	0,000	0,000	0,590	0,000	0,000	0,000	0,240	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
802,00	565,00	43,500	80,000	0,000	0,000	0,000	235,00	306-289-271	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

Pos.	Description	Qty	Signature	Heat	Material	Acciaieria - Steel Plant
30	MANIC 3/4 3M 338 F55	4,000	D31	407494	UNS S32760	BGH

Order Reference :

ANALISI CHIMICA -- - CHIMICAL COMPOSITION

%C	%Mn	%Si	%P	%S	%Ni	%Cr	%Mo	%Ti	%V	%Cu	%Al	%Nb	%Sn	%N	%Ceq	Temp
0,017	0,550	0,270	0,019	0,000	7,570	25,50	3,480	0,000	0,000	0,590	0,000	0,000	0,000	0,252	0,000	0,000

CARATTERISTICHE MECCANICHE -- MECHANICAL PROPERTIES

R TENSILE STRENGHT n / mm2.	Y YELD POINT n / mm2.	A ELONGATION %	C REDUCTION OF AREA %	BENDIN TEST	FLATTENING TEST	HYDRAULIC	HARDNESS	IMPACT TEST	TEMP	STATO FORN.
837,00	592,00	37,000	82,000	0,000	0,000	0,000	255,00	343-328-360	-50,00	

NATURA DEL MATERIALE - KIND OF MATERIAL / REMARKS

W=0,540 - PRE = 41,016
S=0.0007 - TRATTAMENTO TERMICO : SOLUTION ANNEALED

OMS OFFICINA MECCANICA COLANGELO GERARDA

aliaxis

FIP ASTORE

CERTIFICATO DI COLLAUDO / *TEST CERTIFICATE*

EN 10204 - 2.2

CLIENTE / *CUSTOMER* **I.S.I. S.R.L.**

PRODOTTO / *PRODUCT* : TUBO / *PIPE*

MATERIALE / MATERIAL : PVC-U

TIPO DI PROVA *Test Type*	SPECIFICHE *Specification*	CONDIZIONI *Conditions*	RISULTATI *Results*
ASPETTO SUPERFICIALE *APPEARANCE*	EN ISO 15493	EN ISO 15493	OK
CONTROLLO DIMENSIONALE *DIMENSIONAL CHECK*	EN ISO 15493 FIP spec.	EN ISO 15493 FIP spec.	OK
INDICE DI FLUIDITA' *MELT FLOW RATE*	EN ISO 15493	EN ISO 15493	OK
PROVA IN PRESSIONE (con raccordi) *PRESSURE TEST (with fittings)*	EN ISO 15493	EN ISO 15493	OK

ATTESTATO DI CONFORMITA' - *STATEMENT OF CONFORMITY*

SI ATTESTA CHE IL MATERIALE SOPRA DESCRITTO E' STATO PROVATO ED E' CONFORME AI REQUISITI RICHIESTI DALL'ORDINE / *WE HEREBY STATE THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH ORDER.*

ISPETTORE FIP – *FIP INSPECTOR* :

FIP S.p.A.

FIP - Formatura Iniezione Polimeri SpA
Società Unipersonale - Soggetta a direzione e coordinamento da parte di Aliaxis Holding Italia S.p.A.
Loc. Pian di Parata - 16015 Casella - Genova - Italia
Tel +39 (010) 96211 - PEC: fip@pec.fipnet.it
www.fipnet.com

C.F. - P.IVA - Iscrizione al Registro delle Imprese di Genova Nr.: 00276860103
REA C.C.I.A.A. Genova Nr.: 196879
Capitale Sociale: €6.200.000

Dati bancari
IBAN: IT 53L 01 005 01400 000000024674
Swift/BIC: BNLIITRRGEX
Banca Nazionale del Lavoro

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FIP ASTORE

CERTIFICATO DI COLLAUDO / *TEST CERTIFICATE*

EN 10204 - 2.2

CLIENTE / *CUSTOMER* **I.S.I. S.R.L.**

PRODOTTO / *PRODUCT* : *VALVOLE/ VALVES*

MATERIALE / MATERIAL : PVC-U

TIPO DI PROVA *Test Type*	SPECIFICHE *Specification*	CONDIZIONI *Conditions*	RISULTATI *Results*
ASPETTO SUPERFICIALE *APPEARANCE*	EN ISO 15493 EN ISO 1452	EN ISO 15493 EN ISO 1452	OK
CONTROLLO DIMENSIONALE *DIMENSIONAL CHECK*	EN ISO 15493, EN ISO 1452, FIP spec. (***)	EN ISO 15493, EN ISO 1452, FIP spec. (***)	OK
PROVA IN PRESSIONE (V.aperta) *PRESSURE TEST (Opened valve)*	ISO 9393-2 tab.3	20°C – 1,5xPN – 30 sec	OK (1)
PROVA IN PRESSIONE (V.chiusa) *PRESSURE TEST (Closed valve)*	ISO 9393-2 tab.3	20°C – 1,1xPN – 30 sec	OK
PROVA IN PRESSIONE (V.aperta/chiusa) *PRESSURE TEST (Opened/closed valve)*	ISO 9393-2 tab.3 FIP spec.	ISO 9393-2 tab.3 FIP spec.	OK
Prova funzionale attuatore (se applicabile) *Actuator working test (if applicable)*	FIP spec.	FIP spec.	OK

NOTE : (1) MAX TEST PRESS = PN + 5 BAR

(***) Le filettature rispettano I requisiti di ASTM D1785 - JIS K 6741, le flangiature ANSI B16.5 - JIS B2220 e le tasche a saldare ASTM D 2467 - JIS K 6743 / *Threads meet ASTM D1785 - JIS K 6741 requirements, ANSI B16.5 - JIS B2220 flanges and socket welds ASTM D2467 - JIS K 6743*

ATTESTATO DI CONFORMITA' - *STATEMENT OF CONFORMITY*

SI ATTESTA CHE IL MATERIALE SOPRA DESCRITTO E' STATO PROVATO ED E' CONFORME AI REQUISITI RICHIESTI DALL'ORDINE / *WE HEREBY STATE THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH ORDER.*

ISPETTORE FIP – *FIP INSPECTOR* :

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FIP ASTORE

CERTIFICATO DI COLLAUDO / *TEST*

EN 10204 - 2.2

PRODOTTO / *PRODUCT* : RACCORDI – STAFFE / *CLAMP SADDLES - FITTINGS*

MATERIALE / MATERIAL : PVC-U / PVC-C / ABS

TIPO DI PROVA *Test Type*	SPECIFICHE *Specification*	CONDIZIONI *Conditions*	RISULTATI *Results*
ASPETTO SUPERFICIALE *APPEARANCE*	EN ISO 15493	EN ISO 15493	OK
CONTROLLO DIMENSIONALE *DIMENSIONAL CHECK*	EN ISO 15493 FIP spec.	EN ISO 15493 FIP spec.	OK
PROVA VICAT *VICAT TEST*	EN ISO 15493	EN ISO 15493	OK
PROVA DI FORNO (X) *EFFECT OF HEATING*	EN ISO 15493	EN ISO 15493	OK
PROVA IN PRESSIONE *PRESSURE TEST*	EN ISO 15493	EN ISO 15493	OK
PROPRIETA' MECCANICHE STAFFE (X) *MECHANICAL PROPERTIES CLAMP SADDLES*	ISO 13460	ISO 13460	OK

NOTE :

(X) Se applicabile / *If applicable*

ATTESTATO DI CONFORMITA' - *STATEMENT OF CONFORMITY*

SI ATTESTA CHE IL MATERIALE SOPRA DESCRITTO E' STATO PROVATO ED E' CONFORME AI REQUISITI RICHIESTI DALL'ORDINE / *WE HEREBY STATE THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH ORDER.*

ISPETTORE FIP – *FIP INSPECTOR* :

FIP S.p.A.
Pian di Parata
16015 CASELLA (GE)
C.F. 00276860103

FIP - Formatura Iniezione Polimeri SpA
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Capitale Sociale: €6.200.000

Dati bancari
IBAN: IT 53L 01 005 01400 000000024674
Swift/BIC: BNLIITRRGEX
Banca Nazionale del Lavoro

aliaxis

FIP ASTORE

CERTIFICATO DI COLLAUDO / *TEST CERTIFICATE*

EN 10204 - 2.2

CLIENTE / *CUSTOMER* **I.S.I. S.R.L.**

PRODOTTO / *PRODUCT* : TUBO / *PIPE*

MATERIALE / MATERIAL : PP

TIPO DI PROVA *Test Type*	SPECIFICHE *Specification*	CONDIZIONI *Conditions*	RISULTATI *Results*
ASPETTO SUPERFICIALE *APPEARANCE*	EN ISO 15494	EN ISO 15494	OK
CONTROLLO DIMENSIONALE *DIMENSIONAL CHECK*	EN ISO 15494 FIP spec.	EN ISO 15494 FIP spec.	OK
INDICE DI FLUIDITA' *MELT FLOW RATE*	EN ISO 15494	EN ISO 15494	OK
PROVA IN PRESSIONE (con raccordi) *PRESSURE TEST (with fittings)*	EN ISO 15494	EN ISO 15494	OK

ATTESTATO DI CONFORMITA' - *STATEMENT OF CONFORMITY*

SI ATTESTA CHE IL MATERIALE SOPRA DESCRITTO E' STATO PROVATO ED E' CONFORME AI REQUISITI RICHIESTI DALL'ORDINE / *WE HEREBY STATE THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH ORDER.*

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Dati bancari
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Swift/BIC: BNLIITRRGEX
Banca Nazionale del Lavoro

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CERTIFICATO DI COLLAUDO / *TEST*

EN 10204 - 3.1

CLIENTE / *CUSTOMER* I.S.I. SRL

PRODOTTO / *PRODUCT* : VALVOLE - *VALVES*

MATERIALE / MATERIAL : PP

TIPO DI PROVA *Test Type*	SPECIFICHE *Specification*	CONDIZIONI *Conditions*	RISULTATI *Results*
ASPETTO SUPERFICIALE *APPEARANCE*	EN ISO 15494	EN ISO 15494	OK
CONTROLLO DIMENSIONALE *DIMENSIONAL CHECK*	EN ISO 15494 FIP spec.	EN ISO 15494 FIP spec.	OK
PROVA IN PRESSIONE (V.aperta) *PRESSURE TEST (Opened valve)*	ISO 9393-2 tab.3 FIP spec.	ISO 9393-2 tab.3 FIP spec.	OK (1)
PROVA IN PRESSIONE (V.chiusa) *PRESSURE TEST (Closed valve)* (X)	ISO 9393-2 tab.3 FIP spec.	ISO 9393-2 tab.3 FIP spec.	OK
Prova funzionale attuatore *Actuator working test* (X)	FIP spec.	FIP spec.	OK

NOTE : (1) MAX TEST PRESS = PN + 5 BAR

(X) Se applicabile / If Applicable

ATTESTATO DI CONFORMITA' - *STATEMENT OF CONFORMITY*

SI ATTESTA CHE IL MATERIALE SOPRA DESCRITTO E' STATO PROVATO ED E' CONFORME AI REQUISITI RICHIESTI DALL'ORDINE / *WE HEREBY STATE THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH ORDER.*

ISPETTORE FIP – *FIP INSPECTOR* :

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Dati bancari
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FIP ASTORE

CERTIFICATO DI COLLAUDO / *TEST*

EN 10204 - 2.2

PRODOTTO / *PRODUCT* : RACCORDI – STAFFE / *FITTINGS – CLAMP SADDLES*

MATERIALE / MATERIAL : PE / PP

TIPO DI PROVA *Test Type*	SPECIFICHE *Specification*	CONDIZIONI *Conditions*	RISULTATI *Results*
ASPETTO SUPERFICIALE *APPEARANCE*	EN ISO 15494	EN ISO 15494	OK
CONTROLLO DIMENSIONALE *DIMENSIONAL CHECK*	EN ISO 15494 FIP spec.	EN ISO 15494 FIP spec.	OK
INDICE DI FLUIDITA' *MELT FLOW RATE*	EN ISO 15494	EN ISO 15494	OK
PROVA IN PRESSIONE *PRESSURE TEST*	EN ISO 15494	EN ISO 15494	OK
PROPRIETA' MECCANICHE STAFFE (X) *MECHANICAL PROPERTIES CLAMP SADDLES*	ISO 13460	ISO 13460	OK

NOTE: (X) Se applicabile / If applicable

ATTESTATO DI CONFORMITA' - *STATEMENT OF CONFORMITY*

SI ATTESTA CHE IL MATERIALE SOPRA DESCRITTO E' STATO PROVATO ED E' CONFORME AI REQUISITI RICHIESTI DALL'ORDINE / *WE HEREBY STATE THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH ORDER.*

ISPETTORE FIP – *FIP INSPECTOR* :

FIP S.p.A.
Pian di Parata
16015 CASELLA (GE)
C.F. 00276860103

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Capitale Sociale: €6.200.000

Dati bancari
IBAN: IT 53L 01 005 01400 000000024674
Swift/BIC: BNLIITRRGEX
Banca Nazionale del Lavoro

2.2.3

CALIBRATION REPORT

2.2.3.1

TRANSMITTERS

AMBIENT TEMPERATURE TRANSMITTER ENDRESS+HAUSER

50-TT-023

Endress+Hauser
People for Process Automation

Parameter Settings

Order information

Customer	PSC SPA ENGINEERING & CONTRACTING
Customer purchase order	2885/58/24/0
Sales order number / Item	40/3032266692/1013066892
internal order number / Item	3002486643/0010

Device information

Description	iTHERM TST434B
TAG	EH_TMT72_W9055314378
Serial number	W9004C14538
Order code	TST434B-19P2/142
Extended order code	TST434B-AAA3ABA

Additional information

Component	Serial number
Thermometer	W9004C14538
Transmitter	W9055314378
Box / Boxes	1 / 1
TAG, metal	50-TT-023
TAG, fieldbus	EH_TMT72_W9055314378

Electronics

Electronic type	4...20 mA, HART®
Device revision	1
Firmware version	01.01.09
Hardware version	01.01
Model name	TMT72
Device type	0x11D0

Input 1

Sensor type	Pt100, IEC 751
Sensor connection	3- wire
Sensor unit	°C

Output

Output signal direction	4...20 mA
Measuring range	-20...60 °C
Output failure mode	<= 3.6 mA

Statement

The device operates within the manufacturers stated tolerances.

Pessano, 2024-09-26

Endress+Hauser Sicestherm S.r.l
Via M. Luther King, 7
I-20060 Pessano con Bornago (MI)
www.endress.com

Calibration Certificate

W9004C14538-2024

Endress+Hauser
People for Process Automation

Factory Calibration - Temperature

Order information

Customer	PSC SPA ENGINEERING & CONTRACTING
Customer purchase order	2885/58/24/0
Sales order number / Item	40/3032266692/1013066892
Internal order number / Item	3002486643-0010

Device information

Description	Resistance thermometer
TAG	50-TT-023
Serial number	W9004C14538 / W9055314378
Order code	TST434B-19P2/142
Extended order code	TST434B-AAA3ABA+Z1

Additional information

Thermometer	W9004C14538 / W9055314378
Device condition	new
Measurement Range	-20...60 °C
Remark:	n.a.
Box / Boxes	n.a.

Procedure

Test specification	TS1141T
Calibration method	

The temperature values are according to the ITS-90. The calibrations at 0°C were made at the melting ice-point and at -196 °C at the nitrogen boiling point.
At all other temperatures comparison calibrations are carried out in an homogeneous temperature field, using a liquid stirred bath between -80°C ≤ t ≤ 500°C and within a tube furnace between 500°C < t ≤ 650°C.
All measurements have been made in ambient controlled at 23°C ± 3K and R.H. 0% ... 80%.

Expanded measurement uncertainty (k=2): The total measurements uncertainty, evaluated at twice the standard deviation, is:
At −196°C: ± 0,16 K (probability 95%)
At 0°C: ± 0,10 K (probability 95%)
From −80°C to 0°C: ± 0,14 K (probability 95%)
From 0°C to 250°C: ± 0,13 K (probability 95%)
From 250°C to 500°C: ± 0,20 K (probability 95%)
From 500°C to 650°C: ± 0,90 K (probability 95%)

Measuring condition

Ambient temperature	23°C ± 3K
Immersion Depth	50 mm

Endress+Hauser Temperature+System Products Italy
Via M.L. King, 7
I-20060 Pessano con Bornago (MI)
www.endress.com

Calibration Certificate

W9004C14538-2024

Endress+Hauser
People for Process Automation

Factory Calibration - Temperature

Device information

Description	Resistance thermometer
TAG	50-TT-023
Serial number	W9004C14538 / W9055314378

Calibration results

Calibration point	Reference temperature	UUT output	Calculated temperature value	Measurement error	Max. permissible error
(°C)	*(°C)*	*(mA)*	*(°C)*	*(K)*	*(± K)*
-20	-20,18	3,966	-20,17	0,01	0,31
0	0,00	8,011	0,05	0,05	0,27
60	60,06	20,033	60,17	0,11	0,39

The manufacturer confirms that all measuring equipment used to assure the quality of the products has been calibrated and is traceable to national (e.g. PTB, NIST, NABL...) or international standards.
The calibration was performed in compliance within ISO 9001 quality management system.
The observance of recalibration interval is under the responsibility of the user.

Statement

The device operates within the manufacturers stated tolerances

Pessano, 30/09/2024 M.Montrasio

This document was generated electronically and is valid without signature.

Endress+Hauser Temperature+System Products Italy
Via M.L. King, 7
I-20060 Pessano con Bornago (MI)
www.endress.com

CONDUCTIVITY ANALYZERS

BURKERT

50-AT-023 – 50-AT-024

Overview of documentation

Record 4330767266

bürkert
FLUID CONTROL SYSTEMS

Bürkert S.A.S. / FR - Triembach au Val

PSC S.p.A. Engineering & Contracting
Via S. Vitale 61
IT 20030 SEREGNO

Your Order No:	2885/14/24/0
Customer No:	43001851
Our order No:	4330767266
Service order No:	

Item	Material	Description of item	Quantity
10	00566603	8228-BC89-PDFF-C5-A-F1-K-BDN/DC-B * IS23	1 items

Customer item number: 50-AT-023

We hereby confirm that the products delivered are in compliance with specification of the order.

Product classification		
Type	8228	8228
Port connection	BC89	G2 union nut
Material	PD	PVDF (polyvinylidene fluoride)
Seal material	FF	FKM
Sensor	C5	inductive sensor
Measuring range	A	freely programmable
function sensor	F1	measurement
Design	K	housing with plug M12 x 1, display
Voltage	BDN	12-36 volts
Frequency	DC	DC
Output signal	B	output current 4-20mA and transistor
Var1	IS23	outputs: 1 x 4-20mA + 1 x transistor

Contents	Page
Calibration certificate Conductivity 2 points Display	2

Calibration certificate
Conductivity 2 points Display

00550675

Bürkert S.A.S. / FR - Triembach au Val

PSC S.p.A. Engineering & Contracting
Via S. Vitale 61
IT 20030 SEREGNO

Serial number Bürkert: 2581

Your Order No:	2885/14/24/0
Customer No:	43001851
Our order No:	4330767266

Item	Material	Description of item	Quantity
10	00566603	8228-BC89-PDFF-C5-A-F1-K-BDN/DC-B * IS23	1 items

Customer item number: 50-AT-023

We hereby confirm that the products delivered are in compliance with specification of the order.

Product classification		
Type	8228	8228
Port connection	BC89	G2 union nut
Material	PD	PVDF (polyvinylidene fluoride)
Seal material	FF	FKM
Sensor	C5	inductive sensor
Measuring range	A	freely programmable
function sensor	F1	measurement
Design	K	housing with plug M12 x 1, display
Voltage	BDN	12-36 volts
Frequency	DC	DC
Output signal	B	output current 4-20mA and transistor
Var1	IS23	outputs: 1 x 4-20mA + 1 x transistor

The publication or reproduction of this certificate is only permitted in its complete form.

Creation Date:02.09.2024

Calibration certificate
Conductivity 2 points Display

00550675

Laboratory officer
J. Guilhemsang
The certificate is valid without a signature!

The publication or reproduction of this certificate is only permitted in its complete form.

Creation Date:02.09.2024

BÜRKERT SAS
B.P. 21
F - 67220 TRIEMBACH-AU-VAL
Tel : 03.88.51.91.00
Fax. 03.88.57.09.61

Id-Nb 550675

RAPPORT D'ETALONNAGE
CALIBRATION REPORT
KALIBRIERUNGS BERICHT

Lab-C 24/473

Commande / Order / Bestellung : 43611771

INSTRUMENT ETALONNE / CALIBRATED MEASURING DEVICE / KALIBRIERTES MESSGERÄT :

Type / Type / Typ Transmitter :	8228
Fabricant / Manufacturer / Hersteller Transmitter :	Bürkert SAS
N° d'identification / Identification number / Ident. Nr. Transmitter :	566603
N° de série / Serial N° / Fabrikations-Nr. Transmitter :	2581
Electrodes / Electrode/ Elektrode C factor :	C=1
Plage de mesure / measuring range / Messbereich :	0,1...2000mS/cm

Date d'édition / Edition date / Ausstellungsdatum : 2 septembre 2024

Responsable du Laboratoire de Mesures et d'Essais

J. Guilhemsang

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Rapport d'étalonnage / Calibration report
Kalibrierungs Bericht
Lab-C 24/473

1 . Conditions de mesure / Conditions of measurement / Messbedingungen

Température ambiante/ Ambient temperature / Raum Temperatur : 23,5°C
Facteur C programmé / Programmed C-factor / Programmierter C-Faktor : 7,07000

2 . Moyens de mesure / Measurement means / Prüfmittel

References	Type	N° AQ / QA	Etalonnage / calibration
Conductimeter :	InoLab740	F-6-33-307/001	04/2024
Electrodes / cells :	TetraCon LR325	06-39-382/003	04/2024
Electrodes / cells :			

Nous garantissons que les instruments de mesure utilisés sur notre banc sont raccordés aux étalons nationaux.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.
Die Rückführbarkeit aller bei der Kalibrierung verwendeten Prüfmittel auf das nationale Normal ist sichergestellt.

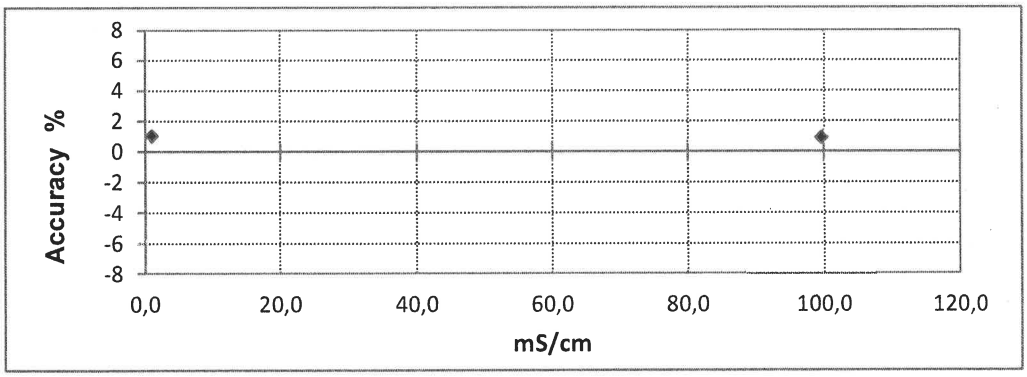
3 . Méthode de mesure / Measurement method / Messmethode

The conductivity calibration is made by comparaison with a reference device without any temperature compensation. The conductivity cell of the transmitter is rinced with deionized water before and after each measurement. Very low conductivity is measured in a fitting with flow.

4 . Résultats / Results / Ergebnisse

Reference	Measured	Accuracy
mS/cm	mS/cm	%
0,98	0,99	1,0
99,700	100,600	0,9

Calibration uncertainty : < 1,5% Tolerances : +/- 3%



Temperature Reference : 23,1°C Temperature Cell : 23,4°C ΔT 0,3 °C

5. Remarques / Remarks / Bemerkungen

Etalonné par / Calibrated by : Lysann KOEGEL le 2-sept.-24

Overview of documentation

Record 4330767266

bürkert
FLUID CONTROL SYSTEMS

Bürkert S.A.S. / FR - Triembach au Val

PSC S.p.A. Engineering & Contracting
Via S. Vitale 61
IT 20030 SEREGNO

Your Order No:	2885/14/24/0
Customer No:	43001851
Our order No:	4330767266
Service order No:	

Item	Material	Description of item	Quantity
30	00559610	8222-0000-PD00-C3-A-A7-2-BDC/DC-B * IS21+KE07	1 items

Customer item number: 50-AT-024

We hereby confirm that the products delivered are in compliance with specification of the order.

Product classification		
Type	8222	conductivity mini-transmitter
Port connection	0000	not applicable
Material	PD	PVDF (polyvinylidene fluoride)
Seal material	00	without seal or no explanation
Sensor	C3	cellular constant K=1
Measuring range	A	freely programmable
function sensor	A7	resistive conductivity measure - 2 electrodes
Design	2	housing with plug M12 x 1
Voltage	BDC	14-36 volts
Frequency	DC	DC
Output signal	B	output current 4-20mA and transistor
Var1	IS21	outputs: 1 x 4-20mA + 2 x transisiors
Var2	KE07	nut G1 1/2 PVC

Contents	Page
Calibration certificate Conductivity 2 points Display	2

Calibration certificate
Conductivity 2 points Display

00550675

Bürkert S.A.S. / FR - Triembach au Val

PSC S.p.A. Engineering & Contracting
Via S. Vitale 61
IT 20030 SEREGNO

Serial number Bürkert: 4600

Your Order No:	2885/14/24/0
Customer No:	43001851
Our order No:	4330767266

Item	Material	Description of item	Quantity
30	00559610	8222-0000-PD00-C3-A-A7-2-BDC/DC-B * IS21+KE07	1 items

Customer item number: 50-AT-024

We hereby confirm that the products delivered are in compliance with specification of the order.

Product classification		
Type	8222	conductivity mini-transmitter
Port connection	0000	not applicable
Material	PD	PVDF (polyvinylidene fluoride)
Seal material	00	without seal or no explanation
Sensor	C3	cellular constant K=1
Measuring range	A	freely programmable
function sensor	A7	resistive conductivity measure - 2 electrodes
Design	2	housing with plug M12 x 1
Voltage	BDC	14-36 volts
Frequency	DC	DC
Output signal	B	output current 4-20mA and transistor
Var1	IS21	outputs: 1 x 4-20mA + 2 x transisiors
Var2	KE07	nut G1 1/2 PVC

The publication or reproduction of this certificate is only permitted in its complete form.

Creation Date:29.08.2024

Calibration certificate
Conductivity 2 points Display

00550675

Laboratory officer
J. Guilhemsang
The certificate is valid without a signature!

The publication or reproduction of this certificate is only permitted in its complete form.

Creation Date:29.08.2024

BÜRKERT SAS
B.P. 21
F - 67220 TRIEMBACH-AU-VAL
Tel : 03.88.51.91.00
Fax. 03.88.57.09.61

Id-Nb 550675

RAPPORT D'ETALONNAGE
CALIBRATION REPORT
KALIBRIERUNGS BERICHT

Lab-C 24/467

Commande / Order / Bestellung : 43611771

INSTRUMENT ETALONNE / CALIBRATED MEASURING DEVICE / KALIBRIETES MESSGERÄT :

Type / Type / Typ Transmitter :	8222
Fabricant / Manufacturer / Hersteller Transmitter :	Bürkert SAS
N° d'identification / Identification number / Ident. Nr. Transmitter :	559610
N° de série / Serial N° / Fabrikations-Nr. Transmitter :	4600
Electrodes / Electrode/ Elektrode C factor :	c=1
Plage de mesure / measuring range / Messbereich :	5...10000µS/cm

Date d'édition / Edition date / Ausstellungsdatum : 29 août 2024

Responsable du Laboratoire de Mesures et d'Essais

J. Guilhemsang

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Rapport d'étalonnage / Calibration report
Kalibrierungs Bericht
Lab-C 24/467

1 . Conditions de mesure / Conditions of measurement / Messungsbedinungen

Température ambiante/ Ambient temperature / Raum Temperatur : 23°C
Facteur C programmé / Programmed C-factor / Programmierter C-Faktor : 0,95736

2 . Moyens de mesure / Measurement means / Prüfmittel

References	Type	N° AQ / QA	Etalonnage / calibration
Conductimeter :	InoLab740	F-6-33-307/001	04/2024
Electrodes / cells :	LR325 Tetracon	6-39-382/003	04/2024
Electrodes / cells :	LR325/001	6-39-T0046B	04/2024

Nous garantissons que les instruments de mesure utilisés sur notre banc sont raccordés aux étalons nationaux.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.
Die Rückführbarkeit aller bei der Kalibrierung verwendeten Prüfmittel auf das nationale Normal ist sichergestellt.

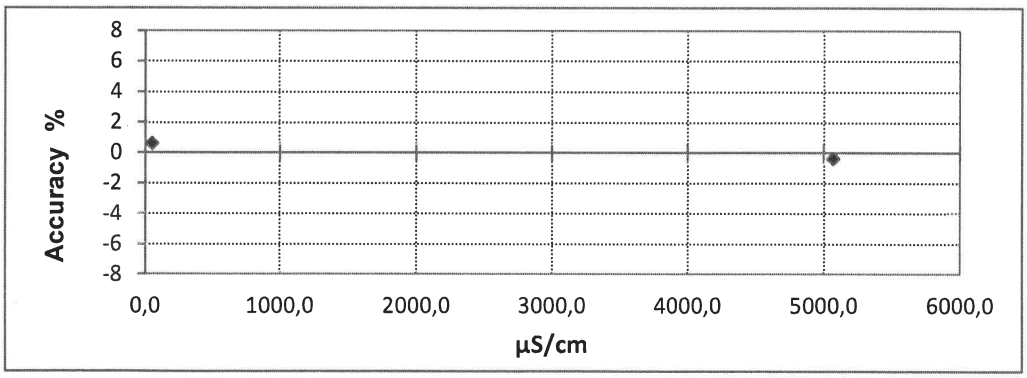
3 . Méthode de mesure / Measurement method / Messungsmethode

The conductivity calibration is made by comparaison with a reference device without any temperature compensation. The conductivity cell of the transmitter is rinced with deionized water before and after each measurement. Very low conductivity is measured in a fitting with flow.

4 . Résultats / Results / Ergebnisse

Reference	Measured	Accuracy
µS/cm	µS/cm	%
50,1	50,4	0,6
5070,000	5050,000	-0,4

Calibration uncertainty : < 1,5% Tolerances : +/- 2%



Temperature Reference : 22,7°C Temperature Cell : 22,5°C -ΔT 0,2 °C

5. Remarques / Remarks / Bemerkungen

Etalonné par / Calibrated by : Lysann KOEGEL le 29-août-24

HARDNESS ANALYZER

BURKERT

50-AT-026

Apura s.r.l.
Piazza Porto, 3
25084 Gargnano BS
Tel. 0365/642792
eMail: info@apura.it
www.apura.it

Date: 31/07/2024

Place: Nibionno (LC)

Certificato di taratura e collaudo
Calibration and test-certificate

Analizzatore tipo **Type of on-line monitor**	DUROMAT professional
Numero di produzione **Production number**	241162008

Test di misurazione / Measurement tests

Tipo d'indicatore **Type of on-line monitor**	**503/500**	
Numero di produzione **Charge number**	**2407.23.21.551**	
Soluzione di calibrazione **Calibration solution**	0,09-0,9°dH / 0,16-1,61°f/ 0,11-1,13°e / 1,60-16,02ppm / 1,60-16,02mg/l / 0,02-0,16mmol/l	
Durezza nota **Note hardness**	**Misurato / Measured**	
30 ppm	30,0	√
90 ppm	90,0	√
150 ppm	150,0	√
	Tester	A.F.

Test uscita analogica / Analog output test

Programmazione / programming	4 – 20 mA		
Valore massimo 20mA **Maximum value 20mA**	16,02 ppm		
Durezza nota **Note hardness**	**Alcalinità misurata dall'analizzatore** **Measured alkalinity by the analyzer**	**Uscita in mA** **Output in mA**	**Corrisponde** **Matcher**
3 ppm	3,22	2,9	√
9 ppm	9,06	8,7	√
15 ppm	15,15	14,6	√
		Tester	A.F.

Conformità / Conformity	OK
Etichetta / Label	OK
Data / Date	31/07/2024
Timbro/Firma	APURA s.r.l. Piazza Porto, 3 25084 Villa di Gargnano (BS) • Italy

MAGNETICAL FLOW TRANSMITTER

BURKERT

50-FT-020 – 50-FT-022 – 50-FT-023

50-FT-024 – 50-FT-026

Bürkert Fluid Control Systems
Bürkert S.A.S
BP 21
F-67220 Triembach au Val
Info-Center: +33 388 58 91 11
burkert.france@burkert.com
www.burkert.com

50-FT-020

Test Report

Order No.:	74833998
Ident No.:	00449670
Serial No.:	031992
Designation:	8045-BC89-VAFF-P8-A-F4-C-BDT/DC-A
Test Bench No.:	06-80-798
Medium:	Water
Medium Temperature:	25.8°C

We certified that the delivered product has successfully passed the following tests

Checked item	Specifications	Results
Output 4-20mA	4.00+/-0.10 mA	3.99 mA
Flow Measurement 1	57.17 l/min +/-3.0%	57.56 l/min(0.68%)
Flow Measurement 2	118.63 l/min +/-3.0%	117.83 l/min(-0.67%)
Fs Value	0.850< Fs <1.250	0.912
Display + TouchPad Function	No Function Troubles	Test OK
Pulse Output	No Function Troubles	Test OK

DATE: 29/08/24

TESTER: 04000427

Measuring instrument control system

Bürkert SAS quality department certifies that the measuring instruments and the test equipment which are used to check or calibrate the finished goods or sub assemblies are periodically calibrated or checked according to the internal procedure N° 37001 which conforms to the quality standard ISO 9001.
Bürkert SAS reference equipment in the measuring system are traceable to national standards via accredited calibration laboratories.

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www.burkert.com

50-FT-022

Test Report

Order No.:	74833998
Ident No.:	00449670
Serial No.:	031994
Designation:	8045-BC89-VAFF-P8-A-F4-C-BDT/DC-A
Test Bench No.:	06-80-798
Medium:	Water
Medium Temperature:	25.8°C

We certified that the delivered product has successfully passed the following tests

Checked item	Specifications	Results
Output 4-20mA	4.00+/-0.10 mA	4.00 mA
Flow Measurement 1	57.86 l/min +/-3.0%	57.96 l/min(0.19%)
Flow Measurement 2	117.64 l/min +/-3.0%	117.42 l/min(-0.19%)
Fs Value	0.850< Fs <1.250	1.013
Display + TouchPad Function	No Function Troubles	Test OK
Pulse Output	No Function Troubles	Test OK

DATE: 29/08/24

TESTER: 04000427

Measuring instrument control system

Bürkert SAS quality department certifies that the measuring instruments and the test equipment which are used to check or calibrate the finished goods or sub assemblies are periodically calibrated or checked according to the internal procedure N° 37001 which conforms to the quality standard ISO 9001.
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50-FT-023

Test Report

Order No.:	74833998
Ident No.:	00449670
Serial No.:	031993
Designation:	8045-BC89-VAFF-P8-A-F4-C-BDT/DC-A
Test Bench No.:	06-80-798
Medium:	Water
Medium Temperature:	25.8°C

We certified that the delivered product has successfully passed the following tests

Checked item	Specifications	Results
Output 4-20mA	4.00+/-0.10 mA	4.00 mA
Flow Measurement 1	57.86 l/min +/-3.0%	58.34 l/min(0.84%)
Flow Measurement 2	117.64 l/min +/-3.0%	116.66 l/min(-0.83%)
Fs Value	0.850< Fs <1.250	0.955
Display + TouchPad Function	No Function Troubles	Test OK
Pulse Output	No Function Troubles	Test OK

DATE: 29/08/24

TESTER: 04000427

Measuring instrument control system

Bürkert SAS quality department certifies that the measuring instruments and the test equipment which are used to check or calibrate the finished goods or sub assemblies are periodically calibrated or checked according to the internal procedure N° 37001 which conforms to the quality standard ISO 9001.
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50-FT-024

Test Report

Order No.:	74833998
Ident No.:	00449670
Serial No.:	031991
Designation:	8045-BC89-VAFF-P8-A-F4-C-BDT/DC-A
Test Bench No.:	06-80-798
Medium:	Water
Medium Temperature:	25.8°C

We certified that the delivered product has successfully passed the following tests

Checked item	Specifications	Results
Output 4-20mA	4.00+/-0.10 mA	3.99 mA
Flow Measurement 1	57.17 l/min +/-3.0%	57.31 l/min(0.25%)
Flow Measurement 2	118.63 l/min +/-3.0%	118.34 l/min(-0.24%)
Fs Value	0.850< Fs <1.250	0.963
Display + TouchPad Function	No Function Troubles	Test OK
Pulse Output	No Function Troubles	Test OK

DATE: 29/08/24

TESTER: 04000427

Measuring instrument control system

Bürkert SAS quality department certifies that the measuring instruments and the test equipment which are used to check or calibrate the finished goods or sub assemblies are periodically calibrated or checked according to the internal procedure N° 37001 which conforms to the quality standard ISO 9001.
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50-FT-026

Test Report

Order No.:	74833998
Ident No.:	00449670
Serial No.:	031995
Designation:	8045-BC89-VAFF-P8-A-F4-C-BDT/DC-A
Test Bench No.:	06-80-798
Medium:	Water
Medium Temperature:	25.8°C

We certified that the delivered product has successfully passed the following tests

Checked item	Specifications	Results
Output 4-20mA	4.00+/-0.10 mA	4.00 mA
Flow Measurement 1	57.86 l/min +/-3.0%	57.71 l/min(-0.26%)
Flow Measurement 2	117.64 l/min +/-3.0%	117.94 l/min(0.26%)
Fs Value	0.850< Fs <1.250	0.981
Display + TouchPad Function	No Function Troubles	Test OK
Pulse Output	No Function Troubles	Test OK

DATE: 29/08/24

TESTER: 04000427

Measuring instrument control system

Bürkert SAS quality department certifies that the measuring instruments and the test equipment which are used to check or calibrate the finished goods or sub assemblies are periodically calibrated or checked according to the internal procedure N° 37001 which conforms to the quality standard ISO 9001.
Bürkert SAS reference equipment in the measuring system are traceable to national standards via accredited calibration laboratories.

PH ANALYZER

BURKERT

50-AT-027

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50-AT-027

Test Report
8202

Order No.:	74833996
Ident No.:	00559630
Serial No.:	005714
Designation:	8202-0000-PD00-00-A-A8-2-BDC/DC-B *
Test Bench No.:	06-80-929; 06-80-350

We certified that the delivered product has successfully passed the following tests

Checked item	Specifications	Results
AC1 Source	12.0 +/- 0.1 mA	12.014 mA
Transistor 1 or Relay 1	Source	Test OK
Transistor 2 or Relay 2	Source	Test OK
AC1 Sink	12.0 +/- 0.1 mA	12.019 mA
Transistor 1 or Relay 1	Sink	Test OK
Transistor 2 or Relay 2	Sink	Test OK
Temperature	pT is connected	Test OK
pH7	7.00 +/- 0.030 pH	7.011 pH
pH10	10.01 +/- 0.030 pH	9.99 pH

DATE: 2024-08-28

TESTER: 04000427

Measuring instrument control system

Bürkert SAS quality department certifies that the measuring instruments and the test equipment which are used to check or calibrate the finished goods or sub assemblies are periodically calibrated or checked according to the internal procedure N° 37001 which conforms to the quality standard ISO 9001.
Bürkert SAS reference equipment in the measuring system are traceable to national standards via accredited calibration laboratories.

50-AF-027

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bürkert
FLUID CONTROL SYSTEMS

UniTrode Plus pH 120

Product Identification

Ref	238716
SN	18601
Lot	111431268

Factory Test Conditions

Tests were performed according to	111007025
Buffer Temperature	24.9 °C

Factory Test Results

	Test Specification	Result
Reading in pH7 (zero point)	0 mV ± 20 mV	7 mV
Reading in pH4		184 mV
Slope (at 25°C)	> 97 %	passed
Quality Test successfully passed	**2024-06-24**	

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Id-Nb 550673

RAPPORT D'ETALONNAGE
CALIBRATION REPORT
KALIBRIERUNGS BERICHT

Lab-C 24/416

Commande / Order / Bestellung : 43611771

INSTRUMENT ETALONNE / CALIBRATED MEASURING DEVICE / KALIBRIETES MESSGERÄT :

Type / Type / Typ : Electrode pH :	8203		
Fabricant / Manufacturer / Hersteller : Electrode :	Bürkert SAS		
N° d'identification / Identification number / Ident. Nr. : Electrode :	560376		
N° de série / Serial N° / Fabrikations Nr : Electrode :	18601		
Plage de mesure / Measuring range / Messbereich : Electrode :	0 to	14	pH
Type / Type / Typ Transmitter :	8202 Lab		
Fabricant / Manufacturer / Hersteller Transmitter :	Bürkert SAS		
N° d'identification / Identification number / Ident. Nr. Transmitter :	559631		
N° de série / Serial N° / Fabrikations Nr Transmitter :	2203		
Plage de mesure / Measuring range / Messbereich Transmitter :	-2 to	16	pH

Date d'édition / Edition date / Ausstellungsdatum : 17 juillet 2024

Responsable du Laboratoire de Mesures et d'Essais
J. Guilhemsang

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Rapport d'étalonnage / Calibration report
Kalibrierungs Bericht
Lab-C 24/416

1 . Conditions de mesure / Conditions of measurement / Messungsbedinungen

Température ambiante/ Ambient temperature / Raum Temperatur :

2 . Moyens de mesure / Measurement means / Prüfmittel

Hamilton Buffer standard Solution : 4,01 pH P/N : 238917
Batch : 111392278 Value : 4,01 at 25°C Expiry date : 15/10/2025
Hamilton Buffer standard Solution : 7,00 pH P/N : 238918
Batch : 111392280 Value : 7,00 at 25°C Expiry date : 15/10/2025

Incertitudes étendue sur les solutions de calibration / Expended uncertainty on the Buffer solutions
- Hamilton Duracal pH 4,01 and pH 7,00 = 0,01 pH

La tracabilité des solutions tampon est certifiée par le N.I.S.T. et le P.T.B.
La valeur de chaque lot de pH est contrôlée par le laboratoire allemand DAkkS, membre de la coopération Européenne pour l'Accréditation (EA).

These Buffer solutions are certified traceable to N.I.S.T. and PTB.
A sample of each pH batch is tested by the german laboratory DAkkS, member of the European cooperation for Accreditation (EA).

N.I.S.T. : National Institute of Standards and Technology USA
PTB : Physikalisch-Technische Bundesanstalt GERMANY

References	Type	N° AQ / QA	Etalonnage / calibration
Temperature	P750	6-39-492/001	02/2024

3 . Méthode de mesure / Measurement method / Messungsmethode

L'électrode pH est rincée, l'étalonnage est effectué avec le mode "calibration" du transmetteur de pH. Utilisation du pH 7,00 (pour le zéro de l'électrode), rincage puis pH 4,01 ou pH 10,01 (pour la pente de l'électrode).

The pH electrode is rinsed, the calibration is done with the "calibration" mode of the pH transmitter. pH 7,00 (for 0 mV of the electrode), rinse and pH 4,01 or pH 10,01 (for the slope of the electrode).

4 . Résultats / Results / Ergebnisse

A la fin de l'étalonnage, les résultats suivants sont affichés par le transmetteur de pH

At the end of the calibration phase, we get following value from the pH transmitter.

Offset	-7,8 mV	Tolerance :	0 mV +/- 15 mV
pente / Span	58,99 mV/pH	Tolerance :	59 mV +/- 3 mV

Temperature Ref. 24,2°C Temperature transmetter 24

5. Remarques / Remarks / Bemerkungen

Etalonné par / Calibrated by Lysann KOEGEL le 17 juillet 2024

PRESSURE TRANSMITTER

ISIFLEX/GEORG FISHER

50-PT-020 – 50-PT-025 – 50-PT-026

50-PT-027 – 50-PT-028 – 50-PT-041

50-PT-047 – 50-PT-050 – 50-PT-051

50-PT-020

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030008
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-1148
Reference recal date:	6/30/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-240,RS-51
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.002	PASS
12.000	11.968 – 12.032	11.994	PASS
16.000	15.968 – 16.032	15.998	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

The information and technical data (altogether “Data”) herein are not binding, unless explicitly confirmed in writing. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.

09/2023-A
© Georg Fischer Signet LLC, 5462 N. Irwindale Avenue, Irwindale, CA 91706 U.S.A
Tel. (626) 571-2770 www.gfps.com e-mail: signet.ps@georgfischer.com

+GF+

50-PT-025

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030024
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-1150
Reference recal date:	6/30/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-233,RS-48
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.001	PASS
8.000	7.968 – 8.032	8.003	PASS
12.000	11.968 – 12.032	11.996	PASS
16.000	15.968 – 16.032	15.998	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

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Tel. (626) 571-2770 www.gfps.com e-mail: signet.ps@georgfischer.com

+GF+

50-PT-026

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62404260316
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	4/26/2024
Reference ID:	SSC-853
Reference recal date:	9/30/2024
Verified by:	00011010130

Test Data

Fixture ID	TF-246,RS-50
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.002	PASS
12.000	11.968 – 12.032	11.996	PASS
16.000	15.968 – 16.032	15.998	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

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+GF+

04/2024

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030009
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-1148
Reference recal date:	6/30/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-240,RS-51
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.003	PASS
12.000	11.968 – 12.032	11.994	PASS
16.000	15.968 – 16.032	15.997	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

The information and technical data (altogether “Data”) herein are not binding, unless explicitly confirmed in writing. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.

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50-PT-028

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030020
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-1190
Reference recal date:	12/31/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-320,RS-49
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.001	PASS
12.000	11.968 – 12.032	11.996	PASS
16.000	15.968 – 16.032	15.998	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

The information and technical data (altogether "Data") herein are not binding, unless explicitly confirmed in writing. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.

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50-PT-041

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030021
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-1150
Reference recal date:	6/30/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-233,RS-48
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.003	PASS
12.000	11.968 – 12.032	11.995	PASS
16.000	15.968 – 16.032	15.999	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

The information and technical data (altogether "Data") herein are not binding, unless explicitly confirmed in writing. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.

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50-PT-047

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030030
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-1148
Reference recal date:	6/30/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-240,RS-51
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	3.999	PASS
8.000	7.968 – 8.032	8.002	PASS
12.000	11.968 – 12.032	11.996	PASS
16.000	15.968 – 16.032	15.996	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

The information and technical data (altogether “Data”) herein are not binding, unless explicitly confirmed in writing. The Data neither constitutes any expressed, implied or warranted characteristics, nor guaranteed properties or a guaranteed durability. All Data is subject to modification. The General Terms and Conditions of Sale of Georg Fischer Piping Systems apply.

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50-PT-050

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62405030034
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	5/3/2024
Reference ID:	SSC-853
Reference recal date:	9/30/2024
Verified by:	00011010144

Test Data

Fixture ID	TF-246,RS-50
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.002	PASS
8.000	7.968 – 8.032	8.001	PASS
12.000	11.968 – 12.032	11.995	PASS
16.000	15.968 – 16.032	15.999	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

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50-PT-051

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62406130842
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	6/13/2024
Reference ID:	SSC-1190
Reference recal date:	12/31/2024
Verified by:	00011010130

Test Data

Fixture ID	TF-233,RS-48
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.001	PASS
8.000	7.968 – 8.032	8.002	PASS
12.000	11.968 – 12.032	11.996	PASS
16.000	15.968 – 16.032	15.998	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

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TEMPERATURE TRANSMITTER ISIFLEX/GEORG FISHER

50-TT-021 – 50-TT-022 – 50-TT-024

50-TT-021

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62404261633
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	4/26/2024
Reference ID:	SSC-1148
Reference recal date:	6/30/2024
Verified by:	00021000021

Test Data

Fixture ID	TF-240,RS-51
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	3.999	PASS
8.000	7.968 – 8.032	8.003	PASS
12.000	11.968 – 12.032	11.995	PASS
16.000	15.968 – 16.032	15.999	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

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04/2024

50-TT-022

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62404260427
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	4/26/2024
Reference ID:	SSC-853
Reference recal date:	9/30/2024
Verified by:	00011010130

Test Data

Fixture ID	TF-246,RS-50
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.003	PASS
12.000	11.968 – 12.032	11.997	PASS
16.000	15.968 – 16.032	15.998	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

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04/2024

50-TT-024

Test Certificate

Georg Fischer Signet LLC
9900 Transmitter

Code:	159 001 696
Part number:	3-9900-1
Serial number:	62404260415
Description:	One input with 4 to 20 mA output and one open collector
Date of certification:	4/26/2024
Reference ID:	SSC-853
Reference recal date:	9/30/2024
Verified by:	00011010130

Test Data

Fixture ID	TF-246,RS-50
Automation	PASS
Comm/Echo	PASS
Display	PASS
Contrast	PASS
Open Col.	PASS
Keypad	PASS

Current Output

Test Value (mA)	Specification	Measured	Result
4.000	3.968 – 4.032	4.000	PASS
8.000	7.968 – 8.032	8.003	PASS
12.000	11.968 – 12.032	11.995	PASS
16.000	15.968 – 16.032	15.999	PASS
20.000	19.968 – 20.032	20.000	PASS

Traceability

Georg Fischer Signet LLC certifies that the reference used in the calibration of this transmitter is traceable to NIST (National Institute of Standards and Technology). Improper handling may adversely affect the accuracy.

Georg Fischer Signet LLC products are manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management.

Georg Fischer Signet LLC Transmitter manual (PN 3-9900.090-1) for technical specifications.

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2.2.3.2

PRESSURE GAUGES

NUOVA FIMA

50-PI-031 – 50-PI-033 – 50-PI-022

50-PI-042 – 50-PI-043 – 50-PI-048

50-PI-044 – 50-PI-045 – 50-PI-046

NUOVA FIMA
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RAPPORTO DI TARATURA - CALIBRATION REPORT
RAPPORT D'ETALONNAGE

Secondo EN 10204-3.1 - According to EN 10204-3.1 - Suivant EN 10204-3.1

N° 2024 /003394

Data *Date* **03-09-2024**

Cliente *Customer* *Client* **NUOVA FIMA STORE SRL**	**Ordine n°** *Order No.* *Commande N°* **ORDFE 544/NS**	**Ordine Interno n°** *Internal Job No. / Commande Interne N°* **1841/OR/2024**

Strumento in prova - Tested instrument - Appareil testé

Descrizione *Description*: **MGS40/3/A DN100 S6, 0...100 BAR,1/2" GAS MASCHIO,N° SERIE SUL QUADRANTE,CASSA/ANELLO AISI316L,TARGHETTA AISI316L,RAPPORTO DI TARATURA 1 CICLO,**

Classe di precisione *Accuracy class* *Classe de précision* **1,00**	**Numero di serie** *Serial number* *Numéro de série* **D - 58832**	**Tag** *Tag number* *Sigle* **50-PI-031**

Strumento di controllo - Test instrument - Instrument de contrôle

Descrizione *Description* *Description* **/ MN 17/L DN 250**	**Costruttore** *Manufacturer* *Constructeur* **NUOVA FIMA s.r.l.**
Numero di serie *Serial number* *Numéro de série* **5-22693**	**Cert. di taratura** *Calibration certificate* *Certificat d'étallonage* **MAN-250-0211/C**
Procedura di prova *Test procedure* *Procédure de test* **M018/M REV.6**	**Fluido di prova** *Test fluid* *Fluide d'épreuve* **Aria** *Air*

Riferibilità a campioni nazionali o internazionali
Traceability to national or international standards
Traçabilité au étaions nationaux ou intenationaux
MINERVA N° 4210518 del 26.03.2021

PRESSIONE DI RIFERIMENTO *REFERENCE PRESSURE* *PRESSION NOMINALE* **[BAR]**	**PRESSIONE INDICATA** *TRUE PRESSURE* *PRESSION EFFECTIVE* **[BAR]**	**ERRORE % (F.S.)** *ERROR % (Full Scale)* *ERREUR % (Plein Echelle)*
0	0	0
20,000	20,000	0,000
40,000	40,000	0,000
60,000	60,000	0,000
80,000	80,000	0,000
100,000	100,000	0,000
80,000	81,000	1,000
60,000	61,000	1,000
40,000	41,000	1,000
20,000	21,000	1,000
0	0	0

Incertezza di misura dello strumento in prova *Uncertainity of tested instrument - Incertitude de mesure de l'appareil testé*	**1,0049 %**

La precisione di indicazione dello strumento è nella classe di precisione richiesta secondo EN 837-1.

The accuracy of the instrument is within the requested accuracy class according to EN 837-1.

La précision des indications sont reconnue dans la tolérance de la classe de précision prévue par la norme EN 837-1.

Note *Notes*	**Collaudo Finale** *Final Control - Réception finale* **V.Bertè**
Le letture sono state ottenute dopo che lo strumento è stato leggermente picchiettato. The readings has been obtained after the instrument has been lightly tapped. La lecture des résultats se fait après avoir légèrement tapoté l'instrument de mesure.	

Documento prodotto elettronicamente - Document electronically prepared - Document généré lectroniquement

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RAPPORTO DI TARATURA - CALIBRATION REPORT
RAPPORT D'ETALONNAGE

Secondo EN 10204-3.1 - According to EN 10204-3.1 - Suivant EN 10204-3.1

N° 2024 /003395

Data *Date* **03-09-2024**

Cliente *Customer* *Client* **NUOVA FIMA STORE SRL**	**Ordine n°** *Order No.* *Commande N°* **ORDFE 544/NS**	**Ordine Interno n°** *Internal Job No. / Commande Interne N°* **1841/OR/2024**

Strumento in prova - Tested instrument - Appareil testé

Descrizione *Description*: **MGS40/3/A DN100 S6, 0...100 BAR,1/2" GAS MASCHIO,N° SERIE SUL QUADRANTE,CASSA/ANELLO AISI316L,TARGHETTA AISI316L,RAPPORTO DI TARATURA 1 CICLO,**

Classe di precisione *Accuracy class* *Classe de précision* **1,00**	**Numero di serie** *Serial number* *Numéro de série* **D - 58833**	**Tag** *Tag number* *Sigle* **50-PI-033**

Strumento di controllo - Test instrument - Instrument de contrôle

Descrizione *Description* *Description* **/ MN 17/L DN 250**	**Costruttore** *Manufacturer* *Constructeur* **NUOVA FIMA s.r.l.**
Numero di serie *Serial number* *Numéro de série* **5-22693**	**Cert. di taratura** *Calibration certificate* *Certificat d'étallonage* **MAN-250-0211/C**
Procedura di prova *Test procedure* *Procédure de test* **M018/M REV.6**	**Fluido di prova** *Test fluid* *Fluide d'épreuve* **Aria** *Air*

Riferibilità a campioni nazionali o internazionali
Traceability to national or international standards
Traçabilité au étaions nationaux ou intenationaux
MINERVA N° 4210518 del 26.03.2021

PRESSIONE DI RIFERIMENTO *REFERENCE PRESSURE* *PRESSION NOMINALE* **[BAR]**	**PRESSIONE INDICATA** *TRUE PRESSURE* *PRESSION EFFECTIVE* **[BAR]**	**ERRORE % (F.S.)** *ERROR % (Full Scale)* *ERREUR % (Plein Echelle)*
0	0	0
20,000	19,800	-0,200
40,000	40,000	0,000
60,000	60,000	0,000
80,000	80,000	0,000
100,000	100,000	0,000
80,000	81,000	1,000
60,000	61,000	1,000
40,000	41,000	1,000
20,000	21,000	1,000
0	0	0

Incertezza di misura dello strumento in prova *Uncertainity of tested instrument - Incertitude de mesure de l'appareil testé*	**1,0049 %**

La precisione di indicazione dello strumento è nella classe di precisione richiesta secondo EN 837-1.

The accuracy of the instrument is within the requested accuracy class according to EN 837-1.

La précision des indications sont reconnue dans la tolérance de la classe de précision prévue par la norme EN 837-1.

Note *Notes*	**Collaudo Finale** *Final Control - Réception finale* **V.Bertè**
Le letture sono state ottenute dopo che lo strumento è stato leggermente picchiettato. The readings has been obtained after the instrument has been lightly tapped. La lecture des résultats se fait après avoir légèrement tapoté l'instrument de mesure.	

Documento prodotto elettronicamente - Document electronically prepared - Document généré lectroniquement

CALIBRATION REPORT

STRUMENTAZIONE INDUSTRIALE s.r.l.

VIA BARRO 56/58
28045 INVORIO (NO)
TEL: 0322259233 - FAX: 0322259488
www.strumentazione.com
info@strumentazione.com

RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26973**	**Uncertainty report**	☐
Order	:RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI
	+ TARGHETTA + SPM-903PVC
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58835

TEST EQUIPEMENT

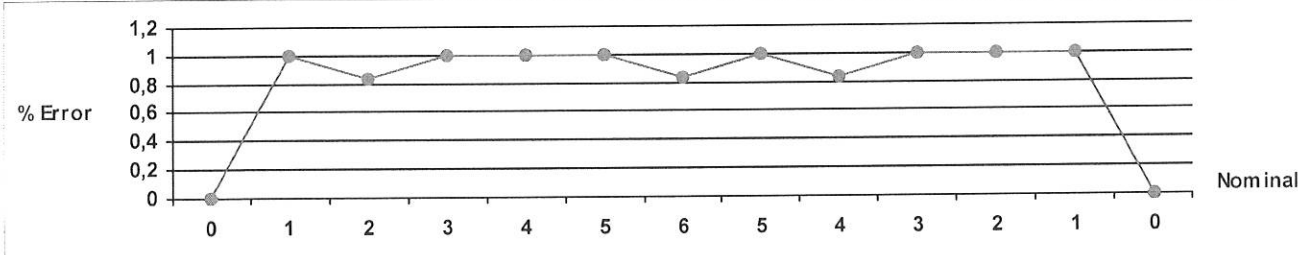
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

TRACEABILITY

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,060	1,000
2,000	2,050	0,833
3,000	3,060	1,000
4,000	4,060	1,000
5,000	5,060	1,000
6,000	6,050	0,833
5,000	5,060	1,000
4,000	4,050	0,833
3,000	3,060	1,000
2,000	2,060	1,000
1,000	1,060	1,000
0,000	0,000	0,000



Note TAG N. 50-PI-022

Final Control

Strumentazione Industriale s.r.l.

CC01

CALIBRATION REPORT

STRUMENTAZIONE INDUSTRIALE s.r.l.

VIA BARRO 56/58
28045 INVORIO (NO)
TEL: 0322259233 - FAX: 0322259488
www.strumentazione.com
info@strumentazione.com

RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26974**	**Uncertainty report**	☐
Order	RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI
	+ TARGHETTA + SPM-903PVC
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58834

TEST EQUIPEMENT

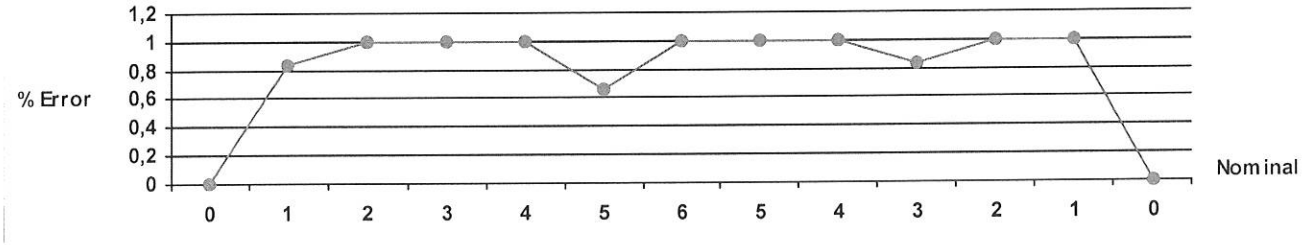
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

TRACEABILITY

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,050	0,833
2,000	2,060	1,000
3,000	3,060	1,000
4,000	4,060	1,000
5,000	5,040	0,667
6,000	6,060	1,000
5,000	5,060	1,000
4,000	4,060	1,000
3,000	3,050	0,833
2,000	2,060	1,000
1,000	1,060	1,000
0,000	0,000	0,000



Note TAG N. 50-PI-042

Final Control

Strumentazione Industriale s.r.l.

CC01

CALIBRATION REPORT

STRUMENTAZIONE INDUSTRIALE s.r.l.

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info@strumentazione.com

RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26975**	**Uncertainty report**	☐
Order	RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI
	+ TARGHETTA + SPM-903PVC
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58836

TEST EQUIPEMENT

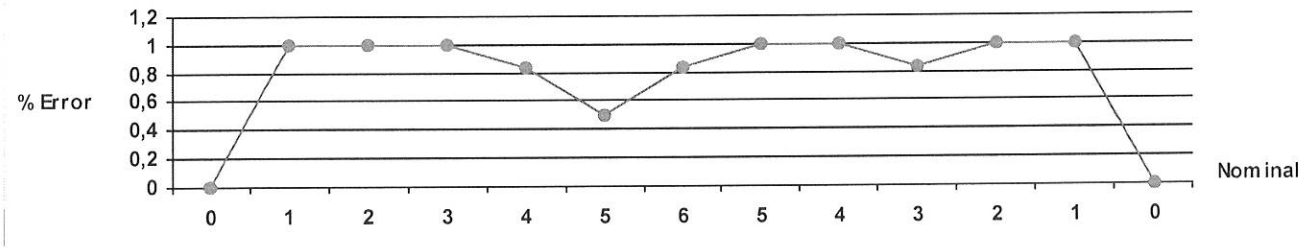
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

TRACEABILITY

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,060	1,000
2,000	2,060	1,000
3,000	3,060	1,000
4,000	4,050	0,833
5,000	5,030	0,500
6,000	6,050	0,833
5,000	5,060	1,000
4,000	4,060	1,000
3,000	3,050	0,833
2,000	2,060	1,000
1,000	1,060	1,000
0,000	0,000	0,000



Note TAG N. 50-PI-043

Final Control

Strumentazione Industriale s.r.l.

CC01

CALIBRATION REPORT

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RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26976**	**Uncertainty report**	☐
Order	RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI
	+ TARGHETTA + SPM-903PVC
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58837

TEST EQUIPEMENT

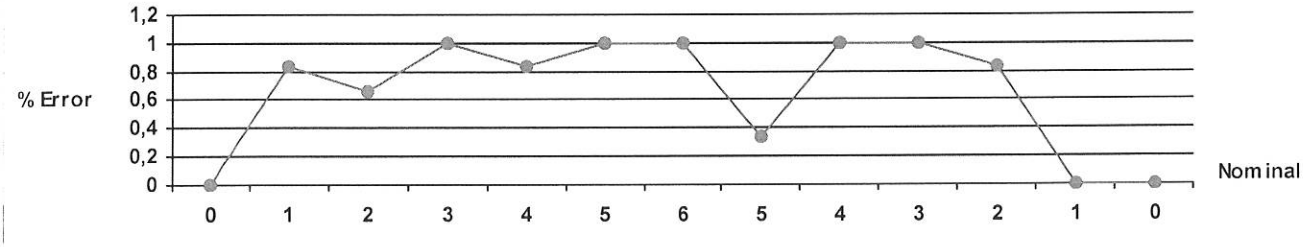
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

TRACEABILITY

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,050	0,833
2,000	2,040	0,667
3,000	3,060	1,000
4,000	4,050	0,833
5,000	5,060	1,000
6,000	6,060	1,000
5,000	5,020	0,333
4,000	4,060	1,000
3,000	3,060	1,000
2,000	2,050	0,833
1,000	1,000	0,000
0,000	0,000	0,000



Note TAG N. 50-PI-048

Final Control

Strumentazione Industriale s.r.l.

CC01

CALIBRATION REPORT

STRUMENTAZIONE INDUSTRIALE s.r.l.

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RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26977**	**Uncertainty report**	☐
Order	RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI
	+ TARGHETTA + SPM-903PPH12
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58838

TEST EQUIPEMENT

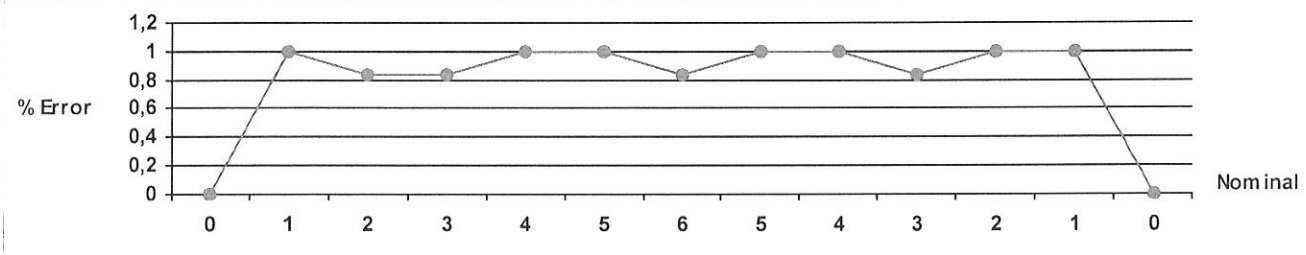
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

TRACEABILITY

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,060	1,000
2,000	2,050	0,833
3,000	3,050	0,833
4,000	4,060	1,000
5,000	5,060	1,000
6,000	6,050	0,833
5,000	5,060	1,000
4,000	4,060	1,000
3,000	3,050	0,833
2,000	2,060	1,000
1,000	1,060	1,000
0,000	0,000	0,000



Note TAG N. 50-PI-044

Final Control

Strumentazione Industriale s.r.l.

CC01

CALIBRATION REPORT

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RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26978**	**Uncertainty report**	☐
Order	RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI + TARGHETTA + SPM-903PPH12
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58839

TEST EQUIPEMENT

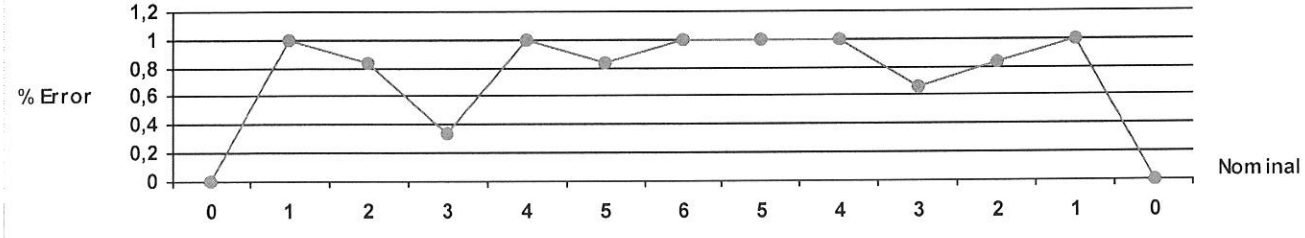
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

TRACEABILITY

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,060	1,000
2,000	2,050	0,833
3,000	3,020	0,333
4,000	4,060	1,000
5,000	5,050	0,833
6,000	6,060	1,000
5,000	5,060	1,000
4,000	4,060	1,000
3,000	3,040	0,667
2,000	2,050	0,833
1,000	1,060	1,000
0,000	0,000	0,000



Note TAG N. 50-PI-045

Final Control

Strumentazione Industriale s.r.l.

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CALIBRATION REPORT

STRUMENTAZIONE INDUSTRIALE s.r.l.

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RIF. P08.04 – I08.02

CUSTOMER

NUOVA FIMA STORE SRL 1872
VIA BARRO 56/58
INVORIO NO

Report N.	**26979**	**Uncertainty report**	☐
Order	RT NF STORE	**Test Equipement Cert.**	☐
Date	05/09/2024	**Primary Test Equipement Cert**	☐

INSTRUMENT

Code	1202.AE---AAE741M
Model	MANOMETRO MGS20/2/A 1/2"GAS MASCHI
	+ TARGHETTA + SPM-903PPH12
DN / U.M.	DN 100 / BAR
Range	0/6 BAR
Accuracy	1 %
Error max.	0,06
Tag.	D-58840

TEST EQUIPEMENT

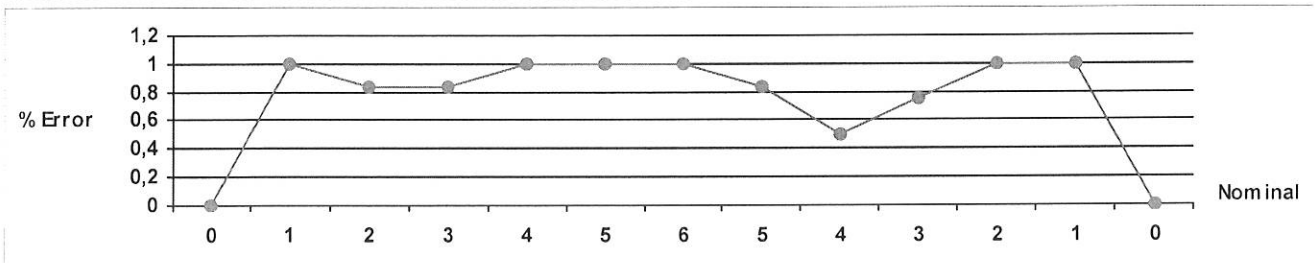
Manufacturer	
Model	
Serial N.	
Certificate N.	
Accuracy	
Range	
Last Calibration	
Next Calibration	

PRIMARY TEST EQUIPEMENT

Manufacturer	AEP TRANSDUCERS SRL
Model	LAB DMM 10 P
Serial N.	914846
Certificate N.	202523P
Accuracy	0,05
Range	0/10 BAR
Last Calibration	01/08/2023
Next Calibration	01/08/2025

TRACEABILITY

Nominal Pressure	Real Pressure	%Error
0,000	0,000	0,000
1,000	1,060	1,000
2,000	2,050	0,833
3,000	3,050	0,833
4,000	4,060	1,000
5,000	5,060	1,000
6,000	6,060	1,000
5,000	5,050	0,833
4,000	4,030	0,500
3,000	3,045	0,750
2,000	2,060	1,000
1,000	1,060	1,000
0,000	0,000	0,000



Note TAG N. 50-PI-046

Final Control

CC01

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Centro di Taratura LAT N° 093
Calibration Center

Laboratorio Accreditato
di Taratura

LAT N° 093

CERTIFICATO DI TARATURA LAT 093 202523P
Certificate of Calibration

- data di emissione *date of issue*	2023/07/26
- cliente *customer*	STRUMENTAZIONE INDUSTRIALE S.r.l. Via Barro, 56/58 28045 INVORIO (NO)
- destinatario *receiver*	-

Si riferisce a
Referring to

- oggetto *item*	Manometro digitale *(Digital pressure gauge)*
- costruttore *manufacturer*	AEP transducers
- modello *model*	LAB DMM
- matricola *serial number*	914846 (MANP22-10)
- data di ricevimento oggetto *date of receipt of item*	-
- data delle misure *date of measurements*	2023/07/26
- registo di laboratorio *laboratory reference*	RL/202523P

Il presente certificato di taratura è emesso in base all'accreditamento LAT N° 093 rilasciato in accordo ai decreti attuativi della legge n. 273/1991 che ha istituito il Sistema Nazionale di Taratura (SNT). ACCREDIA attesta le capacità di misura e di taratura, le competenze metrologiche del Centro e la riferibilità delle tarature eseguite ai campioni nazionali e internazionali delle unità di misura del Sistema Internazionale delle Unità (SI).
Questo certificato non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Centro.

This certificate of calibration is issued in compliance with the accreditation LAT N° 093 granted according to decrees connected with Italian law No. 273/1991 which has established the National Calibration System. ACCREDIA attests the calibration and measurement capability, the metrological competence of the Centre and the traceability of calibration results to the national and international standards of the International System of Units (SI).
This certificate may not be partially reproduced, except with the prior written permission of the issuing Centre.

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure di taratura citate alla pagina seguente, dove sono specificati anche i campioni o gli strumenti che garantiscono la catena di riferibilità del Centro e i rispettivi certificati di taratura in corso di validità. Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.
The measurement results reported in this Certificate were obtained following the calibration procedures given in the following page, where the reference standards or instruments are indicated which guarantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente alla Guida ISO/IEC 98 e al documento EA-4/02. Solitamente sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura *k* corrispondente ad un livello di fiducia di circa il 95 %. Normalmente tale fattore *k* vale 2.
The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually, they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

Direzione Tecnica
(Approving Officer)
p.i. Paolo Lioi

Firma Digitale - *Digital Signature*

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Centro di Taratura LAT N° 093
Calibration Center

Laboratorio Accreditato
di Taratura

LAT N° 093

CERTIFICATO DI TARATURA LAT 093 202523P
Certificate of Calibration

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure N. **PTQ021r14**
The measurement results reported in this Certificate were obtained following procedures No.

La catena di riferibilità ha inizio dal campione di misura di riferimento N. **V-1668 (cod. PMP07-07), 64242 (cod. AMM04-07)**
Traceability is through reference mesurement standard N.

muniti di certificati validi di taratura rispettivamente N. **21-0015-02, 17-0964-01 (INRIM), LAT 044 M200618**
validated by certificates of calibration No.

Taratura eseguita in accordo alla linea guida EURAMET cg-17: 2019
Calibration carried out according to EURAMET cg-17: 2019 guideline

CONDIZIONI AMBIENTALI DI TARATURA *(CALIBRATION CONDITIONS)*

Temperatura ambiente *(Room temperature):*	(23 ± 1) °C
Umidità relativa *(Relative humidity):*	(50 ± 30) %

CAMPIONE DI MISURA *(MEASUREMENT STANDARD)*

Oggetto *(Device):*	Bilancia di pressione numerica *(Digital pressure balance)*
Costruttore *(Manufacturer):*	Desgranges et Huot
Tipo *(Type):*	21000
N° di Serie *(Serial number):*	4638
Testa di misura *(Mounting block):*	410
N° di Serie *(Serial number):*	4639
Campo di misura *(Measurement range):*	(0 ÷ 60) bar
Modalità di taratura *(Calibration procedure)* :	Pressione relativa alla pressione atmosferica *(Pressure relative to the atmospheric value)*
Certificato di taratura N° *(Certificates of calib. No):*	LAT 093 57923P
Incertezza estesa *(Expanded uncertainty)* :	$U = 156 + 4{,}6 \cdot 10^{-5} \cdot p$ [Pa]

SISTEMA IN TARATURA *(SYSTEM IN CALIBRATION)*

Oggetto *(Device):*	Manometro digitale (Digital pressure gauge)
Costruttore *(Manufacturer):*	AEP transducers
Tipo *(Type):*	LAB DMM
N° di Serie *(Serial number):*	914846 (MANP22-10)
Campo di misura *(Measurement range):*	(0 ÷ 10) bar
Posizione *(Position)* :	Verticale *(Vertical)*
Fluido di misura *(Measurement fluid)* :	Gas -Azoto upp *(Nitrogen)*
Risoluzione *(Resolution):*	0,001 bar

NOTE *(NOTES):*

1 bar = 10^5 Pa

I valori della pressione di riferimento riportati nel certificato, sono calcolate al livello di riferimento dell'oggetto in taratura (Δh = -0,02 m).
(All quoted reference pressures are calculated at the level of the calibration system.)

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Centro di Taratura LAT N° 093
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LAT N° 093

CERTIFICATO DI TARATURA LAT 093 202523P
Certificate of Calibration

VERIFICA INIZIALE *(INITIAL CHECK)*

Pressione di Riferimento *(Reference pressure)*	Pressione misurata *(measured pressure)*
/bar	/bar
0,0000	0,000
4,9997	4,992
9,9995	9,992

NOTA: lo strumento È stato regolato prima della taratura.
(NOTE: the instrument HAS BEEN adjusted before the calibration.)

LETTURE *(READINGS)*

1° Ciclo (1st Cycle)		*2° Ciclo (2nd Cycle)*		*3° Ciclo (3rd Cycle)*	
Pressione di Riferimento *(Reference pressure)*	**Pressione misurata *(Measured press.)***	**Pressione di Riferimento *(Reference pressure)***	**Pressione misurata *(Measured press.)***	**Pressione di Riferimento *(Reference pressure)***	**Pressione misurata *(Measured press.)***
/bar	**/bar**	**/bar**	**/bar**	**/bar**	**/bar**
0,0000	0,000	0,0000	0,000	0,0000	0,000
0,9999	1,000				
1,9999	1,998	1,9999	2,000	1,9999	2,000
2,9998	2,999				
3,9998	4,000				
4,9997	5,000	4,9997	5,002	4,9997	5,003
5,9997	6,000				
6,9996	7,001				
7,9996	8,002	7,9995	8,003	7,9995	8,003
8,9995	9,000				
9,9994	10,002				
9,9994	10,001				
8,9995	9,000				
7,9996	7,999				
6,9996	7,000				
5,9997	5,998				
4,9997	4,999				
3,9998	3,998				
2,9998	2,998				
1,9999	1,998				
0,9999	0,999				
0,0000	0,000				

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LAT N° 093

CERTIFICATO DI TARATURA LAT 093 202523P
Certificate of Calibration

RISULTATI DI TARATURA *(CALIBRATION RESULTS)*

Elaborazione conforme alla guida **EURAMET cg-17: 2019** *(Calculation according to **EURAMET cg-17: 2019**)*

Pressione nominale ***(Nominal pressure)***	**Media pressione di riferimento** ***(Mean reference pres.)*** *Pr, mean*	**Media pressione misurata** ***(Mean measured pres.)*** *Pi, mean*	**Errore di indicazione** ***(Error)*** *e*
/bar	**/bar**	**/bar**	**/bar**
0	0,0000	0,0000	0,0000
1	0,9999	0,9995	-0,0004
2	1,9999	1,9980	-0,0019
3	2,9998	2,9985	-0,0013
4	3,9998	3,9990	-0,0008
5	4,9997	4,9995	-0,0002
6	5,9997	5,9990	-0,0007
7	6,9996	7,0005	0,0009
8	7,9996	8,0005	0,0009
9	8,9995	9,0000	0,0005
10	9,9994	10,0015	0,0021

I risultati di taratura sono presentati come medie dei valori ottenuti a pressione crescente e decrescente.
The calibration results are shown as means of values at increasing and decreasing pressure.

Pressione nominale ***(Nominal pressure)***	**Ripetibilità** ***(Repeatability)*** *b*	**Isteresi** ***(Hysteresis)*** *h*	**Incertezza estesa di misura** ***(Expanded uncertaity of measurement)*** *U*	**Incertezza estesa quando NON si effettuano correzioni** ***(Error span)*** *U'*
/bar	**/bar**	**/bar**	**/bar**	**/bar**
0	0,0000	0,0000	0,0050	**0,0050**
1	-	0,0010	0,0050	**0,0050**
2	0,0020	0,0000	0,0050	**0,0050**
3	-	0,0010	0,0050	**0,0050**
4	-	0,0020	0,0050	**0,0050**
5	0,0030	0,0010	0,0050	**0,0050**
6	-	0,0020	0,0050	**0,0050**
7	-	0,0010	0,0050	**0,0050**
8	0,0010	0,0030	0,0050	**0,0050**
9	-	0,0000	0,0050	**0,0050**
10	-	0,0010	0,0050	**0,0050**

Nel calcolo dell'incertezza estesa di misura U si è tenuto conto dell'incertezza del campione, della ripetibilità, dell'isteresi, della risoluzione, e dell'incertezza dell'eventuale strumento di misura del segnale elettrico (tensione, corrente, frequenza, ecc.). Nella taratura con procedura "Standard", l'incertezza estesa di misura non può essere riportata minore dello 0,05 % F.S.
In the calculations of expanded uncertainty of meas. U, we have kept into consideration the uncertainty due to reference standard, repeatability, resolution, hysteresis and due to the uncertainty of eventual measurement instrument of electric signal (voltage, current, frequency, etc.). in "Standard" calibration procedure the expanded uncertainty may not be reported smaller than 0,05 % FS.

U è l'incertezza estesa da associare alla misura nel caso in cui si effettui la correzione sulla lettura: $P_{corretta} = P_{indicata} - e$.
U is the espanded uncertainty to be associated to the measurements when the correction on the reading is performed: $P_{corrected} = P_{showed} - e$.

U' e l'incertezza estesa nel caso in cui **NON** si effettuino correzioni sulle letture dello strumento.
*U' is the expanded uncertainty when corrections on instrument readings is **NOT** performed.*

Operatore Tecnico ***(Technical Operator):*** p.i. Daniele Piani

2.2.3.3

PRESSURE SAFETY VALVES

COI TECHNOLOGY

50-PSV-034 – 50-PSV-035

50-PSV-036 – 50-PSV-037

50-PSV-038 – 50-PSV-039

50-PSV-053

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 4/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-053**
Matricola	(Serial n°):	**24-07154**
Codice valvola	(Valve code):	**GLVC-10AL2E-128**
Codice molla	(Spring code n°):	**06-009A-01**

Ingresso	(Inlet):	**1/2" ANSI 150RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**6,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**6,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Fresh water**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**AISI 316**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**18,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**18,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

-The following declaration of conformity is issued under the manufacturer's sole responsability-

Data *(Date):*	***Luogo*** *(Locality):*	*Identification of signature:*
18/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 1/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-034**
Matricola	(Serial n°):	**24-07148**
Codice valvola	(Valve code):	**GLVC-14BL57-128**
Codice molla	(Spring code n°):	**06-010B-14**

Ingresso	(Inlet):	**1" ANSI 150RF**	
Uscita	(Outlet):	**1" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**14**	mm
Orifizio area	(Orifice area):	**314,16**	mm^2
Alzata	(Lift):	**4,00**	mm
Pressione di taratura	(Set pressure):	**4,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**4,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**6,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**6,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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UE / EU

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(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 2/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-035**
Matricola	(Serial n°):	**24-07150**
Codice valvola	(Valve code):	**GLVC-10AL0C-134**
Codice molla	(Spring code n°):	**06-018A-14**

Ingresso	(Inlet):	**1/2" ANSI 600RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**65,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**65,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-20 +180**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**AISI 316L**
Boccaglio	(Nozzle):	**SUPERDUPLEX**
Otturatore	(Disc):	**SUPERDUPLEX**
Disco di tenuta	(Disc seat):	**PEEK**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**144,30**	Tenuta in accordo alle norme API 527 **SATISFACTORY**
Corpo	(Body)	barg	**144,30**	Valve seat tightness according to API 527 **SATISFACTORY**

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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28/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

MOD 03-2 REV.1 / 02/03/2018

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 3/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-036**
Matricola	(Serial n°):	**24-07152**
Codice valvola	(Valve code):	**GLVC-10AL2E-128**
Codice molla	(Spring code n°):	**06-009A-14**

Ingresso	(Inlet):	**1/2" ANSI 150RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**6,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**6,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**18,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**18,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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18/10/2024	San Giuliano Milanese (MI) - Italy	Simos Xeniadis (Sales Director)

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 1/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-037**
Matricola	(Serial n°):	**24-07149**
Codice valvola	(Valve code):	**GLVC-14BL57-128**
Codice molla	(Spring code n°):	**06-010B-14**

Ingresso	(Inlet):	**1" ANSI 150RF**	
Uscita	(Outlet):	**1" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**14**	mm
Orifizio area	(Orifice area):	**314,16**	mm^2
Alzata	(Lift):	**4,00**	mm
Pressione di taratura	(Set pressure):	**4,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**4,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**6,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**6,00**	Valve seat tightness according to API 527

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Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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Data *(Date):*	***Luogo*** *(Locality):*	*Identification of signature:*
18/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 2/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-038**
Matricola	(Serial n°):	**24-07151**
Codice valvola	(Valve code):	**GLVC-10AL0C-134**
Codice molla	(Spring code n°):	**06-018A-14**

Ingresso	(Inlet):	**1/2" ANSI 600RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**65,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**65,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-20 +180**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI *(materials)*		
Corpo	(Body):	**AISI 316L**
Boccaglio	(Nozzle):	**SUPERDUPLEX**
Otturatore	(Disc):	**SUPERDUPLEX**
Disco di tenuta	(Disc seat):	**PEEK**
Molla	(Spring):	**INCONEL X750**

Prova idrostatica barg *(Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza*** *(Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**144,30**	Tenuta in accordo alle norme API 527 **SATISFACTORY**
Corpo	(Body)	barg	**144,30**	Valve seat tightness according to API 527 **SATISFACTORY**

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità*** *(Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

Principali norme di riferimento *(Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

Controllo funzionale / dimensionale *(Dimensional / functional check):*	***Visto Cliente*** *(Client check)*	***Costruttore*** *(Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

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28/10/2024	San Giuliano Milanese (MI) - Italy	***(Authorized signature):*** Simos Xeniadis (Sales Director)

MOD 03-2 REV.1 / 02/03/2018

UE / EU

Dichiarazione di conformità in accordo alla Direttiva PED 2014/68/UE
(Declaration Of Conformity according to Pressure Equipment Directive 2014/68/EU)
Certificato di collaudo valvole di sicurezza in accordo alle EN 10204 3.1
(Safety Valves Inspection certificate 3.1 according to EN 10204)

Cliente	(Client):	**PSC SPA**
Ordine	(Order n°):	**2885/51/24/0 Pos. 3/4**
Commessa	(Job n°):	**24-00719**
Specifica	(Specification):	
Sigla	(Tag.n°):	**50-PSV-039**
Matricola	(Serial n°):	**24-07153**
Codice valvola	(Valve code):	**GLVC-10AL2E-128**
Codice molla	(Spring code n°):	**06-009A-14**

Ingresso	(Inlet):	**1/2" ANSI 150RF**	
Uscita	(Outlet):	**1/2" ANSI 150RF**	
Orifizio diametro	(Orifice diameter):	**10**	mm
Orifizio area	(Orifice area):	**78,54**	mm^2
Alzata	(Lift):	**2,90**	mm
Pressione di taratura	(Set pressure):	**6,00**	barg
Contropressione	(Back pressure):	**atm**	
Pressione di taratura al banco	(Cold set pressure):	**6,00**	barg
Sovrappresione	(Overpressure):	**10**	%
Scarto di richiusura	(Blowdown):	**15**	%
Temperatura di esercizio	(Operating temperature):	**-10 +50**	°C
Regolazione pressione di taratura	(Adjustable set pressure range):	**±5**	%
Fluido	(Fluid):	**Filtered seawater**	
Stato	(State):	**LIQUID**	

MATERIALI (materials)		
Corpo	(Body):	**POLIPROPILENE**
Boccaglio	(Nozzle):	**POLIPROPILENE**
Otturatore	(Disc):	**PTFE CV**
Disco di tenuta	(Disc seat):	**PTFE CV**
Molla	(Spring):	**INCONEL X750**

***Prova idrostatica barg** (Hydrostatic test barg):*				***Tenuta della sede della valvola di sicurezza** (Pressure Relief valve seat tightness)*
Boccaglio	(Nozzle)	barg	**18,00**	Tenuta in accordo alle norme API 527
Corpo	(Body)	barg	**18,00**	Valve seat tightness according to API 527

L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: Direttiva 2014/68/UE del 15/05/2014	The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/68/EU dated May 15, 2014		***Dichiarazione di conformità** (Declaration Of Conformity):* Notified body: **TÜV Rheinland Italia Srl** Via E. Mattei, 3 - 20010 Pogliano Milanese (MI) Identification n°: **CE 1936** Cert n°: **I 202 IT/Q-18 0006 acc. to the Eur. Dir. 2014/68/UE Mod- H1 cat. IV**
Coefficienti di efflusso Kdr	*(Flow coefficient)*	Liquid: 0,63 Gas:	

***Principali norme di riferimento** (Main standards):* **EN ISO 4126-1:2016, EN 4126-7:2013, ASME sez. VIII Div. 1:2019, API 520:2020**

NOTE:

***Controllo funzionale / dimensionale** (Dimensional / functional check):*	***Visto Cliente** (Client check)*	***Costruttore** (Manufacturer):*
SATISFACTORY		**Coi Technology s.r.l. v.della Liberazione 29/d 20098 S.Giuliano Milanese(MI) Italy**

-The following declaration of conformity is issued under the manufacturer's sole responsability-

***Data** (Date):*	***Luogo** (Locality):*	*Identification of signature:*
18/10/2024	San Giuliano Milanese (MI) - Italy	*(Authorized signature):* Simos Xeniadis (Sales Director)

2.2.4

TEST REPORTS AND CERTIFICATES

2.2.4.1

CENTRIFUGAL PUMPS

GRUNDFOS

P-50009 A/B

Report

Performance curve

ISO 9906:2012 Grade 3B

General Info			
Customer name	PSC S.p.A. Engineering & Contracting		
Customer order No.	2885/12/24/0		
Customer TAG No.	N/A		
GRUNDFOS order No.	14041159 GIT		
Product name	CRN1S-12 E-FGJ-A-E-HQQE	Part No.	99866825
Serial number	9986682510000001	Model	A

We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured by GRUNDFOS, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.
The attached test result is from the above mentioned pump.

DIGITALLY SIGNED
Székesfehérvár 21.08.2024

Horváth Edina

Edina Horváth
QA Operator

Grundfos Man. Hungary
Holland fasor 15
8000 Székesfehérvár, Hungary

Doc. No. 1000067308 Status: Released Version: 00

Test Report – Performance curve

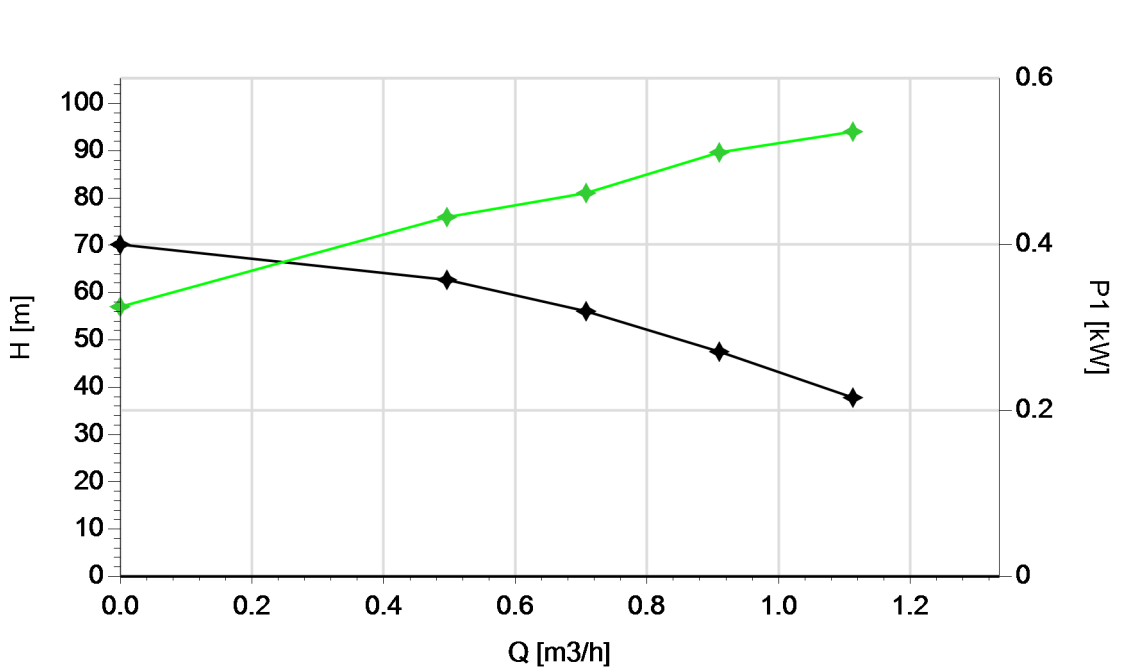
ISO 9906:2012 Grade 3B

System Identification			
Testbed	88860PC-1	**Serial number**	9986682510000001
Operator	IMB	**Date**	17/08/2024 13:29

Pump Data			
Pump type	CRN1S-12 E-FGJ-A-E-HQQE	**Motor manufacturer**	GRUNDFOS
Product number	99866825	**Motor efficiency**	73,8

Doc. No. 1000067308 Status: Released Version: 00

Measured values for tested pump

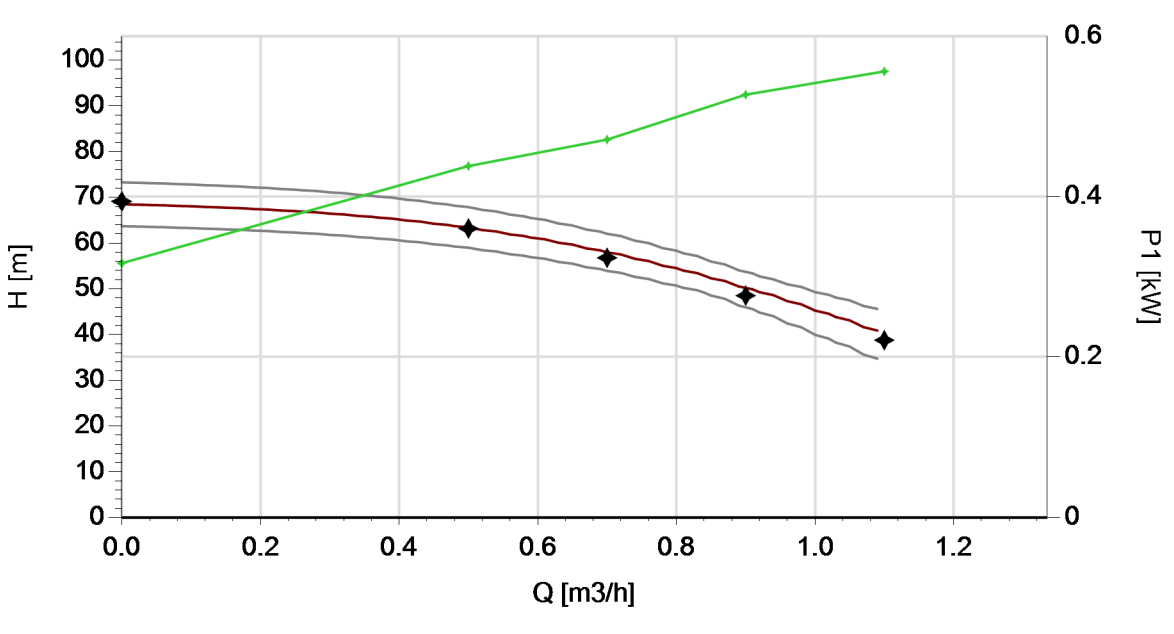


Result	Qm [m3/h]	Hm [m]	n [1/min]	η_total [%]	η_pump [%]	p_diff [bar]	t_media [°C]
Point 1	1.11	37.81	2864	21.0	28.0	3.70	19.0
Point 2	0.91	47.53	2870	23.0	31.0	4.65	19.0
Point 3	0.71	56.07	2882	23.0	31.0	5.49	18.9
Point 4	0.50	62.71	2889	20.0	27.0	6.14	18.9
Point 5	0.00	70.18	2922	0.0	0.0	6.87	18.9

Result	U1 [V]	U2 [V]	U3 [V]	f [Hz]	I_Avg [A]	I1 [A]	I2 [A]	I3 [A]	Cos(ϕ)	P1m [kW]
Point 1	399.2	398.6	400.4	50	1.00	0.99	1.00	1.01	0.78	0.54
Point 2	398.9	398.1	399.4	50	0.96	0.96	0.97	0.97	0.76	0.51
Point 3	400.6	399.1	400.8	50	0.91	0.91	0.92	0.91	0.73	0.46
Point 4	400.8	399.7	400.9	50	0.88	0.88	0.89	0.88	0.71	0.43
Point 5	401.7	400.9	402.6	50	0.78	0.79	0.78	0.78	0.59	0.33

Doc. No. 1000067308 Status: Released Version: 00

Measured values calculated to nominal speed n_nom



Result	Q(n) [m3/h]	H(n) [m]	P1(n) [kW]	n_nom [1/min]
Point 1	1.10	38.77	0.56	2900
Point 2	0.90	48.51	0.53	2900
Point 3	0.70	56.78	0.47	2900
Point 4	0.50	63.19	0.44	2900
Point 5	0.00	69.12	0.32	2900

Static High Pressure Test

A static pressure test was performed at 37.59 bar

Doc. No. 1000067308 Status: Released Version: 00

Explanation

Measured values

U	Voltage	Cos(ϕ)	Power factor
f	Frequency	n	Speed
I_Avg	Average current		
Qm	Measured flow	T_media	Water temperature
Hm	Measured Total Head	P_diff	Differential Pressure
P1m	Measured Motor Power Input	Q_cooling	Cooling Water Flow

Calculated values

Q(n)	Flow at nominal speed	η_total	Total Efficiency
H(n)	Total Head at nominal speed	η_pump	Pump efficiency
P1(n)	Motor Power Input at norminal speed		

Formulas

Q(n)	Qm x (n_nom/n)	H	Head_Sta + Head_Dyn + Head_Geo + Head_J
H(n)	Hm x $(n_nom/n)^2$	Head_Static	Static Pressure head
P1(n)	P1m x $(n_nom/n)^3$	Head_Dyn	Dynamic head
η_total	(p x Qm x Hm x g) / P1m	Head_Geo	Geometric elevation head
η_pump	η_total / η_motor	Head_J	Friction head

Legend and test conditions

• Measurements were made with airless water at approximately 20 °C (63 °F) and a kinematic viscosity of 1 mm^2/s (= 1.076 × 10-5 ft^2/s = 1 cSt).

• The testbed is constructed and calibrated according to requirements in ISO 9906.

Test Facility

Company	Grundfos Manufacturing Hungary Ltd.
Address	Holland fasor 15.
City	Székesfehérvár
ZIP Code	H8000
Country	Hungary
Phone	Phone:(+36) 22 801 801
Website	www.grundfos.com

Doc. No. 1000067308 Status: Released Version: 00

Report

Performance curve

ISO 9906:2012 Grade 3B

General Info			
Customer name	PSC S.p.A. Engineering & Contracting		
Customer order No.	2885/12/24/0		
Customer TAG No.	N/A		
GRUNDFOS order No.	14041159 GIT		
Product name	CRN1S-12 E-FGJ-A-E-HQQE	Part No.	99866825
Serial number	9986682510000002	Model	A

We the undersigned hereby guarantee and certify that the materials and/or parts for the above mentioned product were manufactured by GRUNDFOS, tested, inspected, and conform to the full requirements of the appropriate catalogues, drawings and/or specifications relative thereto.
The attached test result is from the above mentioned pump.

DIGITALLY SIGNED
Székesfehérvár 21.08.2024

Horváth Edina

Edina Horváth
QA Operator

Grundfos Man. Hungary
Holland fasor 15
8000 Székesfehérvár, Hungary

Doc. No. 10000677309 Status: Released Version: 00

Test Report – Performance curve

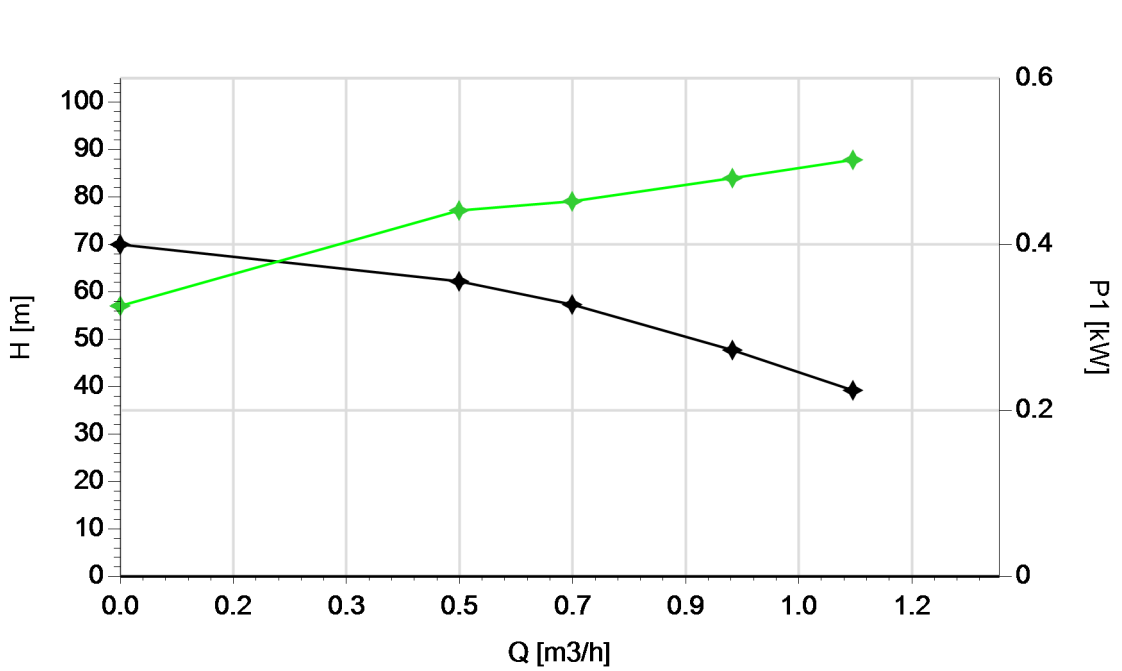
ISO 9906:2012 Grade 3B

System Identification			
Testbed	88860PC	**Serial number**	9986682510000002
Operator	IMB	**Date**	17/08/2024 13:37

Pump Data			
Pump type	CRN1S-12 E-FGJ-A-E-HQQE	**Motor manufacturer**	GRUNDFOS
Product number	99866825	**Motor efficiency**	73,8

Doc. No. 1000067309 Status: Released Version: 00

Measured values for tested pump

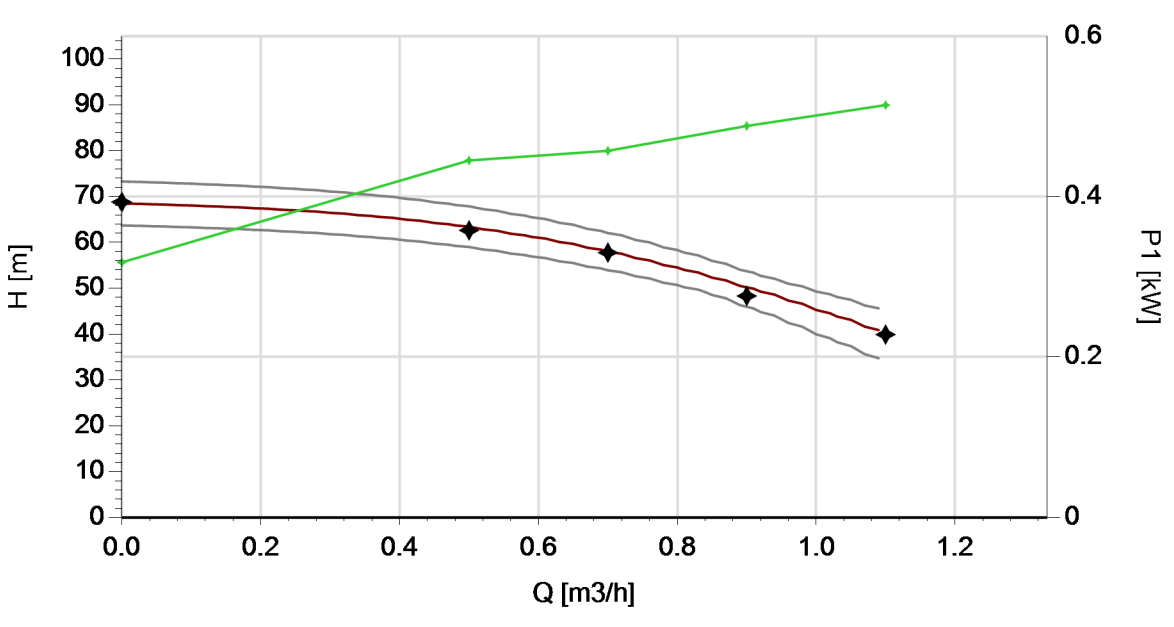


Result	Qm [m3/h]	Hm [m]	n [1/min]	η_total [%]	η_pump [%]	p_diff [bar]	t_media [°C]
Point 1	1.11	39.25	2876	24.0	33.0	3.84	18.9
Point 2	0.93	47.74	2883	25.0	34.0	4.67	18.9
Point 3	0.69	57.34	2889	24.0	33.0	5.61	18.9
Point 4	0.51	62.24	2891	20.0	27.0	6.09	18.9
Point 5	0.00	70.00	2925	0.0	0.0	6.85	18.8

Result	U1 [V]	U2 [V]	U3 [V]	f [Hz]	I_Avg [A]	I1 [A]	I2 [A]	I3 [A]	Cos(ϕ)	P1m [kW]
Point 1	399.4	399.1	400.9	50	0.97	0.96	0.96	0.98	0.75	0.50
Point 2	400.1	400.0	401.9	50	0.94	0.93	0.93	0.95	0.73	0.48
Point 3	400.1	400.2	401.3	50	0.91	0.90	0.91	0.92	0.72	0.45
Point 4	400.3	401.0	401.8	50	0.90	0.88	0.90	0.91	0.71	0.44
Point 5	400.9	400.7	401.4	50	0.79	0.79	0.80	0.80	0.59	0.33

Doc. No. 1000067309 Status: Released Version: 00

Measured values calculated to nominal speed n_nom



Result	Q(n) [m3/h]	H(n) [m]	P1(n) [kW]	n_nom [1/min]
Point 1	1.10	39.90	0.51	2900
Point 2	0.90	48.31	0.49	2900
Point 3	0.70	57.78	0.46	2900
Point 4	0.50	62.62	0.45	2900
Point 5	0.00	68.80	0.32	2900

Static High Pressure Test

A static pressure test was performed at 38.14 bar

Doc. No. 1000067309 Status: Released Version: 00

Explanation

Measured values

U	Voltage	Cos(ϕ)	Power factor
f	Frequency	n	Speed
I_Avg	Average current		
Qm	Measured flow	T_media	Water temperature
Hm	Measured Total Head	P_diff	Differential Pressure
P1m	Measured Motor Power Input	Q_cooling	Cooling Water Flow

Calculated values

Q(n)	Flow at nominal speed	η_total	Total Efficiency
H(n)	Total Head at nominal speed	η_pump	Pump efficiency
P1(n)	Motor Power Input at norminal speed		

Formulas

Q(n)	Qm x (n_nom/n)	H	Head_Sta + Head_Dyn + Head_Geo + Head_J
H(n)	Hm x $(n_nom/n)^2$	Head_Static	Static Pressure head
P1(n)	P1m x $(n_nom/n)^3$	Head_Dyn	Dynamic head
η_total	(p x Qm x Hm x g) / P1m	Head_Geo	Geometric elevation head
η_pump	η_total / η_motor	Head_J	Friction head

Legend and test conditions

• Measurements were made with airless water at approximately 20 °C (63 °F) and a kinematic viscosity of 1 mm^2/s (= 1.076 × 10-5 ft^2/s = 1 cSt).

• The testbed is constructed and calibrated according to requirements in ISO 9906.

Test Facility

Company	Grundfos Manufacturing Hungary Ltd.
Address	Holland fasor 15.
City	Székesfehérvár
ZIP Code	H8000
Country	Hungary
Phone	Phone:(+36) 22 801 801
Website	www.grundfos.com

Doc. No. 1000067309 Status: Released Version: 00

2.2.4.2

BOOSTER PUMPS GEMMECOTTI

P-50002A/B – P-50003A/B

GemmeCotti
EUROPEAN PUMPS

TEST REPORT

Mod. 4.18.1E

CUSTOMER	PSC SPA ENGINEERING CONTRACTING	ORDER NUMBER	2885/07/24/1	GEMMECOTTI REF.	240502
TEST PERFORMED BY:	L. LO MONACO	DATE	26/07/2024	SIGNATURE	

PUMP MODEL	HTT 12000 PP	SERIAL NUMBER	854/1	DISCHARGE DIAMETER [mm]	40	SUCTION DIAMETER [mm]	40

IMPELLER DIAMETER [mm]	92	SUCTION HEAD	DISCHARGE HEAD	Manometric Geodetic Height	TOTAL HEAD	WATTM. 1	WATTM. 2	WATTM. 3	K (wattmeter constant)	1	FINAL RESULTS		

Motor speed	Q [m³/h]	H [m]	H [m]	H [m]	H [m]	W1	W2	W3	Motor efficiency%	Pump Absorbed power. [kw]	Q [m³/h]	H [m]	Eff [%]
2900	0	1	50	1	50,00	1,60	1,68	1,62	88,10	4,32	0,00	50,00	0,00
	1,5	1	45	1	45,00	1,54	1,56	1,60	88,10	4,14	1,50	45,00	4,44
	2	1	43	1	43,00	1,50	1,48	1,48	88,10	3,93	2,00	43,00	5,96
	2,5	1	42	1	42,00	1,42	1,44	1,46	88,10	3,81	2,50	42,00	7,51
	3	1	40	1	40,00	1,32	1,34	1,34	88,10	3,52	3,00	40,00	9,27

PUMP DATA	Q [m3/h]	H [m]	NPSH [m]	P [kw]	eff %
REQUESTED DUTY POINT	2,5	41,2	3,0	4,0	88,1

MOTOR:	SMEM
MOTOR TYPE:	T3A 112M2
RPM	2900
Eff. %	88,1
P [KW]	4

LIQUID PUMPED	H2O
SPECIFIC GRAVITY	1
TEMPERATURE	20

TEST RESULT:	OK:	X	NON OK:	

Cesate li	26/07/2024

BOLLETTINO UFFICIALE

GemmeCotti EUROPEAN PUMPS

HIDROSTATIC TEST

CUSTOMER: PSC	ORDER No	SERIAL NUMBER: 854/1
TESTER: LUCA	DATE:26/07/2024	**INTERNAL REF. 240502**

CONSTRUCTION DATA

PUMP MOD:	HTT 12000 PP	IMPELLER DIAM.:		VANES HEIGHT:					
MOTOR TYPE:	B3/B5	KW:	4	VOLT:	400	HZ:	50	RPM:	2900
INTERNAL MAGNET TYPE:	CS	EXTERNAL MAGNET TYPE:	STANDARD						

HIDROSTATIC TEST/ test idrostatico

LIQUID USED/liquido utilizzato:	**H2O**			
TEMPERATURE/temperatura:	**32**			
PRESSURE/pressione:	**9**			
TEST DURATION/durata del test:	**5**			
RESULTS/risultato:	**OK**	☒	**NON OK**	☐
PRESSURE GAUGE/manometro:	**0-10 bar n°69**			

VITI AISI 316, MOTORE VERNICIATO CLASSE C5 e BASAMENTO TIPO "C"

GemmeCotti srl via Po 23-25-27 20031 Cesate (MI) Italy - email: info@gemmecotti.com - tel: +39 (0)2 96460406

GemmeCotti
EUROPEAN PUMPS

TEST REPORT

Mod. 4.18.1E

CUSTOMER	PSC SPA ENGINEERING CONTRACTING	ORDER NUMBER	2885/07/24/1	GEMMECOTTI REF.	240502
TEST PERFORMED BY:	L. LO MONACO	DATE	26/07/2024	SIGNATURE	

PUMP MODEL	HTT 12000 PP	SERIAL NUMBER	854/2	DISCHARGE DIAMETER [mm]	40	SUCTION DIAMETER [mm]	40

IMPELLER DIAMETER [mm]	92	SUCTION HEAD	DISCHARGE HEAD	Manometric Geodetic Height	TOTAL HEAD	WATTM. 1	WATTM. 2	WATTM. 3	K (wattmeter constant)	1	FINAL RESULTS		

Motor speed	Q [m³/h]	H [m]	H [m]	H [m]	H [m]	W1	W2	W3	Motor efficiency%	Pump Absorbed power. [kw]	Q [m³/h]	H [m]	Eff [%]
2900	0	1	52	1	52,00	1,68	1,68	1,70	88,10	4,46	0,00	52,00	0,00
	1,5	1	48	1	48,00	1,56	1,56	1,58	88,10	4,14	1,50	48,00	4,74
	2	1	45	1	45,00	1,50	1,48	1,46	88,10	3,91	2,00	45,00	6,27
	2,5	1	43	1	43,00	1,44	1,46	1,44	88,10	3,82	2,50	43,00	7,66
	3	1	35	1	35,00	1,30	1,32	1,32	88,10	3,47	3,00	35,00	8,24

PUMP DATA	Q [m3/h]	H [m]	NPSH [m]	P [kw]	eff %
REQUESTED DUTY POINT	2,5	41,2	3,0	4,0	88,1

MOTOR:	SMEM
MOTOR TYPE:	T3A 112M2
RPM	2900
Eff. %	88,1
P [KW]	4

LIQUID PUMPED	H2O
SPECIFIC GRAVITY	1
TEMPERATURE	20

TEST RESULT:	OK:	X	NON OK:	

Cesate li	26/07/2024

GemmeCotti EUROPEAN PUMPS

HIDROSTATIC TEST

CUSTOMER: PSC	ORDER No	SERIAL NUMBER: 854/2
TESTER: LUCA	DATE:26/07/2024	**INTERNAL REF. 240502**

CONSTRUCTION DATA

PUMP MOD:	HTT 12000 PP	IMPELLER DIAM.:		VANES HEIGHT:					
MOTOR TYPE:	B3/B5	KW:	4	VOLT:	400	HZ:	50	RPM:	2900
INTERNAL MAGNET TYPE:	CS	EXTERNAL MAGNET TYPE:	STANDARD						

HIDROSTATIC TEST/ test idrostatico

LIQUID USED/liquido utilizzato:	**H2O**			
TEMPERATURE/temperatura:	**32**			
PRESSURE/pressione:	**9**			
TEST DURATION/durata del test:	**5**			
RESULTS/risultato:	**OK**	☒	**NON OK**	☐
PRESSURE GAUGE/manometro:	**0-10 bar n°69**			

VITI AISI 316, MOTORE VERNICIATO CLASSE C5 e BASAMENTO TIPO "C"

GemmeCotti srl via Po 23-25-27 20031 Cesate (MI) Italy - email: info@gemmecotti.com - tel: +39 (0)2 96460406

GemmeCotti EUROPEAN PUMPS

TEST REPORT

Mod. 4.15.1E

CUSTOMER	PSC SPA ENGINEERING CONTRACTING	ORDER NUMBER	2885/07/24/1	GEMMECOTTI REF.	240502
TEST PERFORMED BY:	L. LO MONACO	DATE	26/07/2024	SIGNATURE	

PUMP MODEL	HTM 15 PP 1,1KW	SERIAL NUMBER	855/1	SUCTION DIAMETER [mm]	50	DISCHARGE DIAMETER [mm]	40	REFERENCE MOTOR SPEED RPM	2900

IMPELLER DIAMETER [mm]	108	DV^2/2g	SUCTION HEAD	DISCHARGE HEAD	Manometric Geodetic Height	TOTAL HEAD	WATTM. 1	WATTM. 2	WATTM. 3	K (wattmeter constant)	1	*Conversion to the reference motor speed*		

Motor speed	Q [m3/h]	H [m]	H [m]	H [m]	H [m]	H [m]	W1	W2	W3	Motor efficiency %	Pump Absorbed power. [kw]	Q [m3/h]	H [m]	Efficiency [%]
2835	0	0,00	1	15	1	15,00	0,14	0,18	0,16	82,50	0,40	0,00	15,70	0,00
2835	5	0,04	1	14,5	1	14,54	0,22	0,26	0,22	82,50	0,58	5,11	15,21	34,28
2835	7,5	0,08	1	14	1	14,08	0,26	0,30	0,28	82,50	0,69	7,67	14,74	41,51
2835	10	0,15	1	13	1	13,15	0,28	0,32	0,30	82,50	0,74	10,23	13,76	48,22
2835	12,5	0,23	1	11	1	11,23	0,30	0,34	0,32	82,50	0,79	12,79	11,75	48,27

	IMPELLER TYPE:			
PUMP DATA	Q [m3/h]	H [m]	NPSH [m]	P [kw]	eff %
REQUESTED DUTY POINT	5	14,5	0	0,6	82,5

MOTOR:	SMEM
MOTOR TYPE:	3A 80B2 B3/B5
RPM	2900
Eff. %	82,5
P [KW]	1,1

LIQUID PUMPED	H2O
SPECIFIC GRAVITY	1
TEMPERATURE	20

TEST RESULT:	OK:	X	NON OK:	

Cesate li	26/07/2024

GemmeCotti
EUROPEAN PUMPS

HIDROSTATIC TEST

CUSTOMER: PSC	ORDER No	SERIAL NUMBER: 855/1
TESTER: LUCA	DATE:26/07/2024	INTERNAL REF. 240502

CONSTRUCTION DATA

PUMP MOD:	HTM 15 PP	IMPELLER DIAM.:		VANES HEIGHT:					
MOTOR TYPE:	B3/B5	KW:	1,1	VOLT:	400	HZ:	50	RPM:	2900
INTERNAL MAGNET TYPE:	CS	EXTERNAL MAGNET TYPE:	STANDARD						

HIDROSTATIC TEST/ test idrostatico

LIQUID USED/liquido utilizzato:	H2O			
TEMPERATURE/temperatura:	32			
PRESSURE/pressione:	9			
TEST DURATION/durata del test:	5			
RESULTS/risultato:	OK	☒	NON OK	☐
PRESSURE GAUGE/manometro:	0-10 bar n°69			

VITI AISI 316, MOTORE VERNICIATO CLASSE C5 e BASAMENTO TIPO "B"

GemmeCotti srl via Po 23-25-27 20031 Cesate (MI) Italy - email: info@gemmecotti.com - tel: +39 (0)2 96460406

GemmeCotti EUROPEAN PUMPS

TEST REPORT

Mod. 4.15.1E

CUSTOMER	PSC SPA ENGINEERING CONTRACTING	ORDER NUMBER	2885/07/24/1	GEMMECOTTI REF.	240502
TEST PERFORMED BY:	L.LO MONACO	DATE	26/07/2024	SIGNATURE	

PUMP MODEL	HTM 15 PP 1,1KW	SERIAL NUMBER	855/2	SUCTION DIAMETER [mm]	50	DISCHARGE DIAMETER [mm]	40	REFERENCE MOTOR SPEED RPM	2900
IMPELLER DIAMETER [mm]	108	K (wattmeter constant)	1	Conversion to the reference motor speed					

Motor speed	Q [m3/h]	DV^2/2g H [m]	SUCTION HEAD H [m]	DISCHARGE HEAD H [m]	Manometric Geodetic Height H [m]	TOTAL HEAD H [m]	WATTM. 1 W1	WATTM. 2 W2	WATTM. 3 W3	Motor efficiency %	Pump Absorbed power. [kw]	Q [m3/h]	H [m]	Efficiency [%]
2835	0	0,00	1	15	1	15,00	0,14	0,16	0,14	82,50	0,36	0,00	15,70	0,00
2835	5	0,04	1	14,5	1	14,54	0,20	0,22	0,24	82,50	0,54	5,11	15,21	36,35
2835	7,5	0,08	1	14	1	14,08	0,24	0,26	0,28	82,50	0,64	7,67	14,74	44,70
2835	10	0,15	1	13	1	13,15	0,26	0,30	0,30	82,50	0,71	10,23	13,76	50,46
2835	12,5	0,23	1	11	1	11,23	0,30	0,34	0,30	82,50	0,78	12,79	11,75	49,29

	IMPELLER TYPE:

PUMP DATA	Q [m3/h]	H [m]	NPSH [m]	P [kw]	eff %
REQUESTED DUTY POINT	5	14,5	0	0,6	82,5

MOTOR:	SMEM
MOTOR TYPE:	3A 80B2 B3/B5
RPM	2900
Eff. %	82,5
P [KW]	1,1

LIQUID PUMPED	H2O
SPECIFIC GRAVITY	1
TEMPERATURE	20

TEST RESULT:	OK:	X	NON OK:	

Cesate li	26/07/2024

BOLLETTINO UFFICIALE

GemmeCotti EUROPEAN PUMPS

HIDROSTATIC TEST

CUSTOMER: PSC	ORDER No	SERIAL NUMBER: 855/2
TESTER: LUCA	DATE:26/07/2024	**INTERNAL REF. 240502**

CONSTRUCTION DATA

PUMP MOD:	HTM 15 PP	IMPELLER DIAM.:		VANES HEIGHT:					
MOTOR TYPE:	B3/B5	KW:	1,1	VOLT:	400	HZ:	50	RPM:	2900
INTERNAL MAGNET TYPE:	CS	EXTERNAL MAGNET TYPE:	STANDARD						

HIDROSTATIC TEST/ test idrostatico

LIQUID USED/liquido utilizzato:	**H2O**			
TEMPERATURE/temperatura:	**32**			
PRESSURE/pressione:	**9**			
TEST DURATION/durata del test:	**5**			
RESULTS/risultato:	**OK**	☒	**NON OK**	☐
PRESSURE GAUGE/manometro:	**0-10 bar n°69**			

VITI AISI 316, MOTORE VERNICIATO CLASSE C5 e BASAMENTO TIPO "B"

GemmeCotti srl via Po 23-25-27 20031 Cesate (MI) Italy - email: info@gemmecotti.com - tel: +39 (0)2 96460406

motori elettrici

Type Test Report

Type：T3A80B-2 **IE3** Voltage：400/230 V Design list No.：
Output：1.1 kW Connection：Y/Δ Product No：
Frequency：50 Hz Duty：S1 Report No：

Test Item		Standard		Result	
		Nominal	Tol		
1.	Efficiency %			82.7	
2.	Power Factor			0.803	
3.	Tem. Rise of Stator Winding K			46	
4.	Vibration mm/s			1.6	
5.	Noise Lp dB（A)(Lw）			67	
6.	Max Torque/Rated Torque			3.52	
7.	Breakdown Torque/Rated Torque			2.62	
8.	Locked Rotor Tor./Rated Tor.			3.42	
9.	Locked Rotor Cur./Rated Cur.			8.09	
10.	High Voltage Test V			1800	
11.	Hot Insulation Res. of Stator Winding MΩ			300.0	
12.	Temperature of Bearing℃			54	
13.	Unbalance of Current %			2.16	
14.	Full Load line Current A			2.377	
15.	Full Load input W			1323	
16.	Full Load torque Nm			3.611	
17.	Max.temp.of enclosure surface ℃			51.5	
18.	No Load Current A			1.554	
19.	Slip %			3.046	
20.	Stator Winding phase resistance Ω（95℃）			6.0984	
21.	Stray Load Loss W			11.41	
22.	No Load Stator Power W			119.1	
23.	Core Loss W			55.83	
24.	Friction & Windage Loss W			23.71	
25.	Locked Rotor Power W			10939	
26.	Stator I ii R Loss W			96.08	
27.	Rotor I ii R Loss W			35.67	
28	Locked Rotor Voltage 100.0V	Current A	3.726	Power W	459.6
Remark： 75% 82.5 50% 79.9					

motori elettrici

Type Test Report

Type：T3A112M-2 **IE3** Voltage：400 Design list No:
Output：4 kW Connection：Y Product No:
Frequency：50 Hz Duty：S1 Report No：

Test Item		Standard		Result	
		Nominal	Tol		
1.	Efficiency %			88.1	
2.	Power Factor			0.908	
3.	Tem. Rise of Stator Winding K			52	
4.	Vibration mm/s			1.6	
5.	Noise Lp dB（A)(Lw）			77	
6.	Max Torque/Rated Torque			3.95	
7.	Breakdown Torque/Rated Torque			2.48	
8.	Locked Rotor Tor./Rated Tor.			3.47	
9.	Locked Rotor Cur./Rated Cur.			10.50	
10.	High Voltage Test V			1800	
11.	Hot Insulation Res. of Stator Winding MΩ			300.0	
12.	Temperature of Bearing℃			48	
13.	Unbalance of Current %			4.60	
14.	Full Load line Current A			7.219	
15.	Full Load input W			4541	
16.	Full Load torque Nm			13.05	
17.	Max.temp.of enclosure surface ℃			45.4	
18.	No Load Current A			2.431	
19.	Slip %			2.455	
20.	Stator Winding phase resistance Ω（95℃）			3.6514	
21.	Stray Load Loss W			62.14	
22.	No Load Stator Power W			212.0	
23.	Core Loss W			91.66	
24.	Friction & Windage Loss W			102.0	
25.	Locked Rotor Power W			35668	
26.	Stator I ii R Loss W			180.3	
27.	Rotor I ii R Loss W			104.8	
28	Locked Rotor Voltage 100.0V	Current A	14.11	Power W	1404
Remark： 75%: 88.2 50%: 87.0					

2.2.4.3

DOSING PUMPS

GRUNDFOS

P-50008 A/B – P-50010 A/B

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000001
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	30.6 °C
Backpressure (calibration)	9.8 Bars
Stroke volume at backpressure (calibration)	0.7594 ml
Capacity 100% at backpressure (calibration)	6.05 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018
Signature:
Name: C.LIPSKI
Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000002
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	29.7 °C
Backpressure (calibration)	9.8 Bars
Stroke volume at backpressure (calibration)	0.7405 ml
Capacity 100% at backpressure (calibration)	6.01 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018
Signature:
Name: C.LIPSKI
Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000003
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	29.7 °C
Backpressure (calibration)	9.9 Bars
Stroke volume at backpressure (calibration)	0.7537 ml
Capacity 100% at backpressure (calibration)	6.04 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018
Signature:
Name: C.LIPSKI
Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000004
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	28.5 °C
Backpressure (calibration)	9.9 Bars
Stroke volume at backpressure (calibration)	0.7244 ml
Capacity 100% at backpressure (calibration)	6.05 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018

Signature:

Name: C.LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	12143398
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000005
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	28.8 °C
Backpressure (calibration)	9.9 Bars
Stroke volume at backpressure (calibration)	0.7594 ml
Capacity 100% at backpressure (calibration)	6.04 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 12/10/2018

Signature:

Name: C.LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	13303908
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000006
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	26.0 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.786 ml
Capacity 100% at backpressure (calibration)	6.02 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 19/09/2019

Signature:

Name: P. BRISTIEL

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	14289313
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000007
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	26.0 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.809 ml
Capacity 100% at backpressure (calibration)	6.054 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 17/08/2020

Signature:

Name: Cathy LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	14289313
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000008
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	26.0 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.789 ml
Capacity 100% at backpressure (calibration)	6.032 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 17/08/2020

Signature:

Name: Cathy LIPSKI

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	14380709
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000009
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	23.8 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.764 ml
Capacity 100% at backpressure (calibration)	6.034 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 08/09/2020

Signature:

Name: DROUIN Joëlle

Dept.: Quality dept

Inspection certificate. 3.1

EN 10204

Manufactured by	**POMPES GRUNDFOS** Route de faulquemont BP7 F – 57740 – Longeville-les-St Avold
Grundfos order no.	15721174
Customer order no.	
Customer name and address	
Shipyard / factory	
Special mark	
Classifying society	**Authorized department**

Pump	
Pump type	DDC 6-10 AR-PVC/E/C-F-31U2U2F
Part number	98173728
Serial number	9817372810000010
Flow rate (l/h)	6
Pressure (bar)	10
	Din / W.-No.
Pump head	PVC
Valves	PVC
Gasket	EPDM
Pump in accordance to type key	OK

Test results	
Liquid	WATER
Liquid temperature	24.9 °C
Backpressure (calibration)	10 Bars
Stroke volume at backpressure (calibration)	0.761 ml
Capacity 100% at backpressure (calibration)	6.024 L/H
High voltage test	Ok
Leakage test	Ok

GRUNDFOS

Date: 05/10/2021

Signature:

Name: DROUIN Joëlle

Dept.: Quality dept

2.2.4.4

HIGH PRESSURE PUMPS

DANFOSS

P-50004A – P-50004B

Inspection Certificate

Filled in by the costomer

Customer:
Customer project/reference no:
Customer order no: Of date:

Danfoss A/S
High Pressure Pumps

DK-6430 Nordborg Denmark
CVR No.: 20 16 57 15
Telephone +45 74 88 72 00
Telefax +45 74 45 38 31

Homepage:
www.danfoss.high-pressurepumps.com

Email:
highpressurepumps@danfoss.com

The quality of Danfoss products is continuously monitored and assured through the Danfoss quality system.
The system is certified against ISO 9001, 14001, 45001 and compliant with the Automotive requirements IATF 16949.
This certificate is accordance with EN 10204 type 3.1

Filled in by Danfoss:

Danfoss production order:	Test date:	Certificate no:	Test rig:
22188301	11-07-2024	180B3045-93091602-284	16431Små
Product type: APP 2,2		Quantity: 1 piece	
Code number: 180B3045		Serial number: 93091602-284	
Housing Material (equal or better than): EN 1,4462		Dimensions: According to cataloque 521B0850	
Test ID: 180B3045-20240711125136		Operator: Philipp Nielsen	
Test method/SOP: R - Instruction			

Test specifications:

Theoretical displacement	12,5	cc/rev
Inlet pressure	1,5	bar
Outlet pressure	80	bar
Shaft speed	3000	rpm
Min. volumetric efficiency	93,0	%
Min. mechanical efficiency	84,0	%
Min. total efficiency	78,1	%

Test results:

Output Flow	35,7	l/min
Shaft Power	5,7	kW
Volumetric efficiency	95,1	%
Mechanical efficiency	87,0	%
Total efficiency	82,7	%
External leakage	OK	
Release status	OK	

The test condition is conform with the requirements in the R - Instruction.
As a part of release procedure the test item has been operated at max pressure according to data sheet.
The reported results represent only the above mentioned Serial number
Typically, the total efficiency increases 2% after a running-in period of 100 - 200 hours

Certificate date:	Position	Name:	Signature:
11-07-2024	Quality Manager	Michael Junker	Michael Junker

Inspection Certificate

Filled in by the costomer

Customer:	
Customer project/reference no:	
Customer order no:	Of date:

Danfoss A/S
High Pressure Pumps

DK-6430 Nordborg Denmark
CVR No.: 20 16 57 15
Telephone +45 74 88 72 00
Telefax +45 74 45 38 31

Homepage:
www.danfoss.high-pressurepumps.com

Email:
highpressurepumps@danfoss.com

The quality of Danfoss products is continuously monitored and assured through the Danfoss quality system.
The system is certified against ISO 9001, 14001, 45001 and compliant with the Automotive requirements IATF 16949.
This certificate is accordance with EN 10204 type 3.1

Filled in by Danfoss:

Danfoss production order:	Test date:	Certificate no:	Test rig:
22188303	17-07-2024	180B3045-93150102-294	16431Små
Product type: APP 2,2		Quantity: 1 piece	
Code number: 180B3045		Serial number: 93150102-294	
Housing Material (equal or better than): EN 1,4462		Dimensions: According to cataloque 521B0850	
Test ID: 180B3045-20240717131755		Operator: Kevin Andersohn	
Test method/SOP: R - Instruction			

Test specifications:

Theoretical displacement	12,5	cc/rev
Inlet pressure	1,5	bar
Outlet pressure	80	bar
Shaft speed	3000	rpm
Min. volumetric efficiency	93,0	%
Min. mechanical efficiency	84,0	%
Min. total efficiency	78,1	%

Test results:

Output Flow	35,6	l/min
Shaft Power	5,7	kW
Volumetric efficiency	94,9	%
Mechanical efficiency	89,0	%
Total efficiency	84,4	%
External leakage	OK	
Release status	OK	

The test condition is conform with the requirements in the R - Instruction.
As a part of release procedure the test item has been operated at max pressure according to data sheet.
The reported results represent only the above mentioned Serial number
Typically, the total efficiency increases 2% after a running-in period of 100 - 200 hours

Certificate date:	Position	Name:	Signature:
17-07-2024	Quality Manager	Michael Junker	Michael Junker

Type Test Report

Report No.: TTR3IA11321A2SL

Test Result Data

Nameplate data

Type:	HMA3 132S2-2	Protection Class.:	IP55
Voltage:	400 V	Duty:	S1
Current:	13.68 A	Frequency:	50 Hz
Output:	7.5 kW	Efficiency.:	90.2 %
Connection:	D	Cos ϕ:	0.88
Speed:	2932 rpm	Insulation Class:	F

No-Load test at rated voltage

No load loss:	349.96 W	No load current:	5.25 A
Machine loss:	58.32 W	Core loss:	255.92 W
Sound pressure level 1m:	70 dB(A)	Vibration:	1.0 mm/s

Temperature rise test

Voltage:	400.0 V	Current:	13.68 A
Power:	7.50 kW	Temperature - rise:	57 K
Winding hotspot temperature:	73 °C	Bearing temperature:	67 °C
Frequency:	50 Hz	Ambient temperature:	17 °C

Load performance test

Load	**Un**	**f**	**P1**	**I1**	**N**	**T**	**Cos ϕ**	**Eff (η)**
%	V	Hz	KW	A	rpm	Nm	Cos ϕ	%
125	400	50	10.48	16.89	2913	30.74	0.90	89.47
100	**400**	**50**	**8.31**	**13.68**	**2932**	**24.42**	**0.88**	**90.21**
75	400	50	6.23	10.75	2951	18.21	0.84	90.32
50	400	50	4.21	8.20	2968	12.07	0.74	89.08
25	400	50	2.25	6.13	2983	6.00	0.53	83.29

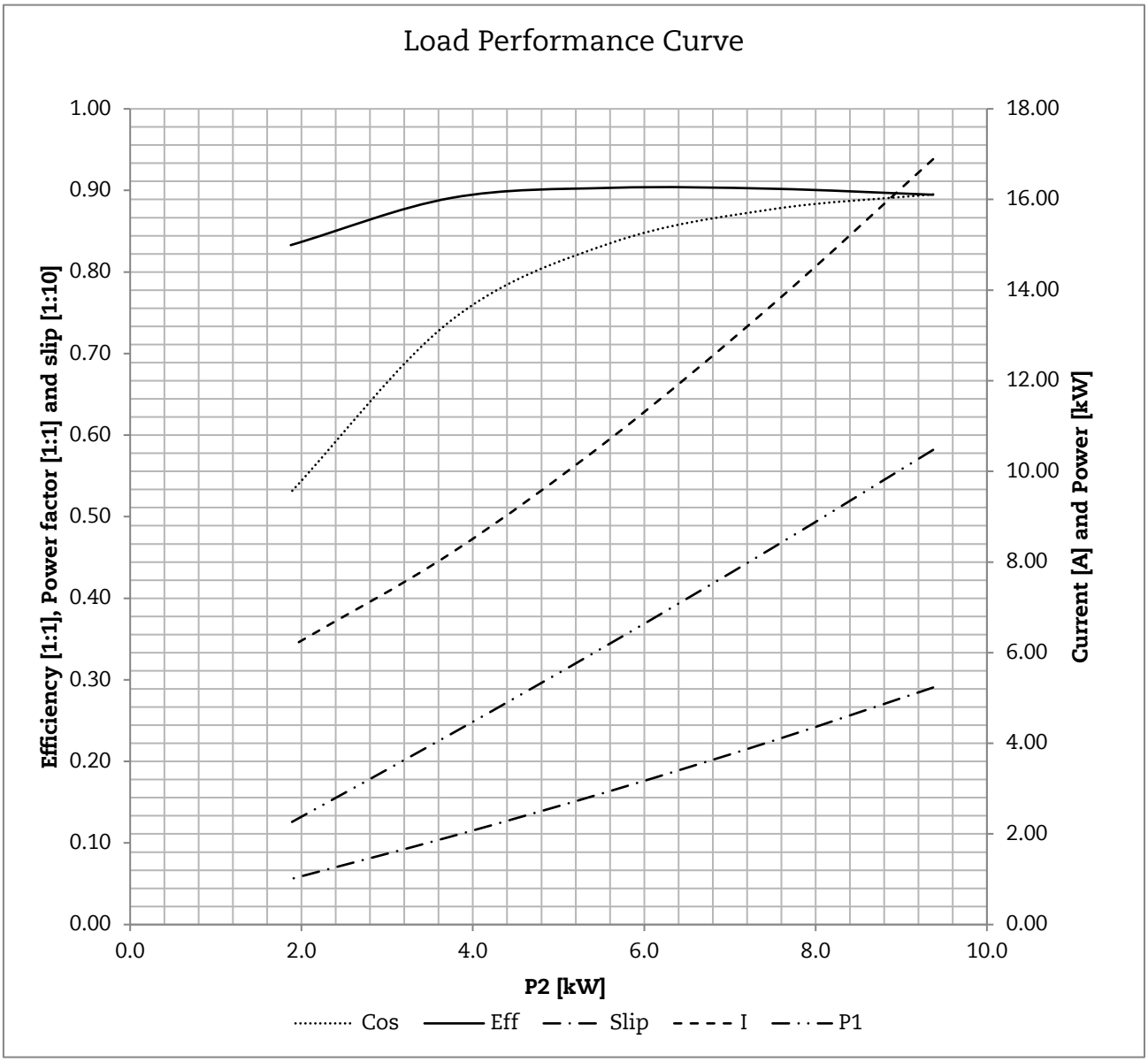
Locked rotor test at rated voltage

Input power:	45.0 kW	Cos ϕ:	0.51
Starting currrent:	126.46 A	Starting torque:	67.91 Nm
Starting/Rated current:	9.24	Starting/Rated torque:	2.78

Data are not binding. Hoyer reserves the right to implement changes without notice. The extent of data are not equivalent to nameplate on the motors.

Load test data

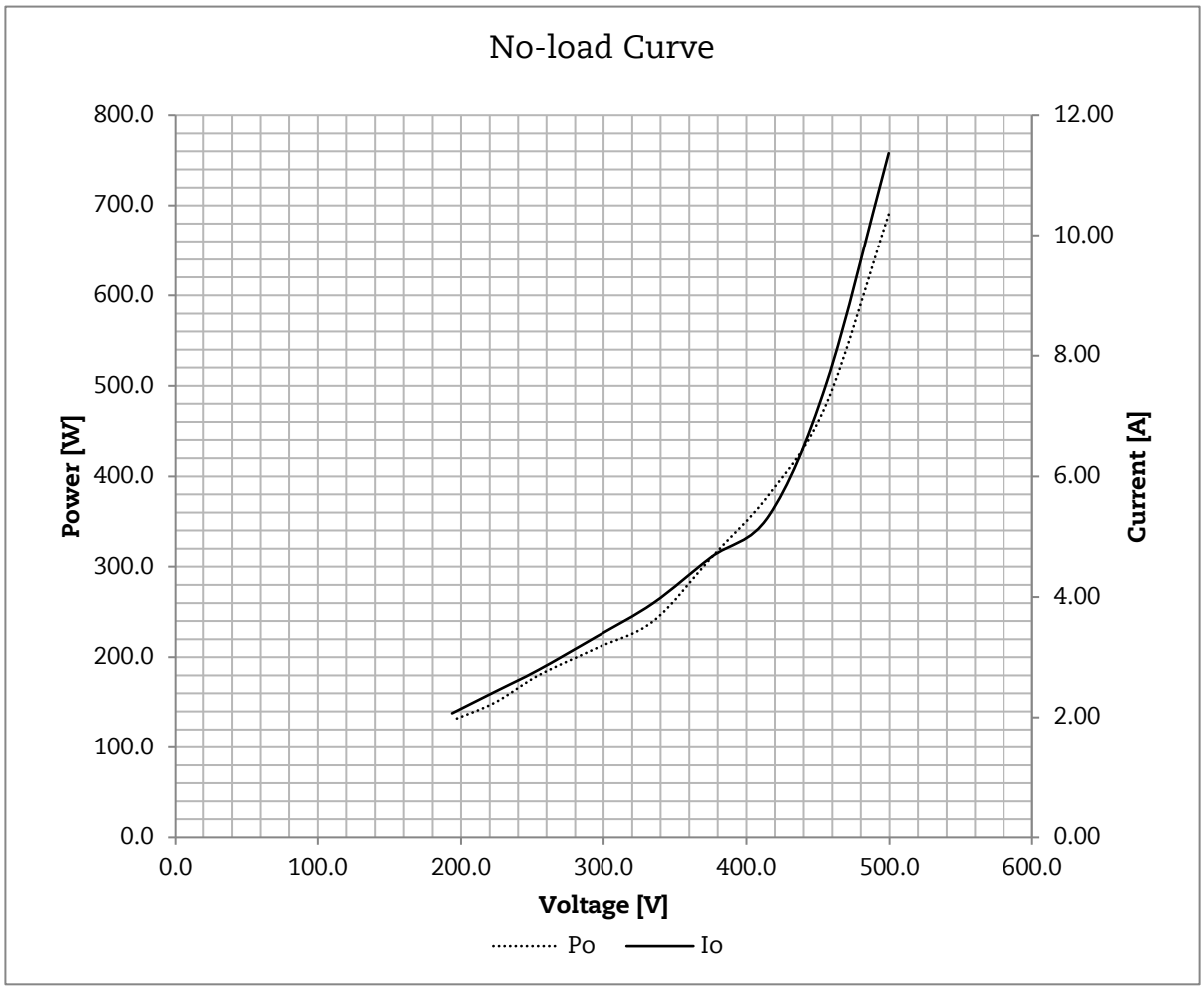
P2 kW	P1 kW	Eff (η) P2/P1	I A	T Nm	Cos ϕ
9.4	10.5	0.895	16.89	30.7	0.90
7.5	8.3	0.902	13.68	24.4	0.88
5.6	6.2	0.903	10.75	18.2	0.84
3.7	4.2	0.891	8.20	12.1	0.74
1.9	2.2	0.833	6.13	6.0	0.53



Data are not binding. Hoyer reserves the right to implement changes without notice. The extent of data are not equivalent to nameplate on the motors.

No-load test data at rated frequency

Uo V	Io A	Po W	Pcul.
499.5	11.37	690.0	167.8
455.9	7.54	480.0	73.8
415.9	5.35	380.0	42.6
375.4	4.66	310.0	28.2
334.9	3.90	240.0	19.7
294.8	3.34	210.0	14.5
254.2	2.79	180.0	10.1
223.9	2.43	150.0	7.7
193.7	2.07	130.0	5.6
163.6	1.76	110.0	4.0



Data are not binding. Hoyer reserves the right to implement changes without notice. The extent of data are not equivalent to nameplate on the motors.

2.2.4.5

PLC & MCC SYSTEM

PSC

50-LP-001

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APPENDICE A **FAT REPORTS**

APPENDICE B **TEST REPORTS**

APPENDICE C **PENDING ACTIONS**

APPENDICE D **RELEASE NOTES FOR SHIPMENT**

1. SCOPE

The scope of this Test Report is to describe the tests, the checks and the controls, visuals and functionals, of **Local Control Panel** for the **Water Treatment Package,** that shall be done in the Vendor factory during the Factory Acceptance Test (F.A.T.) and records the results of the tests.

2. APPLICABILITY

The Factory Acceptance Test will be conducted as per inspection for the following item:

1. Hardware

The F.A.T. is focused only on those items specific to this project.

Any non-conformities due to any cause discovered during the F.A.T. will be recorded in the "Pending Actions" section of this document.

3. CHANGES COMPARED TO PREVIOUS VERSION

No previous version.

4. REFERENCE DOCUMENTS

- UNI EN ISO 9001 – 2015: Quality System Management – Requirements.
- Quality Manual: Monitoring and Measuring.
- Operating Procedure: Monitoring and Measuring.
- PK2885-Q-012_R00: LCP FAT PROCEDURE.

5. RESPONSABILITY

The Project Managers is responsible for the executions of all tests foreseen for the F.A.T.

The tests may be carried out by the technician who developed the software.

For the hardware tests is necessary the supervision of technical staff of workshop.

6. TERMS AND ABBREVIATIONS

F.A.T., acronym of Factory Acceptance Test: All controls, tests and checks that shall be carried out, in factory, for the acceptance by the customer of control systems.

7. TEST EQUIPMENT

The following test equipment will be used during the F.A.T.

a)	Digital Multimeter	HT401, s/n C28100032
b)	Electrical tests	HT FULLTEST3, s/n C14040064
c)	Process calibrator	HT8051, s/n 22091117

8. F.A.T. SCHEDULE

The Project Manager is responsible for the overall execution of the F.A.T. and will be the prime interface between the client Inspectors and Vendor's engineers, throughout the F.A.T.

1.	Date	:	October 16th, 2024
2.	Place	:	PSC's Workshop – Cesano Maderno – MB – Italy
3.	Witness	:	Rosetti Marino S.p.A.. representative
4.	Test Conductor	:	PSC Automation engineers PSC Electrical specialist

9:00 am to 12:00 am for the morning session
1:30 pm to 5:00 pm for the afternoon session.

5:00 pm to 5:30 pm will be reserved for short daily review meeting to discuss on non-conformities or deviation encountered during the day and possible resolutions and actions.

9. F.A.T. DESCRIPTION

The Control System F.A.T. will be performed in two separate sections.
The first will certificate the conformance to the specification of the Hardware of each electrical panel supplied; this test will include also the test of the network that will connect the whole system.
The second section of the test will certificate the conformance to the specification of the Application Software realized for the PLC Control System.

APPENDIX "A"

F.A.T. REPORTS

Cliente Finale *End Customer*	:	**CROSSWIND**
Cliente *Customer*	:	**ROSETTI MARINO S.P.A..**
Progetto *Project Name*	:	**HOLLANDSE KUST NOORD WIND PARK PROJECT – BASE LOAD POWER HUB WATER TREATMENT PACKAGE**
Ordine N° *Order Nr.*	:	**1724000448 Rev.1 dated March 18h, 2024**
Commessa N° *Job Nr.*	:	**123A90A**
Commessa interna N° *Internal Job Nr.*	:	**PK2885**

Sistema Testato / *System Tested*
HARDWARE TEST
LCOAL CONTROL PANEL (LCP) "50-LP-001"

Documenti di Riferimento / *Reference Documents*		
N° Documento / *Document Nr.*	Descrizione / *Description*	Rev.
1724000448-IN-DG-00014	**WIRING DIAGRAM LCP 50-LP-001**	**2**
1724000448-IN-LIS-00019	**INPUT/OUTPUT LIST**	**2**

The tests have been carried out in the here below-detailed sequence:
TP1; TP2; TP3; TP4; TP5; TP6; TP7; TP8; TP9; TP10; TP11; TP12; TP14; TP15; TP16; TP17; TP18; TP19; TP20
TP21; TP22; TP23; TP25; TP26; TP27; TP28; TP32; TP42; TP40

Test	Test Description	Pass	Fail	Date	End Cust.	Customer	Vendor	Notes
TP1	Documentation Review	☒ *	☐					*PL 1
TP2	Correspondence of Bill of Material and Integrated Equipment	☒	☐					
TP3	Preservation Status of Each Components	☐	☐					N/A
TP4	Accessories Check	☒	☐					
TP5	Equipment Verification to Nominal Performance	☒	☐					
TP6	Visual Check of labeling and marking	☒	☐					
TP7	Visual Inspection and Dimensional Check of Individual Equipment	☒	☐					SEE BRUMU
TP8	Check of the Condition of Painted Surfaces	☒	☐					
TP9	Check of Degree of Mechanical Protection	☒ *	☐					PL 3
TP10	Check of Easy Accessibility and Removal of Individual Component	☒	☐					
TP11	Check of Filling of Wire Ducts	☒	☐					
TP12	Check of Terminal Strips Functional Separation	☒	☐					
TP14	Check of Wiring Separation for Various Step Level Voltage	☒	☐					
TP15	Check of Characteristic and Rated Data of the Equipment	☒	☐					
TP16	Check of Characteristics Color, Section Of Wires And Cables	☒	☐					
TP17	Check of Wiring of Inlet/Outlet Terminal Blocks and Relevant Numbering	☒	☐					
TP18	Check of Space for Future Expansion	☒	☐					
TP19	Protection against Accidental and Direct Contacts	☒ *	☐					
TP20	Grounding Circuit Check	☒ *	☐					*PL 2
TP21	Power Supply Circuit	☒	☐					
TP22	Auxiliary Circuit and Services	☒	☐					
TP23	Redundancy of Power Supply	☒	☐					
TP25	CPU Test	☒	☐					
TP26	CPU Back-Up Function	☒	☐					
TP27	CPU Communication Test	☐	☐					N/A
TP28	Input/Output Check	☒	☐					
TP32	System Start-Up	☐	☐					N/A
TP42	Insulation resistance	☒	☐					REVIEW BY RM - SEE REPOR
TP40	Final Documentation Review	☒	☐					
		☐	☐					

Note / *Notes*	
P.L. 1	UP-DATE DOC. REF. "PK2885-A-002" AS PER RLMU PERFORMADED.
P.L. 2	SHIELD BOX (CABINET N.5) WILL BE MODIFY AS PER VERBAL AGREEMENTS.
P.L. 3	TOP PLATE WILL BE REPLACE WITH THE FINAL ONE. AS PER DRW "PK2885-A-002"

Esito del Collaudo / *Test Result*	
☐ **Positivo / *Pass***	☐ **Negativo / *Fail***

Allegati / *Attacheds Documents*	
	Descrizione / *Description*
☐	**Lista Difformità / *Punch List***
☐	**Consenso alla Spedizione / *Release Notes for Shipment***
☐	
☐	

Data / *Date*	Cliente Finale / *End Customer*	Cliente / *Customer*	Vendor
		Quality Control Dept. Mechanical Completion FUSCONI per Rosetti Marino SpA	**PSC** S.p.A. ENGINEERING & CONTRACTING Corso Europa, 12 20811 CESANO MADERNO (MB) Tel. 0362.650457 15-10-2024

APPENDICE "B"

TEST REPORTS

TEST REPORT Nr. PK2885-TRT-001

End Customer: **Crosswind** *Customer:* **Rosetti Marino S.p.A.**

Order nr.: **1724000448 Rev.1 dated March 18th, 2024** *PSC job:* **PK2885**

Project: **Hollandse Kust Noord Wind Park Project – Base Load Power Hub - Water Treatment Package**

Panel/s – Board/s description : **Local Control Panel "50-LP-001"**

Reference Drawings: **Wiring Diagram** nr. **1724000448-IN-DG-00014** *Rev.* **2**

In accordance with standards: **CEI EN 61439-1 2022 – CEI EN 60204-1 2018**

VISUAL INSPECTION:

TEST DESCRIPTION	RESULT		
General check according to specifications	Passed	Failed	N.A.
Labels	Passed	Failed	N.A.
Painting	Passed	Failed	N.A.
Incoming/outgoing; main/auxiliary circuits	Passed	Failed	N.A.
Characteristic and marking of equipments	Passed	Failed	N.A.
Bus-bar arrangement section; main circuit wiring	Passed	Failed	N.A.
Auxiliary circuit wiring	Passed	Failed	N.A.
Grounding connections	Passed	Failed	N.A.
Directs contacts protection	Passed	Failed	N.A.

DIMENSIONAL CHECK:

Main dimension (According to specifications)	Passed	Failed	N.A.
Bolts tightness	Passed	Failed	N.A.
Mechanical locks	Passed	Failed	N.A.
Circuits breakers working (only mechanic)	Passed	Failed	N.A.
Protection degree (According to specifications)	Passed	Failed	N.A.

ELECTRICAL TEST:

Dielectric strength main circuits (Rif. CEI EN 61439-1 Tab.8, par. 10.9.2)	1,89	*kV*	*per*	*60*	*sec*	Passed	Failed	N.A.
Dielectric strength auxiliary circuits (Rif. CEI EN 61439-1 Tab.9, par. 10.9.2)	1,89	*kV*	*per*	*60*	*sec*	Passed	Failed	N.A.
Insulation resistance main circuits	> 500	*MΩ*	*a*	*0,5*	*kV dc*	Passed	Failed	N.A.
Insulation resistance auxiliary circuits (Rif. CEI EN 60204-1, par. 18.3; Rmin ≥ 1MΩ)	> 500	*MΩ*	*a*	*0,5*	*kV dc*	Passed	Failed	N.A.
Operation sequence, functional						Passed	Failed	N.A.

N.A.: Not Applicable

TEST REPORT Nr. PK2885-TRT-001

End Customer: **Crosswind** *Customer:* **Rosetti Marino S.p.A.**

Order nr.: **1724000448 Rev.1 dated March 18th, 2024** *PSC job:* **PK2885**

Project: **Hollandse Kust Noord Wind Park Project – Base Load Power Hub - Water Treatment Package**

Panel/s – Board/s description : **Local Control Panel "50-LP-001"**

Reference Drawings: **Wiring Diagram** nr. **1724000448-IN-DG-00014** *Rev.* **2**

In accordance with standards: **CEI EN 61439-1 2022 – CEI EN 60204-1 2018**

NOTES

Verified PSC *Approved Client* *Approved Final Client*

Date: *Date:* *Date:*

	Introdurre dati utente

N°	Misure		Esito:	Descrizione
88	PK2885\PIOMBONI RA\50-LP-001\88 MΩ - mod. Timer 09/10/2024 15:43:00		Ok	RISO
	MΩ - mod. Timer			
	Vmis (+)	515 V		
	Ri	>500 MΩ	Ok	
	Tempo totale	30 s		
	VPN	0 V		
	R Lim	1,00 MΩ		
	T0	30 s		
	V0 nom	500 V		
	Informazioni generali			
	FULLTST3 S/N 14040064			
	Operatore: RIBOLDI LUCA			
89	PK2885\PIOMBONI RA\50-LP-001\89 Prova dielettrica - Corr. resistiva - mod. Rampa 09/10/2024 15:46:00		Ok	RIGIDITY
	Prova dielettrica - Corr. resistiva - mod. Rampa			
	Re(I)	0 mA	Ok	
	Ultima tensione	1.890 V		
	Tempo prova	65 s		
	Ire - soglia	10 mA		
	V0	1.418 V		
	V tempo di incremento	5 s		
	V nominale	1.890 V		
	V tempo di mantenimento	60 s		
	Informazioni generali			
	FULLTST3 S/N 14040064			
	Operatore: RIBOLDI LUCA			

APPENDIX "C"

PENDING ACTIONS

APPENDIX "D"

RELEASE NOTE FOR SHIPMENT

Cliente Finale *End Customer*	: **CROSSWIND**
Cliente *Customer*	: **ROSETTI MARINO S.P.A..**
Progetto *Project Name*	: **HOLLANDSE KUST NOORD WIND PARK PROJECT – BASE LOAD POWER HUB WATER TREATMENT PACKAGE**
Ordine N° *Order Nr.*	: **1724000448 Rev.1 dated March 18h, 2024**
Commessa N° *Job Nr.*	: **123A90A**
Commessa interna N° *Internal Job Nr.*	: **PK2885**

Con il presente documento si certifica per accordo tra le parti che il sistema di controllo in oggetto è autorizzato alla spedizione una volta completate tutte le azioni richieste per il completamento prima della spedizione, in accordo a quanto riportato nella "Lista Difformità"

This is to certify that it is mutually agreed by all parties that the Control Panel covered under the above Purchase Order can be released for shipment when all actions required to be completed prior to shipment are been executed, as per the "PunchList"

Commenti / *Comments*

Esito del Collaudo / *Test Result*	
☐ **Positivo / *Pass***	☐ **Negativo / *Fail***

Data / *Date*	Cliente Finale / *End Customer*	Cliente / *Customer*	Vendor

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tel 02 90722441 www.delo.it

TREND NETWORKS Service Center
Bird®

LABORATORIO METROLOGICO

RAPPORTO DI TARATURA: 45534
Report of Calibration n.:

Data di emissione: 09/10/2024
Performed on :

Destinatario: PSC SPA ENGINEERING & CONTRACTING
Customer:
Indirizzo: VIA S.ANTONIO DA PADOVA, 6/A
Adress: BOVISIO MASCIAGO
Richiesta: 42-2024
P.O. number:

Si riferisce a:
Refering to:

Oggetto: Multimetro
Item :
Costruttore: HT ITALIA
Manufacturer :
Modello: HT401
Model:
Matricola: 28100032
Serial number:
Codice Cliente: ---
Customer code:
Moduli e/o Accessori:
Option/Accessory:

In uso a:
In use :
Data registrazione: 08/10/2024
Registro Lab. n: 75548
Book of laboratory:

Scadenza della taratura indicata dall'utilizzatore: 09/10/2025
Date of the next calibration specified by the user:

I risultati di misura riportati nel presente rapporto sono stati ottenuti applicando le procedure citate alla pagina seguente, dove sono specificati anche i campioni di riferimento da cui inizia la catena di riferibilità del laboratorio e i rispettivi certificati di taratura, in corso di validità.Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.

The measurement results reported in this Certificate were obtained following the procedures given the following page, where the reference standard are indicated as well, from which starts the traceability chain of the laboratory, and the related calibration certificates in their course of validity. They relate only tto the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente al documento EA-4/02 e sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura k corrispondente al livello di fiducia di circa il 95%. Normalmente tale fattore k vale 2

The measurement uncertainties stated in this document have been determined according to EA-4/02.They were estimated as extended uncertainty obtained multiplying the standard uncertainty by coverage factor k corresponding to a confidence level of about 95%.Normally, this factor k is 2.

L'Operatore

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I risultati di misura riportati nel seguente rapporto sono ottenuti applicando le procedure n.:

The measurement results brought in the following report are obtained applying the procedures n.:

N.	Sigla/ Name	Descrizione/description	Rev	Data /date
2	PT02	Procedura di taratura di misuratori	01	20/12/2022
62	PTMC01	Taratura misuratori di capacità	00	20/09/2003
80	PTF03	Taratura misuratori di frequenza	08	08/06/2004

Campioni utilizzati e riferibilità:

Standard Used :

Codice/Code	Modello/Model	Descizione/Type	Matricola/sn	N.Cert./Doc Number	Scadenza/Date exp.
CalLab767	9100	Calibratore multifunzione	38038	LAT121 10920	06/03/2025

Luogo di esecuzione della taratura: in sede
Location where the calibration was conducted: *In the laboratory*

Condizioni generali di misura:
General measurement conditions:

Dopo aver verificato l'efficienza delle batterie interne di alimentazione, e disabilitato l'auto spegnimento.

Le condizioni ambientali misurate sono: temperatura= 23°C +/-2 °C, umità relativa= 50% +/-10 %. Non vi sono state variazioni apprezzabili.
As regards the measured environmental conditions: temperature= 23°C +/-2°C and relative umidity=50% +/-10 %; appreciable variations have not been detected.

Impostazioni / Configurations:

La taratura è stata eseguita per confronto con il campione di lavoro. Collegamenti eseguiti seguendo le indicazioni riportate nel manuale d'uso del costruttore.

Operazioni eseguite:
Operations perfomed:

così come ricevuto.Non sono state eseguite operazioni di messa in punto come misuratore.

Verifica di conformità:

L'esito della verifica di conformità, che rappresenta l'ultimo atto del processo di conferma metrologica dello strumento (in accordo alla norma UNI EN ISO 10012: "Sistemi di gestione della misurazione - Requisiti per i processi e le apparecchiature di misurazione"), riportato nell'ultima colonna della tabella "Risultati", è stato stabilito verificando che l'errore di misura, nel punto considerato, risulti inferiore al limite imposto dalle specifiche dello strumento dichiarate dal costruttore ulteriormente ristretto di una quantità pari all'incertezza di misura al fine di garantire la "sicura conformità dello strumento" in accordo ai requisiti della norma UNI EN ISO 14253-1 che definisce le regole decisionali per provare la conformità o non conformità rispetto alle specifiche. Vedi colonne GBinf e GBsup

The outcome of the verification of compliance, which is the last act of the confirmation process metrology tool (according to UNI EN ISO 10012: "Measurement management systems - Requirements for measurement processes and equipment"), reported in the last column of the table "Results", was established by verifying that the measurement error, the point in question, is less than the limit imposed by the specifications declared by the manufacturer of the instrument further restricted by an amount equal to the uncertainty of measurement ensure the "safe conformity of the instrument" in accordance with the requirements of UNI EN ISO 14253-1, which defines the decision rules to prove compliance or noncompliance with the specification.See colum GBinf and GBsup.

Documento di riferimento/Reference : Manuale d'uso HT401 - Release 1.01 - 14/05/2012

L'esito della taratura è riportato nelle tabelle sucessive per ogni punto.
The result of the calibration is shown in the tables for each successive point.

L'Operatore

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RAPPORTO DI TARATURA: 45534
Report of Calibration n.:
Data di emissione: 09/10/2024
Performed on :

Risultati delle misure come Misuratore :
Results of measurements as a meter:

Funzione *Fuction*	Portata *Range*	Val.Prova *Condition*	Frequenza *Frequency*	Valore Applicato *Applied value*	Valore Misurato *Measured t value*	Errore *Error*	GB inf *GB inf*	GB sup *GB sup*	Incertezza *uncertainty*		*Results*
Capacità	1 µF		1 kHz	0,500 µF	0,500 µF	0µF	0,492	0,508	0,0052	µF	Pass
			1 kHz	0,900 µF	0,903 µF	0,003µF	0,887	0,913	0,0079	µF	Pass
	10 µF		0,1 kHz	9,00 µF	8,98 µF	-0,02µF	8,87	9,13	0,048	µF	Pass
	100 µF		0,05 kHz	90,0 µF	89,9 µF	-0,1µF	88,7	91,3	0,48	µF	Pass
	1000 µF		0,05 kHz	900 µF	900 µF	0µF	889	911	4,8	µF	Pass

Risultati delle misure come Misuratore di frequenza
Results of frequency measurements :

Funzione *Fuction*	Portata *Range*	Valore Applicato *Applied value*	Valore Misurato *Measured t value*	Errore *Error*	Incertezza *uncertainty*	GB inf *GB inf*	GB sup *GB sup*	Esito *Results*
Frequenza	100 Hz	45,00 Hz	44,99 Hz	-2,22E-04	1,28E-04	44,94	45,07	Pass
5 V	1000 Hz	900,0 Hz	899,9 Hz	-1,11E-04	6,42E-05	898,9	901,1	Pass
	10 kHz	9,000 kHz	8,999 kHz	-1,11E-04	6,42E-05	8,989	9,011	Pass
	100 kHz	50,00 kHz	49,99 kHz	-2,00E-04	1,15E-04	49,93	50,07	Pass

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Centro di Taratura LAT 121
Calibration Centre
Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

LAT N° 121

CERTIFICATO DI TARATURA LAT121 11292
Certificate of Calibration

- Data di emissione *date of issue*	**2024-10-09**
- cliente *customer*	**PSC SPA ENGINEERING & CONTRACTING VIA S.ANTONIO DA PADOVA, 6/A BOVISIO MASCIAGO**
- Destinatario *receiver*	**PSC SPA ENGINEERING & CONTRACTING VIA S.ANTONIO DA PADOVA, 6/A BOVISIO MASCIAGO MB**
Si riferisce a: *referring to*	
- Oggetto *item*	**Multimetro**
-costruttore *manufacturer*	**HT ITALIA**
- Modello *model*	**HT401**
- Matricola *serial number*	**28100032** ---
- Data di ricevimento oggetto *date of receipt of item*	**2024-10-08**
- *Data delle misure* *date of measurement*	Dal: **2024-10-09** **al** **2024-10-09**
- Registro di laboratori *laboratory reference*	**11943**

Il presente certificato di taratura è emesso in base all'accreditamento LAT N° 121 rilasciato in accordo ai decreti attuativi della legge n. 273/1991 che ha istituito il Sistema Nazionale di Taratura (SNT). ACCREDIA attesta le capacità di misura e di taratura, le competenze metrologiche del Centro e la riferibilità delle tarature eseguite ai campioni nazionali e internazionali delle unità di misura del Sistema Internazionale delle Unità (SI).
Questo certificato non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Centro.

This certificate of calibration is issued in compliance with the accreditation LAT N° 121 granted according to decrees connected with Italian law No. 273/1991 which has established the National Calibration System. ACCREDIA attests the calibration and measurement capability, the metrological competence of the Centre and the traceability of calibration results to the national and international standards of the International System of Units (SI).
This certificate may not be partially reproduced, except with the prior written permission of the issuing Centre.

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure di taratura citate alla pagina seguente, dove sono specificati anche i campioni o gli strumenti che garantiscono la catena di riferibilità del Centro e i rispettivi certificati di taratura in corso di validità. Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.
The measurement results reported in this Certificate were obtained following the calibration procedures given in the following page, where the reference standards or instruments are indicated which guarantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente alla Guida ISO/IEC 98 e al documento EA-4/02. Solitamente sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura *k* corrispondente ad un livello di fiducia di circa il 95 %. Normalmente tale fattore *k* vale 2.
The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually, they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

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Centro di Taratura LAT 121
Calibration Centre
Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 121

CERTIFICATO DI TARATURA LAT121 11292
Certificate of Calibration

I risultati di misura riportati nel seguente certificato sono stati ottenuti applicando le procedure n.:
Technical procedures used for calibration perfomed:

N.Proc.	Sigla	Descrizione	Rev.	Data di Validazione
2	PT02	Procedura di taratura di misuratori	01	24/10/2023

Gli strumenti/campioni che garantiscono la catena della riferibilità del Centro, con gli estremi dei certificati di taratura di tali campioni e l'Ente che li ha emessi sono :

instruments or measurament standard which guarantee the traceability chain of the Centre, relevant calibration certificates of those standards with issuing Body

N.	Sigla	Modello	sn.	Ente/NCert.	Data
270	MulLab270	8508A	850147481	LAT046 379674	18/07/2024
804	CalLAT804	5720A	5735312	45362	25/07/2024

Condizioni ambientali e di taratura:
Calibration and environmental conditions:

Temperatura ambiente: (23,0±1,5)°C Umidità relativa del: (50 ± 15) %
Environmental temperature: *Relative humidity:*

La taratura è stata eseguita dopo la stabilizzazione termica alle condizioni sopraindicate.

Dopo aver verificato l'efficienza delle batterie interne di alimentazione, e disabilitato l'auto spegnimento.

Impostazioni:
Configuration:
Collegamenti eseguiti seguendo le indicazioni riportate nel manuale d'uso del costruttore.

Metodo impiegato:
Method used:
La taratura dei misuratori viene eseguita applicando direttamente il valore di riferimento generato dal campione riportato.

I risultati delle operazioni di taratura sono riportati nelle tabelle delle pagine seguenti.
Calibration results and their expanded uncertainty are reported in the following tebles

La taratura è stata eseguita così come ricevuto, non sono state eseguite le operazioni di messa in punto come misuratore.

Incertezze
Measurement uncertainties
Le incertezze di taratura, riportate in seguito per ogni punto di misura, sono associate all'errore. L'errore è calcolato come differenza tra valore indicato e valore applicato.

Conformità:
Conformity
Non è stata richiesta la conformità

Documento di riferimento

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

DELO INSTRUMENTS
via Piemonte 14 20072 Fizzonasco di Pieve E. (MI)
Tel 02 90722441 www.delo.it

Centro di Taratura LAT 121
Calibration Centre
Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 121

CERTIFICATO DI TARATURA LAT121 11292
Certificate of Calibration

Risultati delle misure come misuratore :

Funzione *Fuction*	Portata *Range*	Valore Applicato *applied valuet*	Frequenza *frequency*	Valore Indicato *indicated value*	Errore *Error*	Incertezza *uncertainty*
Tensione Continua	60 mV	5,000 mV		5,04 mV	0,04 mV	0,01mV
		59,000 mV		58,98 mV	-0,02 mV	0,01mV
		-59,000 mV		-58,89 mV	0,11 mV	0,01mV
	600 mV	60,000 mV		59,97 mV	-0,03 mV	0,01mV
		590,00 mV		589,4 mV	-0,6 mV	0,1mV
		-590,00 mV		-589,1 mV	0,9 mV	0,1mV
	6 V	0,6000 V		0,600 V	0,000 V	0,001V
		5,9000 V		5,894 V	-0,006 V	0,001V
		-5,9000 V		-5,893 V	0,007 V	0,001V
	60 V	6,0000 V		5,994 V	-0,006 V	0,001V
		25,000 V		24,98 V	-0,02 V	0,01V
		59,00 V		59,0 V	0,0 V	0,1V
		-59,000 V		-58,94 V	0,06 V	0,01V
	600 V	60,00 V		60,0 V	0,0 V	0,1V
		590,0 V		590 V	0 V	1V
		-590,00 V		-589,3 V	0,7 V	0,1V
	1000 V	100,00 V		99,9 V	-0,1 V	0,1V
		500,00 V		499,3 V	-0,7 V	0,1V
		950,0 V		949 V	-1 V	1V
		-950,0 V		-950 V	0 V	1V
Tensione Alternata	60 mV	5,000 mV	0,05 kHz	5,00 mV	0,00 mV	0,01mV
		5,000 mV	1 kHz	5,00 mV	0,00 mV	0,01mV
		59,000 mV	0,05 kHz	59,00 mV	0,00 mV	0,01mV
		59,000 mV	1 kHz	59,03 mV	0,03 mV	0,01mV
	600 mV	50,000 mV	0,05 kHz	49,93 mV	-0,07 mV	0,01mV
		50,000 mV	1 kHz	50,04 mV	0,04 mV	0,01mV
		590,00 mV	0,05 kHz	589,0 mV	-1,0 mV	0,1mV
		590,00 mV	1 kHz	590,3 mV	0,3 mV	0,1mV
	6 V	0,5000 V	0,05 kHz	0,501 V	0,001 V	0,001V
		0,5000 V	1 kHz	0,499 V	-0,001 V	0,001V
		5,900 V	0,05 kHz	5,90 V	0,00 V	0,01V
		5,9000 V	1 kHz	5,867 V	-0,033 V	0,001V
	60 V	5,0000 V	0,05 kHz	4,991 V	-0,009 V	0,001V
		5,0000 V	1 kHz	4,976 V	-0,024 V	0,001V
		25,000 V	0,05 kHz	24,99 V	-0,01 V	0,01V
		25,000 V	1 kHz	24,99 V	-0,01 V	0,01V
		59,00 V	0,05 kHz	59,0 V	0,0 V	0,1V
		59,000 V	1 kHz	58,97 V	-0,03 V	0,01V
	600 V	50,000 V	0,05 kHz	49,91 V	-0,09 V	0,01V
		50,000 V	1 kHz	50,00 V	0,00 V	0,01V
		590,00 V	0,05 kHz	588,6 V	-1,4 V	0,1V
		590,00 V	1 kHz	589,3 V	-0,7 V	0,1V
	1000 V	100,00 V	0,05 kHz	99,9 V	-0,1 V	0,1V
		500,00 V	0,05 kHz	499,9 V	-0,1 V	0,1V
		950,0 V	0,05 kHz	948 V	-2 V	1V
		950,0 V	1 kHz	944 V	-6 V	1V
Resistenza	600 Ω	100,00 Ω		99,9 Ω	-0,1 Ω	0,1Ω
	6 kΩ	0,9999 kΩ		0,998 kΩ	-0,002 kΩ	0,001kΩ
	60 kΩ	10,000 kΩ		10,00 kΩ	0,00 kΩ	0,01kΩ

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

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ACCREDIA L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 121

CERTIFICATO DI TARATURA LAT121 11292
Certificate of Calibration

Risultati delle misure come misuratore :

Funzione *Fuction*	Portata *Range*	Valore Applicato *applied valuet*	Frequenza *frequency*	Valore Indicato *indicated value*	Errore *Error*	Incertezza *uncertainty*
	600 kΩ	100,00 kΩ		100,0 kΩ	0,0 kΩ	0,1kΩ
	6 MΩ	1,0000 MΩ		1,000 MΩ	0,000 MΩ	0,001MΩ
	40 MΩ	9,999 MΩ		10,01 MΩ	0,01 MΩ	0,01MΩ
Corrente Continua	60 mA	5,000 mA		4,99 mA	-0,01 mA	0,01mA
		59,000 mA		58,94 mA	-0,06 mA	0,01mA
		-59,000 mA		-58,95 mA	0,05 mA	0,01mA
	600 mA	50,000 mA		49,93 mA	-0,07 mA	0,01mA
		590,00 mA		589,7 mA	-0,3 mA	0,1mA
		-590,00 mA		-589,3 mA	0,7 mA	0,1mA
	6 A	3,0000 A		2,996 A	-0,004 A	0,001A
		5,9000 A		5,888 A	-0,012 A	0,001A
		-5,9000 A		-5,886 A	0,014 A	0,001A
	10 A	5,0000 A		4,990 A	-0,010 A	0,001A
		9,000 A		8,99 A	-0,01 A	0,01A
		-9,000 A		-9,00 A	0,00 A	0,01A
Corrente Alternata	60 mA	5,000 mA	0,05 kHz	4,99 mA	-0,01 mA	0,01mA
		59,00 mA	0,05 kHz	58,9 mA	-0,1 mA	0,1mA
		59,000 mA	1 kHz	58,98 mA	-0,02 mA	0,02mA
	600 mA	50,000 mA	0,05 kHz	49,91 mA	-0,09 mA	0,01mA
		590,00 mA	0,05 kHz	588,2 mA	-1,8 mA	0,2mA
		590,00 mA	1 kHz	589,7 mA	-0,3 mA	0,3mA
	6 A	3,0000 A	0,05 kHz	2,990 A	-0,010 A	0,005A
		5,9000 A	0,05 kHz	5,877 A	-0,023 A	0,009A
		5,9000 A	1 kHz	5,894 A	-0,006 A	0,01A
	10 A	5,0000 A	0,05 kHz	4,982 A	-0,018 A	0,008A
		9,000 A	0,05 kHz	8,97 A	-0,03 A	0,02A
		9,000 A	1 kHz	8,98 A	-0,02 A	0,02A

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

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TREND NETWORKS Service Center
Bird®

LABORATORIO METROLOGICO

RAPPORTO DI TARATURA: 45544
Report of Calibration n.:

Data di emissione: 10/10/2024
Performed on :

Destinatario: PSC SPA ENGINEERING & CONTRACTING
Customer:
Indirizzo: VIA S.ANTONIO DA PADOVA, 6/A
Adress: BOVISIO MASCIAGO
Richiesta: 42-2024
P.O. number:

Si riferisce a:
Refering to:

Oggetto: Analizzatore di sicurezza elettrica
Item :
Costruttore: HT ITALIA
Manufacturer :
Modello: FullTest 3
Model:
Matricola: 14040064
Serial number:
Codice Cliente: ---
Customer code:
Moduli e/o Accessori:
Option/Accessory:

In uso a:
In use :
Data registrazione: 09/10/2024
Scadenza della taratura indicata dall'utilizzatore: 10/10/2025
Date of the next calibration specified by the user:
Registro Lab. n: 75547
Book of laboratory:

I risultati di misura riportati nel presente rapporto sono stati ottenuti applicando le procedure citate alla pagina seguente, dove sono specificati anche i campioni di riferimento da cui inizia la catena di riferibilità del laboratorio e i rispettivi certificati di taratura, in corso di validità.Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.

The measurement results reported in this Certificate were obtained following the procedures given the following page, where the reference standard are indicated as well, from which starts the traceability chain of the laboratory, and the related calibration certificates in their course of validity. They relate only tto the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente al documento EA-4/02 e sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura k corrispondente al livello di fiducia di circa il 95%. Normalmente tale fattore k vale 2

The measurement uncertainties stated in this document have been determined according to EA-4/02.They were estimated as extended uncertainty obtained multiplying the standard uncertainty by coverage factor k corresponding to a confidence level of about 95%.Normally, this factor k is 2.

L'Operatore

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I risultati di misura riportati nel seguente rapporto sono ottenuti applicando le procedure n.:

The measurement results brought in the following report are obtained applying the procedures n.:

N.	Sigla/ Name	Descrizione/description	Rev	Data /date
134	PT23	Taratura di Analizzatori di sicurezza elettrica	02	03/01/2011

Campioni utilizzati e riferibilità:

Standard Used :

Codice/Code	Modello/Model	Descizione/Type	Matricola/sn	N.Cert./Doc Number	Scadenza/Date exp.
CalSIT745	5320A	Calibratore multifunzione	510281006	LAT 121 10781	04/01/2025

Luogo di esecuzione della taratura: in sede
Location where the calibration was conducted: *In the laboratory*

Condizioni generali di misura:
General measurement conditions:

Dopo un tempo di alimentazione di 8 ore con tensione sinusoidale di valore efficace pari a 220V, alla frequenza di 50 Hz. Device under calibration previously powered for 8 hours; voltage supply 220 V rms frequency: 50 Hz

Le condizioni ambientali misurate sono: temperatura= 23°C +/-2 °C, umità relativa= 50% +/-10 %. Non vi sono state variazioni apprezzabili.
As regards the measured environmental conditions: temperature= 23°C +/-2°C and relative umidity=50% +/-10 %; appreciable variations have not been detected.

Impostazioni / Configurations:

La taratura è stata eseguita per confronto con il campione di lavoro. Per la funzione Rpe 2wire, le misure sono state rilevate dopo aver azzerato la reisstenza residua dei cavi. La misura della leakage current è stata rilevata sulla presa shuko.

Operazioni eseguite:
Operations perfomed:

Così come ricevuto.Non sono state eseguite operazioni di messa in punto come generatore.

così come ricevuto.Non sono state eseguite operazioni di messa in punto come misuratore.

Verifica di conformità:

L'esito della verifica di conformità, che rappresenta l'ultimo atto del processo di conferma metrologica dello strumento (in accordo alla norma UNI EN ISO 10012: "Sistemi di gestione della misurazione - Requisiti per i processi e le apparecchiature di misurazione"), riportato nell'ultima colonna della tabella "Risultati", è stato stabilito verificando che l'errore di misura, nel punto considerato, risulti inferiore al limite imposto dalle specifiche dello strumento dichiarate dal costruttore ulteriormente ristretto di una quantità pari all'incertezza di misura al fine di garantire la "sicura conformità dello strumento" in accordo ai requisiti della norma UNI EN ISO 14253-1 che definisce le regole decisionali per provare la conformità o non conformità rispetto alle specifiche. Vedi colonne GBinf e GBsup

The outcome of the verification of compliance, which is the last act of the confirmation process metrology tool (according to UNI EN ISO 10012: "Measurement management systems - Requirements for measurement processes and equipment"), reported in the last column of the table "Results", was established by verifying that the measurement error, the point in question, is less than the limit imposed by the specifications declared by the manufacturer of the instrument further restricted by an amount equal to the uncertainty of measurement ensure the "safe conformity of the instrument" in accordance with the requirements of UNI EN ISO 14253-1, which defines the decision rules to prove compliance or noncompliance with the specification.See colum GBinf and GBsup.

Documento di riferimento/Reference : Rel. 1.06 del 06/02/20

L'esito della taratura è riportato nelle tabelle sucessive per ogni punto.
The result of the calibration is shown in the tables for each successive point.

L'Operatore

Antonio Carilli

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RAPPORTO DI TARATURA: 45544
Report of Calibration n.:
Data di emissione: 10/10/2024
Performed on :

Risultati delle misure come Generatore :
Results of measurements as a generator:

Funzione *Fuction*	Portata *Range*	Frequenza *Frequency*	Valore Impostato *setup value*	Valore Generato *output value*	Errore *Error*	GBinf *GBinf*	GBsup *GBsup*	Incertezza *uncertainty*	*Esito Results*
Rigidità dielettrica	5000 V	0,05 kHz	2.000,0 V	1.955,0 V	-45,0	1.940,0	2.060,0	11 V	Pass
		0,05 kHz	3.000,0 V	2.918,0 V	-82,0	2.910,0	3.090,0	15 V	Pass
		0,05 kHz	4.000,0 V	3.891,0 V	-109,0	3.880,0	4.120,0	20 V	Pass
		0,05 kHz	5.000,0 V	4.868,0 V	-132,0	4.850,0	5.150,0	25 V	Pass
RCD trip current	10 mA	0,05 kHz	10,000 mA	10,549 mA	0,549	10,000	11,000	0,11 mA	Pass
	30 mA	0,05 kHz	30,000 mA	30,814 mA	0,814	30,000	31,500	0,31 mA	Pass
	100 mA	0,05 kHz	100,00 mA	103,16 mA	3,16	100,00	105,00	1,1 mA	Pass
	300 mA	0,05 kHz	300,00 mA	300,80 mA	0,80	300,00	315,00	3,1 mA	Pass
	500 mA	0,05 kHz	500,0 mA	500,0 mA	0,0	500,0	525,0	5,1 mA	Pass
	650 mA	0,05 kHz	650,0 mA	650,6 mA	0,6	650,0	682,5	6,5 mA	Pass
	1000 mA	0,05 kHz	1.000,0 mA	1.002,4 mA	2,4	1.000,0	1.050,0	10 mA	Pass

Risultati delle misure come Misuratore :
Results of measurements as a meter:

Funzione *Fuction*	Portata *Range*	Val.Prova *Condition*	Frequenza *Frequency*	Valore Applicato *Applied value*	Valore Misurato *Measured t value*	Errore *Error*	GB inf *GB inf*	GB sup *GB sup*	Incertezza *uncertainty*	*Results*
Rpe 2 wire	200 Ω	200 mA	0,05 kHz	0,99 Ω	0,97 Ω	-0,015Ω	0,93	1,04	0,012 Ω	Pass
			0,05 kHz	4,74 Ω	4,66 Ω	-0,083Ω	4,57	4,92	0,031 Ω	Pass
			0,05 kHz	9,88 Ω	9,71 Ω	-0,17Ω	9,28	10,48	0,06 Ω	Pass
			0,05 kHz	18,68 Ω	18,37 Ω	-0,32Ω	17,82	19,54	0,1 Ω	Pass
			0,05 kHz	48,8 Ω	48,1 Ω	-0,67Ω	47,0	50,5	0,31 Ω	Pass
			0,05 kHz	100,7 Ω	99,8 Ω	-0,92Ω	97,4	104,0	0,5 Ω	Pass
			0,05 kHz	182,1 Ω	181,2 Ω	-0,9Ω	176,3	187,9	1 Ω	Pass
Rpe 4wire	20 Ω	25 A	0,05 kHz	0,985 Ω	0,978 Ω	-0,008Ω	0,953	1,018	0,01 Ω	Pass
			0,05 kHz	1,762 Ω	1,741 Ω	-0,021Ω	1,706	1,817	0,018 Ω	Pass
			0,05 kHz	4,74 Ω	4,69 Ω	-0,053Ω	4,60	4,89	0,031 Ω	Pass
			0,05 kHz	9,88 Ω	9,74 Ω	-0,14Ω	9,58	10,18	0,06 Ω	Pass
			0,05 kHz	18,68 Ω	18,39 Ω	-0,29Ω	18,12	19,25	0,1 Ω	Pass
R.Isolamento	100 MΩ	100 V		1,00 MΩ	1,00 MΩ	0MΩ	0,94	1,06	0,0065 MΩ	Pass
				9,00 MΩ	9,09 MΩ	0,09MΩ	8,70	9,30	0,028 MΩ	Pass
				30,0 MΩ	30,1 MΩ	0,08MΩ	28,5	31,5	0,18 MΩ	Pass
				50,0 MΩ	50,0 MΩ	0MΩ	47,5	52,5	0,26 MΩ	Pass
				90,0 MΩ	89,8 MΩ	-0,2MΩ	85,5	94,5	0,45 MΩ	Pass
	250 MΩ	250 V		1,00 MΩ	1,00 MΩ	0MΩ	0,94	1,06	0,0065 MΩ	Pass
				9,00 MΩ	9,07 MΩ	0,07MΩ	8,70	9,30	0,028 MΩ	Pass
				30,0 MΩ	30,3 MΩ	0,28MΩ	28,5	31,5	0,19 MΩ	Pass
				50,0 MΩ	50,2 MΩ	0,2MΩ	47,5	52,5	0,26 MΩ	Pass
				90,0 MΩ	90,1 MΩ	0,12MΩ	85,5	94,5	0,46 MΩ	Pass
				240 MΩ	239 MΩ	-1MΩ	228	252	1,3 MΩ	Pass
	500 MΩ	500 V		1,00 MΩ	0,99 MΩ	-0,01MΩ	0,94	1,06	0,0065 MΩ	Pass
				9,00 MΩ	8,98 MΩ	-0,02MΩ	8,70	9,30	0,028 MΩ	Pass
				30,0 MΩ	30,3 MΩ	0,3MΩ	28,5	31,5	0,16 MΩ	Pass
				50,0 MΩ	50,4 MΩ	0,38MΩ	47,5	52,5	0,27 MΩ	Pass
				90,0 MΩ	90,2 MΩ	0,2MΩ	85,5	94,5	0,45 MΩ	Pass
				250 MΩ	248 MΩ	-2MΩ	238	263	1,4 MΩ	Pass
				490 MΩ	485 MΩ	-5,2MΩ	466	515	2,6 MΩ	Pass
	1000 MΩ	1000 V		1,00 MΩ	1,00 MΩ	0MΩ	0,94	1,06	0,0076 MΩ	Pass
				9,00 MΩ	8,95 MΩ	-0,05MΩ	8,70	9,30	0,045 MΩ	Pass
				30,0 MΩ	29,9 MΩ	-0,1MΩ	28,5	31,5	0,22 MΩ	Pass
				50,0 MΩ	50,3 MΩ	0,3MΩ	47,5	52,5	0,36 MΩ	Pass
				90,0 MΩ	90,4 MΩ	0,4MΩ	85,5	94,5	0,64 MΩ	Pass
				500 MΩ	492 MΩ	-8MΩ	475	525	5,9 MΩ	Pass
				1.000 MΩ	970 MΩ	-30MΩ	950	1.050	9,7 MΩ	Pass
Impedenza di LOOP	200 Ω	(UL 50V)	0,05 kHz	4,74 Ω	4,60 Ω	-0,145Ω	4,57	4,92	0,032 Ω	Pass
Fase-Neutro			0,05 kHz	9,88 Ω	9,65 Ω	-0,23Ω	9,28	10,48	0,06 Ω	Pass

L'Operatore

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RAPPORTO DI TARATURA: 45544
Report of Calibration n.:

Data di emissione: 10/10/2024
Performed on :

Risultati delle misure come Misuratore :
Results of measurements as a meter:

Funzione *Fuction*	Portata *Range*	Val.Prova *Condition*	Frequenza *Frequency*	Valore Applicato *Applied value*	Valore Misurato *Measured t value*	Errore *Error*	GB inf *GB inf*	GB sup *GB sup*	Incertezza *uncertainty*		*Results*
			0,05 kHz	18,7 Ω	18,3 Ω	-0,38Ω	17,8	19,5	0,12	Ω	Pass
			0,05 kHz	48,8 Ω	48,0 Ω	-0,77Ω	47,0	50,5	0,31	Ω	Pass
			0,05 kHz	101 Ω	100 Ω	-0,72Ω	95	107	0,76	Ω	Pass
			0,05 kHz	182 Ω	182 Ω	-0,1Ω	174	191	1,2	Ω	Pass
Fase-Fase	200 Ω		0,05 kHz	4,74 Ω	4,60 Ω	-0,143Ω	4,57	4,92	0,031	Ω	Pass
			0,05 kHz	9,88 Ω	9,65 Ω	-0,23Ω	9,28	10,48	0,06	Ω	Pass
			0,05 kHz	18,7 Ω	18,3 Ω	-0,38Ω	17,8	19,5	0,12	Ω	Pass
			0,05 kHz	48,8 Ω	48,1 Ω	-0,69Ω	47,0	50,5	0,32	Ω	Pass
			0,05 kHz	101 Ω	100 Ω	-0,72Ω	95	107	0,76	Ω	Pass
			0,05 kHz	182 Ω	182 Ω	-0,1Ω	174	191	1,2	Ω	Pass
Fase-Terra	200 Ω		0,05 kHz	4,74 Ω	4,66 Ω	-0,081Ω	4,57	4,92	0,032	Ω	Pass
			0,05 kHz	9,88 Ω	9,75 Ω	-0,132Ω	9,28	10,48	0,061	Ω	Pass
			0,05 kHz	18,7 Ω	18,4 Ω	-0,28Ω	17,8	19,5	0,12	Ω	Pass
			0,05 kHz	48,8 Ω	48,4 Ω	-0,37Ω	47,0	50,5	0,31	Ω	Pass
			0,05 kHz	101 Ω	100 Ω	-0,72Ω	95	107	0,76	Ω	Pass
			0,05 kHz	182 Ω	181 Ω	-1,1Ω	174	191	1,2	Ω	Pass
Ra	2000 Ω	30 mA	0,05 kHz	4,7 Ω	4,8 Ω	0,08Ω	3,6	5,9	0,36	Ω	Pass
			0,05 kHz	9,9 Ω	9,7 Ω	-0,22Ω	8,6	11,2	0,28	Ω	Pass
			0,05 kHz	18,7 Ω	19,4 Ω	0,7Ω	17,1	20,2	0,51	Ω	Pass
			0,05 kHz	48,8 Ω	49,3 Ω	0,57Ω	46,3	51,2	0,87	Ω	Pass
			0,05 kHz	101 Ω	102 Ω	1,3Ω	97	105	1,6	Ω	Pass
			0,05 kHz	182 Ω	185 Ω	2,5Ω	176	189	2,1	Ω	Pass
			0,05 kHz	990 Ω	1.003 Ω	13,5Ω	959	1.020	2,9	Ω	Pass
			0,05 kHz	1.804 Ω	1.825 Ω	20,8Ω	1.749	1.859	4	Ω	Pass
Leakage current	50 mA		0,05 kHz	0,50 mA	0,47 mA	-0,0292mA	0,45	0,54	0,0059	mA	Pass
			0,05 kHz	1,00 mA	0,99 mA	-0,0142mA	0,94	1,06	0,0065	mA	Pass
			0,05 kHz	5,01 mA	5,07 mA	0,062mA	4,83	5,19	0,016	mA	Pass
			0,05 kHz	10,00 mA	10,16 mA	0,162mA	9,67	10,33	0,031	mA	Pass
			0,05 kHz	30,02 mA	30,58 mA	0,561mA	29,09	30,95	0,092	mA	Pass

Risultati delle misure come Misuratore :
Results of measurements as a meter:

Funzione *Fuction*	Portata *Range*	Frequenza *Frequency*	Valore Applicato *Applied value*	Valore Misurato *Measured t value*	Errore *Error*	GB inf *GB inf*	GB sup *GB sup*	Incertezza *uncertainty*		*Results*
RCD trip time	10 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass
x1	30 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass
	100 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass
	300 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass
	500 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass
	650 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass
	1000 mA		20,0 ms	20 ms	0,0ms	17,4	22,6	0,6	ms	Pass

L'Operatore

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DELO INSTRUMENTS
via Piemonte 14 20072 Fizzonasco di Pieve E. (MI)
Tel 02 90722441 www.delo.it

Centro di Taratura LAT 121
Calibration Centre
Laboratorio Accreditato di Taratura
Accredited Calibration Laboratory

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 121

CERTIFICATO DI TARATURA LAT121 11294
Certificate of Calibration

- Data di emissione *date of issue*	**2024-10-10**
- cliente *customer*	**PSC SPA ENGINEERING & CONTRACTING VIA S.ANTONIO DA PADOVA, 6/A BOVISIO MASCIAGO**
- Destinatario *receiver*	**PSC SPA ENGINEERING & CONTRACTING VIA S.ANTONIO DA PADOVA, 6/A BOVISIO MASCIAGO MB**
Si riferisce a: *referring to*	
- Oggetto *item*	**Analizzatore di sicurezza elettrica**
-costruttore *manufacturer*	**HT ITALIA**
- Modello *model*	**FullTest 3**
- Matricola *serial number*	**14040064** ---
- Data di ricevimento oggetto *date of receipt of item*	**2024-10-09**
- *Data delle misure* *date of measurement*	Dal: **2024-10-10** al **2024-10-10**
- Registro di laboratori *laboratory reference*	**11945**

Il presente certificato di taratura è emesso in base all'accreditamento LAT N° 121 rilasciato in accordo ai decreti attuativi della legge n. 273/1991 che ha istituito il Sistema Nazionale di Taratura (SNT). ACCREDIA attesta le capacità di misura e di taratura, le competenze metrologiche del Centro e la riferibilità delle tarature eseguite ai campioni nazionali e internazionali delle unità di misura del Sistema Internazionale delle Unità (SI).
Questo certificato non può essere riprodotto in modo parziale, salvo espressa autorizzazione scritta da parte del Centro.

This certificate of calibration is issued in compliance with the accreditation LAT N° 121 granted according to decrees connected with Italian law No. 273/1991 which has established the National Calibration System. ACCREDIA attests the calibration and measurement capability, the metrological competence of the Centre and the traceability of calibration results to the national and international standards of the International System of Units (SI).
This certificate may not be partially reproduced, except with the prior written permission of the issuing Centre.

I risultati di misura riportati nel presente Certificato sono stati ottenuti applicando le procedure di taratura citate alla pagina seguente, dove sono specificati anche i campioni o gli strumenti che garantiscono la catena di riferibilità del Centro e i rispettivi certificati di taratura in corso di validità. Essi si riferiscono esclusivamente all'oggetto in taratura e sono validi nel momento e nelle condizioni di taratura, salvo diversamente specificato.
The measurement results reported in this Certificate were obtained following the calibration procedures given in the following page, where the reference standards or instruments are indicated which guarantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Le incertezze di misura dichiarate in questo documento sono state determinate conformemente alla Guida ISO/IEC 98 e al documento EA-4/02. Solitamente sono espresse come incertezza estesa ottenuta moltiplicando l'incertezza tipo per il fattore di copertura *k* corrispondente ad un livello di fiducia di circa il 95 %. Normalmente tale fattore *k* vale 2.
The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually, they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

DELO INSTRUMENTS
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ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 121

CERTIFICATO DI TARATURA LAT121 11294
Certificate of Calibration

I risultati di misura riportati nel seguente certificato sono stati ottenuti applicando le procedure n.:
Technical procedures used for calibration perfomed:

N.Proc.	Sigla	Descrizione	Rev.	Data di Validazione
2	PT02	Procedura di taratura di misuratori	01	24/10/2023
3	PT03	Procedura di taratura di generatori	01	20/10/2023

Gli strumenti/campioni che garantiscono la catena della riferibilità del Centro, con gli estremi dei certificati di taratura di tali campioni e l'Ente che li ha emessi sono :

instruments or measurament standard which guarantee the traceability chain of the Centre, relevant calibration certificates of those standards with issuing Body

N.	Sigla	Modello	sn.	Ente/NCert.	Data
270	MulLab270	8508A	850147481	LAT046 379674	18/07/2024
804	CalLAT804	5720A	5735312	45362	25/07/2024

Condizioni ambientali e di taratura:
Calibration and environmental conditions:

Temperatura ambiente: (23,0±1,5)°C Umidità relativa del: (50 ± 15) %
Environmental temperature: *Relative humidity:*

La taratura è stata eseguita dopo la stabilizzazione termica alle condizioni sopraindicate.

Dopo un tempo di alimentazione di 8 ore con tensione sinusoidale di valore efficace pari a 220V, alla frequenza di 50 Hz.
Device under calibration previously powered for 8 hours; voltage supply 220 V rms frequency: 50 Hz

Impostazioni:
Configuration:

La tensione alternata come misuratore è stata rilevata sulla funzione Ures. La tensione continua come generatore è stata verificata sulla funzione Resistenza di isolamento.

Metodo impiegato:
Method used:

La taratura dei misuratori viene eseguita applicando direttamente il valore di riferimento generato dal campione riportato. La taratura dei generatori viene eseguita misurando direttamente il valore generato dal campione riportato.

I risultati delle operazioni di taratura sono riportati nelle tabelle delle pagine seguenti.

Calibration results and their expanded uncertainty are reported in the following tebles

La taratura è stata eseguita così come ricevuto, non sono state eseguite le operazioni di messa in punto generatore.

La taratura è stata eseguita così come ricevuto, non sono state eseguite le operazioni di messa in punto come misuratore.

Incertezze
Measurement uncertainties

Le incertezze di taratura, riportate in seguito per ogni punto di misura, sono associate all'errore. L'errore è calcolato come differenza tra valore indicato e valore applicato. Le incertezze di taratura, riportate in seguito per ogni punto di misura, sono associate all'errore. L'errore è calcolato come differenza tra valore misurato e valore impostato per i generatori.

Conformità:
Conformity
Non è stata richiesta la conformità

Documento di riferimento

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

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ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
LAT N° 121

CERTIFICATO DI TARATURA LAT121 11294
Certificate of Calibration

Risultati delle misure come misuratore :

Funzione *Fuction*	Portata *Range*	Valore Applicato *applied valuet*	Frequenza *frequency*	Valore Indicato *indicated value*	Errore *Error*	Incertezza *uncertainty*
Tensione Alternata	460 V	50,0 V	0,05 kHz	51 V	1 V	1V
Ures		100,0 V	0,05 kHz	101 V	1 V	1V
		150,0 V	0,05 kHz	154 V	4 V	1V
		200,0 V	0,05 kHz	202 V	2 V	2V
		300,0 V	0,05 kHz	304 V	4 V	1V
		450,0 V	0,05 kHz	457 V	7 V	1V

Risultati delle misure come generatore:

Funzione	Portata	Frequenza	Valore impostato	Valore Generato	Errore	Incertezza
Tensione continua	100 V		103,0 V	104,0 V	1,0 V	0,1 V
	250 V		258,0 V	259,0 V	1,0 V	0,1 V
	500 V		515,0 V	519,0 V	4,0 V	0,1 V
	1000 V		1.030,0 V	1.038,0 V	8,0 V	0,1 V
Rigidità dielettrica	5000 V	0,05 kHz	250,0 V	257,0 V	7,0 V	0,1 V
		0,05 kHz	500,0 V	497,0 V	-3,0 V	0,1 V
		0,05 kHz	750,0 V	741,0 V	-9,0 V	0,1 V
		0,05 kHz	990,0 V	979,0 V	-11,0 V	0,1 V

Direzione Tecnica
Approving officer
P.I.Pollio Carmelo

Via Della Boaria 40 - 48018 Faenza - Tel 0546/621002

Servizio di taratura HT-ITALIA
Rapporto di Taratura 24/0205

Certificato

Pagine: 3

Data di emissione: 07/02/24

Destinatario: PSC S.P.A. ENGINEERING & CONTRANTING

Richiesta: SACCHI GIUSEPPE SPA

Data della richiesta: 02/02/24

Data di messa in servizio: 24/03/2024

(da compilare a cura del Cliente)

Validità: 03/03/2025

(da compilare a cura del Cliente)

Oggetto

Costruttore: HT-ITALIA

Modello: HT8051

Matricola: 22091117

Classe di precisione: Vedi manuale

Caratteristiche strumento: Vedi manuale

I risultati di misura riportati nel certificato di calibrazione dello strumento in oggetto sono stati ottenuti utilizzando campioni e strumenti di misura la cui catena di riferibilità ha inizio dal campione munito di certificato di taratura (come da allegato 1) come sotto indicato:

Campione	Certificato di taratura
Wv 9100	ACCREDIA 10447 30/03/2023
Agilent 34401A	ACCREDIA 72588 29/08/2023

Le misure sono state eseguite alla temperatura ambiente di 23°C ± 5°C con una umidità relativa del 60% ± 10%.
Le misure sono state effettuate secondo le procedure 96/006 e M_HT8051_V1.03.
Le incertezze simmetriche in più ed in meno, relative ai valori numerici riportati nel certificato, considerata tutta la catena di riferibilità sono:

Con lo strumento in lettura:
- Per la tensione continua: 0.009%
- Per la corrente continua: 0.16%

Con lo strumento come generatore:
- Per la tensione continua: 0.01%
- Per la corrente continua: 0.2%
- Per le condizioni di calibrazione:
- Frequenza: 0.5%
- Per l'umidità ambiente: 2.5%
- Per la temperatura ambiente: 1K

Il presente certificato deve essere riprodotto integralmente. Ogni riproduzione parziale deve essere espressamente autorizzata dal laboratorio.

Faenza 07/02/24

Il Responsabile

Il Verificatore

Rapporto di Taratura 24/0205

Range 100mV DC Input						
Valore impostato [mV]	*Risoluzione [mV]*	*Precisione*	*Valore limite inferiore [mV]*	*Valore letto [mV]*	*Valore limite superiore [mV]*	*Tolleranza [mV]*
0.000	0.01	±(0.02%rdg + 4dgt)	0.00	0.00	0.04	0.04
25.000	0.01	±(0.02%rdg + 4dgt)	24.95	24.98	25.05	0.05
50.000	0.01	±(0.02%rdg + 4dgt)	49.95	49.98	50.05	0.05
95.000	0.01	±(0.02%rdg + 4dgt)	94.94	94.98	95.06	0.06

Range 10V DC Input						
Valore impostato [V]	*Risoluzione [V]*	*Precisione*	*Valore limite inferiore [V]*	*Valore letto [V]*	*Valore limite superiore [V]*	*Tolleranza [V]*
0.000	0.001	±(0.02%rdg + 4dgt)	0.000	0.000	0.004	0.04
2.50000	0.001	±(0.02%rdg + 4dgt)	2.495	2.500	2.505	0.05
5.0000	0.001	±(0.02%rdg + 4dgt)	4.995	5.000	5.005	0.05
9.5000	0.001	±(0.02%rdg + 4dgt)	9.494	9.500	9.506	0.06

Range 24mA DC Input						
Valore impostato [mA]	*Risoluzione [mA]*	*Precisione*	*Valore limite inferiore [mA]*	*Valore letto [mA]*	*Valore limite superiore [mA]*	*Tolleranza [mA]*
0.000	0.001	±(0.02%rdg + 4dgt)	0.000	0.001	0.004	0.004
1.00000	0.001	±(0.02%rdg + 4dgt)	0.996	1.001	1.004	0.004
10.0000	0.001	±(0.02%rdg + 4dgt)	9.994	10.002	10.006	0.006
22.0000	0.001	±(0.02%rdg + 4dgt)	21.992	22.002	22.008	0.008

Il presente certificato deve essere riprodotto integralmente. Ogni riproduzione parziale deve essere espressamente autorizzata dal laboratorio.

Faenza 07/02/24

Il Responsabile

Il Verificatore

Rapporto di Taratura 24/0205

Range 100mV DC Output						
Valore impostato [mV]	*Risoluzione [mV]*	*Precisione*	*Valore limite inferiore [mV]*	*Valore letto [mV]*	*Valore limite superiore [mV]*	*Tolleranza [mV]*
0.000	0.01	±(0.02%rdg + 4dgt)	0.00	0.01	0.04	0.04
25.000	0.01	±(0.02%rdg + 4dgt)	24.95	25.02	25.05	0.05
50.000	0.01	±(0.02%rdg + 4dgt)	49.95	50.02	50.05	0.05
95.00	0.01	±(0.02%rdg + 4dgt)	94.94	95.01	95.06	0.06

Range 10V DC Output						
Valore impostato [V]	*Risoluzione [V]*	*Precisione*	*Valore limite inferiore [V]*	*Valore letto [V]*	*Valore limite superiore [V]*	*Tolleranza [V]*
0.000	0.001	±(0.02%rdg + 4dgt)	0.000	0.000	0.004	0.004
2.50000	0.001	±(0.02%rdg + 4dgt)	2.495	2.500	2.505	0.005
5.0000	0.001	±(0.02%rdg + 4dgt)	4.995	5.000	5.005	0.005
9.5000	0.001	±(0.02%rdg + 4dgt)	9.494	9.499	9.506	0.006

Range 24mA DC Output						
Valore impostato [mA]	*Risoluzione [mA]*	*Precisione*	*Valore limite inferiore [mA]*	*Valore letto [mA]*	*Valore limite superiore [mA]*	*Tolleranza [mA]*
0.000	0.001	±(0.02%rdg + 4dgt)	0.000	0.000	0.004	0.004
1.00000	0.001	±(0.02%rdg + 4dgt)	0.996	0.999	1.004	0.004
10.0000	0.001	±(0.02%rdg + 4dgt)	9.994	9.998	10.006	0.006
22.0000	0.001	±(0.02%rdg + 4dgt)	21.992	21.995	22.008	0.008

Il presente certificato deve essere riprodotto integralmente. Ogni riproduzione parziale deve essere espressamente autorizzata dal laboratorio.

Faenza 07/02/24

Il Responsabile

Il Verificatore

BASE LOAD POWER HUB (BLPH)

WIRING DIAGRAM LCP 50-LP-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COVER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 1

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

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2A	3	SHEET LEGEND	X	X	X						
2B	4	SHEET LEGEND		X	X						
4	5	GENERAL DATA	X								
4A	6	GENERAL DATA		X	X						
5	7	PLATE LIST	X	X	X						
6	8	FRONT VIEW 50-LP-001	X	X							
6A	9	REAR VIEW 50-LP-001	X								
6B	10	SIDES VIEW 50-LP-001	X								
6C	11	TOP/BOTTOM VIEW 50-LP-001	X	X	X						
6D	12	BLANK SHEET	X	X							
6E	13	INTERNAL VIEW 50-LP-001	X	X	X						
20	14	COMPONENT LIST	X	X	X						
20A	15	COMPONENT LIST	X	X	X						
20B	16	COMPONENT LIST	X	X	X						
20C	17	COMPONENT LIST	X	X	X						
20D	18	COMPONENT LIST	X	X	X						
20E	19	COMPONENT LIST	X	X	X						
20F	20	COMPONENT LIST	X	X	X						
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36	28	230VAC DISTRIBUTION		X							
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PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SHEET LEGEND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 2

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

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184	64	WIRING DIGITAL INPUT RACK 1 SLOT 4		X	X						
186	65	WIRING DIGITAL INPUT RACK 1 SLOT 5									
188	66	WIRING DIGITAL INPUT RACK 1 SLOT 5		X	X						
190	67	WIRING DIGITAL INPUT RACK 1 SLOT 6									
192	68	WIRING DIGITAL INPUT RACK 1 SLOT 6		X							
194	69	WIRING DIGITAL INPUT RACK 1 SLOT 7		X							
196	70	WIRING DIGITAL INPUT RACK 1 SLOT 7		X	X						
198	71	WIRING DIGITAL INPUT RACK 1 SLOT 8			X						
200	72	WIRING DIGITAL INPUT RACK 1 SLOT 8			X						
210	73	WIRING DIGITAL OUTPUT RACK 1 SLOT 9	X	X	X						
212	74	WIRING DIGITAL OUTPUT RACK 1 SLOT 9	X	X	X						
214	75	WIRING DIGITAL OUTPUT RACK 1 SLOT 10		X	X						
216	76	WIRING DIGITAL OUTPUT RACK 1 SLOT 10		X	X						
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246	84	WIRING ANALOG INPUT RACK 1 SLOT 14		X	X						
248	85	WIRING ANALOG INPUT RACK 1 SLOT 15		X	X						
250	86	WIRING ANALOG INPUT RACK 1 SLOT 15		X	X						
252	87	WIRING ANALOG INPUT RACK 1 SLOT 16		X	X						
254	88	WIRING ANALOG INPUT RACK 1 SLOT 16		X	X						
256	89	WIRING ANALOG INPUT RACK 1 SLOT 17		X	X						
258	90	WIRING ANALOG INPUT RACK 1 SLOT 17		X	X						
280	91	WIRING ANALOG OUTPUT RACK 1 SLOT 18		X	X						
282	92	WIRING ANALOG OUTPUT RACK 1 SLOT 19		X	X						
300	93	AUXILIARY CONTACT	X								
302	94	AUXILIARY CONTACT	X	X							
304	95	AUXILIARY CONTACT									
306	96	AUXILIARY CONTACT		X							
308	97	AUXILIARY CONTACT			X						
310	98	AUXILIARY CONTACT		X							
312	99	AUXILIARY CONTACT		X							
314	100	AUXILIARY CONTACT		X	X						
320	101	EXTERNAL COMMAND	X								
400	102	TERMINAL STRIP XMAIN - XUPS - FDI		X							
402	103	TERMINAL STRIP XM1	X	X							
403	104	TERMINAL STRIP XM2	X	X							

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SHEET LEGEND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 2A

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

LISTA FOGLI \ INDEX

Foglio Sheet	Pagina Page	Descrizione Description	Revisioni Revisions 1	2	3	4	5	6	7	8	9
404	105	TERMINAL STRIP XINS1 - XINS2	X	X	X						
406	106	TERMINAL STRIP XDI	X	X	X						
408	107	TERMINAL STRIP XDO		X	X						
410	108	TERMINAL STRIP XAI		X	X						
412	109	TERMINAL STRIP XAO	X	X							
414	110	TERMINAL STRIP XEXT	X								
420	111	TERMINAL STRIP TDI		X	X						
422	112	TERMINAL STRIP TDO		X	X						
424	113	TERMINAL STRIP TAI		X							
426	114	TERMINAL STRIP TAO		X							
430	115	GA JB-500E8			X						
431	116	GA JB-500E8			X						
432	117	GA JB-500F8			X						

Foglio Sheet	Pagina Page	Descrizione Description	Revisioni Revisions 1	2	3	4	5	6	7	8	9

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SHEET LEGEND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 2B | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

A	DATI GENERALI General data				
A1	NORME Standard	☐ CEI	■ IEC	☐ UL	
A2	LINGUA CONTRATTUALE Contrattual language	☐ ITALIANO	■ **ENGLISH**	.....	
A3	CLIMA Climate	☐ NORMALE Normal	☐ TROPICALE Tropical	■ Seaside Climate/Aggressive	
A4	TEMPERATURA Temperature	**+40°C Max / −8.4°C Min**			
A5	UMIDITA' Humidity	**100% RA Max / 5% Min**			
A6	LUOGO DI INSTALLAZIONE Installation place	**Indoor / Air Conditioned Room**			
A7	TRATTAMENTO APPARECCHIATURE Equipments treatment	■ **NORMALE** **Standard**	☐ **TROPICALE** **Tropical**		

B	DATI MECCANICI Mechanical data							
B1	GRADO DI PROTEZIONE Mechanical protection	**IP54 (INTERNAL IP20)**						
B2	ALIMENTAZIONE Supply	ARRIVO Incoming	■ **ALTO** **Top**	☐ BASSO Bottom	■ **CAVO** **Cable**	☐ CONDOTTO Bus duct		
		PARTENZE Outgoing	■ **ALTO** **Top**	☐ BASSO Bottom	■ **CAVO** **Cable**	☐ CONDOTTO Bus duct		
B3	LAMIERE DI FONDO Bottom plates	■ **POTENZA** **Power**	■ **SI** **Yes**	☐ NO Not	☐ FISSE Fixed	■ **ASPORTABILI** **Removable**		
		■ **AUSILIARI** **Auxiliary**	■ **SI** **Yes**	☐ NO Not	☐ FISSE Fixed	■ **ASPORTABILI** **Removable**		
B4	ACCESSIBILITA' Accessibility	■ **FRONTE** **Front**	☐ RETRO Rear					
B5	GUARNIZIONI Gaskets	■ **SI** **Yes**	☐ NO Not					
B6	MORSETTIERE FISSE SU VANI DISPONIBILI M.C.C. Fixed aux. terminals in available M.C.C. cubicles	☐ SI Yes	☐ NO Not					
B7	SERRATURE Locks	TIPO Type	☐ CHIAVE Ng Key Ng	■ DOPPIA IMPRONTA Double impression				
B8	SOLLEVAMENTO QUADRO Lifting board	■ GOLFARI Lifting eye bolt	☐ FERRI FISSI Fixed irons	☐ FERRI ASPORTABILI Removable irons				
B9	FERRI DI FONDAZIONE Base irons	☐ SI Yes	■ **NO** **Not**	.....				

C	VERNICIATURA Painting				
C1	SPECIFICHE DI RIFERIMENTO Reference specifications	**STD MFR**			
C2	ESTERNA Esternal /	STRUTTURA Structure	☐ LISCIO Smooth	■ BUCCIATO Peel type	
			COLORE Colour **LIGHT GREY**	RAL **7035**	
C3	ESTERNA Esternal /	PORTELLE Doors	☐ LISCIO Smooth	■ BUCCIATO Peel type	
			COLORE Colour **LIGHT GREY**	RAL **7035**	
C4	INTERNA Internal	COLORE Colour **LIGHT GREY**	☐ LISCIO Smooth	■ BUCCIATO Peel type	
			RAL **7035**	☐ ANTICONDENSA Anticondensation	
C5	STRUTTURA – SUPPORTI Structure – mounting	■ **ZINCOPASSIVATI** **Cold galvanized**			

D	TARGHETTE ESTERNE External labels		
D1	MATERIALE Material	☐ Plastic Back ground White – Letters Black Fixing by stainless steel screws	■ TRAFFOLYTE Back ground White – Letters Black Fixing by stainless steel screws

E	DATI ELETTRICI Electrical data				
E1	TENSIONE DI ESERCIZIO Operating voltage	**400 Vac 50 Hz**			
E2	TENSIONE DI ISOLAMENTO Insulation voltage	**0.6/1** KV			
E3	TENSIONE DI PROVA Withstand voltage	**4** KV	50 Hz c/s	PER For	1"
E4	FREQUENZA Frequency	50 Hz c/s			
E5	SBARRE OMNIBUS Main bus bars	-- A	-- mm		
E6	CORRENTE DI C.TO C.TO SIMMETRICA Short circuit current symm. r.m.s.	**25** KA	PER For	**1** SEC.	
E7	CORRENTE DI C.TO C.TO VALORE DI PICCO Short circuit current peak value	**25** KA			

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GENERAL DATA

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 4

REV. 01

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

F — CIRCUITI AUSILIARI / Ausiliary circuits

F1 — COLLEGAMENTI AUSILIARI IN CORDA Cu-SEZ. / Auxiliary connections with copper wire section

✓	400 Vac SUPPLY 2.5 sqmm min	COLORE Colour	Phase 1: Black Phase 2: Black Phase 3: Black Neutral: Light Blue
✓	230 Vac SUPPLY 1.5 sqmm min	COLORE Colour	Phase: Brown Neutral: Light Blue
✓	DC POWER SUPPLY 1.5 sqmm min	COLORE Colour	(+) : Red (−) : Black
✓	Analog signals 0.5 sqmm min.	COLORE Colour	Input : White Output : White
✓	Digital signals 0.5 sqmm min.	COLORE Colour	Input : Grey Output : Grey
✓	Free Contact 1 sqmm min.	COLORE Colour	Orange
✓	Protective Ground 1.5 sqmm min.	COLORE Colour	Green/Yellow
✓	Instrument Circuit Ground 1.5 sqmm min.	COLORE Colour	Green/Yellow

F2 — COLLEGARE A TERRA TUTTE LE PARTI METALLICHE CON MONTATA APPARECCHIATURA (LE PORTINE SEMPRE) CON:

All metal parts, the doors always, are to be connected to earth bar with:

■ CAVO GIALLO/VERDE Green/Yellow	☐ TRECCIA Braid	SEZ. Sec.	1.5/2.5/6/10/16sqmm	
	PROTECTIVE EARTH (PE)	SEZ. Sec.	COPPER BAR 150sqmm (30x5)	
	INSTRUMENT EARTH (IE)	SEZ. Sec.	COPPER BAR 100sqmm (12x4)	3

F3 — WIRING :

- Type: H07V-K (> 1.5 sqmm)
- Material : STRANDED COPPER WIRE (IEC 60228 cl.5)
- Voltage rating : 450/750 V
- Insulation : PVC compound

- Type: H05V-K (< 1.5 sqmm)
- Material : STRANDED COPPER WIRE (IEC 60228 cl.5)
- Voltage rating : 350/500 V
- Insulation : PVC compound

NOTE :

I SEGNALI ANALOGICI-DIGITALI ANDRANNO CABLATI E INSTALLATI IN CANALINE DEDICATE, SEPARATE DAL CABLAGGIO DI POTENZA.

The analog-digital signal wires shall be installed in dedicated cable duct, separated from power cable.

NOTE :

THIS DOCUMENT INCLUDES ONLY PLC AND MCC PANEL WIRING

FOR F&G WIRING PLEASE REFER TO DOCUMENT NO. 1724000448-MAC-DG-00036

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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PSC — DOC. REF: PK2885-A-002

CROSSWIND — ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
GENERAL DATA

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3 — DRAWING NO. 1724000448-IN-DG-00014 — SHEET 4A — REV. 03

File Name : PK2885_1

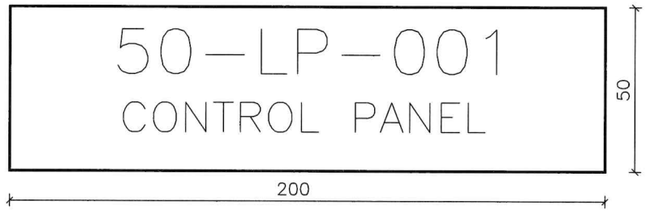
F.to UNI A3: 420mmx297mm

PLATES LIST

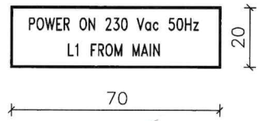
MATERIAL _**Traffolyte**_ _ _ _ _ BACKGROUND _**White**_ _ _ _ _ _ _ ENGRAVING _**Black**_ _ FIXING _**Biadhesive**_ _ _ _ _ _

POS.	Q.TY	TAG	DIMENS.	FIRST LINE WRITING	FIRST LINE HIGH (mm)	SECOND LINE WRITING	SECOND LINE HIGH (mm)	THIRD LINE WRITING	THIRD LINE HIGH (mm)
1	1	Z1	200x50	50-LP-001	15	CONTROL PANEL	10		10
2	1	Z2	70x20	POWER ON 230 Vac 50Hz	4	L1 FROM MAIN	4		
3	1	Z3	70x20	POWER ON 230 Vac 50Hz	4	L2 FROM MAIN	4		
4	1	Z4	70x20	POWER ON 230 Vac 50Hz	4	L3 FROM MAIN	4		
5	1	Z5	70x20	POWER ON 230 Vac 50Hz	4	FROM UPS	4		
6	1	Z6	70x20	POWER ON 24 Vdc	4				
7	1	Z7	70x20	INCOMING POWER MONITORING	4				
8	1	Z8	70x20	TEMPERATURE MONITORING	4				
9	1	Z9	70x20	MAIN SWITCH LINE	4				

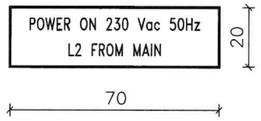
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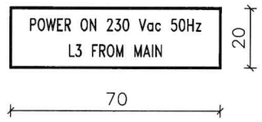
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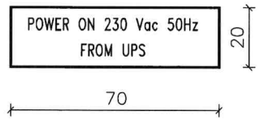
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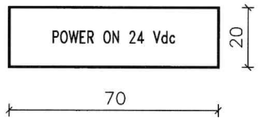
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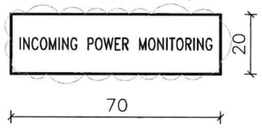
Z5



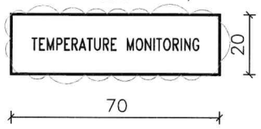
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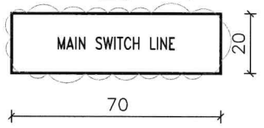
Z7



Z8



Z9



CHARACTER HEIGHT : 4mm (first line)
4mm (second line)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
PLATE LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 5 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

50-LP-001



FRONT VIEW "50-LP-001"

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
FRONT VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6

REV. 02

File Name : PK2885_1

F.to UNI A3: 420mmx297mm



REAR VIEW "50-LP-001"

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
REAR VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6A

REV. 01

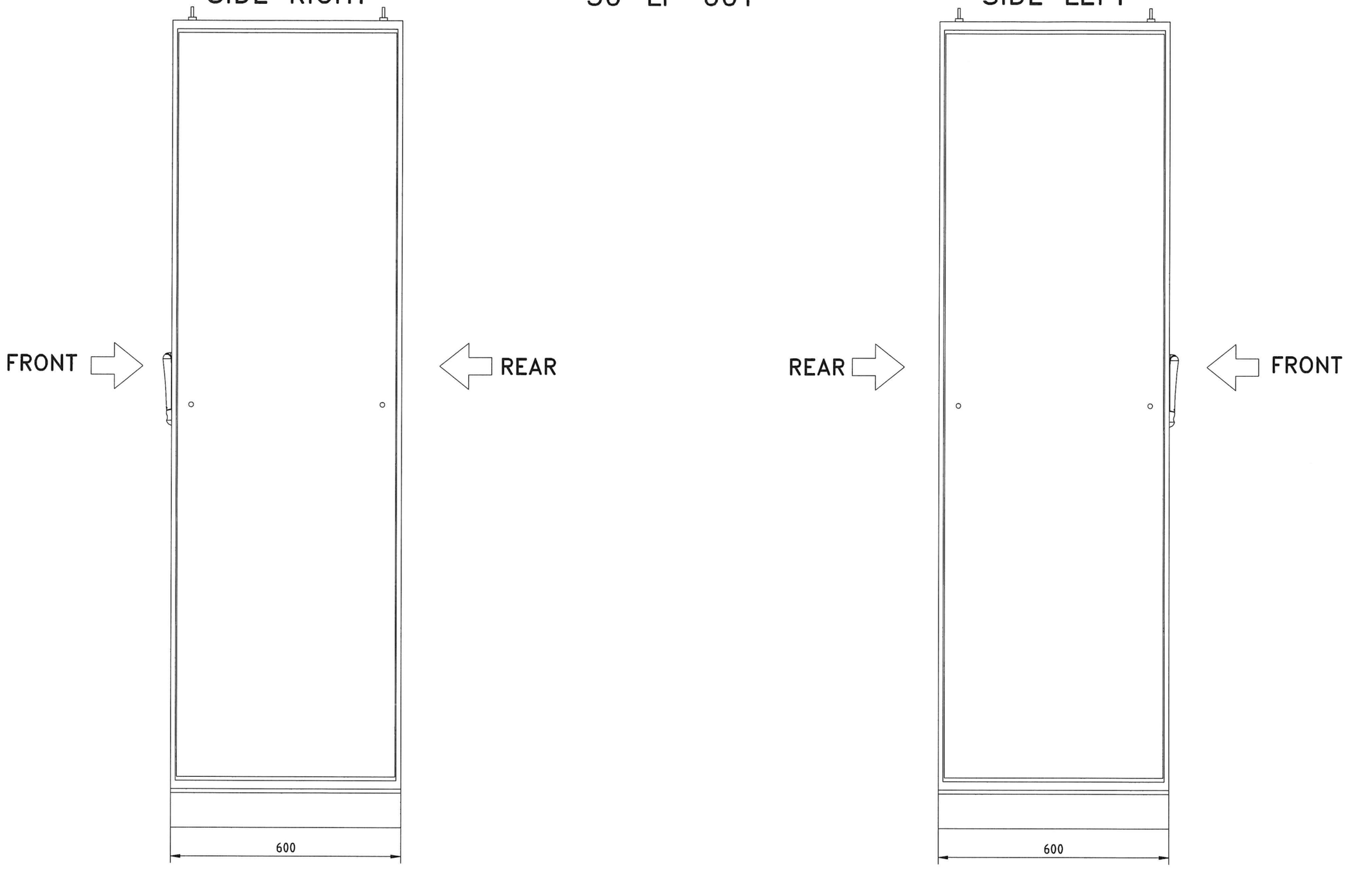
File Name : PK2885_1

F.to UNI A3: 420mmx297mm

SIDE RIGHT

"50-LP-001"

SIDE LEFT



01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SIDES VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6B

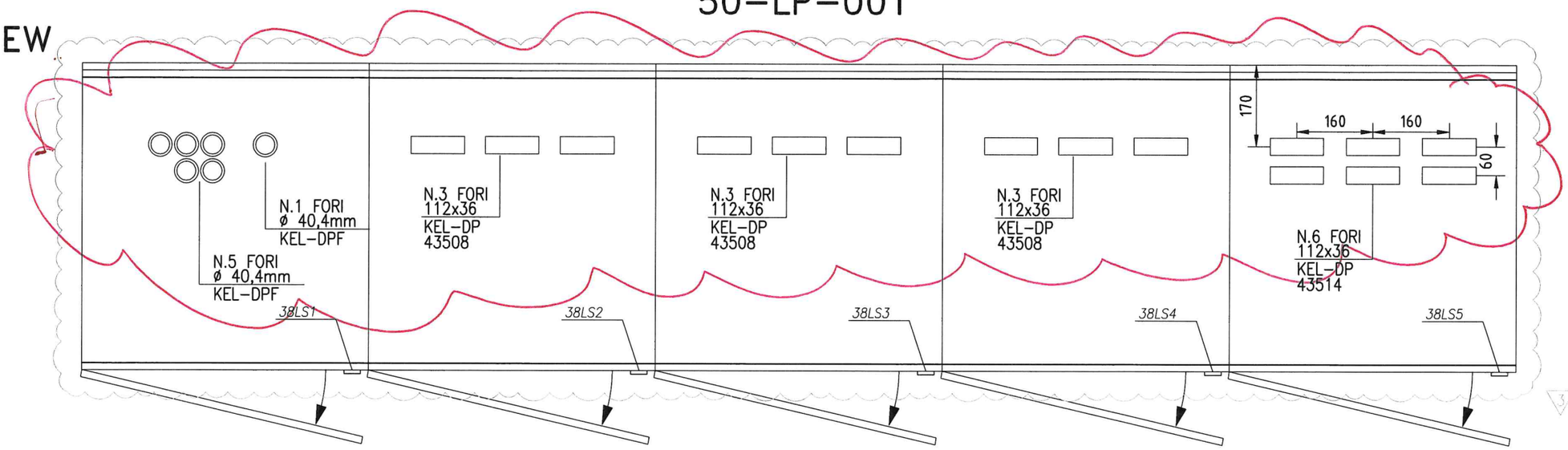
REV. 01

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

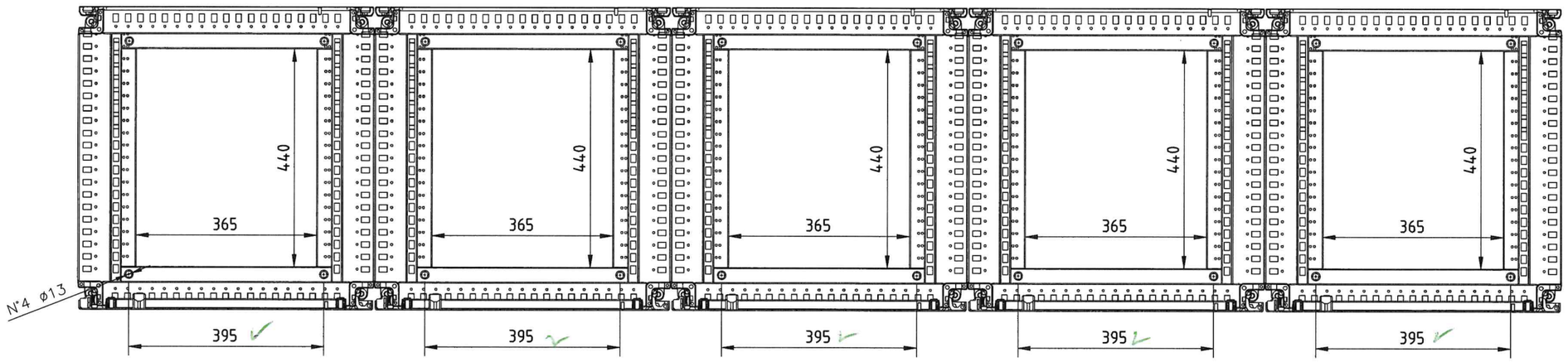
TOP VIEW

"50-LP-001"



Todo

BOTTOM VIEW



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TOP/BOTTOM VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6C

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BLANK SHEET

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

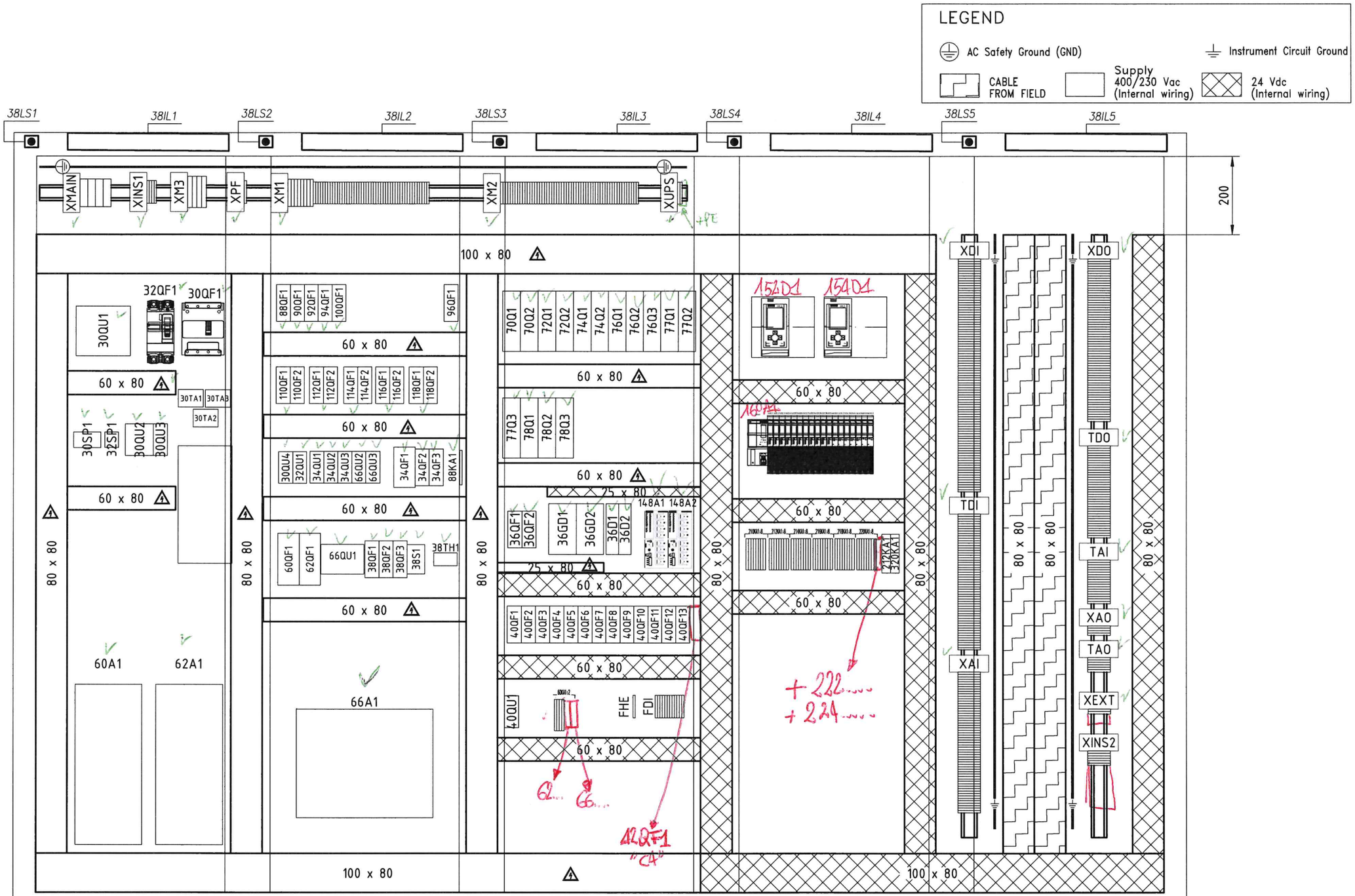
DRAWING NO. 1724000448-IN-DG-00014

SHEET 6D

REV. 02

File Name : PK2885_1

F.to UNI A3: 420mmx297mm



INTERNAL VIEW "50-LP-001"

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
INTERNAL VIEW 50-LP-001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 6E

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		50
30A1	METSEPM5110	Power Meter PM5110 Modbus	Schneider Electric	50-LP-001	30	1
30QF1	C12B4TM160L	circuit breaker ComPacT NSXm 25kA, TM160D, 4 P 4d, EverLink connectors	Schneider Electric	50-LP-001	30	1
	LV426932T	Deferred rotary shunting, ComPacT NSXm, black shunting, 200mm to 600mm shaft length, IP54	Schneider Electric			1
	LV426913	Long terminal covers 4P	Schneider Electric			1
	LV426804	Minimum voltage coil MN 208/240 Vac 60 Hz - 220/240 Vac 50 Hz?	Schneider Electric			1
30QU1	A9GSB792	Fuse disconnector, Acti9 SBI, 3P+N, 125 A, for fuse 22 x 58 mm	Schneider Electric	50-LP-001	30	1
30QU2	A9N15658	STI isolatable fuse carrier - 3P+N - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	30	1
30QU3	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	30	1
30QU4	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	30	1
30SP1	SPJ316224	P-VMS 280 Fm R 4	SIPF	50-LP-001	30	1
30TA1	METSECT5MB025	TA 250/5 D.26 - sbar 12x40 15x32mm	Schneider Electric	50-LP-001	30	1
30TA2	METSECT5MB025	TA 250/5 D.26 - sbar 12x40 15x32mm	Schneider Electric	50-LP-001	30	1
30TA3	METSECT5MB025	TA 250/5 D.26 - sbar 12x40 15x32mm	Schneider Electric	50-LP-001	30	1
32HL1	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	32	1
32QF1	C10M2TM016	Circuit breaker ComPacT NSX100 AC/DC N 50kA, 2 poles 2d TM16D	Schneider Electric	50-LP-001	32	1
32QU1	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	32	1
32SP1	SPJ316227	P-VMS 280 Fm R 4	SIPF	50-LP-001	32	1
34HL1	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	34	1
34HL2	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	34	1
34HL3	XB4BVM1	white complete pilot light Ø22 plain lens with integral LED 230...240V	Schneider Electric	50-LP-001	34	1
34QF1	18792	Circuit breaker NG125L, 2P, C, 32A, 50 kA	Schneider Electric	50-LP-001	34	1
34QF2	A9F74201	Circuit breaker iC60N, 2P, C, 1A, 6000A	Schneider Electric	50-LP-001	34	1
34QF3	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	34	1
34QU1	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	34	1
34QU2	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	34	1
34QU3	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	34	1
36D1	2907752	QUINT4-S-ORING/12-24DC/1X40 - Redundancy module. Input: 8...30 V DC, Output: 12 - 24 V DC / 1 x 40 A	Phoenix Contact	50-LP-001	36	1
36D2	2907752	QUINT4-S-ORING/12-24DC/1X40 - Redundancy module. Input: 8...30 V DC, Output: 12 - 24 V DC / 1 x 40 A	Phoenix Contact	50-LP-001	36	1
36GD1	2904602	QUINT POWER primary switching power supply with optional output characteristic curve PS/1AC/24DC/20	Phoenix Contact	50-LP-001	36	1
36GD2	2904602	QUINT POWER primary switching power supply with optional output characteristic curve PS/1AC/24DC/20	Phoenix Contact	50-LP-001	36	1
36QF1	A9F89210	Circuit breaker iC60H, 2P, C, 10A, 10000A	Schneider Electric	50-LP-001	36	1
36QF2	A9F89210	Circuit breaker iC60H, 2P, C, 10A, 10000A	Schneider Electric	50-LP-001	36	1
38IL1	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL2	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL3	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL4	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38IL5	050PEL3C	Linear led lamp, 110-240V AC, 50/60HZ, 600 lm, L 368 mm, with connector	New Elfin	50-LP-001	38	1
38LS1	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS2	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS3	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS4	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38LS5	050F11	Position limit switch 1 N.C. + 1 N.O.	New Elfin	50-LP-001	38	1
38QF1	A9F74201	Circuit breaker iC60N, 2P, C, 1A, 6000A	Schneider Electric	50-LP-001	38	1

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
38QF2	A9F74201	Circuit breaker iC60N, 2P, C, 1A, 6000A	Schneider Electric	50-LP-001	38	1
38QF3	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	38	1
	A9V25263	Vigi iC60 2P 63A 300mA [S] Type A	Schneider Electric			1
38S1	0804025	EO-CF/UT/GN Rail-mountable base	Phoenix Contact	50-LP-001	38	1
38TH1	11101.0-00	AC thermostat 0 ... 60°C 1 NC	Stego	50-LP-001	38	1
38V1	01873.0-30	Fan: AC; axial; 230VAC; 305m3/h; 64dBA; IP54; L: 300mm	Stego	50-LP-001	38	1
	11873.0-00	Vent, gray, Stego filter fans 01873.0-30 & 01873.9-30 "IN", 257 mm	Stego			1
38V2	01873.0-30	Fan: AC; axial; 230VAC; 305m3/h; 64dBA; IP54; L: 300mm	Stego	50-LP-001	38	1
	11873.0-00	Vent, gray, Stego filter fans 01873.0-30 & 01873.9-30 "IN", 257 mm	Stego			1
38V3	01873.0-30	Fan: AC; axial; 230VAC; 305m3/h; 64dBA; IP54; L: 300mm	Stego	50-LP-001	38	1
	11873.0-00	Vent, gray, Stego filter fans 01873.0-30 & 01873.9-30 "IN", 257 mm	Stego			1
40HL1	XB4BVB1	white complete pilot light Ø22 plain lens with integral LED 24V	Schneider Electric	50-LP-001	40	1
40QF1	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF2	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF3	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF4	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF5	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF6	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	40	1
40QF7	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	40	1
40QF8	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF9	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF10	A9F75206	Circuit breaker iC60N, 2P, D, 6A, 6000A	Schneider Electric	50-LP-001	40	1
40QF11	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF12	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QF13	A9F74202	Circuit breaker iC60N, 2P, C, 2A, 6000A	Schneider Electric	50-LP-001	40	1
40QU1	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	40	1
42QF1	A9F74204	Circuit breaker iC60N, 2P, C, 4A, 6000A	Schneider Electric	50-LP-001	42	1
50-LP-001	ENUX062006PR	CABINET E NUX PR 0600X2000X060 FRONT DOOR BLIND+ POST PANEL	ETA	50-LP-001	6	5
	EUFI060200	ENUX SIDE WALLS 0600X2000 - 2 PCS. PLATE	ETA			1
	EUPA-060200	INSIDE PLATE FRONTAL ENUX 600X2000	ETA			5
	WTKB-002	ENUX PLATE MOUNTING KIT ALSO FOR SPLIT PLATES	ETA			5
	EUZE-A100	ENUX UNIVERSAL ANGLES SOCKET H=100 (4PCS) WITH MOUNTING ACCESSORIES	ETA			5
	EUZE-T0600	ENUX PLINTH CROSSBARS L=600 (2PCS)	ETA			6
	EUKU-002	UNION KIT AND NUX 8PCS - H=1600/1800/2000/2200	ETA			4
	EUKU-003	UNION BRACKETS KIT AND NUX 8PCS - H=1600/1800/2000/2200	ETA			4
	TR-01-50100	PAIR TRAV.SOLL.L=3600 PROFILE 50X100X8 MM	ETA			1
60A1	ATV630U75N4	Altivar630 threephase 380 - 480 Vac 50/60 Hz Pot.7.5Kw	Schneider Electric	50-LP-001	60	1
60KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	60	1
60KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	60	1
60QF1	GV3L25	Motor circuit breaker, TeSys GV3, 3P, 25 A, magnetic, rotary handle, EverLink terminals	Schneider Electric	50-LP-001	60	1
	GVAN11	TeSys GV2 & GV3 - auxiliary contact block - 1 NO + 1 NC	Schneider Electric			1
62A1	ATV630U75N4	Altivar630 threephase 380 - 480 Vac 50/60 Hz Pot.7.5Kw	Schneider Electric	50-LP-001	62	1
62KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	62	1
62KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	62	1

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PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20A

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
62QF1	GV3L25	Motor circuit breaker, TeSys GV3, 3P, 25 A, magnetic, rotary handle, EverLink terminals	Schneider Electric	50-LP-001	62	1
	GVAN11	TeSys GV2 & GV3 - auxiliary contact block - 1 NO + 1 NC	Schneider Electric			1
66A1	EPOWER/3PH-50A/600V/XXX/XXX/XXX/XXX/00/XX/10/XX/		Eurotherm	50-LP-001	66	1
66A2	32ENG		Eurotherm	50-LP-001	66	1
66KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	66	1
66KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	66	1
66QU1	DF143C	FUSE HOLDER 50A 14X51 3P	Schneider Electric	50-LP-001	66	1
66QU2	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	66	1
66QU3	A9N15651	STI isolatable fuse carrier - 2P - 10.3x38 - 500 V AC	Schneider Electric	50-LP-001	66	1
70Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	70	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
70Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	70	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
72Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	72	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
72Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	72	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
74Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	74	1
	LUCA1XBL	Standard control unit, TeSys Ultra, 0.35-1.4A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
74Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	74	1
	LUCA1XBL	Standard control unit, TeSys Ultra, 0.35-1.4A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
76Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	76	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
76Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	76	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
76Q3	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	76	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20B

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
76Q3	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric	50-LP-001	76	1
77Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	77	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
77Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	77	1
	LUCA12BL	Standard control unit, TeSys Ultra, 3-12A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
77Q3	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	77	1
	LUCA05BL	Standard control unit, TeSys Ultra, 1.25-5A, 3P motors, thermal magnetic protection, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
78Q1	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	78	1
	LUCC1XBL	Advanced control unit, TeSys Ultra, 0.35-1.4A, 1P motors, protection & diagnostic, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
78Q2	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	78	1
	LUCC1XBL	Advanced control unit, TeSys Ultra, 0.35-1.4A, 1P motors, protection & diagnostic, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
78Q3	LUB12	Power base, TeSys Ultra, 3P, 12A/690V	Schneider Electric	50-LP-001	78	1
	LUCC1XBL	Advanced control unit, TeSys Ultra, 0.35-1.4A, 1P motors, protection & diagnostic, class 10, coil 24V DC	Schneider Electric			1
	LUFN20	Auxiliary contacts LUF - 2NO	Schneider Electric			1
	LUA1C11	Signalling contacts LUA - 1 NO + 1 NC	Schneider Electric			1
88KA1	93018240	Socket with screw terminals Mounting: 35 mm blind bar Colour: Blue Protection class: IP 20	Finder	50-LP-001	88	1
	345170600010	Ultraslim relay (EMR)	Finder			1
88QF1	A9F94204	Circuit breaker iC60L, 2P, C, 4A, 15000A	Schneider Electric	50-LP-001	88	1
90QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	90	1
92QF1	A9F94202	Circuit breaker iC60L, 2P, C, 2A, 15000A	Schneider Electric	50-LP-001	92	1
94QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	94	1
96QF1	A9F94216	Circuit breaker iC60L, 2P, C, 16A, 15000A	Schneider Electric	50-LP-001	96	1
100QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	100	1
110QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	110	1
110QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	110	1
112QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	112	1
112QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	112	1
114QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	114	1
114QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	114	1
116QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	116	1
116QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	116	1
118QF1	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	118	1
118QF2	A9F94270	Circuit breaker iC60L, 2P, C, 0.5A, 15000A	Schneider Electric	50-LP-001	118	1
148A1	6GK5208-0BA00-2AC2	XC208 Managed switch con 8 porte RJ45 100Mbit/s	Siemens	50-LP-001	148	1

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
148A2	6GK5208-0BA00-2AC2	XC208 Managed switch con 8 porte RJ45 100Mbit/s	Siemens	50-LP-001	148	1
150A1	6AV2128-3QB06-0AX1	SIMATIC HMI MTP1500, Unified Comfort Panel, touch operation, 15.6" widescreen TFT display	Siemens	50-LP-001	150	1
152D1	6ES7515-2RM00-0AB0	CPU 1515R-2 PN	Siemens	50-LP-001	152	1
154D1	6ES7515-2RM00-0AB0	CPU 1515R-2 PN	Siemens	50-LP-001	154	1
160A1	6ES7155-6AU01-0CN0	Interface module IM 155-6 PN HF/2 V4.2	Siemens	50-LP-001	160	1
	6ES7193-6AR00-0AA0	BBA 2×RJ45 (PROFINET BusAdapter with standard Ethernet socket for IM-PN)	Siemens			1
160AI1	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160AI2	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AI3	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AI4	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AI5	6ES7134-6GF00-0AA1	Analog Input Module: AI 8xI 2-/4-wire BA	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160AO1	6ES7135-6HD00-0BA1	Analog Output Module: AQ 4xU/I ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160AO2	6ES7135-6HD00-0BA1	Analog Output Module: AQ 4xU/I ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI1	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160DI2	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI3	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI4	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI5	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160DI6	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI7	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DI8	6ES7131-6BH01-0BA0	Digital Input Module: DI 16x24VDC ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DO1	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0DA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. separate (digital/analog, max. 24VDC/10A)	Siemens			1
160DO2	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DO3	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1
160DO4	6ES7132-6BH01-0BA0	Digital Output Module: DQ 16x24VDC/0.5A ST	Siemens	50-LP-001	160	1
	6ES7193-6BP20-0BA0	BU type A0, 16 push-in, 10 AUX, 2 infeed term. jumpered (digital/analog, max. 24VDC/10A)	Siemens			1

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20D

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
196SL1				50-LP-001	196	1
210KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	210	1
210KA8	2967109	PLC-RSC- 24DC/1-1/ACT Screw relays	Phoenix Contact	50-LP-001	210	1
212KA1	2981020	PSR-SCP- 24DC/ESP4/2X1/1X2 Safety Module	Phoenix Contact	50-LP-001	212	1
212KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
212KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	212	1
214KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
214KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	214	1
216KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
216KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	216	1
218KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
218KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	218	1
220KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20E

REV. 03

File Name : PK2885_1

F.to UNI A3: 420mmx297mm

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
220KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
220KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	220	1
222KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
222KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	222	1
224KA1	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA2	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA3	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA4	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA5	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA6	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA7	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
224KA8	2966171	PLC-RSC- 24DC/21 Screw Relays	Phoenix Contact	50-LP-001	224	1
320KA1	2981020	PSR-SCP- 24DC/ESP4/2X1/1X2 Safety Module	Phoenix Contact	50-LP-001	320	1
FDI	5000040	Fuse 5x20 mm 250V 0.5A delayed	Wimex	50-LP-001		16
FDI	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		16
FHE	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		1
FHE	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		1
TAI	5000030	Fuse 5x20 mm 250V 0.05A delayed	Wimex	50-LP-001		16
TAI	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		16
TAO	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		6
TDI	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		66
TDO	5000012	Fuse 5x20 mm 250V 1A fast	Wimex	50-LP-001		6
TDO	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		16
	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact			20
XAI	5000030	Fuse 5x20 mm 250V 0.05A delayed	Wimex	50-LP-001		60
XAI	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		60
XAO	5000030	Fuse 5x20 mm 250V 0.05A delayed	Wimex	50-LP-001		4
XAO	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		4
XDI	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		106
XDO	5000012	Fuse 5x20 mm 250V 1A fast	Wimex	50-LP-001		42
XDO	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		2
XDO	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		44
	3046139	UT 4-MT Universal screw clamp	Phoenix Contact			28
XEXT	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		5
XINS1	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		4

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
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00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
COMPONENT LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 20F

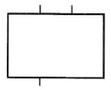
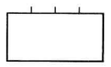
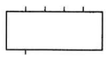
REV. 03

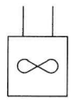
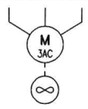
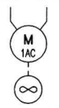
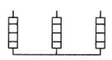
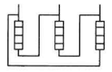
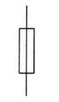
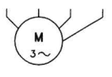
F.to UNI A3: 420mmx297mm

File Name : PK2885_1

Nome/Item	Tipo/Type	Descrizione EN	Costruttore/Manufacturer	Quadro/Board	Fg/Sh	Q.ta/Q.ty
XINS2	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		10
XINS2	5000007	Fuse 5x20 mm 250V 0.315A fast	Wimex	50-LP-001		10
XINS2	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		20
XM1	3044131	UT 6 Universal screw clamp	Phoenix Contact	50-LP-001		6
	3044157	UT 6-PE Universal screw clamp	Phoenix Contact			2
	3044102	UT 4 Universal screw clamp	Phoenix Contact			32
	3044128	UT 4-PE Universal screw clamp	Phoenix Contact			16
XM2	3044102	UT 4 Universal screw clamp	Phoenix Contact	50-LP-001		42
	3044128	UT 4-PE Universal screw clamp	Phoenix Contact			15
XM3	3044212	UT 16-PE Universal screw clamp	Phoenix Contact	50-LP-001		1
	3044199	UT 16 Universal screw clamp	Phoenix Contact			3
XMAIN	3213140	UKH 70 Universal Screw Clamp Power	Phoenix Contact	50-LP-001		4
XPF	5000009	Fuse 5x20 mm 250V 0.5A fast	Wimex	50-LP-001		1
XPF	3046032	UT 4-HESI (5X20) Fuse terminal	Phoenix Contact	50-LP-001		1
XSL1	3046139	UT 4-MT Universal screw clamp	Phoenix Contact	50-LP-001		2
XUPS	3044131	UT 6 Universal screw clamp	Phoenix Contact	50-LP-001		2

LEGENDA SIMBOLI \ SYMBOLS LEGEND

Simbolo Ref.	Descrizione Description
	File : 2 PIN + PE CON RIF.
	Blocco generico 3 PIN File : 3 PIN
	File : 4 PIN + PE CON RIF.
	Modulo ingressi digitali: DI 16x24VDC ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7131-6BH01-0BA0_193-6BP20-0BA0
	Modulo ingressi digitali: DI 16x24VDC ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7131-6BH01-0BA0_193-6BP20-0DA0
	Modulo uscite digitali: DQ 16x24VDC/0.5A ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7132-6BH01-0BA0_193-6BP20-0BA0
	Modulo uscite digitali: DQ 16x24VDC/0.5A ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7132-6BH01-0BA0_193-6BP20-0DA0
	Modulo ingressi analogici: AI 8xI 2-/4-wire BA;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7134-6GF00-0AA1_193-6BP20-0BA0
	Modulo ingressi analogici: AI 8xI 2-/4-wire BA;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7134-6GF00-0AA1_193-6BP20-0DA0
	Modulo uscite analogiche: AQ 4xU/I ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. File : 6ES7135-6HD00-0BA1_193-6BP20-0BA0

Simbolo Ref.	Descrizione Description
	Modulo uscite analogiche: AQ 4xU/I ST;BU di tipo A0, 16 push-in, 10 AUX, 2 morsetti di alimentaz. separati File : 6ES7135-6HD00-0BA1_193-6BP20-0DA0
	Modulo di interfaccia IM 155-6 PN HF/2 V4.2;BA 2×RJ45 (BusAdapter PROFINET con presa Ethernet) File : 6ES7155-6AU01-0CN0_193-6AR00-0AA0
	Ventilatore File : E1
	Ventilatore trifase File : E2
	Ventilatore monofase File : E3
	Elemento riscaldante 3P collegamento a stella File : E7
	Elemento riscaldante 3P collegamento a triangolo File : E9
	Fusibile unipolare File : F3
	Segnalazione luminosa File : H5
	Motore asincrono trifase File : M2

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SYMBOL LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

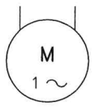
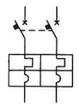
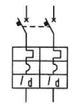
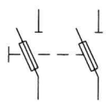
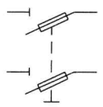
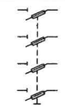
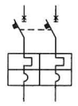
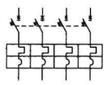
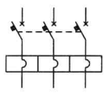
SHEET 25

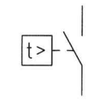
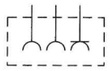
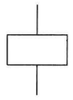
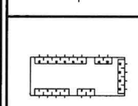
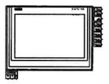
REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

LEGENDA SIMBOLI \ SYMBOLS LEGEND

Simbolo Ref.	Descrizione Description
	Motore corrente alternata monofase File : M9
	Inter. automatico magnetotermico bipolare File : Q10
	Interruttore automatico bipolare magnetotermico con differenziale File : Q14
	Sezionatore bipolare con fusibili File : Q82
	Sezionatore bipolare con fusibile File : Q820
	Sezionatore tripolare con fusibili File : Q83
	Sezionatore tetrapolare con fusibile File : Q840
	Inter. automatico magnetotermico sezionatore bipolare File : Q135
	Inter. automatico magnetotermico sezionatore tetrapolare File : Q137
	Inter. automatico tripolare con magnetico File : Q148

Simbolo Ref.	Descrizione Description
	Fine corsa NO File : S10
	Comandato dal livello di un fluido (livellostato) NC File : S15C
	Comandato dalla temperatura (termostato) NO File : S18
	Trasformatore di corrente File : T10
	Presa di corrente bipolare con contatto PE File : X1
	Bobina Relè Aux File : KA1
	PM5110 power meter File : PM5110 POWER METER
	SIMATIC HMI MTP1500, Unified Comfort Panel, touch operation, 15.6" widescreen TFT display File : S_6AV2128-3QB06-0AX1
	CPU 1515R-2 PN File : S_6ES7515-2RM00-0AB0
	Processore di comunicazione, CP 1543-1, Ethernet Security File : S_6GK7543-1AX00-0XE0

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SYMBOL LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

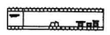
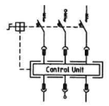
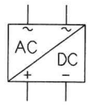
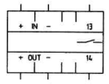
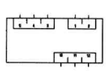
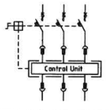
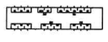
SHEET 25A

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

LEGENDA SIMBOLI \ SYMBOLS LEGEND

Simbolo Ref.	Descrizione Description
	XC208 Managed switch con 8 porte RJ45 100Mbit/s File : XC208
	Altivar630 trifase 380 - 480 Vac 50/60 Hz Pot.7.5Kw File : ALT630
	Avvio motore Tesys Ultra - Base di potenza un senso di marcia File : LUB1F_N
	Convertitore di corrente AC-DC monofase File : ALIMENTATORE CON CONTATTO NO
□	File : BLOCCO GENERICO
	Redundancy module File : DIODO PHOENIX QUINT
	Gesint K39 File : GESINT K39
	INTERNAL LIGHTING File : LAMPADA
	Avvio motore Tesys Ultra - Base di potenza un senso di marcia File : LUB_N
	Redundancy module File : SCR EUROTHERM2

Simbolo Ref.	Descrizione Description
	File :
	File :
	File :
	File :
	File :
	File :
	File :
	Morsetto fusibilato per sezionamento interno quadro File : _MORS-F3
	Morsetto passante File : _MORS-N2
	Morsetto sezionabile a coltello File : _MORS-S2
	Morsetto fusibilato File : _MORS-F2

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	16/10/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SYMBOL LIST

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 25B

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_1

~ 400V
~ 400V
~ 400V
~ 0V

30QF1
160A
30.8

30TA1
30TA2
30TA3
S1 S2

L1 34.0
L2 34.0
L3 34.0
N 34.0

3011 3012 3013 3014 3015 3016

30A1
I1+ 10 | I1- 11 | I2+ 12 | I2- 13 | I3+ 14 | I3- 15
D1+ 60 | -/C 57
Schneider Electric
METSEPM5110
22 D1+ | 23 D0- | 24 SHLD | 25 0V
1 V1 | 2 V2 | 3 V3 | 4 VN | 8 L1 | 9 L2

30SP1
SIPF
SPJ316224
N L3 L2 L1 PE
196.6 11 12 14

30QU1
7 8 3001
5 6 3002
3 4 3003
1 2 3004

30QU2 2A
7 8 3005
5 6 3006
3 4 3007
1 2 3008

30QU3 2A
3 4 3009
1 2 3010

30QU4 2A
1 3 2 4
3017 3018

30QF1
30.0
D1 D2

R1 S1 T1 N1
1 XMAIN 2 XMAIN 3 XMAIN 4 XMAIN
INCOMING MAIN LINE
400VAC 50Hz 3PH+N
5x70sqmm

PE – Protective Earth (30x5) PE 32.0

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002
CROSSWIND
ROSETTI MARINO

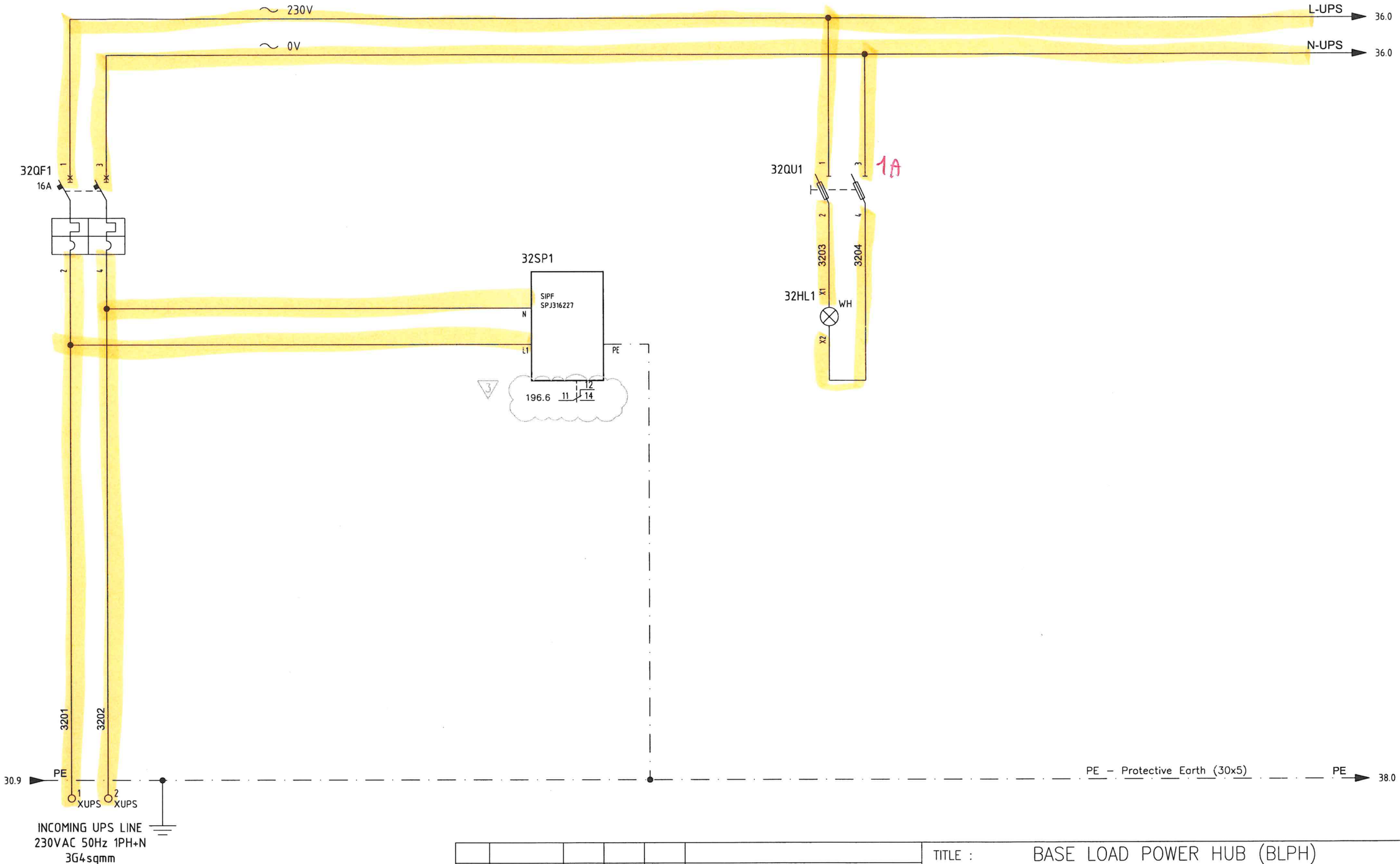
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
INCOMING MAIN LINE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK
SCALE : --

A3 DRAWING NO. 1724000448-IN-DG-00014
SHEET 30
REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
INCOMING UPS LINE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

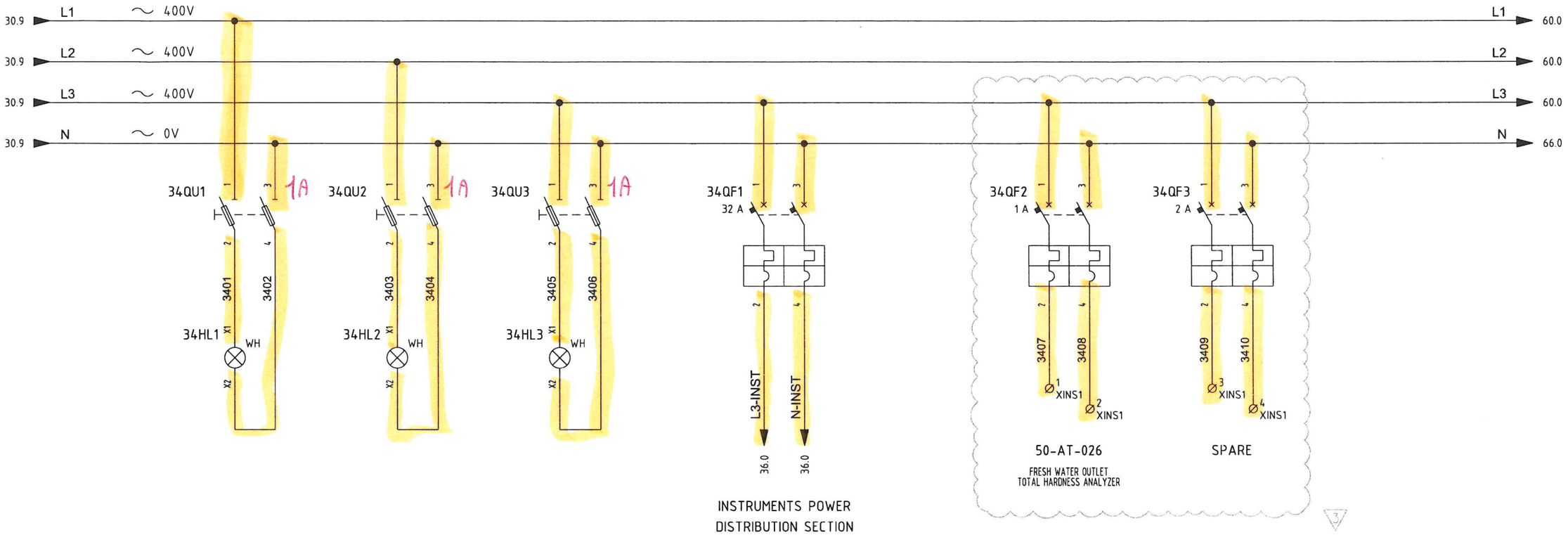
DRAWING NO. 1724000448-IN-DG-00014

SHEET 32

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
230VAC DISTRIBUTION

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

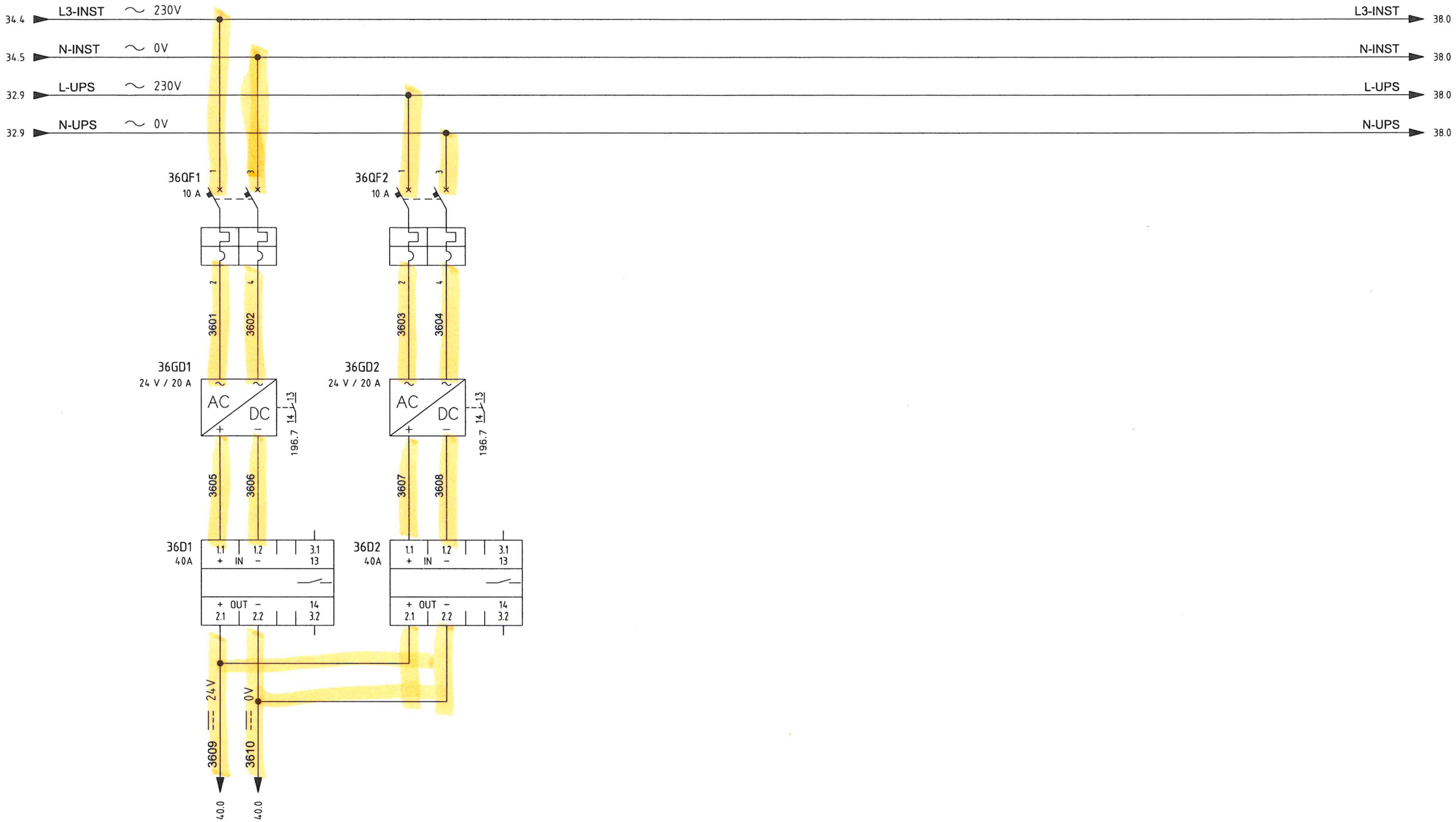
DRAWING NO. 1724000448-IN-DG-00014

SHEET 34

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
230VAC DISTRIBUTION

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

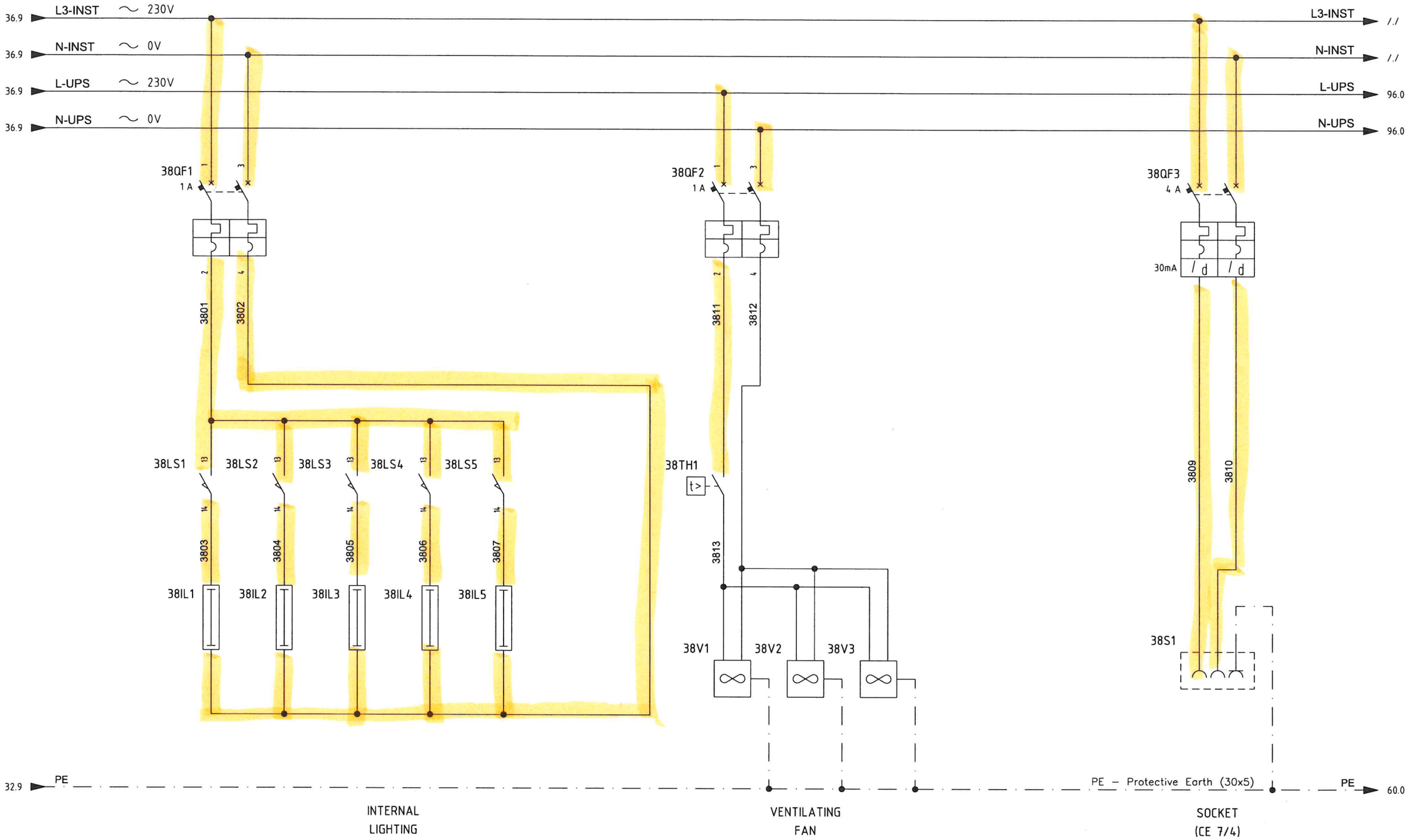
DRAWING NO. 1724000448-IN-DG-00014

SHEET 36

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
230VAC AUXILIARY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

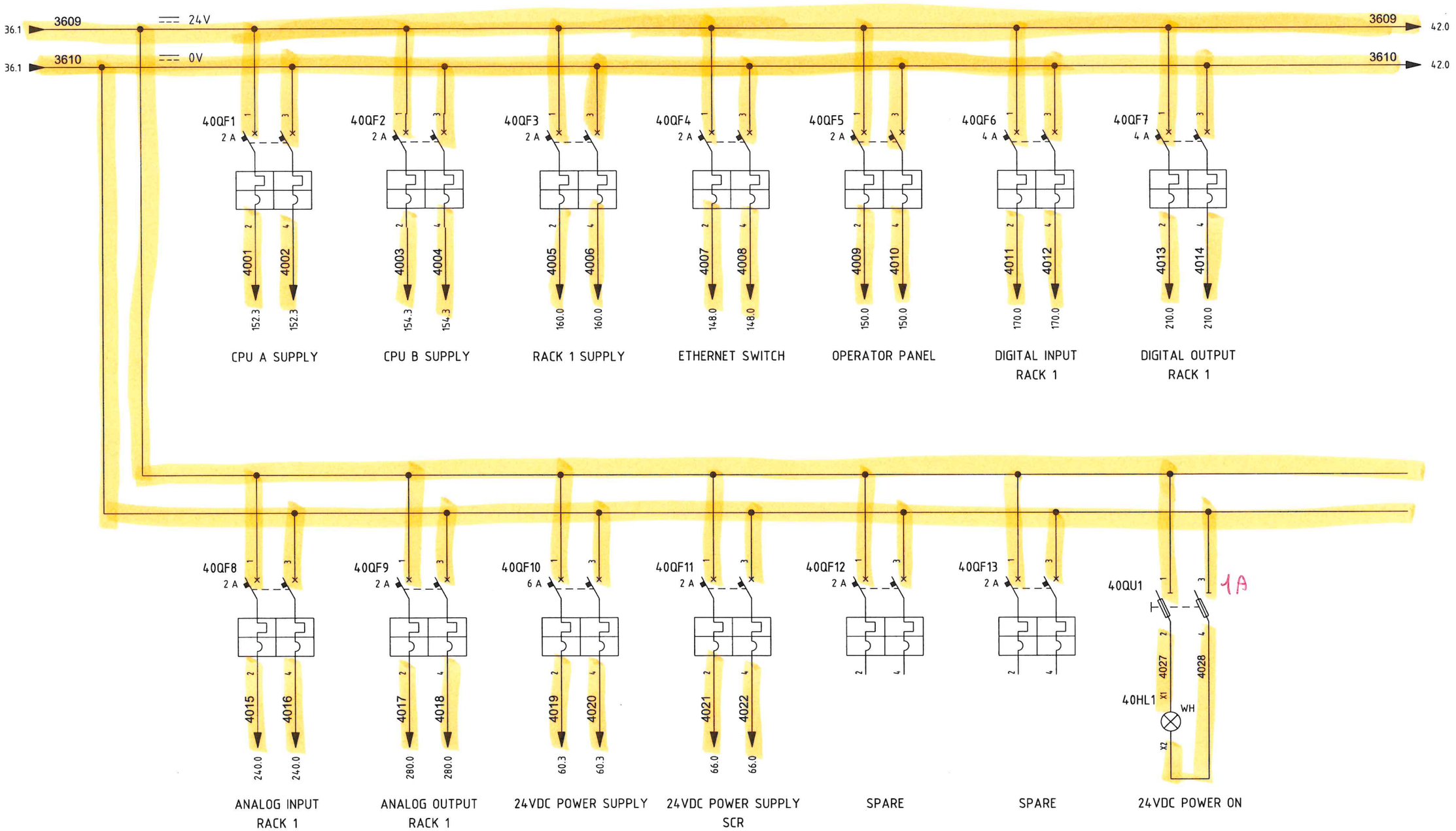
DRAWING NO. 1724000448-IN-DG-00014

SHEET 38

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
24VDC DISTRIBUTION

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

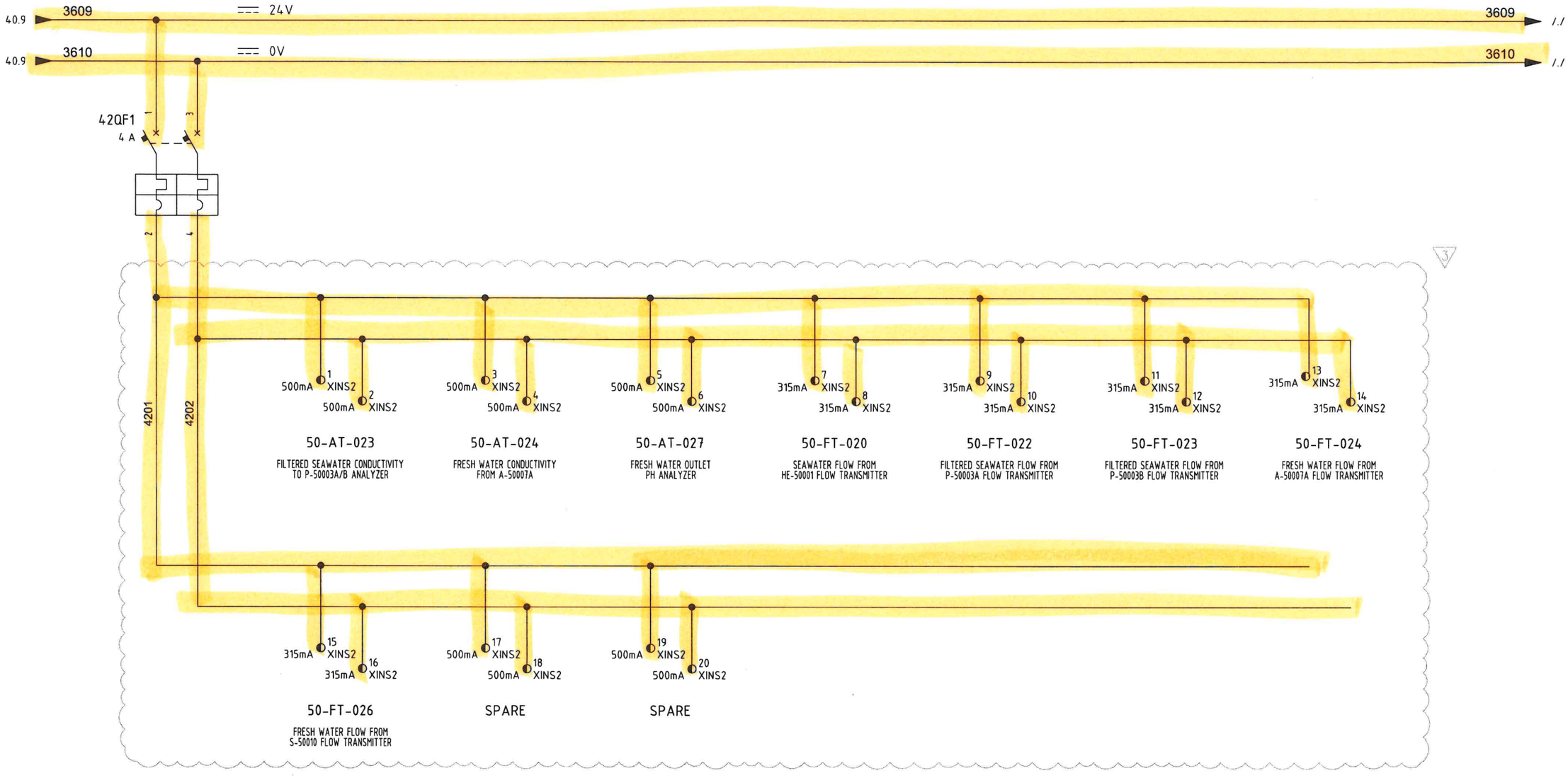
DRAWING NO. 1724000448-IN-DG-00014

SHEET 40

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
24VDC INSTRUMENT SUPPLY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 42

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm

34.9 L1 ~ 400V → L1 62.0

34.9 L2 ~ 400V → L2 62.0

34.9 L3 ~ 400V → L3 62.0

60QF1
25A

60R01 2 | 60S01 4 | 60T01 6 | 180.3 | 31 / 32 | 43 / 44

30409 304.5

304.5

6001 242.3 | 6002 242.3

28002 280.3 | 28001 280.2

60A1

L1/R	L2/S	L3/T	PE		P24	0V	DI1	DI2	DI3	DI4	DI5	DI6	24V	STOA	STOB	24V	COM	AQ1	AQ2	10V	AI1	COM	AI2	AI3

Schneider Electric
ALTIVAR630

Reference	Fg./Sh.
Comunication Board	
extended I/O module	

NO NC

GRAFIC DISPLAY

Integrated Modbus

U	V	W	PE		R1A	R1B	R1C	R2A	R2C	R3A	R3C	RJ45		RJ45		RJ45

60U01 | 60V01 | 60W01 | 60PE01

38.9 PE → PE 62.0

1 XM1 | 2 XM1 | 3 XM1 | 4 XM1

P-50004A U V W PE

M 3~

HP SWRO PUMP

400V - 50Hz - 7,5kW

600 | 6004

40.3 4019 → 4019 62.3

60KA1 A1 A2 | 60KA2 A1 A2

40.4 4020 → 4020 62.3

180.3 11 12 14 | 180.2 11 12 14

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
HP SWRO PUMPS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

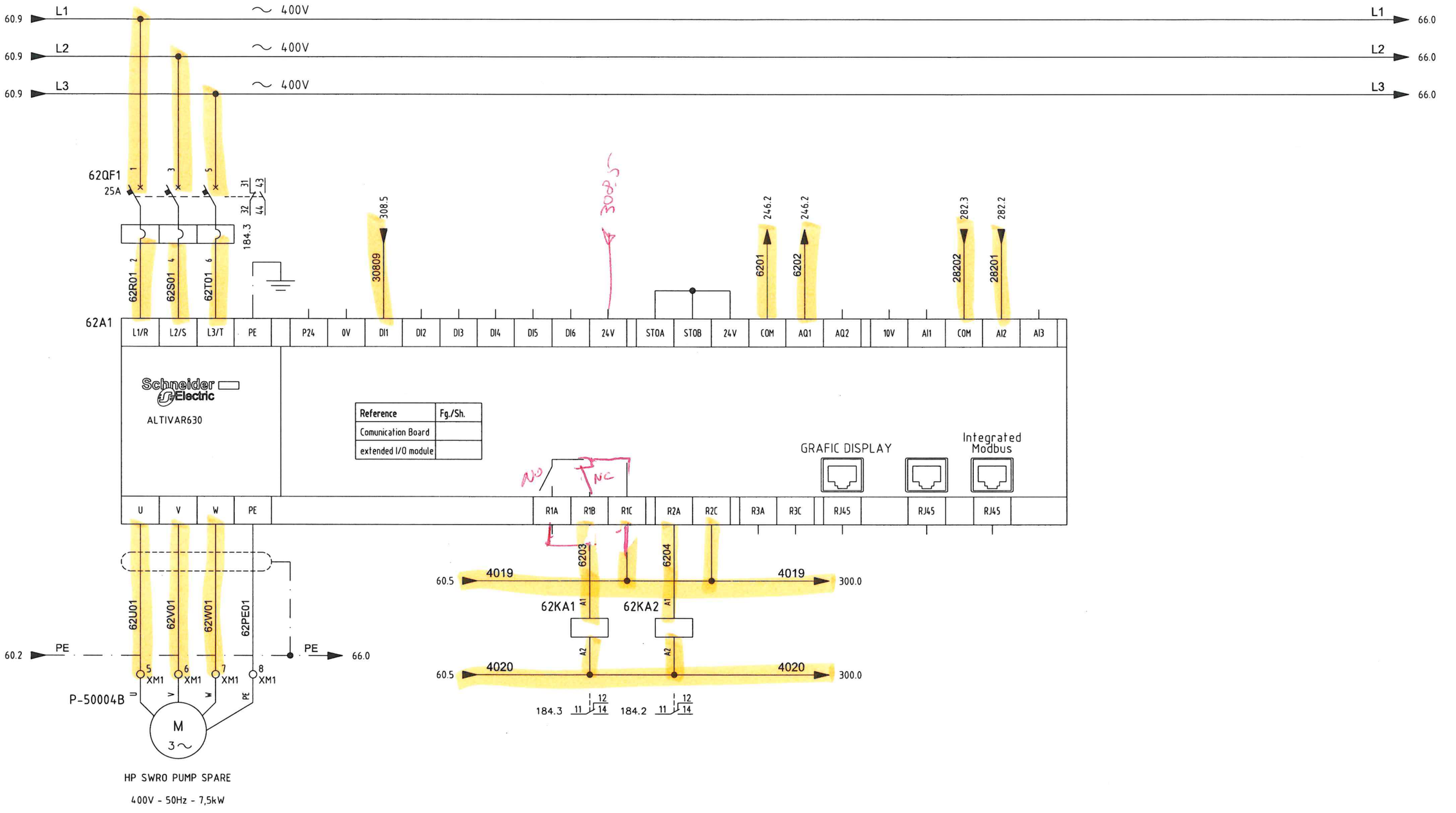
DRAWING NO. 1724000448-IN-DG-00014

SHEET 60

REV. 00

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
HP SWRO PUMPS SPARE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

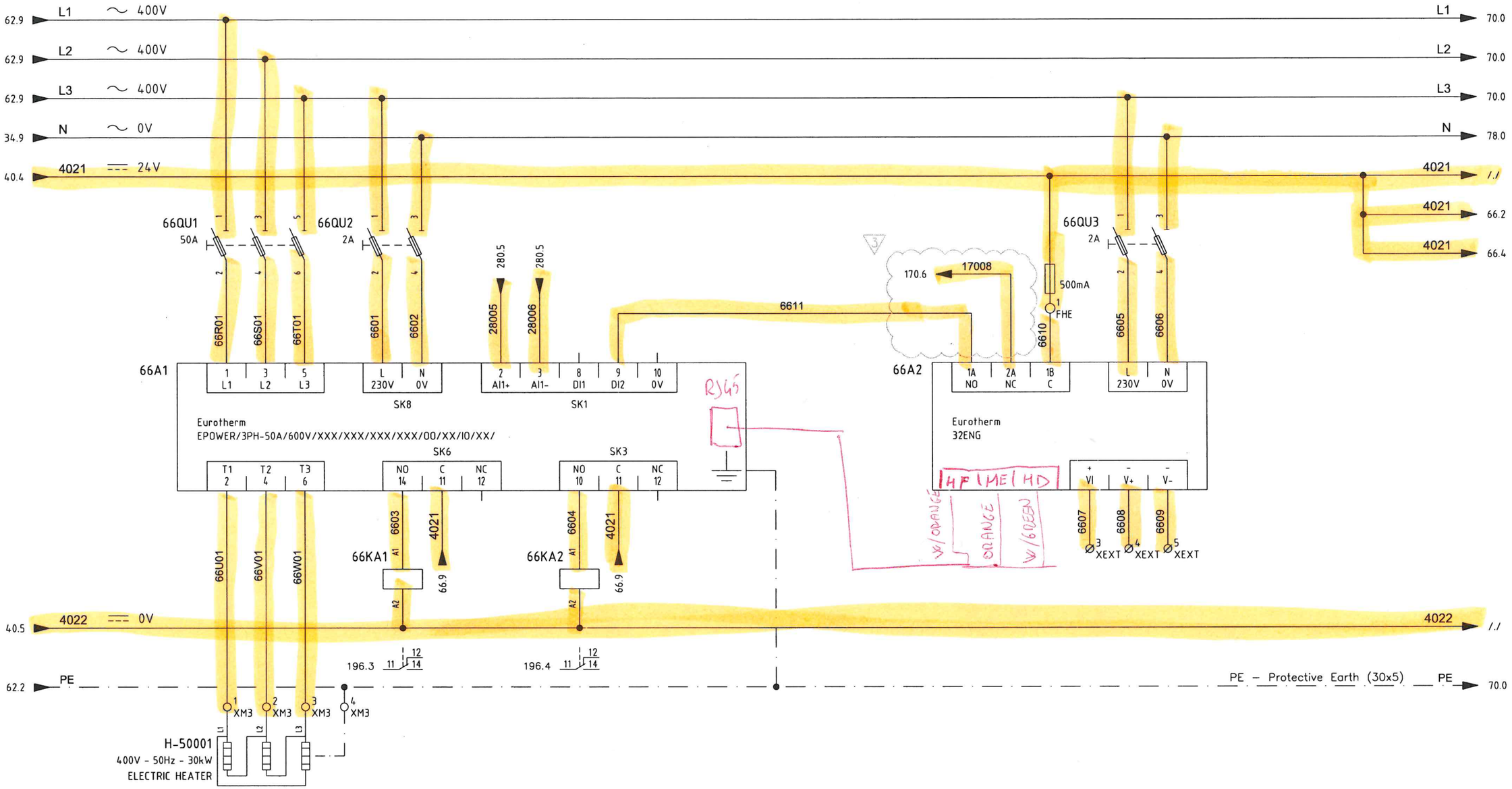
DRAWING NO. 1724000448-IN-DG-00014

SHEET 62

REV. 00

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
ELECTRIC HEATER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

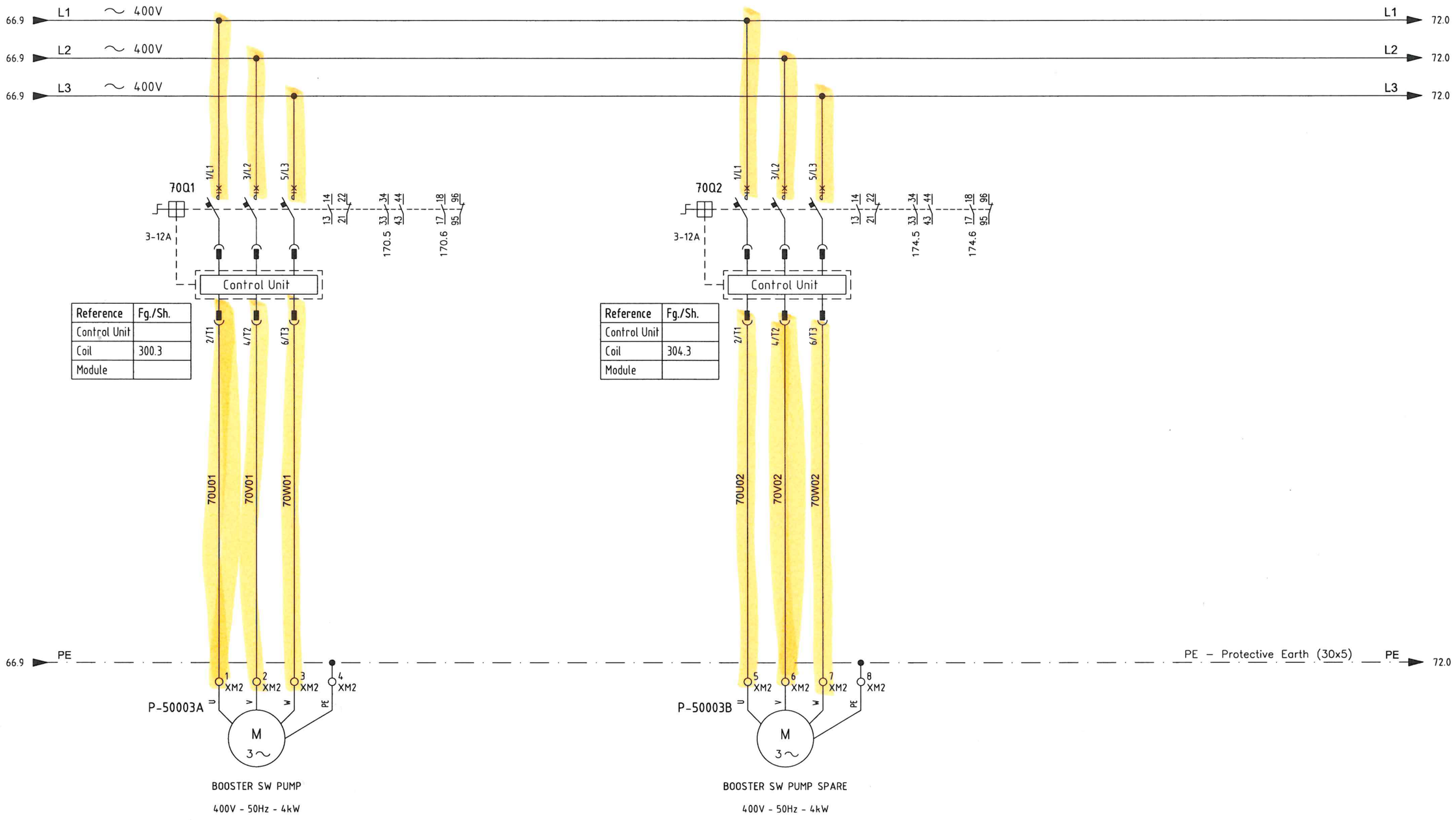
DRAWING NO. 1724000448-IN-DG-00014

SHEET 66

REV. 03

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

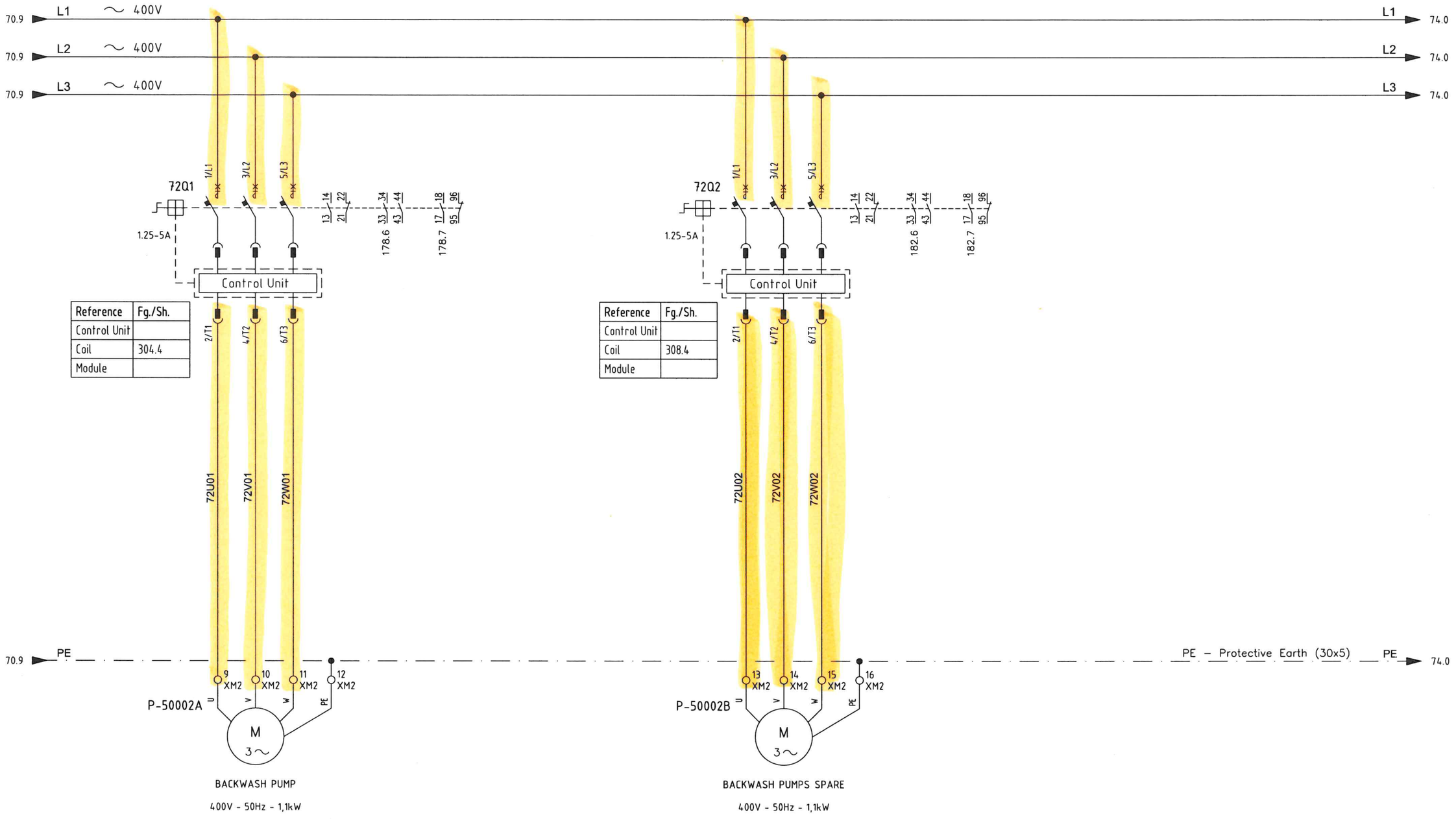
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BOOSTER SW PUMPS MOTORS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 70 | REV. 00

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



Reference	Fg./Sh.
Control Unit	
Coil	304.4
Module	

Reference	Fg./Sh.
Control Unit	
Coil	308.4
Module	

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BACKWASH PUMPS MOTORS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

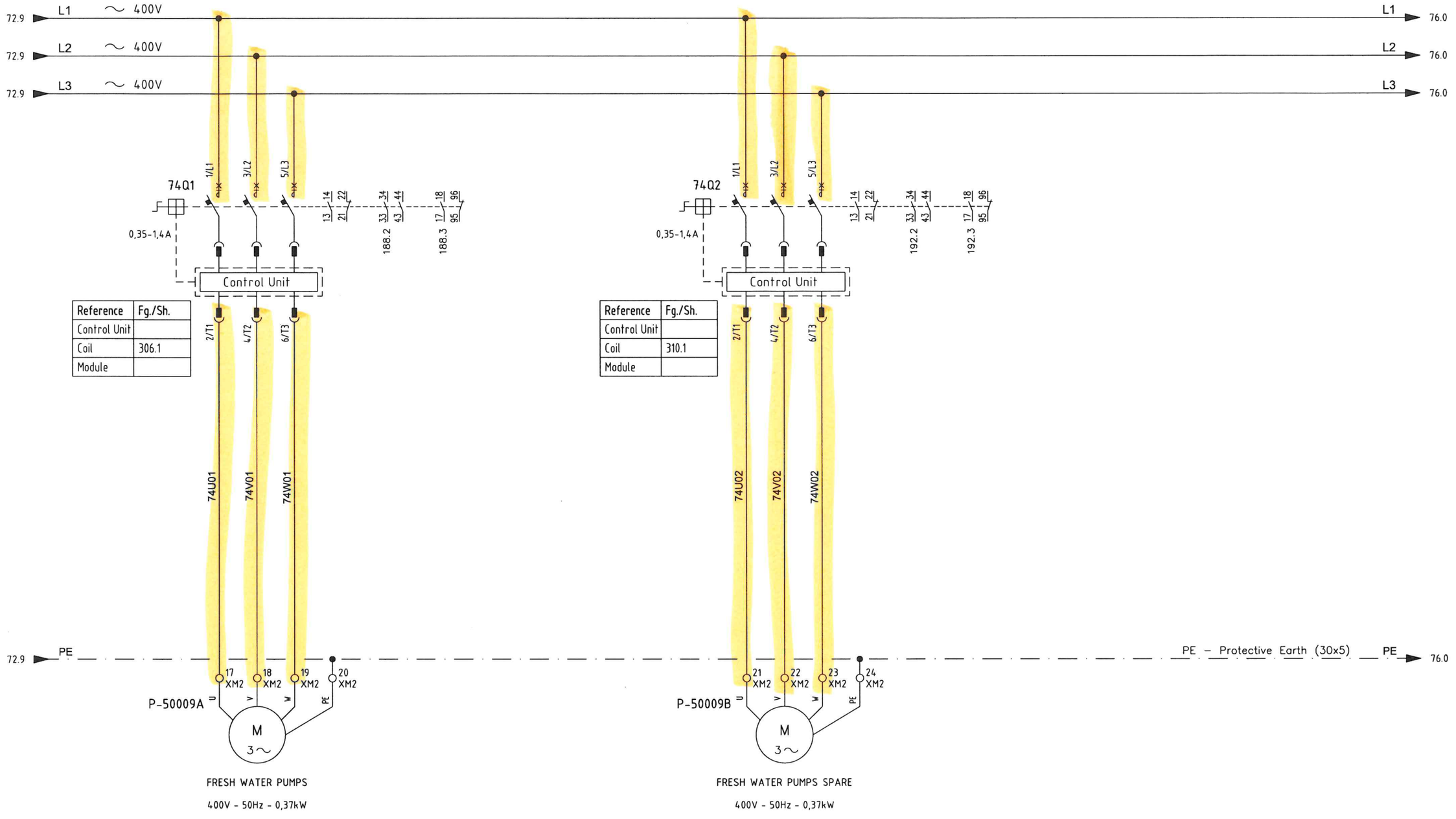
DRAWING NO. 1724000448-IN-DG-00014

SHEET 72

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
FRESH WATER PUMPS MOTORS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

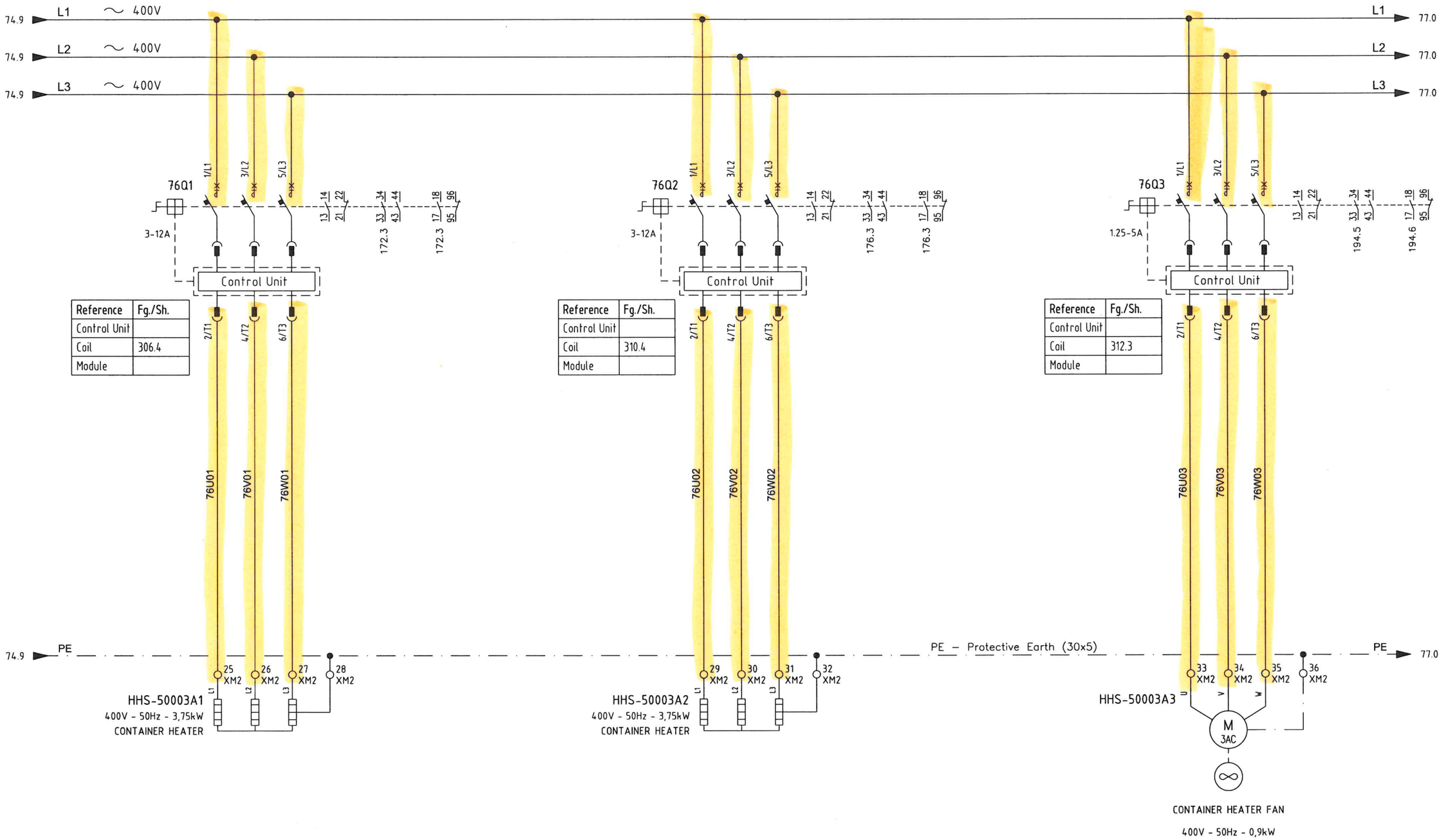
DRAWING NO. 1724000448-IN-DG-00014

SHEET 74

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

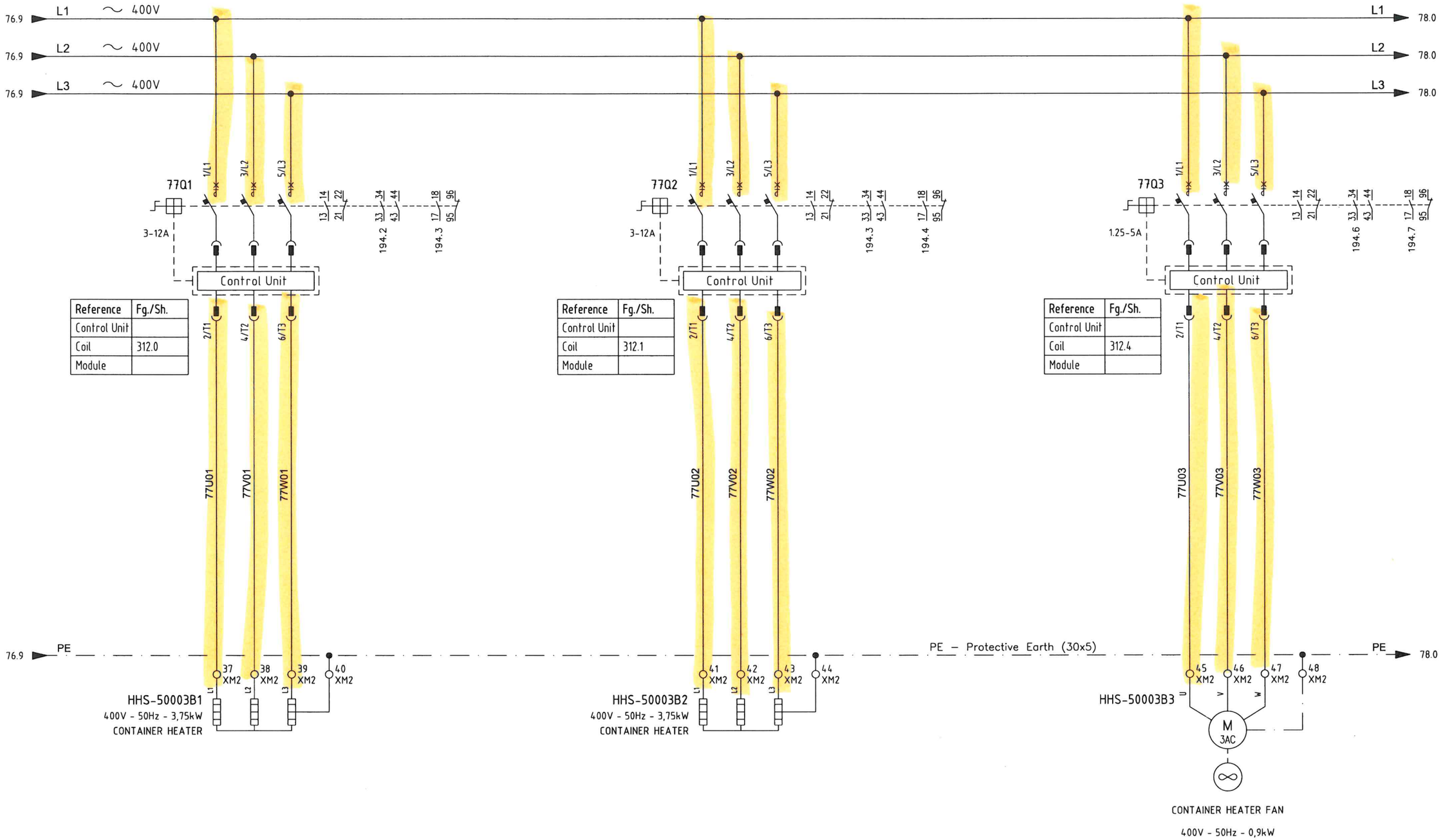
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CONTAINER HEATER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 76 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CONTAINER HEATER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

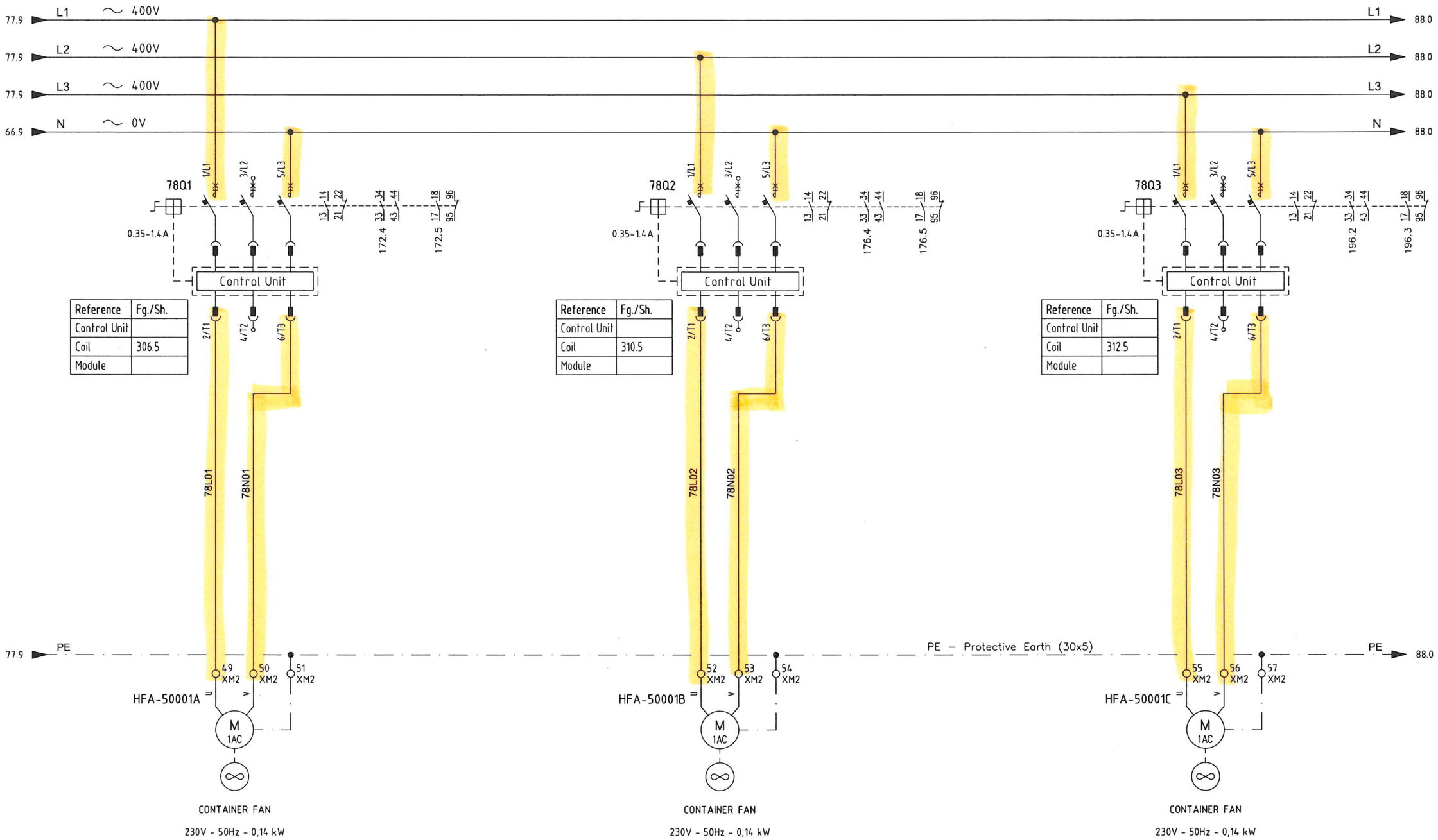
DRAWING NO. 1724000448-IN-DG-00014

SHEET 77

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CONTAINER FAN

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

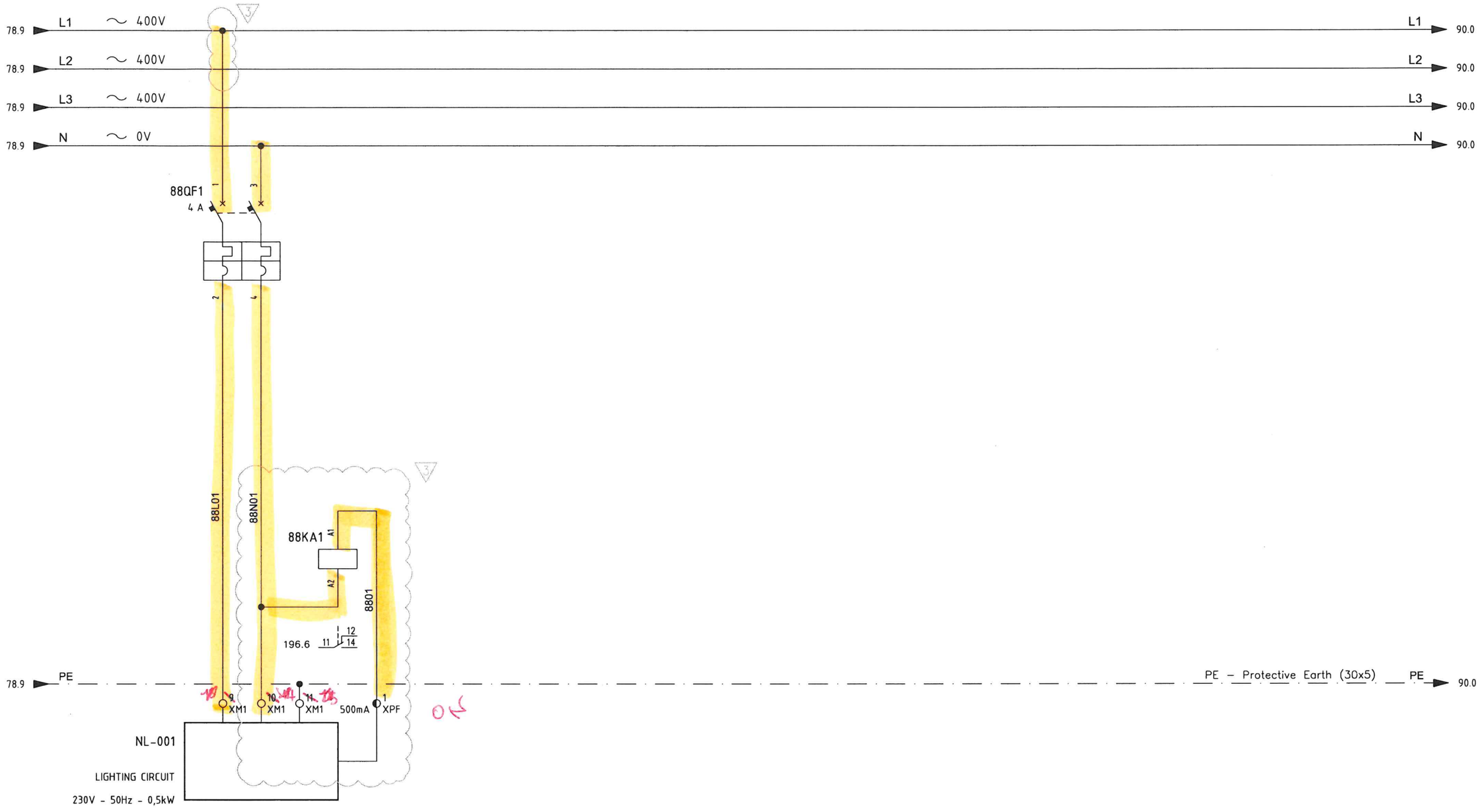
DRAWING NO. 1724000448-IN-DG-00014

SHEET 78

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
LIGHTING CIRCUIT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 88

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

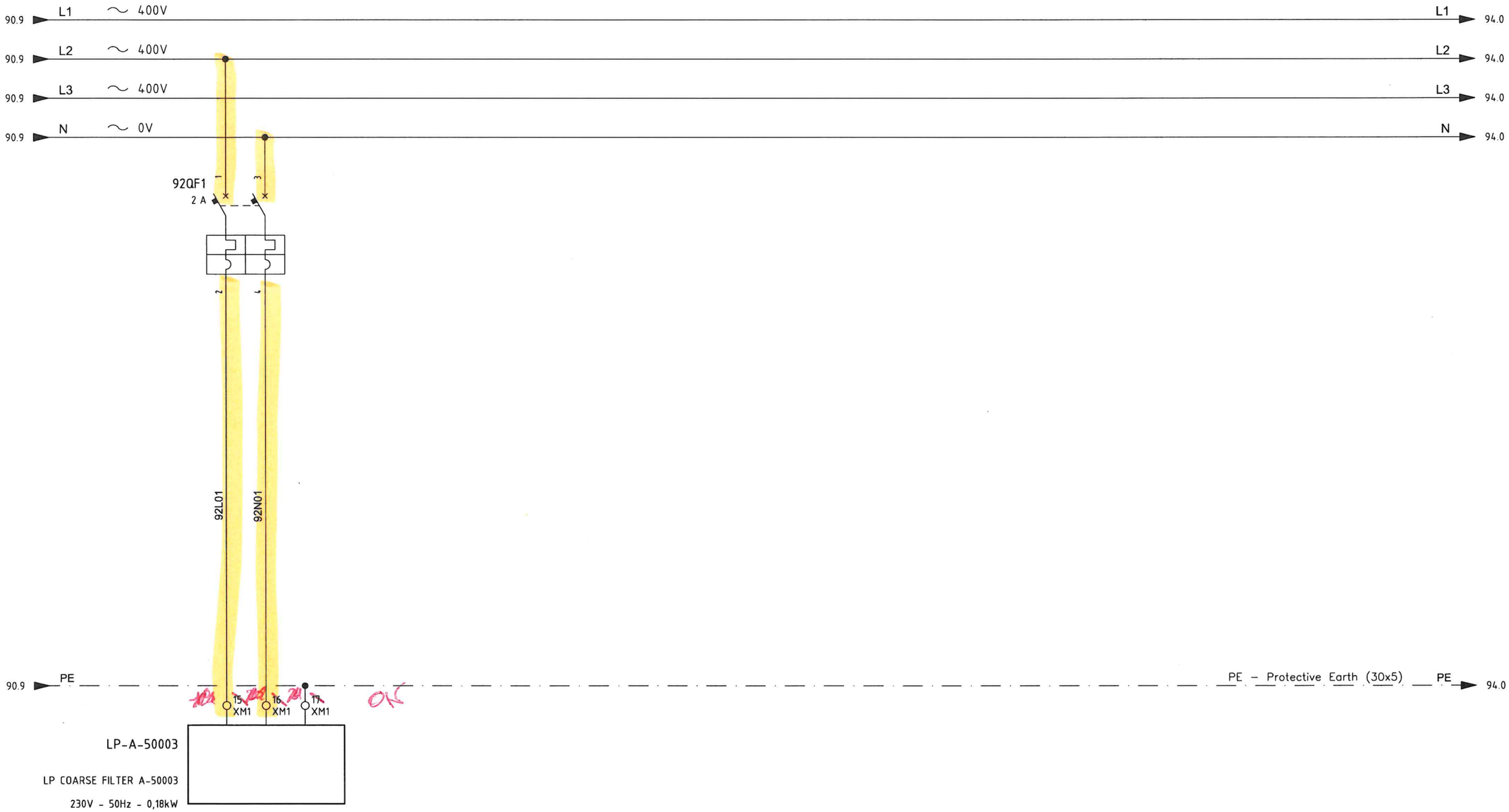
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
UV STERILIZER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 90 | REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
LP COARSE FILTER A-500003

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

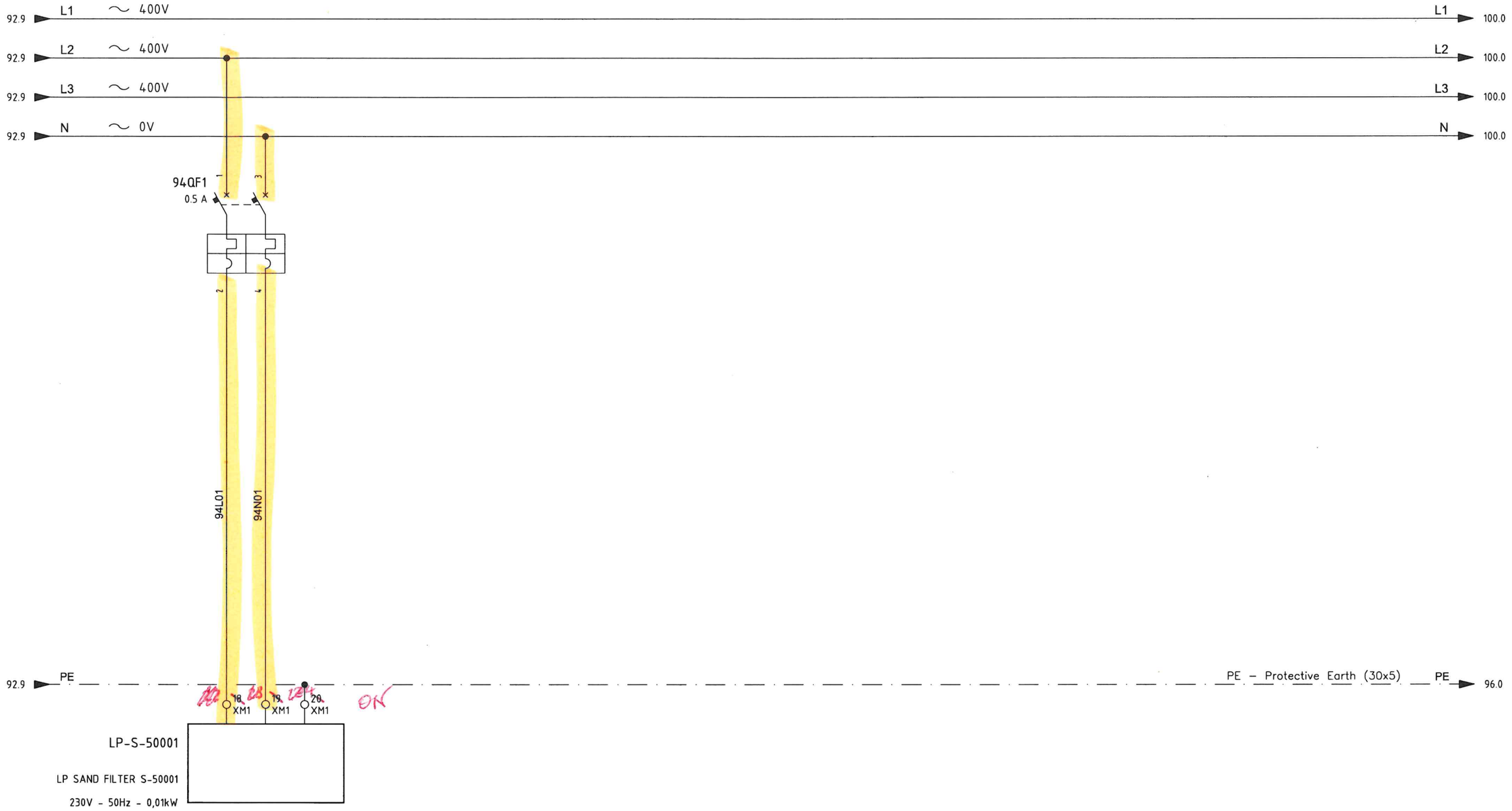
DRAWING NO. 1724000448-IN-DG-00014

SHEET 92

REV. 02

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

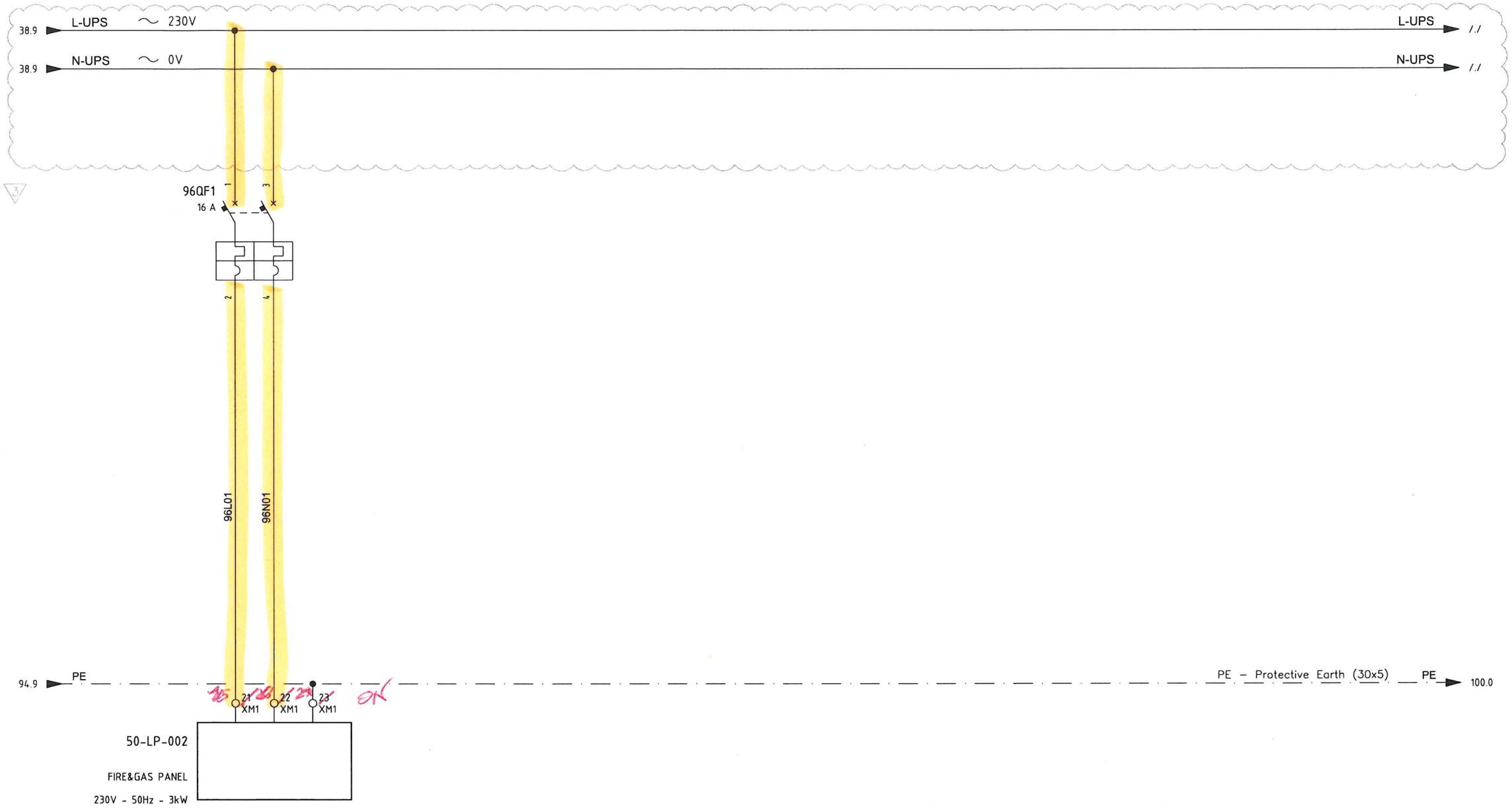
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
LP SAND FILTER S-500001

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 94 | REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
FIRE&GAS PANEL

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

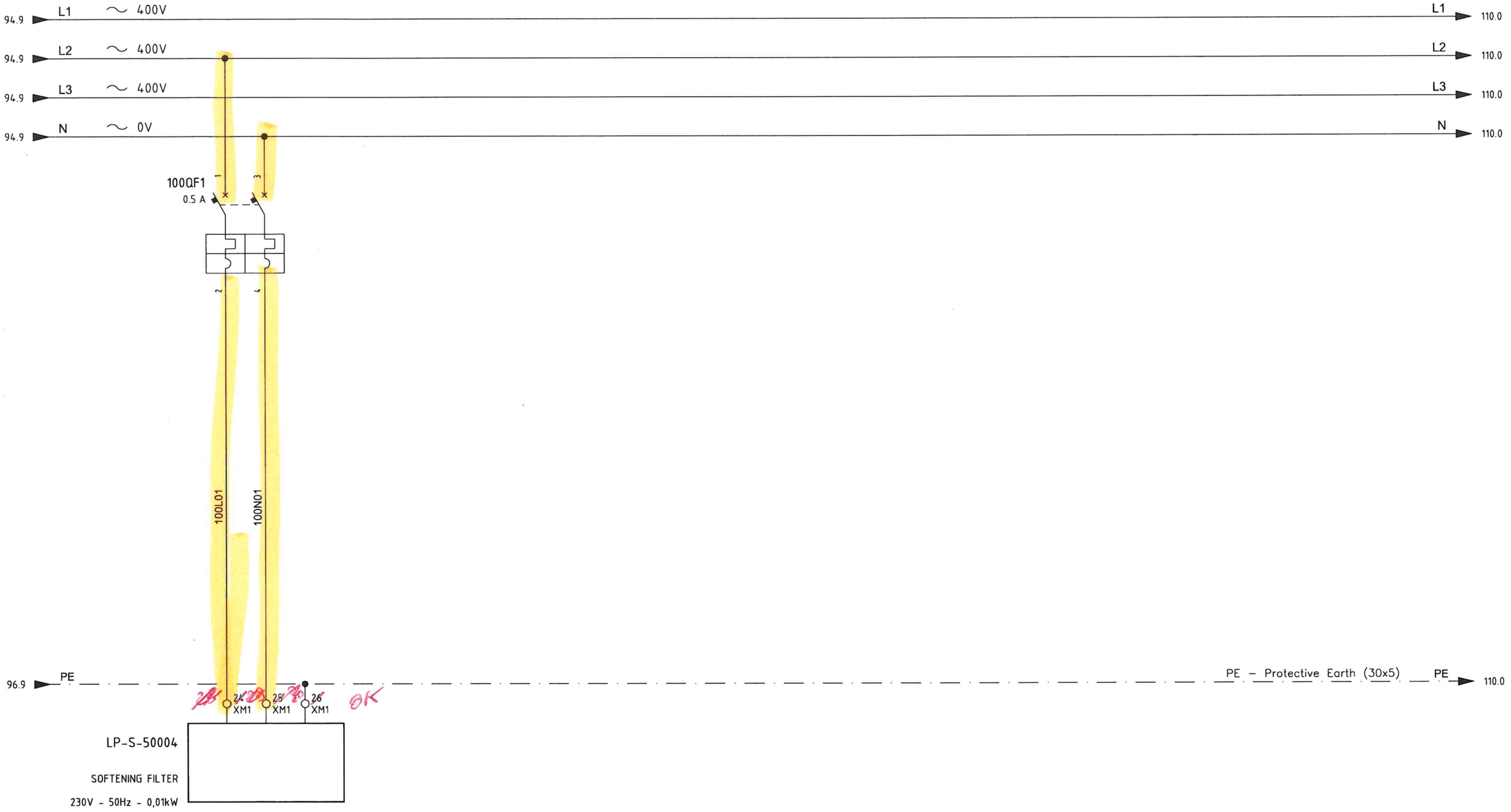
DRAWING NO. 1724000448-IN-DG-00014

SHEET 96

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SOFTENING FILTER

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

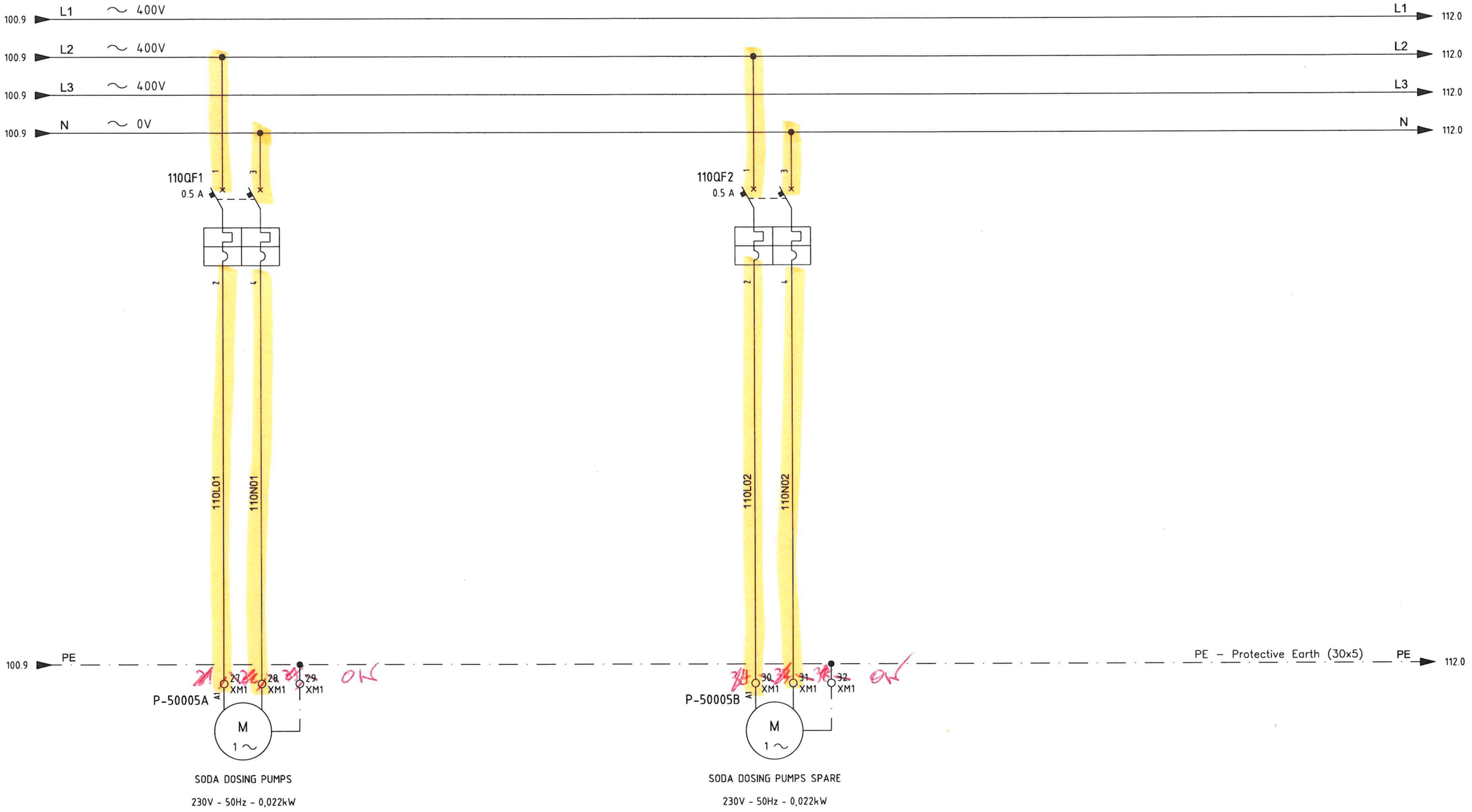
DRAWING NO. 1724000448-IN-DG-00014

SHEET 100

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

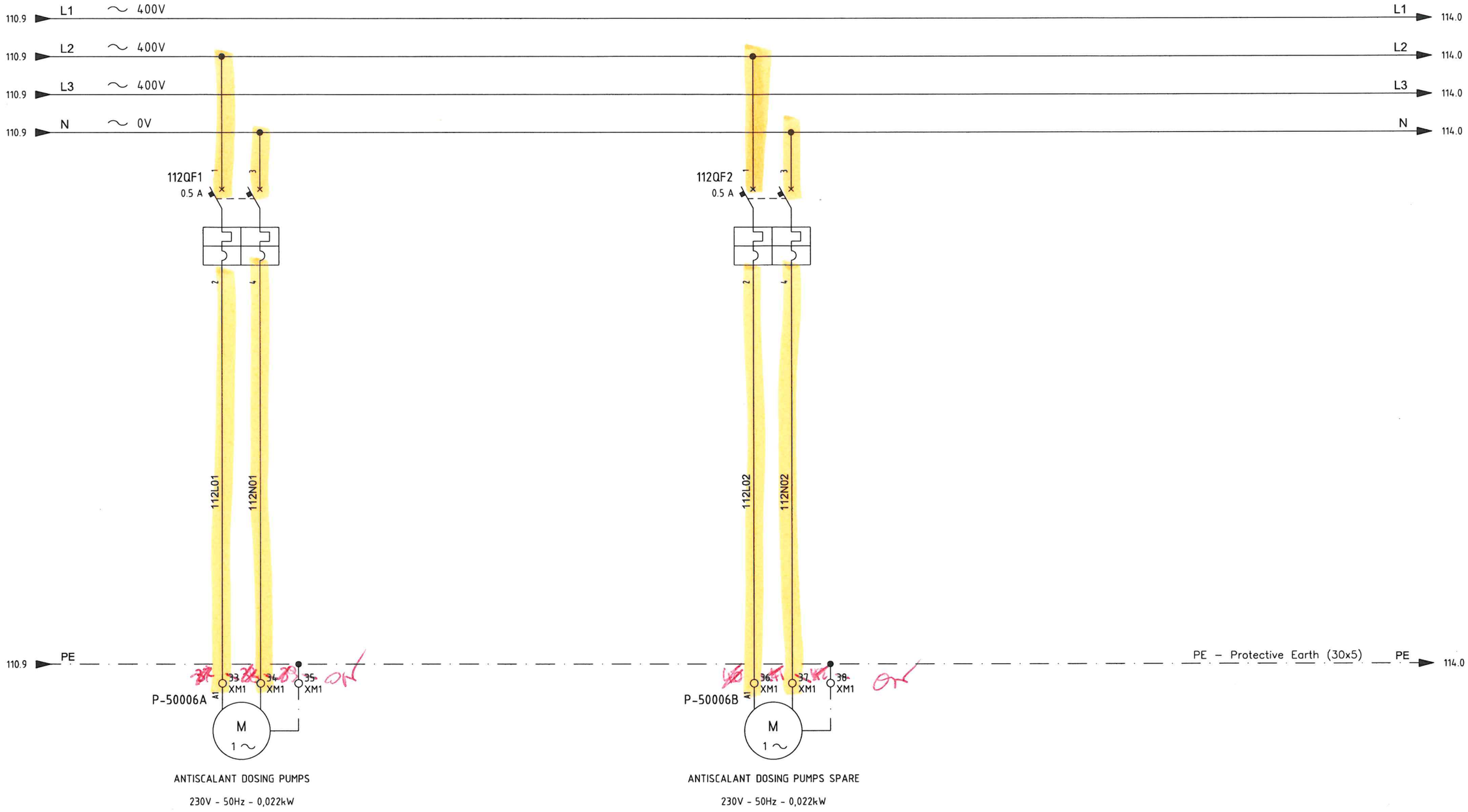
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SODA DOSING PUMPS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 110 | REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
ANTISCALANT DOSING PUMPS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

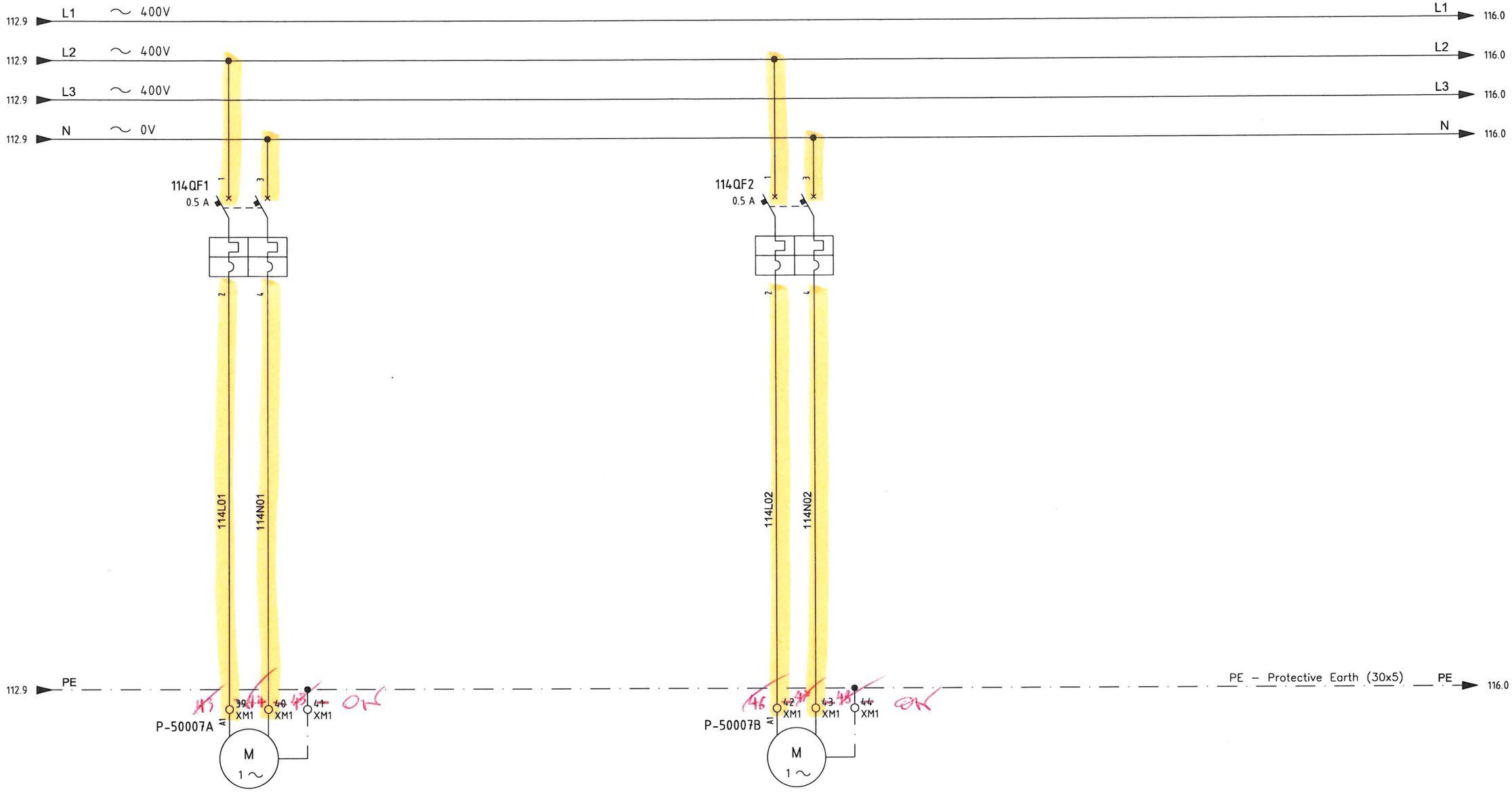
DRAWING NO. 1724000448-IN-DG-00014

SHEET 112

REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_3



PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BIOCIDE DOSING PUMPS TO CONTAINER INLET

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

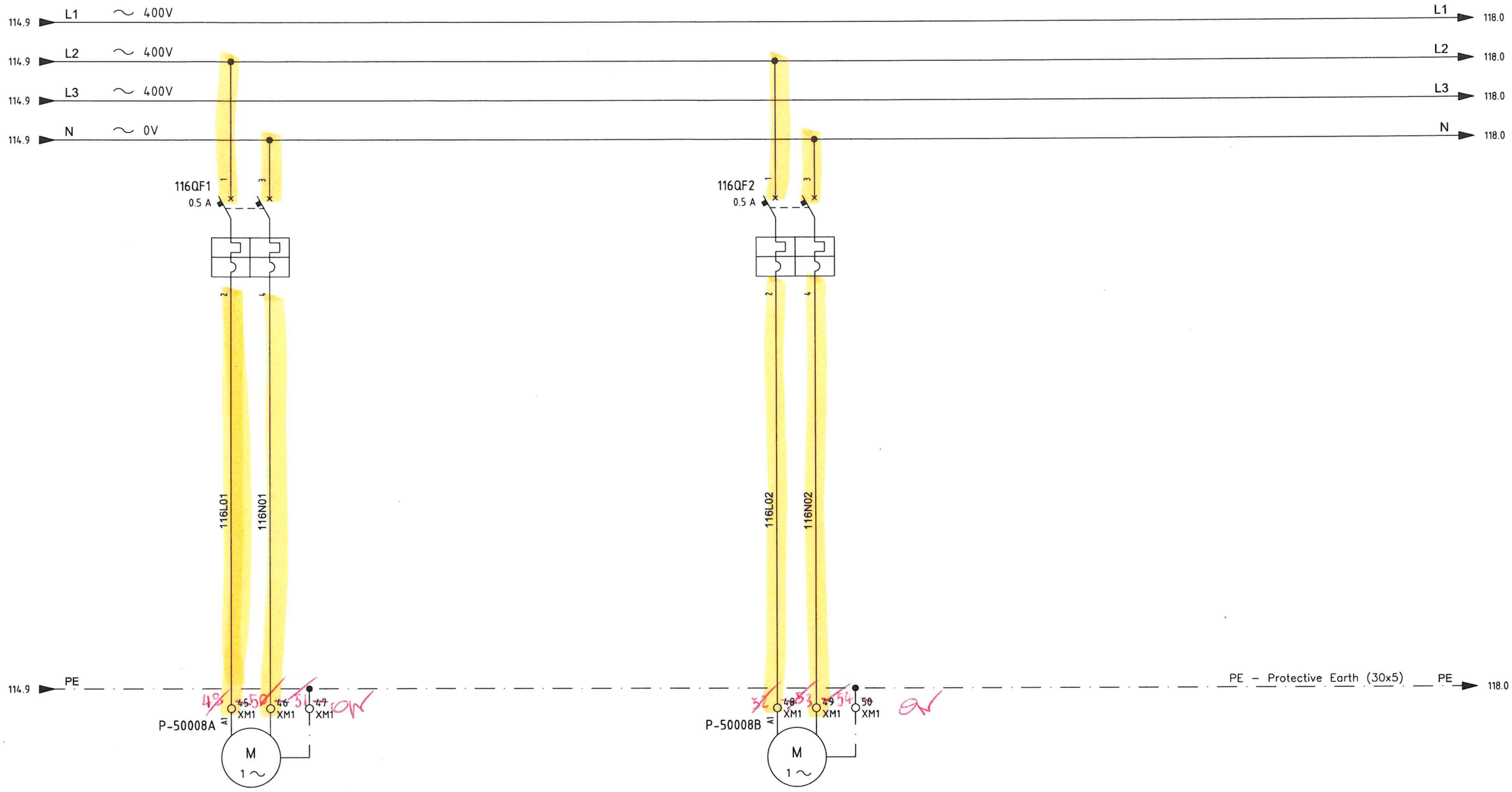
DRAWING NO. 1724000448-IN-DG-00014

SHEET 114

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BIOCIDE DOS. PUMPS TO SEAWATER INTAKE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

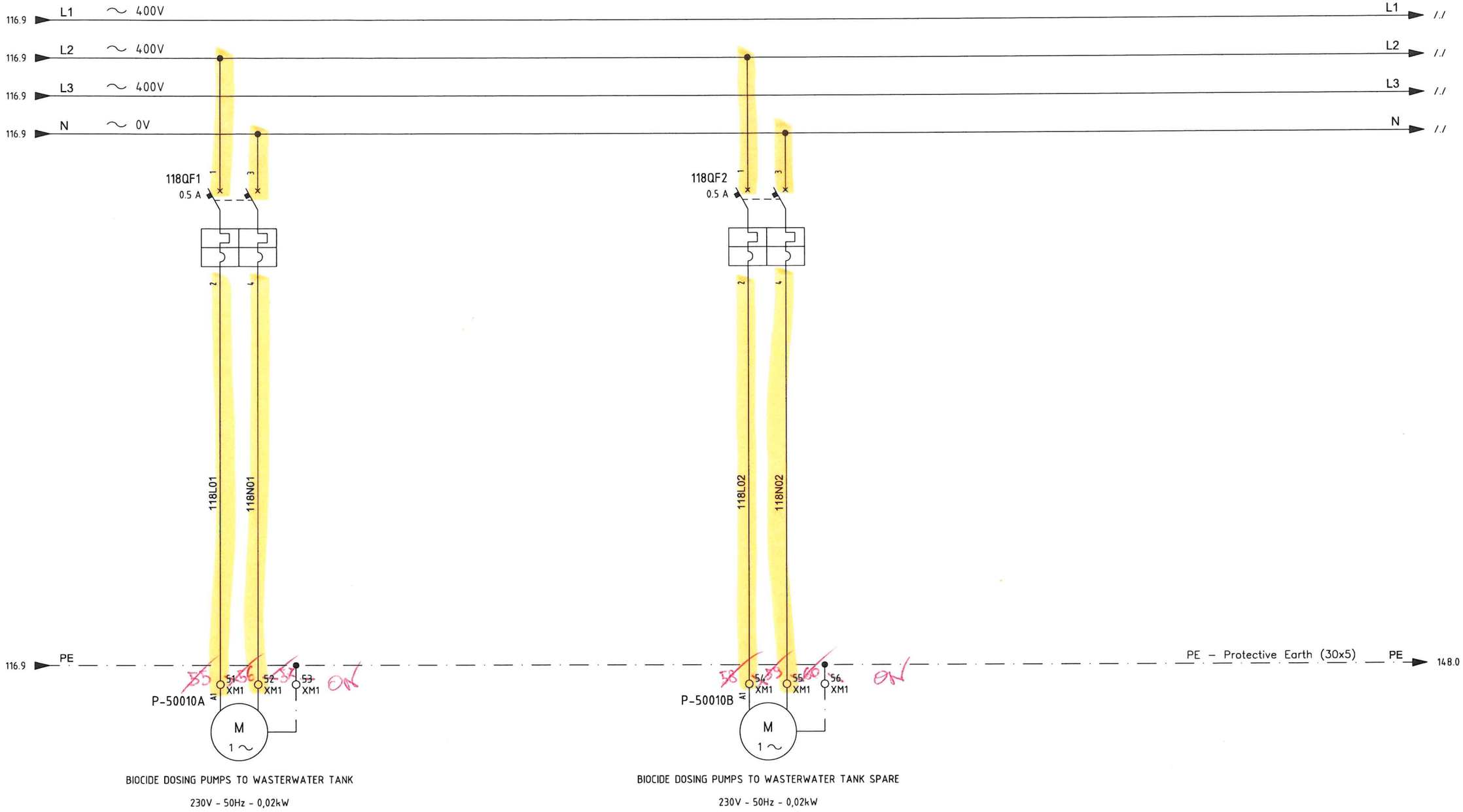
DRAWING NO. 1724000448-IN-DG-00014

SHEET 116

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
BIOCIDE DOS. PUMPS TO WASTEWATER TANK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

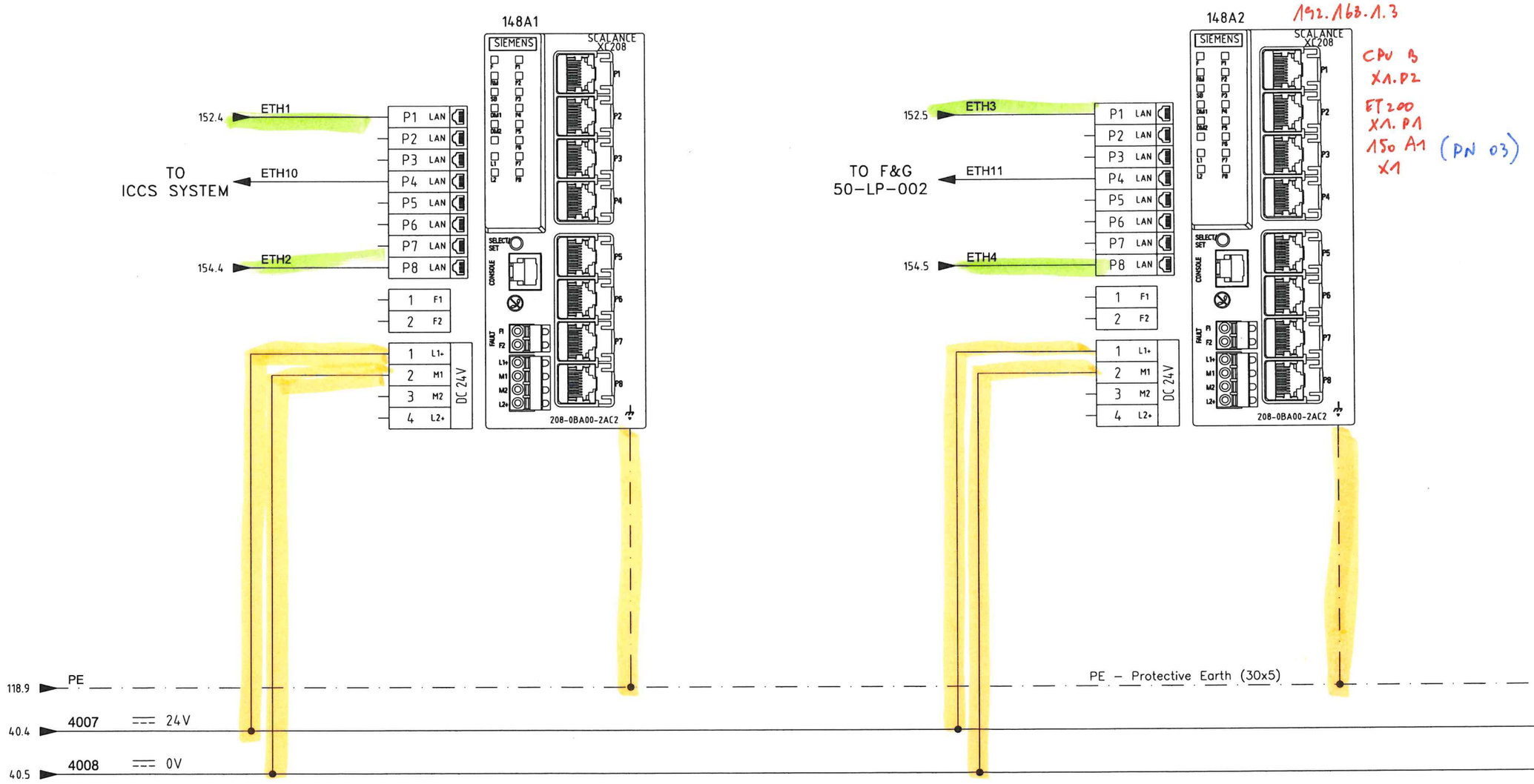
DRAWING NO. 1724000448-IN-DG-00014

SHEET 118

REV. 01

File Name : PK2885_3

F.to UNI A3: 420mmx297mm



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
SWITCH ETHERNET

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

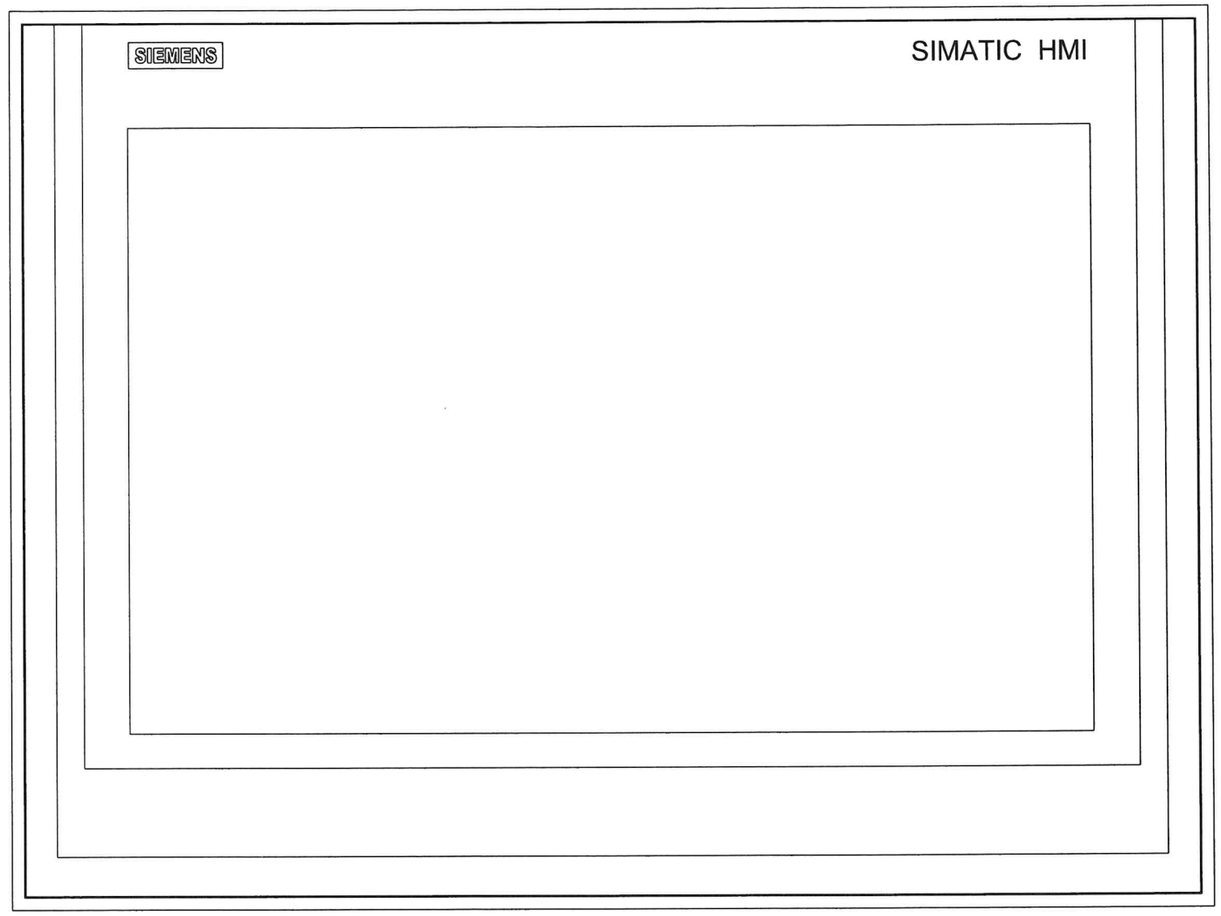
SHEET 148

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

150A1



X1 → 148 A2 - X3 [192.168.1.5]

X3 CPU A

X1 P1 PROFINET — PN3 — 154.4

X1 P2 PROFINET — PN4 — 152.4

X20 RS422/485

X2 P1 PROFINET

X61 USB - Type A

X62 USB - Type A

X63 USB - Type A

X64 USB - Type A

DC 24V (X80)

L+	M	FG
1	2	

148.9 PE — PE – Protective Earth (30x5) — PE → 152.0

40.5 4009 ⎓ 24V — 4009 → /.

40.6 4010 ⎓ 0V — 4010 → /.

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
HMI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

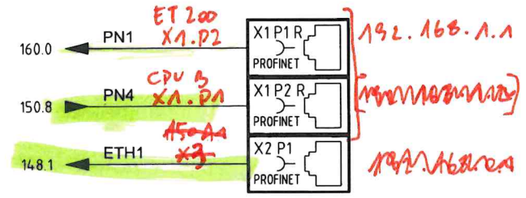
DRAWING NO. 1724000448-IN-DG-00014

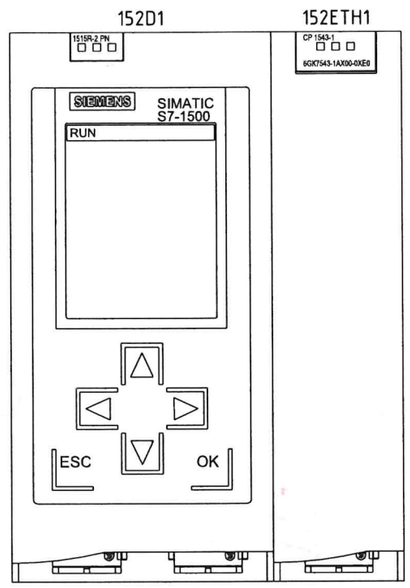
SHEET 150

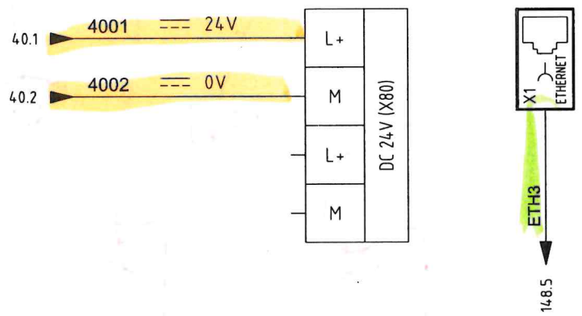
REV. 00

File Name : PK2885_4

F.to UNI A3: 420mmx297mm





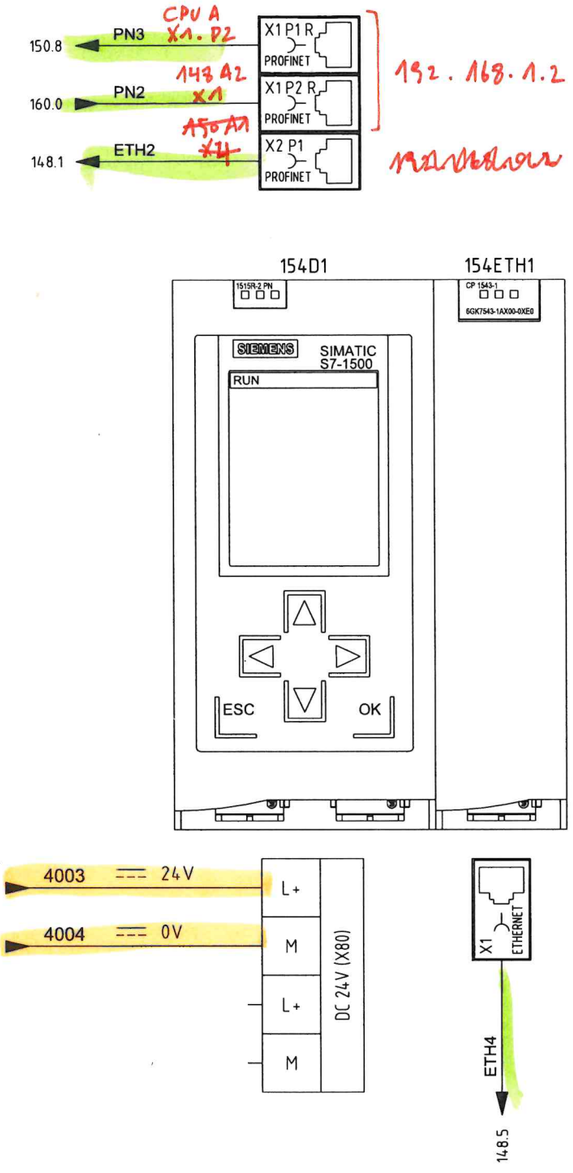


150.9 PE — PE – Protective Earth (30x5) — PE 154.0

						TITLE :	BASE LOAD POWER HUB (BLPH) PACKAGE WIRING DIAGRAM LCP CPU A
PSC	DOC. REF: PK2885-A-002					CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE : --
CROSSWIND	ROSETTI MARINO	00	21/06/24	MS	FC / RM	A3 DRAWING NO. 1724000448-IN-DG-00014	SHEET 152 / REV. 00
		REV.	DATE	DRN	CHKD / APPD	ISSUE FOR INFORMATION (IFI) / DESCRIPTION	

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



152.9 PE — PE – Protective Earth (30x5) — PE 160.0

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
CPU B

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

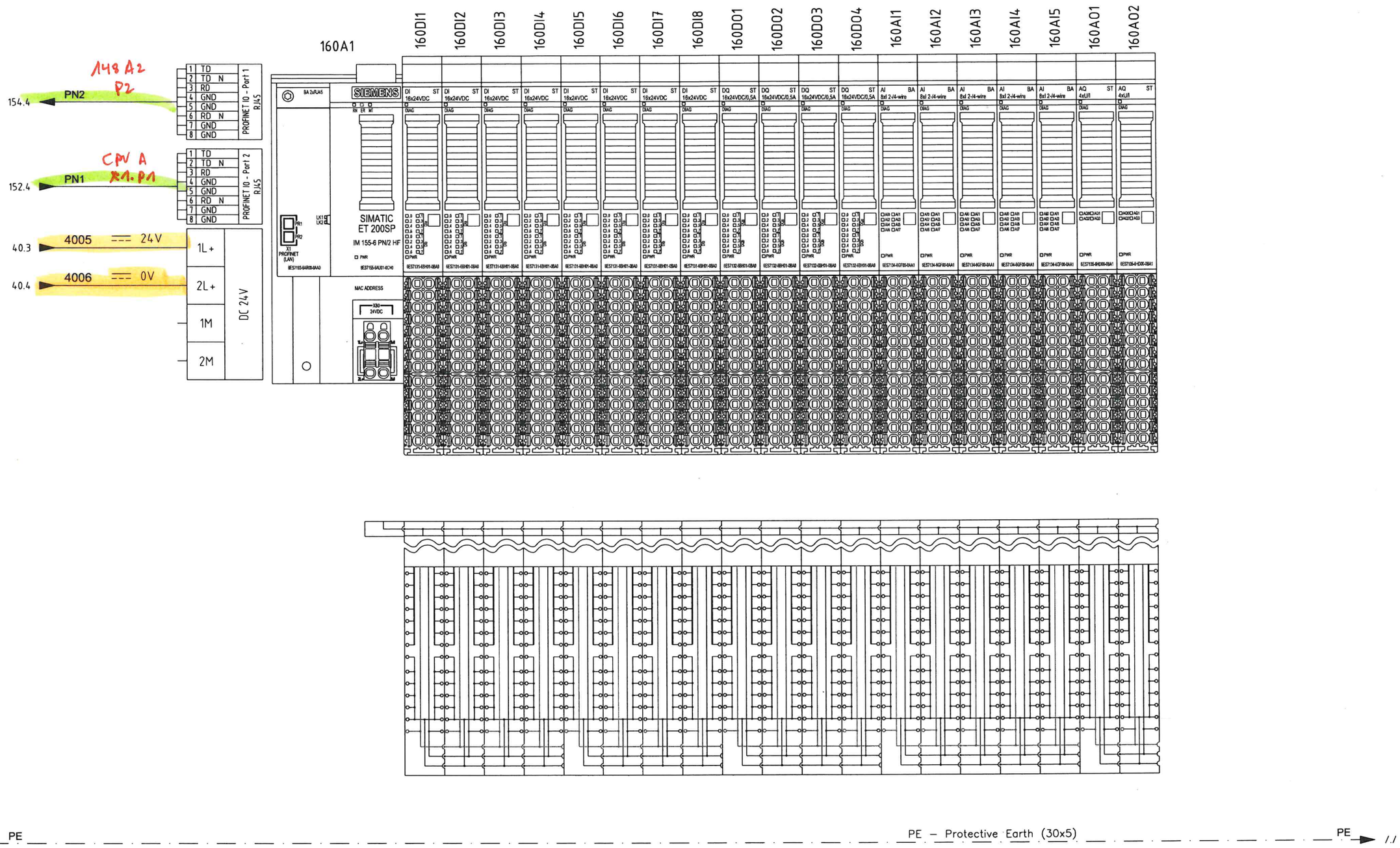
DRAWING NO. 1724000448-IN-DG-00014

SHEET 154

REV. 00

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
RACK 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 160

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



1	2	3	4	5	6	7	8
10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7
CPU RACK 1 MOD. 1 50-XZSH-021	CPU RACK 1 MOD. 1 50-XZSL-021	CPU RACK 1 MOD. 1 50-XZSH-023	CPU RACK 1 MOD. 1 50-XZSL-023	CPU RACK 1 MOD. 1 50-XI-P50003A	CPU RACK 1 MOD. 1 50-XA-P50003A	CPU RACK 1 MOD. 1 50-TSHH-020	CPU RACK 1 MOD. 1 50-XZSH-020
Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3
P-50003A SUCTION VALVE OPEN	P-50003A SUCTION VALVE CLOSED	P-50003A FLUSHING VALVE OPEN	P-50003A FLUSHING VALVE CLOSED	SW BOOSTER PUMP RUN STATUS	SW BOOSTER PUMP AVAILABLE STATUS	H-50001 TEMPERATURE	SEAWATER INLET VALVE OPEN

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 170

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	L+ M
I1.0	I1.1	I1.2	I1.3	I1.4	I1.5	I1.6	I1.7	
CPU RACK 1 MOD. 1 50-XZSL-020	CPU RACK 1 MOD. 1 50-XI-HHS50003A1	CPU RACK 1 MOD. 1 50-XA-HHS50003A1	CPU RACK 1 MOD. 1 50-XI-HFA50001A	CPU RACK 1 MOD. 1 50-XA-HFA50001A	CPU RACK 1 MOD. 1 SPARE	CPU RACK 1 MOD. 1 SPARE	CPU RACK 1 MOD. 1 SPARE	CPU RACK 1 MOD. 1
Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3	Name: 160DI1 Sheet: 160.3
SEAWATER INLET VALVE CLOSED	CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER AIR FAN RUN STATUS	CONTAINER AIR FAN AVAILABLE STATUS	SPARE	SPARE	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

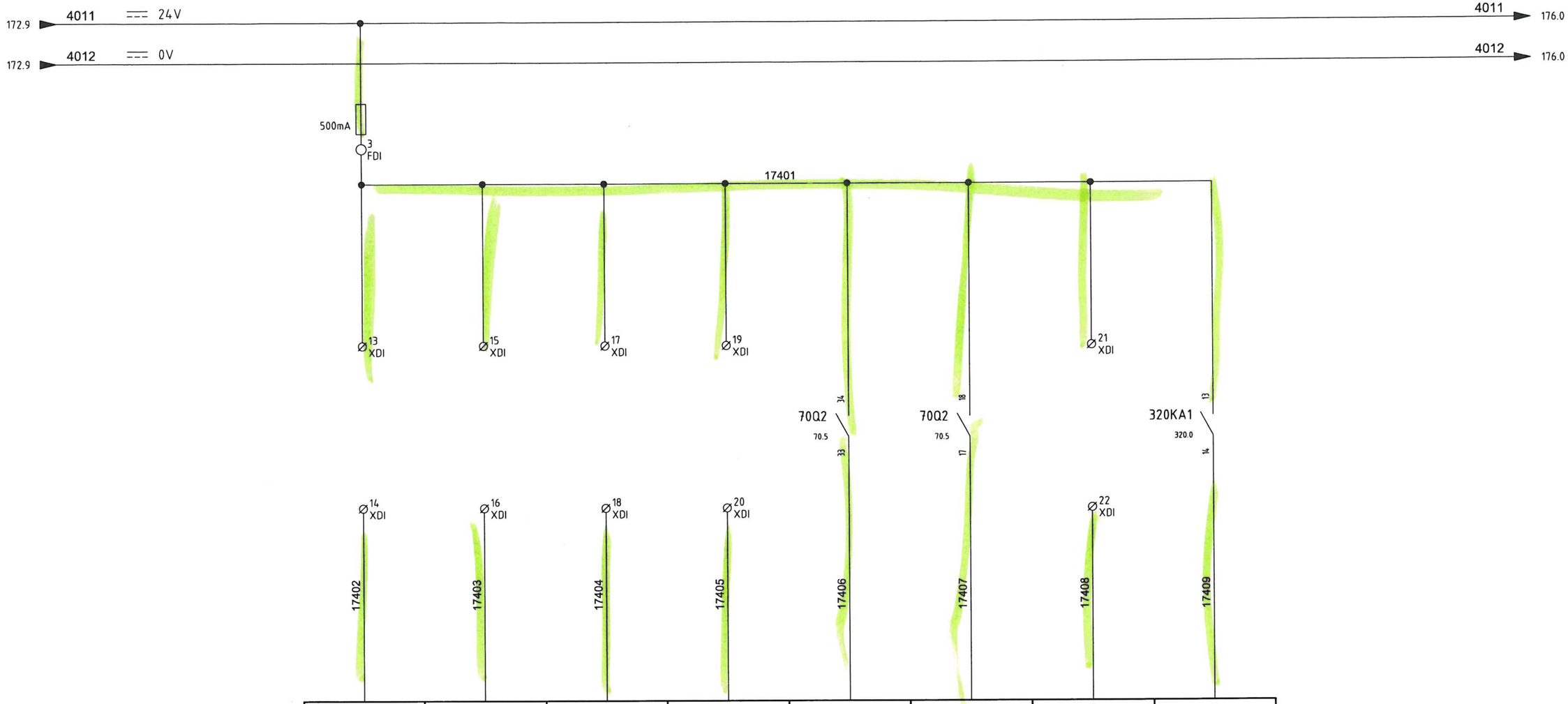
DRAWING NO. 1724000448-IN-DG-00014

SHEET 172

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



1	2	3	4	5	6	7	8
I2.0	I2.1	I2.2	I2.3	I2.4	I2.5	I2.6	I2.7
CPU RACK 1 MOD. 2 50-XZSH-022	CPU RACK 1 MOD. 2 50-XZSL-022	CPU RACK 1 MOD. 2 50-XZSH-024	CPU RACK 1 MOD. 2 50-XZSL-024	CPU RACK 1 MOD. 2 50-XI-P50003B	CPU RACK 1 MOD. 2 50-XA-P50003B	CPU RACK 1 MOD. 2 50-HS-020	CPU RACK 1 MOD. 2 50-XS-001
Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3	Name: 160DI2 / Sheet: 160.3
P-50003B SUCTION VALVE OPEN	P-50003B SUCTION VALVE CLOSED	P-50003B FLUSHING VALVE OPEN	P-50003 FLUSHING VALVE CLOSED	SW BOOSTER PUMP RUN STATUS	SW BOOSTER PUMP AVAILABLE STATUS	EMERGENCY STOP PUSHBUTTON	SHUTDOWN

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

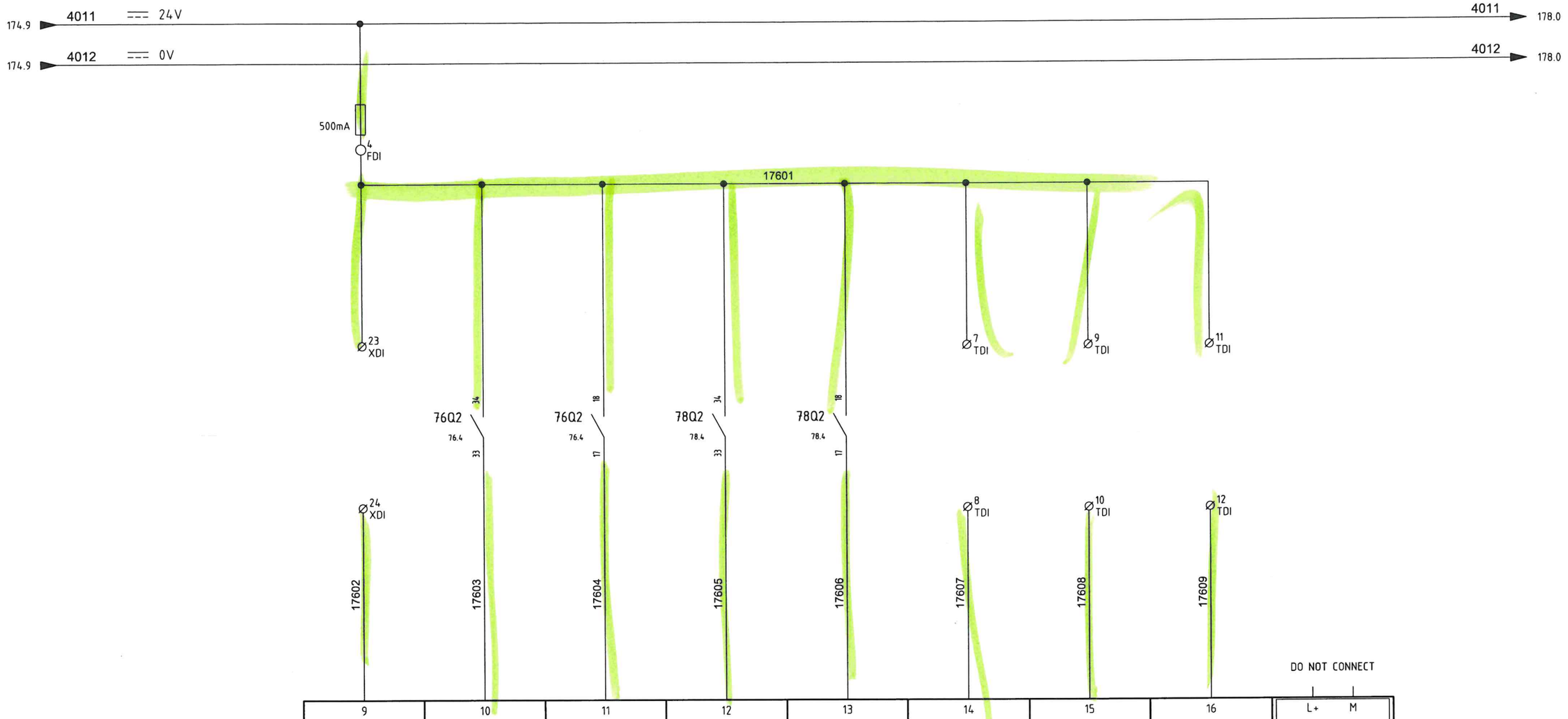
DRAWING NO. 1724000448-IN-DG-00014

SHEET 174

REV. 01

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I3.0	I3.1	I3.2	I3.3	I3.4	I3.5	I3.6	I3.7	
CPU RACK 1 MOD. 2 50-XA-A50003	CPU RACK 1 MOD. 2 50-XI-HHS50003A2	CPU RACK 1 MOD. 2 50-XA-HHS50003A2	CPU RACK 1 MOD. 2 50-XI-HFA50001B	CPU RACK 1 MOD. 2 50-XA-HFA50001B	CPU RACK 1 MOD. 2 SPARE	CPU RACK 1 MOD. 2 SPARE	CPU RACK 1 MOD. 2 SPARE	CPU RACK 1 MOD. 2
Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3	Name: 160DI2 Sheet: 160.3
SEAWATER COARSE FILTER CUMULATIVE ALARM	CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER AIR FAN RUN STATUS	CONTAINER AIR FAN AVAILABLE STATUS	SPARE	SPARE	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

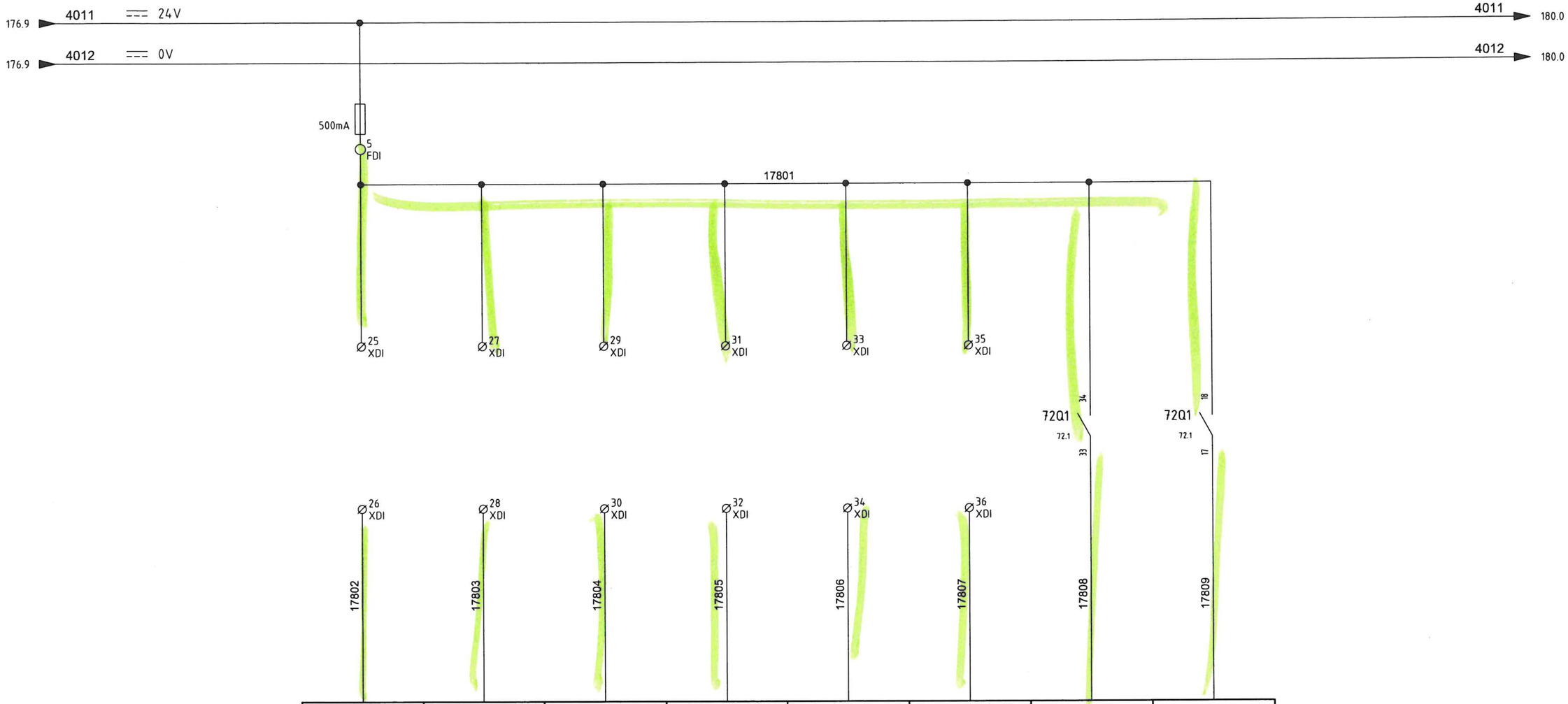
DRAWING NO. 1724000448-IN-DG-00014

SHEET 176

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7
CPU RACK 1 MOD. 3 50-XZSH-025	CPU RACK 1 MOD. 3 50-XZSL-025	CPU RACK 1 MOD. 3 50-XZSH-027	CPU RACK 1 MOD. 3 50-XZSL-027	CPU RACK 1 MOD. 3 50-XZSH-031	CPU RACK 1 MOD. 3 50-XZSL-031	CPU RACK 1 MOD. 3 50-XI-P50002A	CPU RACK 1 MOD. 3 50-XA-P50002A
Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3
FRESH WATER FROM A-50007A/B VALVE OPEN	FRESH WATER FROM A-50007A/B VALVE CLOSED	BRINE FROM A-50007A VALVE OPEN	BRINE FROM A-50007A VALVE CLOSED	FRESH WATER OUTLET VALVE OPEN	FRESH WATER OUTLET VALVE CLOSED	BACKWASH PUMP RUN STATUS	BACKWASH PUMP AVAILABLE STATUS

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 3

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 178

REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

178.9 4011 ⎓ 24V → 4011 182.0

178.9 4012 ⎓ 0V → 4012 182.0

500mA

6 FDI

18001

60QF1 60.1

NO.

31 32 18003

13 TDI 15 TDI 17 TDI 19 TDI 21 TDI 23 TDI

60KA2 60.4 — 11 14 12

60KA1 60.4 — 11 14 12

14 TDI 16 TDI 18 TDI 20 TDI 22 TDI 24 TDI

18002 18004 18005 18006 18007 18008 18009 18010

DO NOT CONNECT

9	10	11	12	13	14	15	16	L+ M
15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	
CPU RACK 1 MOD. 3 50-XS-P50004A	CPU RACK 1 MOD. 3 50-XA-P50004A	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3 SPARE	CPU RACK 1 MOD. 3
Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3	Name: 160DI3 Sheet: 160.3
HP PUMP RUN STATUS	HP PUMP AVAILABLE STATUS	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

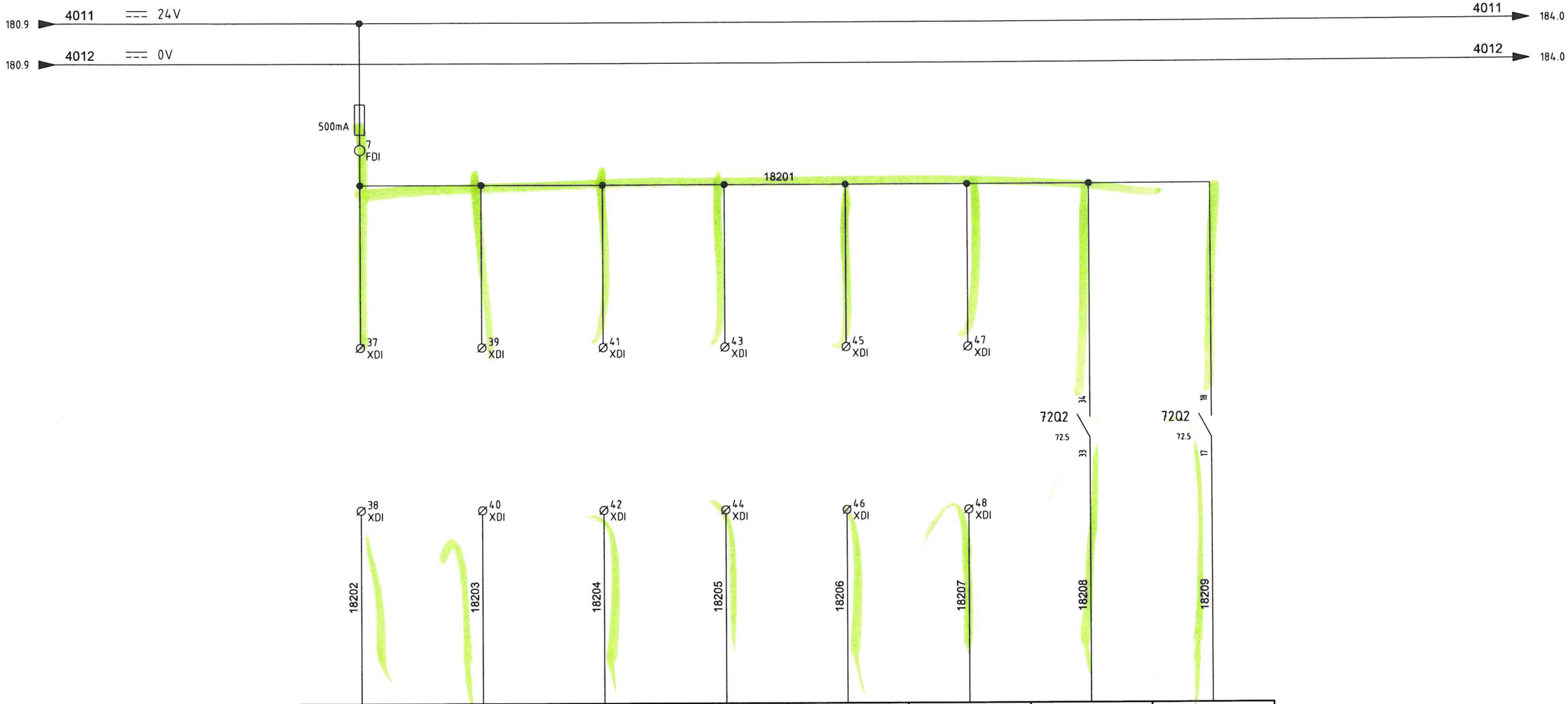
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 3

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 180 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



1	2	3	4	5	6	7	8
I6.0	I6.1	I6.2	I6.3	I6.4	I6.5	I6.6	I6.7
CPU RACK 1 MOD. 4 50-XZSH-026	CPU RACK 1 MOD. 4 50-XZSL-026	CPU RACK 1 MOD. 4 50-XZSH-030	CPU RACK 1 MOD. 4 50-XZSL-030	CPU RACK 1 MOD. 4 50-XSZH-032	CPU RACK 1 MOD. 4 50-XSZL-032	CPU RACK 1 MOD. 4 50-XI-P50002B	CPU RACK 1 MOD. 4 50-XA-P50002B
Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3
FRESH WATER DRAIN FROM A-50007A/B VALVE OPEN	FRESH WATER DRAIN FROM A-50007A/B VALVE CLOSED	BRINE FROM A-50007B VALVE OPEN	BRINE FROM A-50007B VALVE CLOSED	FRESH WATER OFF-SPEC VALVE OPEN	FRESH WATER OFF-SPEC VALVE CLOSED	BACKWASH PUMP RUN STATUS	BACKWASH PUMP AVAILABLE STATUS

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 4

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 182

REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

182.9 4011 ⎓ 24V → 4011 → 186.0

182.9 4012 ⎓ 0V → 4012 → 186.0

500mA

8 FDI

18401

62QF1 62.1 — N.O.

31 / 32 / 18403 / 11

62KA2 62.4 — 14 / 12

62KA1 62.4 — 14 / 12

25 TDI · 27 TDI · 29 TDI · 31 TDI · 33 TDI · 35 TDI

26 TDI · 28 TDI · 30 TDI · 32 TDI · 34 TDI · 36 TDI

18402 · 18404 · 18405 · 18406 · 18407 · 18408 · 18409 · 18410

DO NOT CONNECT

9	10	11	12	13	14	15	16	L+ M
17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	
CPU RACK 1 MOD. 4 50-XI-P50004B	CPU RACK 1 MOD. 4 50-XA-P50004B	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4 SPARE	CPU RACK 1 MOD. 4
Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3	Name: 160DI4 Sheet: 160.3
HP PUMP RUN STATUS	HP PUMP AVAILABLE STATUS	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

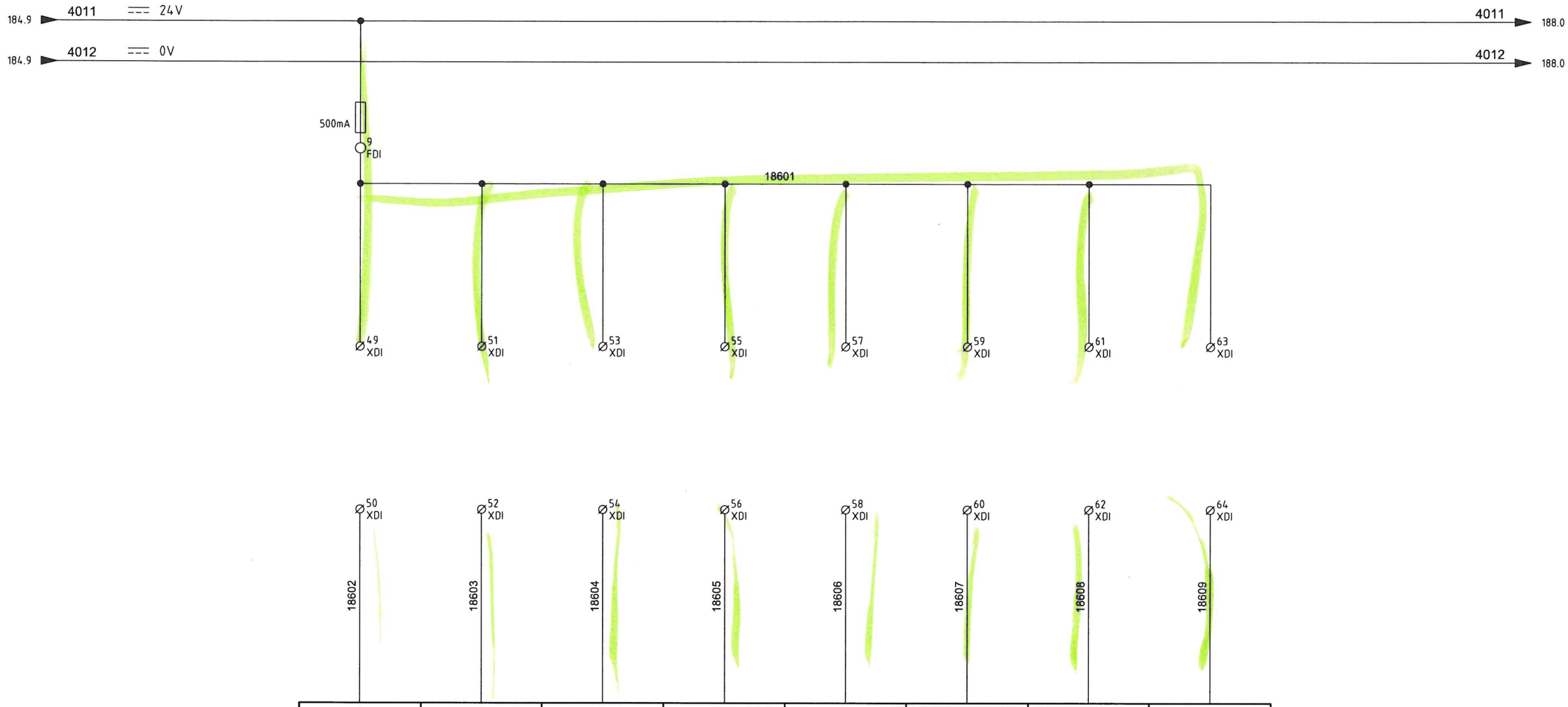
TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 4

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 184 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



1	2	3	4	5	6	7	8
I8.0	I8.1	I8.2	I8.3	I8.4	I8.5	I8.6	I8.7
CPU RACK 1 MOD. 5 50-XI-P50005A	CPU RACK 1 MOD. 5 50-XA-P50005A	CPU RACK 1 MOD. 5 50-XI-P50006A	CPU RACK 1 MOD. 5 50-XA-P50006A	CPU RACK 1 MOD. 5 50-XI-P50007A	CPU RACK 1 MOD. 5 50-XA-P50007A	CPU RACK 1 MOD. 5 50-XI-P50008A	CPU RACK 1 MOD. 5 50-XA-P50008A
Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4
CAUSTIC SODA DOSING PUMP RUN STATUS	CAUSTIC SODA DOSING PUMP AVAILABLE STATUS	ANTISCALANT DOSING PUMP RUN STATUS	ANTISCALANT DOSING PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE AVAILABLE STATUS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 5

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 186

REV. 00

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	L+ M
I9.0	I9.1	I9.2	I9.3	I9.4	I9.5	I9.6	I9.7	
CPU RACK 1 MOD. 5 50-XI-P50009A	CPU RACK 1 MOD. 5 50-XA-P50009A	CPU RACK 1 MOD. 5 50-XI-P50010A	CPU RACK 1 MOD. 5 50-XA-P50010A	CPU RACK 1 MOD. 5 50-XA-S50001	CPU RACK 1 MOD. 5 50-XS-S50004	CPU RACK 1 MOD. 5 50-XA-026	CPU RACK 1 MOD. 5 SPARE	CPU RACK 1 MOD. 5
Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4	Name: 160DI5 Sheet: 160.4
FRESH WATER PUMP RUN STATUS	FRESH WATER PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK AVAILABLE STATUS	SAND FILTER CUMULATIVE ALARM	SOFTENING FILTER REGENERATION IN PROGRESS	FRESH WATER ANALYZER FAULT	SPARE	

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 5

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 188

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



1	2	3	4	5	6	7	8
I10.0	I10.1	I10.2	I10.3	I10.4	I10.5	I10.6	I10.7
CPU RACK 1 MOD. 6 50-XI-P50005B	CPU RACK 1 MOD. 6 50-XA-P50005B	CPU RACK 1 MOD. 6 50-XI-P50006B	CPU RACK 1 MOD. 6 50-XA-P50006B	CPU RACK 1 MOD. 6 50-XI-P50007B	CPU RACK 1 MOD. 6 50-XA-P50007B	CPU RACK 1 MOD. 6 50-XI-P50008B	CPU RACK 1 MOD. 6 50-XA-P50008B
Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4
CAUSTIC SODA DOSING PUMP RUN STATUS	CAUSTIC SODA DOSING PUMP AVAILABLE STATUS	ANTISCALANT DOSING PUMP RUN STATUS	ANTISCALANT DOSING PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE AVAILABLE STATUS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 6

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

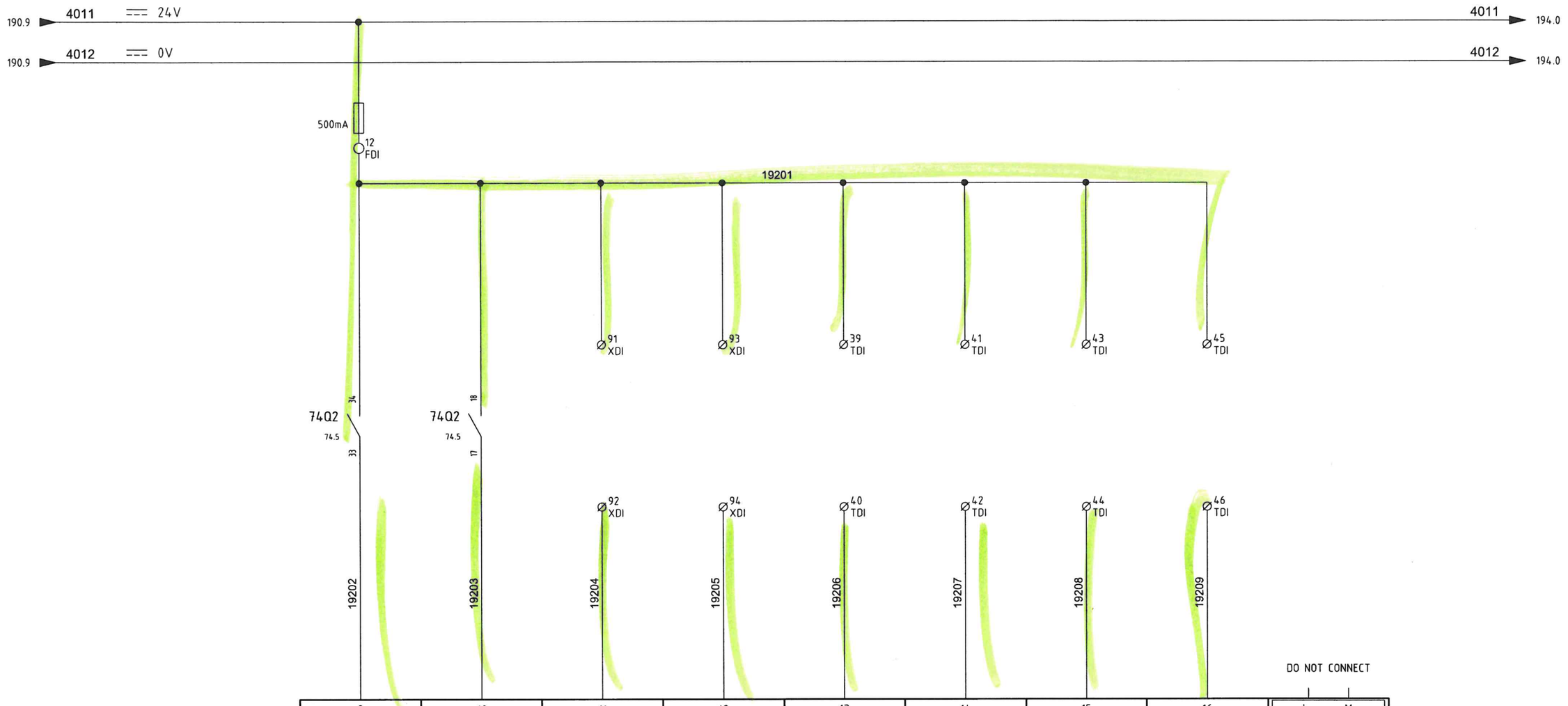
DRAWING NO. 1724000448-IN-DG-00014

SHEET 190

REV. 00

File Name : PK2885_4

F.to UNI A3: 420mmx297mm



9	10	11	12	13	14	15	16	
I11.0	I11.1	I11.2	I11.3	I11.4	I11.5	I11.6	I11.7	
CPU RACK 1 MOD. 6 50-XI-P50009B	CPU RACK 1 MOD. 6 50-XA-P50009B	CPU RACK 1 MOD. 6 50-XI-P50010B	CPU RACK 1 MOD. 6 50-XA-P50010B	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6 SPARE	CPU RACK 1 MOD. 6
Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4	Name: 160DI6 Sheet: 160.4
FRESH WATER PUMP RUN STATUS	FRESH WATER PUMP AVAILABLE STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK RUN STATUS	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK AVAILABLE STATUS	SPARE	SPARE	SPARE	SPARE	

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 6

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

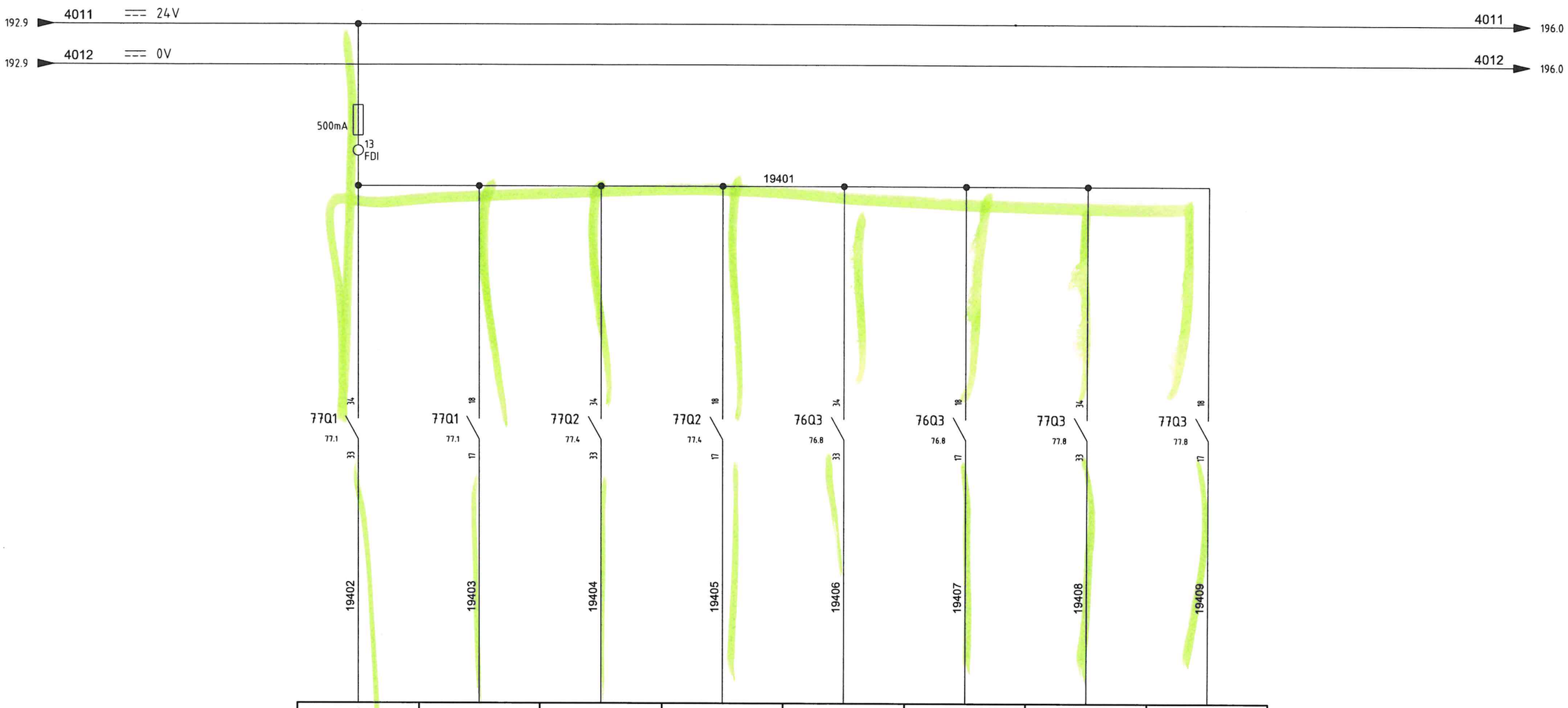
DRAWING NO. 1724000448-IN-DG-00014

SHEET 192

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



1	2	3	4	5	6	7	8
I12.0	I12.1	I12.2	I12.3	I12.4	I12.5	I12.6	I12.7
CPU RACK 1 MOD. 7 50-XI-HHS50003B1	CPU RACK 1 MOD. 7 50-XA-HHS5003B1	CPU RACK 1 MOD. 7 50-XI-HHS50003B2	CPU RACK 1 MOD. 7 50-XA-HHS50003B2	CPU RACK 1 MOD. 7 50-XI-HHS50003A3	CPU RACK 1 MOD. 7 50-XA-HHS50003A3	CPU RACK 1 MOD. 7 50-XI-HHS50003B3	CPU RACK 1 MOD. 7 50-XA-HHS50003B3
Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4
CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER ELECTRICAL HEATER RUN STATUS	CONTAINER ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER ELECTRICAL HEATER FAN RUN STATUS	CONTAINER ELECTRICAL HEATER FAN AVAILABLE STATUS	CONTAINER ELECTRICAL HEATER FAN RUN STATUS	CONTAINER ELECTRICAL HEATER FAN AVAILABLE STATUS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 7

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

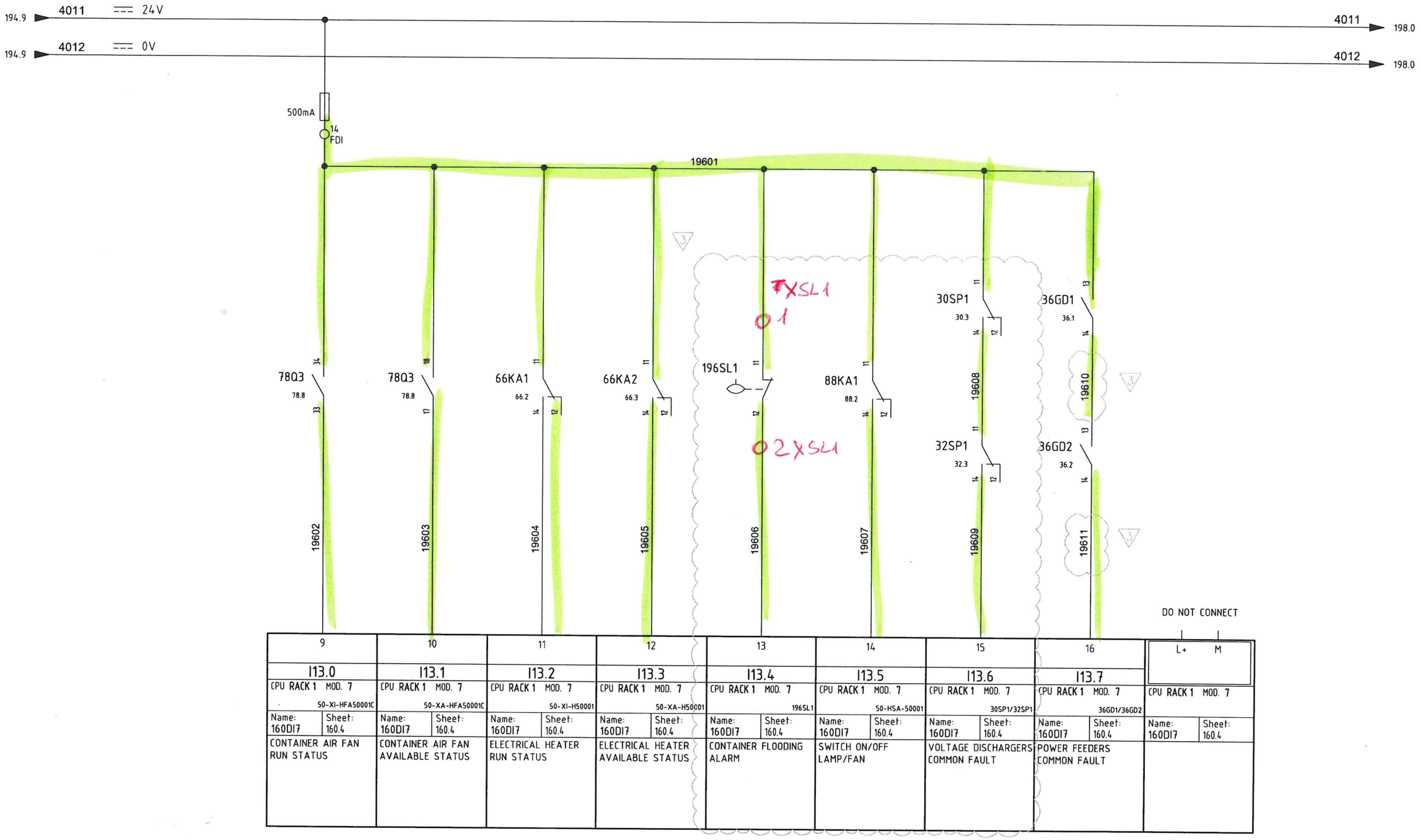
DRAWING NO. 1724000448-IN-DG-00014

SHEET 194

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



9	10	11	12	13	14	15	16
I13.0	I13.1	I13.2	I13.3	I13.4	I13.5	I13.6	I13.7
CPU RACK 1 MOD. 7 50-XI-HFA50001C	CPU RACK 1 MOD. 7 50-XA-HFA50001C	CPU RACK 1 MOD. 7 50-XI-H50001	CPU RACK 1 MOD. 7 50-XA-H50001	CPU RACK 1 MOD. 7 196SL1	CPU RACK 1 MOD. 7 50-HSA-50001	CPU RACK 1 MOD. 7 30SP1/32SP1	CPU RACK 1 MOD. 7 36GD1/36GD2
Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4	Name: 160DI7 Sheet: 160.4
CONTAINER AIR FAN RUN STATUS	CONTAINER AIR FAN AVAILABLE STATUS	ELECTRICAL HEATER RUN STATUS	ELECTRICAL HEATER AVAILABLE STATUS	CONTAINER FLOODING ALARM	SWITCH ON/OFF LAMP/FAN	VOLTAGE DISCHARGERS COMMON FAULT	POWER FEEDERS COMMON FAULT

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 7

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

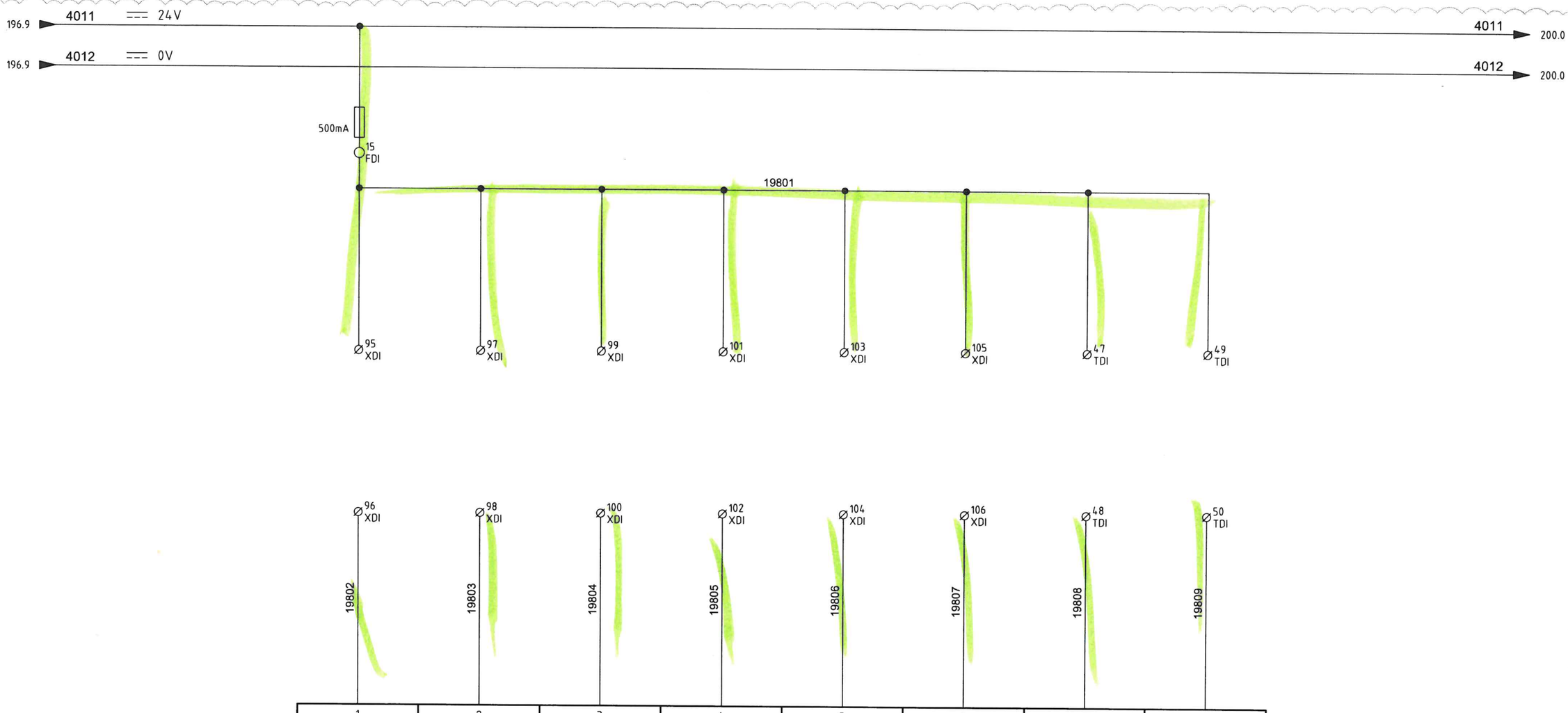
DRAWING NO. 1724000448-IN-DG-00014

SHEET 196

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4



1	2	3	4	5	6	7	8
I14.0	I14.1	I14.2	I14.3	I14.4	I14.5	I14.6	I14.7
CPU RACK 1 MOD. 8 50-XZSH-033	CPU RACK 1 MOD. 8 50-XZSL-033	CPU RACK 1 MOD. 8 50-XZSH-034	CPU RACK 1 MOD. 8 50-XZSL-034	CPU RACK 1 MOD. 8 50-XZSH-035	CPU RACK 1 MOD. 8 50-XZSL-035	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE
Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5
SEAWATER DRAIN FROM H-50001 VALVE OPEN	SEAWATER DRAIN FROM H-50001 VALVE CLOSED	SEAWATER DRAIN FROM T-50006 VALVE OPEN	SEAWATER DRAIN FROM T-50006 VALVE CLOSED	FRESH WATER FROM T-50008 DRAIN VALVE OPEN	FRESH WATER FROM T-50008 DRAIN VALVE CLOSED	SPARE	SPARE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 198

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

198.9 4011 ⎓ 24V

198.9 4012 ⎓ 0V

4011 //

4012 //

500mA

16 FDI

20001

51 TDI | 53 TDI | 55 TDI | 57 TDI | 59 TDI | 61 TDI | 63 TDI | 65 TDI

52 TDI | 54 TDI | 56 TDI | 58 TDI | 60 TDI | 62 TDI | 64 TDI | 66 TDI

20002 | 20003 | 20004 | 20005 | 20006 | 20007 | 20008 | 20009

DO NOT CONNECT

9	10	11	12	13	14	15	16	
I15.0	I15.1	I15.2	I15.3	I15.4	I15.5	I15.6	I15.7	L+ M
CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8 SPARE	CPU RACK 1 MOD. 8
Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5	Name: 160DI8 Sheet: 160.5
SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL INPUT RACK 1 SLOT 8

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

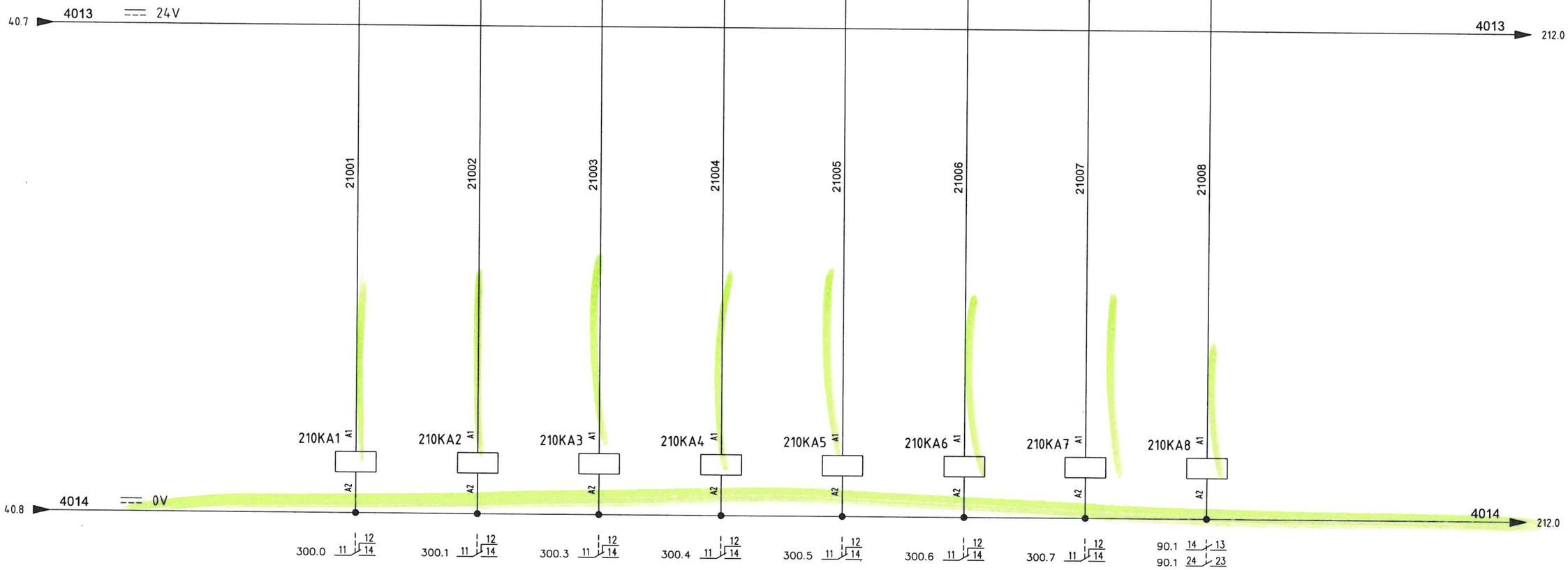
SHEET 200

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

P-50003A SUCTION VALVE COMMAND	P-50003A FLUSHING VALVE COMMAND	SW BOOSTER PUMP START/STOP COMMAND	SEAWATER INLET VALVE COMMAND	SEAWATER COARSE FILTER REGENERATION COMMAND	SAND FILTER REGENERATION COMMAND	SOFTENING FILTER REGENERATION COMMAND	UV STERILIZER START/STOP COMMAND
Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5
CPU RACK 1 MOD. 9 50-XY-021	CPU RACK 1 MOD. 9 50-XY-023	CPU RACK 1 MOD. 9 50-HS-P50003A	CPU RACK 1 MOD. 9 50-XY-020	CPU RACK 1 MOD. 9 50-HS-A50003	CPU RACK 1 MOD. 9 50-HS-S50001	CPU RACK 1 MOD. 9 50-HS-S50004	CPU RACK 1 MOD. 9 50-HS-S50010
Q0.0	Q0.1	Q0.2	Q0.3	Q0.4	Q0.5	Q0.6	Q0.7
1	2	3	4	5	6	7	8



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 9

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

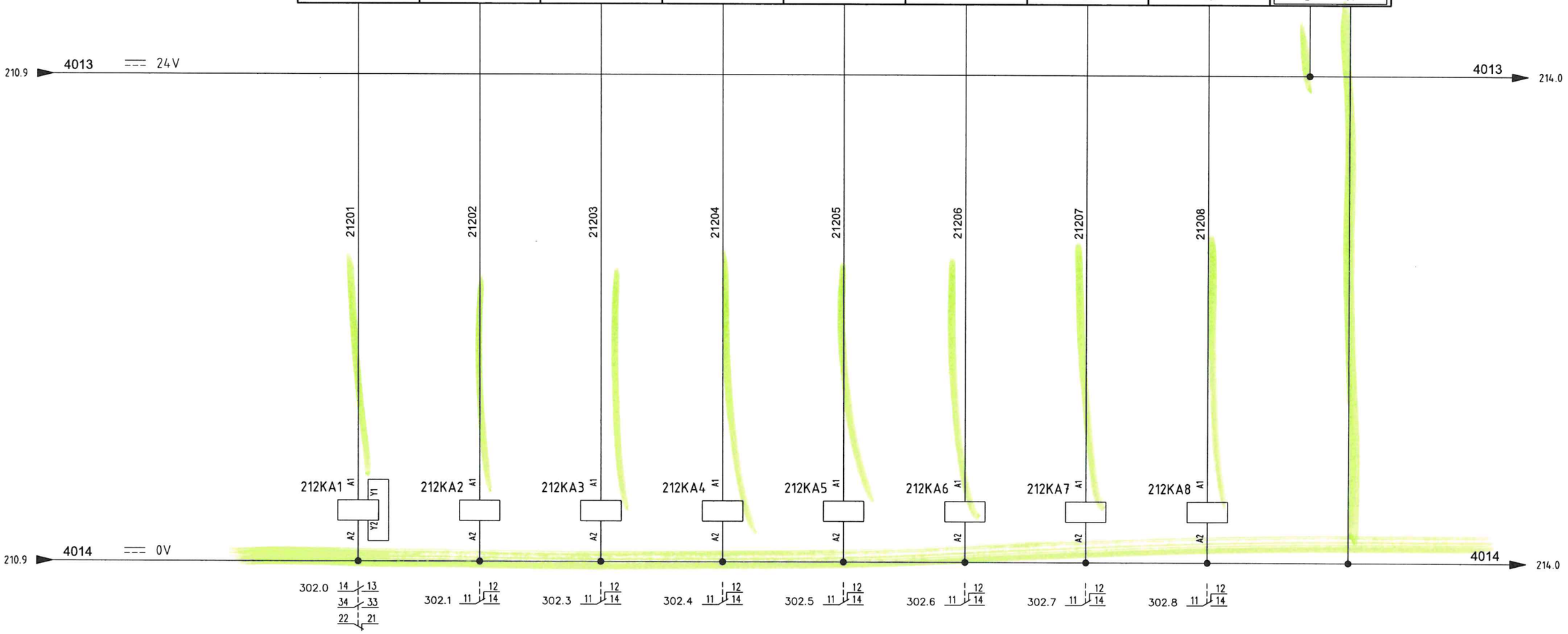
SHEET 210

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

FAULT	FRESH WATER FROM A-50007A/B VALVE COMMAND	FRESH WATER DRAIN FROM A-50007A/B VALVE COMMAND	BRINE FROM A-50007A VALVE COMMAND	FRESH WATER OUTLET VALVE COMMAND	SPARE	SPARE	SPARE	
Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5	Name: 160DO1 Sheet: 160.5
CPU RACK 1 MOD. 9 50-XA-003	CPU RACK 1 MOD. 9 50-XY-025	CPU RACK 1 MOD. 9 50-XY-026	CPU RACK 1 MOD. 9 50-XY-027	CPU RACK 1 MOD. 9 50-X-031	CPU RACK 1 MOD. 9 SPARE	CPU RACK 1 MOD. 9 SPARE	CPU RACK 1 MOD. 9 SPARE	CPU RACK 1 MOD. 9
Q1.0	Q1.1	Q1.2	Q1.3	Q1.4	Q1.5	Q1.6	Q1.7	
9	10	11	12	13	14	15	16	L+ M



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 9

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 212

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

P-50003B FLUSHING VALVE COMMAND		P-50003B SUCTION VALVE COMMAND		SW BOOSTER PUMP START/STOP COMMAND		BACKWASH PUMP START/STOP COMMAND		HP PUMP START/STOP COMMAND		CAUSTIC SODA DOSING PUMP START/STOP COMMAND		ANTISCALANT DOSING PUMP START/STOP COMMAND		NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP COMMAND	
Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5	Name: 160DO2	Sheet: 160.5
CPU RACK 1 MOD. 10 50-XY-024		CPU RACK 1 MOD. 10 50-XY-022		CPU RACK 1 MOD. 10 50-HS-P50003B		CPU RACK 1 MOD. 10 50-HS-P50002A		CPU RACK 1 MOD. 10 50-HS-P50004A		CPU RACK 1 MOD. 10 50-HS-P50005A		CPU RACK 1 MOD. 10 50-HS-P50006A		CPU RACK 1 MOD. 10 50-HS-P50007A	
Q2.0		Q2.1		Q2.2		Q2.3		Q2.4		Q2.5		Q2.6		Q2.7	
1		2		3		4		5		6		7		8	

212.9 4013 ⎓ 24V — 4013 216.0

21401 21402 21403 21404 21405 21406 21407 21408

214KA1 214KA2 214KA3 214KA4 214KA5 214KA6 214KA7 214KA8

212.9 4014 ⎓ 0V — 4014 216.0

304.0 304.1 304.3 304.4 304.5 304.6 304.7 304.8

02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 10

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 214

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE START/STOP COMMAND	FRESH WATER PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK START/STOP COMMAND	CONTAINER ELECTRICAL HEATER START/STOP COMMAND	CONTAINER AIR FAN START/STOP COMMAND	FRESH WATER OFF-SPEC VALVE COMMAND	SPARE	SPARE	
Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5	Name: 160DO2 Sheet: 160.5
CPU RACK 1 MOD. 10 50-HS-P50008A	CPU RACK 1 MOD. 10 50-HS-P50009A	CPU RACK 1 MOD. 10 50-HS-P50010A	CPU RACK 1 MOD. 10 50-HS-HHS50003A	CPU RACK 1 MOD. 10 50-HS-HFA50001A	CPU RACK 1 MOD. 10 50-XY-032	CPU RACK 1 MOD. 10 SPARE	CPU RACK 1 MOD. 10 SPARE	CPU RACK 1 MOD. 10
Q3.0	Q3.1	Q3.2	Q3.3	Q3.4	Q3.5	Q3.6	Q3.7	L+ M
9	10	11	12	13	14	15	16	DO NOT CONNECT

214.9 4013 ⎓ 24V — 4013 218.0

21601 21602 21603 21604 21605 21606 21607 21608

216KA1 216KA2 216KA3 216KA4 216KA5 216KA6 216KA7 216KA8 (A1 / A2)

214.9 4014 ⎓ 0V — 4014 218.0

306.0 306.1 306.3 306.4 306.5 306.6 306.7 306.8 (11 / 12 / 14)

02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)		
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 10 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 216

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

SPARE	SPARE	BRINE FROM A-50007B VALVE COMMAND	BACKWASH PUMP START/STOP COMMAND	HP PUMP START/STOP COMMAND	CAUSTIC SODA DOSING PUMP START/STOP COMMAND	ANTISCALANT DOSING PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP COMMAND
Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5
CPU RACK 1 MOD. 11 SPARE	CPU RACK 1 MOD. 11 SPARE	CPU RACK 1 MOD. 11 50-XY-030	CPU RACK 1 MOD. 11 50-HS-P50002B	CPU RACK 1 MOD. 11 50-HS-P50004B	CPU RACK 1 MOD. 11 50-HS-P50005B	CPU RACK 1 MOD. 11 50-HS-P50006B	CPU RACK 1 MOD. 11 50-HS-P50007B
Q4.0	Q4.1	Q4.2	Q4.3	Q4.4	Q4.5	Q4.6	Q4.7
1	2	3	4	5	6	7	8

216.9 4013 ⎓ 24V 4013 220.0

21801 21802 21803 21804 21805 21806 21807 21808

218KA1 218KA2 218KA3 218KA4 218KA5 218KA6 218KA7 218KA8

A1 A2

216.9 4014 ⎓ 0V 4014 220.0

308.0 308.1 308.3 308.4 308.5 308.6 308.7 308.8

11 12 14

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 11 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 218

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE START/STOP COMMAND	FRESH WATER PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK START/STOP COMMAND	CONTAINER ELECTRICAL HEATER START/STOP COMMAND	CONTAINER AIR FAN START/STOP COMMAND	SPARE	SPARE	SPARE	
Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5	Name: 160DO3 Sheet: 160.5
CPU RACK 1 MOD. 11 50-HS-P50008B	CPU RACK 1 MOD. 11 50-HS-P50009B	CPU RACK 1 MOD. 11 50-HS-P50010B	CPU RACK 1 MOD. 11 50-HS-HHS50003B	CPU RACK 1 MOD. 11 50-HS-HFA50001B	CPU RACK 1 MOD. 11 SPARE	CPU RACK 1 MOD. 11 SPARE	CPU RACK 1 MOD. 11 SPARE	CPU RACK 1 MOD. 11
Q5.0	Q5.1	Q5.2	Q5.3	Q5.4	Q5.5	Q5.6	Q5.7	L+ M
9	10	11	12	13	14	15	16	DO NOT CONNECT

218.9 4013 ⎓ 24V — 4013 222.0

22001 22002 22003 22004 22005 22006 22007 22008

220KA1 220KA2 220KA3 220KA4 220KA5 220KA6 220KA7 220KA8

218.9 4014 ⎓ 0V — 4014 222.0

310.0 310.1 310.3 310.4 310.5 310.6 310.7 310.8

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND — ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH) PACKAGE WIRING DIAGRAM LCP WIRING DIGITAL OUTPUT RACK 1 SLOT 11 (3)

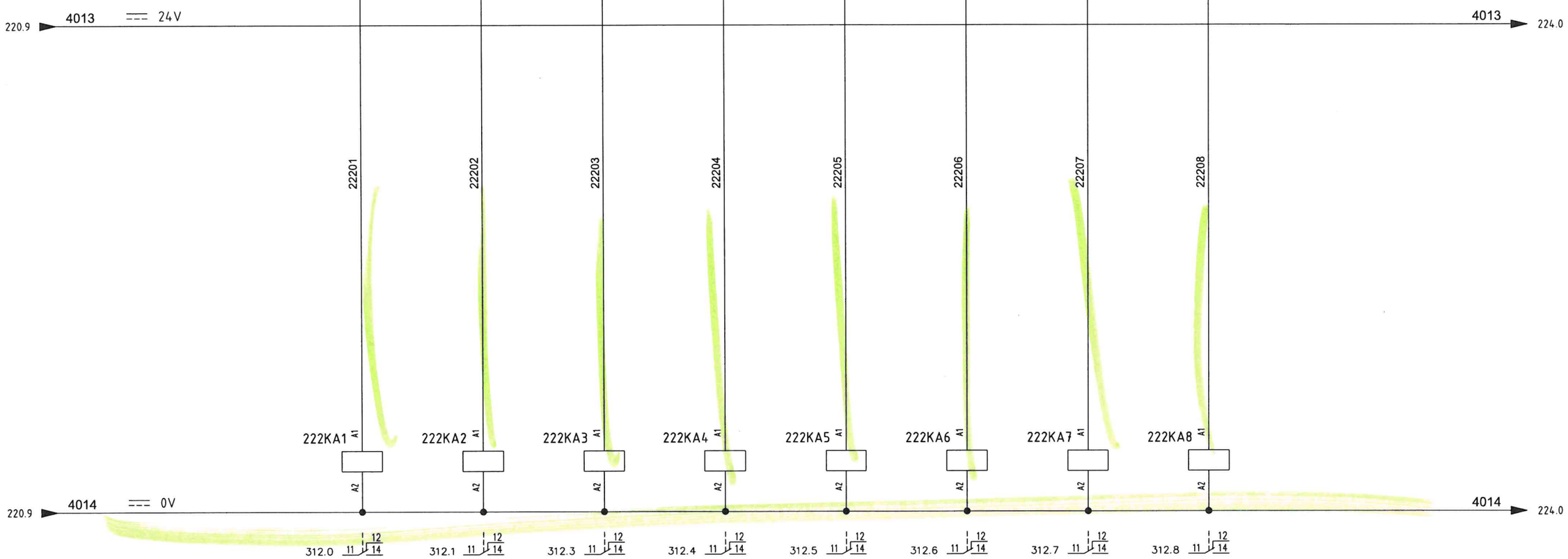
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 220 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

CONTAINER ELECTRICAL HEATER START/STOP COMMAND		CONTAINER ELECTRICAL HEATER START/STOP COMMAND		CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND		CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND		CONTAINER AIR FAN START/STOP COMMAND		SPARE		SPARE		SPARE	
Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5	Name: 160DO4	Sheet: 160.5
CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12		CPU RACK 1 MOD. 12	
50-HS-HHS50003B1		50-HS-HHS50003B2		50-HS-HHS50003A3		50-HS-HHS50003B3		50-HS-HFA50001C		SPARE		SPARE		SPARE	
Q6.0		Q6.1		Q6.2		Q6.3		Q6.4		Q6.5		Q6.6		Q6.7	
1		2		3		4		5		6		7		8	



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING DIGITAL OUTPUT RACK 1 SLOT 12

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 222

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

SEAWATER DRAIN FROM H-50001 VALVE COMMAND	SEAWATER DRAIN FROM T-50006 VALVE COMMAND	FRESH WATER DRAIN FROM T-50008 VALVE COMMAND	FRESH WATER ANALYZER COMMAND	SPARE	SPARE	SPARE	SPARE	
Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5	Name: 160DO4 Sheet: 160.5
CPU RACK 1 MOD. 12 50-XY-033	CPU RACK 1 MOD. 12 50-XY-034	CPU RACK 1 MOD. 12 50-XY-035	CPU RACK 1 MOD. 12 50-HS-026	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12 SPARE	CPU RACK 1 MOD. 12
Q7.0	Q7.1	Q7.2	Q7.3	Q7.4	Q7.5	Q7.6	Q7.7	
9	10	11	12	13	14	15	16	L+ M

DO NOT CONNECT

222.9 4013 ⎓ 24V 4013 //

22401 22402 22403 22404 22405 22406 22407 22408

224KA1 224KA2 224KA3 224KA4 224KA5 224KA6 224KA7 224KA8

222.9 4014 ⎓ 0V 4014 //

314.0 314.1 314.3 314.4 314.5 314.6 314.7 314.8

								TITLE :	BASE LOAD POWER HUB (BLPH) PACKAGE WIRING DIAGRAM LCP WIRING DIGITAL OUTPUT RACK 1 SLOT 12
								CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE : --
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)	A3	DRAWING NO. 1724000448-IN-DG-00014	SHEET 224	REV. 03
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION				

PSC DOC. REF: PK2885-A-002

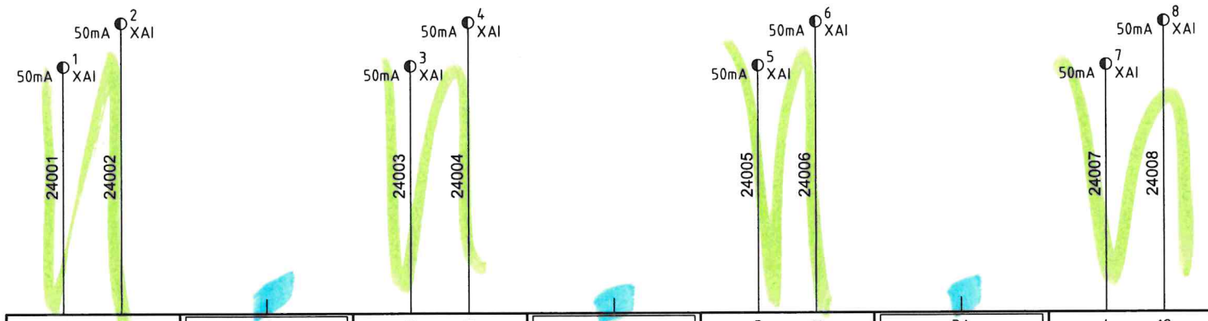
CROSSWIND ROSETTI MARINO

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

40.1 4015 ⎓ 24V → 4015 242.0

40.2 4016 ⎓ 0V → 4016 242.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW64		IW66		IW68		IW70	
CPU RACK 1 MOD. 13 50-AT-023	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-AT-024	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-FT-020	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-PT-020	CPU RACK 1 MOD. 13
Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6
FILTERED SEAWATER CONDUCTIVITY TO P-50003A/B		FRESH WATER CONDUCIVITY FROM A-50007A		SEAWATER FLOW TO S-50001		SEAWATER INLET PRESSURE	

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 13

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3 DRAWING NO. 1724000448-IN-DG-00014

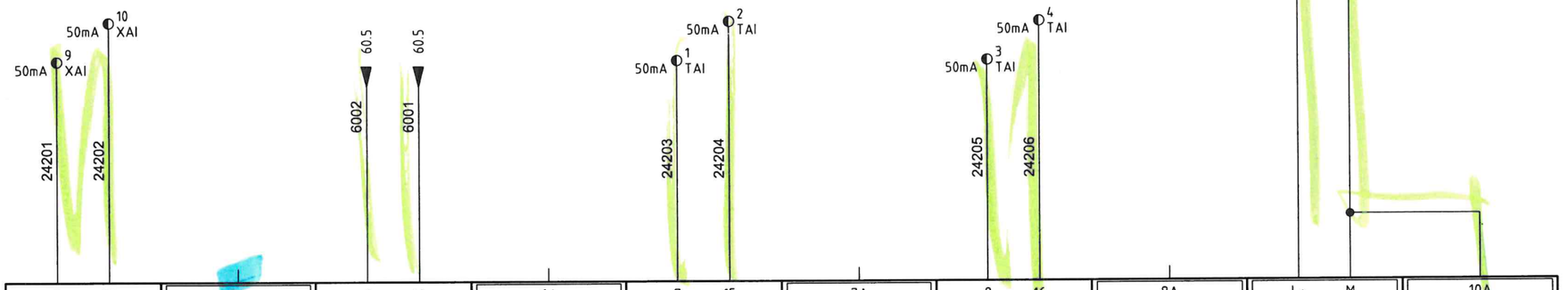
SHEET 240 REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

240.9 4015 ⎓ 24V → 4015 244.0

240.9 4016 ⎓ 0V → 4016 244.0



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW72		IW74		IW76		IW78			
CPU RACK 1 MOD. 13 50-FT-026	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 50-SI-P50004A	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 SPARE	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13 SPARE	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13	CPU RACK 1 MOD. 13
Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6	Name: 160AI1 Sheet: 160.6
FRESH WATER OUTLET FLOW		HP PUMP SPEED FEEDBACK		SPARE		SPARE			

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 13 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

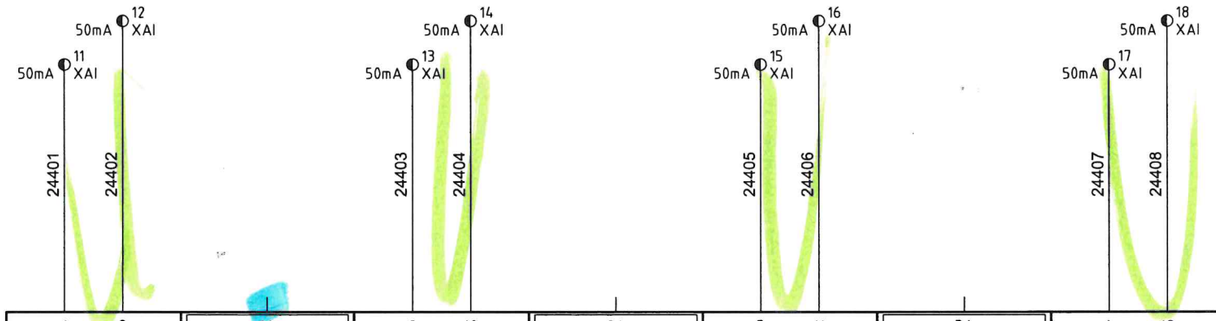
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 242 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

242.9 4015 ⎓ 24V → 4015 246.0

242.9 4016 ⎓ 0V → 4016 246.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW80		IW82		IW84		IW86	
CPU RACK 1 MOD. 14 50-FT-022	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 50-PT-025	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 50-PT-026	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 50-PT-030	CPU RACK 1 MOD. 14
Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6
FILTERED SEAWATER FLOW FROM P-50003A		FILTERED SEAWATER PRESSURE FROM P-50003A		FILTERED SEAWATER PRESSURE TO P-50004A		FILTERED SEAWATER PRESSURE FROM P-50004A	

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 14 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

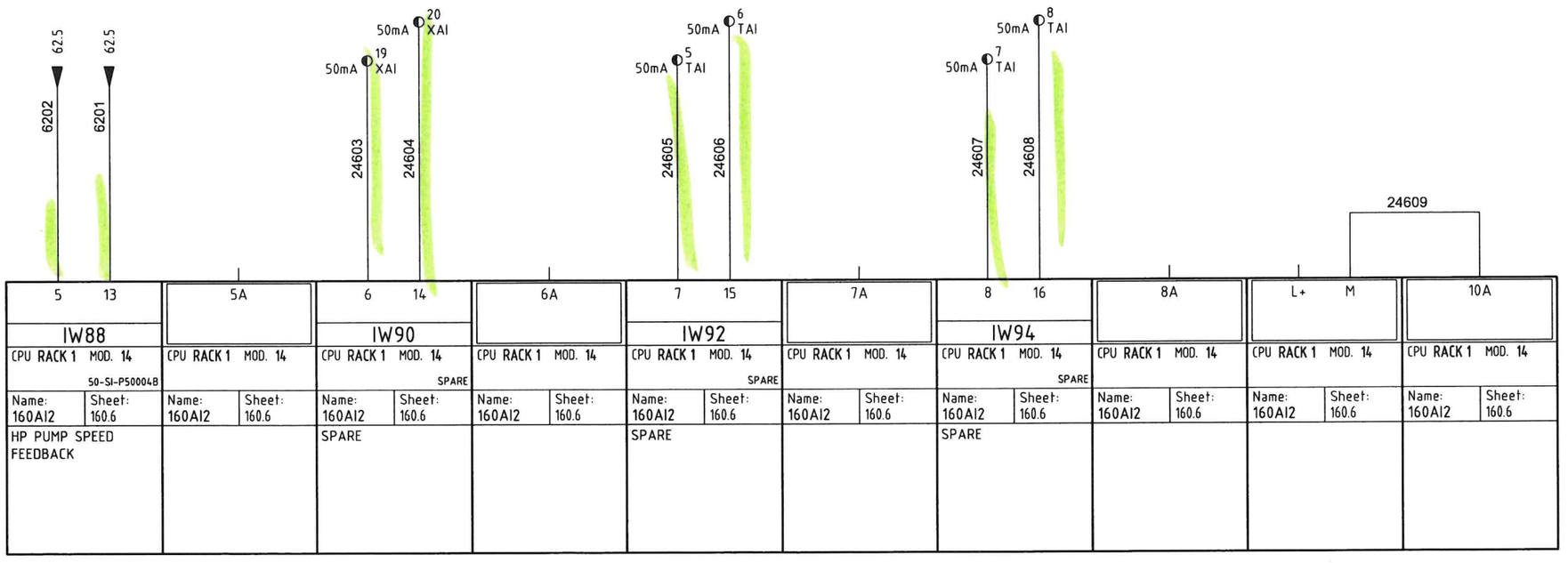
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 244 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

244.9 4015 ⎓ 24V → 4015 248.0

244.9 4016 ⎓ 0V → 4016 248.0



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW88		IW90		IW92		IW94			
CPU RACK 1 MOD. 14 50-SI-P50004B	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 SPARE	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 SPARE	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14 SPARE	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14	CPU RACK 1 MOD. 14
Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6	Name: 160AI2 Sheet: 160.6
HP PUMP SPEED FEEDBACK		SPARE		SPARE		SPARE			

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 14 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

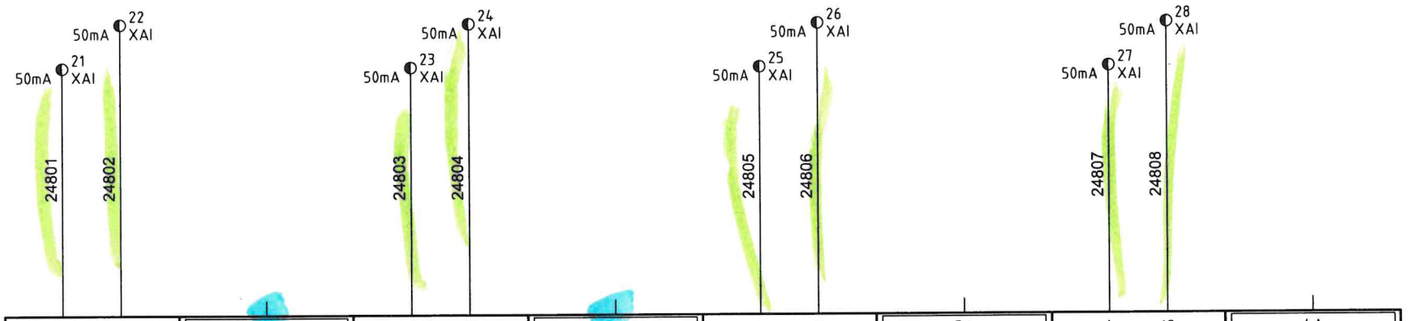
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 246 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

246.9 4015 ⎓ 24V → 4015 250.0

246.9 4016 ⎓ 0V → 4016 250.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW96		IW98		IW100		IW102	
CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15
50-FT-023		50-FT-024		50-PT-027		50-PT-028	
Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6
FILTERED SEAWATER FLOW FROM P-50003B		FRESH WATER FLOW FROM A-50007A/B		FILTERED SEAWATER PRESSURE FROM P-50003B		FILTERED SEAWATER PRESSURE TO P-50004B	

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 15

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1.724000448-IN-DG-00014

SHEET 248

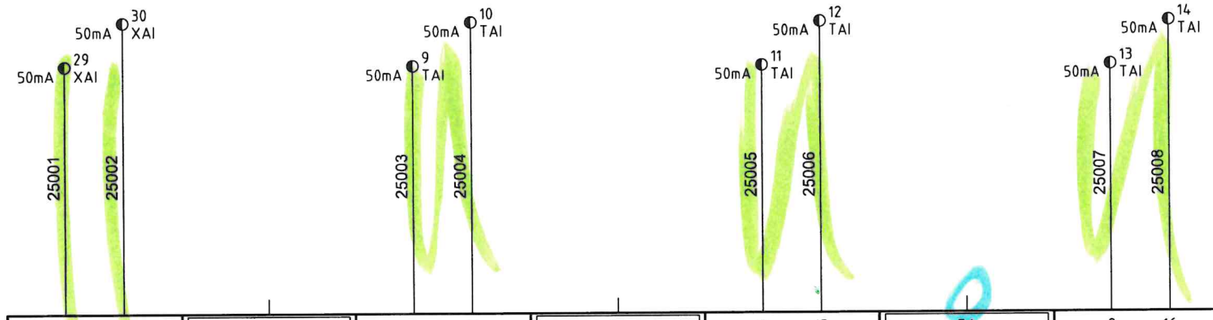
REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

248.9 4015 ⎓ 24V → 4015 252.0

248.9 4016 ⎓ 0V → 4016 252.0



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW104		IW106		IW108		IW110			
CPU RACK 1 MOD. 15 50-PT-032	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15 SPARE	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15 SPARE	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15 SPARE	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15	CPU RACK 1 MOD. 15
Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6	Name: 160AI3 Sheet: 160.6
FILTERED SEAWATER PRESSURE FROM P-50004B		SPARE		SPARE		SPARE			

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM I.C.P.
WIRING ANALOG INPUT RACK 1 SLOT 15

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 250

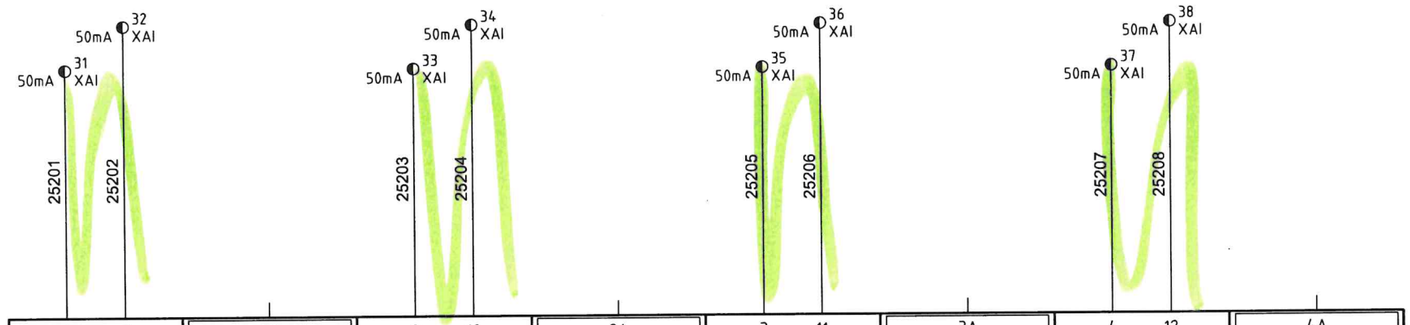
REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

250.9 4015 ⎓ 24V → 4015 254.0

250.9 4016 ⎓ 0V → 4016 254.0



1	9	1A	2	10	2A	3	11	3A	4	12	4A
IW112			IW114			IW116			IW118		
CPU RACK 1 MOD. 16 50-TT-021		CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-020		CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-021		CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-022		CPU RACK 1 MOD. 16
Name: 160AI4	Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4	Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4	Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4	Sheet: 160.6	Name: 160AI4 Sheet: 160.6
SEAWATER TEMPERATURE FROM H-50001			T-50006 LEVEL			T-50008 LEVEL			T-50002 LEVEL		

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 16 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 252

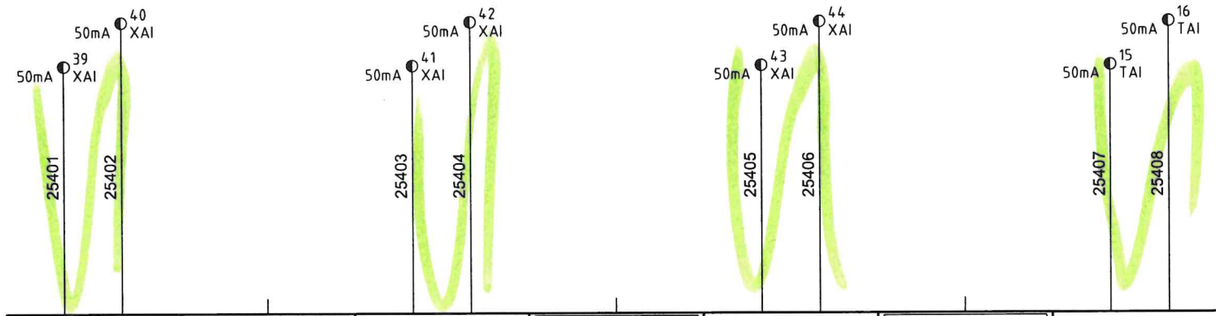
REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

252.9 4015 ⎓ 24V → 4015 256.0

252.9 4016 ⎓ 0V → 4016 256.0



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW120		IW122		IW124		IW126			
CPU RACK 1 MOD. 16 50-LT-023	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-LT-024	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 50-PT-050	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16 SPARE	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16	CPU RACK 1 MOD. 16
Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6	Name: 160AI4 Sheet: 160.6
T-50003 LEVEL		T-50004 LEVEL		PRESSURE INLET S-50001 3		SPARE			

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 16 3

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3 DRAWING NO. 1724000448-IN-DG-00014

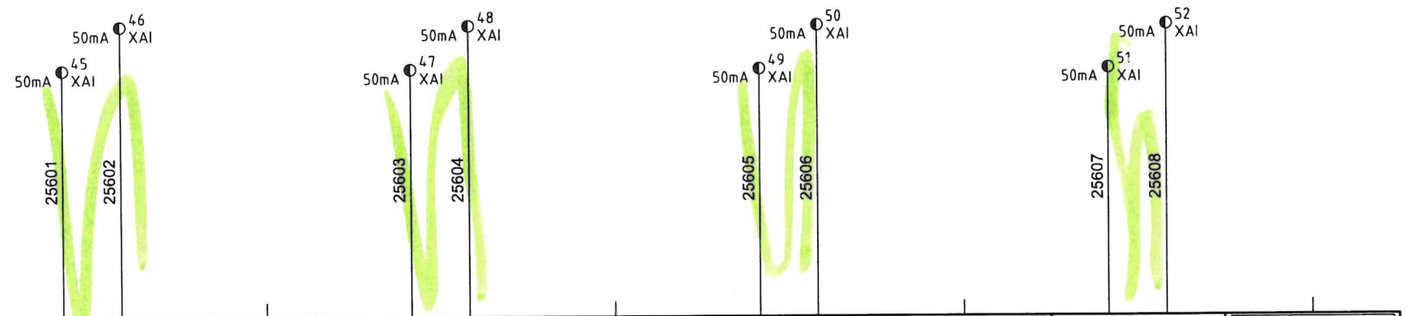
SHEET 254 REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

254.9 4015 ⎓ 24V → 4015 258.0

254.9 4016 ⎓ 0V → 4016 258.0



1 9	1A	2 10	2A	3 11	3A	4 12	4A
IW128		IW130		IW132		IW134	
CPU RACK 1 MOD. 17 50-TT-022	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-PT-041	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-TT-024	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-AT-026	CPU RACK 1 MOD. 17
Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7
SEAWATER TEMPERATURE FROM H-50001		FRESH WATER OUTLET PRESSURE		FRESH WATER OUTLET TEMPERATURE		FRESH WATER OUTLET TOTAL HARDNESS	

PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 17 (3)

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : --

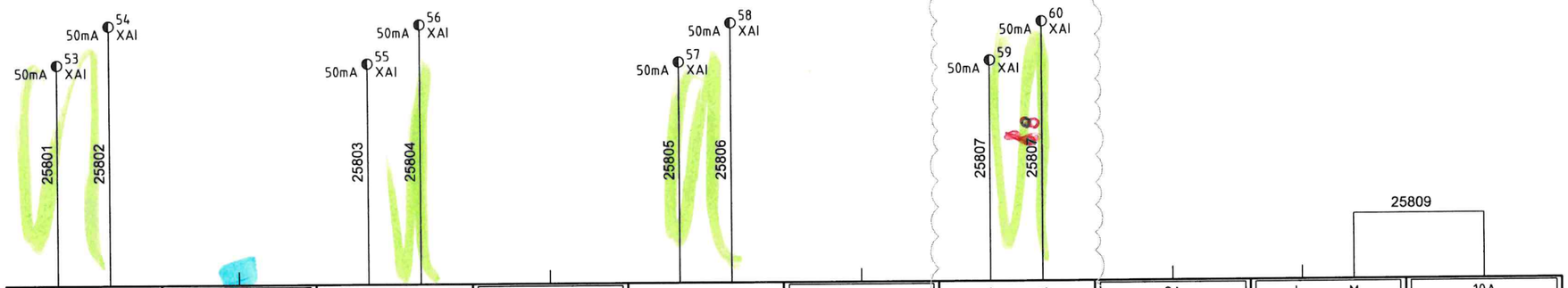
A3 | DRAWING NO. 1724000448-IN-DG-00014 | SHEET 256 | REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

256.9 4015 ⎓ 24V → 4015 /.

256.9 4016 ⎓ 0V → 4016 /.



5 13	5A	6 14	6A	7 15	7A	8 16	8A	L+ M	10A
IW136		IW138		IW140		IW142			
CPU RACK 1 MOD. 17 50-AT-027	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-TT-023	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-PT-047	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17 50-PT-051	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17	CPU RACK 1 MOD. 17
Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7	Name: 160AI5 Sheet: 160.7
FRESH WATER OUTLET PH		AMBIENT AIT TEMPERATURE INSIDE CONTAINER		SOFTENING FILTER INLET PRESSURE		PRESSURE OUTLET S-50001			

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG INPUT RACK 1 SLOT 17

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

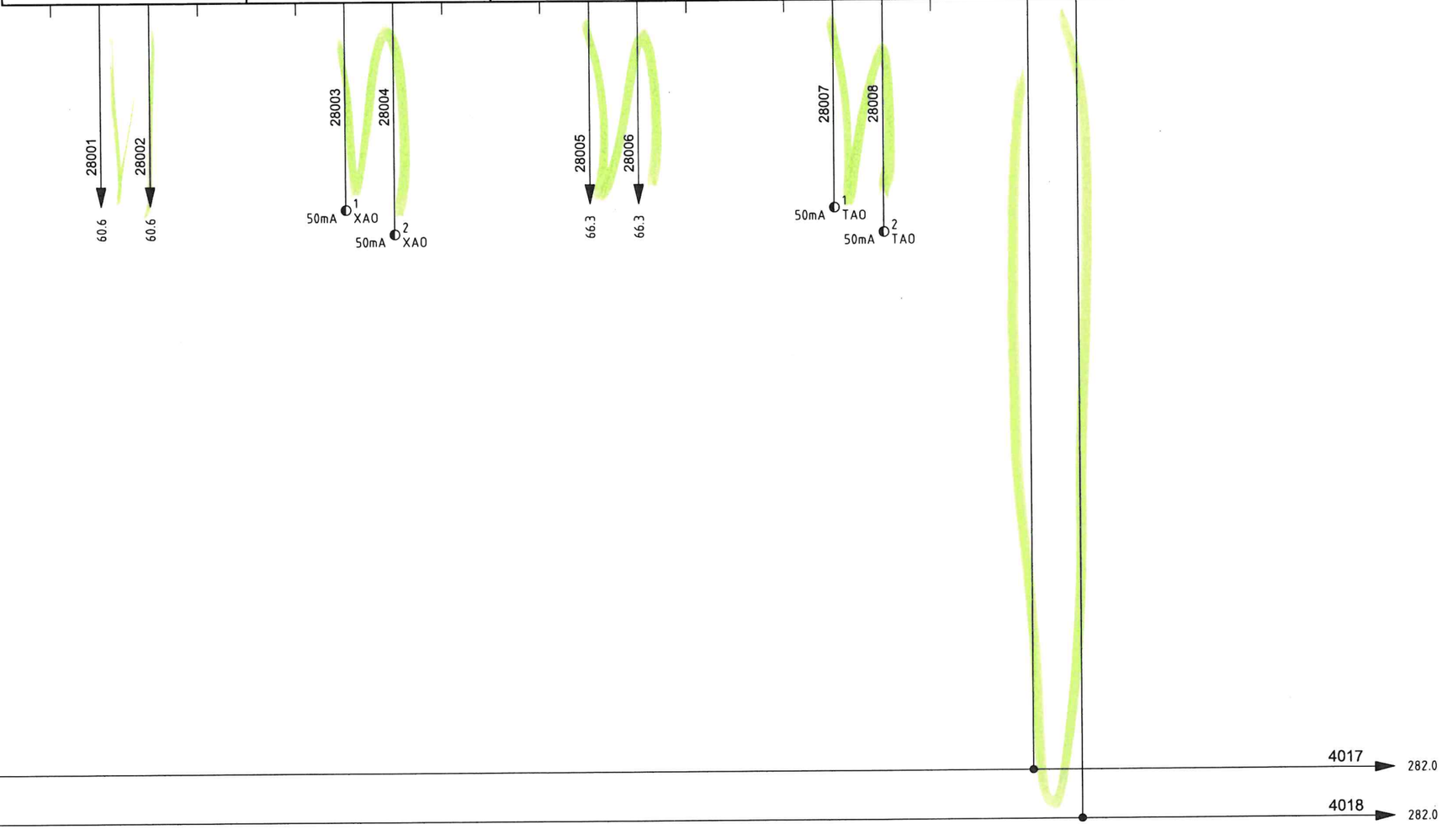
SHEET 258

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

HP PUMP SPEED CONTROL	CAUSTIC SODA DOSING PUMP CONTROL	SEAWATER TEMPERATURE FROM H-50001	SPARE	
Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7	Name: 160AO1 / Sheet: 160.7
CPU RACK 1 MOD. 18	CPU RACK 1 MOD. 18	CPU RACK 1 MOD. 18	CPU RACK 1 MOD. 18	CPU RACK 1 MOD. 18
50-SY-P50004A	50-ZY-P50005A	50-TZ-021	SPARE	
QW64	QW66	QW68	QW70	
9 1 5 13	10 2 6 14	11 3 7 15	12 4 8 16	L+ M



40.2 4017 ⎓ 24V

40.3 4018 ⎓ 0V

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG OUTPUT RACK 1 SLOT 18

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 280

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

HP PUMP SPEED CONTROL	CAUSTIC SODA DOSING PUMP CONTROL	SPARE	SPARE	
Name: 160AO2 / Sheet: 160.7	Name: 160AO2 / Sheet: 160.7	Name: 160AO2 / Sheet: 160.7	Name: 160AO2 / Sheet: 160.7	Name: 160AO2 / Sheet: 160.7
CPU RACK 1 MOD. 19	CPU RACK 1 MOD. 19	CPU RACK 1 MOD. 19	CPU RACK 1 MOD. 19	CPU RACK 1 MOD. 19
50-SY-P50004B	50-ZY-P50005B	SPARE	SPARE	
QW72	QW74	QW76	QW78	
9 1 5 13	10 2 6 14	11 3 7 15	12 4 8 16	L+ M

28201 — 62.6

28202 — 62.6

28203 — 50mA — 3 XAO

28204 — 50mA — 4 XAO

28205 — 50mA — 3 TAO

28206 — 50mA — 4 TAO

28207 — 50mA — 5 TAO

28208 — 50mA — 6 TAO

280.9 4017 ⎓ 24V → 4017 //

280.9 4018 ⎓ 0V → 4018 //

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
WIRING ANALOG OUTPUT RACK 1 SLOT 19

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

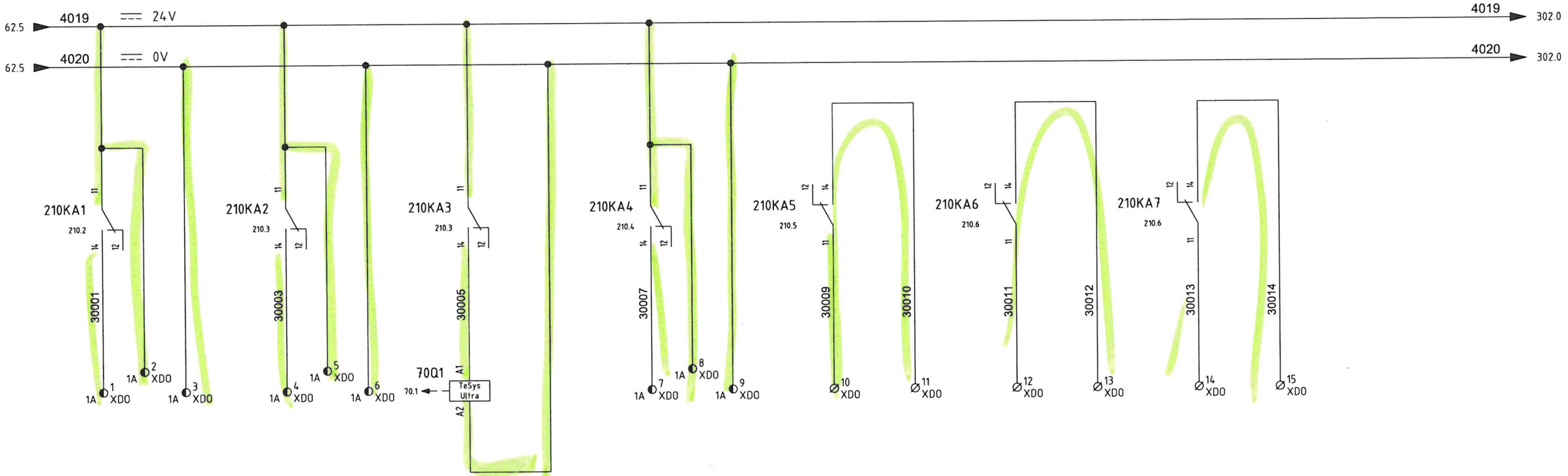
SHEET 282

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XY-021	50-XY-023	50-HS-P50003A	50-XY-020	50-HS-A50003	50-HS-S50001	50-HS-S50004
P-50003A SUCTION VALVE COMMAND	P-50003A FLUSHING VALVE COMMAND	SW BOOSTER PUMP START/STOP COMMAND	SEAWATER INLET VALVE COMMAND	SEAWATER COARSE FILTER REGENERATION COMMAND	SAND FILTER REGENERATION COMMAND	SOFTENING FILTER REGENERATION COMMAND



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

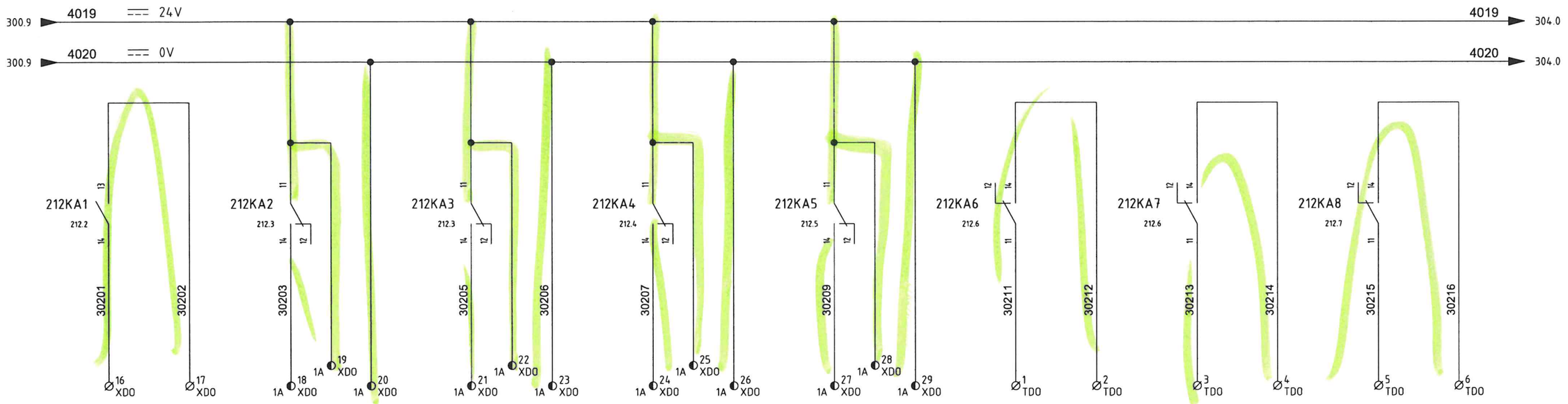
SHEET 300

REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

50-XA-003	50-XY-025	50-XY-026	50-XY-027	50-XY-031	SPARE	SPARE	SPARE
FAULT	*FRESH WATER FROM A-50007A VALVE COMMAND*	*FRESH WATER DRAIN FROM A-50007A VALVE COMMAND*	*BRINE FROM A-50007A VALVE COMMAND*	*FRESH WATER OUTLET VALVE COMMAND*	SPARE	SPARE	SPARE



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

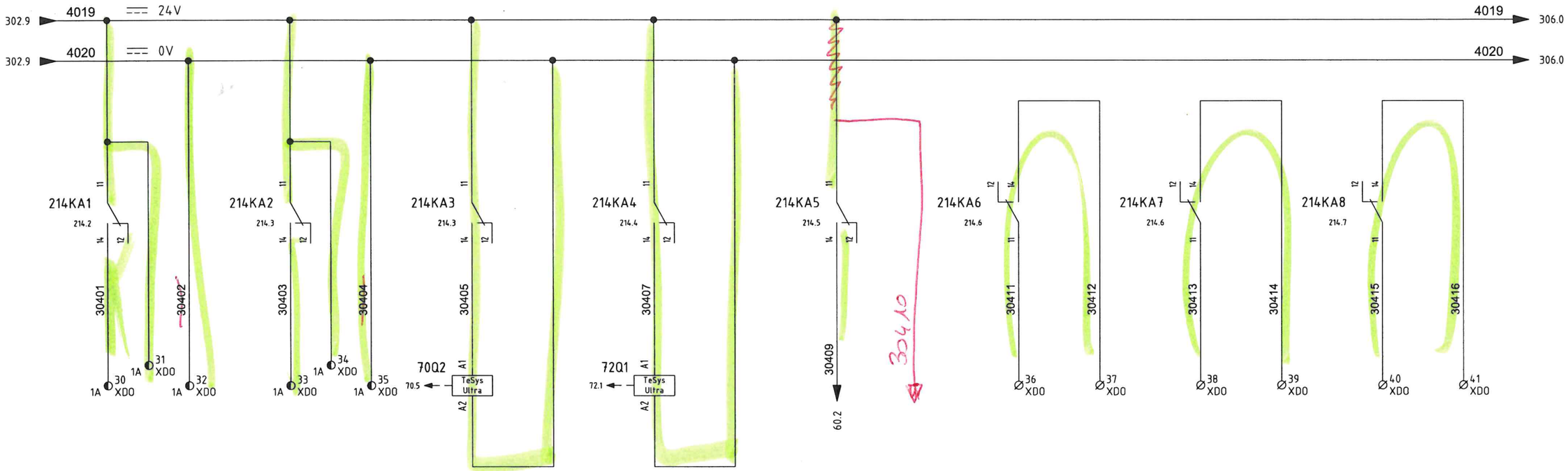
SHEET 302

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

50-XY-024	50-XY-022	50-HS-P50003B	50-HS-P50002A	50-HS-P50004A	50-HS-P50005A	50-HS-P50006A	50-HS-P50007A
P-50003B FLUSHING VALVE COMMAND	P-50003B SUCTION VALVE COMMAND	SW BOOSTER PUMP START/STOP COMMAND	BACKWASH PUMP START/STOP COMMAND	HP PUMP START/STOP COMMAND	CAUSTIC SODA DOSING PUMP START/STOP COMMAND	ANTISCALANT DOSING PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP CMD



PSC DOC. REF: PK2885-A-002

CROSSWIND ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

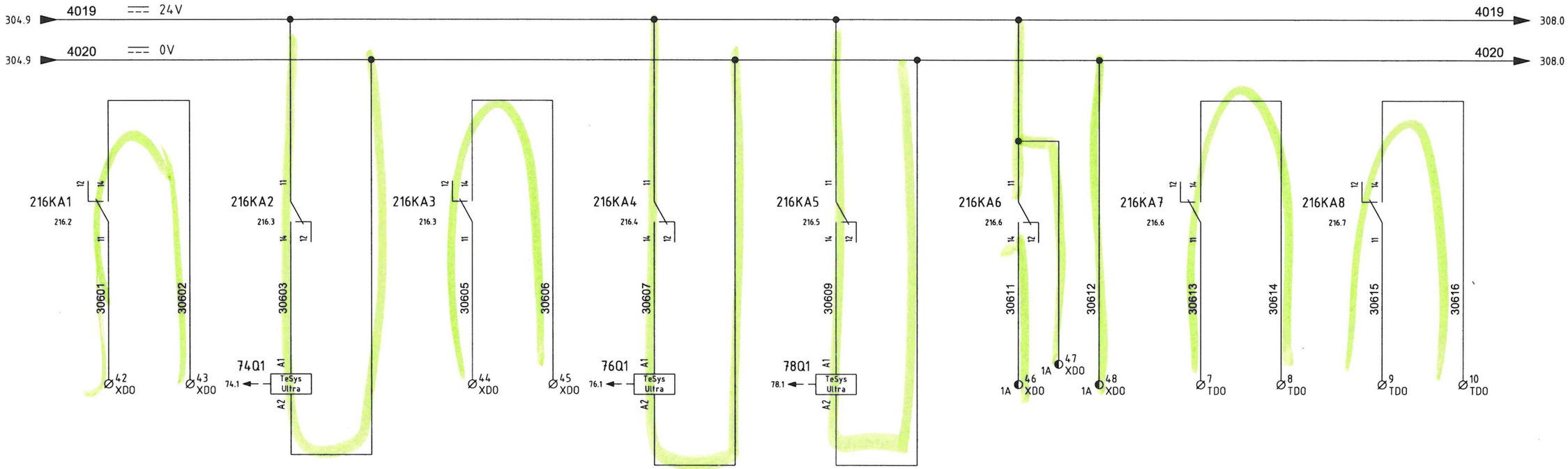
SHEET 304

REV. 00

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

50-HS-P50008A	50-HS-P50009A	50-HS-P50010A	50-HS-HHS50003A	50-HS-HFA50001A	50-XY-032	SPARE	SPARE
NON-OXIDANT BIOCIDE DOSING PUMP - SEA W. INTAKE START/STOP CMD	*FRESH WATER PUMP START/STOP COMMAND*	*NON-OXIDANT BIOCIDE DOSING PUMP - WASTE W. TANK START/STOP CMD*	*CONTAINER ELECTRICAL HEATER START/STOP COMMAND*	*CONTAINER AIR FAN START/STOP COMMAND*	*FRESH WATER OFF-SPEC VALVE COMMAND*	SPARE	SPARE



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

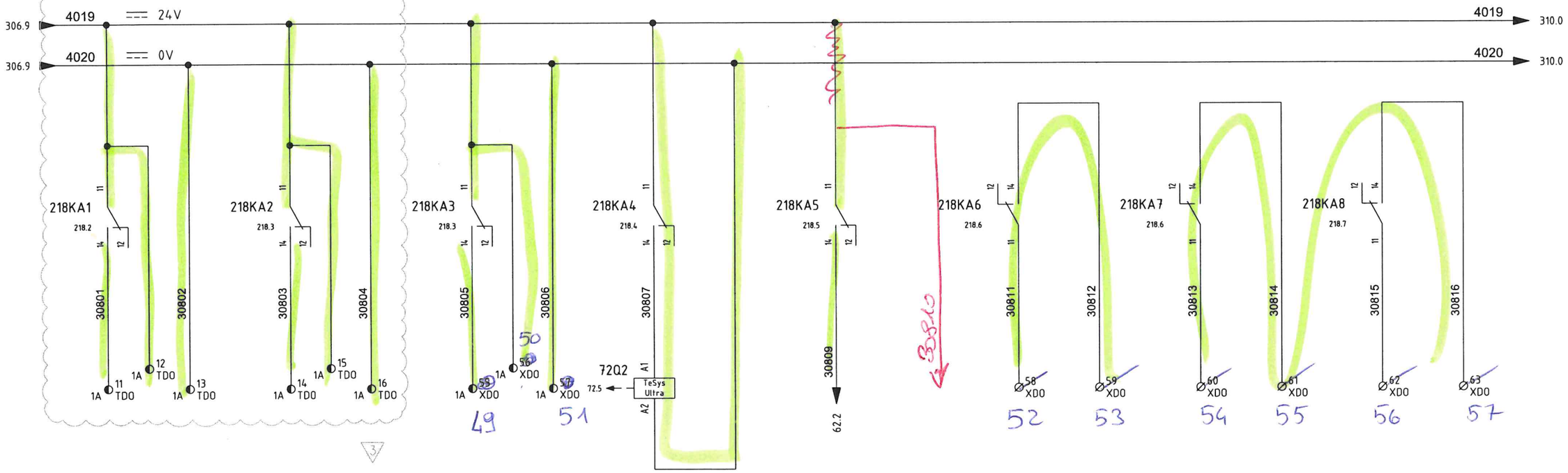
SHEET 306

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

SPARE	SPARE	50-XY-030	50-HS-P50002B	50-HS-P50004B	50-HS-P50005B	50-HS-P50006B	50-HS-P50007B
		BRINE FROM A-50007B VALVE COMMAND	BACKWASH PUMP START/STOP COMMAND	HP PUMP START/STOP COMMAND	CAUSTIC SODA DOSING PUMP START/STOP COMMAND	ANTISCALANT DOSING PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET START/STOP CMD



00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

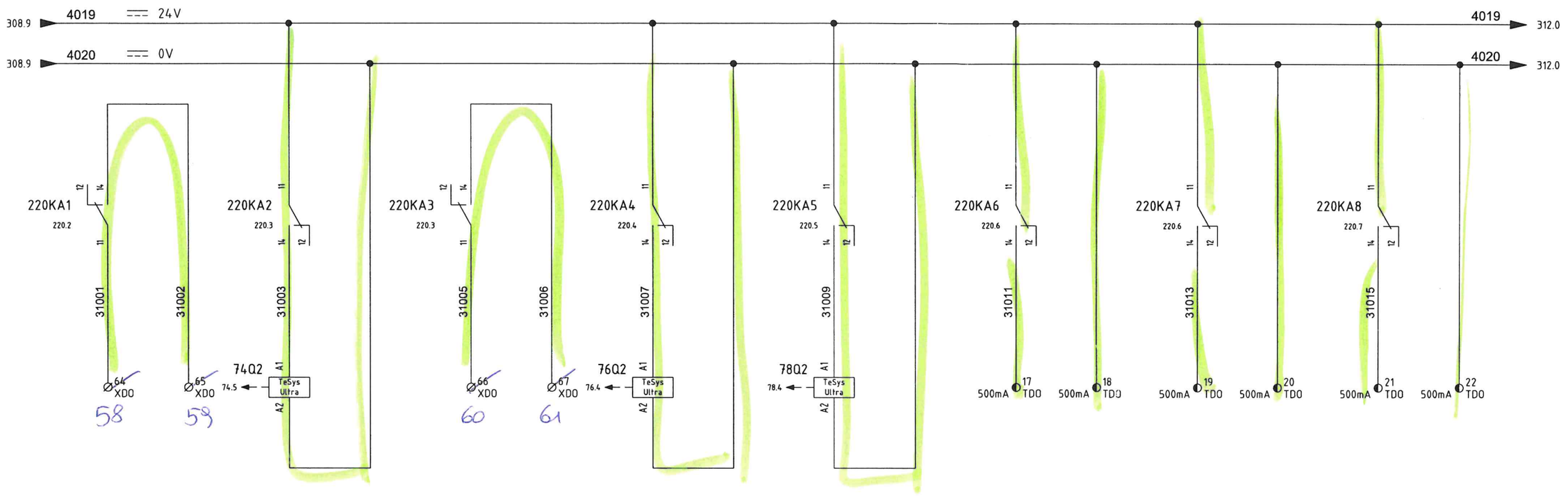
SHEET 308

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

50-HS-P50008B	50-HS-P50009B	50-HS-P50010B	50-HS-HHS50003B	50-HS-HFA50001B	SPARE	SPARE	SPARE
NON-OXIDANT BIOCIDE DOSING PUMP - SEA W. INTAKE START/STOP CMD	FRESH WATER PUMP START/STOP COMMAND	NON-OXIDANT BIOCIDE DOSING PUMP - SEA W. INTAKE START/STOP CMD	CONTAINER ELECTRICAL HEATER START/STOP COMMAND	CONTAINER AIR FAN START/STOP COMMAND	SPARE	SPARE	SPARE



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

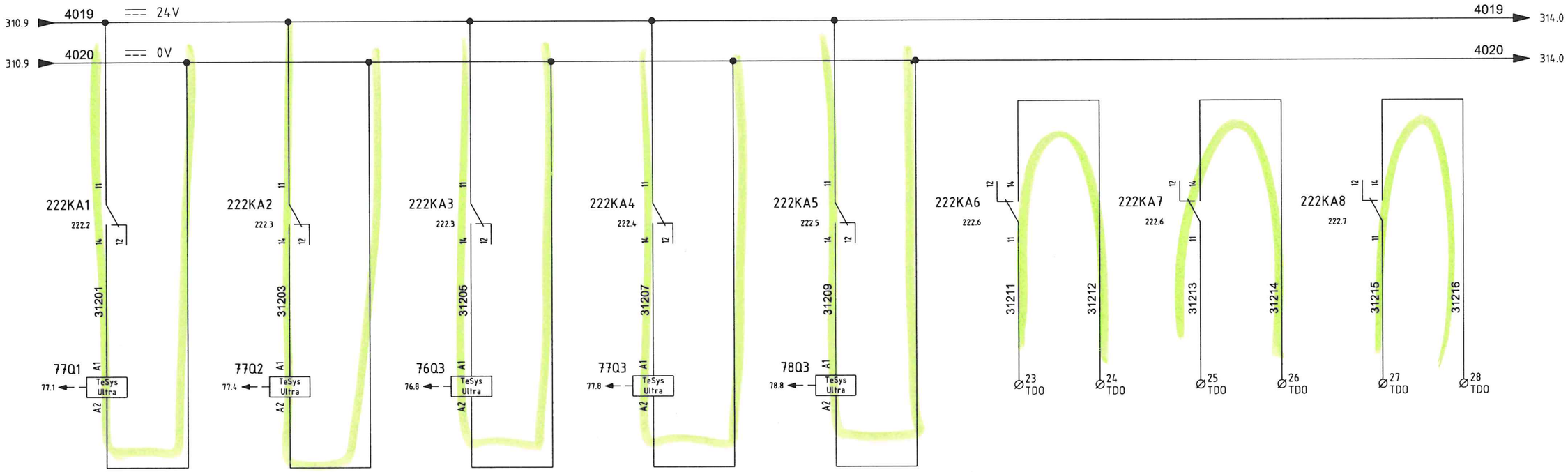
SHEET 310

REV. 02

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-HS-HHS50003B1	50-HS-HHS50003B2	50-HS-HHS50003A3	50-HS-HHS50003B3	50-HS-HFA50001C	SPARE	SPARE	SPARE
CONTAINER ELECTRICAL HEATER START/STOP COMMAND	*CONTAINER ELECTRICAL HEATER START/STOP COMMAND*	*CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND*	*CONTAINER ELECTRICAL HEATER FAN START/STOP COMMAND*	*CONTAINER AIR FAN START/STOP COMMAND*	SPARE	SPARE	SPARE



PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

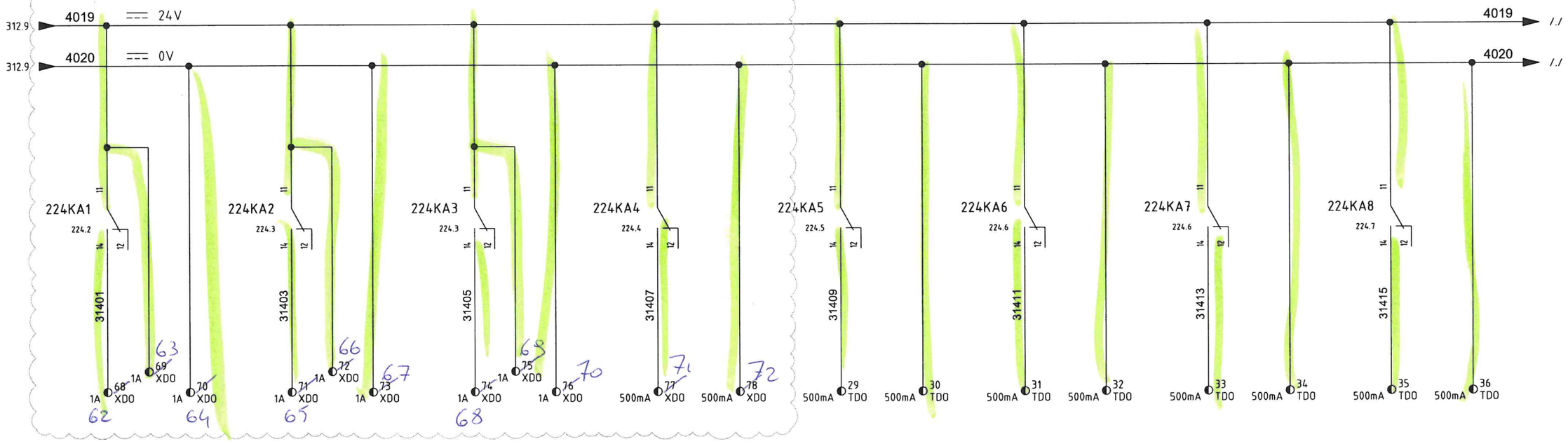
SHEET 312

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_4

50-XY-033	50-XY-034	50-XY-035	50-HS-026	SPARE	SPARE	SPARE	SPARE
SEAWATER DRAIN FROM H-50001 VALVE COMMAND	SEAWATER DRAIN FROM T-50006 VALVE COMMAND	FRESH WATER DRAIN FROM T-50008 VALVE COMMAND	FRESH WATER ANALYZER COMMAND	SPARE	SPARE	SPARE	SPARE



02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)		
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION		

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
AUXILIARY CONTACT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

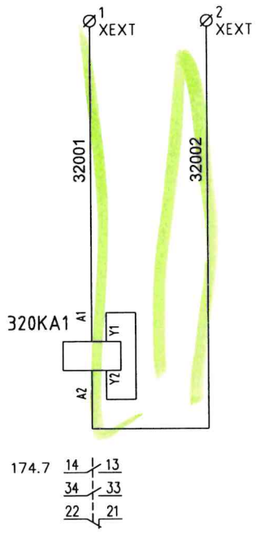
SHEET 314

REV. 03

File Name : PK2885_4

F.to UNI A3: 420mmx297mm

50-XS-001
SHUTDOWN



01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)	
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION	

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
EXTERNAL COMMAND

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

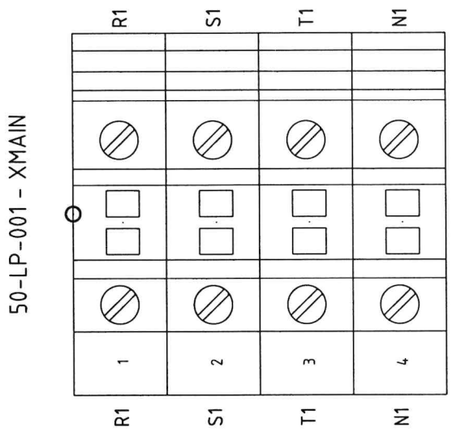
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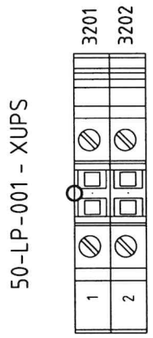
SHEET 320

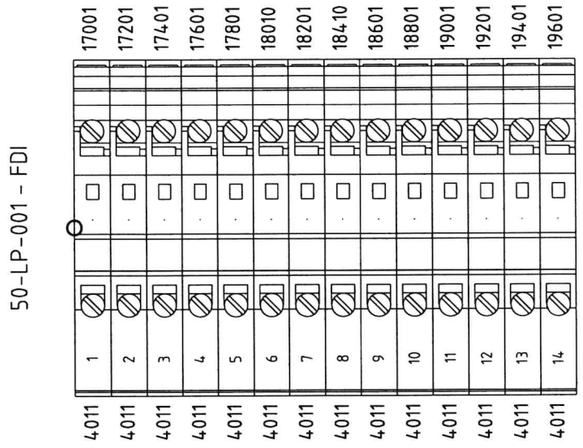
REV. 01

F.to UNI A3: 420mmx297mm

File Name : PK2885_4







Instrument Earth (30x5)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XMAIN - XUPS - FDI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

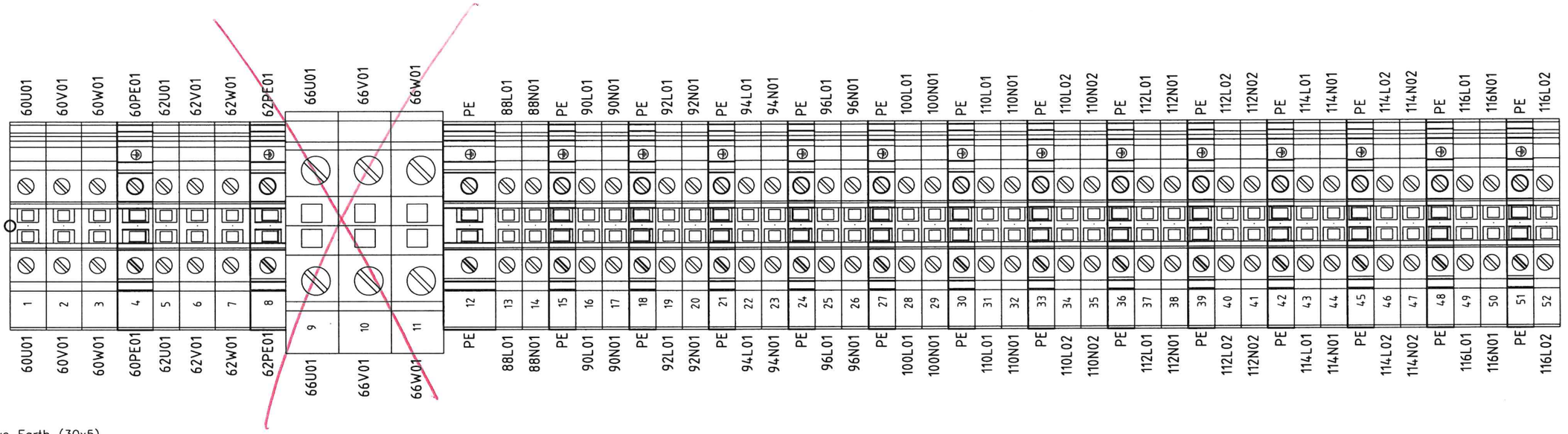
SHEET 400

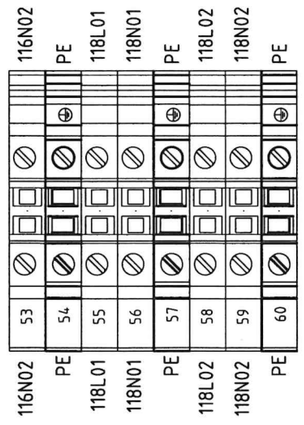
REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XM1





02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XM1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

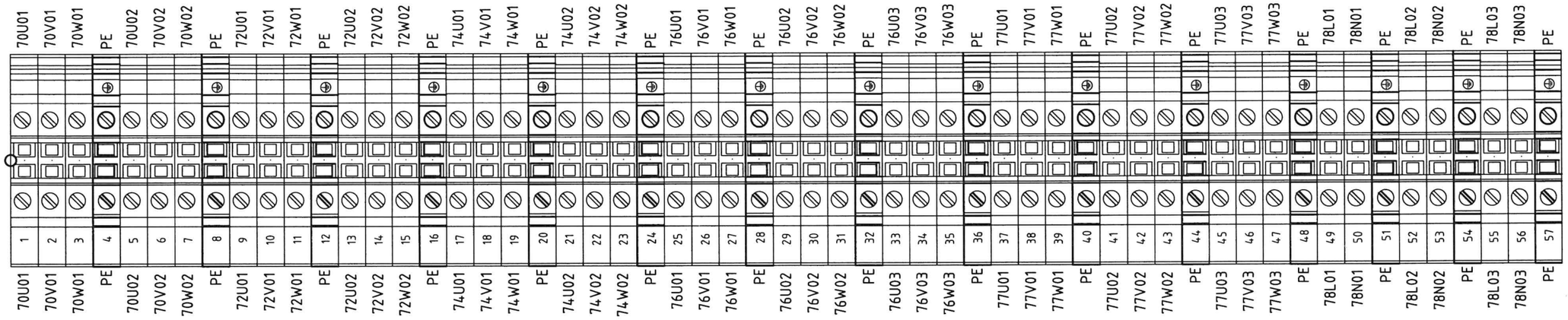
SHEET 402

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XM2



Protective Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XM2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

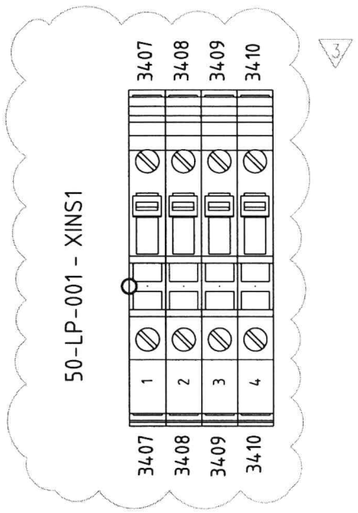
DRAWING NO. 1724000448-IN-DG-00014

SHEET 403

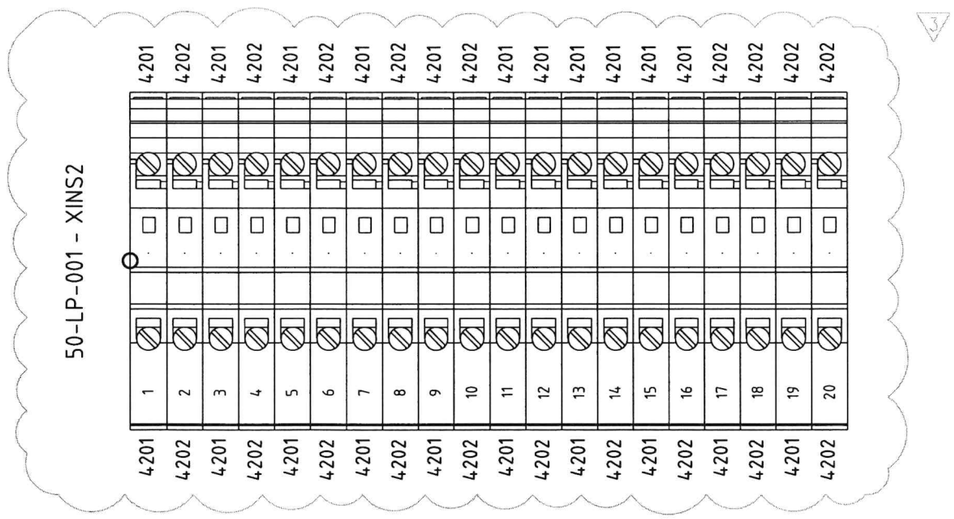
REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_5



Instrument Earth (30x5)



Instrument Earth (30x5)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XINS1 - XINS2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

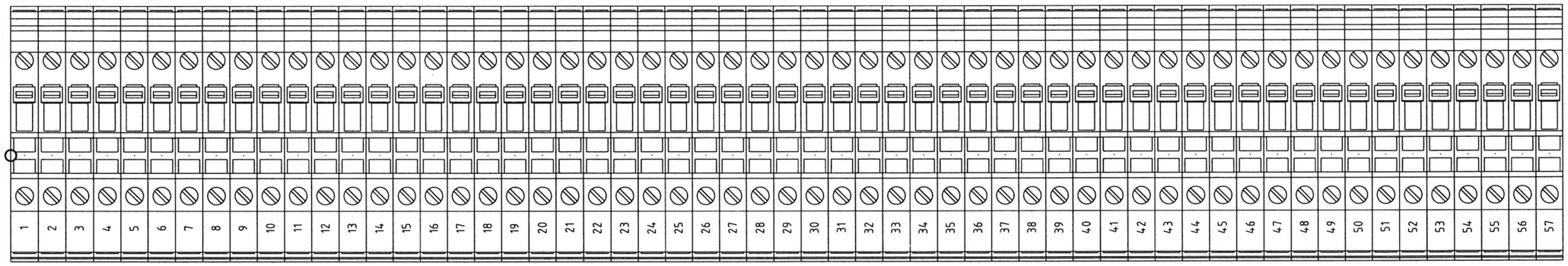
SHEET 404

REV. 03

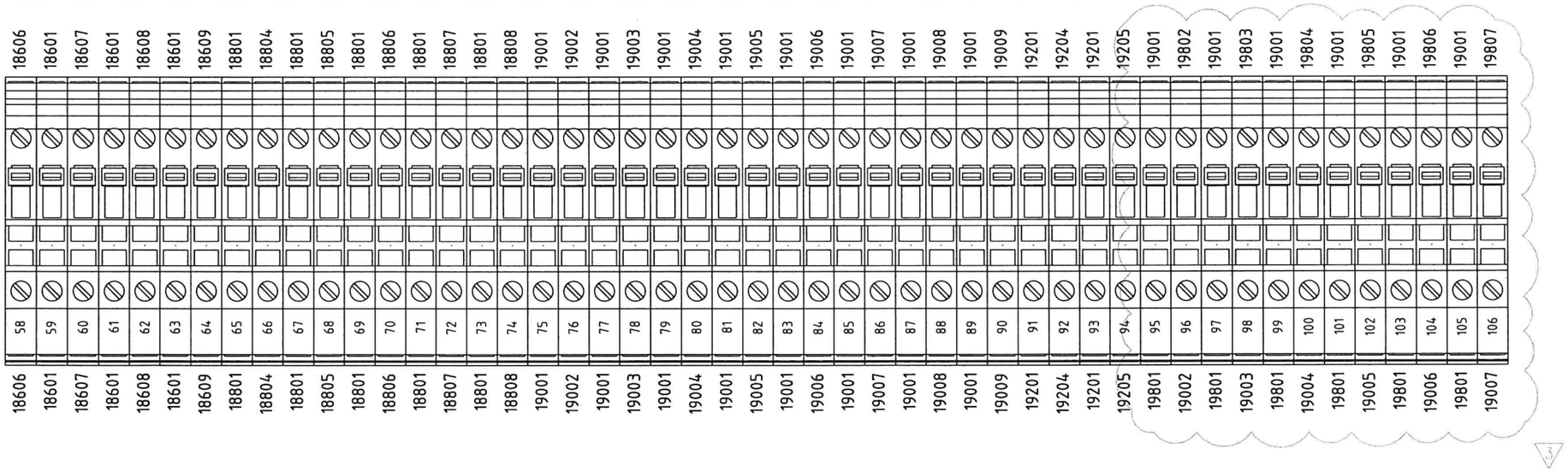
F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XDI



Instrument Earth (30x5)



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XDI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

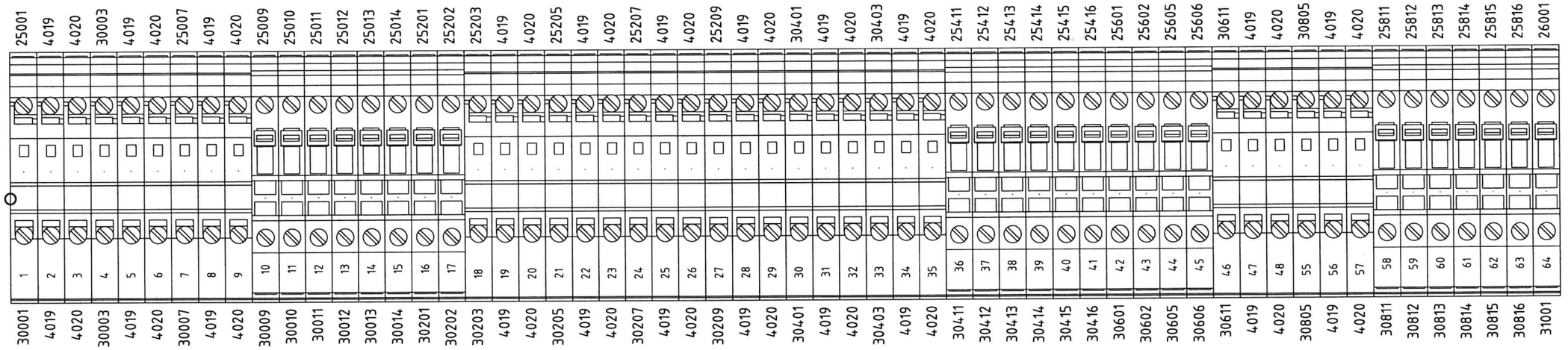
SHEET 406

REV. 03

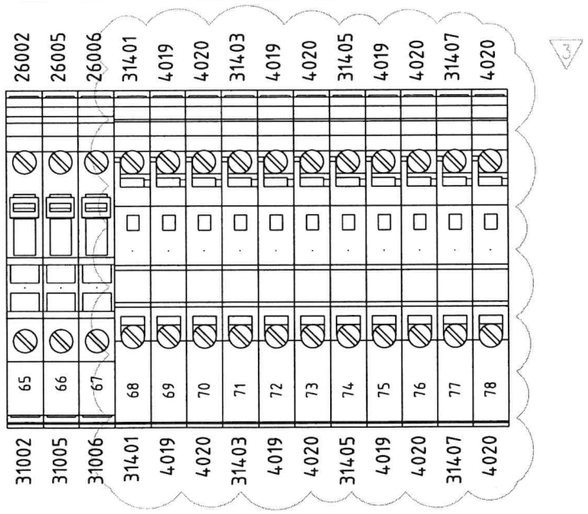
F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XD0



Instrument Earth (30x5)



Instrument Earth (30x5)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XD0

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

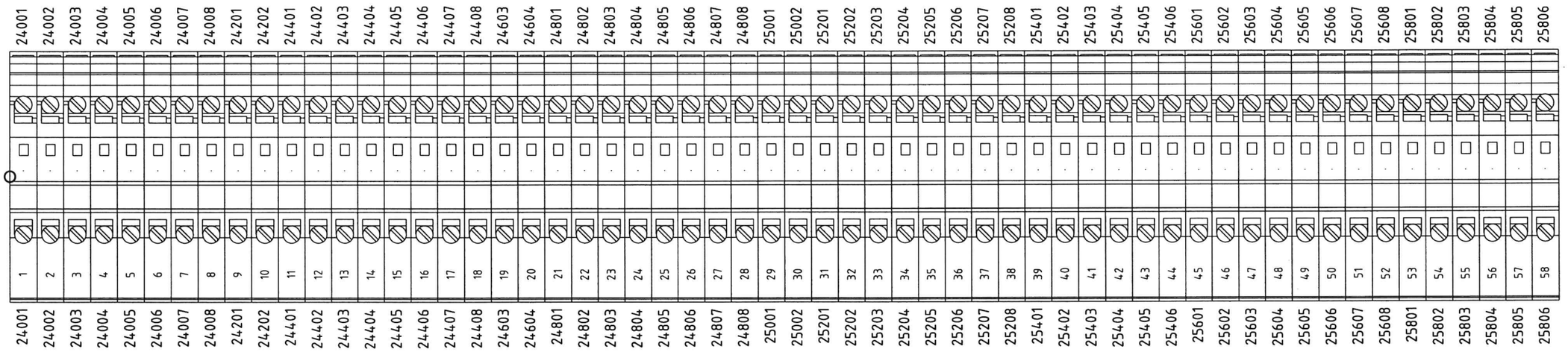
SHEET 408

REV. 03

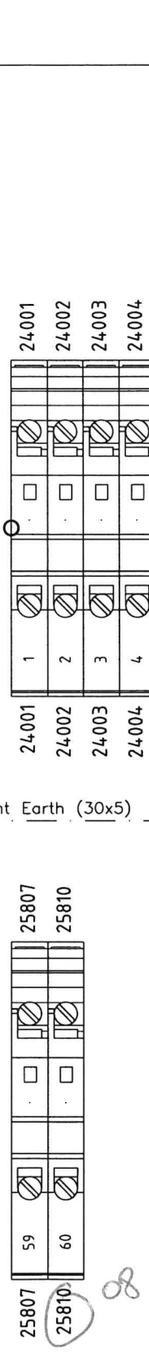
F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XAI



Instrument Earth (30x5)



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XAI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

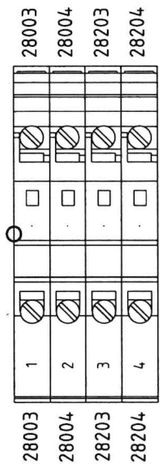
SHEET 410

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XA0



Instrument Earth (30x5)

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
00	21/06/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP XA0

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

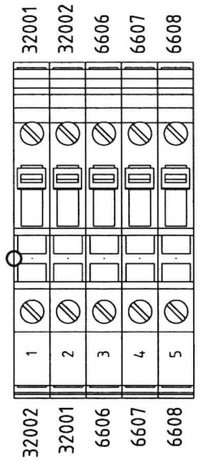
SHEET 412

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - XEXT



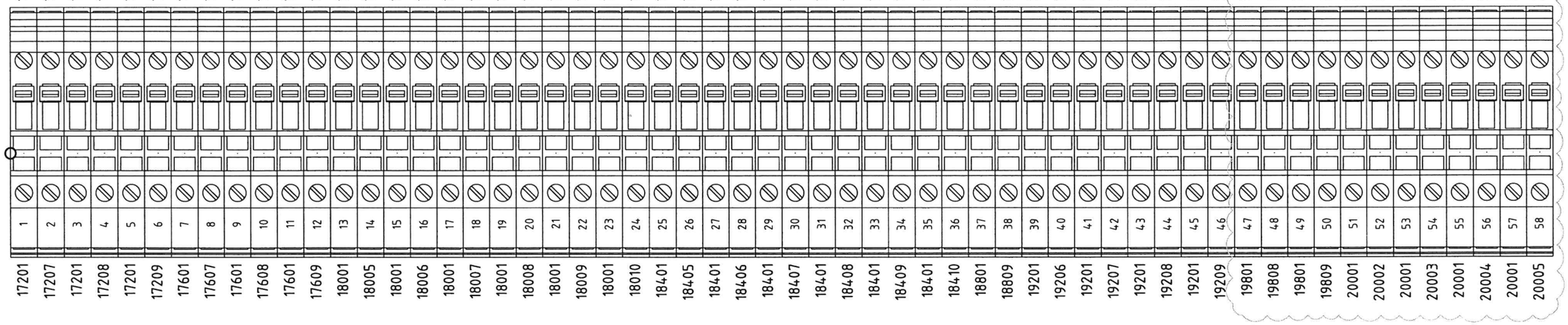
Instrument Earth (30x5)

						TITLE :	BASE LOAD POWER HUB (BLPH) PACKAGE WIRING DIAGRAM LCP TERMINAL STRIP XEXT
PSC DOC. REF: PK2885-A-002						CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE : --
CROSSWIND	ROSETTI MARINO	01	26/07/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)	A3	DRAWING NO. 1724000448-IN-DG-00014	SHEET 414	REV. 01
		REV.	DATE	DRN	CHKD	APPD	DESCRIPTION				

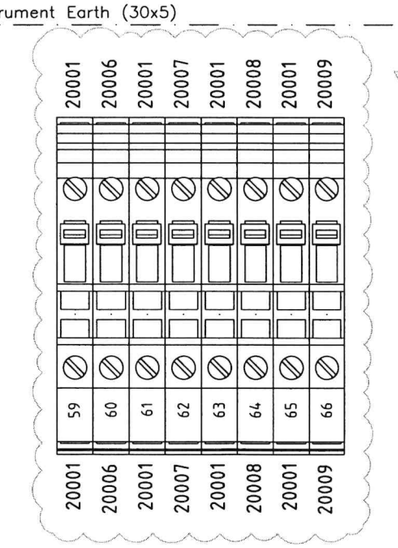
F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - TDI



Instrument Earth (30x5)



Instrument Earth (30x5)

02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC

DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TDI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

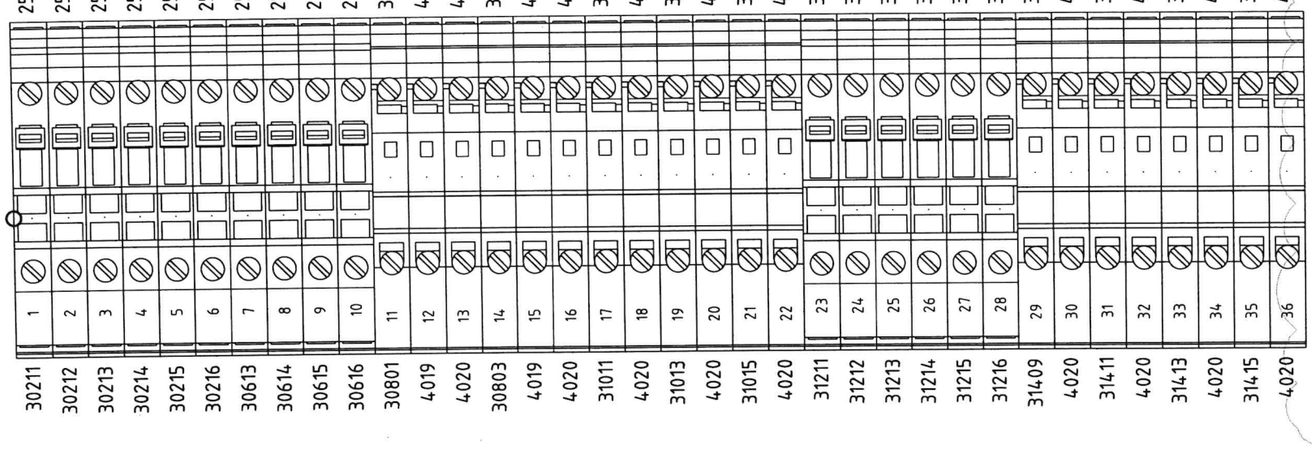
SHEET 420

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - TDO



Instrument Earth (30x5)

Instrument Earth (30x5)

02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)			
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION			

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TDO

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

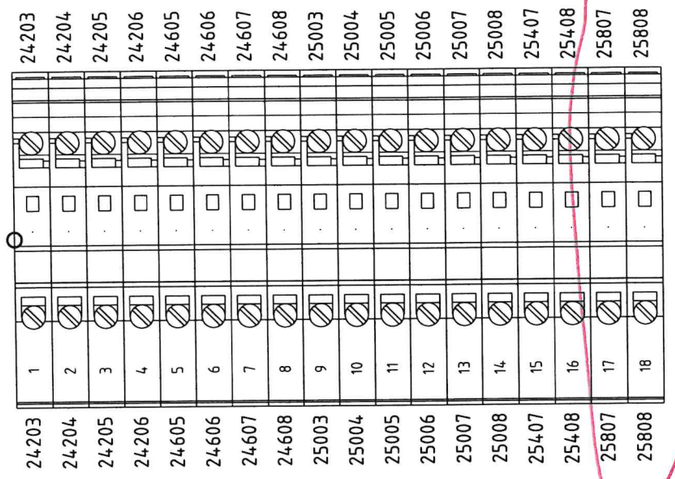
SHEET 422

REV. 03

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - TAI



Instrument Earth (30x5)

02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TAI

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

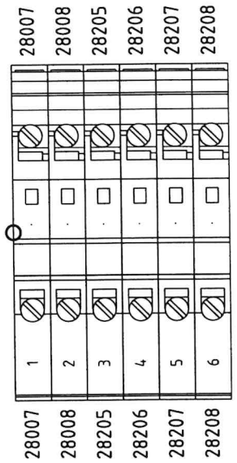
SHEET 424

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

50-LP-001 - TA0



Instrument Earth (30x5)

PSC DOC. REF: PK2885-A-002

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	13/09/24	MS	FC	RM	ISSUE FOR INFORMATION (IFI)

TITLE : BASE LOAD POWER HUB (BLPH)
PACKAGE WIRING DIAGRAM LCP
TERMINAL STRIP TA0

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE : --

A3

DRAWING NO. 1724000448-IN-DG-00014

SHEET 426

REV. 02

F.to UNI A3: 420mmx297mm

File Name : PK2885_5

2.2.4.6

ELECTRICAL HEATER

MASTERWATT

H-50001

MASTERWATT ELECTRIC HEATING SOLUTIONS	**ELECTRICAL AND FUNCTIONAL TEST REPORT in accordance with EN 10204 Ed. 2004 type 3.1**	**PROT: EFTRENG2024000007 VER:3**

Test Item:	**HEIZUNG AUF FLANSCH F2500**	Drawing Nr: **GD0000000000450** Rev N°: **01**
Customer PO:	**2885/04/24/0**	
Po Line:	-	
Customer Job:	-	
Customer Product Code:		
Order Confirmation:	**1870-001-2024**	
Data Sheet Nr.:	**25911**	
Masterwatt Code:	**73U03000D000060**	

Customer / User:	Manufacturer:	Serial Number:
PSC S.P.A.	**Masterwatt S.r.l.**	00031532

Test Procedure:	**PRO-UP-0004**

Contact Housing Protection Degree IP65

Contact Housing Proof **Pressure Test: NOT REQUESTED**

ELECTRICAL VERIFICATION

OHMIC Value measured at ambient temperature (Measured between Phase and Phase)

				NOMINAL VALUE			MEASURED
	Voltage V	**Power kW**	**Nr. Of Heating Elements**	**Ω+10%**	**Ω**	**Ω-5%**	
St. n.1	**400**	**30**	**6**	**11,7**	**10,67**	**10,13**	11,38÷11,40

DIELETTRICAL RIGIDITY

at 1000 V + 2 x Nominal Voltage – Duration 60 seconds
or a (1000 V +2 x Nominal Voltage) x 1.2 – duration> 0.1 seconds

Required Test Voltage	Max dispersion current	Measured Test Voltage	Measured dispersion current
2160 V	**7,92 mA**	**2160 V**	4,73 **mA**

INSULATION RESISTENCE 500 V.c.c **MEGGER**

Nominal Value	**200 MΩ**	Measured Value	**>200 MΩ**

Date:	Manufacturer:	Customer Inspector:	TP Inspector:
07/08/2024	**Masterwatt Quality Dpt.**		
	Masterwatt Witness ☐ Review ☑ Quality Control Dpt. Sign.....		

MASTERWATT ELECTRIC HEATING SOLUTIONS	**FINAL, VISUAL AND DIMENSIONAL CHECK TEST REPORT in accordance with EN 10204 Ed. 2004 type 3.1**	**PROT: FVDRENG2024000001 VER:3**

Test Item: **HEIZUNG AUF FLANSCH F2500** Customer PO: **2885/04/24/0** Po Line: **-** Customer Job: **-** Customer Product Code: Order Confirmation: **1870-001-2024** Data Sheet Nr: **25911** Masterwatt code: **73U03000D000060**		Drawing Nr: **GD0000000000450** Rev N°: **01**
Customer / User: **PSC S.P.A.**	Manufacturer: **Masterwatt S.r.l.**	Serial Number: **00031532**
Test Procedure: **PRO-UP-0009**		

We declare that the HEIZUNG AUF FLANSCH F2500 was visually and dimensionally checked.

The dimensions of the product have been verified in accordance with drawing no. GD0000000000450 Rev N° 01

The nameplate has been checked in accordance with drawing no. . GD0000000000450 Rev N° 01.

Both controls, visual and dimensional, gave satisfactory results.

Date: 07/08/2024	Manufacturer: **Masterwatt Quality Dpt.**	Customer Inspector:	TP Inspector:
Place **PIANEZZA (TO)**	Masterwatt Witness ☐ Review ☑ Quality Control Dpt. Sign.....		

MASTERWATT ELECTRIC HEATING SOLUTIONS	**HYDROSTATIC TEST REPORT in accordance with EN 10204 Ed. 2004 type 3.1**	**PROT: HTRENG2024000001 VER:3**

Test Item:	**HEIZUNG AUF FLANSCH F2500**	
Customer PO:	**2885/04/24/0**	
Po Line:	-	
Customer Job:	-	Drawing Nr: **GD0000000000450**
Customer Product Code:		Rev N°: **01**
Order Confirmation:	**1870-001-2024**	
Data Sheet Nr.:	**25911**	
Masterwatt code:	**73U03000D000060**	

Customer / User:	Manufacturer:	Serial Number:
PSC S.P.A.	**Masterwatt S.r.l.**	**00031532**

TEST CONDITIONS

Manometer S/N:	Measurement Range	Test Temperature
S/N 081	**0 ÷ 500 bar (Digital)**	**Ambient (~20 °C)**

Test Procedure :	**PRO-UP-0003**	
Test Media Water	Test Duration: 60 minutes	Test Pressure: 8,58 bar

TEST RESULTS

✓ ACCEPTABLE

☐ NOT ACCEPTABLE

NOTES:

The test did not highlight leakages through the welded joints.

The test did not highlight significant deformations

Date:	Manufacturer:	Customer Inspector:	TP Inspector:
07/08/2024	**Masterwatt Quality Dpt.**		
Place **PIANEZZA (TO)**	Masterwatt Witness ☐ Review ☑ Quality Control Dpt. Sign.....		

Plastic Glass S.r.l.

Via Miles, 8
20873 Cavenago B.za –MB- Italia
Tel. +39 02 9506445 Fax +39 02 9506461
www.plastic-glass.com
E-mail: info@plastic-glass.com

Design, construction and sale of vessels, piping, fitting and equipments in glass fiber reinforced plastic (GRP) and thermoplastic lining with reinforced plastic.

DIMENSIONAL AND VISUAL TEST CERTIFICATE

Client : **PSC S.p.A..**
P.O. number : **2885/77/24/0 dated 29/10/2024**

Cavenago B.za, 14/10/2024

Test Report N° PG.CDV.24.059

DRAWING – CORPO RISCALDATORE.
GRP CONTAINER for HEATER (CONTENITORE per RISCALDATORE).

Procedure of Test : Plastic Glass n° PG-PR.001 - PG-PR.002.

THE GRP CONTAINER for HEATER HAS BEEN DIMENSIONAL AND VISUAL CHECKED.

TEST RESULT: POSITIVE (ACCORDING TO THE DRAWING).

Plastic Glass S.r.l.
S. Campa 14.10.24

Plastic Glass S.r.l.

Via Miles, 8
20873 Cavenago B.za –MB- Italia
Tel. +39 02 9506445 Fax +39 02 9506461
www.plastic-glass.com
E-mail: info@plastic-glass.com

Design, construction and sale of vessels, piping, fitting and equipments in glass fiber reinforced plastic (GRP) and thermoplastic lining with reinforced plastic.

HYDRAULIC TEST CERTIFICATE

Client : **PSC S.p.A..**
P.O. number : **2885/77/24/0 dated 29/10/2024**

Cavenago B.za, 15/10/2024

Test Report N° PG.CHy.24.059

DRAWING – CORPO RISCALDATORE.
GRP CONTAINER for HEATER (CONTENITORE per RISCALDATORE).

Procedure of Test : Plastic Glass n° PG-PR.011.

THE GRP CONTAINER for HEATER HAS BEEN CHEKED WITH THE HYDRAULIC TEST AT PRESSURE + 10 bar(g). *(The required maximum test pressure shall be maintained for not less than 1 hour)* .

TEST RESULT: POSITIVE.

Plastic Glass S.r.l.

2.2.4.7

VESSEL

SG PROJECT/PHOENIX

VESSEL

HYDRO TEST

A-50007 A/B

Phoenix Vessel Technology Ltd

Unit 2, The Old Bakery, Lower Tuffley Lane, Gloucester GL2 5DP
Tel: +44 (0) 1452 311673
Fax: +44 (0) 1452 310295

HYDROSTATIC TEST CERTIFICATE

Customer: SG PROJECTS	**Customer Order: PO-070-2024**
Address: SG Projects **Sg projects** **Strada Folciona 5/Bis** **Voghera** **27058** **Italy**	**Phoenix Order No: 120787** **Product Description** **GRP PRESSURE VESSELS**

Line	Product Description and Notes	Ship Quantity
1	**4" x 1000 psi x 6 elements (40") end port pressure vessel** Designed according to Sound Engineering Practice as described in PED 2014/68/EU	2

Vessel Body Serial Numbers
Line1: 4.AAXWW.1, 4.AAXWX.1

Phoenix Vessel Technology Limited Quality Statement

We certify that the above order has been manufactured to the requirements of the applicable standards and specifications, and found to conform with its requirements, and have been inspected and tested within the scope of our ISO9001 registration. Each Vessel has been tested to 1.1 design pressure as stated above.

Any unauthorised modification to these Pressure Vessels or their constituent parts will invalidate this Certificate of Conformity and any warranty applicable to this contract.

Signed: **G.Kus** **Position: Quality Inspector** **Date: 26.06.2024**

For and on behalf of Phoenix Vessel Technology Ltd

Registered in England No 05684863

2.2.4.8

CONTAINER PAINTING CERTIFICATE

S. P. A. V. I. s.r.l.

CISERANO ZINGONIA (BG) VIA TORINO ,14 - TEL. 035 / 482.14.31

SABBIATURA - PROTEZIONI ANTICORROSIVE
VERNICIATURE INDUSTRIALI

Certificato di Verniciatura N° / Painting Certificate N° 1647/2024 **Pag.1 of 1** 14/10/2024

Cliente / customer	Subfornitore / Fabric.Site-Sub Supplier
PSC S.p.a.	

Commessa / Job	N.F.	DDT	Dwg	Project
PK2885 1	/	/	SQ-5000-DD	HOLLANDSE KUST NOORD WIND PARK

Denominazione Particolari / Part. Name	Riferimento Specifica/ Specif. Refer.
N° 1 CARBON STEEL CONTAINER SHANGHAI BAOSHAN PACIFIC CONTAINER CO.,LTD	1724000448-MAT-PRO-00023 Rev.2 SYSTEM 1

PREPARAZIONE DELLA SUPERFICIE -- SURFACES PREPARATION

Grado di pulizia / Degree of clining: SSPC SP1 + SP10 / ISO 8501-1 SA 21/2	Profondita incisione / Blast. Profile (micron): MEDIUM G / ISO 8503-2
Blotter test: ASTM D4285: SATISFACTORY	Type of Istrument : ELCOMETER COMPARATOR
Tipo Abrasivo / Abrasive Type: METALLIC GRITT	Data , Ora / Time , Date: 04/10/2024
Temperature : 18,4°	Relative Humidity : 61,6%
Dust ISO 8502-3 (Min. Rate 2) MEASURED .=1	Contaminants and soluble salts ISO 8502-6-ISO 8502-9 .= 8 mg/m² BRESLE KIT

VERNICIATURA -- COATING

Mano N° / Coat N°	1 PRIMER	2 INTERMEDIATE	3 TOP COAT	4	TYPE OF INSTRUMENT
Condizioni Ambientali / Ambient Condition	A.T. 21,8° S.T. 21,8° H.R. 61,80% D.P. 14,15°	A.T. 18,9° S.T. 19,2° H.R. 58,00% D.P. 10,5°	A.T. 19,4° S.T. 13,7° H.R. 60,80% D.P. 11,6°	A.T. S.T. H.R. D.P.	DEWCHECK4
Data , Ora / Date , Time	04/10/2024	08/10/2024	09/10/2024		
Metodo Applicazione / Appl. Method	BRUSH STRIPE COAT + AIRLESS	BRUSH STRIPE COAT + AIRLESS	BRUSH STRIPE COAT + AIRLESS		MANUFACTURER PDS
Denomin. Prodotto Vernic. / Painting Name	PPG SIGMAZINC 102 HS	PPG SIGMACOVER 350	PPG SIGMADUR 550		SPECIFICATION
N° Partita o lotto di fabbrica / Fabrication N° A. / B.	P436746167 / 2423702404	P433736661 / P422697381	P430726058 / P422697323		MANUFACTURER BATCH NUMBER
Colore / Painting Color	Grey	Grey	Light Grey Ral 7035		RAL
Spessore Film a Secco Richiesto Dry Film Thickness Requiered	60 MICRON	100 MICRON	40 MICRON		SPECIFICATION
Controllo Visivo / Visual Check	SATISFACTORY	SATISFACTORY	SATISFACTORY		ISO 4628
Wet Film Thickness ISO 2808	150 - 200 MICRON	175 - 225 MICORN	125 - 150 MICRON		COMB GAUGE
Avg. Dry Film Thickness to Achieved ISO 19840	83 MICRON	234 MICRON	271 MICRON		POSITECTOR 6000
Controllo Zinco Inorganico ASTM D 4572 Check Inorganic Zinc MEK	N.A.	N.A.	N.A.		
Risultato: Conformità o non Conformità Result : Conformity or not Conformity	CONFORM	CONFORM	CONFORM		
Note / Remarks					

FIRMA RESPONSABILE QA/QC SPAVI s.r.l. QA/QC RESPONSIBLE SIGNATURE SPAVI s.r.l. S.P.A.V.I srl - CISERANO (BG)	FIRMA ISPETTORE INSPECTOR SIGNATURE	FIRMA ISPETTORE INSPECTOR SIGNATURE	FIRMA ISPETTORE INSPECTOR SIGNATURE
Data/Date 14/10/2024	Data/Date	Data/Date	Data/Date

2.3

MANUFACTURING AND TESTING RECORD

2.3.1

WATER TREATMENT PACKAGE FAT CERTIFICATES

	FAT REPORT	Project	123A90A- Base Load Power Hub Platform
PSC		Doc. No.	1724000448-QC-PRO-00025
		PSC Doc No.	PK2885-Q-004
		Page	1 of 14

End Customer	:	**CROSSWIND C.V.**
Customer	:	**Rosetti Marino S.p.A**
Project Name	:	**123A90A – Base load Power Hub Platform**
Purchase Order No.	:	**1724000448 123A90A**
Project ID No.	:	**1724000448 123A90A**
PSC Project ID No.	:	**PK2885**

EQUIPMENT TESTED	
Item No.	Item Description
A-50000	Water Treatment Package

TEST RESULTS		
☐ Pass	☒ Pass with comments	☐ Fail

COMMENTS	
	See punch list details 1724000448_P101_PSC
	and 1724000448 - PR - PID - 00013 (MASTER)

ATTACHMENTS	
☐	Appendix A1 – Water Treatment Package VISUAL AND DIMENSIONAL CHECK
☐	Appendix A2 – Water Treatment Package LEAKAGE TEST WITH AIR
☐	Appendix A3 – Water Treatment Package INSTRUMENTS CHECK
☐	Appendix A4 – Water Treatment Package SHUT OFF VALVES
☐	Appendix A5 – Water Treatment Package Grounding check
☐	Appendix B1 – PUNCH LIST

DATE	PSC	CUSTOMER	END CUSTOMER
29/11/24	PSC SpA GIOVANNI BENZI ENG. DEPARTMENT	ROSETTI MARINO SpA Stefano Linari Quality Control Dept.	

APPENDIX "A"

FAT REPORTS

Test performed	**VISUAL AND DIMENSIONAL CHECK**

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Container dimensions check	GA drawing 1724000448-MAC-DA-00005	☒	☐	
2	Container painting RAL check (only external surface)	Painting Specification 1724000448-MAT-PRO-00023	☒	☐	
3	Container painting DFT check (only external surface)	Painting Specification 1724000448-MAT-PRO-00023	☒	☐	See note
4	Water Treatment Package Terminal points dimension check	GA drawing 1724000448-MAC-DA-00005	☒	☐	With punch list
5	Valves nameplate check	P&ID 1724000448-PR-PID-00013	☒	☐	With punch list
6	Equipment nameplate check	P&ID 1724000448-PR-PID-00013	☒	☐	With punch list
7			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES
See pictures related to DFT check

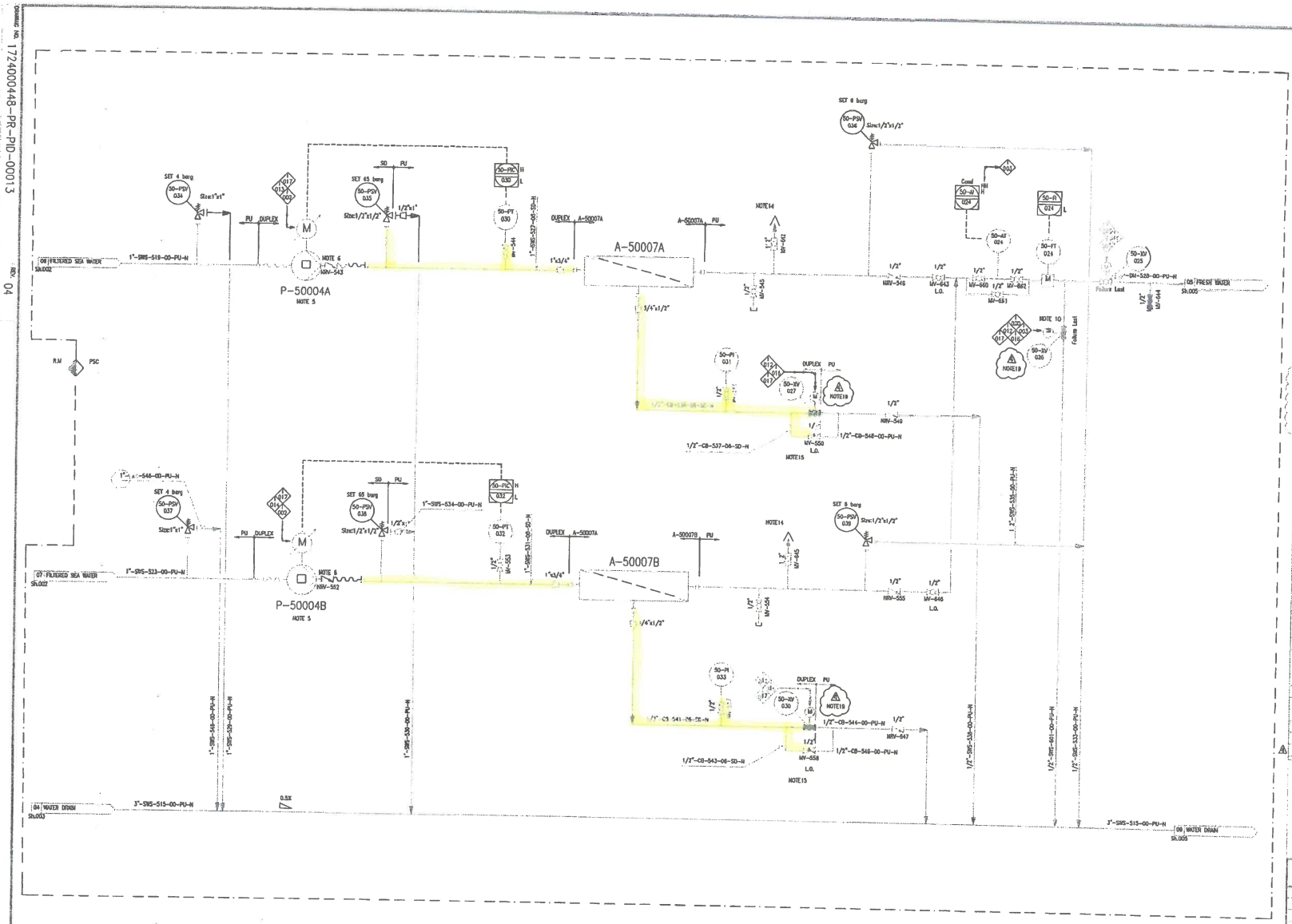
TEST RESULTS		
☐ Pass	☒ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☒	Punch list - See punch list details (1724000448_PL01_PSC)

DATE	PSC	CUSTOMER	END CUSTOMER
29/11/24	PSC S.p.A. Engineering Department	ROSETTI MARINO SpA Stefano Linari Quality Control Dept.	

Test performed	LEAKAGE TEST WITH AIR

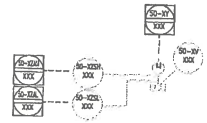
#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Piping leakage test with pneumatic air (0.5 barg) Note: The leakage test for the PCV and PP piping will be performed directly at the Site Acceptance Test. At the Site acceptance test all the assembled piping and system will be also tested. The Hydraulic test has been already performed on duplex piping and the certification of its hydraulic test will be available in the final MDR book. For reference, please find at the following page the tested duplex piping part highlighted on the P&ID	FAT Procedure **1724000448-QC-PRO-00025**	☒	☐	see notes



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-001	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC AIR/PURGE VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: ELPH-
8	LOGIC FOR CONTROL OF PSC0009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (NILSAN TYPE)
17	CHECK VALVE (IAD SPRING TYPE)
18	DRAIN PAN FOR ANALYZER, DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

P-50004A/B	
HP PUMP	
TYPE	AXIAL ROTATING PISTONS
DES PRESSURE	83 barg
CAPACITY	2 m3/h
HEAD	64.5 bar(a)
DES. TEMP.	50° C
MATERIAL	SS DUPLEX

A-50007A/B	
SEA WATER REVERSE OSMOSIS UNITS	
CAPACITY	0.8 m3/h
DES. PRESS.	69 barg
DES. TEMP.	45° C
MATERIAL	FRP

DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GC	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND — ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE | SCALE -
DRAWN UR | CHECKED WR | APPROVED RM | DATE 11/11/24
A1 | DRAWING NO. 1724000448-PR-PID-00013 | SHEET 004 | REV. 04

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

NOTES
See attached test report for Duplex
For PVC and PP will be performed directly at FAT.

TEST RESULTS		
☒ Pass	☒ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER
29/11/24	PSC SpA GIOVANNI BENZI ENG. DEPARTMENT	ROSETTI MARINO SpA Stefano Linari Quality Control Dept.	

Test performed	INSTRUMENTS CHECK

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Instruments nameplate tag check	P&ID 1724000448-PR-PID-00013	☒ with	☐ punch	see list
2	Instrument wiring check (Cable gland installation / wire type will be checked and verified)	Package wiring diagram LCP 1724000448-IN-DG-00014	☒ with	☐ punch	see note list
3	PLC wiring check (Including verification of continuity of the protective bonding circuit / wire type / ingress protection of enclosure / cable gland / wire tag/ Panel tag)	Package wiring diagram LCP 1724000448-IN-DG-00014	☒ with	☐ punch	see note list
4	Instruments functional electric test	Package wiring diagram LCP 1724000448-IN-DG-00014	☒ with	☐ punch	see note list
5			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES

Step 2 - to be Repeat Wiring check for instruments/ equipment not energized.

Step.3 - all modification inside panel, PSC will Report on wiring with mark-up.

Step 4 - Some instruments/equipments has been energized (see details in P&ID).

TEST RESULTS

☐ Pass	☒ Pass with comments	☐ Fail

ATTACHMENTS

	Description
☒	Punch list - See punch list details (1724000448_PL01_PSC)

DATE	PSC	CUSTOMER	END CUSTOMER
29/11/24	PSC SpA GIOVANNI BENZI ENG. DEPARTMENT	ROSETTI MARINO SpA Stefano Linari Quality Control Dept.	

Test performed	SHUT OFF VALVES CHECK

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Shut off valves functional electric test (Including limit switches)	Package wiring diagram LCP 1724000448-IN-DG-00014	☒	☐	with note
2			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

PSC	FAT REPORT APPENDIX A4	Project	123A90A- Base Load Power Hub Platform
		Doc. No.	1724000448-QC-PRO-00025
		PSC Doc No.	PK2885-Q-004
		Page	10 of 14

NOTES	
	Safety valve position is failure last to be simulate command to verify the limit switch; this activity will be completed during next stage. (SAT)

TEST RESULTS		
☐ Pass	☒ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER
29/11/24	PSC SpA Giovanni Benzi ENG. DEPARTMENT	ROSETTI MARINO SpA Stefano Linari Quality Control Dept.	

Test performed	GROUNDING CHECK

#	TEST DESCRIPTION	REFERENCE	PASS	FAIL	NOTES
1	Instruments & Panel grounding check, including Container grounding test	N.A.	☒	☐	
2			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	
			☐	☐	

NOTES	

TEST RESULTS		
☒ Pass	☐ Pass with comments	☐ Fail

ATTACHMENTS	
	Description
☐	Punch list

DATE	PSC	CUSTOMER	END CUSTOMER
29/11/24	PSC SpA GIOVANN. BENZI ENG. DEPARTMENT	ROSETTI MARINO SpA Stefano Linari Quality Control Dept.	

APPENDIX "B"

PUNCH LIST

NOTES

See punch list det 21/S 1724000448-PL01 - PSC

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

PSC SpA
GIOVANNI BENZI
ENG. DEPARTMENT

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

MANUAL VALVES

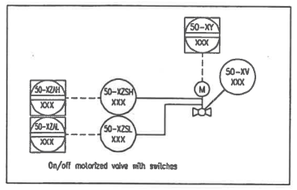
- GATE VALVE
- BALL VALVE
- CHECK VALVE
- NEEDLE VALVE
- "Y" TYPE FILTER
- DIAPHRAGM VALVE
- AUTOMATIC AIR VENT VALVE

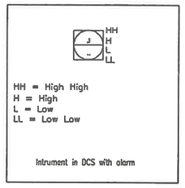
OPERATED VALVES

- MOTORIZED ACTUATOR ON-OFF BALL VALVE
- PRESSURE SAFETY VALVE

OTHER SYMBOLS

- Local instrument
- Instrument in DCS
- Interlock in DCS
- Software signal
- Electric signal





INSTRUMENTS IDENTIFICATION – REFER TO ISA S5.1 FOR DETAILS

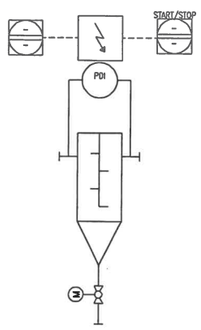
Letter	FIRST LETTER	LETTERS FOLLOW		
	Measure or process variable	Modification	Letter or passive function	Output function
A	Analysis		Alarm	
B	Flame detection		Optional user	Optional user
C	Conductivity	Control		Regulation
D	Density	Differential		
E	Electrical voltage	Element	Primary el.	
F	Flow	Relationship		
G	Choice user			
H	Manual override			
I	Electricity		Indication	
J	Power	Scansion		
K	Time schedule or time	Rate of change		
L	Level		Light	
M	Choice user	Momentary or instant.		
N	Choice user		Optional user	Optional user
O	Choice user		Orifice or restriction	
P	Pressure		Handheld	
Q	Quantity	Full or score.		
R	Radioactivity		Registration	
S	Speed or frequency	Security		Interruption
T	Temperature	Transmitter		Transmission
U	General alarm			Multifunction
V	Vibration or mechanical analysis	Valve	Valve	
W	Weight or force		Well or sheath	
X	Variable unclassified	X axis	Not rated	Not rated
Y	State or event	Y axis		Computing module
Z	Position or size	Z axis		

MASTER

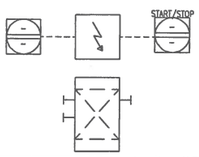
ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

PSC SpA
Giovanni Benza
ENG. DEPARTMENT
29/11/2024

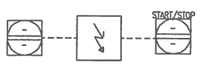
CORSE FILTER EQUIPPED WITH PDI, AUTOMATIC DRAIN VALVE AND LOCAL CONTROL PANEL



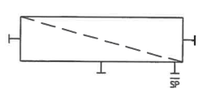
SAND FILTER EQUIPPED WITH LOCAL CONTROL PANEL



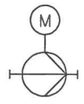
UV LAMP EQUIPPED WITH LOCAL CONTROL PANEL



RO VESSEL & MEMBRANES (RO UNIT)



CENTRIFUGAL PUMP



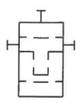
AIR FAN



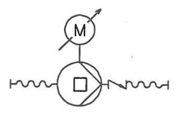
ELECTRIC HEATER



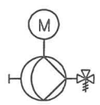
CARTRIDGE FILTER



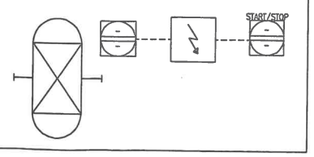
HIGH PRESSURE PUMP



DOSING PUMP EQUIPPED WITH MULTIFUNCTION VALVE



SOFTENING FILTER EQUIPPED WITH LOCAL CONTROL PANEL



PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND | ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE | SCALE –
DRAWN UR | CHECKED WR | APPROVED RM | DATE 11/11/24
A1 | DRAWING NO. 1724000448-PR-PID-00013 | SHEET 001 | REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

NOTE : E = has been energized & cycle verified

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

01 ANTISCALANT Sh.006 — 1/2"-CI-510-00-PU-N

02 NON-OXIDANT BIOCIDE Sh.007 — 1/2"-CI-501-00-PP-N

SEA WATER FROM INTAKE — TP 017 — DUPLEX PU — 1.1/2"-SWS-500-00-PU-N

NOTE14

MV-500 1.1/2" — MV-501 1/2" SP — MV-502 1/2" — MV-503 1/2" — MV-504 1/2" NRV — MV-635 1/2" — MV-636 1/2" — MV-637 1" LQ — MV-638 1/2" LQ

Failure Last

R.M PSC

PU PP

NOTE 1

LP-A-50003 — START/STOP 50-HS A50003 — 50-XA A50003 — D17

A-50003

PDI — 50-PI 048

1/2"-SWS-502-00-PU-N

50-TSHH 020 — 50-DANT 020 — 50-TZ 021 — 50-TIC 021 — 50-TE 020 — 50-TT 021 — 50-TI 022 — 50-TT 022 — HH2,HH1 — 50-PI 023 — 50-FT 020 — 50-PI 020 — 50-PT 020 — 50-XV 020

NOTE 2

H-50001

1.1/2"-SWS-503-00-PU-N

1"-SWS-506-00-PU-N

50-PDI 052 — 50-PI 050 — 50-PI 051 — 50-PT 050 — 50-PT 051 — MV-505 1/2" — MV-506 1.1/2" — MV-507 1/2" — MV-508 1/2" — MV-509 1.1/2" — MV-510 1/2" SP — MV-512 1" NRV

S-50001

1.1/2"-SWS-504-00-PU-N

50-XA S50001 — START/STOP 50-HS S50001 — D17

LP-S-50001

NOTE 3

T-50006

50-LT 020 — 50-LI 020 — D02

NOTE19 — Failure Last — 50-XV 034 — D12 D16 D17

1"-SWS-512-00-PU-N

03 FILTERED SEA WATER Sh.003

1"-SWS-505-00-PU-N — 1.1/2"-SWS-505-00-PU-N

MV-513 1" — MV-516 1" — NRV-515 1" — 1.1/2"x1" — 2"x1.1/2" — MV-514 1.1/2" — 1.1/2" NRV

LCP — D17 D02 — M — P-50002A

1"-SWS-507-00-PU-N

1"-SWS-508-00-PU-N

MV-519 1" — NRV-518 1" — 1.1/2"x1" — 2"x1.1/2" — MV-517 1.1/2" — 1.1/2" NRV

P-50002B

1/2" MV-639

1"-WW-514-00-PU-N — 1/2"-WW-608-00-PU-N — 1"-WW-515-00-PU-N — 1"-SWS-513-00-PU-N — 1/2"-SWS-604-00-PU-N — 1.1/2"-SWS-511-00-PU-N

0.5% — 0.5%

3"-SWS-515-00-PU-N — 04 WATER DRAIN Sh.003

HHS-50003A — HHS-50003B — CONTAINER AMBIENT TEMPERATURE 50-TT 023 — HFA-50001A — HFA-50001C — HFA-50001B

D17 — E — M

ON/OFF 50-TIC 023 — START/STOP 50-HS HFA50001

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

* for pump has been energized and has been verified cycle Rotation

TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES

50-XY XXX — 50-XZSH XXX — 50-XZSL XXX — 50-XZDH XXX — 50-XZDL XXX — 50-XV XXX — M

REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER, DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

A-50003	
SEA WATER COARSE FILTER	
FILTRATION RATE	125 µm
CAPACITY	2.5 m3/h
DES. PRESS.	5 barg
DES. TEMP.	50° C
MATERIAL	PLASTIC MAT.

H-50001	
ELECTRIC HEATER	
POWER	30 kW
CAPACITY	2.5 m3/h
DES. PRESS.	6 barg
DES. TEMP.	60° C
MATERIAL	PVC-TITANIUM

S-50001	
SAND FILTER	
TYPE	PRESSURE,VERTICAL
CAPACITY	2.5 m3/h
DES. PRESS.	7 barg
DES. TEMP.	50° C
MATERIAL	FRP

T-50006	
FILTERED WATER TANK	
VOLUME	3 m3
DES. PRESS.	ATM
DES. TEMP.	50° C
MATERIAL	FRP

P-50002A/B	
BACKWASH PUMP	
TYPE	CENTRIFUGAL
DES. PRESSURE	6 barg
CAPACITY	5 m3/h
HEAD	1.50 bar(a)
DES. TEMP.	60 °C
MATERIAL	PP

HHS-50003A/B	
CONTAINER ELECTRICAL HEATER	
POWER	8.4 kW
DES. PRESS.	ATM
DES. TEMP.	65°C

HFA-50001A/B	
CONTAINER AIR FAN	
POWER	110 W
DES. PRESS.	ATM
DES. TEMP.	60°C

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND — ROSETTI MARINO

TITLE : WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE — SCALE -
DRAWN UR — CHECKED WR — APPROVED RM — DATE 11/11/24
A1 — DRAWING NO. 1724000448-PR-PID-00013 — SHEET 002 — REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

E = has been energized and verified

05 FLUSHING WATER Sh.005 — 1"-DM-524-00-PU-N

03 FILTERED SEA WATER Sh.002 — 1"-SWS-512-00-PU-N

50-XV 023 — Failure Last
50-XV 024 — Failure Last
50-XV 021 — Failure Last
50-XV 022 — Valve for change over Failure Last
50-XZSL 021
50-XZSL 022
50-XZL 021
50-XZL 022
AND D15
Cond 50-AI 023 H
50-AT 023
MV-857 1" MV-858 1" MV-859 1"
1"-DM-525-00-PU-N
1"-SWS-520-00-PU-N
RJM PSC

D17/002/004 LCP
P-50003A *
1.1/2"x1" 1.1/2"x1" NRV-526 1" MV-527 1"
50-PI 025 L
50-PT 025
MV-525 1"
50-PDI 024 H
50-FI 022 H L
50-FT 022
NOTE14
1/2" MV-540
1"-SWS-517-00-PU-N
2"x1" 2"x1"
S-50002A
1/2" MV-687 2"x1/2"
1"-SWS-518-00-PU-N
1.1/4" MV-536
S-50003A
1/2" MV-688 2"x1/2"
1.1/4" MV-529
50-PI 026 L LL D13
50-PT 026
1/2" MV-530 3" MV-531
1"-SWS-519-00-PU-N
08 FILTERED SEA WATER Sh.004

1/2"-SWS-607-00-PU-N
1/2"-SWS-608-00-PU-N

D17/002/004 LCP
P-50003B *
1.1/2"x1" 1.1/2"x1" NRV-534 1" MV-535 1"
50-PI 027 L
50-PT 027
MV-533 1"
50-PDI 029 H
50-FI 023 H L
50-FT 023
NOTE14
1/2" MV-541
1"-SWS-521-00-PU-N
2"x1" 2"x1"
S-50002B
1/2" MV-689 2"x1/2"
1"-SWS-522-00-PU-N
1.1/4" MV-538
S-50003B
1/2" MV-690 2"x1/2"
1.1/4" MV-537
50-PI 028 L LL D14
50-PT 028
1/2" MV-538 1" MV-539
1"-SWS-523-00-PU-N
07 FILTERED SEA WATER Sh.004

1/2"-SWS-609-00-PU-N
1/2"-SWS-610-00-PU-N

04 WATER DRAIN Sh.002 — 3"-SWS-515-00-PU-N — 0.5% — 3"-SWS-515-00-PU-N — 04 WATER DRAIN Sh.004

P - 50003A/B to verify wiring on panel side - wrong connection

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

MCC & PLC PANEL 50-LP-004
SEA WATER PUMP STOP REQUEST 50-XS 0053
SEA WATER PUMP START REQUEST 50-HS 0015
CONTAINER ALARM 50-XA 020
SHUTDOWN 50-XS 001
CONTAINER EMERG. PB 50-HS 020
50-HS 021 MANUAL ALARM CALL POINT
F&G PANEL 50-LP-002
50-LP 002
SOUNDER 950-XZ 05201
AMBER 950-XL 05201
RED 950-XL 05202
MANUAL FIRE ALARM 109-MFA 05201
2oo3 50-AT 020A H2 GAS DETECTOR
2oo3 50-AT 020B H2 GAS DETECTOR
2oo3 50-AT 020C H2 GAS DETECTOR
2oo3 50-AT 021A FIRE DETECTOR
2oo3 50-AT 021B FIRE DETECTOR
2oo3 50-AT 021C FIRE DETECTOR
see test report by SIA

50-XL 0015 SEA WATER PUMP RUNNING STATUS — PCS SYSTEM
50-XA 003 CONTAINER FAULT — SIS SYSTEM
50-XA 001 GAS CONFIRMED
50-XA 002 SMOKE CONFIRMED — F&G PANEL B400-FGS-002

P-50003A/B	
SW BOOSTER PUMP	
TYPE	CENTRIFUGAL
DES PRESSURE	6 barg
CAPACITY	2.5 m3/h
HEAD	4 bar(a)
DES. TEMP.	50° C
MATERIAL	PP

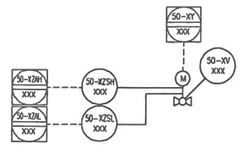
S-50002A/B	
SW 1ST CARTRIDGE FILTER	
FILTRATION RATE	20 µm
CAPACITY	2 m3/h
DES. PRESS.	6 barg
DES. TEMP.	50° C
MATERIAL	PP

S-50003A/B	
SW 2ND CARTRIDGE FILTER	
FILTRATION RATE	5 µm
CAPACITY	2 m3/h
DES. PRESS.	6 barg
DES. TEMP.	50° C
MATERIAL	PP

TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SF-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER, DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND — ROSETTI MARINO

TITLE : WATER TREATMENT PACKAGE
SEA WATER FINE FILTRATION
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE –
DRAWN UR	CHECKED WR	APPROVED RM	DATE 11/11/24
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 003	REV. 04

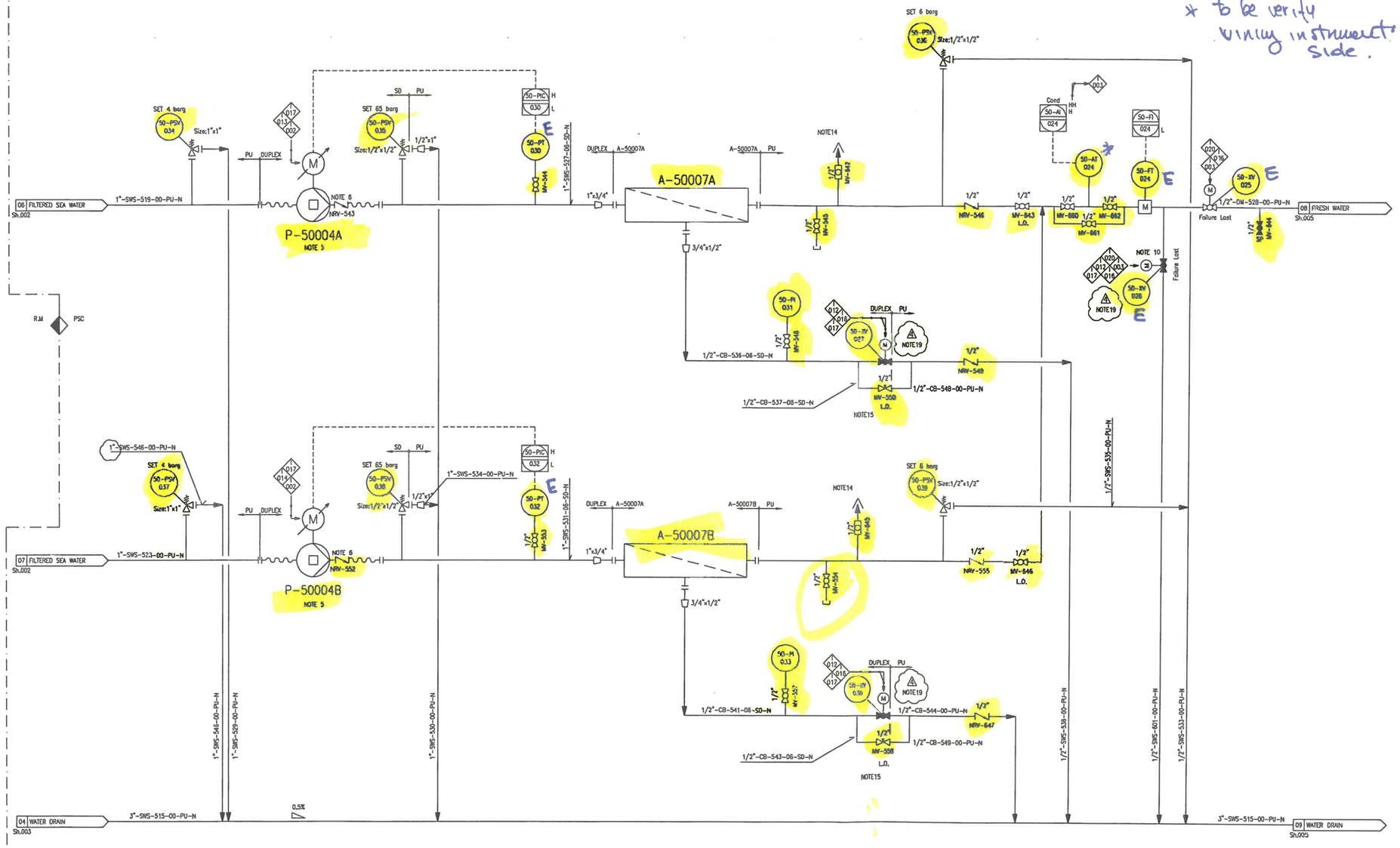
File Name : 1724000448-PR-PID-00013 Rev04

DRAWING NO. 1724000448-PR-PID-00013

REV. 04

E = has been Energized and verified

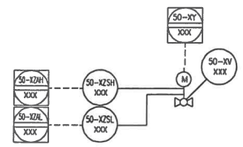
* to be verify wiring instrument side.



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00001	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER, DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

P-50004A/B	
HP PUMP	
TYPE	AXIAL ROTATING PISTONS
DES PRESSURE	83 barg
CAPACITY	2 m3/h
HEAD	64,5 bar(a)
DES. TEMP.	50° C
MATERIAL	SS DUPLEX

A-50007A/B	
SEA WATER REVERSE OSMOSIS UNITS	
CAPACITY	0.8 m3/h
DES. PRESS.	69 barg
DES. TEMP.	45° C
MATERIAL	FRP

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE : WATER TREATMENT PACKAGE
SEA WATER REVERSE OSMOSIS
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE -
DRAWN UR	CHECKED WR	APPROVED RM	DATE 11/11/24
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 004	REV. 04

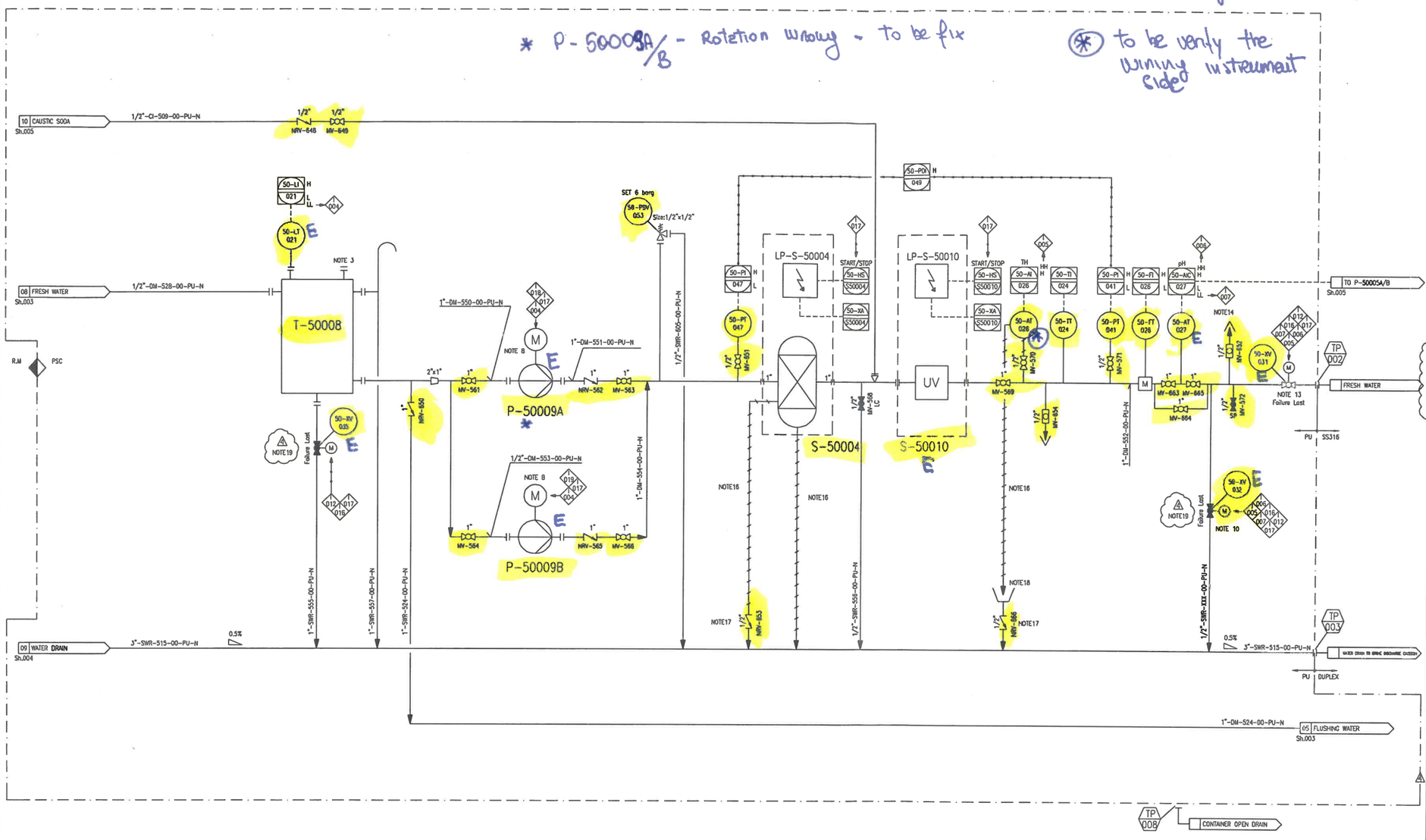
File Name : 1724000448-PR-PID-00013 Rev04

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

E = has been energized and verified

* P-50009A/B - Rotation wrong - To be fix

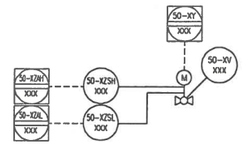
(*) to be verify the wiring side instrument



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

TYPICAL FOR ON/OFF BALL VALVES



REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER, DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

T-50008	
FRESH WATER TANK	
VOLUME	2.2 m3
DES. PRESS.	ATM
DES. TEMP.	50° C
MATERIAL	FRP

P-50009A/B	
FRESH WATER PUMP	
TYPE	CENTRIFUGAL
DES PRESSURE	25 barg
CAPACITY	0.8 m3/h
HEAD NOTE 11	5.2 bar(a)
DES. TEMP.	120° C
MATERIAL	SS 316L

S-50010	
UV STERILIZER	
CAPACITY	0.8 m3/h
DES. PRESS.	8 barg
DES. TEMP.	50° C
MATERIAL	SS 316

S-50004	
SOFTENING FILTER	
CAPACITY	0.8 m3/h
DES. PRESS.	6 barg
DES. TEMP.	40° C
MATERIAL	FRP-PLASTIC

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND | ROSETTI MARINO

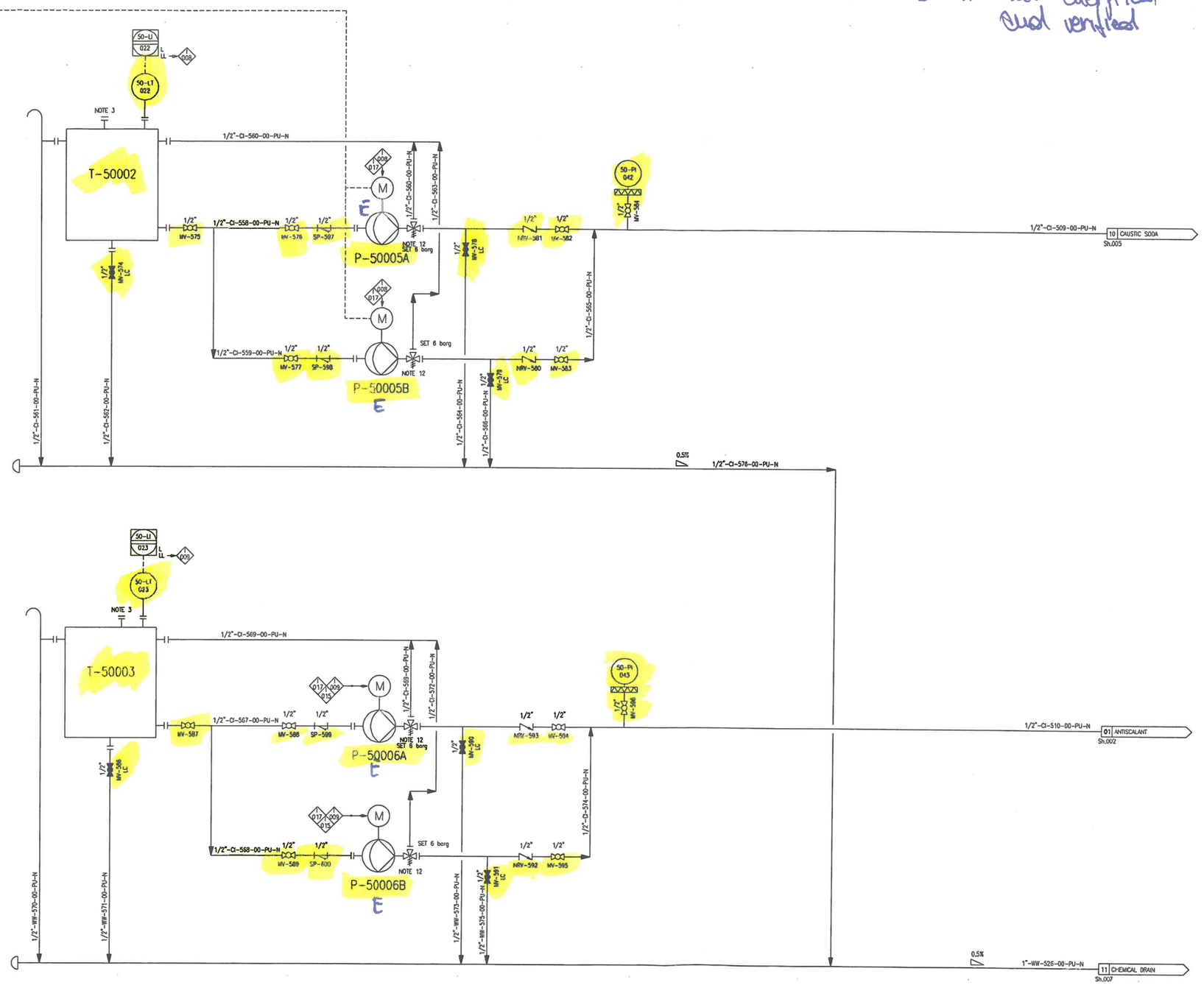
TITLE : WATER TREATMENT PACKAGE
FRESH WATER STORAGE
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE -
DRAWN UR	CHECKED WR	APPROVED RM	DATE 11/11/24
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 005	REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

E = has been energized and verified



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

⚠ REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER, DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

T-50002	
CAUSTIC SODA DOSING TANK	
VOLUME	0.05 m3
DES. PRESS.	ATM
DES. TEMP.	45° C
MATERIAL	PE

P-50005A/B	
CAUSTIC SODA DOSING PUMP	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.05 l/h
HEAD	4 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

T-50003	
ANTISCALANT DOSING TANK	
VOLUME	0.05 m3
DES. PRESS.	ATM
DES. TEMP.	45° C
MATERIAL	PE

P-50006A/B	
ANTISCALANT DOSING PUMP	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.01 l/h
HEAD	4 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND — ROSETTI MARINO

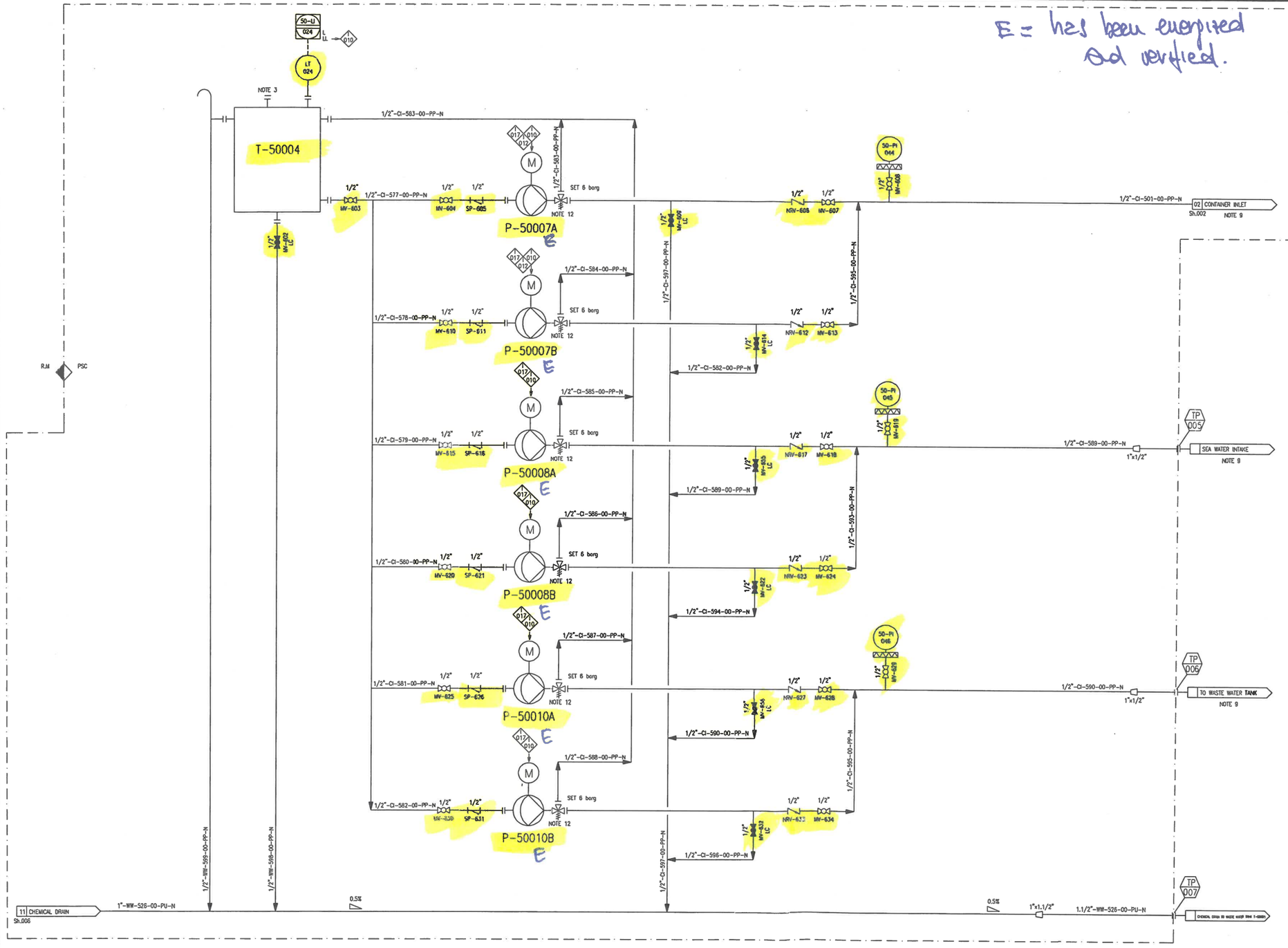
TITLE : WATER TREATMENT PACKAGE
CHEMICALS DOSAGE
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE -
DRAWN UR	CHECKED WR	APPROVED RM	DATE 11/11/24
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 006	REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

DRAWING NO. 1724000448-PR-PID-00013 REV. 04

E = has been energized and verified.



TERMINAL POINT

TP No.	NPS	FINISH	RATING	FACE	MATERIAL	DESCRIPTION
TP-017	1.1/2"	FLG.	150#	RF	PVC	SEA WATER FROM INTAKE PUMPS
TP-002	1"	FLG.	150#	RF	PVC	PRODUCT WATER
TP-003	3"	FLG.	150#	RF	PVC	SEA WATER DRAIN
TP-005	1"	FLG.	150#	RF	PP	BIOCIDE TO SEA WATER INTAKE
TP-006	1"	FLG.	150#	RF	PP	BIOCIDE TO WASTE WATER TANK
TP-007	1.1/2"	FLG.	150#	RF	PVC	CHEMICAL DRAIN
TP-008	1/2"	FLG.	150#	RF	PVC	CONTAINER OPEN DRAIN

REFERENCE DOCUMENTS

DOCUMENT NUMBER	TITLE
1724000448-MAC-SP-00003	SYSTEM/PACKAGE FUNCTIONAL DESCRIPTION
1724000448-MAC-CE-00004	PACKAGE CAUSE EFFECT MATRIX

NOTES

No.	DESCRIPTION
1	SPRING LOADED CHECK VALVE.
2	SUPPLIED WITH EQUIPMENT.
3	INSPECTION COVER.
4	FILTER WITH PANEL AND AUTOMATIC MULTIPORT VALVE.
5	PUMP EQUIPPED WITH FLUSHING VALVE.
6	CHECK VALVE SUPPLIED WITH THE PUMP.
7	ALL MANUAL VALVES TAGS ARE PRECEDED BY: BLPH-
8	LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A PUMP A AND B IS PROVIDED.
9	BIOCIDE DOSAGE TO CONTAINER INLET: CONTINUOUS BIOCIDE DOSAGE TO INTAKE PUMP: CONTINUOUS BIOCIDE DOSAGE TO WASTE WATER TANK: DISCONTINUOUS
10	OFF SPEC ON/OFF VALVE
11	SHUT OFF PRESSURE OF P-50009A/B = 6 barg
12	MULTIFUNCTIONAL VALVE BY PUMP SUPPLIER: BACKPRESSURE, PRESSURE RELIEF, ANTI-OVERFLOW AND SAFETY VALVE FUNCTION.
13	OUTLET VALVE
14	AUTOMATIC AIR VENT VALVE
15	POSITION TO BE DEFINED DURING COMMISSIONING
16	POLYAMIDE TUBING (RILSAN TYPE)
17	CHECK VALVE (NO SPRING TYPE)
18	DRAIN PAN FOR ANALYZER. DRAIN PAN VOLUME= 5 L
19	VALVE FOR AUTOMATIC SYSTEM DRAINING IN CASE OF SHUT DOWN OR LONG STOP PERIOD OF THE SYSTEM

T-50004	
NON-OXIDANT BIOCIDE DOSING TANK	
VOLUME	0.1 m3
DES. PRESS.	ATM
DES. TEMP.	45° C
MATERIAL	PE

P-50007A/B	
NON-OXIDANT BIOCIDE DOSING PUMP - CONTAINER INLET	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0,03 l/h
HEAD	4.5 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

P-50008A/B	
NON-OXIDANT BIOCIDE DOSING PUMP - SEA WATER INTAKE	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.85 l/h
HEAD	4.5 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

P-50010A/B	
NON-OXIDANT BIOCIDE DOSING PUMP - WASTE WATER TANK	
TYPE	METERING DIAPHRAGM
DES PRESSURE	10 barg
CAPACITY	0.33 l/h
HEAD	4.5 bar(a)
DES. TEMP.	45° C
MATERIAL	PVC

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.
29/11/24

PSC DOC. REF: PK2885-B-001

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
04	11-NOV-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
03	30-SEP-24	UR	WR	RM	ACCEPTED FOR CONSTRUCTION
02	22-AUG-24	UR	WR	RM	ISSUED FOR REVIEW
01	29-MAY-24	GG	WR	RM	ISSUED FOR REVIEW
00	24-APR-24	UR	RC	RM	ISSUED FOR REVIEW

CROSSWIND

ROSETTI MARINO

TITLE :
WATER TREATMENT PACKAGE
BIOCIDE DOSAGE
P&I DIAGRAM

CONTRACT NO./TITLE			SCALE -
DRAWN UR	CHECKED WR	APPROVED RM	DATE 11/11/24
A1	DRAWING NO. 1724000448-PR-PID-00013	SHEET 007	REV. 04

File Name : 1724000448-PR-PID-00013 Rev04

1724000648 - PLO2 - PSC

ROSETTI MARINO

Base Load Power Hub (BLPH)

Punch List Entry Form

CROSSWIND

Sub-system code:	Sub-system description:	Date: 29/4/24

Category "A" → Items to be cleared before the issuance of the RFCC (Ready for Commissioning Certificate).
Category "B" → Items to be cleared before the issuance of the RFOC (Ready For Operations Certificate).
Category "C" → Items to be cleared before Sail Away.

UPDATING 11/12/2024

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

PSC SPA
GIOVANNI BENZI
ENG. DEPARTMENT

Item N.	Check sheet ref.	Disc.	Tag Number	Raised By	Defect Description / Corrective Action	Attachments	Cat.	Action By	Duty Phase	Deadline date
1	✓	•	T-50006 and T-50008	S.Linari	Missing Data Nameplate		B	PSC	chiuso 11/12/24	06/12/24
2	✓		P-50002A/B Back wash pump	"	tag label missing (trafolyte)		B	"	chiuso 06/02/25	"
3	✓		HFA-50001A/B container air fan	"	missing label		B	"	chiuso 06/02/25	"
4	✓		HHS-50003A/B Container electric heater	"	missing label		B	"	chiuso 06/02/25	"
5	✓	•	AT-020C	"	Earthing to be fix		B	"	chiuso 11/12/24	"
6	✓		HFA + Sounder + Lights	"	Missing labels		B	"	chiuso 06/02/25	"
7	✓	•	P-50004A/B HP Pumps	"	flexible to be connect and missing Tag		B	"	chiuso 06/02/25	"
8	✓	•	50-HS-02	"	instrument damaged -		A	[illegible]	chiuso 06/12/24	"
9	✓		A-50007A/B Sea water Reverse Osmosis units	"	missing adhesive labels		B	"	chiuso 06/02/25	"
10	✓	d	PSV 039 / 036	"	To be ~~change~~ Reverse		A	"	chiuso 05/12/24	"

Raised by Contractor / Subcontractor: PSC SpA GIOVANNI BENZI ENG. DEPARTMENT

Checked by Contractor QA/QC: ROSETTI MARINO SpA Stefano Linari Quality Control Dept. 29/4/24

Accepted by COMPANY: updating 06/02/25 ROSETTI MARINO SpA Stefano Linari Quality Control Dept.

ROSETTI MARINO

Base Load Power Hub (BLPH)

Punch List Entry Form

CROSSWIND

Sub-system code:	Sub-system description:	Date: 29/11/24

UPDATING 11/12/2024

Category "A" → Items to be cleared before the issuance of the RFCC (Ready for Commissioning Certificate).
Category "B" → Items to be cleared before the issuance of the RFOC (Ready For Operations Certificate).
Category "C" → Items to be cleared before Sail Away.

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

PSC SPA
GIOVANNI BENZI
ENG. DEPARTMENT

Item N.	Check sheet ref.	Disc.	Tag Number	Raised By	Defect Description / Corrective Action	Attachments	Cat.	Action By	Duty Phase	Deadline date
11	✓	•	PI-031 and PI-033		to be tightened		B	PSC	chiuso 11/12/24	06/12/24
12	✓		P-5000 S A/B Fresh Water Pump		label to be installed		B	"	chiuso 06/02/25	"
13	✓		S-5000 Softening filter		label To be installed		B	"	chiuso 06/02/25	"
14	✓		NRV - 653		To be clarify the position		B	"	chiuso 06/12/24	"
15	✓		AT - 026		label to be installed		B	"	chiuso 06/02/25	"
16	✓	•	50 - PT - 050/051		not accesible - to be move it.		A	"	chiuso 06/12/24	"
17	✓		All terminal Points		missing identification label		B	"	chiuso 06/02/25	"
18	✓	•	All terminal Points		to be installed panel with dedicated Holes		A	"	chiuso 11/12/24	"
19	✓	•	All terminal Points		To be verify the correct measure, with panel installed		A	"	chiuso 11/12/24	"
20	✓		SP - 626		To be installed CORRECT tag. Now is installed HV - 626		B	"	chiuso 06/02/25	"

Raised by Contractor / Subcontractor: PSC SPA GIOVANNI BENZI ENG. DEPARTMENT 29/11/2024

Checked by Contractor QA/QC: ROSETTI MARINO SpA Stefano Linari Quality Control Dept. 29/11/24

Accepted by COMPANY: Updating 06/02/25 ROSETTI MARINO SpA Stefano Linari Quality Control Dept.

ROSETTI MARINO

Base Load Power Hub (BLPH)

Punch List Entry Form

CROSSWIND

Sub-system code:	Sub-system description:	Date: 29/11/24

Category "A" → Items to be cleared before the issuance of the RFCC (Ready for Commissioning Certificate).
Category "B" → Items to be cleared before the issuance of the RFOC (Ready For Operations Certificate).
Category "C" → Items to be cleared before Sail Away.

UPDATING 22/12/2024

ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

PSC SPA
GIOVANNI BENZI
ENG. DEPARTMENT

Item N.	Check sheet ref.	Disc.	Tag Number	Raised By	Defect Description / Corrective Action	Attachments	Cat.	Action By	Duty Phase	Deadline date
21	✓	•	Fire Alarm Push Buttons		Missing main labels. description To be installed		B	PSC	chiusa 06/12/24	06/12/24
22	✓	•	50-LP-001		Inside panel to be installed ferrules on power cable side.		B	"	chiusa 06/02/25	"
23	✓	•	50-LP-001		all HCT's to be fix and close		B	"	chiusa 06/02/25	"
24	✓	•	50-LP-001		Earthing cable To be fix properly inside panel		B	"	chiusa 11/12/24	"
25	✓	•	50-LP-001		To be fix properly inside the cable Tray (inside panel)		B	"	chiusa 11/12/24	"
26	✓	•	A-50000		Missing tag outside container		B	"	CHIUSA 28/01/25	"
27	✓	•	A-50000		To be CUT plastic strips		B	"	chiusa 11/12/24	"
28	✓		A-50000		In some points inside container, to be fix properly cables		B	"	chiusa 06/02/25	"
29	✓	•	A-50000		Inside ~~container~~, tank side to be add one more light due to low visibility.		B	"	chiusa 11/12/24	"
30	✓		A-50000		Lighting - to be add retrofit label for all lamps		B	"	chiusa 06/02/25	"

Raised by Contractor / Subcontractor: PSC SPA GIOVANNI BENZI ENG. DEPARTMENT 29/11/2024

Checked by Contractor QA/QC: ROSETTI MARINO SpA Stefano Linari Quality Control Dept. 29/11/24.

Accepted by COMPANY: Updating 06/02/25 ROSETTI MARINO SpA Stefano Linari Quality Control Dept.

ROSETTI MARINO

Base Load Power Hub (BLPH)

Punch List Entry Form

CROSSWIND

Sub-system code:	Sub-system description:	Date: 29/11/24

UPDATING 21/12/2024

Category "A" → Items to be cleared before the issuance of the RFCC (Ready for Commissioning Certificate).
Category "B" → Items to be cleared before the issuance of the RFOC (Ready For Operations Certificate).
Category "C" → Items to be cleared before Sail Away.

ROSETTI MARINO SpA Stefano Linari Quality Control Dept.

PSC SPA GIOVANNI BENZI ENG. DEPARTMENT

Item N.	Check sheet ref.	Disc.	Tag Number	Raised By	Defect Description / Corrective Action	Attachments	Cat.	Action By	Duty Phase	Deadline date
31	/		50-LP-001 and A-50000		missing cable T2ps RH side		B	PSC	chiuso 06/12/24	06/12/24
32	/		50-LP-001 and A-50000		To be clean inside container and inside control panel		A	"	chiuso 11/12/24	"
33	/		PT/TT		Model/Manufacturer Fischer - Do/it work, To be modify wiring inside control panel.		A	"	chiuso 06/12/24	"
34	/		P-50003A/B		to verify wiring on panel side - wrong connection.		A	"	chiuso 06/12/24	"
35	/		P-50009A/B		Rotation wrong - to be fix		B	"	chiuso 06/12/24	"
36	/		A-50000		To be provided test Report for F&G system (by SIA)		B	"	chiuso 06/02/25	"
37			TP-008		Missing - To be installed		B		~~chiuso~~ 10/01/25	
38									chiuso 06/02/25	
39										
40										

ROSETTI MARINO SpA Stefano Linari Quality Control Dept. 06/02/25

Raised by Contractor / Subcontractor: PSC SpA GIOVANNI BENZI ENG. DEPARTMENT 29/11/2024

Checked by Contractor QA/QC: ROSETTI MARINO SpA Stefano Linari Quality Control Dept. 29/11/24

Accepted by COMPANY: Valeria 06/02/25 ROSETTI MARINO SpA Stefano Linari Quality Control Dept.