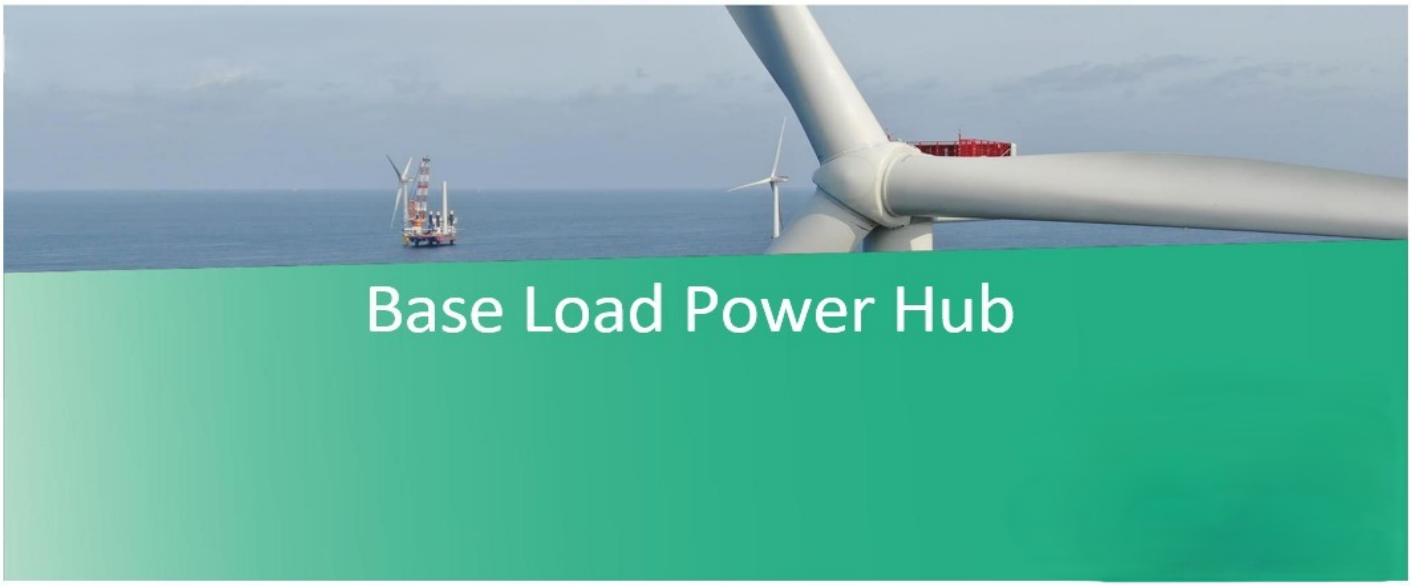
CROSSWIND

ROSETTI MARINO

PROVERLIS

PROJECT **123A90 - HOLLANDSE KUST NOORD WIND PARK**
BLPH Project



MECHANICAL COMPLETION DOSSIER (ONSHORE)

SYSTEM	20 Electrolyser package
SUBSYSTEM	20-00 Electrolyser Package (A-20000)

CROSSWIND	123A90 - HOLLANDSE KUST NOORD WIND PARK BLPH Project MECHANICAL COMPLETION DOSSIER INDEX	ROSETTI MARINO

Sub System N°:	20-00	Tick as appropriate	ONSHORE	O
Description:	Electrolyser Package (A-20000)		OFFSHORE	O

1.	***READY FOR COMMISSIONING CERTIFICATE*** *Ready For Commissioning Certificate (RFC)*	O
2.	***CONSOLIDATED PUNCH LISTS*** *Cleared and Residual Items*	O
3.	***SYSTEM/SUB-SYSTEM LIMIT DRAWINGS*** *Mark-up drawings showing the limits of the relevant System/Sub-System*	O
4.	***MECHANICAL COMPLETION STATUS INDEX – BUILDING DISCIPLINE*** *Building Sub-System Status Index (Print out) and Check/Test sheets*	
5.	***MECHANICAL COMPLETION STATUS INDEX – ELECTRICAL DISCIPLINE*** *Electrical Sub-System Status Index (Print out) and Check/Test Sheets* *Hazardous Area Equipment Detailed Inspection*	O
6.	***MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE*** *Instrumental Sub-System Status Index (Print out) and Check/Test Sheets*	O
7.	***MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE*** *Mechanical SubSystem Status Index (Print out) and Check/Test Sheets*	O
8.	***MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE*** *Telecommunication Sub-System Status Index (Print out) and Check/Test Sheets*	O
9.	***MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE*** *HVAC Sub-System Status Index (Print out) and Check/Test Sheets*	
10.	***MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE*** *Piping Sub-System Status Index and Check/Test Sheets*	
11.	***MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE*** *Safety Sub-System Status Index (Print out) and Check/Test Sheets*	
12.	***FAT / VENDOR REPORTS*** *Fat reports issued by vendors and/or vendor reports*	
13.	***MECHANICAL COMPLETION CHANGES / MARK-UPS*** *A copy of the changes initiated during the Mechanical Completion process pertaining to the relevant Sub-System will be incorporated in this section*	

Note: Under the generic terminology “Building” are also covered the following disciplines: **Structural, Painting**

Under the generic terminology “Instrumental” is also covered the following discipline: **Fire & Gas**

ROSETTI MARINO

123A90 - HOLLANDSE KUST NOORD WIND PARK
BLPH Project

CROSSWIND

Ready For Commissioning (RFC) Certificate

COMPLETE	●	PARTIAL	

Revision:	2		Issued on:	2025-03-28	
System:	20	/	Electrolyser package		
SubSystem:	20-00	/	Electrolyser Package (A-20000)		

1	COMPANY has, at its option and if required, reviewed the mechanical completion associated with the above-named system/sub-system of the SCOPE and observed that such functional sub-system has been brought into readiness for commencement of the associated pre-commissioning and commissioning activities, but for the outstanding punch list items, if any, attached and referred in this Certificate.
2	Issuance of this Certificate shall not release CONTRACTOR from any of his obligations, responsibilities or liabilities under the CONTRACT.
3	Mechanical Completion Status Index attached (per Discipline) Punch List report attached (Outstanding and Cleared)

PUNCH LIST	PENDING POINTS	
Note: All Category "A" Items must be cleared prior to issue a Ready For Commissioning (RFC) Certificate	A: 0'	B: 20

REMARKS:

	CONTRACTOR Construction Manager	**CONTRACTOR** Commissioning Manager	**COMPANY** Construction Lead (if required)	**COMPANY** Commissioning Lead (if required)
Name	Wolmer Borghi	Anthony Iveson	Jeroen van Loon	Gerry McCann
Date	2025-03-28	2025-03-28	2025-04-03	2025-03-30
Signature	PROVERLIS Digitaly signed by Wolmer Borghi 2025-03-28T10:18:49.780Z	PROVERLIS Digitaly signed by Anthony Iveson 2025-03-28T16:18:46.819Z	PROVERLIS Digitaly signed by Jeroen van Loon 2025-04-03T12:09:49.603Z	PROVERLIS Digitaly signed by Gerry McCann 2025-03-30T13:37:02.091Z

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC

Electrical	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
20001-CEC	Electrolyser / 6.6KV HV Switchgear	ONSHORE	C10002327	CPX10	100	2025-02-13	RFC 2
83013-CEL-E	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001833	CPX09	100	2025-01-10	RFC 1
83013-CEL-L1	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001829	CPX09	100	2025-01-10	RFC 1
83013-CEL-L2	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001830	CPX09	100	2025-01-10	RFC 1
83013-CEL-L3	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001831	CPX09	100	2025-01-10	RFC 1
83013-CEL-N	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001832	CPX09	100	2025-01-10	RFC 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC

Instrumental	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
20-UCP-001/B400-FGS-003	CONFIRMED GAS ALARM / MARSHALLING PCS	ONSHORE	C10001465	CJX10	100	2025-02-21	RFC 2
C-20-XA-003/B400-SIS-001	UCP FAULT ALARM / MARSHALLING PCS	ONSHORE	C10001455	CJX10	100	2025-02-21	RFC 2
C-20-XS-001/B400-SIS-001	TRIP SIGNAL TO UCP / MARSHALLING PCS	ONSHORE	C10001448	CJX10	100	2025-02-21	RFC 2

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC

Mechanical	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
A-20000	Electrolyser Auxiliary Load	ONSHORE	C10002348	CZX01M	100	2025-03-01	RFC 2

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC

Telecom	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
20-UCP-001/B400-NET-001.01	COMMUNICATION / NETWORK CABINET	ONSHORE	C10004346	CIX09	100	2025-01-29	RFC 2
20-UCP-001/B400-NET-001.02	COMMUNICATION / NETWORK CABINET	ONSHORE	C10004347	CIX09	100	2025-01-29	RFC 2

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	20	Electrolyser package
SUBSYSTEM	20-00	Electrolyser Package (A-20000)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004178	A	A-20000 C10002348	Earthing package F11A is damaged and needs to be replaced	.		Lmussi 2025-02-28	2025-03-10	Gtangianu 2025-03-10	2025-03-10
C30004171	B	A-20000 C10002348	Package tag plate is missing	.		Lmussi 2025-02-28			
C30004172	B	A-20000 C10002348	Package is not fixed to the structure Upper stage of the package to be fixed to the lower stage	.		Lmussi 2025-02-28			
C30004173	B	A-20000 C10002348	Screws are missing on the top of transformator and on the package	.		Lmussi 2025-02-28	2025-03-18	LNovaga 2025-03-18	2025-03-18
C30004174	B	A-20000 C10002348	MCT for lines: 1"-DM-001-01SS-E 1"-N-151-01CS-N 1"-IA-191-01SS-N 1"-DM-005-01CS-H 1"-WW-004-01CS-H (water,	.		Lmussi 2025-02-28			
C30004175	B	A-20000 C10002348	MCT for lines: 2"-VL-003-01HSS-N & 1"-HY-007-03HSS-N (hydrogen lines)to be installed correctly	.		Lmussi 2025-02-28			
C30004176	B	A-20000 C10002348	General touch-up to be performed	.		Lmussi 2025-02-28			
C30004177	B	A-20000 C10002348	Diagonal beam on stairs side is short and not all screws are thightened	.		Lmussi 2025-02-28	2025-03-12	LNovaga 2025-03-12	2025-03-12
C30004179	B	A-20000 C10002348	On transformator and stairs of the package are present earthing tags not as per typical which have to be removed	.		Lmussi 2025-02-28			

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package

SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004180	B	A-20000 C10002348	Earthing connection between handrails and ladder to ground are missing	.		Lmussi 2025-02-28	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004181	B	A-20000 C10002348	Stairs connection to ground type E11C is not as per typical 123A90-DDL-EL-DD-20090 rev. 02	.		Lmussi 2025-02-28	2025-03-26	Gtangianu 2025-03-26	2025-03-26

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000158	B	A1/+08-QF1 C10002925	New and definitive protection setting to be implemented on SG-200N1 drawer A1/+08	Update the Protection Setting on the drawer.	The definitive setting has been updated.	MGirotti 2024-10-09	MGirotti 2024-11-21	MGirotti 2024-11-21	2024-11-21
C30002627	B	83013-CEL-L1 C10001829	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002628	B	83013-CEL-L2 C10001830	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002629	B	83013-CEL-L3 C10001831	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002630	B	83013-CEL-N C10001832	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002631	B	83013-CEL-E C10001833	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002632	B	83013-CEL-L1 C10001829	MCT on roof top the container Electrolyser Package (A-20000) is open.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30002634	B	83013-CEL-L2 C10001830	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30002635	B	83013-CEL-L3 C10001831	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002636	B	83013-CEL-N C10001832	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30002637	B	83013-CEL-E C10001833	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30003802	B	20001-CEC C10002327	Missing cable tag inside/outside the SG-100D1.After MCT. See attached photo. Construction Note: "not accessible inside the	.		Gtangianu 2025-02-13			
C30003803	B	20001-CEC C10002327	wrong cable tag on top panel A-20000. And missing cable tag internal panel A-20000. See attached photo.	.		Gtangianu 2025-02-13	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30004279	B	A-20000	ATEX CERTIFICATE MISSING (Q.RIO2)			CPY 2025-03-26			
C30004280	B	A-20000	DOCUMENT NOT RECEIVED (Q.RIO2)			CPY 2025-03-26			
C30004281	B	A-20000	Ex ia equipment No DSD has been provided and no provision of circuit calculations			CPY 2025-03-26			
C30004282	B	A-20000	WP3 Example of the suspected I.S systems wiring. No DSD has been provided and no provision of circuit calculations, this should be			CPY 2025-03-26			
C30004283	B	A-20000	Electrolyser Void Damage to control cables on transit entering the lower container at the East end.			CPY 2025-03-26			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004284	B	A-20000	Have ATEX signs been procured for fitting on the Entry to Zones?			CPY 2025-03-26			
C30004285	B	A-20000	DATA NAMEPLATE MISSING, INCLUDING PED AND ATEX MARKING (HPP-700)			CPY 2025-03-26			
C30004286	B	A-20000	MISSING CABLE TAGS [ELOGEN SUPPLY] (TS64.1)			CPY 2025-03-26			
C30004287	B	A-20000	RUINED THE LOWER PART OF ITEM, THREAD DAMAGED. TO BE REPLACED (PT-632)			CPY 2025-03-26			
C30004288	B	A-20000	INSULATION TO BE RESTORED DUE TO UNMOUNT OF PIPING FOR CLEANING PURPOSE AND DUE TO BUMPS OCCOUR			CPY 2025-03-26			
C30004289	B	A-20000	Barrier 331T5 not suitable to be installed inside QRIO2			CPY 2025-03-26			

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Telecom									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003303	B	20-UCP-001/B400-NET-001.01 C10004346	Missing identification tag inside/outside the Fores panel (20-UCP-001). See attached photo.	.		Gtangianu 2025-01-29	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30003304	B	20-UCP-001/B400-NET-001.02 C10004347	Missing identification tag inside/outside the Fores panel (20-UCP-001). See attached photo.	.		Gtangianu 2025-01-29	2025-02-21	Gtangianu 2025-02-21	2025-02-21

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004073	B	C-20-XS-001/B400-SIS-001 C10001448	Missing cable tags the from/to MCT internal electrolyzer A-20000 .	.		Gtangianu 2025-02-21	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30004075	B	C-20-XA-003/B400-SIS-001 C10001455	Missing cable tags the from/to MCT internal electrolyzer A-20000 .	.		Gtangianu 2025-02-21	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30004078	B	20-UCP-001/B400-FGS-003 C10001465	Missing cable tags the from/to MCT internal electrolyzer A-20000 .	.		Gtangianu 2025-02-21	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30004290	B	A-20000	THS-200_PSV THS-400_PSV HPP-700_PSV64.3 missing tubing for drain DP (C-63 SYSTEM)			CPY 2025-03-26			
C30004291	B	A-20000	RV-200 RV-400 HPP-700_PSV64.3 missing antistatic bid (C-63 SYSTEM)			CPY 2025-03-26			

Section 2 CONSOLIDATED PUNCH LISTS

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	20	Electrolyser package
SUBSYSTEM	20-00	Electrolyser Package (A-20000)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004178	A	A-20000 C10002348	Earthing package F11A is damaged and needs to be replaced	.		Lmussi 2025-02-28	2025-03-10	Gtangianu 2025-03-10	2025-03-10
C30004171	B	A-20000 C10002348	Package tag plate is missing	.	Tag plate added to the container with CE marking	Lmussi 2025-02-28	JDuinhoven 2025-07-24	JDuinhoven 2025-07-24	JDuinhoven 2025-07-24
C30004172	B	A-20000 C10002348	Package is not fixed to the structure Upper stage of the package to be fixed to the lower stage	.	bolts replaced	Lmussi 2025-02-28	RDegliEsposti 2025-07-28	RDegliEsposti 2025-07-28	2025-07-28
C30004173	B	A-20000 C10002348	Screws are missing on the top of transformator and on the package	.		Lmussi 2025-02-28	2025-03-18	LNovaga 2025-03-18	2025-03-18
C30004174	B	A-20000 C10002348	MCT for lines: 1"-DM-001-01SS-E 1"-N-151-01CS-N 1"-IA-191-01SS-N 1"-DM-005-01CS-H 1"-WW-004-01CS-H (water,	.		Lmussi 2025-02-28	2025-04-22	LNovaga 2025-04-22	2025-04-22
C30004175	B	A-20000 C10002348	MCT for lines: 2"-VL-003-01HSS-N & 1"-HY-007-03HSS-N (hydrogen lines)to be installed correctly	.		Lmussi 2025-02-28	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10
C30004176	B	A-20000 C10002348	General touch-up to be performed	.		Lmussi 2025-02-28	2025-05-06	LNovaga 2025-05-06	2025-05-06
C30004177	B	A-20000 C10002348	Diagonal beam on stairs side is short and not all screws are thightened	.		Lmussi 2025-02-28	2025-03-12	LNovaga 2025-03-12	2025-03-12
C30004179	B	A-20000 C10002348	On transformator and stairs of the package are present earthing tags not as per typical which have to be removed	.		Lmussi 2025-02-28	2025-04-14	JDuinhoven 2025-04-14	JDuinhoven 2025-04-14

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Mechanical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004180	B	A-20000 C10002348	Earthing connection between handrails and ladder to ground are missing	.		Lmussi 2025-02-28	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004181	B	A-20000 C10002348	Stairs connection to ground type E11C is not as per typical 123A90-DDL-EL-DD-20090 rev. 02	.		Lmussi 2025-02-28	2025-03-26	Gtangianu 2025-03-26	2025-03-26
C30004415	B	A-20000 C10002348	Refer to the attached detailed description.	Refer to the attached detailed description (yellow highlighted section).		RDegliEsposti 2025-08-04			

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PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000158	B	A1/+08-QF1 C10002925	New and definitive protection setting to be implemented on SG-200N1 drawer A1/+08	Update the Protection Setting on the drawer.	The definitive setting has been updated.	MGirotti 2024-10-09	MGirotti 2024-11-21	MGirotti 2024-11-21	2024-11-21
C30002627	B	83013-CEL-L1 C10001829	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002628	B	83013-CEL-L2 C10001830	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002629	B	83013-CEL-L3 C10001831	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002630	B	83013-CEL-N C10001832	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002631	B	83013-CEL-E C10001833	MCT on (lower/top deck is open) . See attached photo.	.		Gtangianu 2025-01-10	2025-03-10	JKrizanic 2025-03-10	2025-03-10
C30002632	B	83013-CEL-L1 C10001829	MCT on roof top the container Electrolyser Package (A-20000) is open.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30002634	B	83013-CEL-L2 C10001830	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30002635	B	83013-CEL-L3 C10001831	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30002636	B	83013-CEL-N C10001832	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30002637	B	83013-CEL-E C10001833	MCT on the roof top the Electrolyser Package (A-20000) is open. See attached photo.	.		Gtangianu 2025-01-10	2025-03-05	Gtangianu 2025-03-05	2025-03-05
C30003802	B	20001-CEC C10002327	Missing cable tag inside/outside the SG-100D1.After MCT. See attached photo. Construction Note: "not accessible inside the	.		Gtangianu 2025-02-13	2025-06-16	Ecarotenuto 2025-06-16	2025-06-16
C30003803	B	20001-CEC C10002327	wrong cable tag on top panel A-20000. And missing cable tag internal panel A-20000. See attached photo.	.		Gtangianu 2025-02-13	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30004279	B	A-20000	ATEX CERTIFICATE MISSING (Q.RIO2)			CPY 2025-03-26	2025-04-14	JDuinhoven 2025-04-14	JDuinhoven 2025-04-14
C30004280	B	A-20000	DOCUMENT NOT RECEIVED (Q.RIO2)			CPY 2025-03-26	2025-04-14	JDuinhoven 2025-04-14	JDuinhoven 2025-04-14
C30004281	B	A-20000	Ex ia equipment No DSD has been provided and no provision of circuit calculations			CPY 2025-03-26	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10
C30004282	B	A-20000	WP3 Example of the suspected I.S systems wiring. No DSD has been provided and no provision of circuit calculations, this should be			CPY 2025-03-26	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10
C30004283	B	A-20000	Electrolyser Void Damage to control cables on transit entering the lower container at the East end.			CPY 2025-03-26	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package

SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004284	B	A-20000	Have ATEX signs been procured for fitting on the Entry to Zones?		Atex signs have been placed on the doors (see pictures)	CPY 2025-03-26	JDuinhoven 2025-07-08	JDuinhoven 2025-07-08	JDuinhoven 2025-07-08
C30004285	B	A-20000	DATA NAMEPLATE MISSING, INCLUDING PED AND ATEX MARKING (HPP-700)		The HPP-700 package is now part of the entire electrolyser package and	CPY 2025-03-26	JDuinhoven 2025-07-04	JDuinhoven 2025-07-04	JDuinhoven 2025-07-04
C30004286	B	A-20000	MISSING CABLE TAGS [ELOGEN SUPPLY] (TS64.1)			CPY 2025-03-26	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10
C30004287	B	A-20000	RUINED THE LOWER PART OF ITEM, THREAD DAMAGED. TO BE REPLACED (PT-632)		Pressure transmitter replaced	CPY 2025-03-26	JDuinhoven 2025-05-07	JDuinhoven 2025-05-07	JDuinhoven 2025-05-07
C30004288	B	A-20000	INSULATION TO BE RESTORED DUE TO UNMOUNT OF PIPING FOR CLEANING PURPOSE AND DUE TO BUMPS OCCOUR		Completed	CPY 2025-03-26	JDuinhoven 2025-07-24	JDuinhoven 2025-07-24	JDuinhoven 2025-07-24
C30004289	B	A-20000	Barrier 331T5 not suitable to be installed inside QRIO2			CPY 2025-03-26	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10
C30004388	B	A-20000	Rectifier 1 currently supplies power to stacks 5-8, rectifier 2 currently supplies stacks 1-4. As per the documentation this should be reversed. Cabled		This will be addressed through the as-building process rather than	CPY 2025-05-19	JDuinhoven 2025-07-11	JDuinhoven 2025-07-11	JDuinhoven 2025-07-11

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 20 Electrolyser package
SUBSYSTEM 20-00 Electrolyser Package (A-20000)

Telecom									
CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30003303	B	20-UCP-001/B400-NET-001.01 C10004346	Missing identification tag inside/outside the Fores panel (20-UCP-001). See attached photo.	.		Gtangianu 2025-01-29	2025-02-21	Gtangianu 2025-02-21	2025-02-21
C30003304	B	20-UCP-001/B400-NET-001.02 C10004347	Missing identification tag inside/outside the Fores panel (20-UCP-001). See attached photo.	.		Gtangianu 2025-01-29	2025-02-21	Gtangianu 2025-02-21	2025-02-21

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	20	Electrolyser package
SUBSYSTEM	20-00	Electrolyser Package (A-20000)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30004073	B	C-20-XS-001/B400-SIS-001 C10001448	Missing cable tags the from/to MCT internal electrolyzer A-20000 .	.		Gtangianu 2025-02-21	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30004075	B	C-20-XA-003/B400-SIS-001 C10001455	Missing cable tags the from/to MCT internal electrolyzer A-20000 .	.		Gtangianu 2025-02-21	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30004078	B	20-UCP-001/B400-FGS-003 C10001465	Missing cable tags the from/to MCT internal electrolyzer A-20000 .	.		Gtangianu 2025-02-21	2025-03-12	JKrizanic 2025-03-12	2025-03-12
C30004290	B	A-20000	THS-200_PSV THS-400_PSV HPP-700_PSV64.3 missing tubing for drain DP (C-63 SYSTEM)			CPY 2025-03-26	2025-04-10	JDuinhoven 2025-04-10	JDuinhoven 2025-04-10
C30004291	B	A-20000	RV-200 RV-400 HPP-700_PSV64.3 missing antistatic bid (C-63 SYSTEM)			CPY 2025-03-26	2025-04-29	JDuinhoven 2025-04-29	JDuinhoven 2025-04-29

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000158

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002925	1.4 Discipline	Electrical
1.2 Item	A1/+08-QF1		ELECTROLISER AUXILIARY LOAD - A1/+08-QF1
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

New and definitive protection setting to be implemented on SG-200N1 drawer A1/+08

Name: Mattia Girotti

Date: 2024-10-09

Signature:

3 - DEFECT ASSESSMENT

Update the Protection Setting on the drawer.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Mattia Girotti
3.4 Activity code	COMM Commissioning	Date	2024-10-09
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

The definitive setting has been updated.

Name: Mattia Girotti

Date: 2024-11-21

Signature:

5 - CLEARANCE CHECK

Done.

Name: Mattia Girotti

Date: 2024-11-21

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date:

Signature:

Page Name	Group Name	Variable Name	Variable Value	Variable Unit
Settings A				
	Overload Protection (L - ANSI 49)			
		PU nominal current In	630	
		Status	Enabled	
		Function	t=k/i^2	
		Prealarm I1	90	% I1
		Threshold I1	0.870	In
		Time t1 std	3.00	s
		Thermal memory (TM)	Disabled	
		TM Algorithm	RMS-independent	
		TM Time	Automatic	
		TM custom time	830	s
	Time-delayed overcurrent protection (S - ANSI 50 TD/68/51)			
		Status	Enabled	
		Trip enable	Enabled	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Function	t=k	
		Threshold I2 (t=k)	4.00	In
		Time t2 (t=k) IEC - UL489	0.10	s
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	0.60	In
		Set Startup th. on ProgStatusD	--------	
		Thermal memory status	Disabled	
		Zone Selectivity status	Disabled	
		Zone Selectivity time	0.04	s
		Zone Selectivity Type	Logic and Hardware	
	Second time-delayed overcurrent protection (S2 - ANSI 50 TD)			
		Status	Disabled	
		Trip enable	Enabled	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Threshold I5 (t=k)	1.20	In
		Time t5 (t=k)	0.05	s
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	2.00	In
		Set Startup th. on ProgStatusD	--------	
		Zone Selectivity status	Disabled	
		Zone Selectivity time	0.04	s
		Zone Selectivity Type	Logic and Hardware	
	Instantaneous overcurrent protection (I - ANSI 50)			
		Status	Enabled	
		Threshold I3	9.00	In
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	1.50	In
		Set Startup th. on ProgStatusD	--------	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Zone Selectivity status	Disabled	
		Zone Selectivity Type	Logic and Hardware	
	Second I			
		Prot Second I	---	
		Status	Disabled	
		Threshold I31	1.50	In
		Zone Selectivity status	Disabled	
		Zone Selectivity Type	Logic and Hardware	
		Second I Mode	Function Dependent	
		Function	Disabled	
		Delay On	0.00	s
		Delay Off	15.00	s
	Earth fault protection (G - ANSI 50N TD/68/51N)			
		Status	Enabled	
		Trip enable	Enabled	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Function	t=k	
		Prealarm I4	90	% I4
		Threshold I4 (t=k)	0.200	In
		Time t4 (t=k) IEC - UL489	0.10	s

		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold	0.20	In
		Set Startup th. on ProgStatusD	--------	
		Zone selectivity status	Disabled	
		Zone selectivity time	0.04	s
		Zone Selectivity Type	Logic and Hardware	
	Directional overcurrent protection (D - ANSI 67/68)			
		Status	Disabled	
		Trip enable	Disabled	
		tripOnlyForward	--------	
		tripOnlyBackward	--------	
		BlockOnStartUp	--------	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Threshold I7 FWD	2.00	In
		Time t7 FWD	0.20	s
		Threshold I7 BWD	2.00	In
		Time t7 BWD	0.20	s
		Startup enable	Disabled	
		Startup time	0.10	s
		Startup threshold FWD	2.00	In
		Startup threshold BWD	2.00	In
		Set Startup th. on ProgStatusD	--------	
		Zone Selectivity status	Disabled	
		Zone Selectivity time FWD	0.13	s
		Zone Selectivity time BWD	0.13	s
		Zone Selectivity Type	Logic and Hardware	
		Direction minimum angle	3.6	°
	Closing on short-circuit protection (MCR)			
		Status	Disabled	
		BlockOnOutOfFrequency	--------	
		BlockOnProgStatusA	--------	
		BlockOnProgStatusB	--------	
		BlockOnProgStatusC	--------	
		BlockOnProgStatusD	--------	
		Threshold I3	6.00	In
		Time t3	0.04	s
		Zone Selectivity status	Disabled	
		Zone Selectivity Type	Logic and Hardware	
	Over Temperature (T)			
		Trip enable	Disabled	

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004284

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

Have ATEX signs been procured for fitting on the Entry to Zones?

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Atex signs have been placed on the doors (see pictures)

Name Thijs Philippo

Date 2025-07-08

Signature

5 - CLEARANCE CHECK

Confirmed by Package Lead

Name Thijs Philippo

Date 2025-07-08

Signature

6- CLEARANCE APPROVAL

Confirmed for closure

Name Jan Duinhoven

Date 2025-07-08

Signature


EX
Gevaar
Explosieve atmosfeer
ATEX Zone 2
F


EX
Danger
Explosive atmosphere
ATEX Zone 2
EX
Waarshuwing
Dit is een ATEX-gebied
Verboden toegang
voor onbevoegden
Verboden te roken
Vuur en open vlam
verboden
Werkvergunning
verplicht
EX gasmeting
verplicht


EX
Danger
Explosive atmosphere
ATEX Zone 2
EX
Waarshuwing
Dit is een ATEX-gebied
Verboden toegang voor onbevoegden
Verboden te roken
Vuur en open vlam verboden
Werkvergunning verplicht
EX gasmeting verplicht
F

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004285

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

DATA NAMEPLATE MISSING, INCLUDING PED AND ATEX MARKING (HPP-700)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

The HPP-700 package is now part of the entire electrolyser package and PED and ATEX marking will be part of total package rather than as separate package.

Name Thijs Philippo

Date 2025-07-04

Signature

5 - CLEARANCE CHECK

Punchlist can be closed

Name Thijs Philippo

Date 2025-07-04

Signature

6- CLEARANCE APPROVAL

Punchlist can be closed

Name Jan Duinhoven

Date 2025-07-04

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004286

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

MISSING CABLE TAGS [ELOGEN SUPPLY] (TS64.1)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004287

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

RUINED THE LOWER PART OF ITEM, THREAD DAMAGED. TO BE REPLACED (PT-632)

Name: Jan Duinhoven

Date: 2025-05-07

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Pressure transmitter replaced

Name: Jan Duinhoven

Date: 2025-05-07

Signature:

5 - CLEARANCE CHECK

Completed

Name: Jan Duinhoven

Date: 2025-05-07

Signature:

6- CLEARANCE APPROVAL

Completed

Name: Jan Duinhoven

Date: 2025-05-07

Signature:


Endress+Hauser
Cerabar
D-79689 Maulburg, Hauptstr. 1
Made in Germany
Order code: PMP71B-2MFR0/0
Ser. no.: X4060C01198
Ext. ord. cd.: PMP71B-BFBADBF6AA3SBI1WBJA1+CCNN#
4-20 mA HART
10.5...35 V
P: -1...40 bar rel
MWP: 100 bar
FW: 01.01.00 Dev.Rev.: 2
HW: 01.00.00
Fill Fluid:
Silicone oil
Mat.: 316L GOLD
T≥Ta + 20 K
0044
Type 4X/6P Encl.
IP66/68
Contains FCC ID: LCGVU101
Contains IC: 2519A-VU101
CMIIT ID: 2020DJ1481
Date:
2025-04

BBV-63


TAG no.:
PT-632

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004288

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

INSULATION TO BE RESTORED DUE TO UNMOUNT OF PIPING FOR CLEANING PURPOSE AND DUE TO BUMPS OCCOUR DURING INSTALLATION. Insulation Valves to be installed

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Completed

Name	Jan Duinhoven
Date	2025-07-24
Signature	

5 - CLEARANCE CHECK

Inspected the completion of this punchlist together with Jamie McAllister

Name	Jan Duinhoven
Date	2025-07-24
Signature	

6- CLEARANCE APPROVAL

Agreed

Name	Jan Duinhoven
Date	2025-07-24
Signature	

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004289

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

Barrier 331T5 not suitable to be installed inside QRIO2

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004290

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

THS-200_PSV THS-400_PSV HPP-700_PSV64.3 missing tubing for drain DP (C-63 SYSTEM)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004291

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Instrumental
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

RV-200 RV-400 HPP-700_PSV64.3 missing antistatic bid (C-63 SYSTEM)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Witness waived
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by	VND Vendor	Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date 2025-04-29

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-29

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-29

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004388

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

Rectifier 1 currently supplies power to stacks 5-8, rectifier 2 currently supplies stacks 1-4. As per the documentation this should be reversed. Cabled connections to be corrected at an opportune time.

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	COMM Commissioning	Date	2025-05-19
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

This will be addressed through the as-building process rather than physically change the cabling.

Name Jan Duinhoven

Date 2025-07-11

Signature

5 - CLEARANCE CHECK

Confirmed

Name Stephen Bremner

Date 2025-07-11

Signature

6- CLEARANCE APPROVAL

Closed

Name Jan Duinhoven

Date 2025-07-11

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004415

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Refer to the attached detailed description.

Name: Raffaele Degli Esposti

Date: 2025-08-04

Signature:

3 - DEFECT ASSESSMENT

Refer to the attached detailed description (yellow highlighted section).

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Raffaele Degli Esposti
3.4 Activity code	CPY Company	Date	2025-08-04
3.5 Action by	CPY COMPANY	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Completed

Name:

Date:

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date:

Signature:

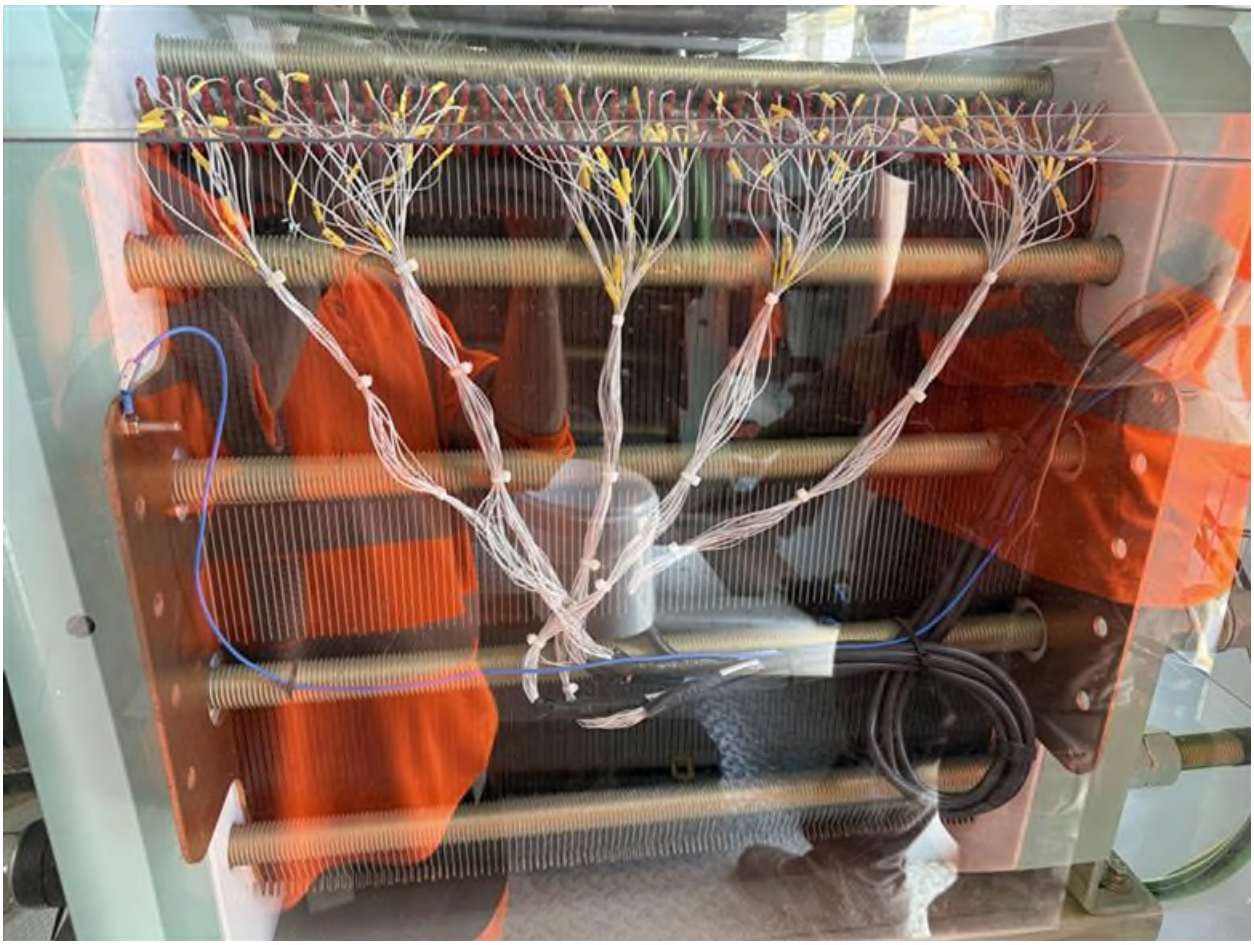
Introduction

Here are some outstanding n issues regarding CPI\s picked up during commissioning that need adding to the respective systems Punch Lists within Proverlis – to ensure All such are recorded, visible and tracked IN SAME PLACE.

Electrolyser – System 20-00

1. Kolibricks cell voltage measurement Issue.

   The Kolibricks cell voltage measurement system works correctly during the polarization stage of the stacks, with measured values rising at a steady rate up to around 1.6 VDC. When the breakers close to provide power from the Rectifiers to the stack these values are immediately held to around the 1.2 VDC mark and stay there throughout H2 production. Cell voltage measurement only returns to live values when the rectifier breakers open and the rectifiers are no longer supplying power to the stacks.



It may be worthwhile separating the cabling for the overall stack voltage measurement (the blue and brown cables tied directly to the bus plates) from the individual cell voltage measurement cables (white) in order to eliminate the possibility that this is causing electrical interference. Connections are available on the opposite side of the stacks to allow this separation.

Recommendation yet to be received from vendor i.e. Elogen.

2. PT-206 – to be replaced.

   This differential pressure transmitter inside WP3 is faulty and requires replacement. Spare on order from Elogen.

   Delivery TBC by vendor i.e. Elogen.

3. RO membrane (Ovivo package) to be replaced.

   Ovivo WTP has been fully drained & preservation fluid for the membrane has not been introduced to the RO unit. Fluid is due to arrive onsite next week but by this point the membrane will have been dry for in excess of one week. Recommend removing the RO completely to be replaced with new in final location.

   Delivery TBC by vendor i.e. Elogen.

4. Ovivo UV lamp requires replacing.

   Delivery TBC by vendor i.e. Elogen.

5. HVAC Setpoints To Be Provided by Elogen.

   We are still awaiting feedback from Elogen regarding the correct setpoints on HVAC alarms/trips for parameters such as pressure and humidity. In the case of WP3 the pressure trip performs a process safety function and therefore it is crucial that these details are supplied to us by Elogen

   Detail TBC by vendor i.e. Elogen.

6. Rectifier / Stacks Cabling

   As per drawings Rectifier 1 should supply power to Stacks 1 – 4 and Rectifier 2 should supply stacks 5 – 8. This was reversed in reality. The preferred solution is to update the drawings to reflect the current installation.

   Detail TBC by vendor i.e. Elogen.

Fuel Cell – System 80-00

1. Fuel Cell trips on transition to Island / Emergency mode

   Several trips were observed during OIT relating to nano grid instability. This may have been due to the power quality of the diesel generators as the Fuel Cell appeared to be stable when BESS was grid forming. Ballard have been asked if parameters / protection settings can be relaxed to ensure greater reliability from the package.

   Recommendation to be provided by vendor i.e. Freqcon. .

2. Temperature sensor BT01.

   Temperature sensor was spiking during initial part of OIT resulting in package trips. Sensor, cable, transmitter and controller all replaced during OIT. Latterly no spikes were observed but runtime since repair has been short. Sensor should be observed during operation for extended period so that repair can be confirmed as successful.

BESS = System 85-00

1. Secondary Protection Settings for Island / Emergency mode

   As per OTP a secondary set of protection settings, relevant only for island mode, should be confirmed as installed on the ABB switchgear by Rosetti. Awaiting confirmation from Anthony.

   RM Commissioning to provide details.

H2 = System 25

1. PCV Tuning

   PCVs require further tuning to achieve greater stability & control of H2 supply to fuel cell.

   RM Commissioning to provide details.

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004172

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Package is not fixed to the structure

Upper stage of the package to be fixed to the lower stage

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

bolts replaced

Name: Raffaele Degli Esposti

Date: 2025-07-28

Signature:

5 - CLEARANCE CHECK

Completed

Name: Raffaele Degli Esposti

Date: 2025-07-28

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-07-29

Signature:











ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004173

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Screws are missing on the top of transformator and on the package

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done, see attached.

Name: Lorenzo Novaga

Date: 2025-03-18

Signature:

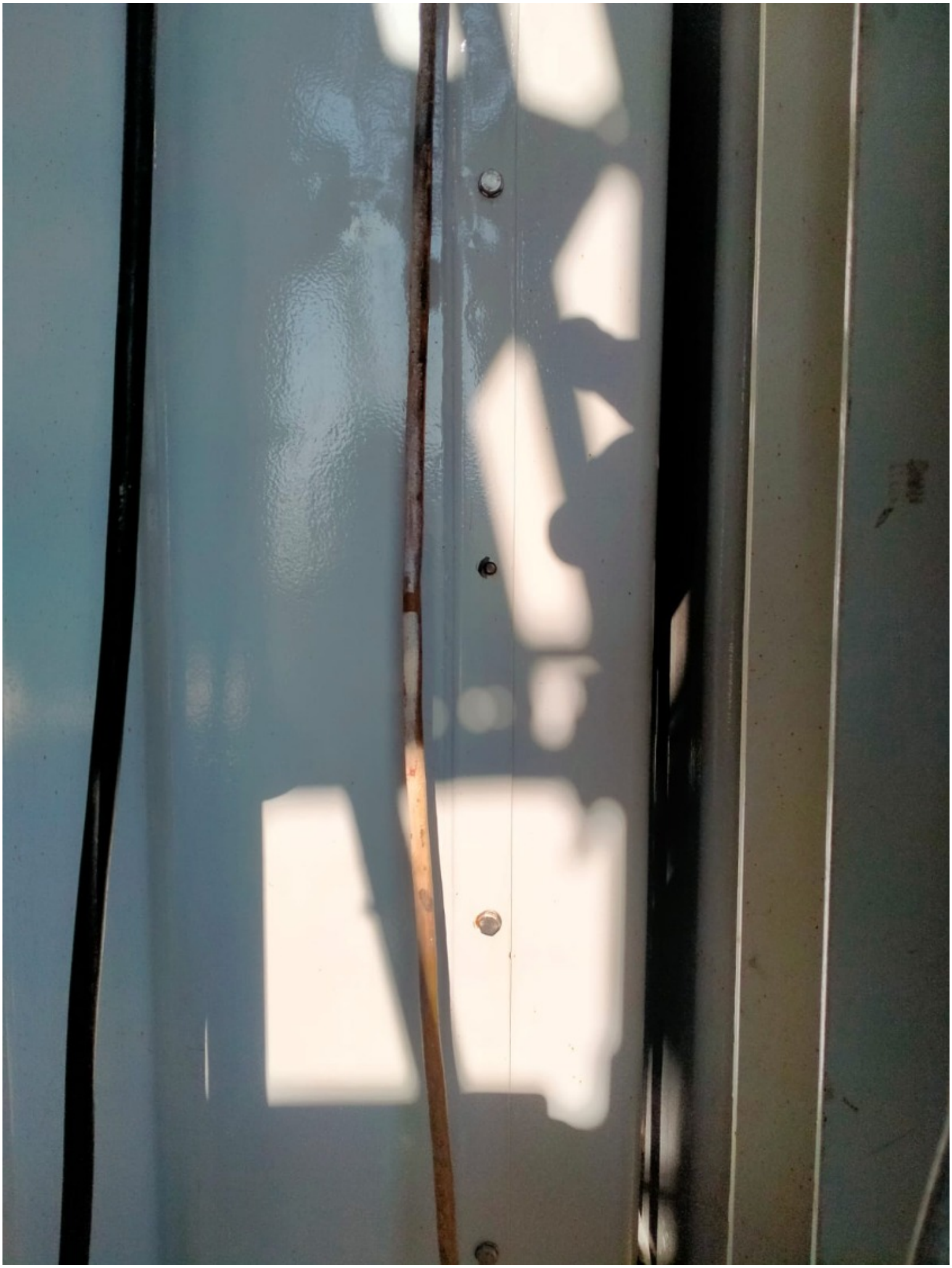
6- CLEARANCE APPROVAL

Completed

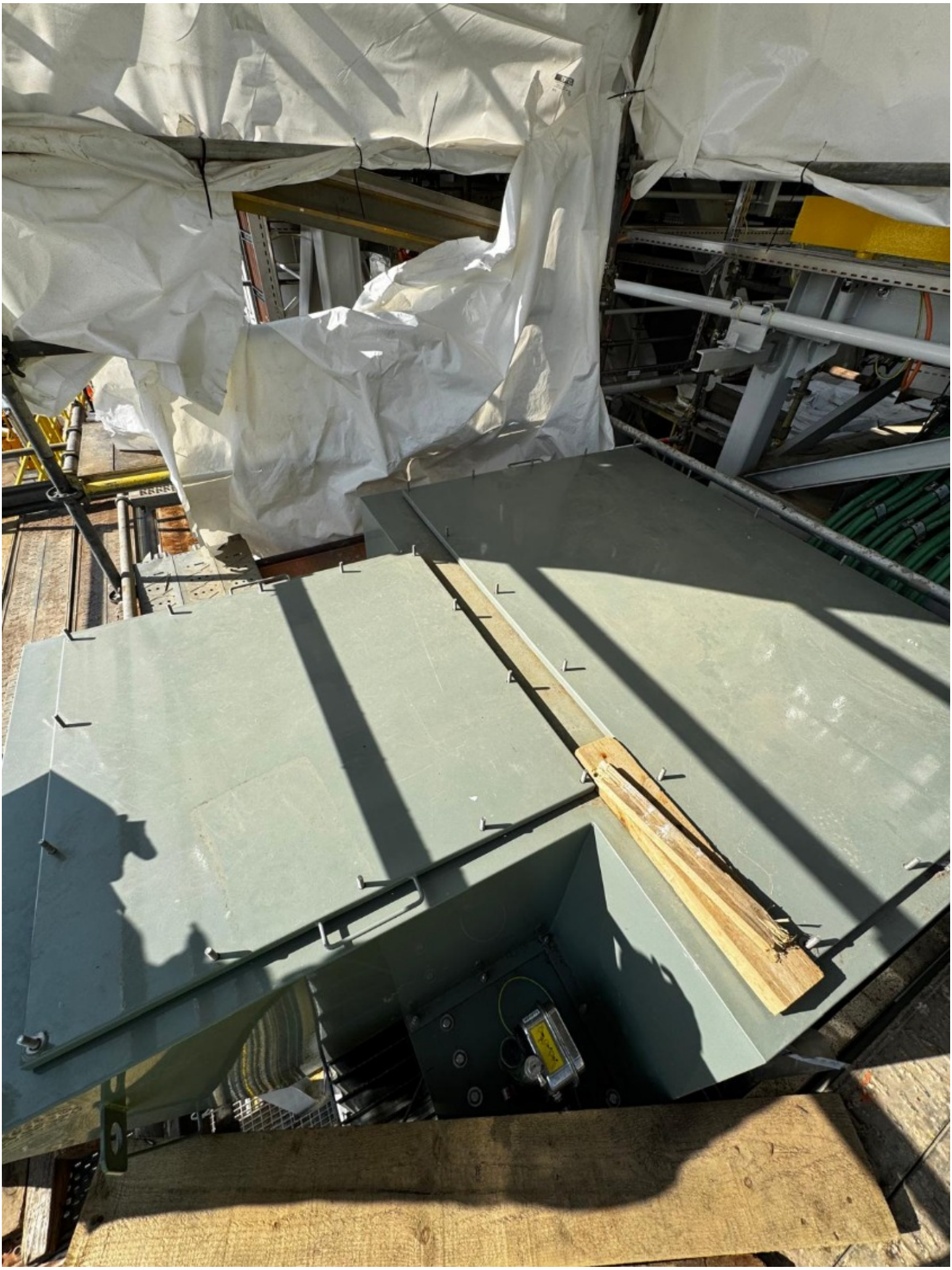
Name:

Date:

Signature:















ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004174

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT for lines:

1"-DM-001-01SS-E
1"-N-151-01CS-N
1"-IA-191-01SS-N
1"-DM-005-01CS-H
1"-WW-004-01CS-H

(water, air and nitrogen lines) to be installed correctly.

Name: Luca Mussi
Date: 2025-02-28
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Accetpted by company as per last photo attached.

Name: Lorenzo Novaga
Date: 2025-04-22
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:











ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004175

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT for lines: 2"-VL-003-01HSS-N & 1"-HY-007-03HSS-N (hydrogen lines)to be installed correctly

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name: Jan Duinhoven

Date: 2025-04-10

Signature:

6- CLEARANCE APPROVAL

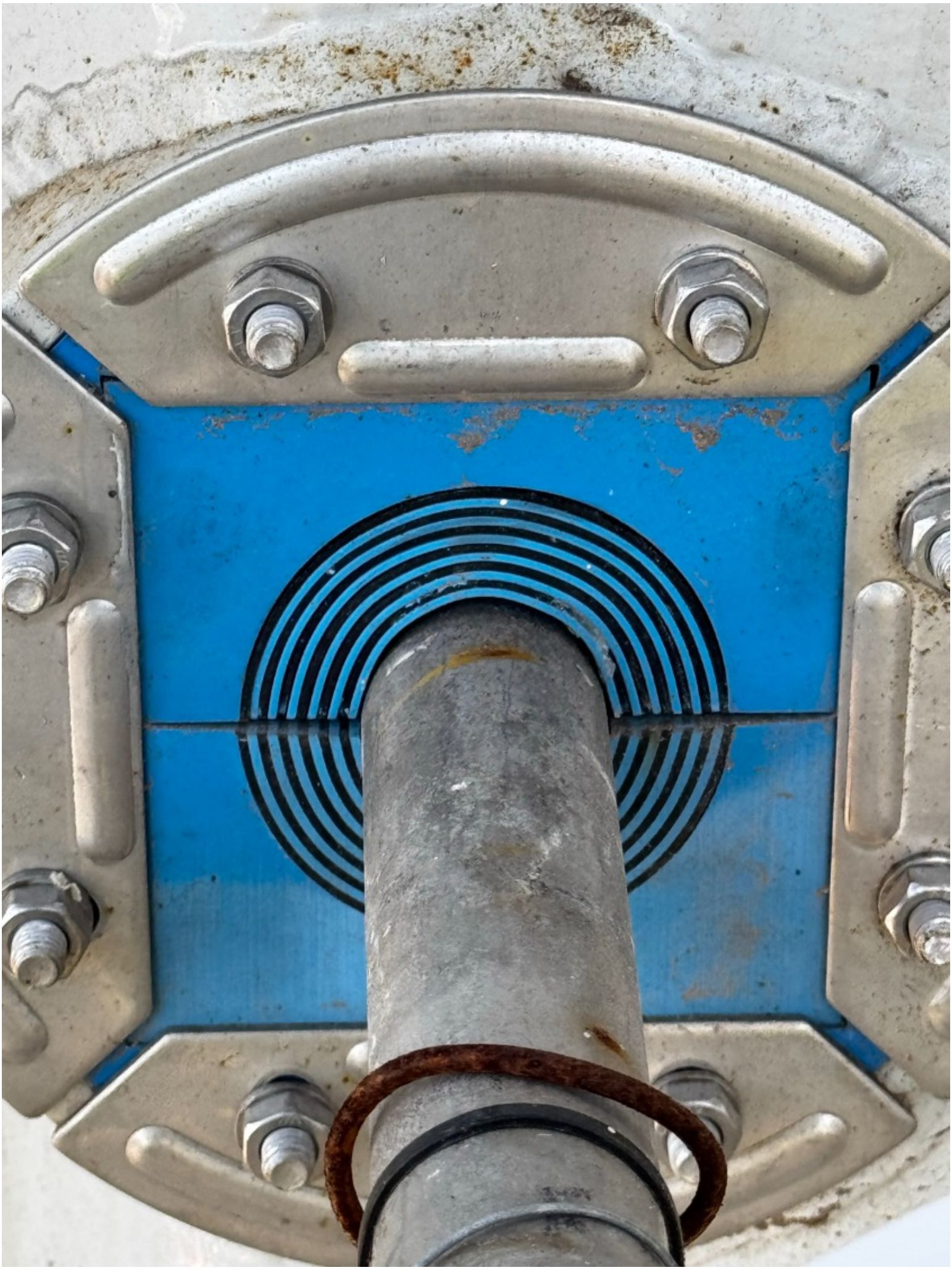
Work has been completed by CPI Vendor and confirmed by package manager.

Name: Jan Duinhoven

Date: 2025-04-10

Signature:





ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004176

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

General touch-up to be performed

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DOne.

Name: Lorenzo Novaga

Date: 2025-05-06

Signature:

6- CLEARANCE APPROVAL

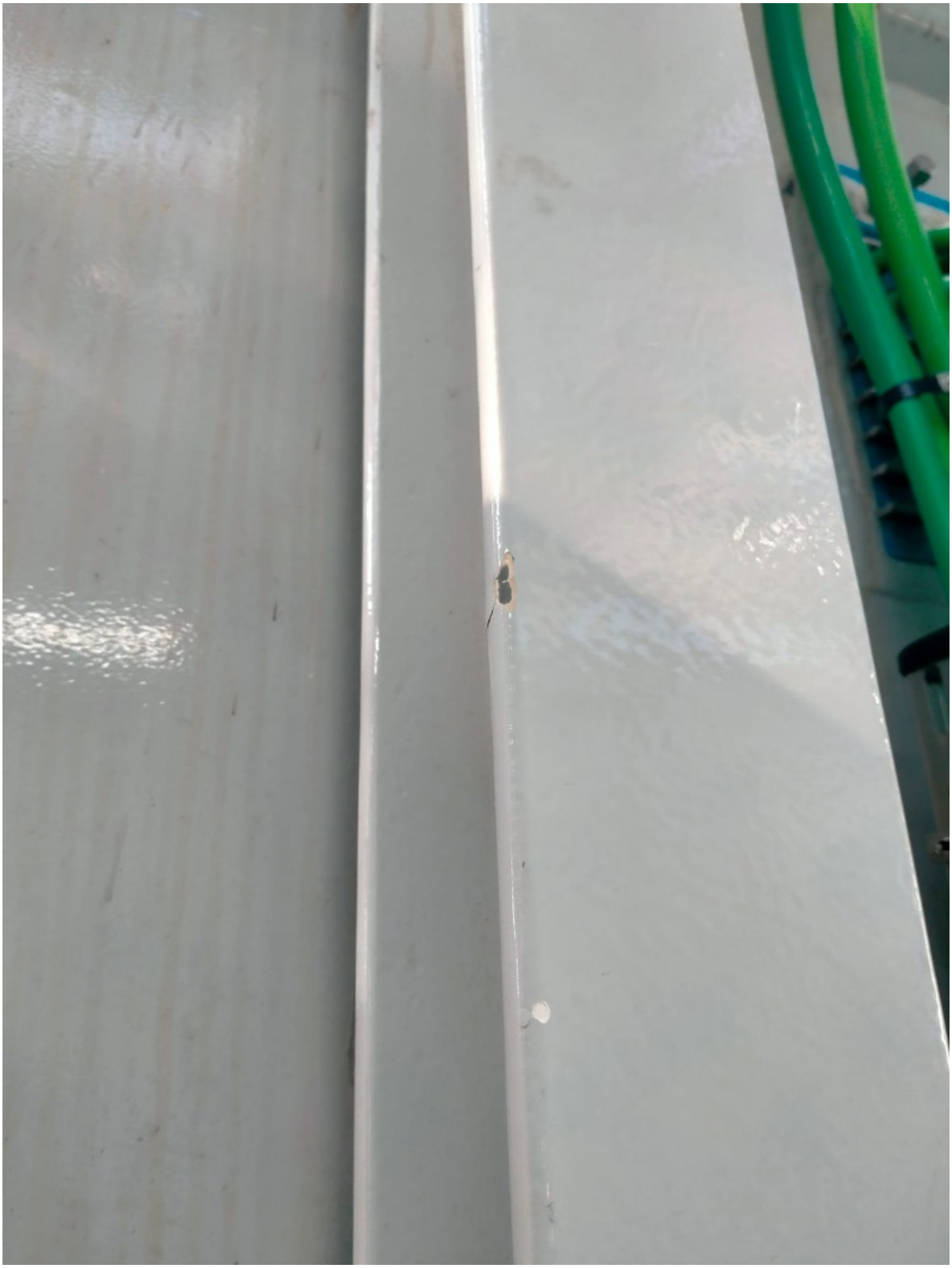
Completed

Name:

Date:

Signature:






ALTRAD



ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004177

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Diagonal beam on stairs side is short and not all screws are thightened

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-12

Signature:

5 - CLEARANCE CHECK

Done.

Name: Lorenzo Novaga

Date: 2025-03-12

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-12

Signature:








TOP





ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004178

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Earthing package F11A is damaged and needs to be replaced

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	A PL A	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

CHANGED.

Name: Giovanni Tangianu

Date: 2025-03-07

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-10

Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004179

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

On transformator and stairs of the package are present earthing tags not as per typical which have to be removed

Name: Luca Mussi
Date: 2025-02-28
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name: Jan Duinhoven
Date: 2025-04-14
Signature:

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name: Jan Duinhoven
Date: 2025-04-14
Signature:


L'INNOVATION
Au service de l'Environnement
GMT
AKHELEC







ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004180

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Earthing connection between handrails and ladder to ground are missing

Name: Luca Mussi
Date: 2025-02-28
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date: 2025-03-26
Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2025-03-26
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date: 2025-03-26
Signature:





ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004181

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Stairs connection to ground type E11C is not as per typical 123A90-DDL-EL-DD-20090 rev. 02

Name: Luca Mussi
Date: 2025-02-28
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date: 2025-03-26
Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu
Date: 2025-03-26
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date: 2025-03-26
Signature:



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004279

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

ATEX CERTIFICATE MISSING (Q.RIO2)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-14

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-14

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004280

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

DOCUMENT NOT RECEIVED (Q.RIO2)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-14

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-14

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004281

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

Ex ia equipment No DSD has been provided and no provision of circuit calculations

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004282

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Electrical

1.2 Item A-20000 Electrolyser Auxiliary Load

1.3 Subsystem 20-00 Electrolyser Package (A-20000)

2 - OBSERVATION

WP3
Example of the suspected I.S systems wiring.
No DSD has been provided and no provision of circuit calculations, this should be provided and system design confirmed to be acceptable.
W-PT 64.1 is Ex ia equipment.
W-GS 64.3 T2 is Ex ia equipment
W-TS 64.4 is EX ia equipment
W-GS 64.1.1/1.2/1.3/1.4 is Ex ia equipment
FICV-611 is Ex ia equipment
FICV-610A/B/C Ex ia equipment
FICV – 800 Ex ia equipment

loop calculations for all I.S Systems required
10/01/25

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority B PL B

3.4 Activity code CPY Company

3.5 Action by

Name -

Date 2025-03-26

Signature --- Proverlis ---
Duplicata issued from database information
Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004283

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	A-20000		Electrolyser Auxiliary Load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

Electrolyser Void
Damage to control cables on transit entering the lower container at the East end.

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	-
3.4 Activity code	CPY Company	Date	2025-03-26
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name

Date

Signature

5 - CLEARANCE CHECK

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

6- CLEARANCE APPROVAL

Work has been completed by CPI Vendor and confirmed by package manager.

Name Jan Duinhoven

Date 2025-04-10

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002627

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001829	1.4 Discipline	Electrical
1.2 Item	83013-CEL-L1	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on (lower/top deck is open) .

See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-10

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-10

Signature:


2000 CEC
- ELECTRIC CABLE - 1000 V - 10X300 50MM - EPR/LSZ

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002628

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001830	1.4 Discipline	Electrical
1.2 Item	83013-CEL-L2	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on (lower/top deck is open) .

See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-10

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-10

Signature:


2000 CEC
- ELECTRIC CABLE - 1000 V - 10X300 50MM - EPR/LSZ

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002629

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001831	1.4 Discipline	Electrical
1.2 Item	83013-CEL-L3		LV Switchgear / Electrolyser Auxiliary load
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

MCT on (lower/top deck is open) .

See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-10

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-10

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002630

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001832	1.4 Discipline	Electrical
1.2 Item	83013-CEL-N	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on (lower/top deck is open) .

See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-10

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-10

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002631

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001833	1.4 Discipline	Electrical
1.2 Item	83013-CEL-E	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on (lower/top deck is open) .

See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date: 2025-03-10

Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic

Date: 2025-03-10

Signature:

6- CLEARANCE APPROVAL

Completed

Name:

Date: 2025-03-10

Signature:


2000 CEC
- ELECTRIC CABLE - 1000 V - 10X300 50MM - EPR/LSZ

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002632

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001829	1.4 Discipline	Electrical
1.2 Item	83013-CEL-L1	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on roof top the container Electrolyser Package (A-20000) is open.

Name: Giovanni Tangianu

Date: 2025-01-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Closed.

Name: Giovanni Tangianu

Date: 2025-03-05

Signature:

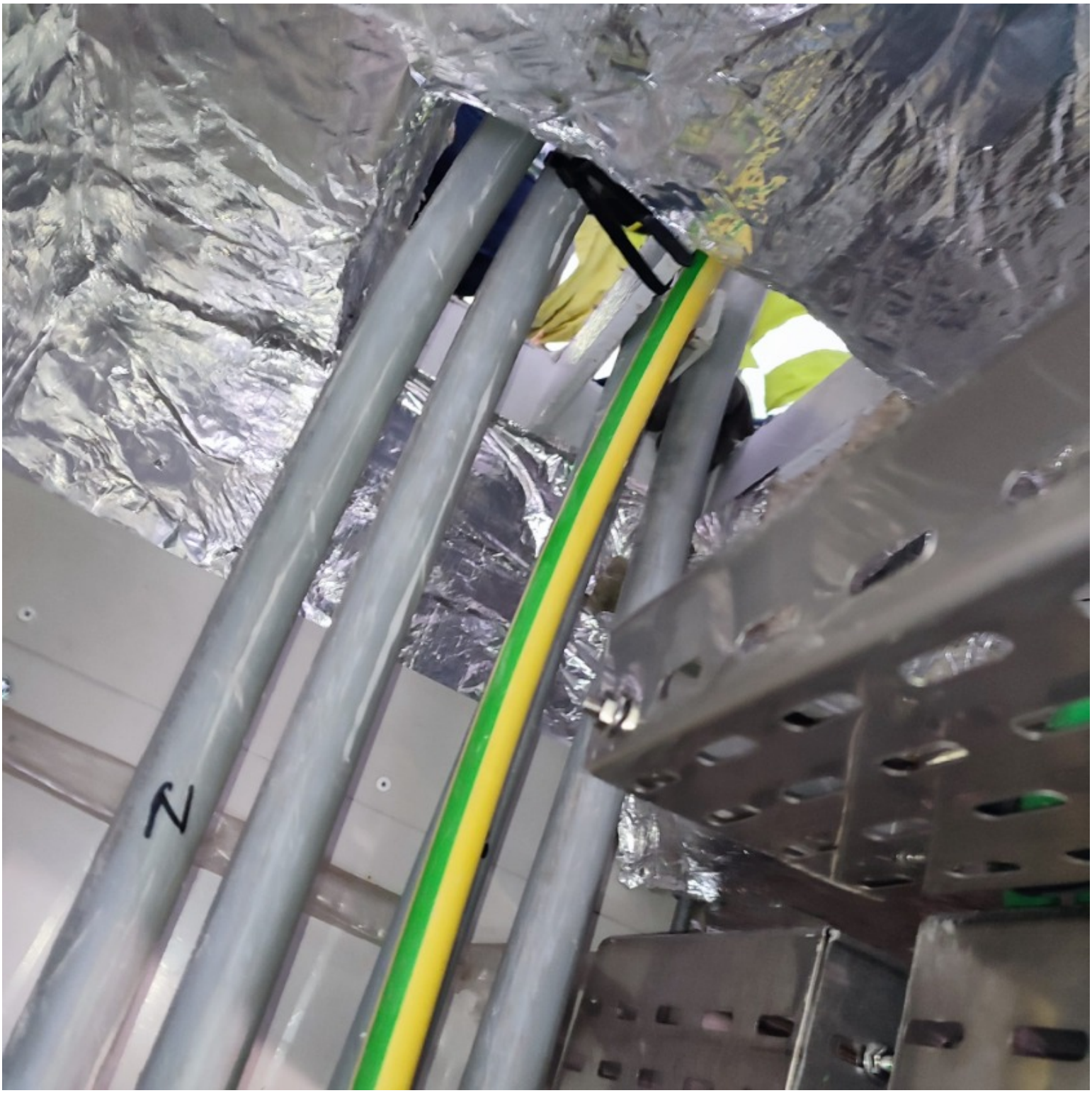
6- CLEARANCE APPROVAL

Completed

Name:

Date:

Signature:


2

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002634

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001830	1.4 Discipline	Electrical
1.2 Item	83013-CEL-L2	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on the roof top the Electrolyser Package (A-20000) is open.
See attached photo.

Name: Giovanni Tangianu
Date: 2025-01-10
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

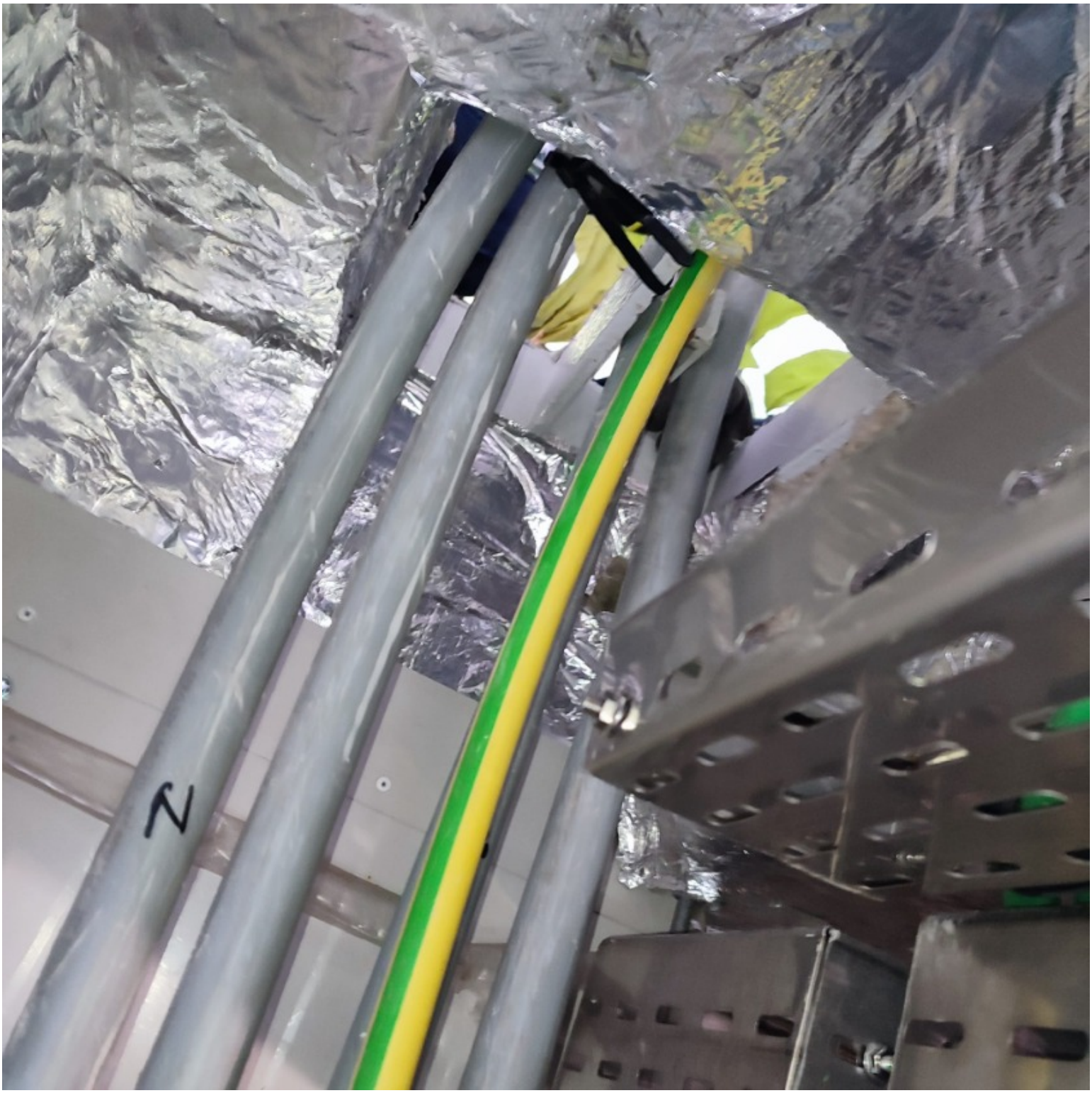
Closed.

Name: Giovanni Tangianu
Date: 2025-03-05
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:


2

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002635

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001831	1.4 Discipline	Electrical
1.2 Item	83013-CEL-L3	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on the roof top the Electrolyser Package (A-20000) is open.
See attached photo.

Name: Giovanni Tangianu
Date: 2025-01-10
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

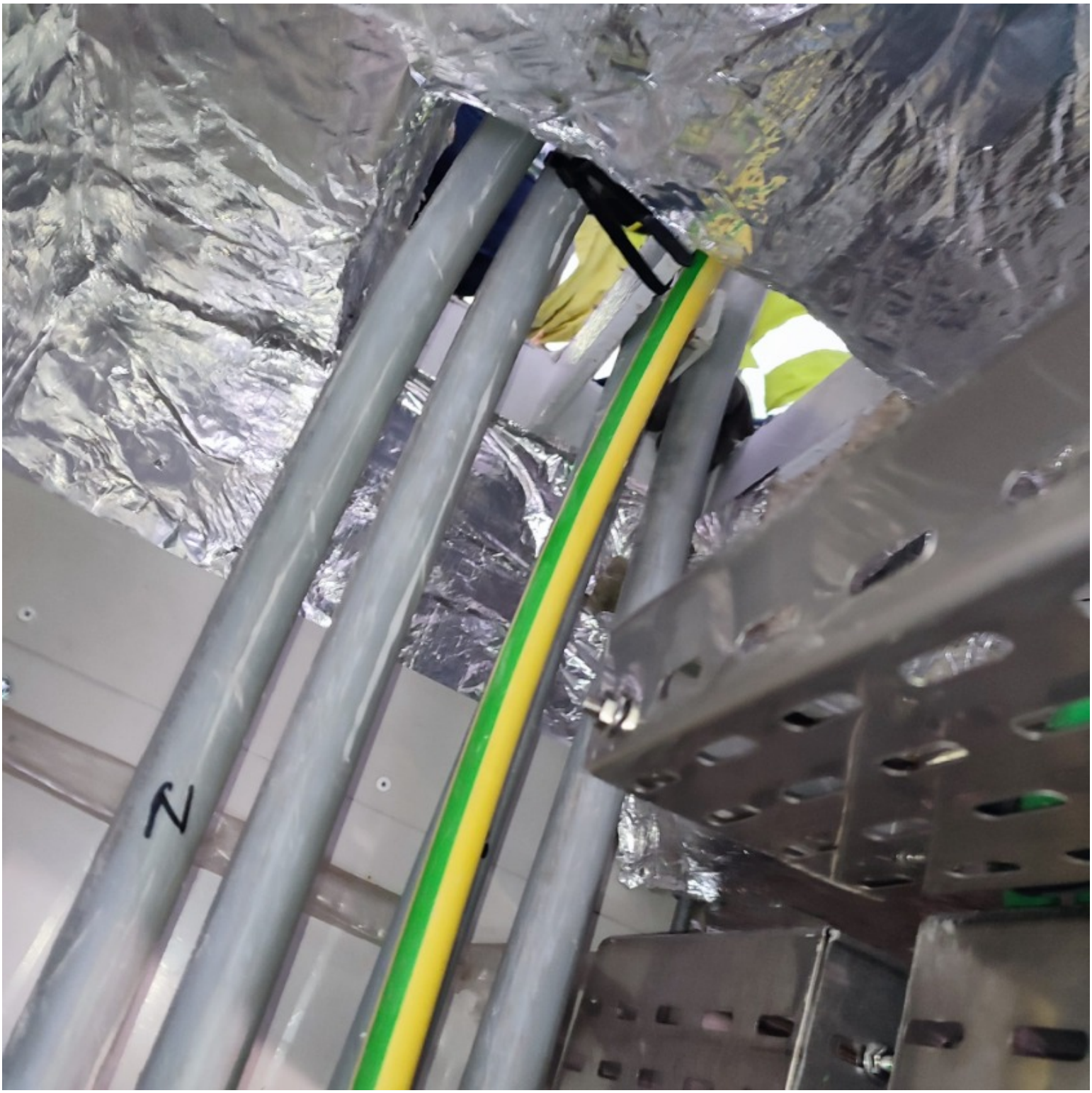
Closed.

Name: Giovanni Tangianu
Date: 2025-03-05
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:


2

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002636

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001832	1.4 Discipline	Electrical
1.2 Item	83013-CEL-N	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on the roof top the Electrolyser Package (A-20000) is open.
See attached photo.

Name: Giovanni Tangianu
Date: 2025-01-10
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

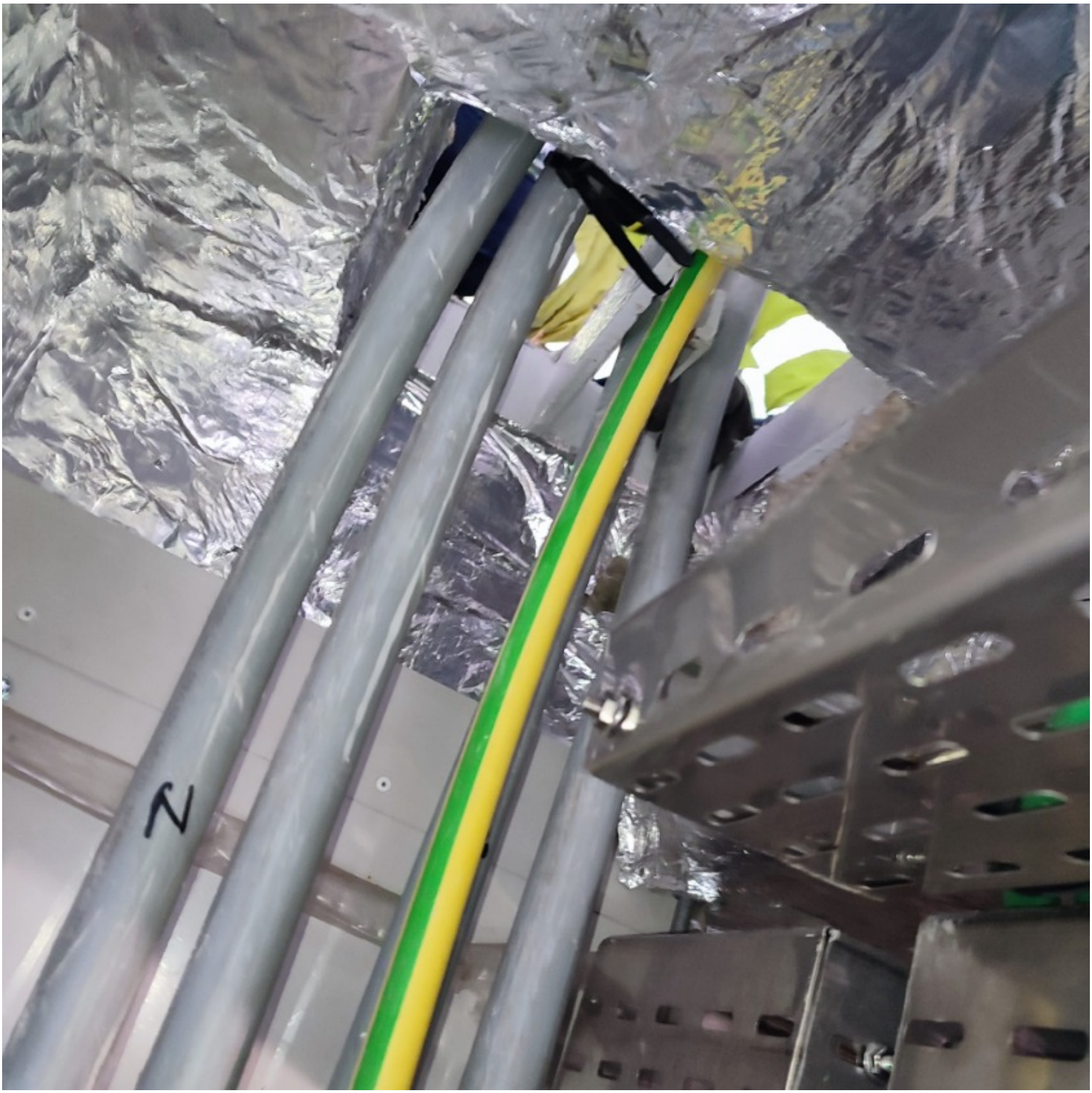
Installed.

Name: Giovanni Tangianu
Date: 2025-03-05
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:


2

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30002637

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001833	1.4 Discipline	Electrical
1.2 Item	83013-CEL-E	LV Switchgear / Electrolyser Auxiliary load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

MCT on the roof top the Electrolyser Package (A-20000) is open.
See attached photo.

Name: Giovanni Tangianu
Date: 2025-01-10
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-10
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

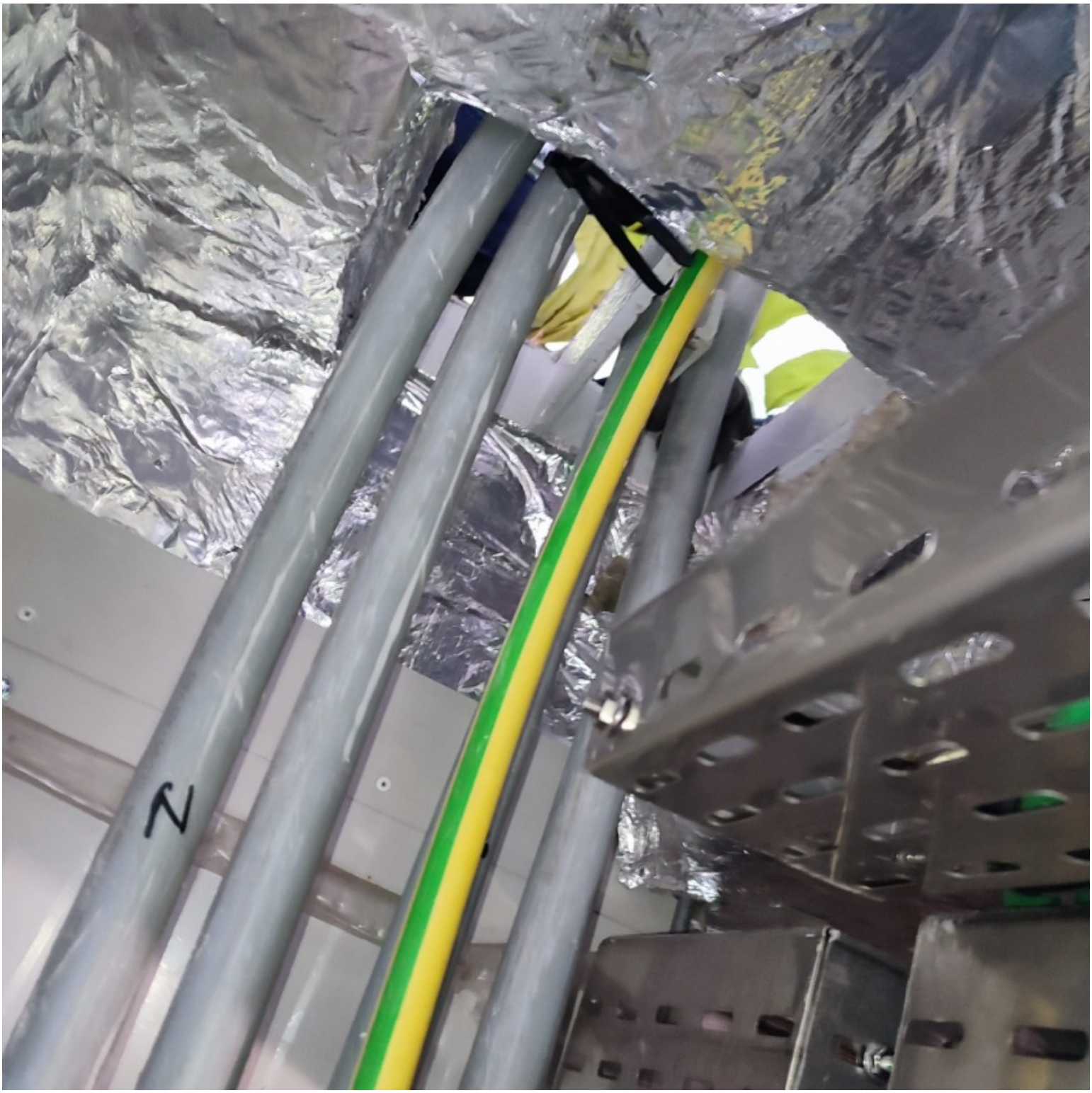
Installed.

Name: Giovanni Tangianu
Date: 2025-03-05
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:


2

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003303

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004346	1.4 Discipline	Telecom
1.2 Item	20-UCP-001/B400-NET-001.01	COMMUNICATION / NETWORK CABINET	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Missing identification tag inside/outside the Fores panel (20-UCP-001). See attached photo.

Name: Giovanni Tangianu
Date: 2025-01-29
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-29
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed.

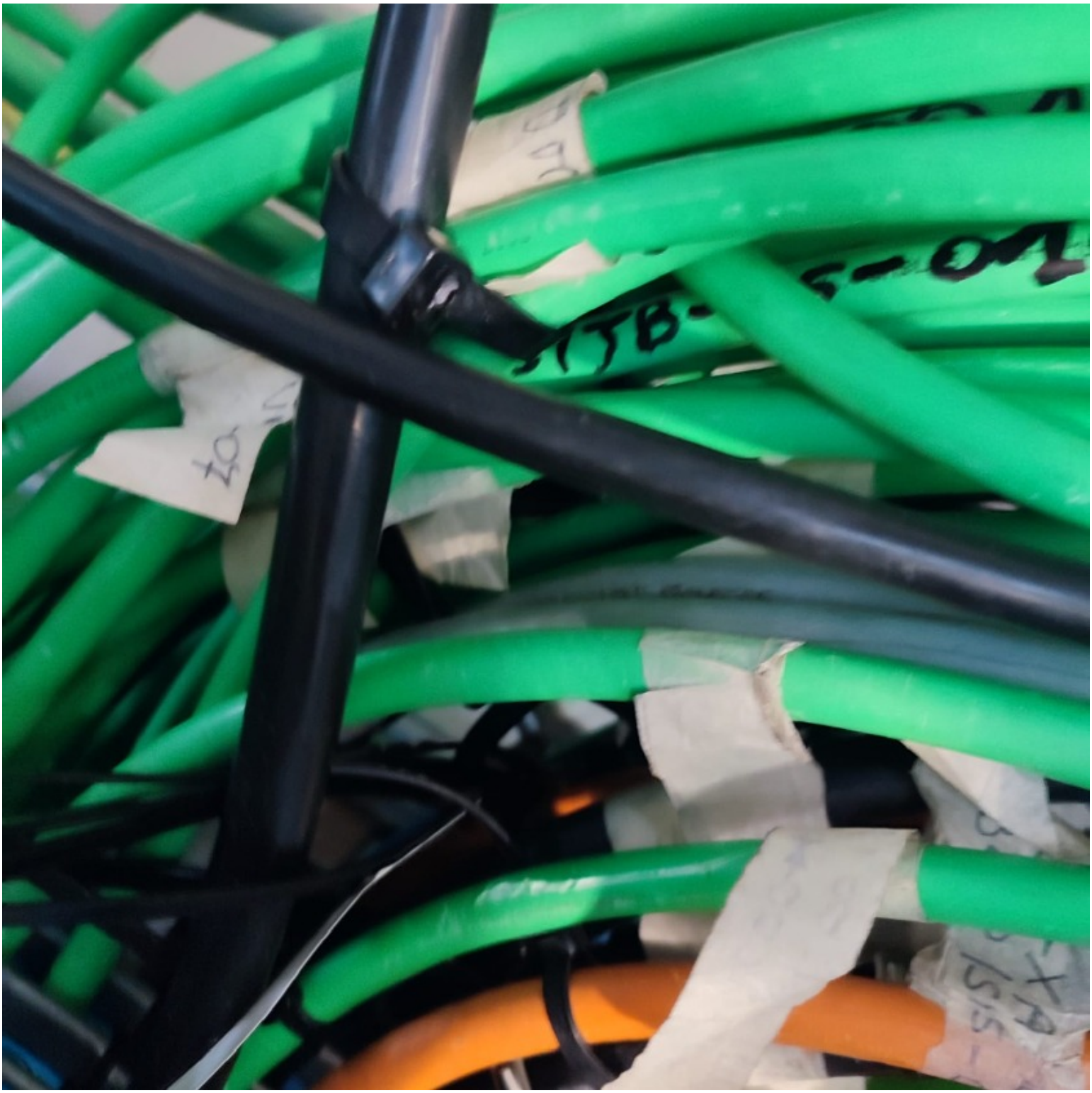
Name: Giovanni Tangianu
Date: 2025-02-21
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:


14
13



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003304

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10004347	1.4 Discipline	Telecom
1.2 Item	20-UCP-001/B400-NET-001.02	COMMUNICATION / NETWORK CABINET	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Missing identification tag inside/outside the Fores panel (20-UCP-001). See attached photo.

Name: Giovanni Tangianu

Date: 2025-01-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-01-29
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-21

Signature:

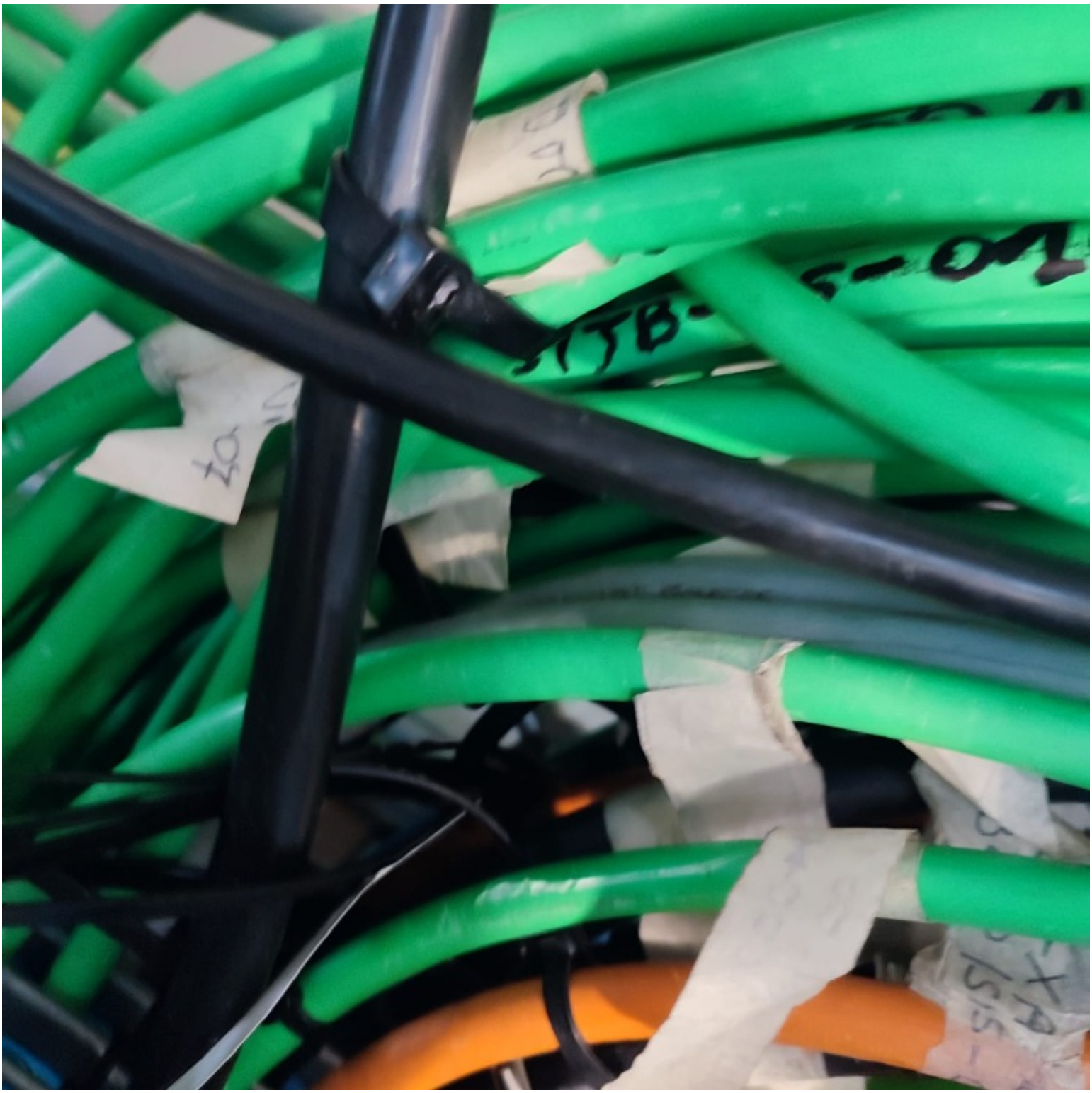
6- CLEARANCE APPROVAL

Completed

Name:

Date:

Signature:




14
13

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003802

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002327	1.4 Discipline	Electrical
1.2 Item	20001-CEC		Electrolyser / 6.6KV HV Switchgear
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

Missing cable tag inside/outside the SG-100D1.After MCT. See attached photo.
Construction Note: "not accessible inside the electrical cabinet".

Name: Giovanni Tangianu
Date: 2025-02-13
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-13
3.5 Action by	PRE-COMM	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date: 2025-06-16
Signature:

5 - CLEARANCE CHECK

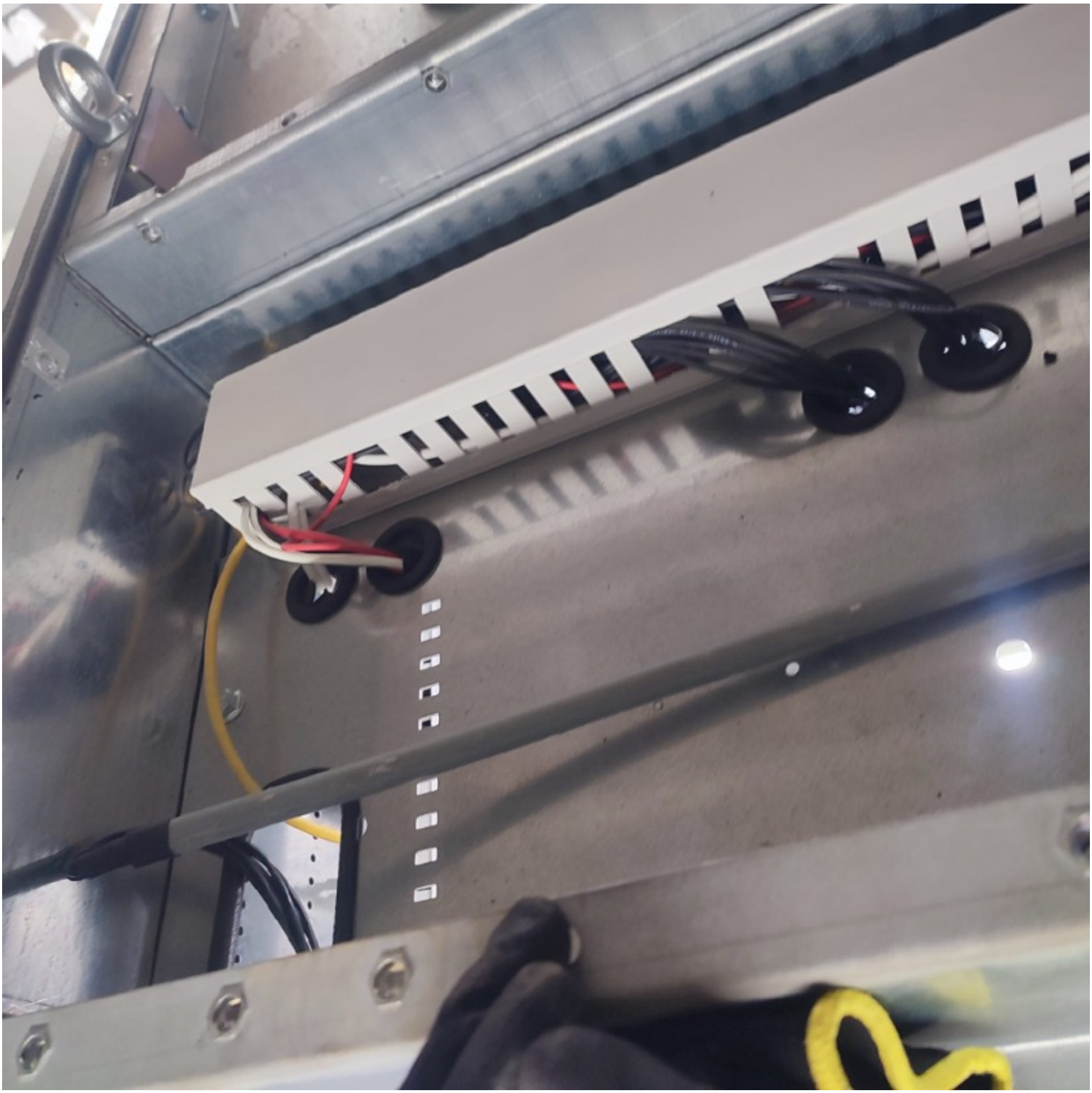
DONE

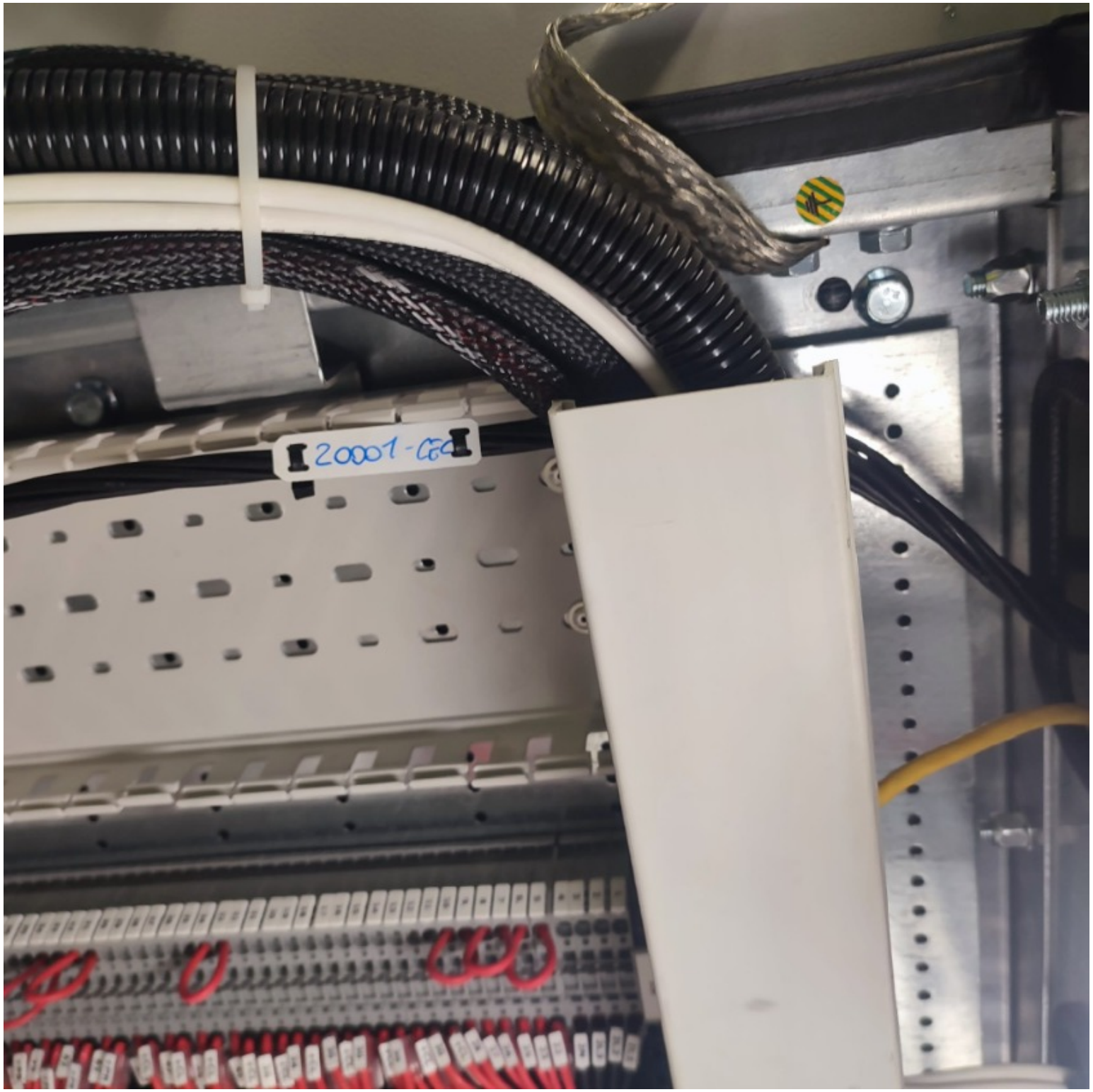
Name: Eleonora Carotenuto
Date: 2025-06-16
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date: 2025-06-16
Signature:




20001-G

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30003803

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002327	1.4 Discipline	Electrical
1.2 Item	20001-CEC		Electrolyser / 6.6KV HV Switchgear
1.3 Subsystem	20-00		Electrolyser Package (A-20000)

2 - OBSERVATION

wrong cable tag on top panel A-20000. And missing cable tag internal panel A-20000. See attached photo.

Name: Giovanni Tangianu
Date: 2025-02-13
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-13
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date:
Signature:

5 - CLEARANCE CHECK

Installed the correct cable tag.

Name: Giovanni Tangianu
Date: 2025-02-21
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date:
Signature:


AHDU-4USC-200N1

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004073

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001448	1.4 Discipline	Instrumental
1.2 Item	C-20-XS-001/B400-SIS-001	TRIP SIGNAL TO UCP / MARSHALLING PCS	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Missing cable tags the from/to MCT internal electrolyzer A-20000
.

Name: Giovanni Tangianu
Date: 2025-02-21
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date: 2025-03-12
Signature:

5 - CLEARANCE CHECK

done

Name: Josip Krizanic
Date: 2025-03-12
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date: 2025-03-12
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004075

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001455	1.4 Discipline	Instrumental
1.2 Item	C-20-XA-003/B400-SIS-001	UCP FAULT ALARM / MARSHALLING PCS	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Missing cable tags the from/to MCT internal electrolyzer A-20000 .

Name: Giovanni Tangianu
Date: 2025-02-21
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date: 2025-03-12
Signature:

5 - CLEARANCE CHECK

done

Name: Josip Krizanic
Date: 2025-03-12
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date: 2025-03-12
Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004078

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10001465	1.4 Discipline	Instrumental
1.2 Item	20-UCP-001/B400-FGS-003	CONFIRMED GAS ALARM / MARSHALLING PCS	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Missing cable tags the from/to MCT internal electrolyzer A-20000 .

Name: Giovanni Tangianu
Date: 2025-02-21
Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Giovanni Tangianu
3.4 Activity code	MC Mechanical Completion	Date	2025-02-21
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name:
Date: 2025-03-12
Signature:

5 - CLEARANCE CHECK

DONE

Name: Josip Krizanic
Date: 2025-03-12
Signature:

6- CLEARANCE APPROVAL

Completed

Name:
Date: 2025-03-12
Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004171

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002348	1.4 Discipline	Mechanical
1.2 Item	A-20000	Electrolyser Auxiliary Load	
1.3 Subsystem	20-00	Electrolyser Package (A-20000)	

2 - OBSERVATION

Package tag plate is missing

Name: Luca Mussi

Date: 2025-02-28

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Luca Mussi
3.4 Activity code	MC Mechanical Completion	Date	2025-02-28
3.5 Action by	VND Vendor	Signature	

4 - PERFORMED ACTION

Tag plate added to the container with CE marking

Name: Jan Duinhoven

Date: 2025-07-24

Signature:

5 - CLEARANCE CHECK

Completed

Name: Jan Duinhoven

Date: 2025-07-24

Signature:

6- CLEARANCE APPROVAL

Completed

Name: Jan Duinhoven

Date: 2025-07-24

Signature:

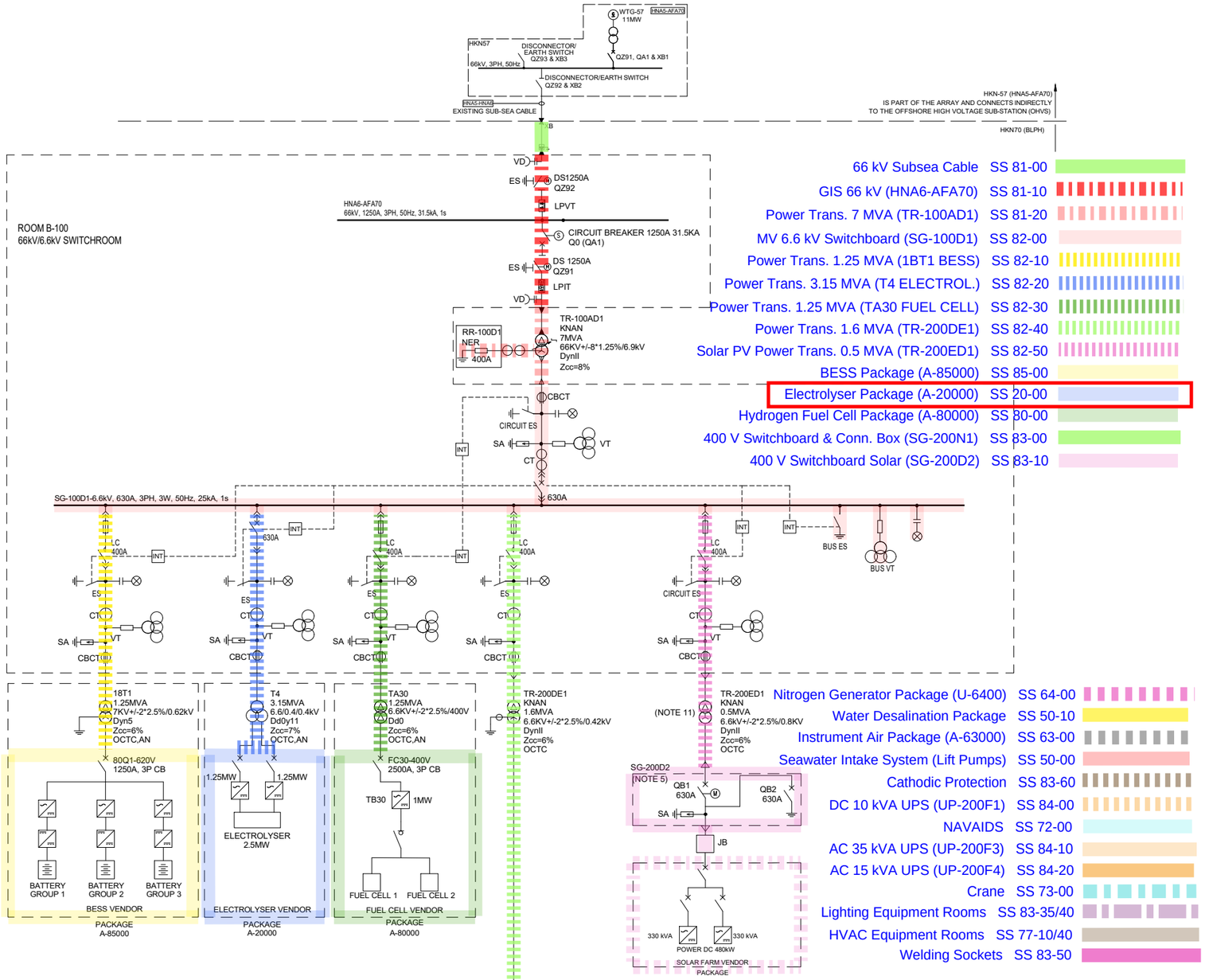


23 Jul 2025 at 14:31:43
Via del Marchesato 37
48122 Ravenna Emilia–Romagna
CrossWind


23 Jul 2025 at 14:31:48
Via del Marchesato 37
48122 Ravenna Emilia–Romagna
CrossWind

Section 3 SYSTEM,SUB-SYSTEM LIMIT DRAWINGS

DRAWING NO. 123A90-DDL-EL-DG-20158 REV. 01



SYMBOL LEGEND:

- VOLTAGE DETECTOR
- EARTHING SWITCH DISCONNECTOR
- MOTORIZED EARTHING SWITCH
- CIRCUIT BREAKER
- FUSE
- CONTACTOR
- THREE-PHASE TRANSFORMER WITH TAP CHANGER
- THREE-PHASE TRANSFORMER
- CURRENT TRANSFORMER
- THREE-PHASE TRANSFORMER, WITH THREE WINDINGS
- NEUTRAL EARTHING RESISTOR
- SURGE ARRESTER
- CORE BALANCE CURRENT TRANSFORMER
- SURGE ARRESTOR FOR T-CONNECTOR (N.1 FOR EACH PHASE)
- VOLTAGE & CURRENT TRANSFORMER (3Ø X 2) (LPIT TYPE)
- VOLTAGE TRANSFORMER (3Ø X 2) (LPVT TYPE)
- VOLTAGE TRANSFORMER
- CABLE BOX
- T-CONNECTOR CABLE TERMINATION
- CABLE AIR TERMINATION

OLTC	= ON LOAD TAP CHANGER
OCTC	= OPEN CIRCUIT TAP CHANGER
KNAN	= NON-MINERAL OIL NATURAL AIR COOLED
AN	= AIR NATURAL
XB	= CABLE BOX
QZ	= DISCONNECT SWITCH & EARTH SWITCH
QA	= CIRCUIT BREAKER
LC	= LATCHED FUSED CONTACTOR (400A)
INT	= INTERLOCK SYSTEM
SA	= SURGE ARRESTER
CBCT	= CORE BALANCE CURRENT TRANSFORMER
ES	=EARTHING SWITCH
VD	=VOLTAGE DETECTOR
LCP	=LOCAL CONTROL PANEL
LPVT	=LOW POWER VOLTAGE TRANSFORMER
LPCT	=LOW POWER CURRENT TRANSFORMER
LPIT	=LOW POWER INSTRUMENT TRANSFORMER
JB	=JUNCTION BOX

NOTES:

1. TEMPORARY POWER SUPPLY CONNECTION BOX LOCATED ON OUTSIDE WALL OF LV SWITCHROOM / CONTAINER.
2. LOAD DEFINITION 'ESSENTIAL' / 'NON-ESSENTIAL' IS SHOWN IN THE LOAD LIST. THE CCS, EMCS AND 'SMART' SWITCHGEAR WILL OPEN / CLOSE CIRCUIT BREAKERS AS REQUIRED.
3. A COMBINED CCS/EMCS SYSTEM COMPRISES A MICROPROCESSOR BASED SYSTEM, ASSOCIATED SOFTWARE AND REQUIRED PERIPHERALS FOR MONITORING AND CONTROLLING OF ELECTRICAL POWER NETWORK. ALL ELECTRICAL EQUIPMENT AND PACKAGE UNITS SHALL BE CONNECTED TO THE CENTRAL CONTROL SYSTEM .
4. IMPRESSED CURRENT CATHODIC PROTECTION SYSTEM SUPPLIED BY COMPANY.
5. THE SOLAR FARM IN-FEED POWER CIRCUIT BREAKERS PANEL IS LOCATED INSIDE THE LV SWITCHGEAR ROOM B-200.
6. DELETED.
7. DELETED.
8. DELETED.
9. CROSSWIND SHALL BE ABLE TO CONTROL THE BLPH 66KV MOTORISED CIRCUIT BREAKER Q0 (QA1) & MOTORISED ELECTRICAL DISCONNECTOR / EARTH SWITCH (QZ92, TYPE B) USING THEIR 'HV-SCADA' SYSTEM. THIS BACK-UP / REDUNDANT CONTROL SHALL BE ADDITIONAL TO THAT PROVIDED BY THE CCS AND BE OF HIGHER PRIORITY OVER A SEPARATE FIBRE OPTIC CABLE (FOC). THE CCS OPERATOR AND 'HV-SCADA' SHALL BOTH BE KEPT FULLY AWARE OF EQUIPMENT STATUS AT ALL TIMES. INTERTRIPPING, INHIBITS & INTERLOCKING FOR BLPH 66KV EQUIPMENT SHALL BE AS PER THE WIND FARM.
10. THE LOADS IN THE LOW VOLTAGE SWITCHGEAR AND THE CURRENT VALUES OF THE CIRCUIT BREAKERS ARE ONLY INDICATIVE.
11. NEUTRAL POINT OF TR-200ED1 SHALL NOT BE GROUNDED AS REQUIRED BY SOLAR FARM SUPPLIER IN 123A90-PML-PM-TQ-00040.

REFERENCES:

1. 123A90-DDL-EL-DG-20014 ELECTRICAL CONTROL, PROTECTION AND METERING DIAGRAMS
2. 123A90-DDL-EL-DG-20015 ELECTRICAL SINGLE LINE DIAGRAM 6.6kV SYSTEMS
3. 123A90-DDL-EL-DG-20159 ELECTRICAL SINGLE LINE DIAGRAMS LV SYSTEM
4. 123A90-DDL-EL-DG-20160 ELECTRICAL SINGLE LINE DIAGRAMS AC UPS SYSTEMS
5. 123A90-DDL-EL-DG-20161 ELECTRICAL SINGLE LINE DIAGRAMS DC UPS SYSTEMS
6. 123A90-DDL-EL-DG-20185 ELECTRICAL SINGLE LINE DIAGRAM HV SYSTEMS
7. 123A90-DDL-EL-DL-20104 ELECTRICAL EQUIPMENT LAYOUT - HV SWITCHROOM
8. 123A90-DDL-EL-DL-20105 ELECTRICAL EQUIPMENT LAYOUT - LV SWITCHROOM
9. 123A90-DDL-EL-LIS-20016 ELECTRICAL LOAD LIST and BALANCE -CCS MODE CHARGING-
10. 123A90-DDL-EL-RE-20152 ELECTRICAL EQUIPMENT SIZING CCALCULATION REPORT
11. 123A90-DDL-EL-RE-20170 ELECTRICAL SYSTEM STUDY REPORT - LOAD FLOW
12. 123A90-DDL-EL-RE-20171 ELECTRICAL SYSTEM STUDY REPORT - SHORT CIRCUIT
13. 123A90-DDL-EL-RE-20172 ELECTRICAL SYSTEM STUDY REPORT - ARC FLASH ENERGY CALCULATION
14. 123A90-DDL-EL-RE-20173 ELECTRICAL SYSTEM STUDY REPORT - HARMONICS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	02/11/2023	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE :

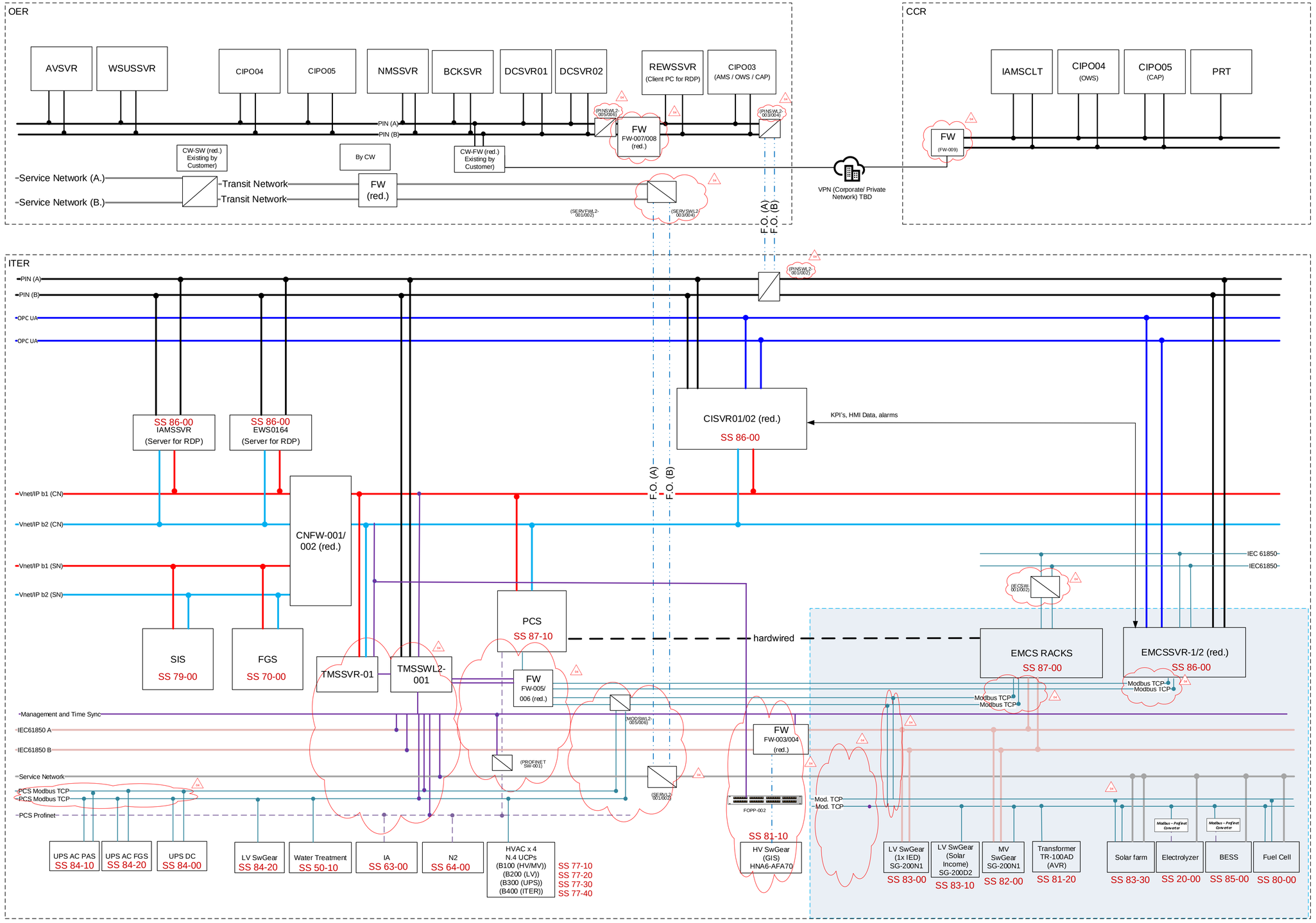
OVERALL/KEY SINGLE LINE DIAGRAM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE N/A
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 26/03/2023
A1	DRAWING NO. 123A90-DDL-EL-DG-20158	SHEET 001	REV. 01

01

File Name : 123A90-DDL-EL-DG-20158_REV01.dwg

CROSSWIND BLPH PROJECT - SYSTEM BLOCK DIAGRAM



AMS	: Alarm Management System	FCS	: Field Control Station
AV	: Anti-virus	FGS	: Fire & Gas System
BCK	: Backup Server	FO	: Fiber Optic
BESS	: Battery Energy Storage System	FOPP	: Fiber Optic Patch Panel (by others)
BLPH	: Base Load Power Hub	FTA	: Field Termination Assembly
CAP	: Critical Alarm Panel	HIST	: Historian
CCR	: Central Control Room	HKN	: Hollandse Kust Noord
CI	: Collaborative Infomation	IAMS	: Instrument Asset Management System
CN	: Control Network	ITER	: Instrument & Telecom Equipment Room
DC	: Domain Controller	LHVS	: Land High Voltage Station
DMZ	: De-militarized Zone	MCC	: Motor Control Center
ESB	: IO communication bus	MODB	: Modbus
EWS	: Engineering Work Station	MQTT	: Message Queuing Telemetry Transport
FC	: Field Communication (Vnet/IP)	NMS	: Network Management System
OER	: Onshore Equipment Room		
OHVS	: Offshore High Voltage Station		
OWS	: Operator Work Station		
PIN	: Plant Information Network		
PKG	: Package		
RDP	: Remote Desktop Protocol		
SCS	: Safety Control Station		
SIS	: Safety Instrumented System		
SN	: Safety Network		
SW	: Switch		
UCP	: Unit Control Panel (3rd party systems)		
VM	: Virtual Machine		
Vnet/IP	: Yokogawa's Control network		
WSUS	: Windows Security Update Services		

LEGEND:

- PIN (Plant Information Network)
- Vnet/IP BUS 1 PCS
- Vnet/IP BUS 2 PCS
- Vnet/IP BUS 1 SIS/FGS
- Vnet/IP BUS 2 SIS/FGS
- ESB bus connection
- IEC61850 connection
- OPC UA connection
- Service Network connection
- Modbus TCP connection
- Profinet (non redundant)
- Fiber Optic Patch Cords
- Fiber Optic connection (core by Crosswind)
- Fiber Optic backbone (by Crosswind)
- System Cable connection
- Management and Time sync.

Note 1 : Exact assignment of Servers per cabinet to be defined in cabinet General Arrangement Drawing.
Note 2 : For IP Addresses refer to 1724000594-IN-RE-00043 Cyber Security Settings
Note 3 : All Network Components will be installed in Network Cabinet.
Note 4 : Supply of Console Desk in CCR is in Customer Scope.
Note 5 : All Network Switches and Firewall is configured in VLAN.
Note 6 : Intermediate FO Connection between HNA5 and OER Intentionally not shown.

Zone-1	: PCS Control Zone	Zone-2	: Safety Control Zone
Zone-3	: PCS Zone	Zone-4	: Application Server Facility Zone
Zone-5	: Security Management Zone-1	Zone-6	: Security Management Zone-2
Zone-7	: Demilitirized Zone	Zone-8	: Croswind Zone
Zone-9	: Service Network Zone	Zone-10	: Application Server Facility Zone-OD
Zone-11	: Third Party System Zone		: Out of Scope

REV	DWG BY	CHK BY	APP BY	DATE
04	SKR	MP/AB	SC	12-Feb-25
03	SKR	MP/AB	SC	26-Aug-24
02	SKR	MP/AB	SC	28-Jun-24
01	SKR	MP/AB	SC	24-May-24
00	SKR	AB	SC	23-Apr-24

Doc No : 1724000594-IN-DD-00015
Doc Name : System Architecture

ROSETTI MARINO
HOLLANDSE KUST NOORD WIND PART Project
CROSSWIND
YOKOGAWA

CLIENT

Limit of Scope

ELOGEN

Main Power supply
400Vac 50Hz TN-S 3P+N+PE
from Low Voltage Switchboard
Tag No. SG-200N1
Reference dwg No.
123A90-DDL-EL-DG-20159 Sheet 01
Icc,rms = 30kA

Control Cabinet
TAG: 20-UCP-001
Pn = 250kW
In = 400A
Icc,max = 36kA
Voltage: 400Vac

L1 L2 L3 Voltage presence lamps

1U1
Phase monitoring relay

1QF3
4P
630A

MN

2SA4
EM Push Button
Front Panel, wired in safety loop within ESD-001 loop

Lenght < 500mm

Red Yellow Green
Front panel light indicator for process status

Surge arrestor
1RF8

PQ-002
5U1
Digital Power Meter
(Note 6)

F

ETH cable (Note 12)
ETH cable (Note 12)
Shutdown command from Plant SIS (Note 12)
Electrolyzer PLC Failure to plant SIS (Note 12)
Confirmed Gas and Smoke Alarm to plant F&G (Note 12)

In=630A Icc,max=36kA Vn=400Vac

In=480A Icc,max=36kA Vn=400Vac

Auxiliary equipments type 1

In=25A Icc,max=6kA Vn=230Vac

100QF5 2P 32

Temporary Links to be installed

100GS5
UPS Pn=5kW
At least 1h of autonomy at 5kW

130QF1 2Px10A
130QF3 2Px10A
130QF5 2Px16A
130QF7 2Px10A
131QF1 2Px10A
131QF3 2Px10A

230VAC / 24VDC
150GS1

230VAC / 24VDC
150GS5

150U1

Max. Output 40A

151QF1
2Px125A

Power to the PLC

Power to
For 24Vdc utilities refer to doc. C63-FOR-DGM-EL-003

HCU-400
2 kVA
(Note 12)

SSI-1000
FSS Fire sys.
0,5 kW
(Note 12)

Q.RIO1
WP1
0,3 kW
(Note 12)

Q.RIO2
WP3
0,3 kW
(Note 12)

100QF1 2Px25A
100QF3 4Px20A
101QF3 2Px20A Id=30mA
100QF7 4Px16A Id=30mA
102QM1 4Px200A
102QF3 4Px32A
102QM5 4Px125A
102QM7 4Px125A
104QM1 3Px6A
105QM1 3Px6A
106QM1 3Px16A
107QM1 3Px16A
108QM1 3Px32A
109QM1 3Px32A
101QF5 4Px20A
103QF1 4Px20A
103QF3 2Px16A
100QF1 2Px63A
120QM1 4Px50A

HCU-400
4kW
(Note 12)

HCU-400
8kW
(Note 12)

HE-61.1 (HPP-700)
3 kW
(Note 12)

HE-64.1 (HPU-700)
6 kW
(Note 12)

HVAC PANEL PAU003
85,2 kW
(Note 12)

WTP-300
12 kW
(Note 12)

WC-400 CHILLER PAU001
36,4 kW
(Note 12)

WC-401 CHILLER PAU002
36,4 kW
(Note 12)

LP-300A
1,5 kW
(Note 12)

LP-300B
1,5 kW
(Note 12)

CP-620A
5.5 kW
(Note 12)
(Note 9)

CP-620B
5.5 kW
(Note 12)
(Note 9)

CP-600A
11 KW
(Note 12)

CP-600B
11 KW
(Note 12)

SPARE
SPARE
SPARE
SPARE
SPARE

PQ-001
120U3
Digital Power Meter
(Note 6)

F

DM

KM type 2 auxiliary equipment

Auxiliary equipments type 2

In=80A Icc,max=20kA Vn=400Vac

264KM2 2P 20A
260KM3 2P 20A
262KM3 2P 20A
264KM3 2P 20A
260KM4 2P 20A
262KM4 2P 20A
264KM4 2P 20A
260KM5 2P 6A

EXT-G01 15 W (Note 12)
EXT-G02 15 W (Note 12)
EXT-G03 15 W (Note 12)
EXT-G04 15 W (Note 12)
EXT-G05 15 W (Note 12)
EXT-G06 15 W (Note 12)
EXT-G07 15 W (Note 12)
EXT-G08 15 W (Note 12)

121QF1 2P 6A
121QF5 2P 6A
122QF5 2Px10A Id=30mA
122QF7 2Px10A Id=30mA

JB Heat tracing EHT-1009 HR-607B
JB Heat tracing EHT-1009 HR-607B
JB Heat tracing EHT-1001 HR-600A
JB Heat tracing EHT-1007 HR-306
JB Heat tracing EHT-1005 HR-625

Heat Tracing Circuit 1 390W

JB Heat tracing EHT-1004 HR-620
JB Heat tracing EHT-1008 HR-370
JB Heat tracing EHT-1006 HR-640
JB Heat tracing EHT-1002 HR-606

Heat Tracing Circuit 2 370W

125QF1 2Px6A Id=30mA
125QF3 2Px6A Id=30mA
125QF5 2Px6A Id=30mA
125QF7 2Px6A Id=30mA
126QF1 2Px6A Id=30mA
126QF3 2Px6A Id=30mA
123QF7 2Px20A Id=30mA
124QF1 2Px20A Id=30mA
124QF3 2Px20A Id=30mA
124QF5 2Px20A Id=30mA
122QF1 2Px10A Id=30mA
122QF3 2Px10A Id=30mA
123QF1 2Px10A Id=30mA
123QF3 2Px10A Id=30mA
123QF5 2Px10A Id=30mA
124QF7 2Px20A Id=30mA

JB Lighting WP1 270W
Normal Lighting
Emergency Lighting

JB Lighting WP2 180W
Normal and Emergency Lighting

JB Lighting WP3 180W
Normal and Emergency Lighting

JB Lighting WP4 90W
Normal and Emergency Lighting

External Lighting Ground Floor 75W
External Lighting First Floor 255W

Socket WP1 C63-JBS-01 3600W (Note 12)
Socket WP2 C63-JBS-02 3600W (Note 12)
Socket WP3 C63-JBS-03 3600W (Note 12)
Socket WP4 C63-SS-07 3600W (Note 12)

SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

1. All circuit breakers equipped with auxiliary status contact.

2. All inverters equipped with STO function and Profinet.

3. MN coil powered by UPS

4. The main busbars will be protected by a plexiglass.

5. Main incomers CB (MCCB/ACB) shall be provided with adjustable overcurrent protection.

6. PQ-001 and PQ-002 hardwired to PLC, as per document C0063-FOR-DGM-EL-003

7. For details refer to document C0063-FOR-DGM-EL-003

8. Control Cabinet with form "2b"

9. PTC for motor CP-620A/B hardwired to its own VFD inside Control Cabinet

11. Cables supplied by Fores, sized by Elogen

12. Cable supplied and sized by Fores

13. Cable out of Fores scope

LEGEND:

F	FUSE
K	CONTACTOR
	THREE CONDUCTORS
	THREE PHASE &NEUTRAL CONDUCTOR
PE	PROTECTION CONDUCTOR
	3 PHASE WINDING, DELTA/STAR WITH NEUTRAL BROUGHT OUT
	POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DM	DIGITAL POWER METERING UNIT
	CIRCUIT BREAKER
	GROUNDING CONNECTION
M	AC MOTOR
	TERMINATION
	LIGHTING ARRESTER OR SURGE ARRESTER
DGPT2	GAS, PRESSURE, TEMPERATURE DETECTION RELAY
PLC	PROGRAMMABLE LOGIC CONTROLLER
	MOTOR TEMPERATURE MONITORING DEVICE
	TEMPERATURE SENTOR (PT-100 RTD)
LCS	MOTOR LOCAL CONTROL STATION
	EARTHING SWITCH
	VARIABLE SPEED DRIVER
	LIGHT INDICATOR
	Skid Panel
OF/SD	CB AXILIARIE CONTACTS (ON/OFF/Trip)
	EMERGENCY PUSH BUTTON
	RELAY
	ELECTRICAL JUNCTION BOX
230VAC / 24VDC	CONVERTER FROM 230Vac TO 24Vdc
	REDUNDANCY MODULE
	MANUAL SWITCH
	RECTIFIER

REFERENCE DOCUMENTS:

1. TS Control Cabinet & Electrical wiring C0063-ELE-004

2. Bill Off Material (BOM) C0063-BOM-001

3. Balance of Power C0063-ELE-003

4. NIDEC SLD C63-ELO-SLD01 (Transformer Rectifier for E500 Electrolyzer)

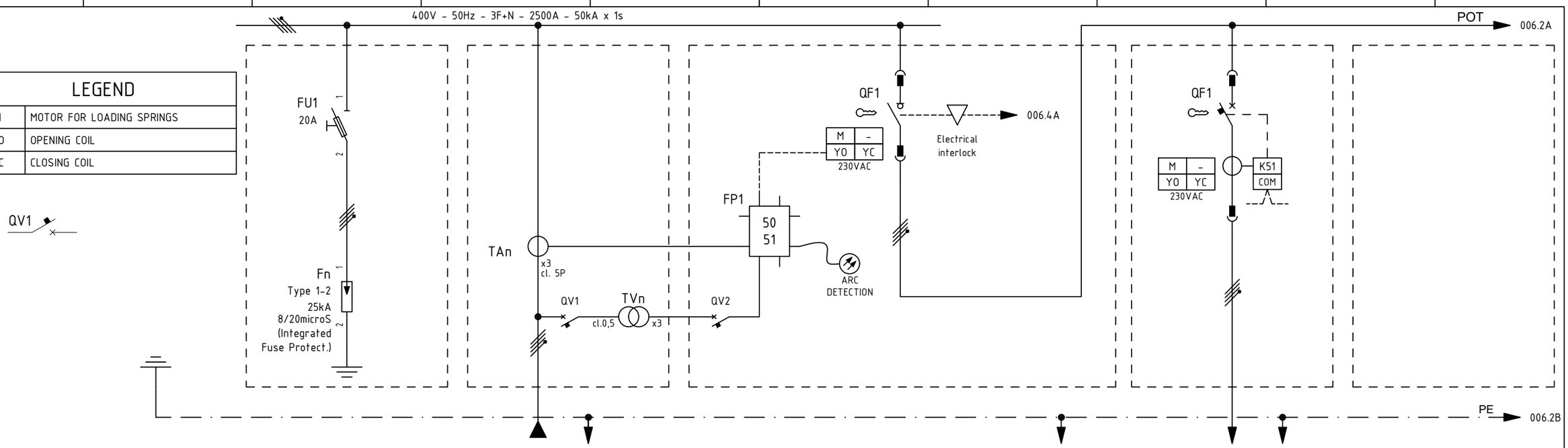
REV	DATE	DESCRIPTION	DRFT	CHKD	APPR
02	22/11/2024	Issue For Review	AM	AM	MC
01	11/10/2024	Issue For Review	AM	AM	MC
00	22/05/2024	Issue For Revision	AM	AM	MC

elogen

JOB	C63 - CROSSWIND PROJECT - ELECTROLYZER PACKAGE
OBJECT	LV SINGLE LINE DIAGRAM
Fores No.	224J10-DDL-EL-DG-00001_2
Elogen No.	C0063-FOR-DGM-EL-001
Crosswind No.	FORES-INN-BPH-DWG-00026
FORMAT	A2
SHEET	04 of 04

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LEGEND	
M	MOTOR FOR LOADING SPRINGS
YO	OPENING COIL
YC	CLOSING COIL



ITEM			1	-	-	-	A-20000	
UTILITY			2	SURGE ARRESTER	-	INCOMING TRASFORMER	ELECTROLYSER AUXILIARY LOAD	
COLUMN/CUBICLE			3	-	A1 / +02	A1 / +05	A1 / +08	
RATED POWER | RATED CURRENT			4/5	- | -	- | -	- | -	293 kW | 497 A	
TYPICAL FUNCTIONAL			6	-	-	-	L3-630	
CIRCUIT BREAKER (ABB)	TYPE		7	-	-	E4.2N/MS-3200 4P	E1.2C-1250 4P	
	VERSION		8	-	-	WITHDRAWABLE	WITHDRAWABLE	
	TRIP UNITS		9	-	-	-	EKIP HI TOUCH LSIG = 630	
	Icu	KA	10	-	-	66 kA (1s)	50 kA	
OVERLOAD	L	Range A	11	-	-	-	(0.4 ÷ 1) x In	
		Range t	12	-	-	-	t=k/I^2	
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	(0.6 ÷ 10) x In [EXCLUDABLE]	
		Range t	14	-	-	-	t=k / t=k/I²	
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	(1.5 ÷ 15) x In	
		Range t	16	-	-	-	instantaneous	
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	(0.1 ÷ 1) x In (EXCLUDABLE)	
		Range t	18	-	-	-	t=k / t=k/I^2	
CONTACTOR (ABB)			19	-	-	-	-	
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	
SURGE ARRESTER (DEHN)			21	DVCI 1 255 FM (961205)	-	-	-	
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	
FUSE HOLDER (ITALWEBER)			23	Fuses 20A gG	FROM SUBSISTEM 82.40	-	SUBSISTEM 20.00	
INDIRECT PROTECTION (ABB)			24	-		REF615K-(version F) HBFFAEAGNDCABNA11G		
VOLTMETER			25	-		-	-	
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	TAR1052K5N01V_18 - 2500/1A	-	-	
	PERFORMANCE/CLASS		27	SUBSISTEM 82.40	5VA / 5P20	SUBSISTEM 82.40	-	
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28		TTV020400VC1 - 400r3/110r3V		-	
	PERFORMANCE/CLASS		29		20VA / 0.5		-	
LOCK-OUT RELAY (-)			30	-	-	-	-	
POWER CONDUCTOR		mmq	31	-	-	-	1 x 150 + [4 x (1 x 300)]	

QV1

QV1

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
3	08/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for Construction (AFC)
2	03/05/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	28/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	15/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

DWG n° : 231298/SD/11

Item n° : PF1002983/26

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-200N1"

SINGLE LINE DIAGRAM

Single Line Drawing

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DG-00011

SHEET 005

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00011 Rev. 03

DRAWING NO. DRAWING_NO.

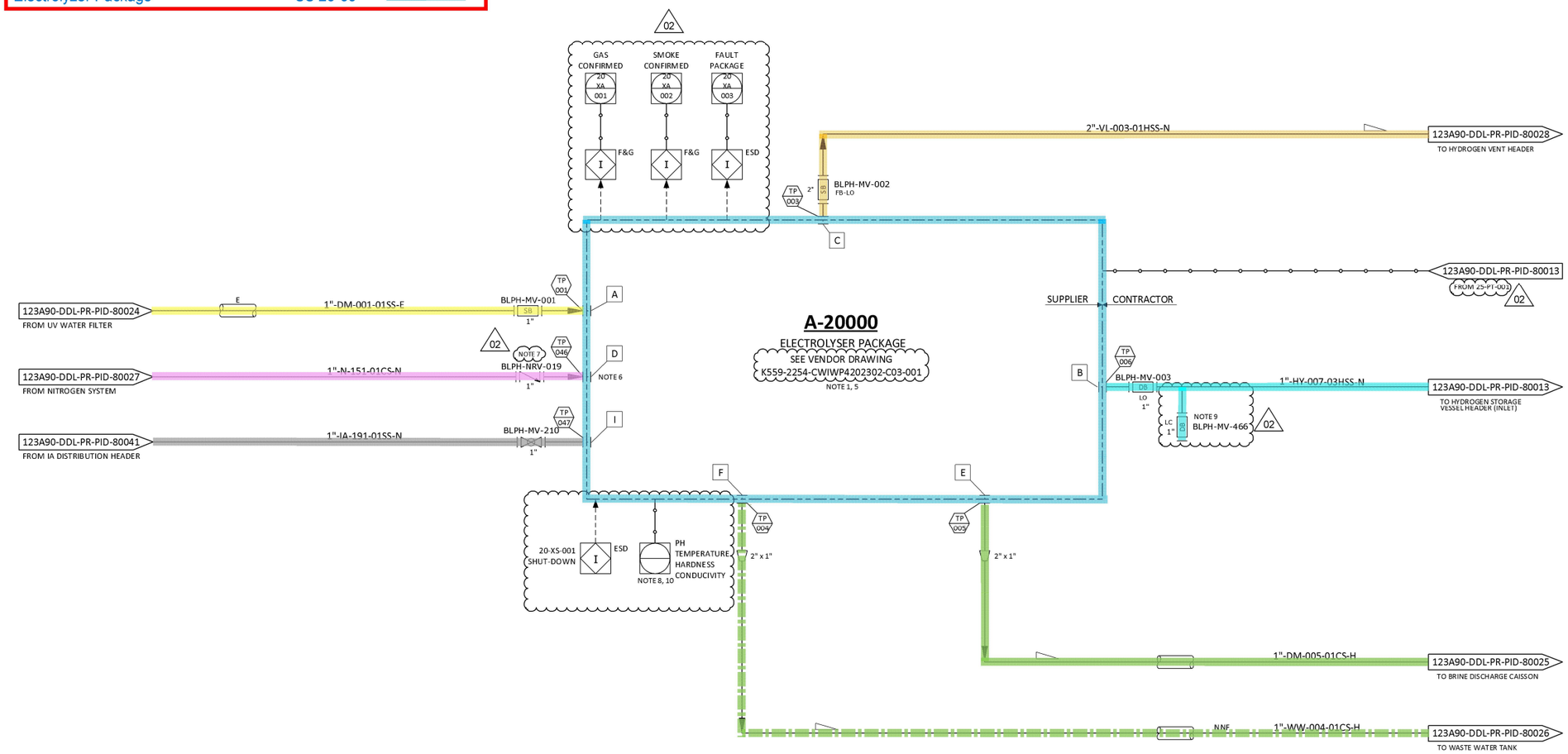
REV. REV

Instrumen Air Distribution Network	SS 63-30	
Water Desalination & Distribution System	SS 50-10	
Hydrogen Storage Vessel Header (Intel)	SS 43-00	
Nitrigen Distribution Network	SS 64-11	
Waste Water Brine Discharge System	SS 55-01	
Waste Water Disposal System	SS 55-00	
Hydrigen Storage Vessel Header (Intel)	SS 25-07	
Electrolyzer Package	SS 20-00	

A-20000

ELECTROLYSER PACKAGE

DUTY: 2.5MW
DESIGN PRESSURE: 40 barg
DESIGN TEMPERATURE: 80 °C
H2 GENERATING CAPACITY: 500 Nm³/h



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.
7. CHECK VALVE NRV-019 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE ELECTROLYSER PACKAGE A-20000.
8. SERIAL COMMUNICATION WITH CONTROL SYSTEM.
9. NITROGEN PURGING CONNECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO MANUAL VALVE BLPH-MV-003.
10. PH, TEMPERATURE, HARDNESS AND CONDUCTIVITY SHALL BE SENT FROM CONTROL SYSTEM TO ELECTROLISER UCP IN ADDITION TO THE OTHER SOFTWARE SIGNALS.

02

HOLDS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80011		SHEET 001 / REV. 02

File Name : FILE_NAME

Section 4 MECHANICAL COMPLETION STATUS INDEX - BUILDING DISCIPLINE

NOT APPLICABLE

Section 5 MECHANICAL COMPLETION STATUS INDEX - ELECTRICAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC & discipline : E

Electrical	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
20001-CEC	Electrolyser / 6.6KV HV Switchgear	ONSHORE	C10002327	CPX10	100	2025-02-13	RFC 2
83013-CEL-E	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001833	CPX09	100	2025-01-10	RFC 1
83013-CEL-L1	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001829	CPX09	100	2025-01-10	RFC 1
83013-CEL-L2	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001830	CPX09	100	2025-01-10	RFC 1
83013-CEL-L3	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001831	CPX09	100	2025-01-10	RFC 1
83013-CEL-N	LV Switchgear / Electrolyser Auxiliary load	ONSHORE	C10001832	CPX09	100	2025-01-10	RFC 1

ITEM	Tag	83013-CEL-L1	: LV Switchgear / Electrolyser Auxiliary load		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	LD_B-200/LD	
TASK	code	C10001829	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form CPX09	LV Power Cable	

CABLE DATA

Type: Cu Cl.2/EPR/LSZH | Cores/Size mm²: 1X300 mm2 | Color: GREY

From: SG-200N1 | To: A-20000

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	Note
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	OK
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	83013-CEL-L1	: LV Switchgear / Electrolyser Auxiliary load			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	LD_B-200/LD
TASK	code	C10001829		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

	CONTINUITY			
5	CORE CONTINUITY Ω	PH 1	0,6	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
	INSULATION			
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		No	

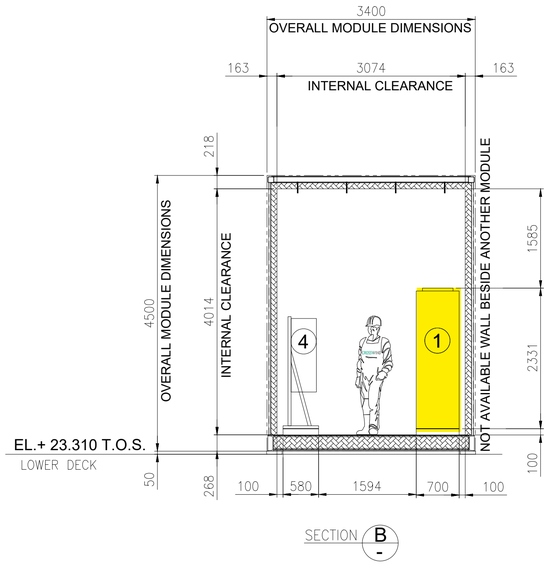
TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

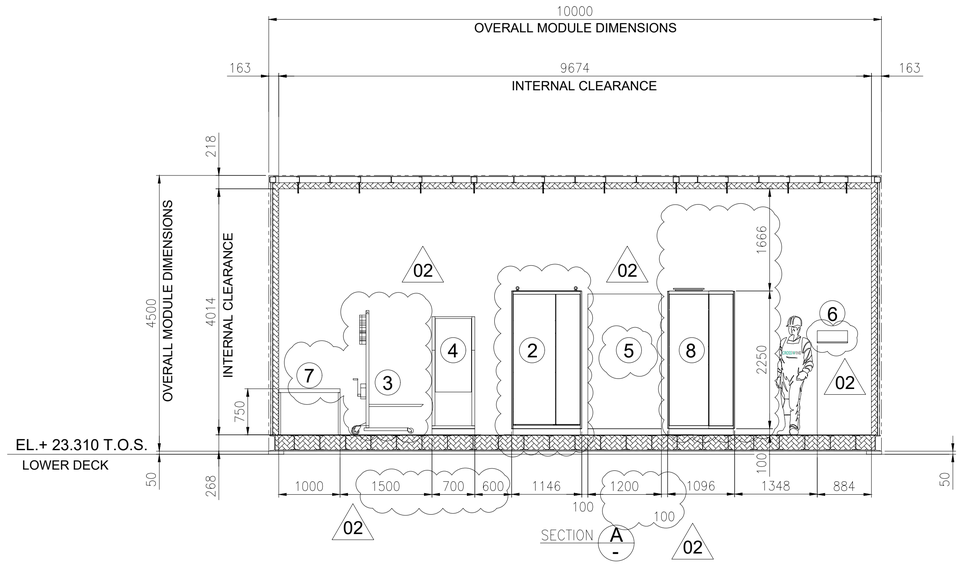
Comments: Nota 4: refer to PL C30000679

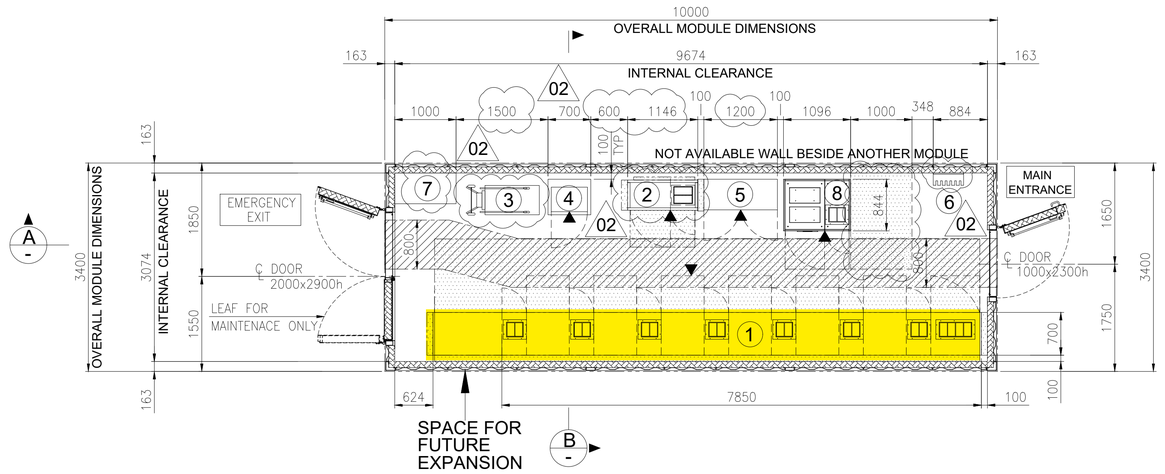
Note 9 :cable terminations must be reconnected during the commissioning phase.

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-10	2025-01-10	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-10T06:38:52.627Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-10T14:53:11.834Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02





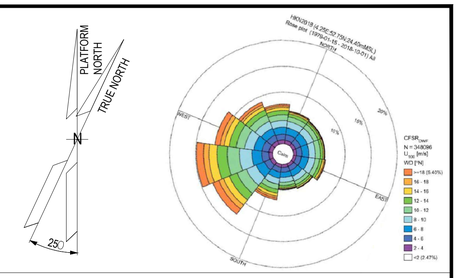


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

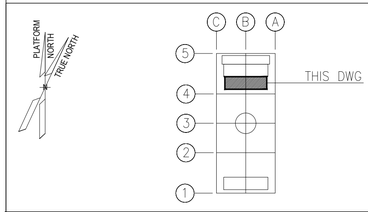
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

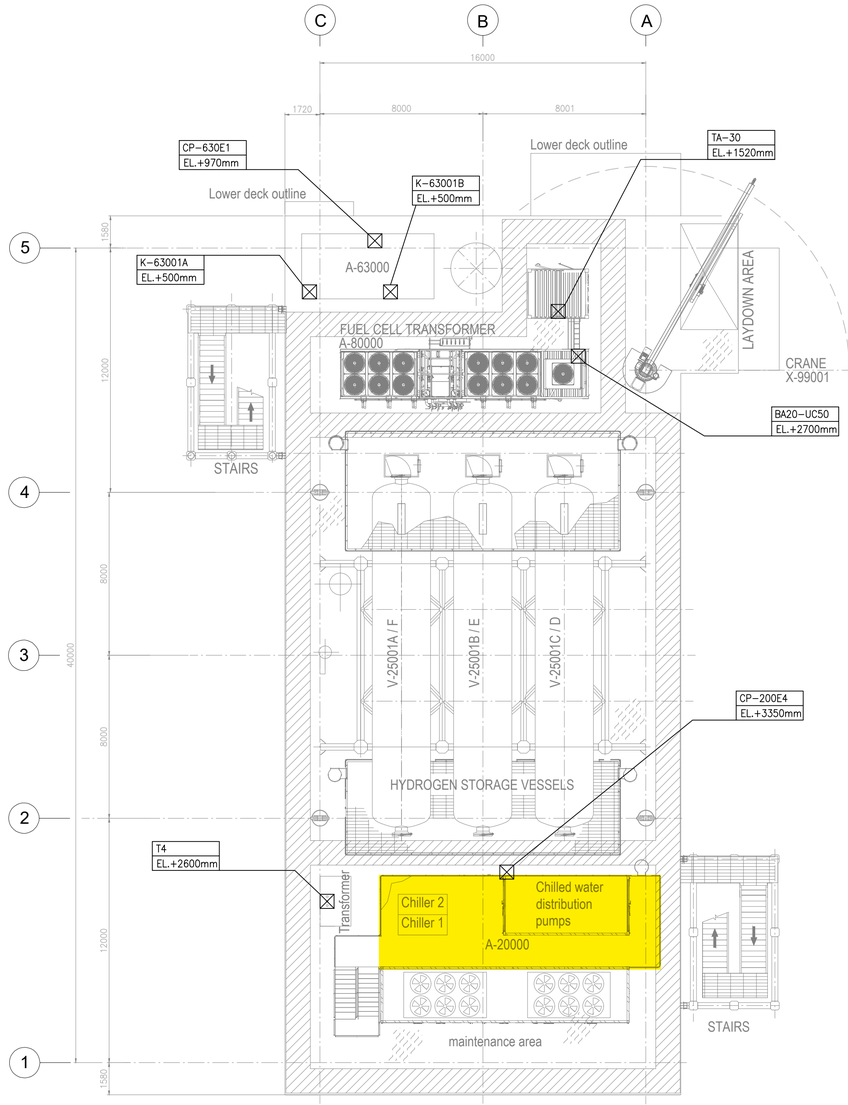
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

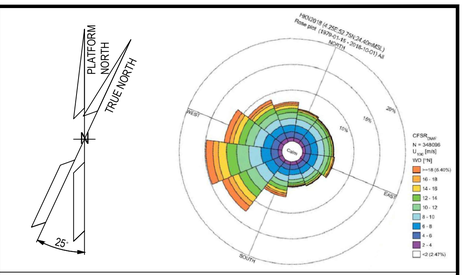
File Name : 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

FROM

DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

COLUMN/CUBIC.: A2/~~+08~~ +02

L1	BK	83010-CEL-L1 1C X 95 mm²	BK L1
L2	BK	83010-CEL-L2 1C X 95 mm²	BK L2
L3	BK	83010-CEL-L3 1C X 95 mm²	BK L3
N	BK	83010-CEL-N 1C X 95 mm²	BK N
PE	Y/G	83010-CEL-E 1C X 95 mm²	Y/G PE

P.E. BUS BAR

COLUMN/CUBIC.: A1/+08

L1	BK	83013-CEL-L1 1C X 300 mm²	BK L1
L2	BK	83013-CEL-L2 1C X 300 mm²	BK L2
L3	BK	83013-CEL-L3 1C X 300 mm²	BK L3
N	BK	83013-CEL-N 1C X 300 mm²	BK N
PE	Y/G	83013-CEL-E 1C X 150 mm²	Y/G PE

P.E. BUS BAR

COLUMN/CUBIC.: A4/+03

L1	BN	83012-CEL 5G16 mm²	-XB01 1 L1
L2	BK		2 L2
L3	GY		3 L3
N	BU		4 N
PE	Y/G		5 PE

P.E. BUS BAR

TO

DESCRIPTION: TEMPORARY GENERATOR / MOBILE BATTERY PACK
TAG NUMBER: JB-200E2

INCOMING FROM LV SWITCHGEAR SG-200N1

P.E. BUS BAR

DESCRIPTION: ELECTROLYSER AUXILIARY LOAD
TAG NUMBER: A-20000

P.E. BUS BAR

DESCRIPTION: FUEL CELL AUXILIARY LOAD
TAG NUMBER: A-80000

P.E. BUS BAR

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_E	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR SG-200N1

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

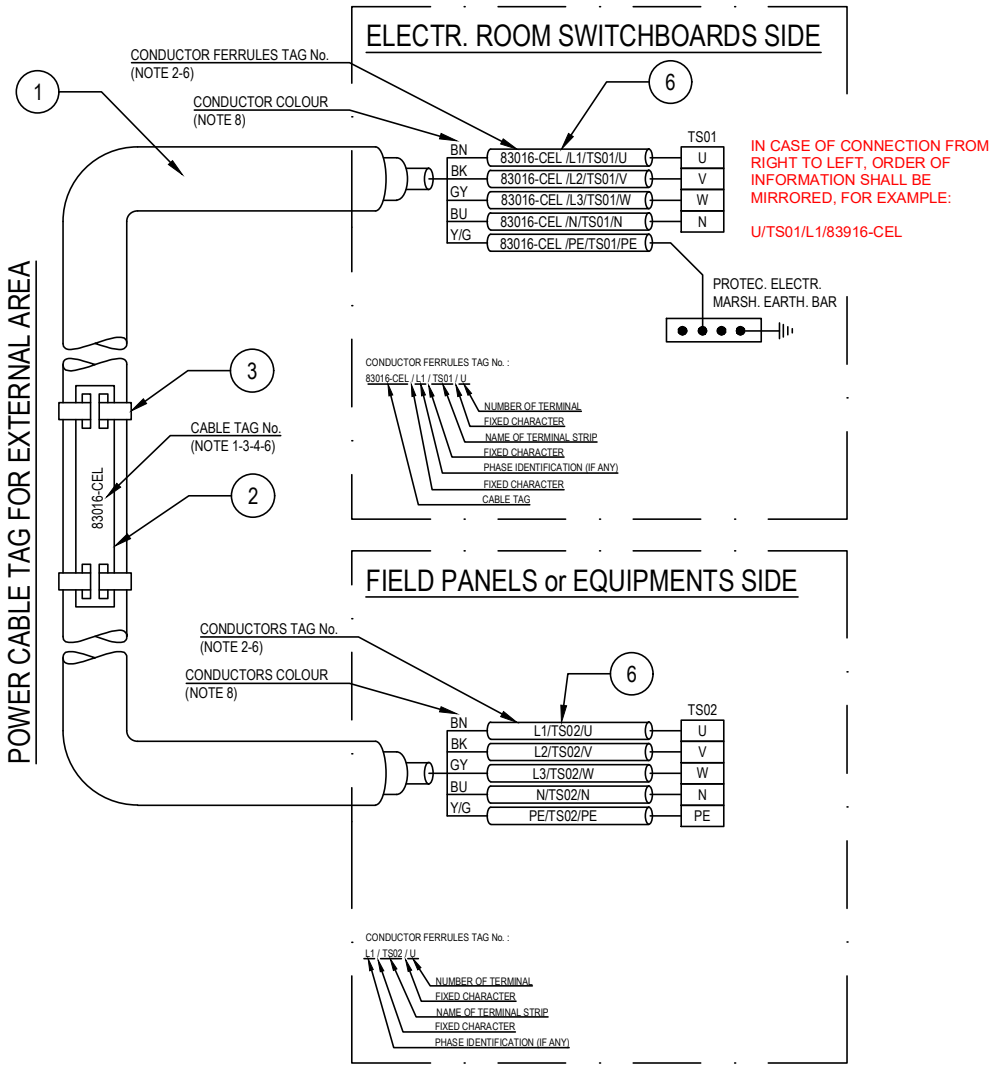
SHEET 021

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

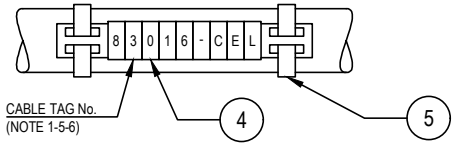
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

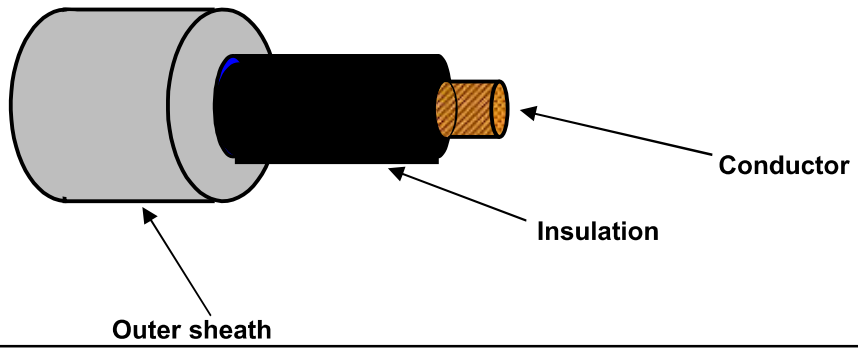
F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
83013-CEL-L1	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	A-20000	Electrolyser Auxiliary Load	Upper Deck	ELECV01-1X300	Cable Cu Cl.2/EPR/LSZH 0,6/1kV 1Cx300mm² - Grey	M40	n.a.			Supplied_by_Vendor				L-450-101-LVT-022 / L-600-101-LVT-017 / E-MCT-202 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-600-101-LVT-094 / L-450-101-LVT-072 / E-MCT-U02 / L-450-102-LVT-001

Cu Cl.2/EPR/LSZH 0,6/1 KV

1CX300 - L.V. POWER CABLE - Flame Retardant



TECHNICAL FEATURES

Conductor :	**STRANDED COMPACTED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	EPR compound, quality to IEC 60092.360, Nominal Thickness 2,4 mm	
Core colour code :	**Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Not Required	
Overall Wrapping:	Not required	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Not required	
Inner covering color code:	Not required	
Armour :	Not required	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,6 mm	
Outer sheath color code:	**Grey**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 1CX300 SQMM - EPR/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Outer diameter :	(29,4 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Spark test :	16 kV a.c.	(on insulation)
	12 kV a.c.	(on outer sheath)
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 330 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
ON INSULATION	(max +90°C)	(max continuous operation temperature of conductors)
	(max +250°C)	(max conductors temperature during short-circuit for 5 seconds)
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C)	(in fixed installation)
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Outer sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ITEM	Tag	83013-CEL-L2	: LV Switchgear / Electrolyser Auxiliary load		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	LD_B-200/LD	
TASK	code	C10001830	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form CPX09	LV Power Cable	

CABLE DATA

Type: Cu Cl.2/EPR/LSZH | Cores/Size mm²: 1X300 mm2 | Color: GREY

From: SG-200N1 | To: A-20000

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	Note
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	OK
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	83013-CEL-L2	: LV Switchgear / Electrolyser Auxiliary load			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	LD_B-200/LD
TASK	code	C10001830		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

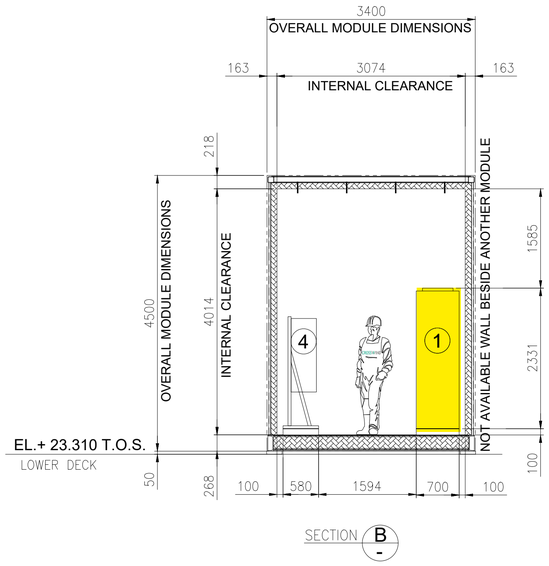
CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0,6	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		No	

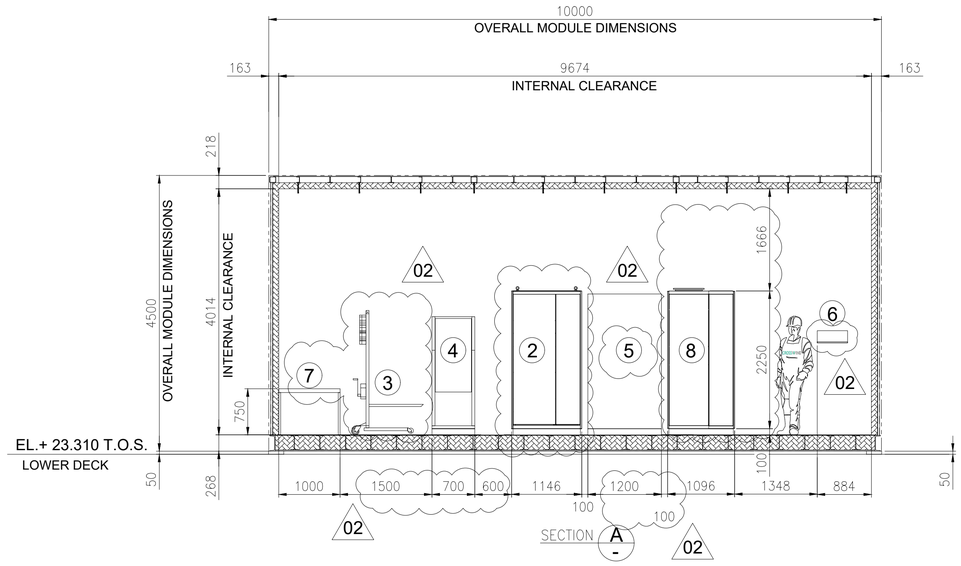
TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

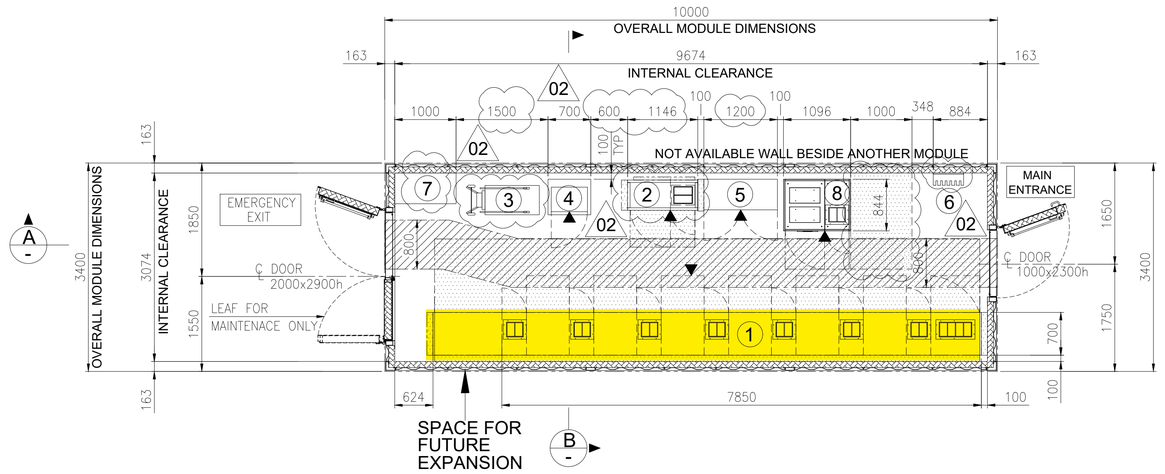
Comments:
Nota 4: refer to PL C30000679
Note 9 :cable terminations must be reconnected during the commissioning phase.

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-10	2025-01-10	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-10T06:39:04.162Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-10T14:55:05.452Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02





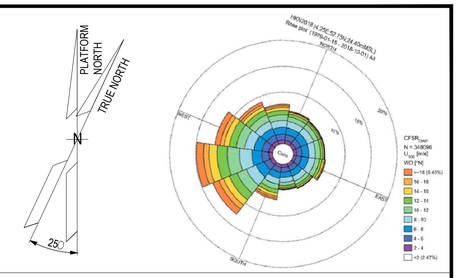


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

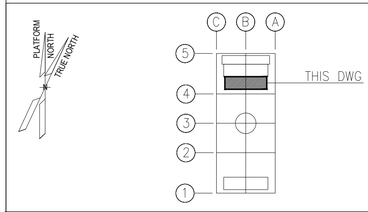
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

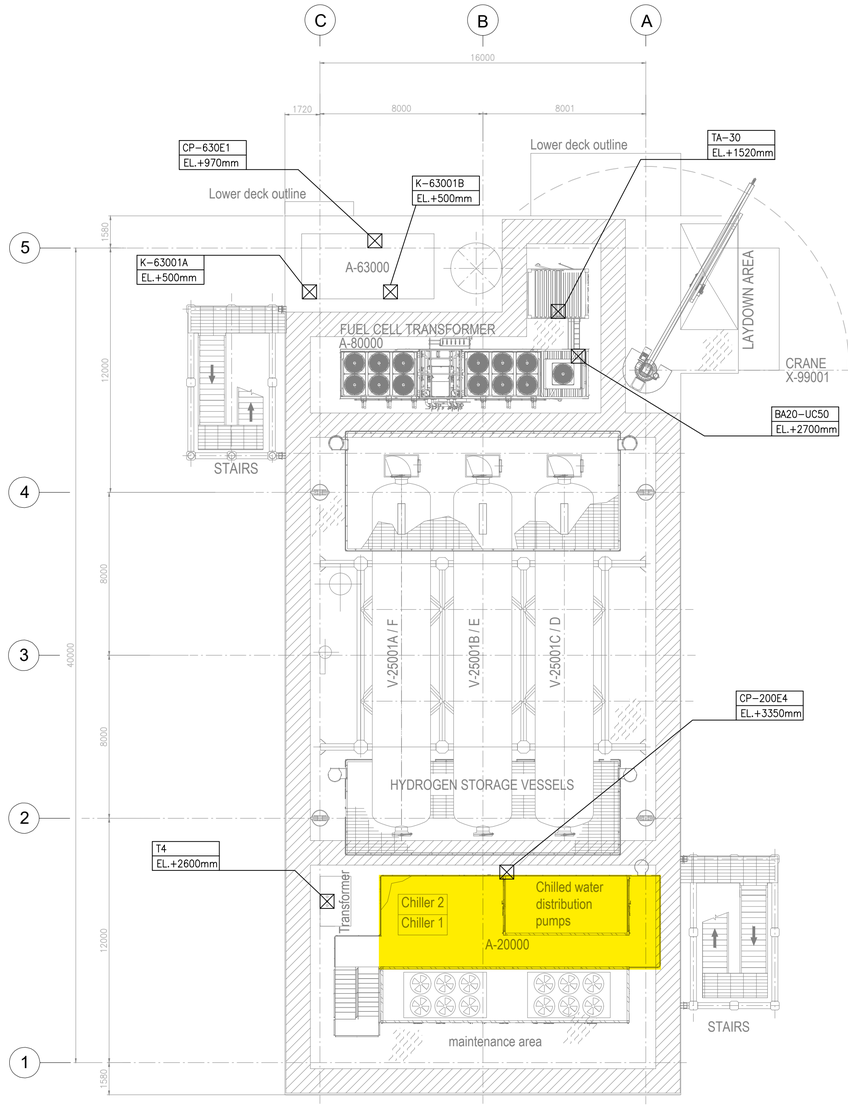
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

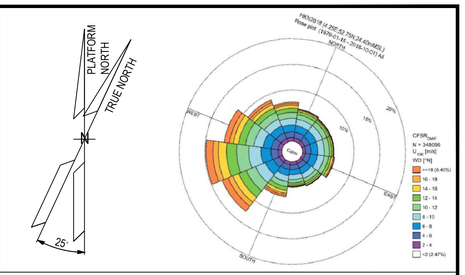
File Name : 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

FROM

DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

COLUMN/CUBIC.: A2/~~+08~~ +02

L1	BK	83010-CEL-L1 1C X 95 mm²	
L2	BK	83010-CEL-L2 1C X 95 mm²	
L3	BK	83010-CEL-L3 1C X 95 mm²	
N	BK	83010-CEL-N 1C X 95 mm²	
PE	Y/G	83010-CEL-E 1C X 95 mm²	

P.E. BUS BAR

COLUMN/CUBIC.: A1/+08

L1	BK	83013-CEL-L1 1C X 300 mm²	
L2	BK	83013-CEL-L2 1C X 300 mm²	
L3	BK	83013-CEL-L3 1C X 300 mm²	
N	BK	83013-CEL-N 1C X 300 mm²	
PE	Y/G	83013-CEL-E 1C X 150 mm²	

P.E. BUS BAR

COLUMN/CUBIC.: A4/+03

L1	BN	83012-CEL 5G16 mm²	
L2	BK		
L3	GY		
N	BU		
	Y/G		
	PE		

P.E. BUS BAR

TO

DESCRIPTION: TEMPORARY GENERATOR / MOBILE BATTERY PACK
TAG NUMBER: JB-200E2

BK	L1	INCOMING FROM LV SWITCHGEAR SG-200N1
BK	L2	
BK	L3	
BK	N	
Y/G	PE	

P.E. BUS BAR

DESCRIPTION: ELECTROLYSER AUXILIARY LOAD
TAG NUMBER: A-20000

BK	L1	
BK	L2	
BK	L3	
BK	N	
Y/G	PE	

P.E. BUS BAR

DESCRIPTION: FUEL CELL AUXILIARY LOAD
TAG NUMBER: A-80000

-XB01

BN	1	L1	
BK	2	L2	
GY	3	L3	
BU	4	N	
Y/G	5	PE	Y/G, PE

P.E. BUS BAR

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_E	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR SG-200N1

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

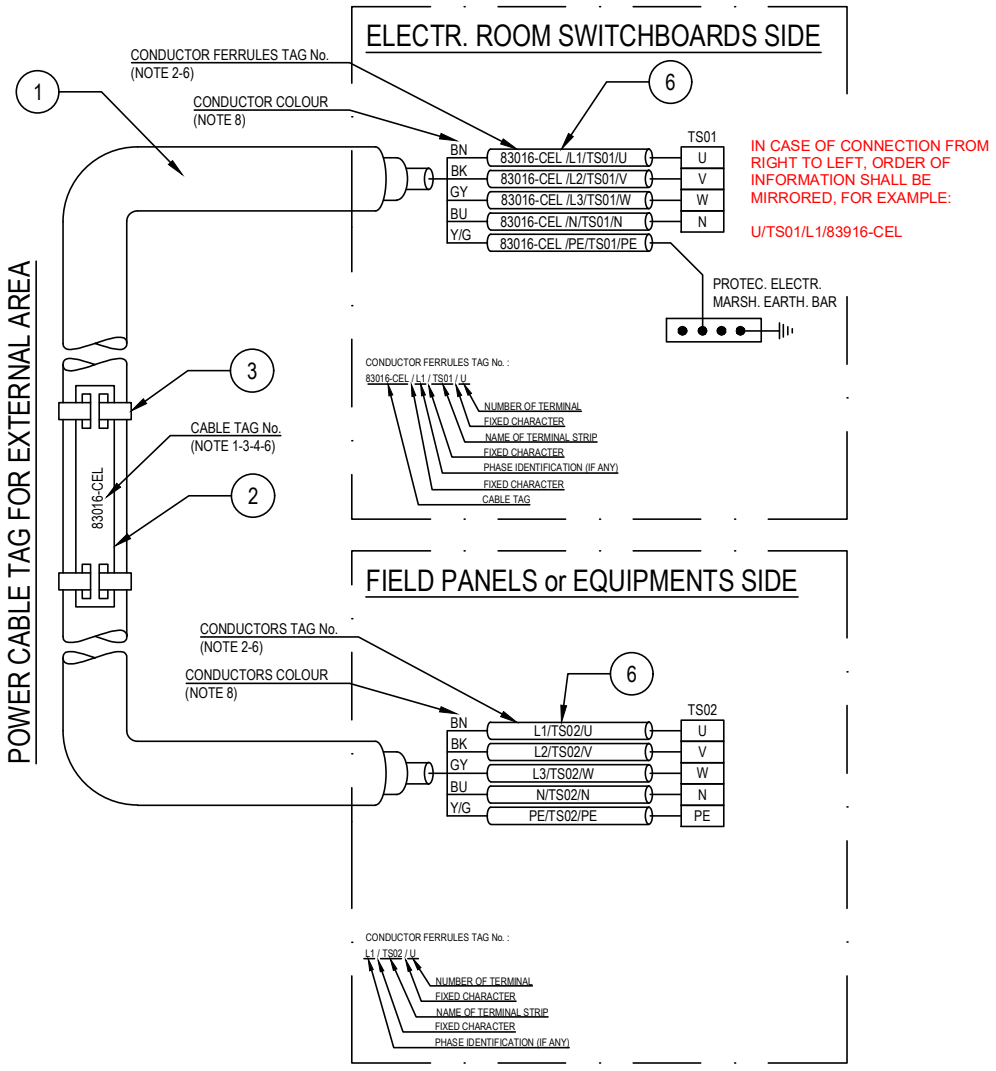
SHEET 021

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

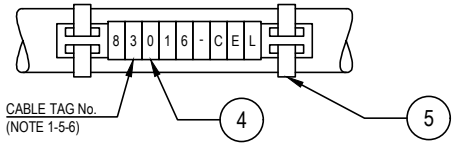
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

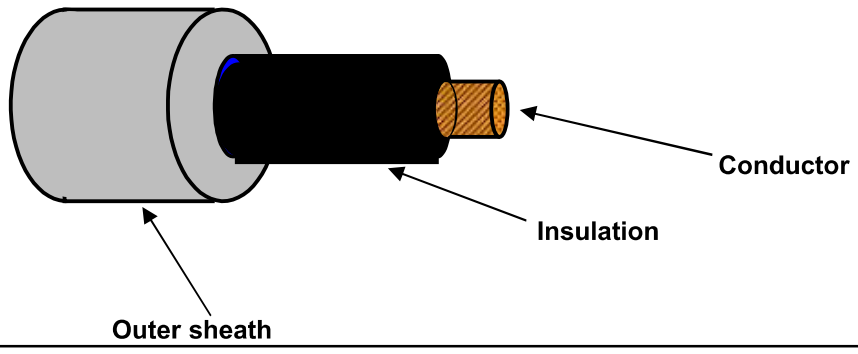
F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
83013-CEL-L2	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	A-20000	Electrolyser Auxiliary Load	Upper Deck	ELECV01-1X300	Cable Cu Cl.2/EPR/LSZH 0,6/1kV 1Cx300mm² - Grey	M40	n.a.			Supplied_by_Vendor				L-450-101-LVT-022 / L-600-101-LVT-017 / E-MCT-202 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-600-101-LVT-094 / L-450-101-LVT-072 / E-MCT-U02 / L-450-102-LVT-001

Cu Cl.2/EPR/LSZH 0,6/1 KV

1CX300 - L.V. POWER CABLE - Flame Retardant



TECHNICAL FEATURES

Conductor :	**STRANDED COMPACTED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	EPR compound, quality to IEC 60092.360, Nominal Thickness 2,4 mm	
Core colour code :	**Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Not Required	
Overall Wrapping:	Not required	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Not required	
Inner covering color code:	Not required	
Armour :	Not required	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,6 mm	
Outer sheath color code:	**Grey**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 1CX300 SQMM - EPR/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Outer diameter :	(29,4 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Spark test :	16 kV a.c.	(on insulation)
	12 kV a.c.	(on outer sheath)
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 330 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
ON INSULATION	(max +90°C)	(max continuous operation temperature of conductors)
	(max +250°C)	(max conductors temperature during short-circuit for 5 seconds)
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C)	(in fixed installation)
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Outer sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ITEM	Tag	83013-CEL-L3	: LV Switchgear / Electrolyser Auxiliary load		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	LD_B-200/LD	
TASK	code	C10001831	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form CPX09	LV Power Cable	

CABLE DATA

Type: Cu Cl.2/EPR/LSZH | Cores/Size mm²: 1X300 mm2 | Color: GREY

From: SG-200N1 | To: A-20000

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	Note
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	OK
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

ITEM	Tag	83013-CEL-L3	: LV Switchgear / Electrolyser Auxiliary load		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	LD_B-200/LD	
TASK	code	C10001831	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX09	LV Power Cable

CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0,6	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		No	

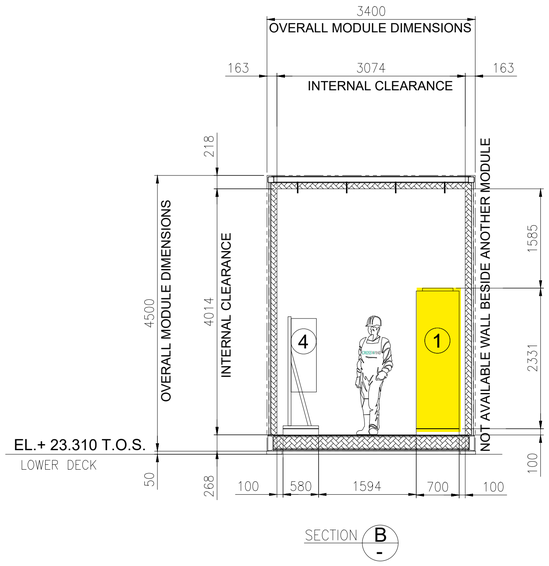
TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

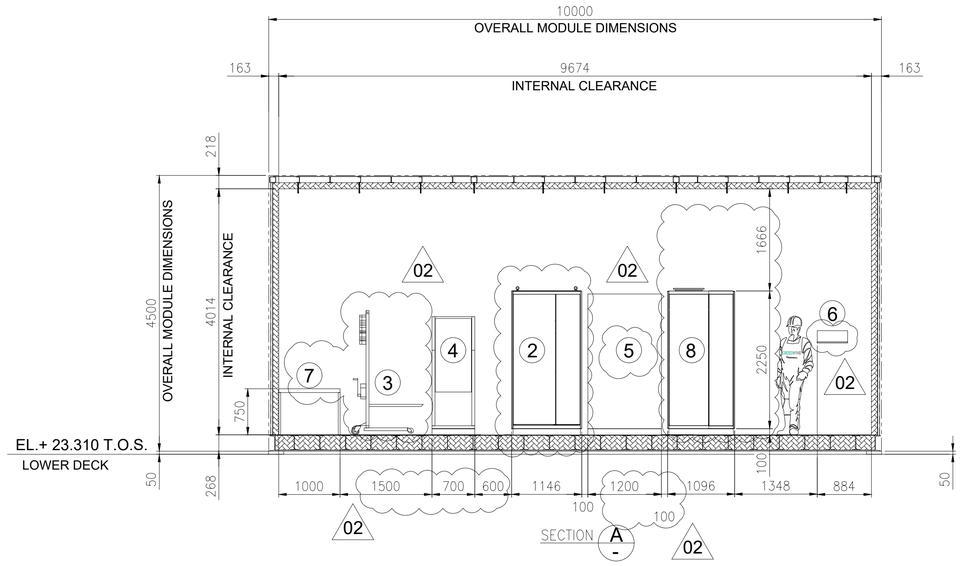
Comments: Note 4 : Refer to PL C30000679

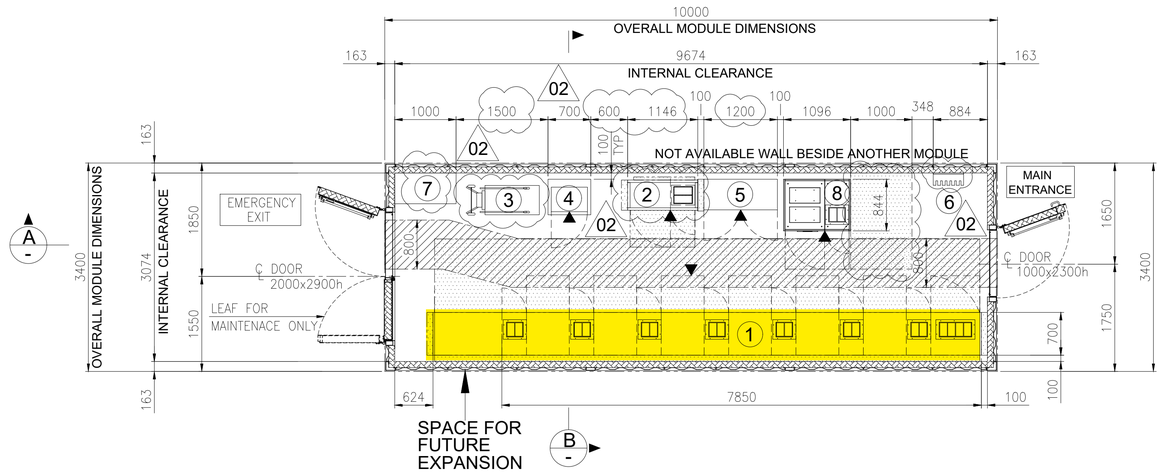
Note 9 :cable terminations must be reconnected during the commissioning phase.

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-10	2025-01-10	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-10T06:39:45.575Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-10T14:56:18.097Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02





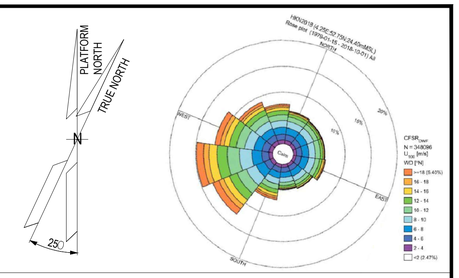


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

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2. DELETED.
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5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

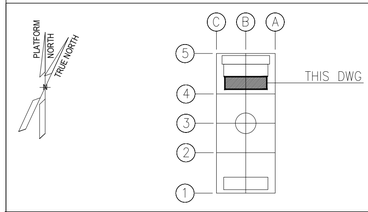
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

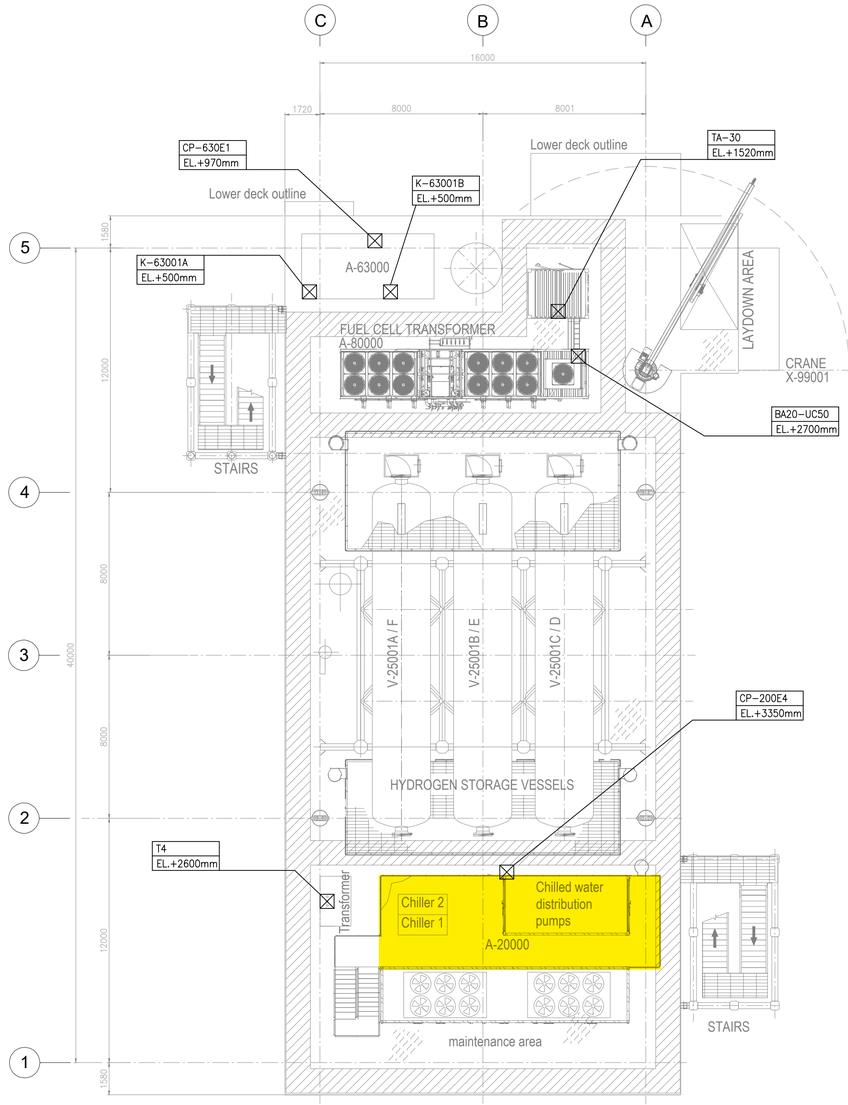
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

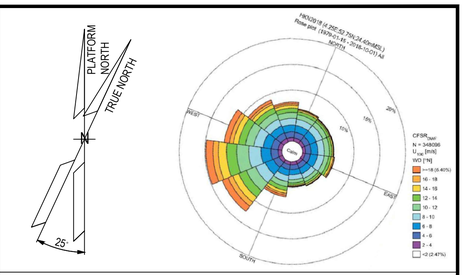
File Name : 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

FROM

DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

COLUMN/CUBIC.: A2/~~+08~~ +02

L1	BK	83010-CEL-L1 1C X 95 mm²	
L2	BK	83010-CEL-L2 1C X 95 mm²	
L3	BK	83010-CEL-L3 1C X 95 mm²	
N	BK	83010-CEL-N 1C X 95 mm²	
PE	Y/G	83010-CEL-E 1C X 95 mm²	

P.E. BUS BAR

COLUMN/CUBIC.: A1/+08

L1	BK	83013-CEL-L1 1C X 300 mm²	
L2	BK	83013-CEL-L2 1C X 300 mm²	
L3	BK	83013-CEL-L3 1C X 300 mm²	
N	BK	83013-CEL-N 1C X 300 mm²	
PE	Y/G	83013-CEL-E 1C X 150 mm²	

P.E. BUS BAR

COLUMN/CUBIC.: A4/+03

L1	BN	83012-CEL 5G16 mm²	
L2	BK		
L3	GY		
N	BU		
	Y/G		
	PE		

P.E. BUS BAR

TO

DESCRIPTION: TEMPORARY GENERATOR / MOBILE BATTERY PACK
TAG NUMBER: JB-200E2

BK	L1	INCOMING FROM LV SWITCHGEAR SG-200N1
BK	L2	
BK	L3	
BK	N	
Y/G	PE	

P.E. BUS BAR

DESCRIPTION: ELECTROLYSER AUXILIARY LOAD
TAG NUMBER: A-20000

BK	L1	
BK	L2	
BK	L3	
BK	N	
Y/G	PE	

P.E. BUS BAR

DESCRIPTION: FUEL CELL AUXILIARY LOAD
TAG NUMBER: A-80000

-XB01

BN	1	L1	
BK	2	L2	
GY	3	L3	
BU	4	N	
Y/G	5	PE	Y/G, PE

P.E. BUS BAR

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_E	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR SG-200N1

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

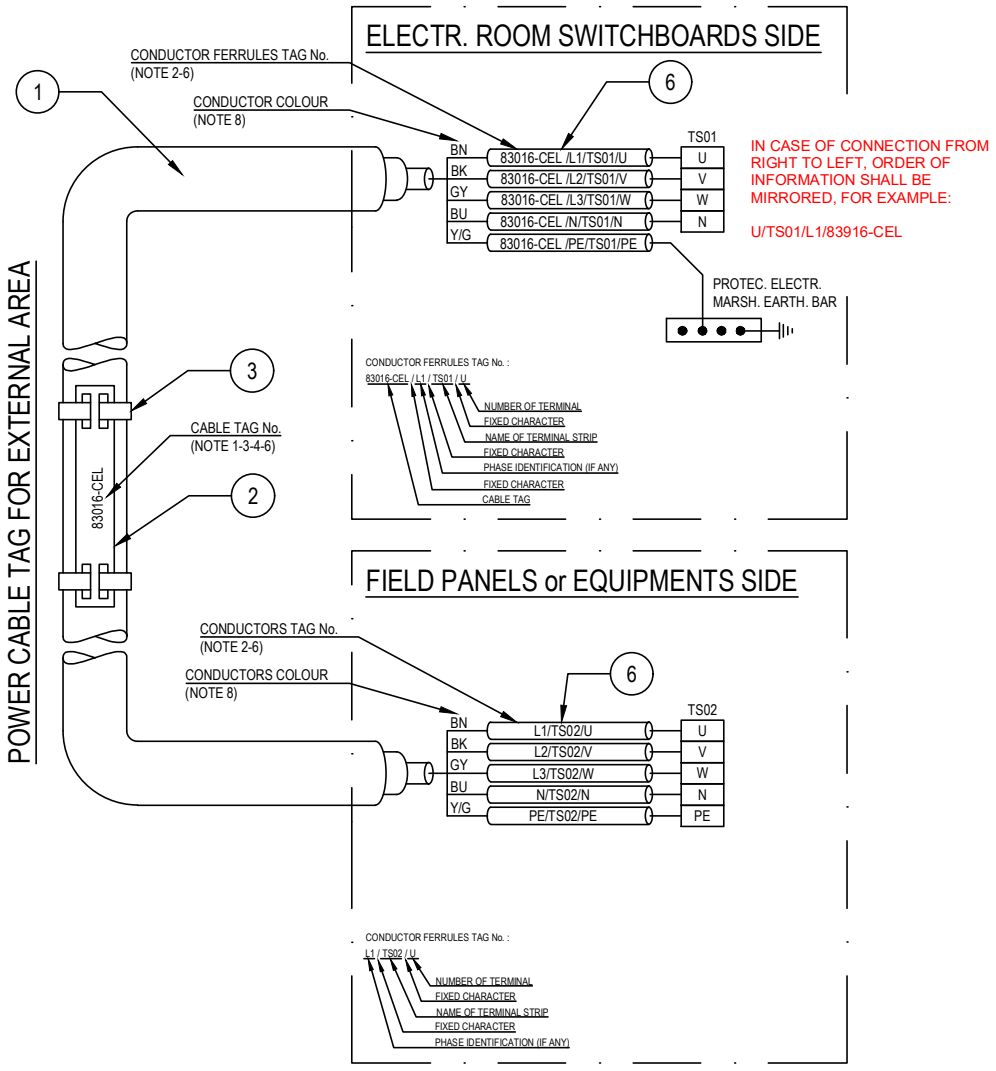
SHEET 021

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

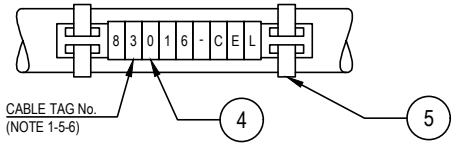
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

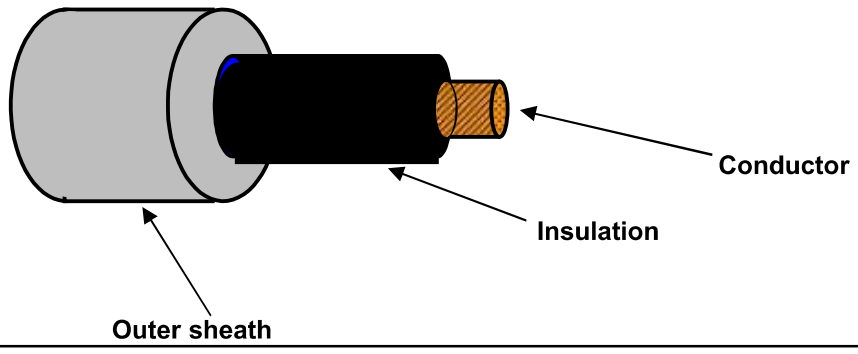
F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
83013-CEL-L3	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	A-20000	Electrolyser Auxiliary Load	Upper Deck	ELECV01-1X300	Cable Cu Cl.2/EPR/LSZH 0,6/1kV 1Cx300mm² - Grey	M40	n.a.			Supplied_by_Vendor				L-450-101-LVT-022 / L-600-101-LVT-017 / E-MCT-202 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-600-101-LVT-094 / L-450-101-LVT-072 / E-MCT-U02 / L-450-102-LVT-001

Cu Cl.2/EPR/LSZH 0,6/1 KV

1CX300 - L.V. POWER CABLE - Flame Retardant



TECHNICAL FEATURES

Conductor :	**STRANDED COMPACTED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	EPR compound, quality to IEC 60092.360, Nominal Thickness 2,4 mm	
Core colour code :	**Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Not Required	
Overall Wrapping:	Not required	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Not required	
Inner covering color code:	Not required	
Armour :	Not required	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,6 mm	
Outer sheath color code:	**Grey**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 1CX300 SQMM - EPR/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Outer diameter :	(29,4 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Spark test :	16 kV a.c.	(on insulation)
	12 kV a.c.	(on outer sheath)
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 330 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
ON INSULATION	(max +90°C)	(max continuous operation temperature of conductors)
	(max +250°C)	(max conductors temperature during short-circuit for 5 seconds)
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C)	(in fixed installation)
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Outer sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ITEM	Tag	83013-CEL-N	: LV Switchgear / Electrolyser Auxiliary load		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	LD_B-200/LD	
TASK	code	C10001832	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form CPX09	LV Power Cable	

CABLE DATA

Type: Cu Cl.2/EPR/LSZH | Cores/Size mm²: 1X300 mm2 | Color: GREY

From: SG-200N1 | To: A-20000

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	Note
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	OK
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

ROSETTI MARINO PROVERLIS CROSSWIND

ITEM	Tag	83013-CEL-N	: LV Switchgear / Electrolyser Auxiliary load			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	LD_B-200/LD
TASK	code	C10001832		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0,6	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		No	

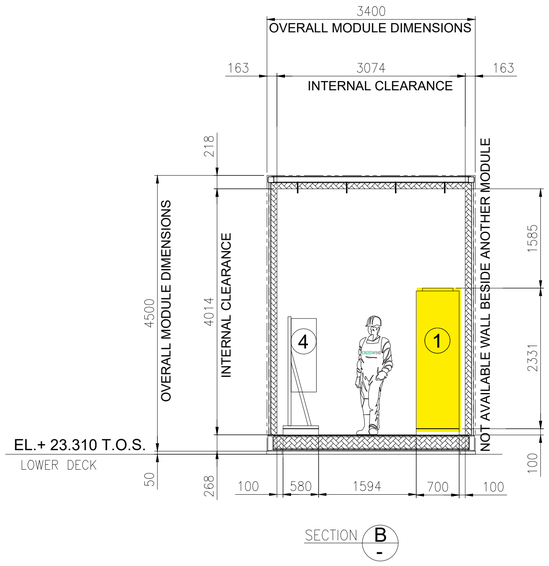
TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

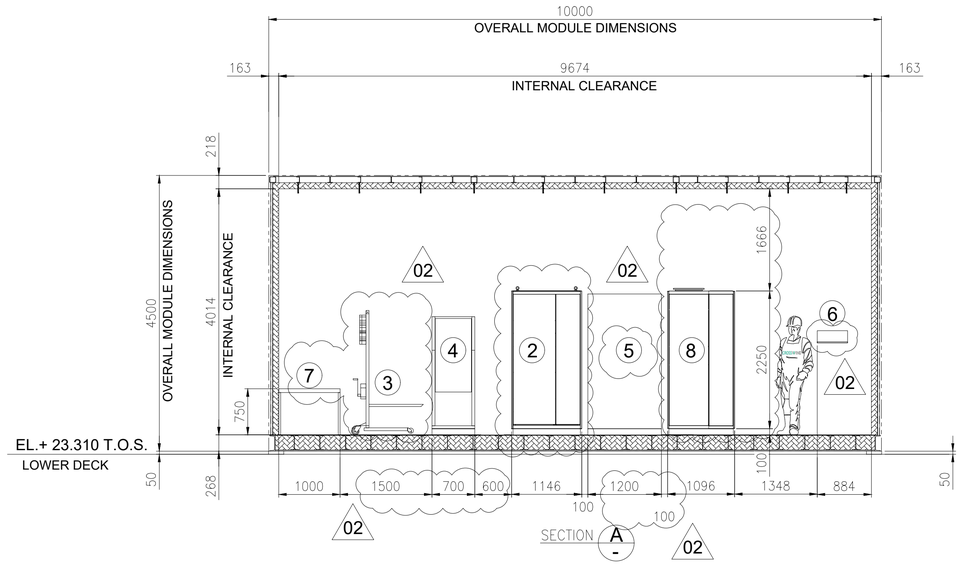
Comments: Note 4 : Refer to PL C30000679

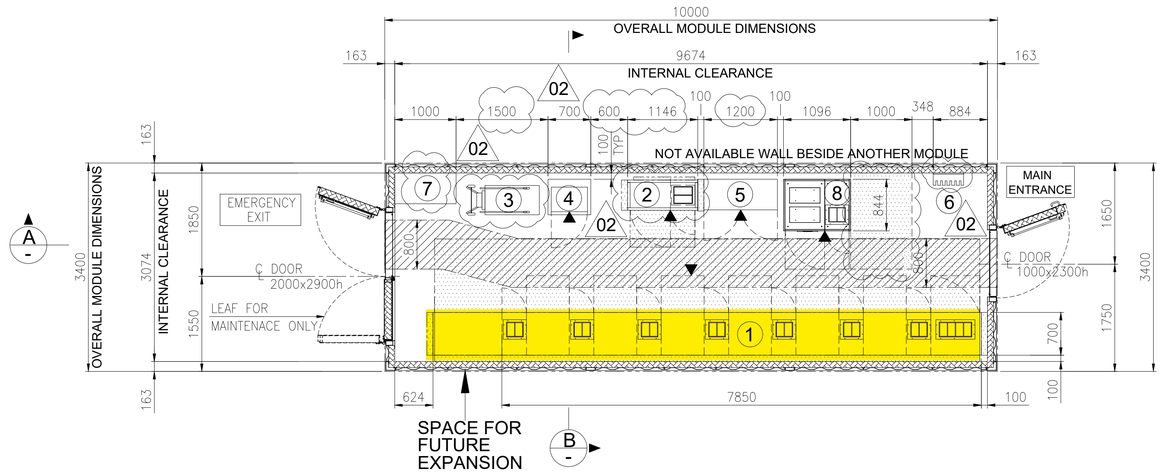
Note 9 :cable terminations must be reconnected during the commissioning phase.

Page 2/2	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-10	2025-01-10	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-10T06:39:58.340Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-10T14:57:11.051Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02





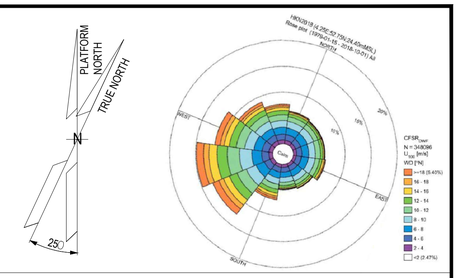


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

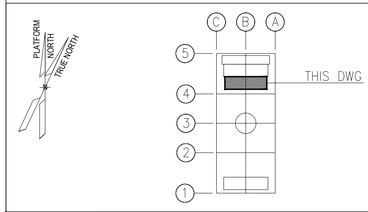
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
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_____ FRONT OF EQUIPMENT

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ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

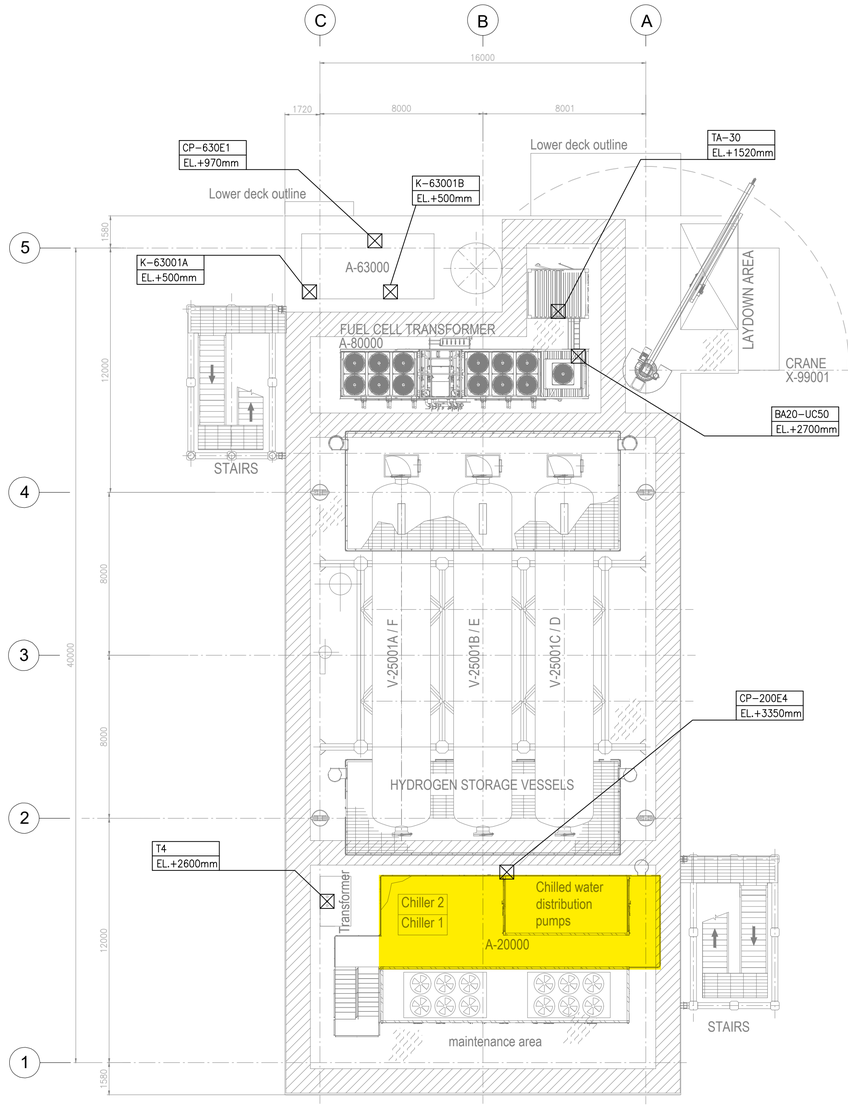
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

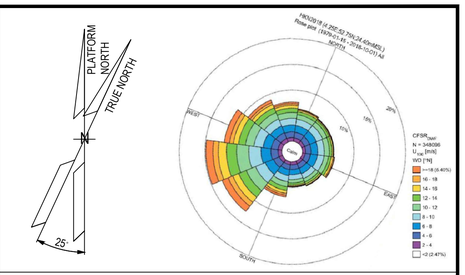
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DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

FROM

DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

COLUMN/CUBIC.: A2/~~+08~~ +02

L1	BK	83010-CEL-L1 1C X 95 mm²	BK L1
L2	BK	83010-CEL-L2 1C X 95 mm²	BK L2
L3	BK	83010-CEL-L3 1C X 95 mm²	BK L3
N	BK	83010-CEL-N 1C X 95 mm²	BK N
PE	Y/G	83010-CEL-E 1C X 95 mm²	Y/G PE

P.E. BUS BAR

COLUMN/CUBIC.: A1/+08

L1	BK	83013-CEL-L1 1C X 300 mm²	BK L1
L2	BK	83013-CEL-L2 1C X 300 mm²	BK L2
L3	BK	83013-CEL-L3 1C X 300 mm²	BK L3
N	BK	83013-CEL-N 1C X 300 mm²	BK N
PE	Y/G	83013-CEL-E 1C X 150 mm²	Y/G PE

P.E. BUS BAR

COLUMN/CUBIC.: A4/+03

L1	BN	83012-CEL 5G16 mm²	
L2	BK		
L3	GY		
N	BU		
	Y/G		
	PE		

P.E. BUS BAR

TO

DESCRIPTION: TEMPORARY GENERATOR / MOBILE BATTERY PACK
TAG NUMBER: JB-200E2

BK L1
BK L2
BK L3
BK N
Y/G PE

INCOMING FROM LV SWITCHGEAR
SG-200N1

P.E. BUS BAR

DESCRIPTION: ELECTROLYSER AUXILIARY LOAD
TAG NUMBER: A-20000

BK L1
BK L2
BK L3
BK N
Y/G PE

P.E. BUS BAR

DESCRIPTION: FUEL CELL AUXILIARY LOAD
TAG NUMBER: A-80000

-XB01

BN	1	L1
BK	2	L2
GY	3	L3
BU	4	N
Y/G	5	PE

Y/G PE

P.E. BUS BAR

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_E	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR SG-200N1

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

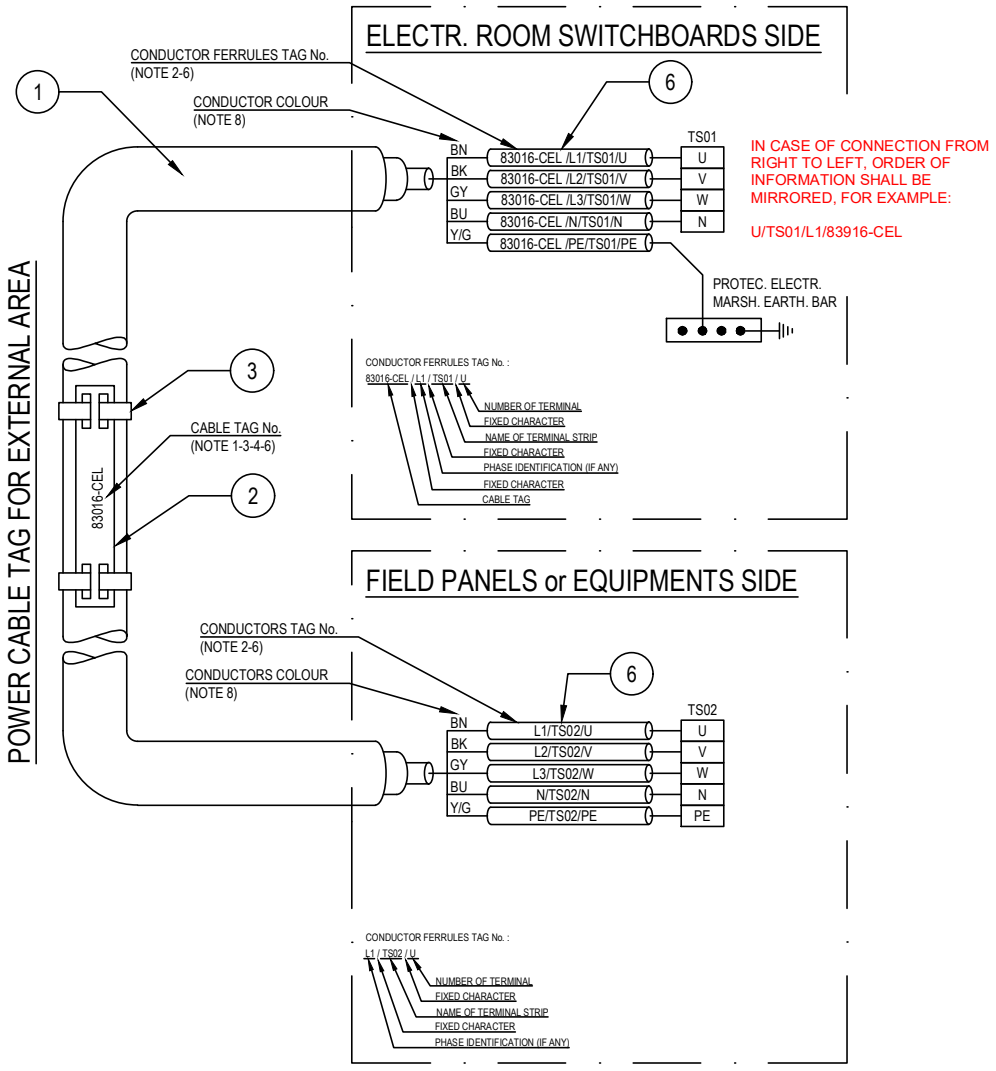
SHEET 021

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

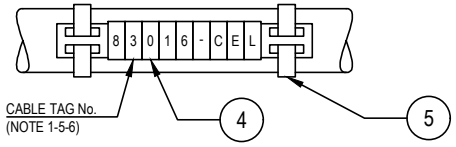
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

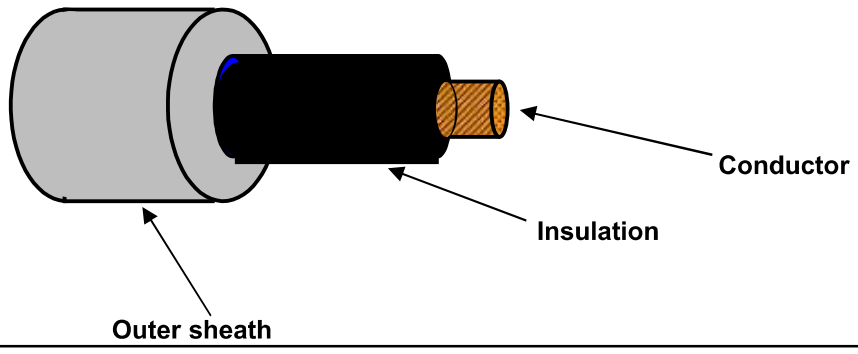
F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
83013-CEL-N	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	A-20000	Electrolyser Auxiliary Load	Upper Deck	ELECV01-1X300	Cable Cu Cl.2/EPR/LSZH 0,6/1kV 1Cx300mm² - Grey	M40	n.a.			Supplied_by_Vendor				L-450-101-LVT-022 / L-600-101-LVT-017 / E-MCT-202 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-600-101-LVT-094 / L-450-101-LVT-072 / E-MCT-U02 / L-450-102-LVT-001

Cu Cl.2/EPR/LSZH 0,6/1 KV

1CX300 - L.V. POWER CABLE - Flame Retardant



TECHNICAL FEATURES

Conductor :	**STRANDED COMPACTED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	EPR compound, quality to IEC 60092.360, Nominal Thickness 2,4 mm	
Core colour code :	**Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Not Required	
Overall Wrapping:	Not required	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Not required	
Inner covering color code:	Not required	
Armour :	Not required	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,6 mm	
Outer sheath color code:	**Grey**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 1CX300 SQMM - EPR/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Outer diameter :	(29,4 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Spark test :	16 kV a.c.	(on insulation)
	12 kV a.c.	(on outer sheath)
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 330 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
ON INSULATION	(max +90°C)	(max continuous operation temperature of conductors)
	(max +250°C)	(max conductors temperature during short-circuit for 5 seconds)
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C)	(in fixed installation)
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Outer sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ITEM	Tag	83013-CEL-E	: LV Switchgear / Electrolyser Auxiliary load		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	LD_B-200/LD	
TASK	code	C10001833	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form CPX09	LV Power Cable	

CABLE DATA

Type: Cu Cl.2/LSZH TI7 | Cores/Size mm²: 1G150 mm2 | Color: Y/G

From: SG-200N1 | To: A-20000

1	Confirm cable is as specified in project cable schedule	OK
2	Visual Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	Note
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Check gland plate for single core cables is non ferrous (non -magnetic).	OK
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	Note
10	Check cable earthing against lastest drawings.	NA
11	Check cores marking are in accordance with termination diagram	OK
12	Check terminations are in accordance with latest termination diagram	OK
13	If required produce Red Line Mark Up for "AS BUILT"	

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	83013-CEL-E	: LV Switchgear / Electrolyser Auxiliary load			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	LD_B-200/LD
TASK	code	C10001833		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0,6	
6		PH 2	NA	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		NA	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		NA	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>999	
11		PH2 / PH1-PH3-A-E	NA	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		No	

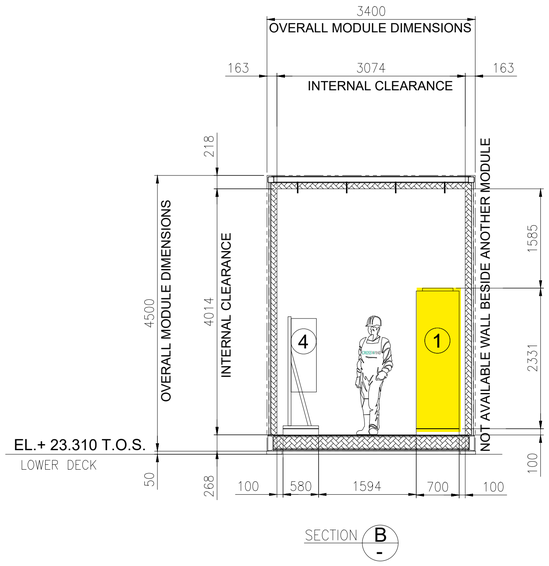
TESTING INSTRUMENTS USED			
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

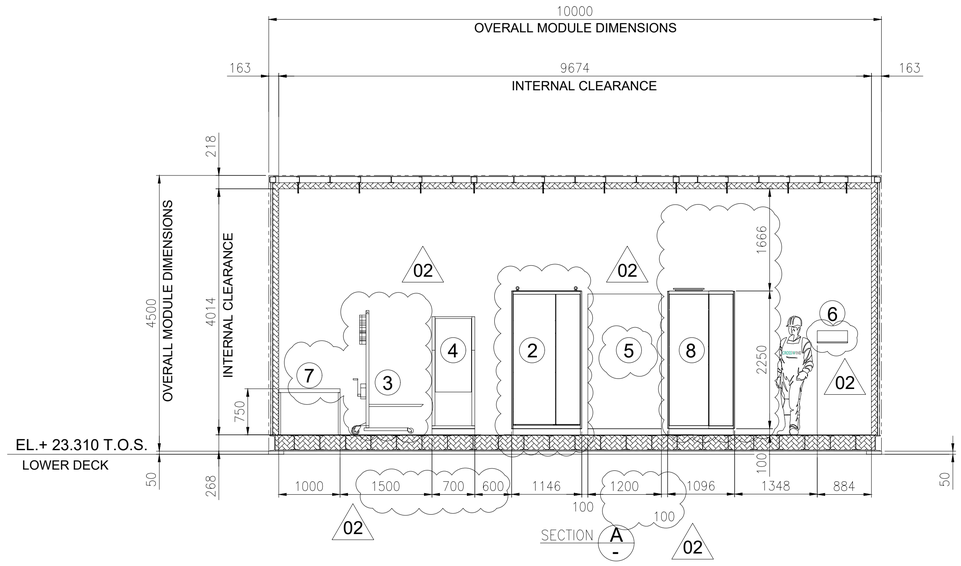
Comments: Note 4 : Refer to PL C30000679

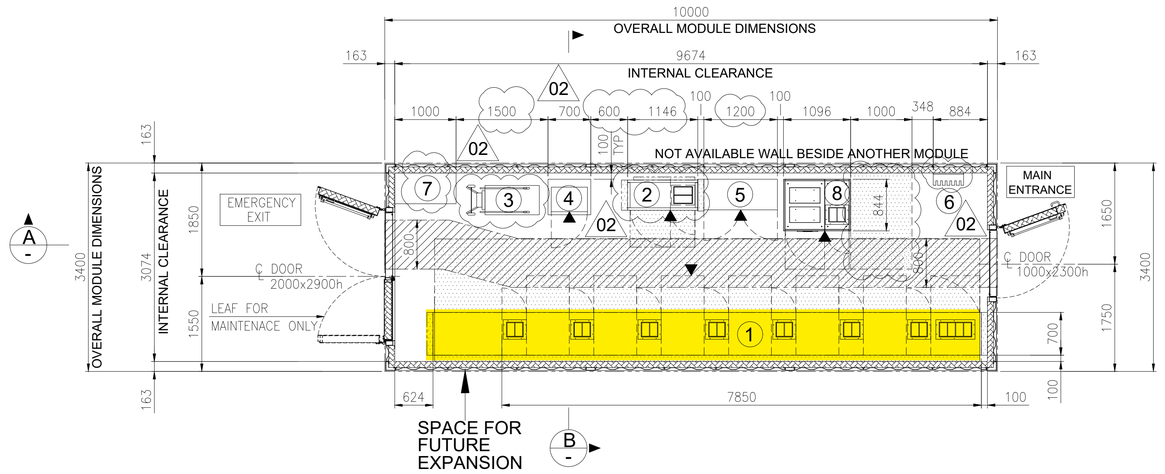
Note 9 :cable terminations must be reconnected during the commissioning phase.

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-10	2025-01-10	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-10T06:40:11.330Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-10T14:58:18.915Z	

DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02





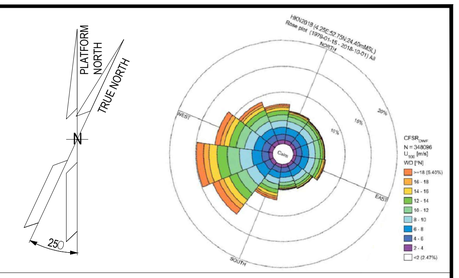


EQUIPMENT LAYOUT
"B-200" LV (400V) SWITCHGEAR ROOM
BOTTOM PLAN

1

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	SG-200N1	400V SWITCHGEAR	7850	700	2331	
2	DP-200N1	DISTRIBUTION BOARD FOR LIGHTING AND SMALL POWER B.O.P.	1146	520	2250	
3	-	SERVICE TROLLEY FOR 400V SWITCHGEAR	1034	490	2030	
4	CN-200N1	ICCP PANEL	700	580	1830	
5	B200-HSB-001	DISTRIBUTION & HVAC PANEL - LV ROOM	1200	600	1900	02
6	-	TOOL BOX	495	200	200	
7	-	TABLE	1000	500	750	
8	SG-200D2	ACB PANEL FOR SOLAR PACKAGE	1096	844	2294	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED.
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

LEGEND

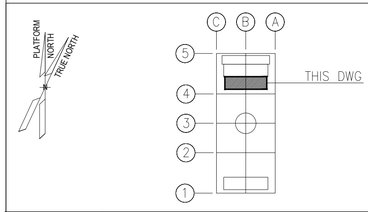
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
SG-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00007
SG-200D2 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00008
DP-200N1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00009
AC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00004
AC UPS – BATTERY LAYOUT INTERCONNECTING DIAGRAM	1724000372-EL-DG-00011
B-200 -GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00015
ICCC PANEL GENERAL ARRANGEMENT DRAWING	144671-CORR-TF-FAB-DWG-0003

02

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	08/11/2023	DSF	CB/AMA	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20105**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

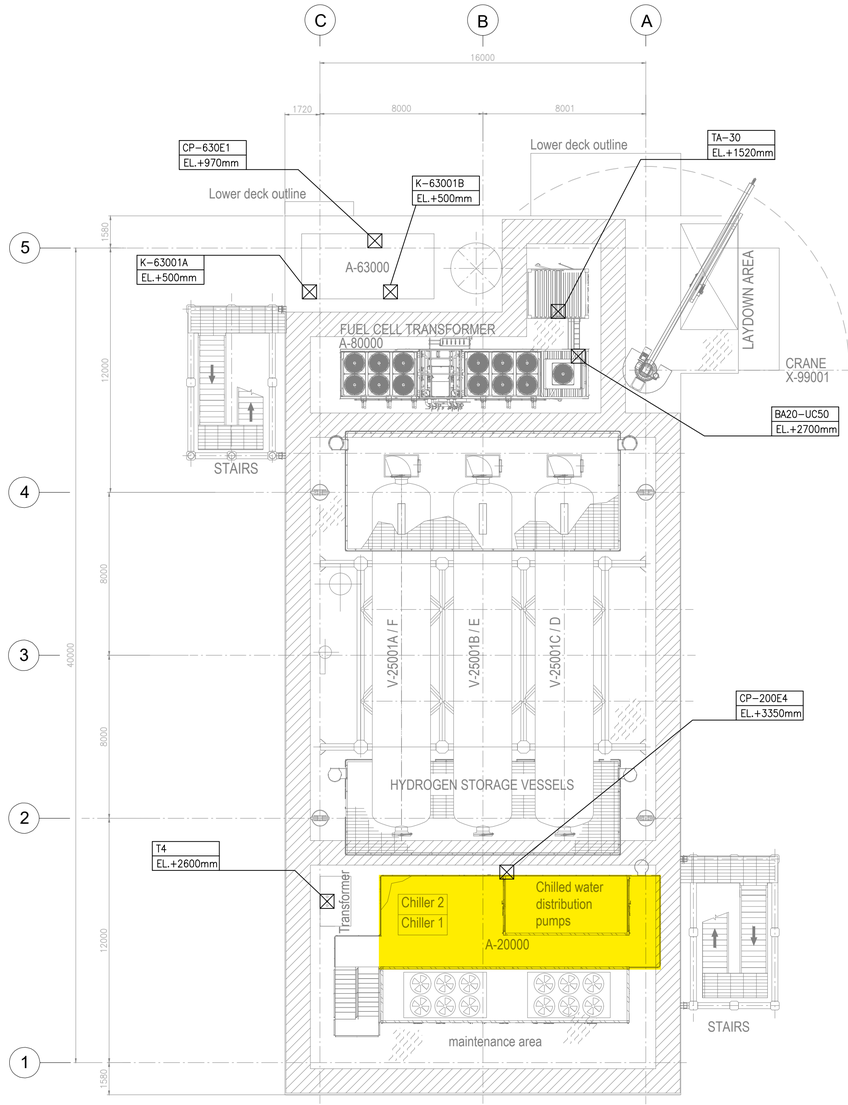
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

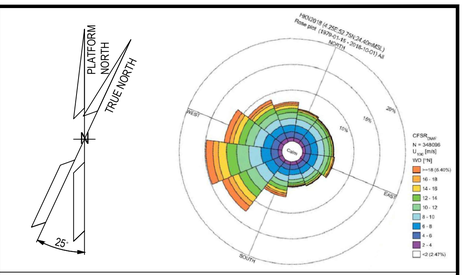
File Name : 123A90-DDL-EL-DL-20105_REV02.dwg

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

FROM

DESCRIPTION: LV Switchgear
TAG NUMBER: SG-200N1

COLUMN/CUBIC.: A2/~~+08~~ +02

L1	BK	83010-CEL-L1 1C X 95 mm²	BK L1
L2	BK	83010-CEL-L2 1C X 95 mm²	BK L2
L3	BK	83010-CEL-L3 1C X 95 mm²	BK L3
N	BK	83010-CEL-N 1C X 95 mm²	BK N
PE	Y/G	83010-CEL-E 1C X 95 mm²	Y/G PE

P.E. BUS BAR

COLUMN/CUBIC.: A1/+08

L1	BK	83013-CEL-L1 1C X 300 mm²	BK L1
L2	BK	83013-CEL-L2 1C X 300 mm²	BK L2
L3	BK	83013-CEL-L3 1C X 300 mm²	BK L3
N	BK	83013-CEL-N 1C X 300 mm²	BK N
PE	Y/G	83013-CEL-E 1C X 150 mm²	Y/G PE

P.E. BUS BAR

COLUMN/CUBIC.: A4/+03

L1	BN	83012-CEL 5G16 mm²	
L2	BK		
L3	GY		
N	BU		
	Y/G		
	PE		

P.E. BUS BAR

TO

DESCRIPTION: TEMPORARY GENERATOR / MOBILE BATTERY PACK
TAG NUMBER: JB-200E2

BK	L1
BK	L2
BK	L3
BK	N
Y/G	PE

INCOMING FROM LV SWITCHGEAR
SG-200N1

P.E. BUS BAR

DESCRIPTION: ELECTROLYSER AUXILIARY LOAD
TAG NUMBER: A-20000

BK	L1
BK	L2
BK	L3
BK	N
Y/G	PE

P.E. BUS BAR

DESCRIPTION: FUEL CELL AUXILIARY LOAD
TAG NUMBER: A-80000

-XB01

BN	1	L1
BK	2	L2
GY	3	L3
BU	4	N
Y/G	5	PE

Y/G
PE

P.E. BUS BAR

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_E	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR SG-200N1

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

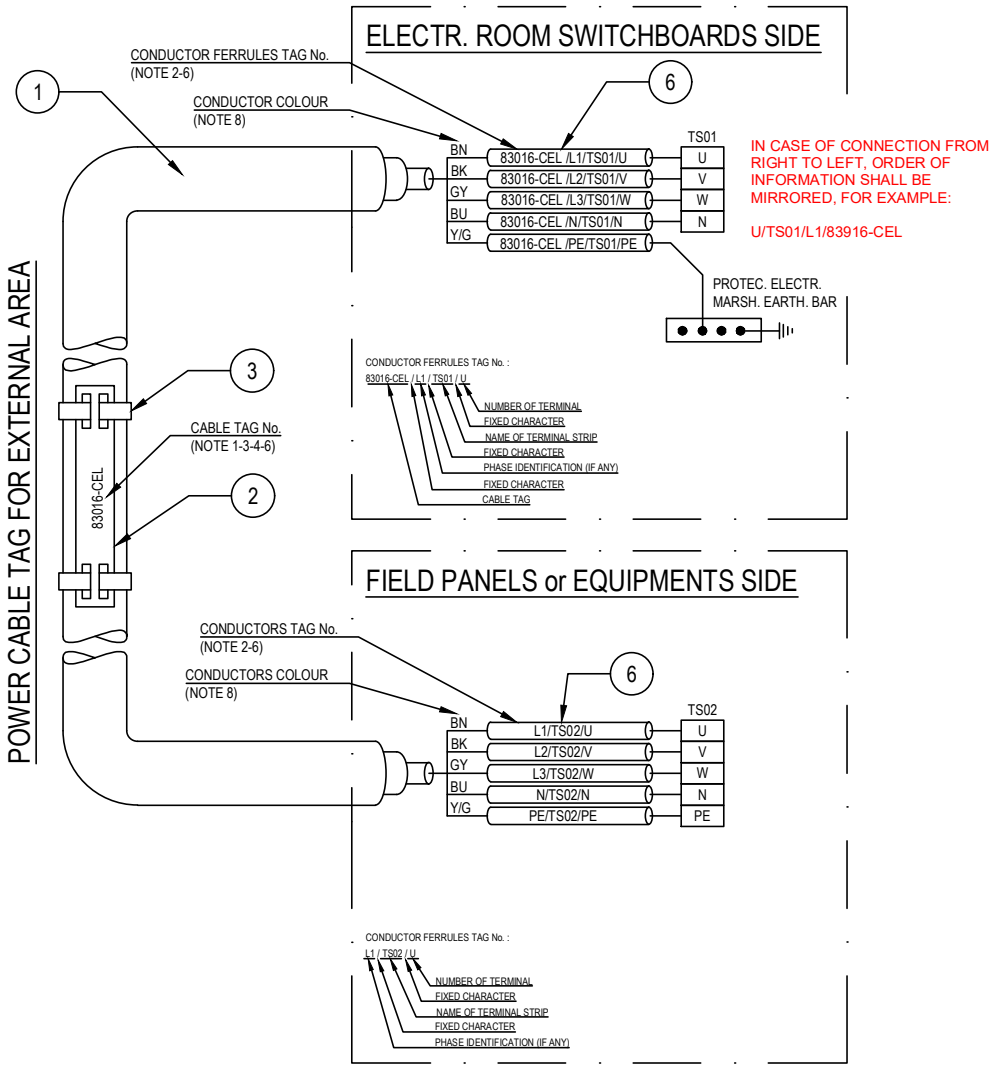
SHEET 021

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C02



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 25 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

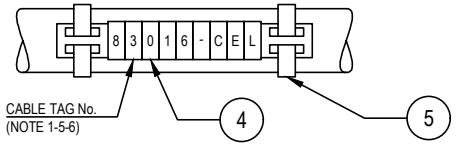
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH BAR
- EARTH BAR AND EARTH BOSS

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

POWER CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR POWER CABLES

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 007 | REV. 02

F.to UNI A3: 420mmx297mm

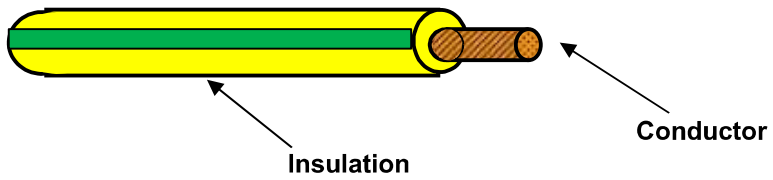
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
83013-CEL-E	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	A-20000	Electrolyser Auxiliary Load	Upper Deck	ELECV28-1G150	Cable Cu Cl.2/LSZH TI7 450/750V 1G150mm² - Yellow with 2 Green Stripes	M25	n.a.			Supplied_by_Vendor				L-450-101-LVT-022 / L-600-101-LVT-017 / E-MCT-202 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-600-101-LVT-094 / L-450-101-LVT-072 / E-MCT-U02 / L-450-102-LVT-001

FLEI s.r.l.

Cu Cl.2/LSZH 450/750 V

1G150 - PE CABLE - Flame Retardant



TECHNICAL FEATURES

Conductor :	**STRANDED COMPACTED** plain/bare annealed copper wires	EN/IEC 60228 Class 2
Insulation :	LSZH compound, TI7 quality, Nominal Thickness 1,8 mm	
Core colour code :	**Yellow with 2 Green stripes**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Not Required	
Overall Wrapping:	Not required	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Not required	
Inner covering color code:	Not required	
Armour :	Not required	
Outer sheath :	Not required	
Outer sheath color code:	Not required	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 450/750 V - 1G150 SQMM - LSZH - IEC 60332.1.2 - IEC 60332.3.22 -**	
	Year of Manufacture - CE + Meter Marking	
Outer diameter :	(17,7 ± 10%) mm	
Bending radius :	cable outer diameter x 8 (in fixed installation)	
Spark test :	13 kV a.c. (on insulation)	
Conductors DC Resistance :	EN/IEC 60228 Class 2	
Insulation Resistance :	≥ 10 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**EN 50525.3.31**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
During Operation :	(-20°C up to +70°C) (in fixed installation)	
	(max +160°C) (max conductors temperature during short-circuit for 5 seconds)	
During Installation :	(-10°C up to +50°C)	
Note :	**The cable is suitable for installation and use in Zone 1 & Zone 2 (IEC 60079-14) using only correct ATEX approved equipment or accessories**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	20001-CEC	: Electrolyser / 6.6KV HV Switchgear			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	UD/LD_B-100
TASK	code	C10002327		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX10 Multicore Electrical Control Cable

CABLE DATA

Type: Cu Cl.2/XLPE/LSZH | Cores/Size mm²: 7X1,5 mm2 | Color: GREY

From: A-20000 | To: SG-100D1

1	Check cable physical integrity	OK
2	Check cable data against latest cable schedule.	OK
3	Check cable routing against latest drawings (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to latest project Specification.	Note
5	Check bending radius is within the specified limits.	OK
6	Check cable and core marking against latest drawings	OK
7	Check cable labelling is in accordance with latest specification.	PL
8	Check cable glands suit for cable type and are in accordance with latest specification.	OK
9	Check terminations are in accordance with latest termination diagram.	OK
10	Check cable earthing against lastest drawings.	NA
11	Check gland plate for single core cables is non magnetic.	NA
12	If required produce Red Line Mark Up for "AS BUILT"	

CONTINUITY	CORE 1 / All cores+screen+armour+earth	1,4
	CORE 2 / All cores+screen+armour+earth	1,4
	CORE 3 / All cores+screen+armour+earth	1,4
	CORE 4 / All cores+screen+armour+earth	1,4
	CORE 5 / All cores+screen+armour+earth	1,4
	CORE 6 / All cores+screen+armour+earth	1,4
	CORE 7 / All cores+screen+armour+earth	1,4
	CORE 8 / All cores+screen+armour+earth	NA
	CORE 9 / All cores+screen+armour+earth	NA
	CORE 10 / All cores+screen+armour+earth	NA

INSULATION	CORE 1	>999
	CORE 2	>999
	CORE 3	>999
	CORE 4	>999
	CORE 5	>999
	CORE 6	>999
	CORE 7	>999
	CORE 8	NA
	CORE 9	NA
	CORE 10	NA
	SCREEN	NA
	EARTH	NA
	ARMr	NA
	TEST VOLTS	NA

TESTING INSTRUMENTS USED

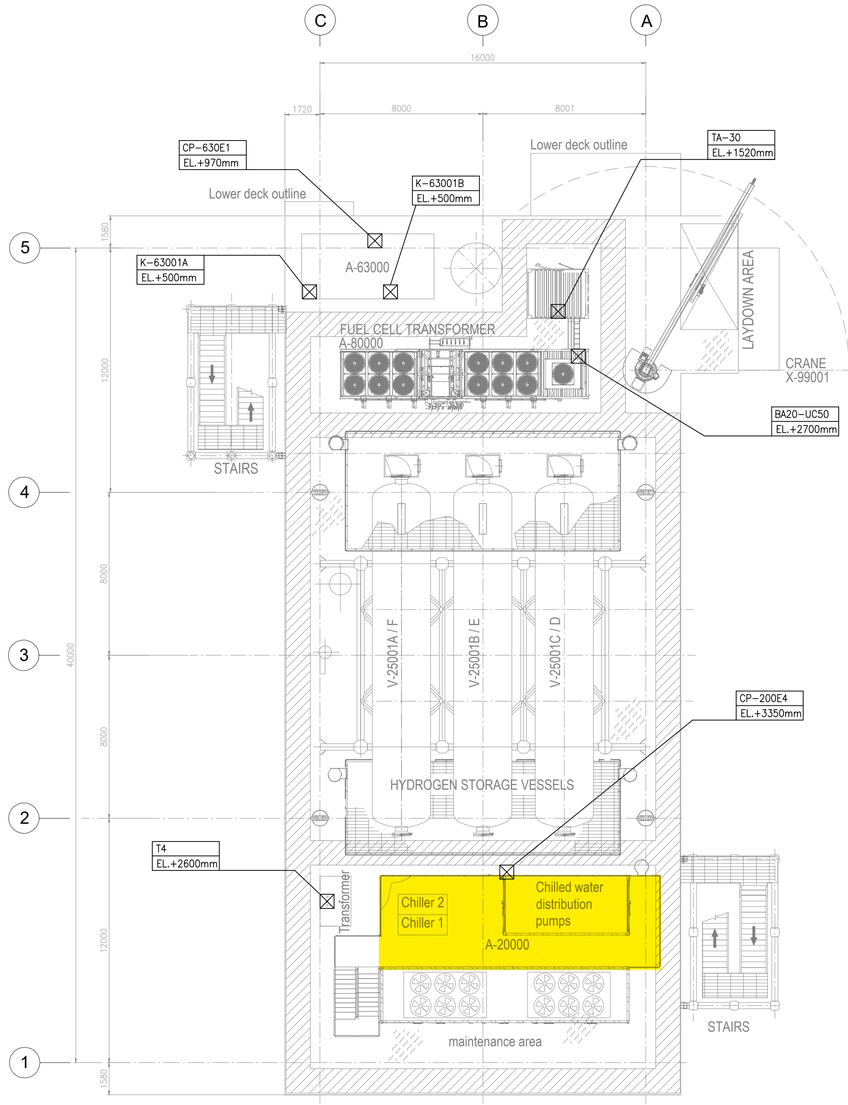
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TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:

Comments: Nota 4: refer to PL C30000679/C30000681

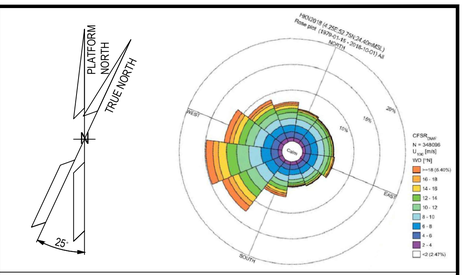
Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Giovanni Tangianu	
Date	2024-12-30	2025-02-13	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-12-30T14:55:16.339Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-02-13T15:05:37.351Z	

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

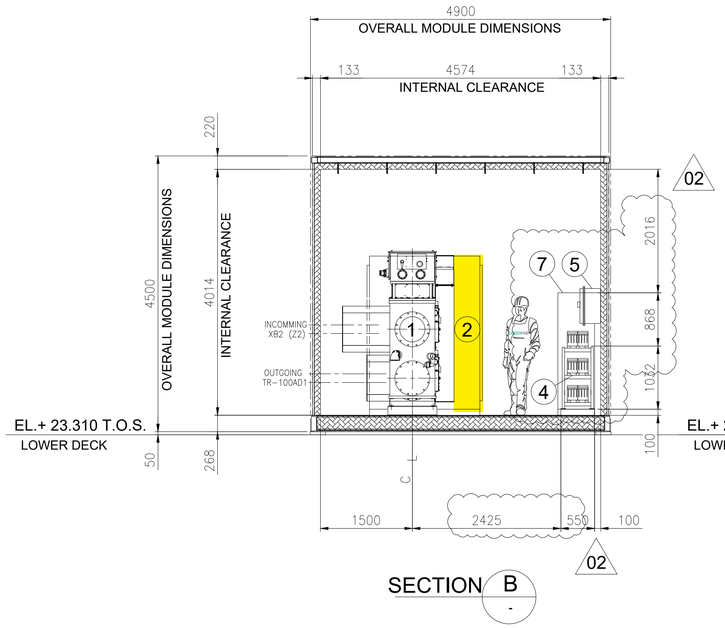
TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

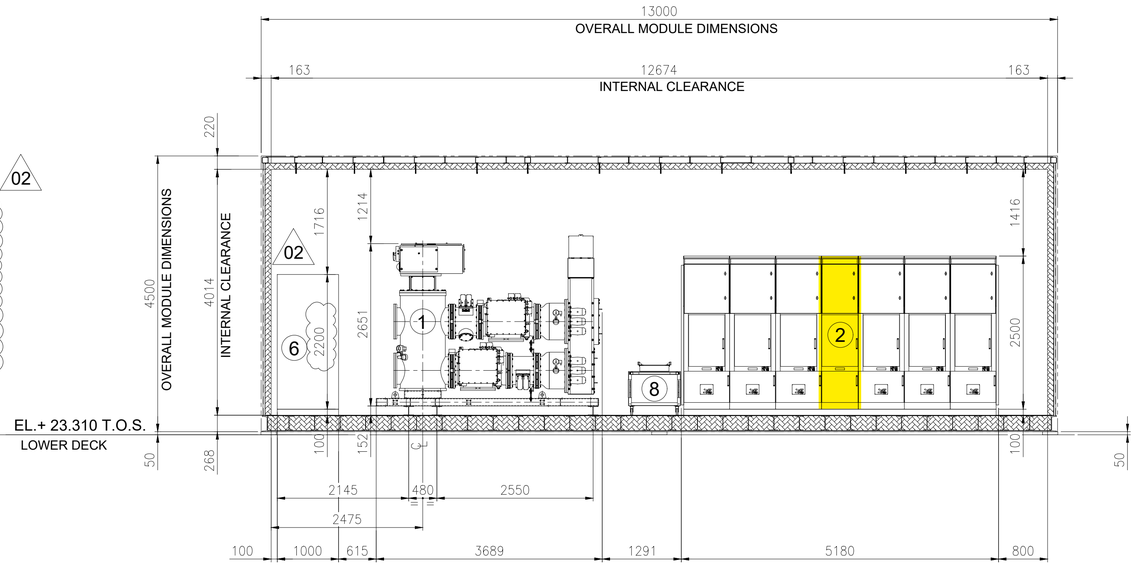
A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

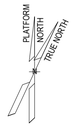
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02

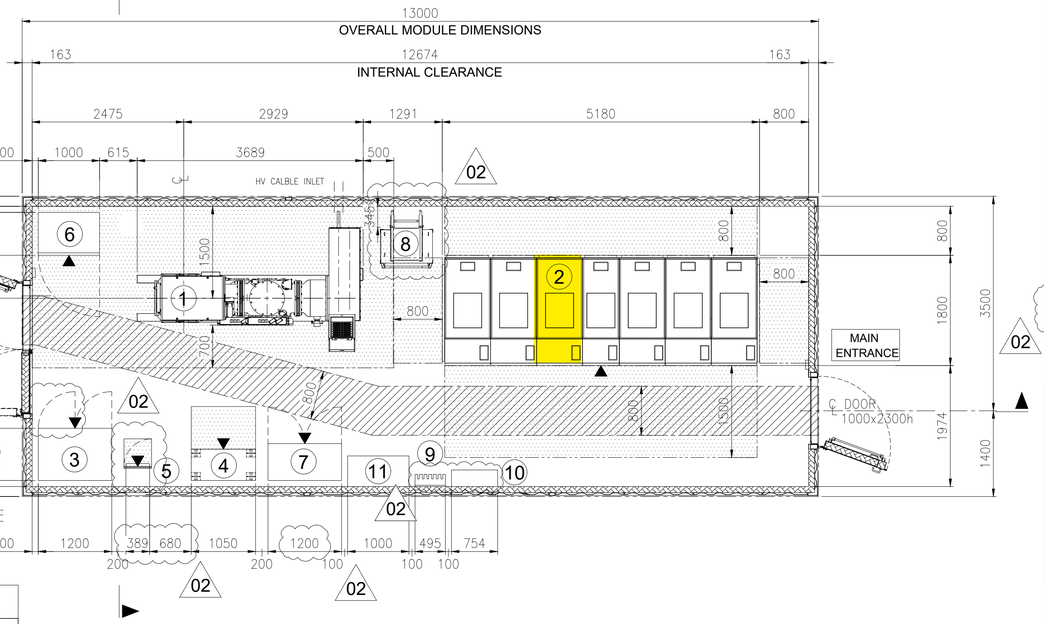


SECTION B -

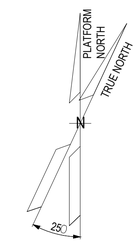


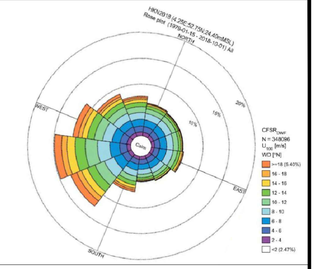
SECTION A -





A -





NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DELETED
3. DOCUMENT VALID ONLY FOR ELECTRICAL COMPONENT.
4. FOR OTHER ITEMS, CORRECT LOCATION AND INFROMATION, PLEASE REFER TO VENDORS AND DEDICATED PROJECT DOCUMENTATION.
5. HEIGHT OF ALL PANELS IN THE EQUIPMENT LIST TABLE IS WITHOUT THE BASE FRAME (100mm)

02

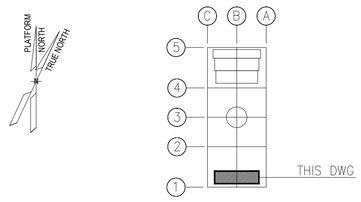
LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
66kV SWITCHGEAR (GIS) GENERAL ARRANGEMENT DRAWING	1723001595-EL-DA-00006
CIRCUIT AND WIRING DIAGRAM	1723001595-EL-DG-00015
SG-100D1 GENERAL ARRANGEMENT DRAWING	1723002197-EL-DA-00006
DC UPS – GENERAL ARRANGEMENT AND DIMENSIONAL DRAWINGS	1724000372-EL-DA-00003
DC UPS – BATTERY LAYOUT AND INTERCONNECTING DIAGRAM	1724000372-EL-DG-00010
B-100 - GENERAL ARRANGEMENT DRAWINGS - E&I SHELTER	1724000049-AR-DA-00014

KEY PLAN



EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	HNA6-AFA70	66kV SWITCHGEAR (GIS)	3689	2025	2651	
2	SG-100D1	6.6kV SWITCHGEAR	5180	1800	2500	
3	UP-200F1	DC UPS PANEL	1200	850	2105	
4	BA-200F1	DC UPS BATTERY RACK	1050	510	1272	
5	CB-200F1 02	ISOLATOR FOR DC UPS	452	377	634	
6	CP-100E1	66 kV SWITCHGEAR LOCAL CONTROL PANEL	1000	700	2200	02
7	B100-HSB-001	DISTRIBUTION & HVAC PANEL - HV MV ROOM	1200	600	1900	
8	-	SERVICE TROLLEY FOR 6.6kV SWITCHGEAR	943	862	874	
9	-	TOOL BOX	495	200	200	
10	-	SUBSTATION LIFE SAVING & INTERVENTION KIT	754	270	840	
11	-	TABLE	1000	500	750	

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20104**

REV.:	DATE:	SIGNATURE:
2_A	08/08/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	27/05/2024	FMO	LMA/AMA	LMA/MDO	ACCEPTED FOR CONSTRUCTION (AFC)
01	26/03/2024	GPA	LMA/AMA	LMA/MDO	ISSUE FOR REVIEW (IFR)
00	10/11/2023	DSF	CB/AMA	OYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
HV SWITCHROOM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

File Name : 123A90-DDL-EL-DL-20104_REV02.dwg

FROM	TO

DESCRIPTION: ELECTROLYSER
TAG NUMBER: A-20000

RECTIFIER HCU

-X121 29
-X121 30
OPENING H.V. CELL

1
2
3
4
5
6
7

REFER C63-NID-ELO-DED01-A.5 SHT 182

BK

20001-CEC
7C X 1.5 mm²

BK

DESCRIPTION: 6.6KV HV SWITCHGEAR
TAG NUMBER: SG-100D1

COLUMN: A1

K94WT
-25 XM
-26 XM
TRANSFORMER DGPT2 PROTECTION TRIP

1
2
3
4
5
6
7

REFER 1723002197-EL-DG-00018 SHT 23

DESCRIPTION: SIGNALS FOR CONTROL SYSTEM
TAG NUMBER: SG-200D2

-X2

MCB HEALTY ON SG-200D2
X2 / 42
X2 / 43
MCB HEALTY ON SG-200N1
X2 / 13
X2 / 14

1
2
3
4
5
6
7

BK

83016-CEC
7C X 1.5 mm²

BK

DESCRIPTION: AUXILIARY LV
TAG NUMBER: SG-200N1

COLUMN: +A2/02

-X2

1
2
3
4
5
6
7

X2 / 66
X2 / 67
X2 / 45
X2 / 46

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DG-20149**

REV.:	DATE:	SIGNATURE:
2_K	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	19/11/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	16/10/24	SAI	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	08/07/24	SAI	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
SIGNALS FOR CONTROL SYSTEM

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

SCALE : 1:X

A3

DRAWING NO. 123A90-DDL-EL-DG-20149

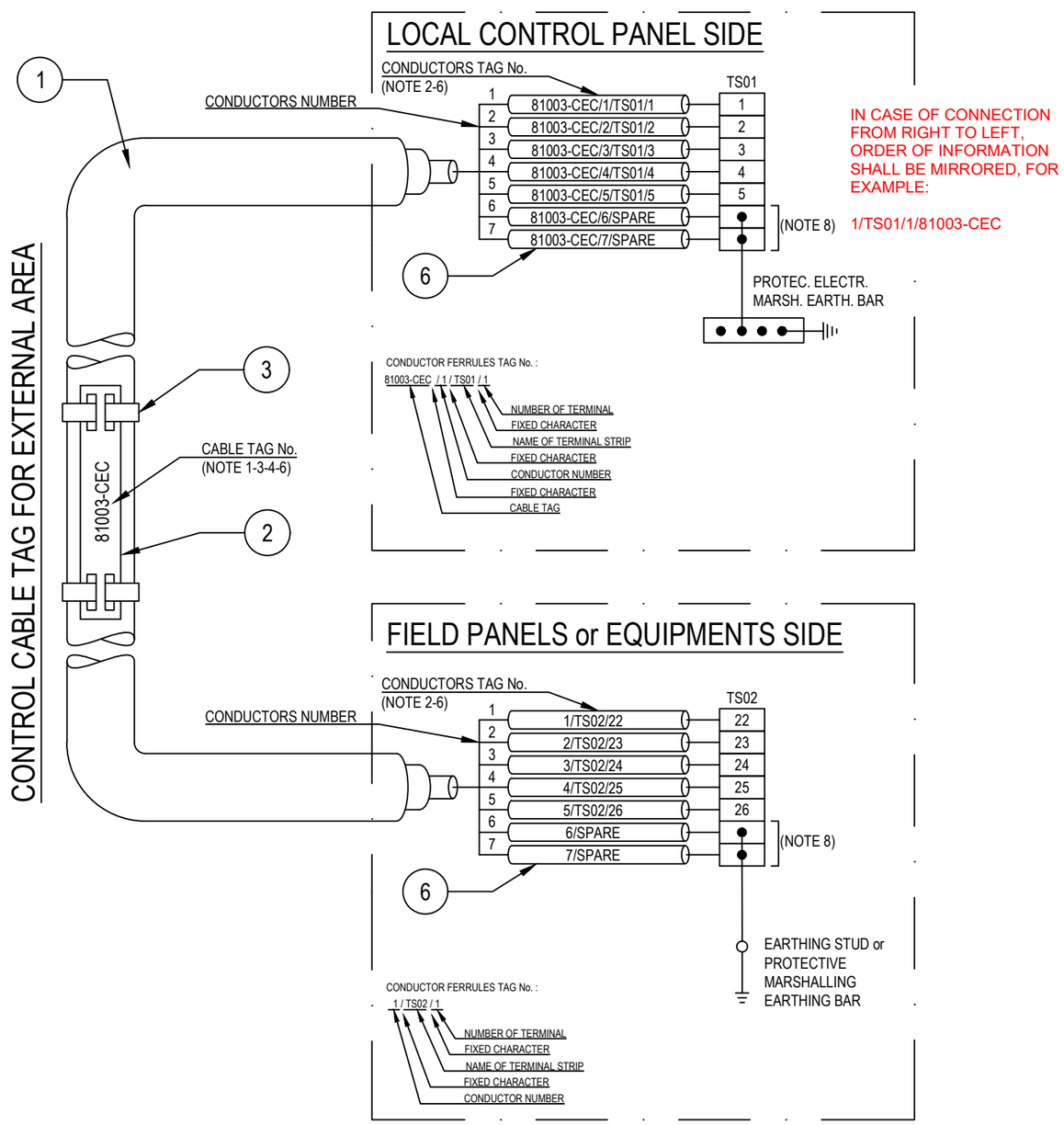
SHEET 086

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20149 Rev. 02

C04



IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED, FOR EXAMPLE:

1/TS01/1/81003-CEC

POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	UNARMOURED CABLE				
2	CABLE TAG FOR EXTERNAL AREA	HDG/SS			NOTE 1 NOTE 4
3	TIE FOR CABLE TAG IN EXTERNAL AREA	HDG/SS			
4	CABLE TAG FOR INTERNAL AREA	PVC			NOTE 1 NOTE 5
5	TIE FOR CABLE TAG IN INTERNAL AREA	NYLON 6.6			
6	CORE FERRULES	PVC			

NOTES:

1) ALL CABLES SHALL BE IDENTIFIED AT EACH TERMINATION AND EACH SIDE OF ANY OBSTACLE (E.G. CABLE TRANSIT ON WALLS INSIDE SHELTER AND FLOOR DECK CROSSING, BY THEIR RESPECTIVE TAGS/NUMBERS, AS INDICATED ON THE CABLE SCHEDULE.
CABLE IDENTIFICATION SHALL BE ALSO DONE BELOW AND IN THE SWITCHBOARD CABLE COMPARTMENT.

2) CABLE CORE FERRULES SHALL BE FITTED AT EVERY TERMINATION. THESE FERRULES SHALL BE OF ENGRAVED PLASTIC SLIP ON, INTERLOCKED AND SELF GRIP TYPE.

3) ON CABLE TRAYS OR LADDERS, CABLES SHALL BE IDENTIFIED AT EACH END, AND EVERY 50 METERS.

4) THE CABLE TAG FOR EXTERNAL AREA SHALL DONE BY 316L STAINLESS STEEL LABELS, TAG (H=5mm) SHALL BE LASER PRINTED PREFERABLY OR EMBOSSED, LABEL HELD BY TWO 316L STAINLESS STEEL TIES.

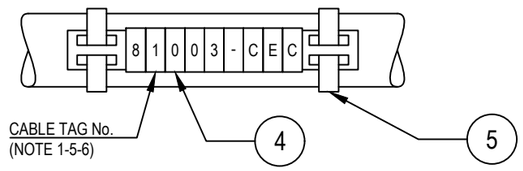
5) THE CABLE TAG FOR INTERNAL AREA SHAL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

6) CABLE AND CONDUCTOR TAG ARE INDICATIVE ONLY.

7) THE EARTHING CONNECTION OF THE ARMOUR CABLE IS NOT APPLICABILE IF THE ARMOUR IS CONNECTED TO EARTH WITH METALLIC CABLE GLAND.
WITHIN TECHNICAL BUILDING, PROTECTIVE CONDUCTOR SHALL BE TAGGED BETWEEN FOLLOWING ITEMS:
- PANEL (SWITCHBOARD, SWITCHGEAR, DISTRIBUTION BOARD, ETC) AND EARTH RING
- EARTHING BOSS AND EARTH RING
- EARTH BAR AND EARTH BAR (IF ANY).

8) ONLY IF NECESSARY, SHRINK TUBES OF THE APPROPRIATE COLOR WILL BE INSTALLED TO COVER THE WRONG CONDUCTOR COLOR, THIS WILL BE PERFORMED IN EACH SIDE OF THE CABLES WHERE NECESSARY.

CONTROL CABLE TAG FOR INTERNAL AREA



VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20092**

REV.:	DATE:	SIGNATURE:
2_D	20/12/24	V.Ramponi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	28/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	04/07/24	NLK	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-POWER SYSTEM & CABLE INSTALLATION
CABLES INSTALLATION SYSTEM IDENTIFICATION FOR CONTROL CABLES

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20092 | SHEET 008 | REV. 02

F.to UNI A3: 420mmx297mm

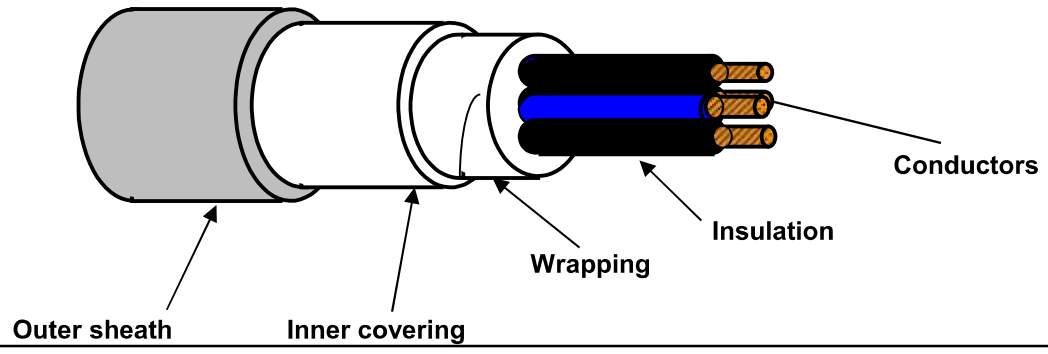
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
20001-CEC	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						A-20000	Electrolyser Auxiliary Load	Upper Deck	SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	ELECV34-7X1,5	Cable Cu Cl.2/XLPE/LSZH 0,6/1kV 7Cx1,5mm² - Grey	M25	n.a.			n.a.				L-450-102-LVT-001 / E-MCT-U02 / L-450-101-LVT-072 / L-600-101-LVT-094 / L-600-101-LVT-012 / L-300-101-LVT-074 / E-MCT-105 / L-600-101-LVT-058 / L-300-101-LVT-059

FLEI s.r.l.

Cu Cl.2/XLPE/LSZH 0,6/1 KV

7CX1,5 - CONTROL CABLE - Flame Retardant



TECHNICAL FEATURES

Conductors :	**STRANDED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	**XLPE** compound, quality to IEC 60092.360, Nominal Thickness 0,7 mm	
Cores colour code :	**Black NUMBERED (from 1 to 7)**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not Required	
Total Assembling :	Cores layed up with optimal lay length	
Overall Wrapping:	by plastic tape helically wound	
Drain wire :	Not required	
Overall Shield:	Not required	
Inner covering :	Extruded LSZH compound, Average Thickness 1,0 mm	
Inner covering color code:	**Black or Natural**	
Armour :	Not required	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,2 mm	
Outer sheath color code:	**Grey**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 7CX1,5 SQMM - XLPE/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 -**	
	Year of Manufacture - CE + Meter Marking	
Outer diameter :	(13,5 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Voltage test :	3,5 kV a.c. for 5' (Between Cores)	
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
ON COMPLETE CABLE		
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance	IEC 61034.2 (LT ≥ 60%)	
Temperature Range :		
ON INSULATION	(max +90°C)	(max continuous operation temperature of conductors)
	(max +250°C)	(max conductors temperature during short-circuit for 5 seconds)
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C)	(in fixed installation)
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner covering together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/03/2024	Messa			
Checked :	29/03/2024	Spaccasassi			
Approved :	29/03/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Section 6 MECHANICAL COMPLETION STATUS INDEX - INSTRUMENTAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC & discipline : I

Instrumental	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
20-UCP-001/B400-FGS-003	CONFIRMED GAS ALARM / MARSHALLING PCS	ONSHORE	C10001465	CJX10	100	2025-02-21	RFC 2
C-20-XA-003/B400-SIS-001	UCP FAULT ALARM / MARSHALLING PCS	ONSHORE	C10001455	CJX10	100	2025-02-21	RFC 2
C-20-XS-001/B400-SIS-001	TRIP SIGNAL TO UCP / MARSHALLING PCS	ONSHORE	C10001448	CJX10	100	2025-02-21	RFC 2

ROSETTI MARINO — CROSSWIND

ITEM	Tag	C-20-XS-001/B400-SIS-001	: TRIP SIGNAL TO UCP / MARSHALLING PCS	Dwg	123A90-DDL-IN-LIS-40091		
	S/Sys	20-00	: Electrolyser Package (A-20000)	Module	UD/LD_B-400		
TASK	code	C10001448	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline	Instrumental	Form	CJX10

Multi/Single-Core Instrument Control Cable

CABLE DATA

Type: Cu-MICA-XLPE-OS-LSZH-SWB-LSZH — Cores/Size mm²: 2X2,5 mm2 — Color: ORANGE

From: A-20000 — To: B400-SIS-001

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		1,1	Ω
	SCREEN		1,1	Ω
	EARTH		N/A	Ω
	ARMr		1,1	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

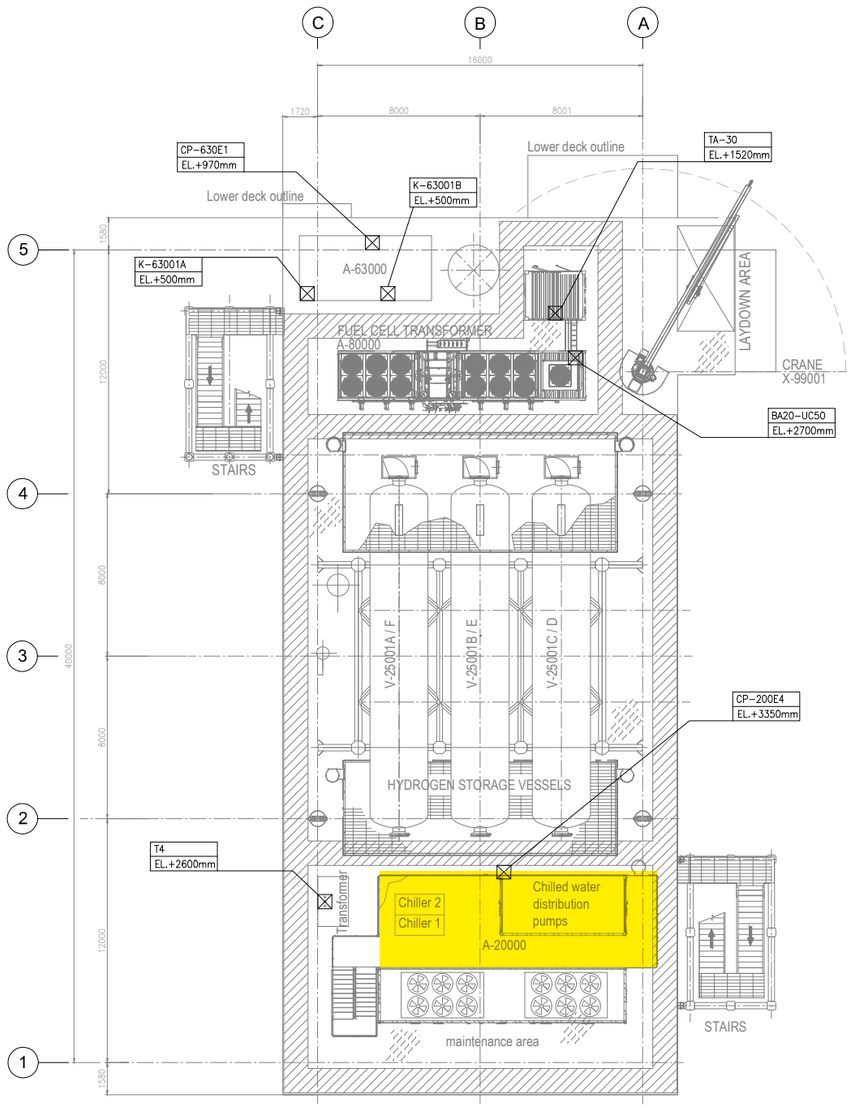
TYPE / SERIAL N°: MEGGER: KEW3125A SERIAL:W8330207 — Calibration date: N° 7722/24 10/07/2024

Comments: Nota 5: refer to PL C30000680/C30000682

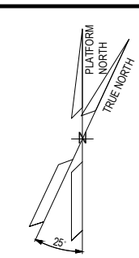
Page 1/1	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Giovanni Tangianu	
Date	2024-11-25	2025-02-21	
Signature	Digitaly signed by Francesco Zucca 2024-11-25T16:33:03.680Z	Digitaly signed by Giovanni Tangianu 2025-02-21T14:05:45.127Z	

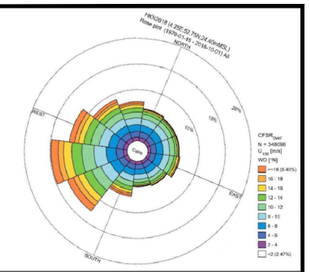
DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.





NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

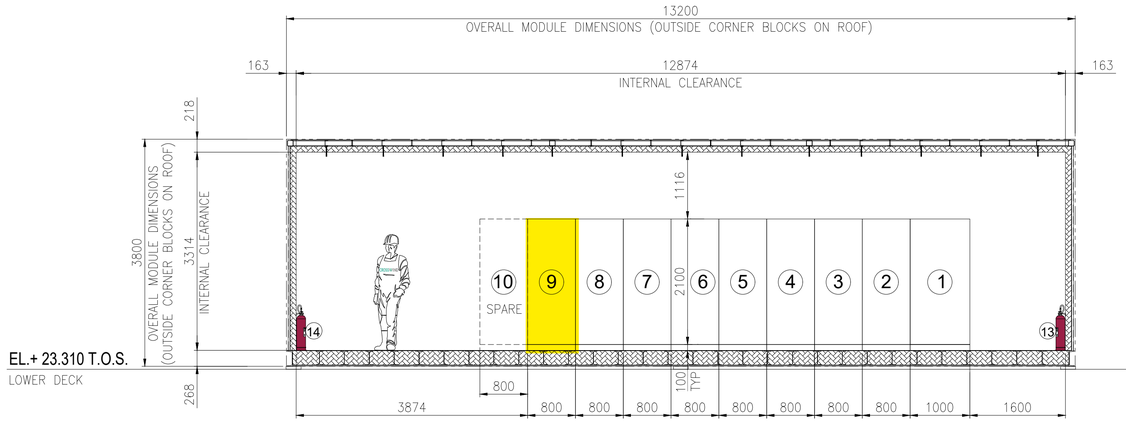
ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

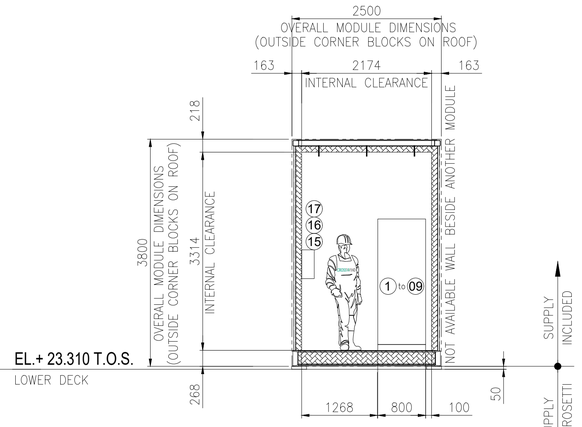
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

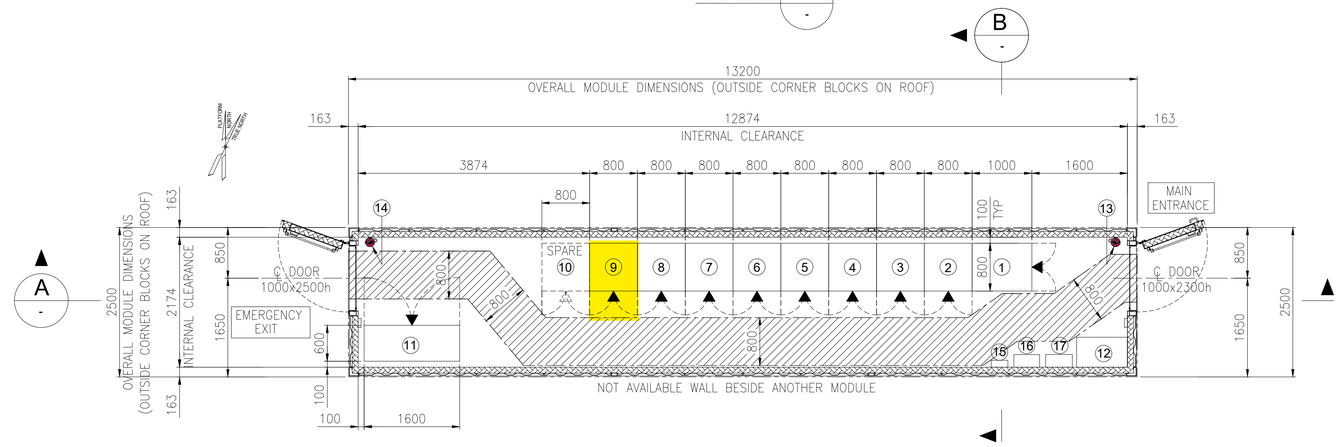
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



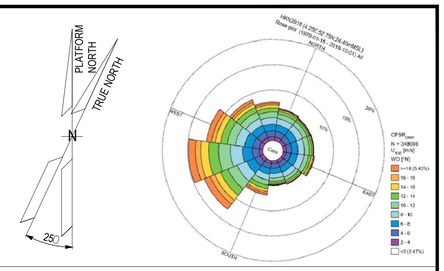
SECTION B -



EQUIPMENT LAYOUT
"B-400" I&T EQUIPMENT ROOM
BOTTOM PLAN

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	B400-SRV-001	SERVER CABINET	1000	800	2100	
2	B400-NET-001	NETWORK CABINET	800	800	2100	
3	B400-EMCS-001	EMCS SYSTEM CABINET	800	800	2100	
4	B400-PCS-002	PCS MARSHALLING CABINET	800	800	2100	
5	B400-PCS-001	PCS SYSTEM CABINET 03	800	800	2100	
6	B400-FGS-003	FGS MARSHALLING CABINET 2	800	800	2100	
7	B400-FGS-002	FGS MARSHALLING CABINET 1	800	800	2100	
8	B400-FGS-001	FGS SYSTEM CABINET	800	800	2100	
9	B400-SIS-001	SIS SYSTEM/MARSHALLING CABINET	800	800	2100	
10	-	SPARE				
11	B400-HSB-001	DISTRIBUTION & HVAC PANEL - I&T ROOM	1600	600	2300	
12	-	TABLE	850	500	750	
13	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
14	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
15	-	FIRST AID KIT	280	115	200	
16	-	RESUSCITATION UNIT	430	210	480	
17	-	CABINET INCLUDED N.10 ESCAPE MASK	448	213	422	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DOCUMENT VALID ONLY FOR INSTRUMENT COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.

LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR – WIDTH 800mm.
_____ EQUIPMENT ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

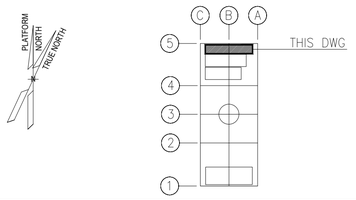
HOLDS

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REFERENCE

DOCUMENT TITLE	DOCUMENT NUMBER
Control System Architecture Detailed Drawings	123A90-DDL-IN-DD-40096
Data Network Architecture Drawings	123A90-DDL-IN-DD-40019
Earthing layouts drawings (CCR, ITER)	123A90-DDL-IN-DL-40013
Instrument and Telecom MCT Layout – Lower Deck	123A90-DDL-IN-DL-40086
"B-400" I&T Equipment Room – Architectural Layout	123A90-DDL-AR-DL-10015
"B-400" ARCHITECTURAL GENERAL LAYOUT PLAN, WIEW, SECTIONS & TYP. DETAILS	123A90-DDL-AR-DL-10015
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DA-00017
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DD-00021
"B-400" HVAC SYSTEM G.A. and DETAILS	1724000049-HV-DA-00067

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	27/05/24	MGA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	22/01/24	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)
00	07/11/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DL-40012
REV.: 3_A | DATE: 07/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH) OFF-SHORE ITER EQUIPMENT LAYOUT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE 1:33,3
DRAWN MGA | CHECKED LCA | APPROVED DLO | DATE 27/05/24
A1 | DRAWING NO. 123A90-DDL-IN-DL-40012 | SHEET 001 | REV. 03

File Name : 123A90-DDL-IN-DL-40012 Rev.03.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		I&T EQUIPMENT ROOM (ITER)
PACKAGE	CABLE NO	MARSHALLING CABINET B400-SIS-001

<01>

A-85000 BESS UCP — 85-XS-001 — XT1 (15, 16) 1BK 2BK — NOTE-2
C-85-XS-001/B400-SIS-001
2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS
TB-XS-000 (1BK 45, 2BK 46) — 85-XS-001
Shield Bar

A-20000 ELECTROLYSER UCP — 20-XS-001 — (NOTE 5) (NOTE 5) 1BK 2BK — NOTE-2
C-20-XS-001/B400-SIS-001
2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS
TB-XS-000 (1BK 07, 2BK 08) — 20-XS-001
Shield Bar

A-80000 FUEL CELL UCP — 80-XS-001 — (NOTE 5) (NOTE 5) 1BK 2BK — NOTE-2
C-80-XS-001/B400-SIS-001
2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS
TB-XS-000 (1BK 29, 2BK 30) — 80-XS-001
Shield Bar

CP-500E1
UCP PANEL
50-LP-001

A-50003 Water Treatment Unit UCP — 50-XS-001 — TB-EXT (1, 2) 1BK 2BK — NOTE-2
C-50-XS-001/B400-SIS-001
2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS
TB-XS-000 (1BK 15, 2BK 16) — 50-XS-001
Shield Bar

A-63000 I. AIR PACKAGE UCP — 63-XS-001 — TB-XA (1, 2) 1BK 2BK — NOTE-2
C-63-XS-001/B400-SIS-001
2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS
TB-XS-000 (1BK 17, 2BK 18) — 63-XS-001
Shield Bar

A-64000 NITROGEN PACKAGE UCP — 64-XS-001 — TB-XA (1, 2) 1BK 2BK — NOTE-2
C-64-XS-001/B400-SIS-001
2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS
TB-XS-000 (1BK 19, 2BK 20) — 64-XS-001
I.E.
Shield Bar

<01>

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_R	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – SAFETY SYSTEM WIRING DIAGRAMS
PACKAGE UCP SHUTDOWN

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

	DRAWING NO.	SHEET	REV.
A3	123-A90-DDL-IN-DG-40016	020	01

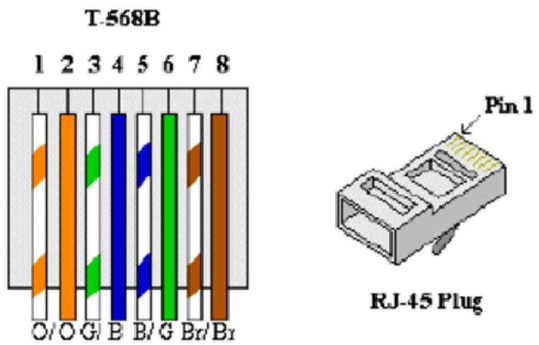
File Name : 123A90-DDL-IN-DG-40015_00.DWG

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



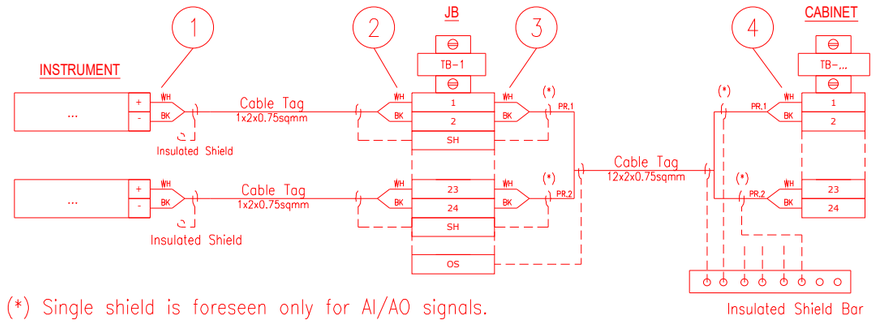
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

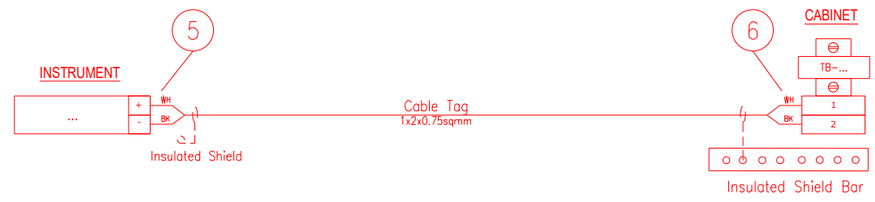
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

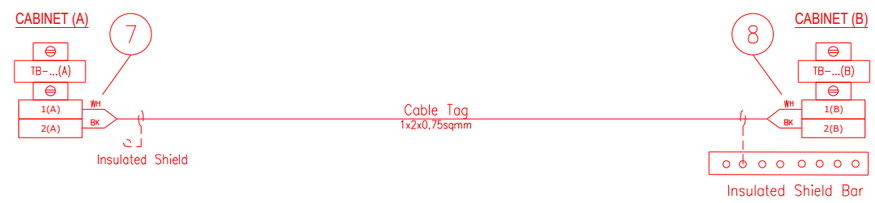
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_R	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

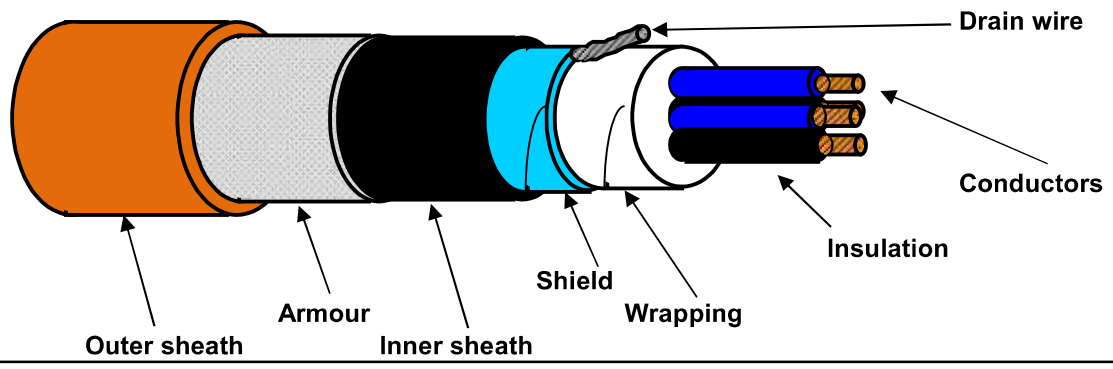
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-20-XS-001/B400-SIS-001	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						A-20000	Electrolyser Auxiliary Load	Upper Deck	B400-SIS-001	Marshalling SIS	Lower Deck (B-400)	SMICV12-2X2,5	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2,5mm² - Orange	M20	n.a.			n.a.				I-MCT-U05 / L-SEC-15 / L-SEC-1L / L-SEC-1J / L-SEC-1I / L-SEC-1H / L-SEC-1G / L-SEC-1F / L-SEC-1E / L-SEC-1D / L-SEC-1C / L-SEC-1B / L-SEC-1A / B-400-SEC-1A / I-MCT-401

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

2X2,5 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,6 mm	
Cores colour code :	**Black NUMBERED (from 1 to 2)**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	8/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 1,0 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,3 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 2X2,5 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(10,3 ± 10%) mm	
Over armour diameter :	(11,5 ± 10%) mm	
Outer diameter :	(14,1 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 7,86 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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ITEM	Tag	C-20-XA-003/B400-SIS-001 : UCP FAULT ALARM / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	20-00 : Electrolyser Package (A-20000)				Module	UD/LD_B-400
TASK	code	C10001455		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Instrumental Form CJX10		Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-OS-LSZH-SWB-LSZH	Cores/Size mm²	1X2X0,75 mm2	Color	ORANGE
From	A-20000	To	B400-SIS-001		

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	Note
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH		>999	MΩ
	CORE to CORE		>999	MΩ
	CORE to SCREEN		>999	MΩ
	CORE to ARMr		>999	MΩ
	SCREEN to EARTH		>999	MΩ
	SCREEN to ARMr		>999	MΩ
CONTINUITY	CORES		3,1	Ω
	SCREEN		3,1	Ω
	EARTH		NA	Ω
	ARMr		3,1	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

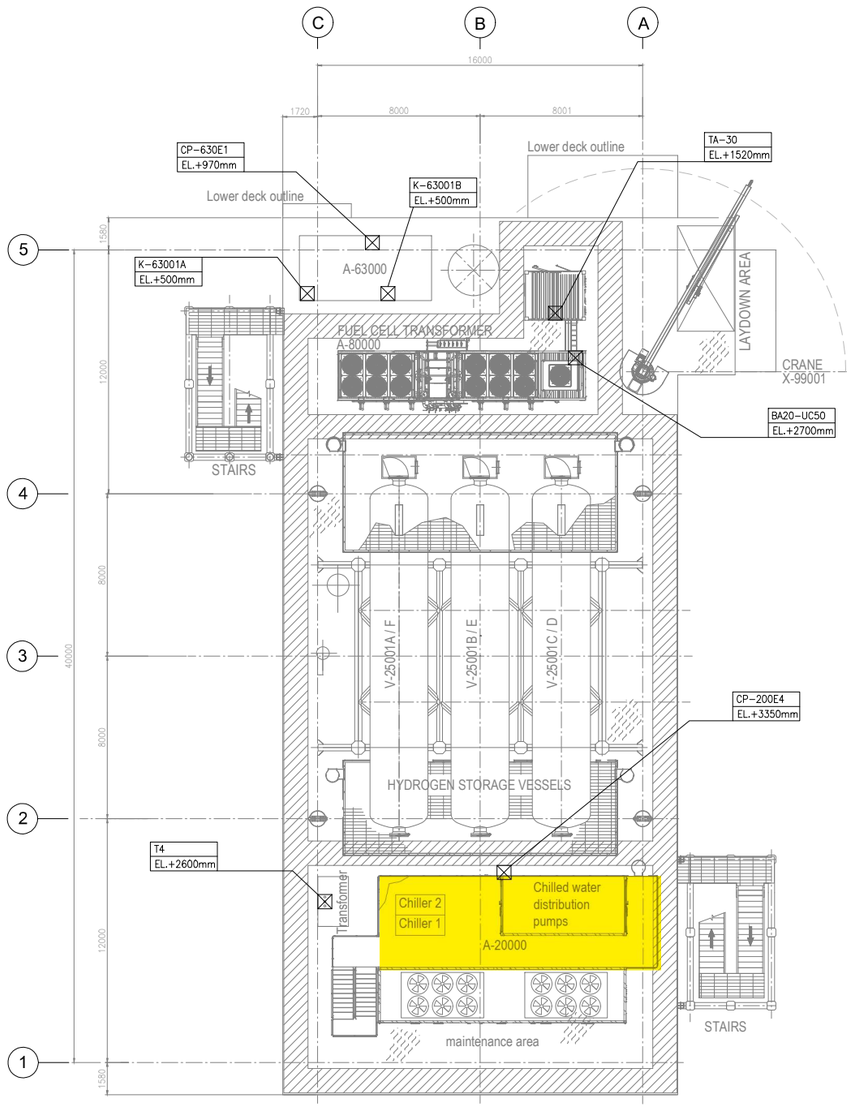
TYPE / SERIAL N°: MEGGER : KEW3125A SERIAL: W8330207 Calibration date: N°7722/24 10/07/2024

Comments Nota 5: refer to PL C30000680/C30000682

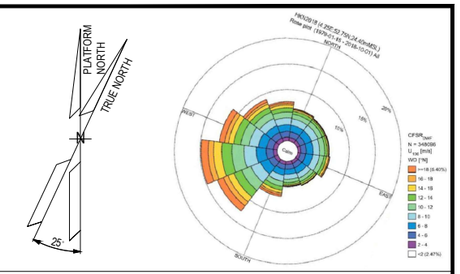
Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Giovanni Tangianu	
Date	2024-11-25	2025-02-21	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-11-25T16:33:29.060Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-02-21T14:06:00.183Z	

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2 EL.+500mm	TAG ITEM REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

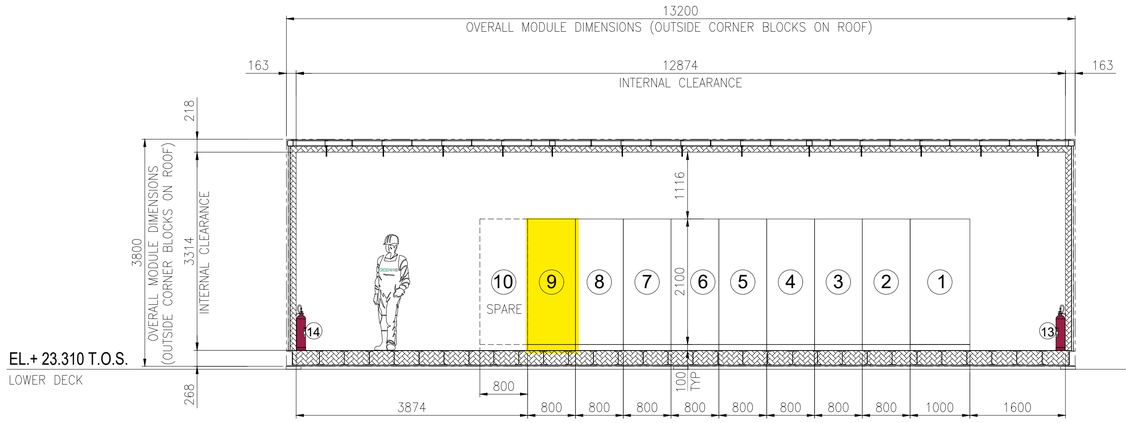
ROSETTI MARINO SpA

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

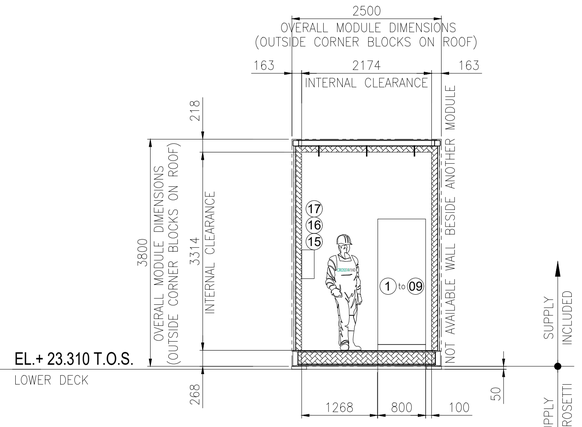
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

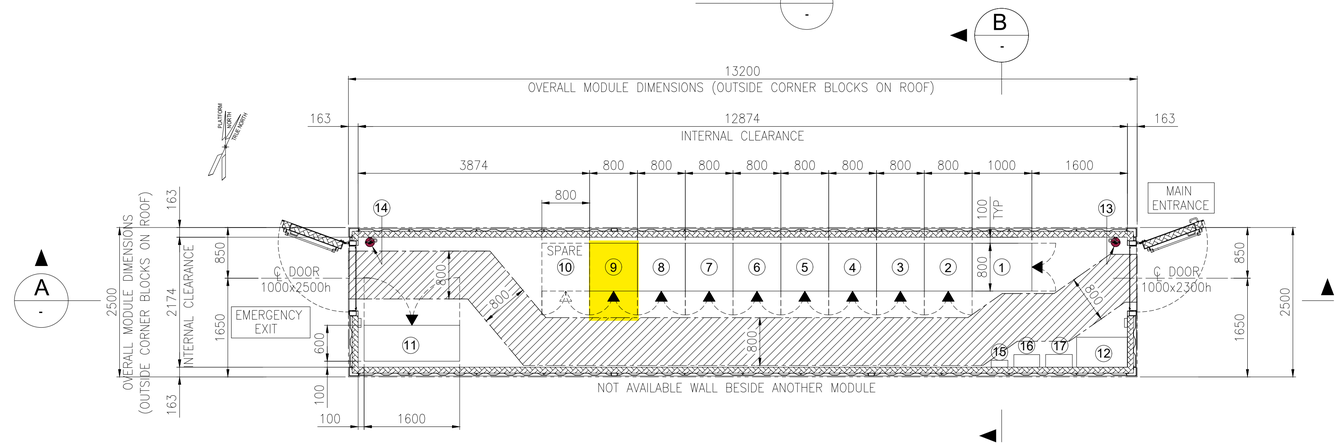
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



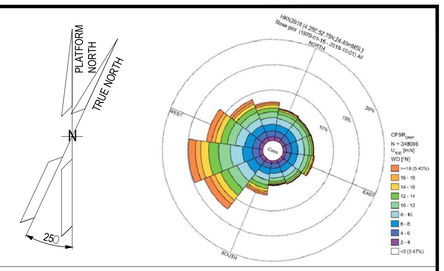
SECTION B -



EQUIPMENT LAYOUT
"B-400" I&T EQUIPMENT ROOM
BOTTOM PLAN

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	B400-SRV-001	SERVER CABINET	1000	800	2100	
2	B400-NET-001	NETWORK CABINET	800	800	2100	
3	B400-EMCS-001	EMCS SYSTEM CABINET	800	800	2100	
4	B400-PCS-002	PCS MARSHALLING CABINET	800	800	2100	
5	B400-PCS-001	PCS SYSTEM CABINET 03	800	800	2100	
6	B400-FGS-003	FGS MARSHALLING CABINET 2	800	800	2100	
7	B400-FGS-002	FGS MARSHALLING CABINET 1	800	800	2100	
8	B400-FGS-001	FGS SYSTEM CABINET	800	800	2100	
9	B400-SIS-001	SIS SYSTEM/MARSHALLING CABINET	800	800	2100	
10	-	SPARE				
11	B400-HSB-001	DISTRIBUTION & HVAC PANEL - I&T ROOM	1600	600	2300	
12	-	TABLE	850	500	750	
13	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
14	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
15	-	FIRST AID KIT	280	115	200	
16	-	RESUSCITATION UNIT	430	210	480	
17	-	CABINET INCLUDED N.10 ESCAPE MASK	448	213	422	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DOCUMENT VALID ONLY FOR INSTRUMENT COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.

LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR – WIDTH 800mm.
_____ EQUIPMENT ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

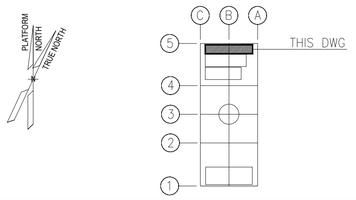
HOLDS

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REFERENCE

DOCUMENT TITLE	DOCUMENT NUMBER
Control System Architecture Detailed Drawings	123A90-DDL-IN-DD-40096
Data Network Architecture Drawings	123A90-DDL-IN-DD-40019
Earthing layouts drawings (CCR, ITER)	123A90-DDL-IN-DL-40013
Instrument and Telecom MCT Layout – Lower Deck	123A90-DDL-IN-DL-40086
"B-400" I&T Equipment Room – Architectural Layout	123A90-DDL-AR-DL-10015
"B-400" ARCHITECTURAL GENERAL LAYOUT PLAN, WIEW, SECTIONS & TYP. DETAILS	123A90-DDL-AR-DL-10015
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DA-00017
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DD-00021
"B-400" HVAC SYSTEM G.A. and DETAILS	1724000049-HV-DA-00067

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	27/05/24	MGA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	22/01/24	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)
00	07/11/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-IN-DL-40012
REV.: 3_A | DATE: 07/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH) OFF-SHORE ITER EQUIPMENT LAYOUT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE 1:33,3
DRAWN MGA | CHECKED LCA | APPROVED DLO | DATE 27/05/24
A1 | DRAWING NO. 123A90-DDL-IN-DL-40012 | SHEET 001 | REV. 03

File Name : 123A90-DDL-IN-DL-40012 Rev.03.dwg

DRAWING NO. 123-A90-DDL-IN-DG-40015

REV. 01

FIELD

I&T EQUIPMENT ROOM (ITER)

PACKAGE		CABLE NO	MARSHALLING CABINET B400-SIS-001
<01> A-85000 BESS UCP	85-XA-003: XT1 5 (WH) / 6 (BK) PR1, NOTE-2	P320PLC/B400-SIS-001 2x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS	TB-P30PLC PR1: 01 (WH) / 02 (BK) 85-XA-003; Shield Bar
	85-XA-004: XT1 7 (WH) / 8 (BK) PR2, NOTE-2		PR2: 03 (WH) / 04 (BK) 85-XA-004; Shield Bar
A-20000 ELECTROLYSER UCP	20-XA-003: (NOTE 5) (NOTE 5) (WH) / (NOTE 5) (BK), NOTE-2	C-20-XA-003/B400-SIS-001 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS	TB-XA-000 01 (WH) / 02 (BK) 20-XA-003; Shield Bar
A-80000 FUEL CELL UCP	80-XA-003: (NOTE 5) (NOTE 5) (WH) / (NOTE 5) (BK), NOTE-2	C-80-XA-003/B400-SIS-001 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS	TB-XA-000 03 (WH) / 04 (BK) 80-XA-003; Shield Bar
F&G PANEL 50-LP-002 A-50003 Water Treatment Unit UCP	50-XA-003: TB-RLY 9 (WH) / 15 (BK), NOTE-2	C-50-XA-003/B400-SIS-001 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS	TB-XA-000 05 (WH) / 06 (BK) 50-XA-003; Shield Bar
A-63000 I. AIR PACKAGE UCP	63-XA-003: TB-XA 4 (WH) / 5 (BK), NOTE-2	C-63-XA-003/B400-SIS-001 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS	TB-XA-000 07 (WH) / 08 (BK) 63-XA-003; Shield Bar
A-64000 NITROGEN PACKAGE UCP	64-XA-003: TB-XA 4 (WH) / 5 (BK), NOTE-2	C-64-XA-003/B400-SIS-001 1x2x0.75mm2,ShT+ARM,F.Res,ORANGE,NIS	TB-XA-000 09 (WH) / 10 (BK) 64-XA-003; Shield Bar I.E.

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_R	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
PACKAGE UCP FAULT ALARM

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123-A90-DDL-IN-DG-40015	SHEET 014	REV. 01

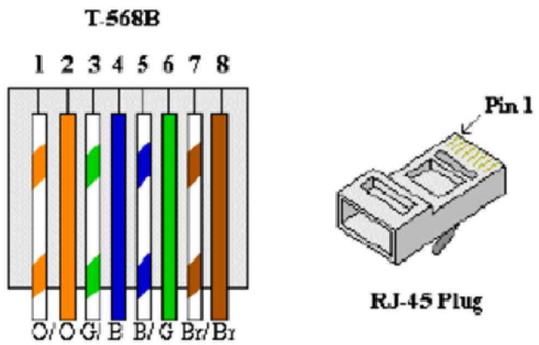
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



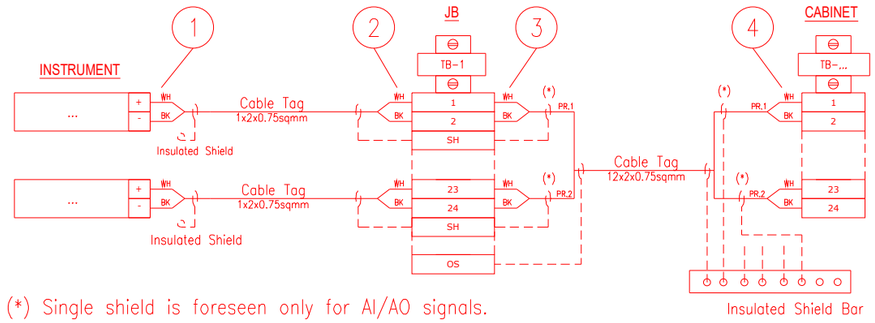
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

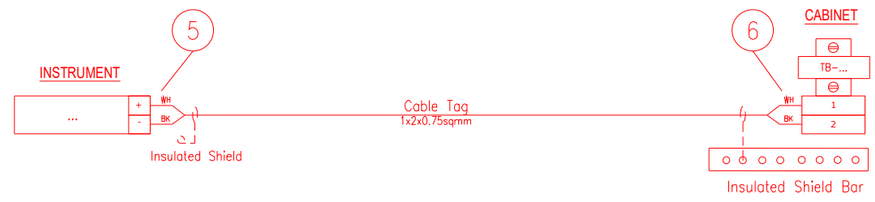
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

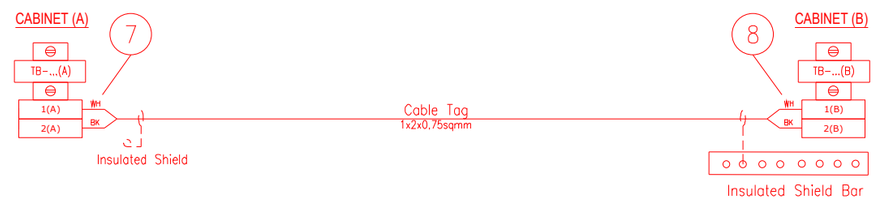
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_R	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

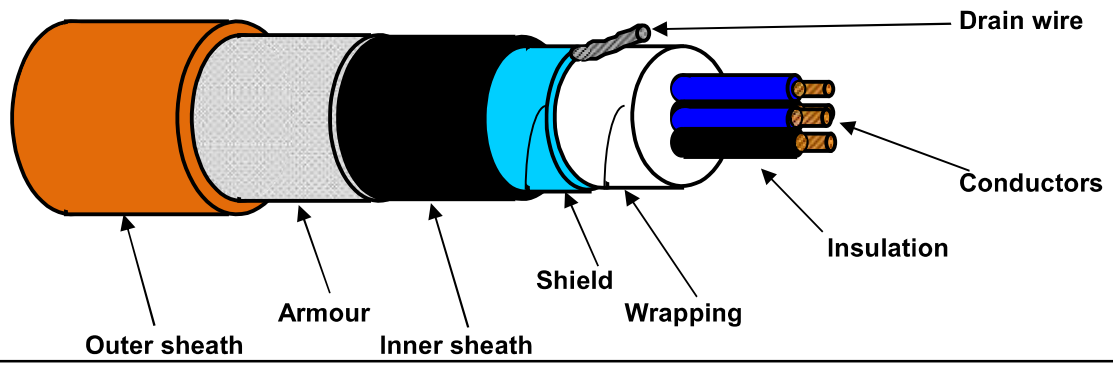
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-20-XA-003/B400-SIS-001	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						A-20000	Electrolyser Auxiliary Load	Upper Deck	B400-SIS-001	Marshalling SIS	Lower Deck (B-400)	SMICV08-1X2X0,75	Cable Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250V (300V) 1x2x0,75mm² - Orange	M20S	n.a.			n.a.				I-MCT-U05 / L-SEC-15 / L-SEC-1L / L-SEC-1J / I-MCT-401

Cu Cl.2/MGT/XLPE/OS/LSZH/SWB/LSZH 150/250 V (300 V)

1X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm	
Cores colour code :	**White - Black**	
Pair Assembling :	Not required	
Pair Wrapping:	Not required	
Drain wire :	Not required	
Pair Shield :	Not required	
Shield Insulation :	Not required	
Total Assembling :	10/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,1 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 1X2X0,75 SQMM - MGT/XLPE/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(8,5 ± 10%) mm	
Over armour diameter :	(9,3 ± 10%) mm	
Outer diameter :	(11,7 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 26 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 25 µH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transaction will be used in the sense of the article 19 of the Regulation (UE) 2016/679, also by such subjects in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.
All proprietary rights reserved according to law. This document shall be not reproduced without written permission. FLEI reserves the right to change characteristics and technical data of product shown at any time.

ROSETTI MARINO

CROSSWIND

ITEM	Tag	20-UCP-001/B400-FGS-003	: CONFIRMED GAS ALARM / MARSHALLING PCS		Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	UD/LD_B-400	
TASK	code	C10001465	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Instrumental	Form	CJX10	Multi/Single-Core Instrument Control Cable

CABLE DATA

Type	Cu-MICA-XLPE-IS-OS-LSZH-SWB-LSZH	Cores/Size mm²	2X2X0,75 mm2	Color	ORANGE
From	20-UCP-001		To	B400-FGS-003	

1	Check cable is as specified in project cable schedule.	OK
2	Check relevant documents are at the latest revision.	OK
3	Check cable is routed in accordance with cable layout drawings.	OK
4	Check cable for any physical damage.	OK
5	Check cable is adequately supported and correctly fixed to rack according to Project specification.	NA
6	Check bending radius is within the specified limits.	OK
7	Check cable is correctly loomed and segregated in accordance with specification.	OK
8	Check cable and core marking are in accordance with specification.	OK
9	Check cable labelling is in accordance with specification.	PL
10	Check that glands, shrouds and earthing are in accordance with specification.	OK
11	Check terminations are in accordance with termination diagram	OK
12	Check gland plate for single core cables is non-ferrous.	NA
13	If required produce Red Line Mark Up for "AS BUILT"	

INSULATION	CORE to EARTH	>999	MΩ
	CORE to CORE	>999	MΩ
	CORE to SCREEN	>999	MΩ
	CORE to ARMr	>999	MΩ
	SCREEN to EARTH	>999	MΩ
	SCREEN to ARMr	>999	MΩ
CONTINUITY	CORES	3,1	Ω
	SCREEN	3,1	Ω
	EARTH	NA	Ω
	ARMr	3,1	Ω
	TEST VOLTS	500	V

TEST ALL CORES AND RECORD LOWEST VALUE

Notes: The lowest value is recorded and must be within project specifications

TESTING INSTRUMENTS USED

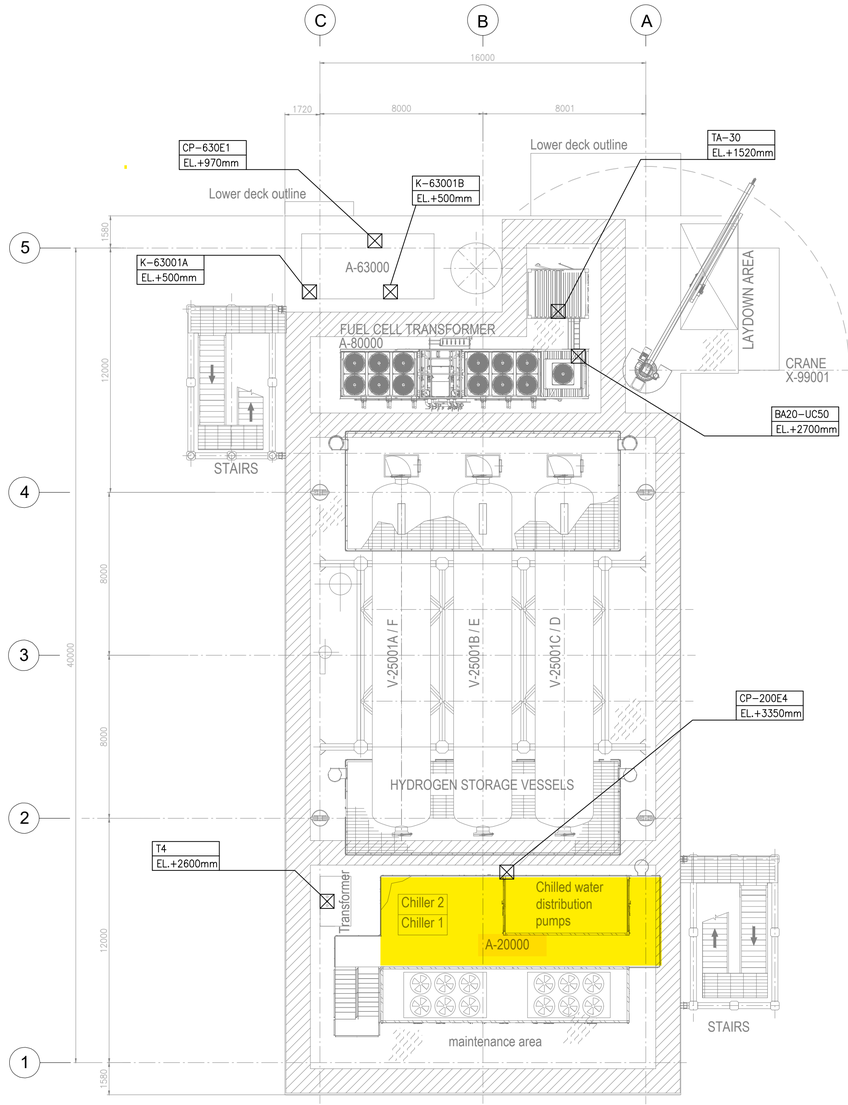
TYPE / SERIAL N°: VOLCRAFT 1000V - ET-200 S/N:H240103023 Calibration date: N°LAT 042 00768/24 12/10/2024

Comments Nota 5: refer to PL C30000680/C30000682

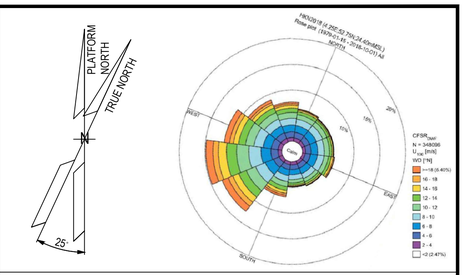
Page 1/1	Performed by	☉ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-02-13	2025-02-21	
Signature	Digitaly signed by Michele Tartaglia 2025-02-13T08:10:53.253Z	Digitaly signed by Giovanni Tangianu 2025-02-21T14:04:54.921Z	

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2	TAG ITEM
EL.+500mm	REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

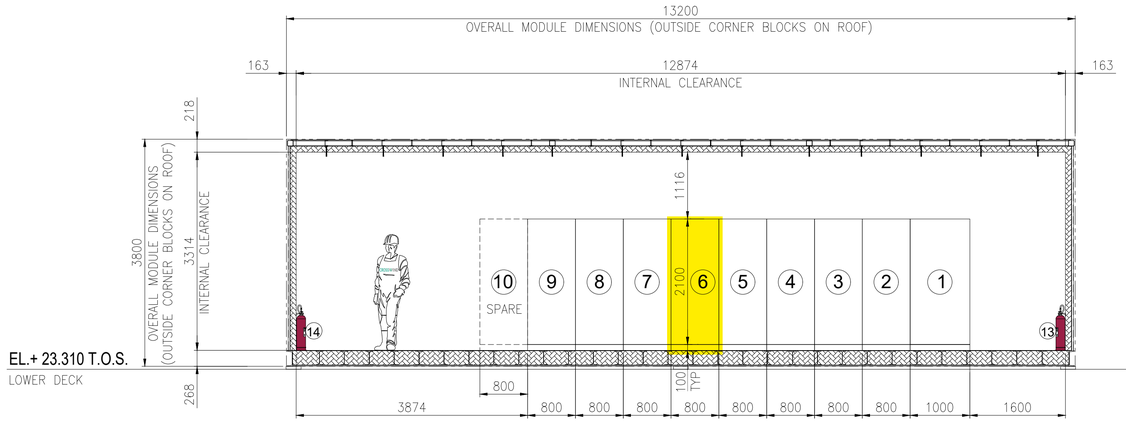
TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

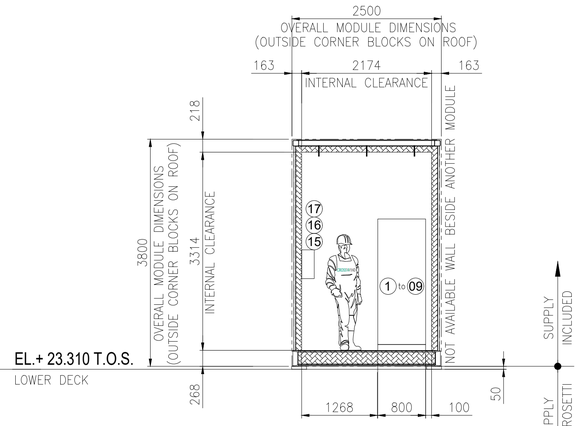
A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

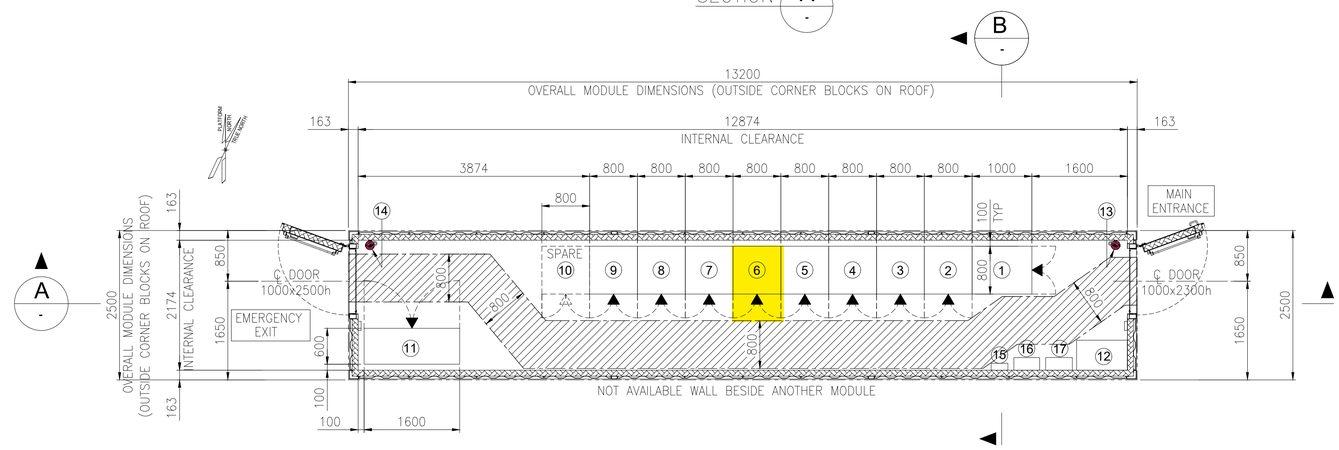
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



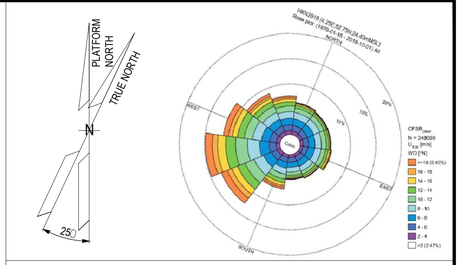
SECTION B -



EQUIPMENT LAYOUT
"B-400" I&T EQUIPMENT ROOM
BOTTOM PLAN

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	B400-SRV-001	SERVER CABINET	1000	800	2100	
2	B400-NET-001	NETWORK CABINET	800	800	2100	
3	B400-EMCS-001	EMCS SYSTEM CABINET	800	800	2100	
4	B400-PCS-002	PCS MARSHALLING CABINET	800	800	2100	
5	B400-PCS-001	PCS SYSTEM CABINET 03	800	800	2100	
6	B400-FGS-003	FGS MARSHALLING CABINET 2	800	800	2100	
7	B400-FGS-002	FGS MARSHALLING CABINET 1	800	800	2100	
8	B400-FGS-001	FGS SYSTEM CABINET	800	800	2100	
9	B400-SIS-001	SIS SYSTEM/MARSHALLING CABINET	800	800	2100	
10	-	SPARE				
11	B400-HSB-001	DISTRIBUTION & HVAC PANEL - I&T ROOM	1600	600	2300	
12	-	TABLE	850	500	750	
13	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
14	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
15	-	FIRST AID KIT	280	115	200	
16	-	RESUSCITATION UNIT	430	210	480	
17	-	CABINET INCLUDED N.10 ESCAPE MASK	448	213	422	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DOCUMENT VALID ONLY FOR INSTRUMENT COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.

LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR – WIDTH 800mm.
_____ EQUIPMENT ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

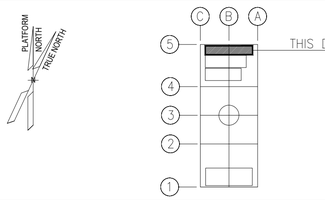
HOLDS

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REFERENCE

DOCUMENT TITLE	DOCUMENT NUMBER
Control System Architecture Detailed Drawings	123A90-DDL-IN-DD-40096
Data Network Architecture Drawings	123A90-DDL-IN-DD-40019
Earthing layouts drawings (CCR, ITER)	123A90-DDL-IN-DL-40013
Instrument and Telecom MCT Layout – Lower Deck	123A90-DDL-IN-DL-40086
"B-400" I&T Equipment Room – Architectural Layout	123A90-DDL-AR-DL-10015
"B-400" ARCHITECTURAL GENERAL LAYOUT PLAN, WIEW, SECTIONS & TYP. DETAILS	123A90-DDL-AR-DL-10015
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DA-00017
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DD-00021
"B-400" HVAC SYSTEM G.A. and DETAILS	1724000049-HV-DA-00067

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	27/05/24	MGA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	22/01/24	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)
00	07/11/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND — ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40012**

REV.:	DATE:	SIGNATURE:
3_A	07/10/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
OFF-SHORE ITER
EQUIPMENT LAYOUT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE 1:33,3
DRAWN MGA | CHECKED LCA | APPROVED DLO | DATE 27/05/24
A1 | DRAWING NO. 123A90-DDL-IN-DL-40012 | SHEET 001 | REV. 03

File Name : 123A90-DDL-IN-DL-40012 Rev.03.dwg

DRAWING NO. 123A90-DDL-IN-DG-40016

REV. 01

FIELD		I&T EQUIPMENT ROOM (ITER)
PACKAGE	CABLE NO	MARSHALLING CABINET
		~~B400-FGS-002~~ B400-FGS-003

<01>

A-85000 BESS UCP

85-XA-001

85-XA-002

XT1

1 WH BK PR1 NOTE-2

2

3 WH BK PR2 NOTE-2

4

P320PLC/B400-FGS-003

~~P320PLC/B400-FGS-002~~

2x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-P320PLC

PR1 WH BK 01 85-XA-001

Shield Bar

PR2 WH BK 03 85-XA-002

Shield Bar

A-20000 ELECTROLYSER UCP

20-XA-001

20-XA-002

NOTE 5

NOTE 5 WH BK PR1 NOTE-2

NOTE 5

NOTE 5 WH BK PR2 NOTE-2

NOTE 5

20-UCP-001/B400-FGS-003

~~20-UCP-001/B400-FGS-002~~

2x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-20-UPC-001

PR1 WH BK 01 20-XA-001

Shield Bar

PR2 WH BK 03 20-XA-002

Shield Bar

A-80000 FUEL CELL UCP

80-XA-001

80-XA-002

NOTE 5

NOTE 5 WH BK PR1 NOTE-2

NOTE 5

NOTE 5 WH BK PR2 NOTE-2

NOTE 5

80-UCP-001/B400-FGS-003

~~80-UCP-001/B400-FGS-002~~

2x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-80-UCP-001

~~TB-80-UPC-001~~

PR1 WH BK 01 80-XA-001

Shield Bar

PR2 WH BK 03 80-XA-002

Shield Bar

F&G PANEL 50-LP-002

A-50003 Water Treatment Unit UCP

50-XA-001

50-XA-002

TB-RLY

5 WH BK PR1 NOTE-2

6

1 WH BK PR2 NOTE-2

2

50-LP-002/B400-FGS-003

~~50-LP-002/B400-FGS-002~~

2x2x0.75mm2,Sh+ShT+ARM,F.Res,ORANGE,NIS

TB-50-LP-002

PR1 WH BK 01 50-XA-001

Shield Bar

PR2 WH BK 03 50-XA-002

I.E.

Shield Bar

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_R	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT– FGS WIRING DIAGRAMS
FIRE & GAS ALARM FROM PACKAGE

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40016	SHEET 060	REV. 01

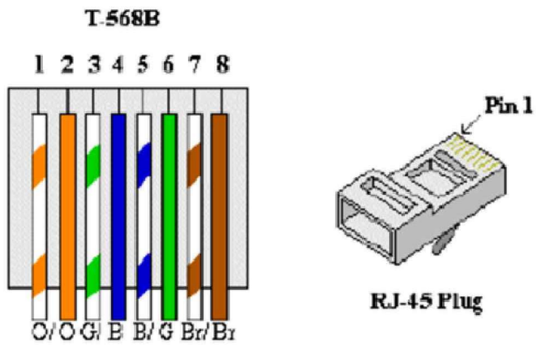
File Name : 123A90-DDL-IN-DG-40016_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



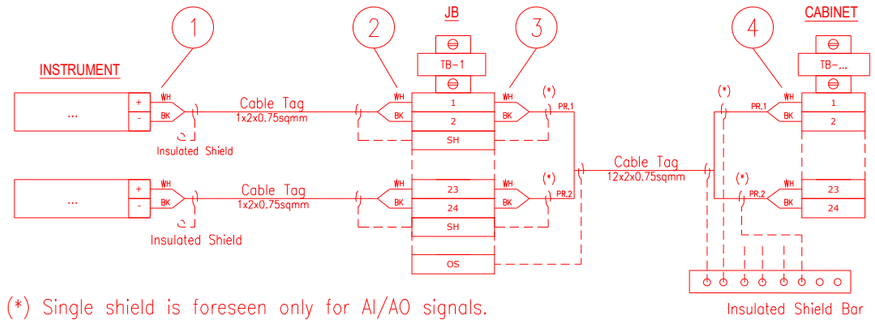
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

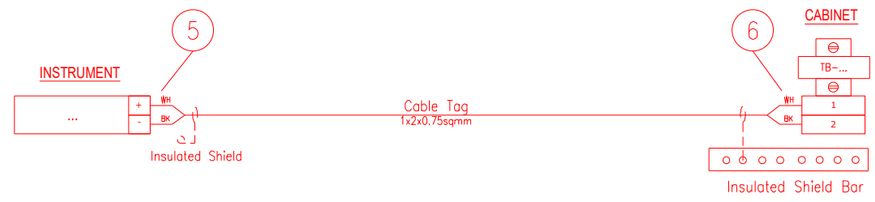
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

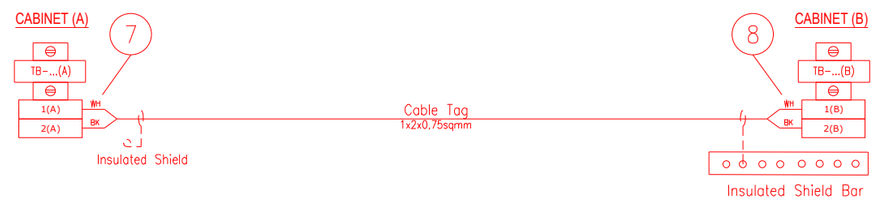
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40016**

REV.:	DATE:	SIGNATURE:
1_R	12/02/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

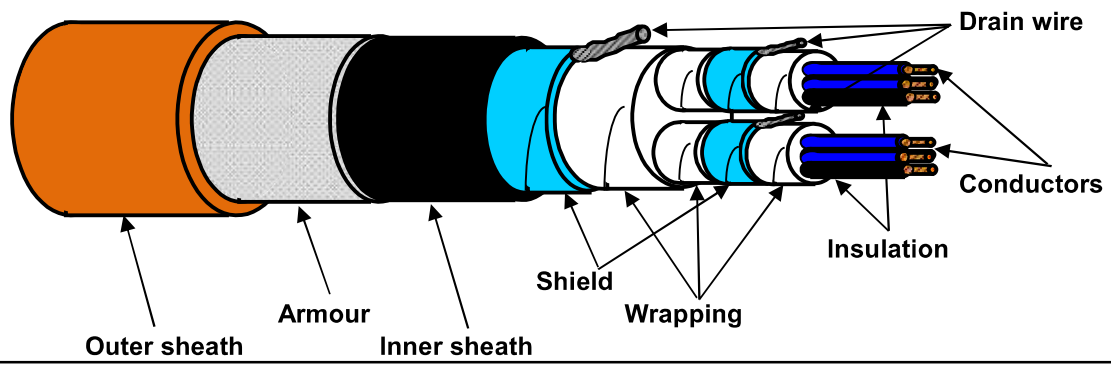
A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	From Tag Section	To Tag	To Main Function	To Area	To Tag Section	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
20-UCP-001/B400-FGS-003	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						20-UCP-001	Communication	Upper Deck	20-XA-001/002	B400-FGS-003	Marshalling FGS	Lower Deck (B-400)		SMICV09-2X2X0,75	Cable Cu Cl.2/MGT/XLPE/IS/OS/LSZH/SWB/LSZH 150/250V (300V) 2x2x0,75mm² - Orange	M25	n.a.			n.a.				I-MCT-U05 / L-SEC-15 / L-SEC-1L / L-SEC-1J / L-SEC-1I / L-SEC-1H / L-SEC-1G / L-SEC-1F / L-SEC-1E / L-SEC-1D / L-SEC-1C / L-SEC-1B / L-SEC-1A / B-400-SEC-1A / B-400-SEC-1B / I-MCT-401

Cu Cl.2/MGT/XLPE/IS/OS/LSZH/SWB/LSZH 150/250 V (300 V)

2X2X0,75 - INSTRUMENT CABLE - Fire Resistant - Not I.S.



TECHNICAL FEATURES

Conductors :	**7-STRANDED** plain/bare soft annealed copper wires	**IEC 60228 Class 2**
Insulation :	Mica/Glass Tape (MGT) plus XLPE, Nominal Thickness 0,5 mm	
Cores colour code :	**White - Black (each core NUMBERED for PAIR identification)**	
Pair Assembling :	10/1mt	
Pair Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield	
Pair Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Shield Insulation :	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Total Assembling :	5/1mt	
Overall Wrapping:	by polyester-PET Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Drain wire :	7-Stranded **TINNED** annealed copper drain wire, **size 0,5 sqmm**, in continuous contact with the shield	
Overall Shield :	by Aluminium-**Al** Minimum Thickness 0,008 mm / polyester-**PET** Minimum Thickness 0,010 mm tape helically wound (overlap ≥ 25%)	
Inner sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,3 mm	
Inner sheath color code:	**Black**	
Armour :	Galvanized Steel Wire Braid Armour (coverage ≥ 90%)	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant,	
	Average Thickness 1,5 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - 2X2X0,75 SQMM - MGT/XLPE/IS/OS/LSZH/SWB/LSZH - 150/250 V - IEC 60331.21 -**	
(every 1000 mm)	**IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under armour diameter :	(15,1 ± 10%) mm	
Over armour diameter :	(16,3 ± 10%) mm	
Outer diameter :	(19,3 ± 10%) mm	
Bending radius :	cable outer diameter x 10 (in fixed installation)	
Voltage Test :	1,5 kV a.c. for 5' (Between Cores) / 1,5 kV a.c. for 5' (Between Cores - Shield)	
Conductors DC Resistance :	≤ 26 Ω/km (@ 20°C)	
Insulation Resistance :	≥ 1000 MΩ x Km (@ 20°C)	
Mutual Capacitance :	≤ 150 nF/km	
L/R ratio :	≤ 25 µH/Ω	
Inductance :	≤ 0,9 mH/km	
Applicable Standards		
Design Guidelines :	**IEC 60092.376**	
ON COMPLETE CABLE		
Fire Resistant test :	**IEC 60331.21**	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22	
Acid Gas generation :	IEC 60754.1/2	
Smoke density/Light Transmittance :	IEC 61034.2 (LT ≥ 60%)	
Hazardous Areas :	IEC 60079.14 par.9.3.2a	
Temperature Range :		
ON INSULATION	(max +90°C) (max continuous operation temperature of conductors)	
	(max +250°C) (max conductors temperature during short-circuit for 5 seconds)	
ON COMPLETE CABLE		
During Operation :	(-20°C up to +90°C) (in fixed installation)	
During installation :	(- 5°C up to +50°C)	
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner sheath together with correct ATEX approved equipment or accessories.**	

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	04/04/2024	Messa			
Checked :	04/04/2024	Spaccasassi			
Approved :	04/04/2024	Cucinotta			

The data provided herein are meant for the transmission will be used in the sense of the article 19 of the Regulation (UE) 2016/679 also to such subjects outside it, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Section 7 MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC & discipline : M

Mechanical	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
A-20000	Electrolyser Auxiliary Load	ONSHORE	C10002348	CZX01M	100	2025-03-01	RFC 2

ITEM	Tag	A-20000	: Electrolyser Auxiliary Load			Dwg	123A90-DDL-PR-PID-80011
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	UD
TASK	code	C10002348		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Mechanical Form CZX01M		Package - M

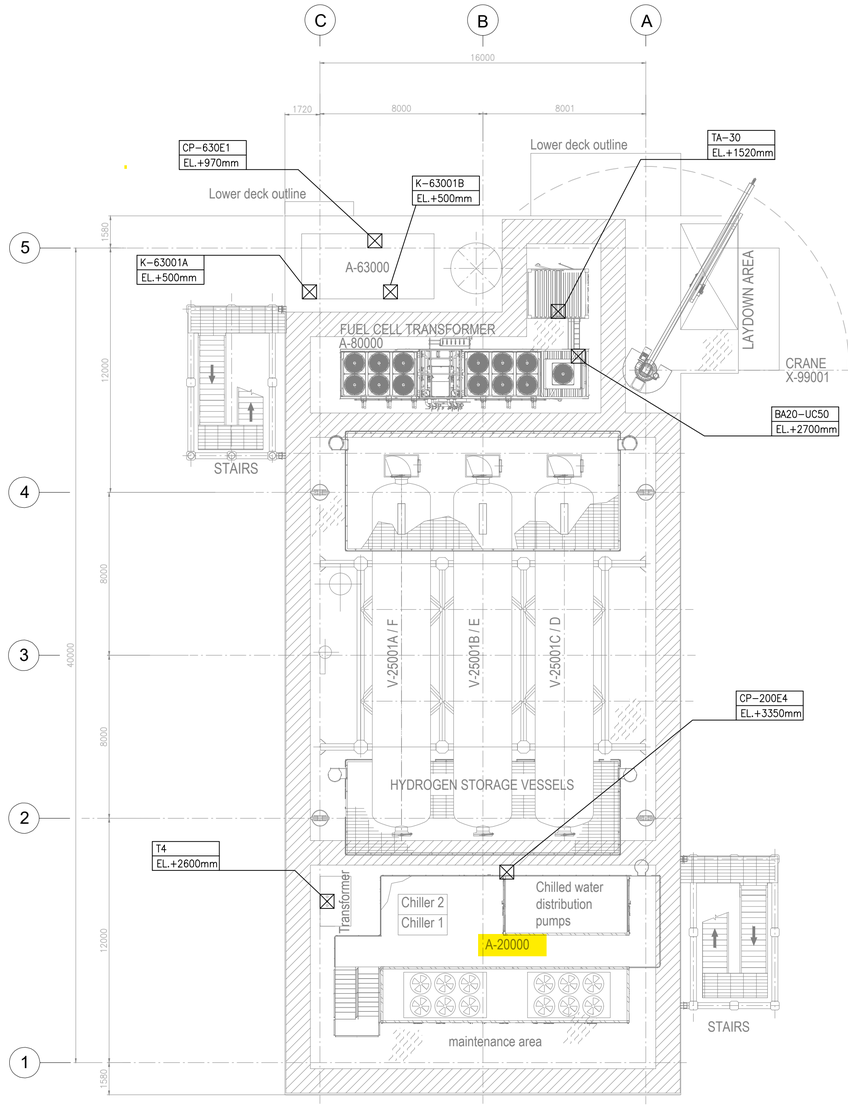
1	Check that the nameplate details and tag number are complete and correct.	PL
2	Check that the holding down arrangements are correct.	OK
3	Check for all interface piping/mechanical reinstated on site by contractor.	OK
4	Check that the package Mechanical equipment is complete and not damaged.	OK
5	Check all the equipment for correct lubrication, for oil leaks and cleanliness.	NA
6	Check for the free rotation of rotating equipment.	NA
7	Check the insulation, painting and for correct tagging and identification.	PL
8	Check that the earthing system of the equipment is as per specification.	PL
9	Check that the Package is fixed and tightened to the structures.	PL
10	Check the release note, FAT report and outstanding Punch list for the Package	NA
11	If required produce Red Line Mark Up for "AS BUILT".	

Comments:

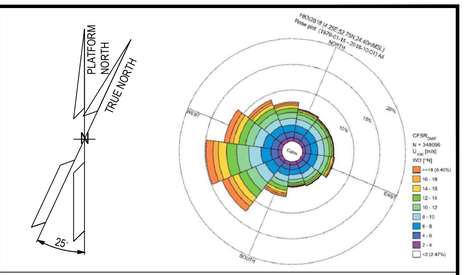
	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	Fores Engineering	RM (ROSETTI MARINO)	
Name	tosi luca	Luca Mussi	
Date	2025-02-17	2025-02-28	
Signature	PROVERLIS Digitaly signed by tosi luca 2025-02-17T14:19:23.197Z	PROVERLIS Digitaly signed by Luca Mussi 2025-02-28T14:03:44.064Z	

DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.



NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2	TAG ITEM
EL.+500mm	REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

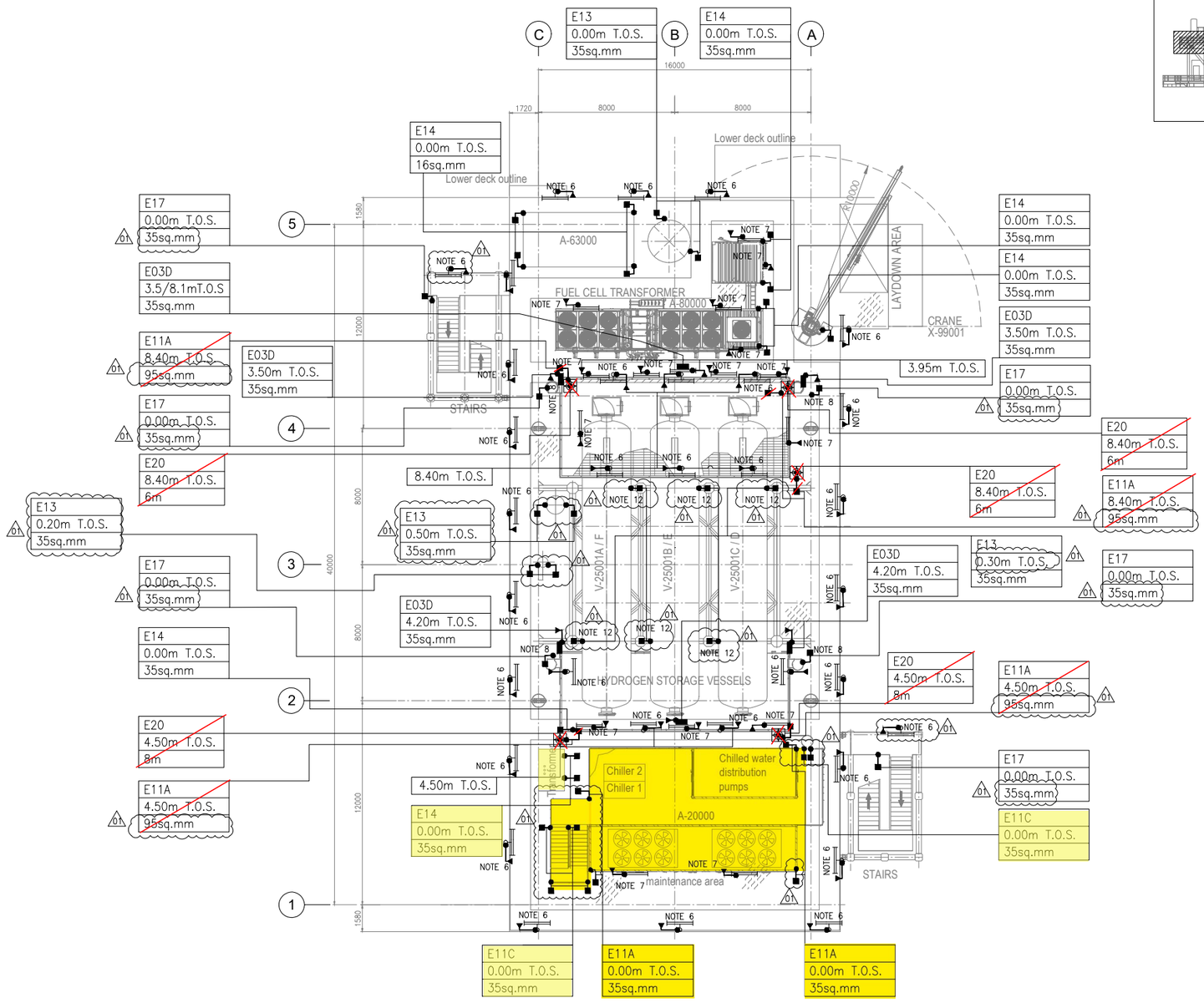
File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

DRAWING NO. 123A90-DDL-EL-DL-20132

REV. 01

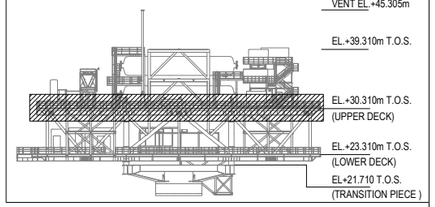
RLMU LIST

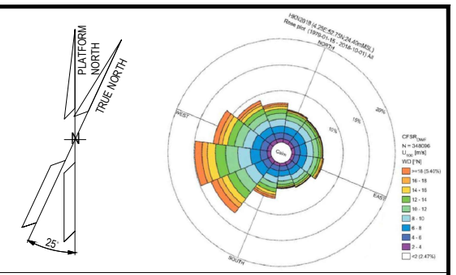
REV. 01_B: Sheet 1, 3



PLAN ON TOP DECK
EL+30.310 T.O.S.

KEY PLAN





NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE GIVEN IN mm UNLESS OTHERWISE NOTED.
2. ELEVATIONS REFER TO T.O.S.
3. THIS DOCUMENT IS ONLY VALID FOR EARTHING LAYOUT.
4. ALL ELECTRICAL EQUIPMENT NOT DIRECTLY WELDED TO SKID FRAME SHALL BE BONDED TO STEEL TO THE STRUCTURE OF SKID BASEFRAME.
5. FOR LIGHTNING PROTECTION SYSTEM SURGE PROTECTIVE DEVICES (SPD), REFER TO THE DOCUMENT 123A90-DDL-EL-RE-20154.
6. ALL NON-WELDED POLES WILL BE EARTHED AS PER TYPICAL E05 AND E24. 01
7. ALL LINEAR LIGHTING FIXTURE WILL BE EARTHED AS PER TYPICAL E32.
8. LADDER MUST BE EARTHED IF NOT WELDED TO THE STRUCTURE. LADDER MUST BE EARTHED TO THE UPPER BEAM OF THE STRUCTURE, COMPLETE EARTHING INCLUDING WITH 2 THREADED STUDS AS PER TYPICAL E17D.
9. ALL EARTH BAR WILL BE EARTHED AS PER TYPICAL E03D.
10. ALL POLE MOUNTED EQUIPMENTS WILL BE EARTHED AS PER TYPICAL E05.
11. EQUIPOTENTIAL BONDING GROUPING FOR BOLTED HANDRAILS ARE PROVIDED EVERY 3M FOR THE ENTIRE PERIMETER AS TYPICAL E16 AND WILL BE DEFINED DURING ASSEMBLY PHASE
12. EARTHED VESSELS V-25001D/E/F. FOR EARTHING V-25001A/B/C SEE SHEET 2 01

LEGEND

- LIGHTING FIXTURE POLE MOUNTED
- LINEAR LIGHTING FIXTURE
- EARTHING BOSS AISI316L
- COMPRESSION TYPE LUG TINNED COPPER
- THREADED STUD FOR EARTHING CONNECTION
- AIR TERMINATION ROD FOR LIGHTNING PROTECTION
- Exx EARTHING TYPICAL CODE
- EARTHING BAR

TYP.	TYPICAL
ELE	ELEVATION
SIZE	

E20	AIR TERMINATION ROD NO.
ELE	ELEVATION
HEIGHT	

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20100	ELECTRICAL EQUIPMENT LAYOUT - TOP DECK
123A90-DDL-EL-DD-20090	ELECTRICAL TYPICAL INSTALLATION DETAILS - EARTHING SYSTEM
123A90-DDL-EL-RE-20154	LIGHTNING PROTECTION SYSTEM CALCULATION REPORT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	31/07/24	SAM	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	27/05/24	NLK	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
EARTHING & LIGHTNING LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-1-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN NLK	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 31/07/24
A1	DRAWING NO. 123A90-DDL-EL-DL-20132	SHEET 001	REV. 01

SHEET 001 OF 002

VALID FOR CONSTRUCTION

REV.:	DATE:	SIGNATURE:
1_B	08/11/24	V.Ramponi

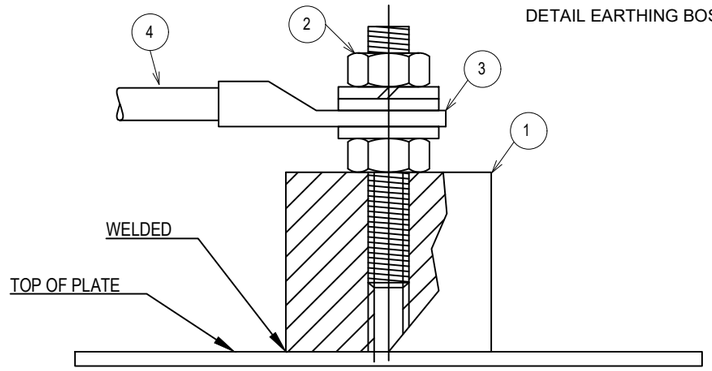
ROSETTI MARINO SpA

File Name : 123A90-DDL-EL-DL-20132

POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	EARTHING BOSS WITH THREADED HOLE M10	AISI 316L	50X50 50X150	1	NOTE 2
2	STUD BOLT WITH PLANE WASHER, GROWER AND NUT	AISI 316L	M10X50		
3	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	TINNED COPPER			~~NOTE 3~~
4	Y/G INSULATING COPPER CONDUCTOR				NOTE 1 NOTE 5
5	EARTHING PLATE	AISI 316L (NOT PAINTED)	50X50X5		NOTE 4
6	HEXAGONAL BOLT WITH PLANE WASHERS, GROWER AND NUT.	AISI 316L	M10X30		
7	THREADED STUD COMPLETE WITH GROWER AND NUTS	AISI 316L	M10X28		NOTE 6 NOTE 7

E11A

DETAIL EARTHING BOSS 50x50

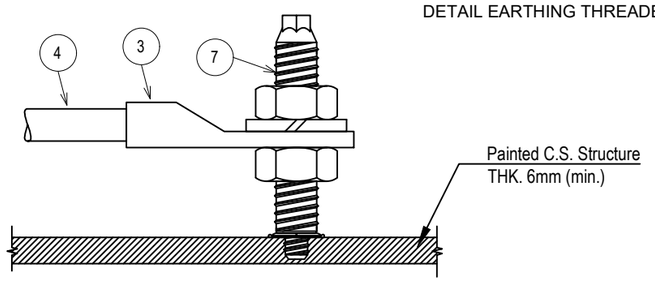


E11D

SEE NOTE 6

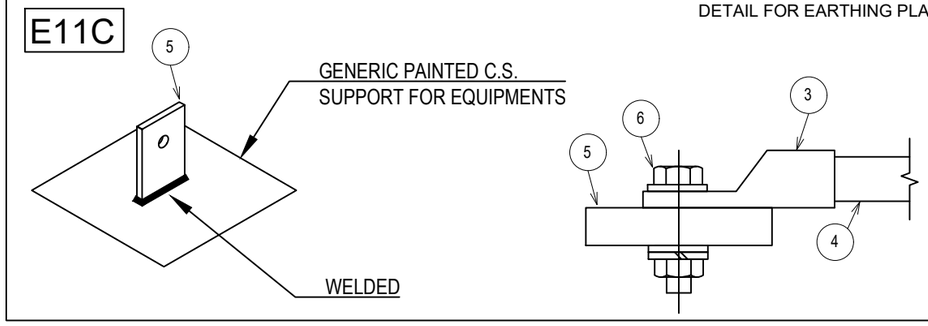
FOR CABLE
MAX 10mm²

DETAIL EARTHING THREADED STUD



E11C

DETAIL FOR EARTHING PLATE

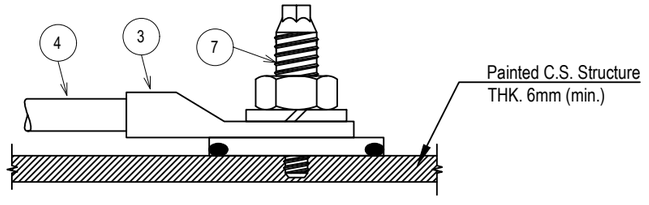


E11E

SEE NOTE 7

FOR CABLE
MAX 35mm²

DETAIL EARTHING THREADED STUD



NOTES:

1) ONLY ONE PROTECTIVE CONDUCTOR TERMINATION LUG SHALL BE CONNECTED TO A DEDICATED EARTHING BOSS, EARTH PLATE OR EARTH STUD.
2) EXTERNAL EARTHING CONNECTION ONLY SHALL BE PROTECTED AGAINST CORROSION USING OXIDE RESISTANT COMPOUND (E.G. COPPER GREASE).
3) ~~CABLE LUG CRIMPING METHOD SHALL BE HEXAGONAL COMPRESSION DIES ONLY.~~
4) EARTHING PLATE SHALL BE DEDICATED TO CABLE TRAY AND PIPE SUPPORTS, JUNCTION BOX, LOCAL CONTROL STATION AND SMALL EQUIPMENT SUPPORTS, LIGHTING POLES, RECEPTACLE SUPPORTS AND REMOVABLE HANDRAILS, ONLY.
5) FOR SIZE OF THE EARTHING CABLE SEE EARTHING LAYOUT DRAWINGS OF RESPECTIVE AREAS
6) HILTI S-BT-ER M10/15 SN6 CERTIFIED FOR EARTHING SYSTEM. RECOMMENDED MAX CONDUCTOR SIZE 10mm².
7) HILTI S-BT-ER M10 HC 120 CERTIFIED FOR EARTHING SYSTEM. RECOMMENDED MAX CONDUCTOR SIZE 35mm².

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20090**

REV.:	DATE:	SIGNATURE:
2_I	07/11/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS–EARTHING SYSTEM
SINGLE EARTHING CONNECTION

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

SCALE : NTS

A3

DRAWING NO. 123A90–DDL–EL–DD–20090

SHEET 003

REV. 02

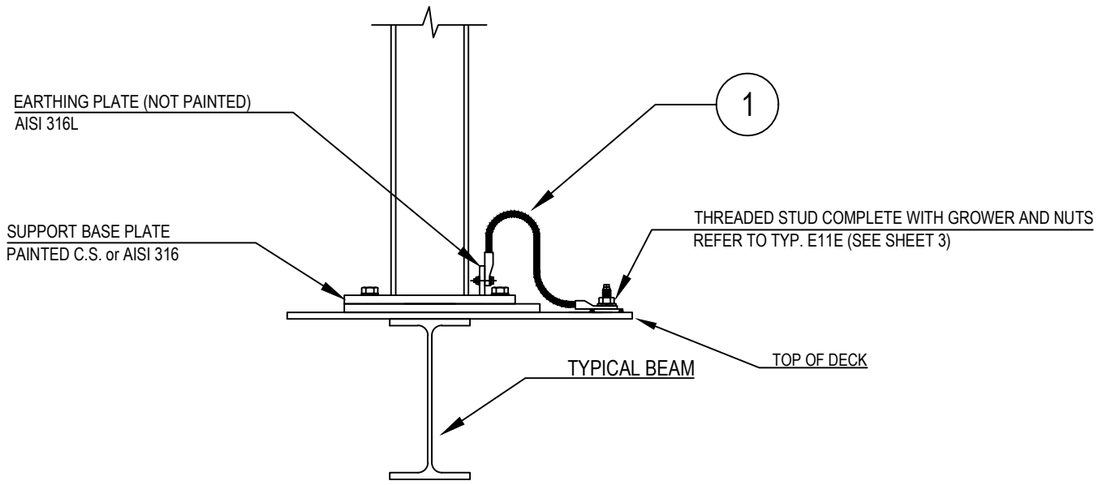
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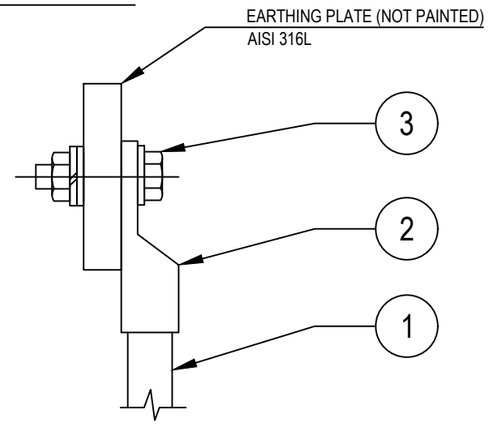
E24

POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	As. R. Y/G INSULATING COPPER CONDUCTOR	COPPER	$35mm^2$		
2	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	TINNED COPPER	$35mm^2$	2	~~NOTE 1~~
3	HEXAG. BOLT M10X30 COMPLETE WITH PLANE WASHERS, SPRING WASHER AND NUT	AISI 316L	M10X30	2	

GENERIC SUPPORT BOLTED ON STRUCTURE



DETAIL "X"



NOTES:
1) ~~CABLE LUG CRIMPING METHOD SHALL BE HEXAGONAL COMPRESSION DIES ONLY.~~
2) EXTERNAL EARTHING CONNECTION ONLY SHALL BE PROTECTED AGAINST CORROSION USING OXIDE RESISTANT COMPOUND (E.G. COPPER GREASE)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20090**

REV.:	DATE:	SIGNATURE:
2_I	07/11/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS–EARTHING SYSTEM
EARTHING FOR POLE/SUPPORT OF GENERIC EQUIPMENTS

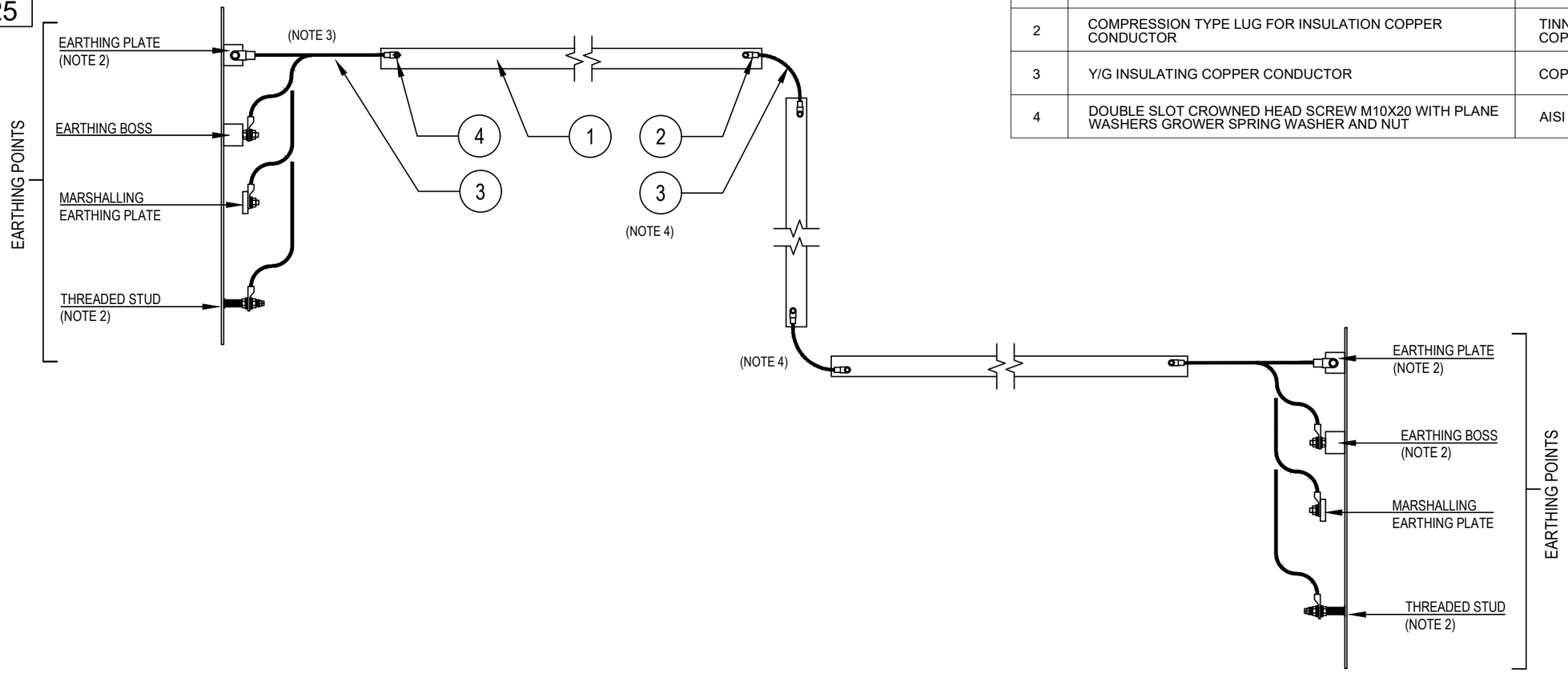
CONTRACT NO./TITLE CW–I–WP4–2023–05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3	DRAWING NO.	SHEET	REV.
	123A90–DDL–EL–DD–20090	012	02

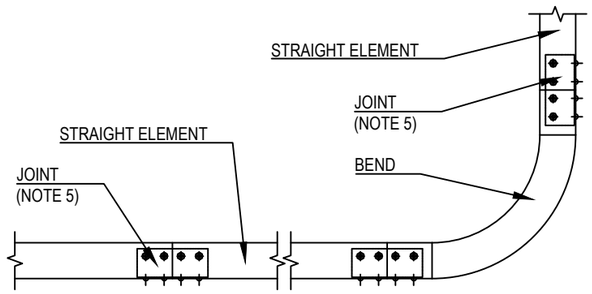
F.to UNI A3: 420mmx297mm

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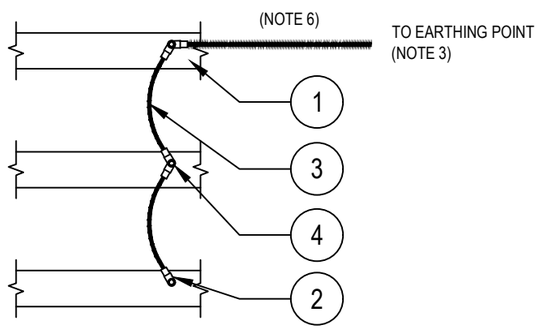
E25



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	CABLE LADDER/TRAY	FRP/GRP			
2	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	TINNED COPPER	16mm^2		~~NOTE 1~~
3	Y/G INSULATING COPPER CONDUCTOR	COPPER	16mm^2		
4	DOUBLE SLOT CROWNED HEAD SCREW M10X20 WITH PLANE WASHERS GROWER SPRING WASHER AND NUT	AISI 316L	~~M10X20~~ M6x20		



PARALLEL ROUTING



NOTES:
1) ~~CABLE LUG CRIMPING METHOD SHALL BE HEXAGONAL COMPRESSION DIES ONLY.~~
2) FOR DETAIL OF EARTHING PLATE, EARTHING BOSS AND THREADED STUD SEE TYP. E11A/C/D/E.
3) FOR EARTHING USE NEAREST EXISTING EARTHING POINT OR A NEW DEDICATED.
4) ON EVERY CHANGE OF DIRECTION MADE WITHOUT A PREFABBRICATED BEND, BONDING CONNECTION IS REQUIRED BY MEAN OF INSULATED Y/G EARTHING CONDUCTOR.
5) THE ELECTRIC CONTINUITY BETWEEN THE VARIOUS PREFABRICATED COMPONENTS IS GUARANTEED BY THE JOINTS INSTALLED ACCORDING TO THE ASSEMBLY INSTRUCTIONS OF THE CABLE TRAY/LADDER MANUFACTURER.
6) CABLE LADDER/TRAY SHALL BE CONNECTED TO THE EQUIPOTENTIAL BONDING SYSTEM AT BOTH ENDS. FULL CONTINUITY SHALL BE ENSURED. IN CASE OF SHORT LENGHT ELEMENTS (LESS THAN 3 m) ONE END ONLY MAY BE CONNECTED TO THE EQUIPOTENTIAL BONDING SYSTEM.
7) EXTERNAL EARTHING CONNECTION ONLY SHALL BE PROTECTED AGAINST CORROSION USING OXIDE RESISTANT COMPOUND (E.G. COPPER GREASE).

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20090**

REV.:	DATE:	SIGNATURE:
2_I	07/11/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS-EARTHING SYSTEM
EARTHING FOR CABLE LADDERS & TRAYS

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20090 | SHEET 013 | REV. 02

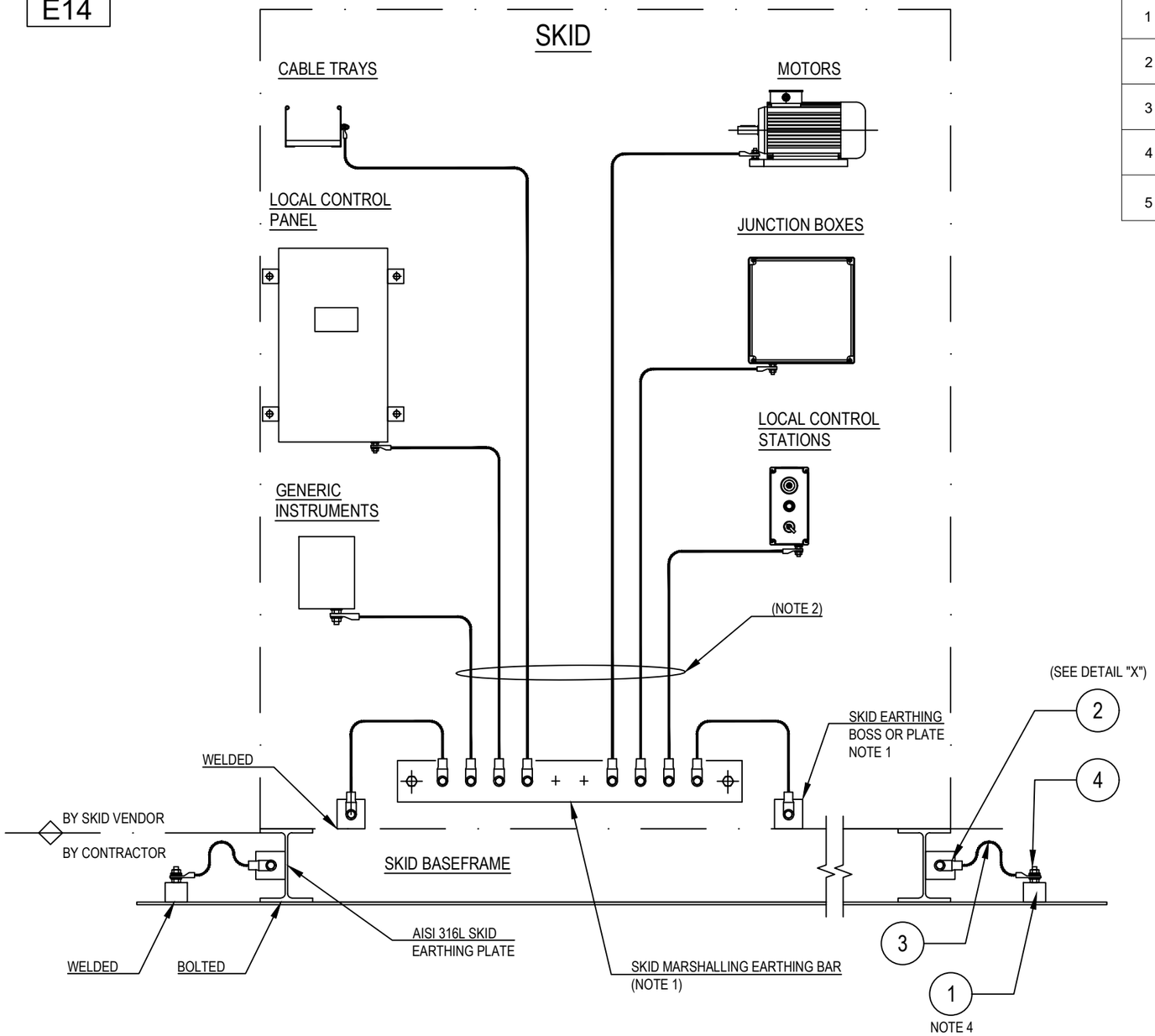
CROSSWIND

ROSETTI MARINO

F.to UNI A3: 420mmx297mm

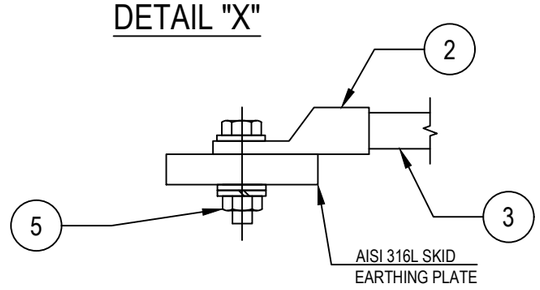
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E14



POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	EARTHING BOSS WITH THREADED HOLE M10	AISI 316L	50X50		NOTE 5
2	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	TINNED COPPER	35mm^2		NOTE 3
3	Y/G INSULATING COPPER CONDUCTOR	COPPER	35mm^2		NOTE 3
4	STUD BOLT WITH PLANE WASHER, SPRING WASHER AND NUT	AISI 316L	M10X50		
5	HEXAG. BOLT COMPLETE WITH PLANE WASHERS, SPRING WASHER AND NUT	AISI 316L	M10X30		

DETAIL "X"



NOTES:
1) EARTHING BAR/BOSS/PLATE SUPPLIED BY SKID MANUFACTURER
2) ALL EQUIPMENTS AND CABLE TRAYS WILL BE EARTHING ON SKID EARTHING BAR BY SKID MANUFACTURER
3) ~~CABLE LUG CRIMPING METHOD SHALL BE HEXAGONAL COMPRESSION DIES ONLY~~
4) FOR EARTHING BOSS TYPICAL DETAIL E11A
5) EXTERNAL EARTHING CONNECTION ONLY SHALL BE PROTECTED AGAINST CORROSION USING OXIDE RESISTANT COMPOUND (E.G. COPPER GREASE)

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20090**

REV.:	DATE:	SIGNATURE:
2_I	07/11/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
02	26/08/24	GRA	AMA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	10/06/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/11/23	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL TYPICAL INSTALLATION DETAILS–EARTHING SYSTEM
EARTHING FOR SKID BASEFRAME

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

A3 | DRAWING NO. 123A90-DDL-EL-DD-20090 | SHEET 014 | REV. 02

F.to UNI A3: 420mmx297mm

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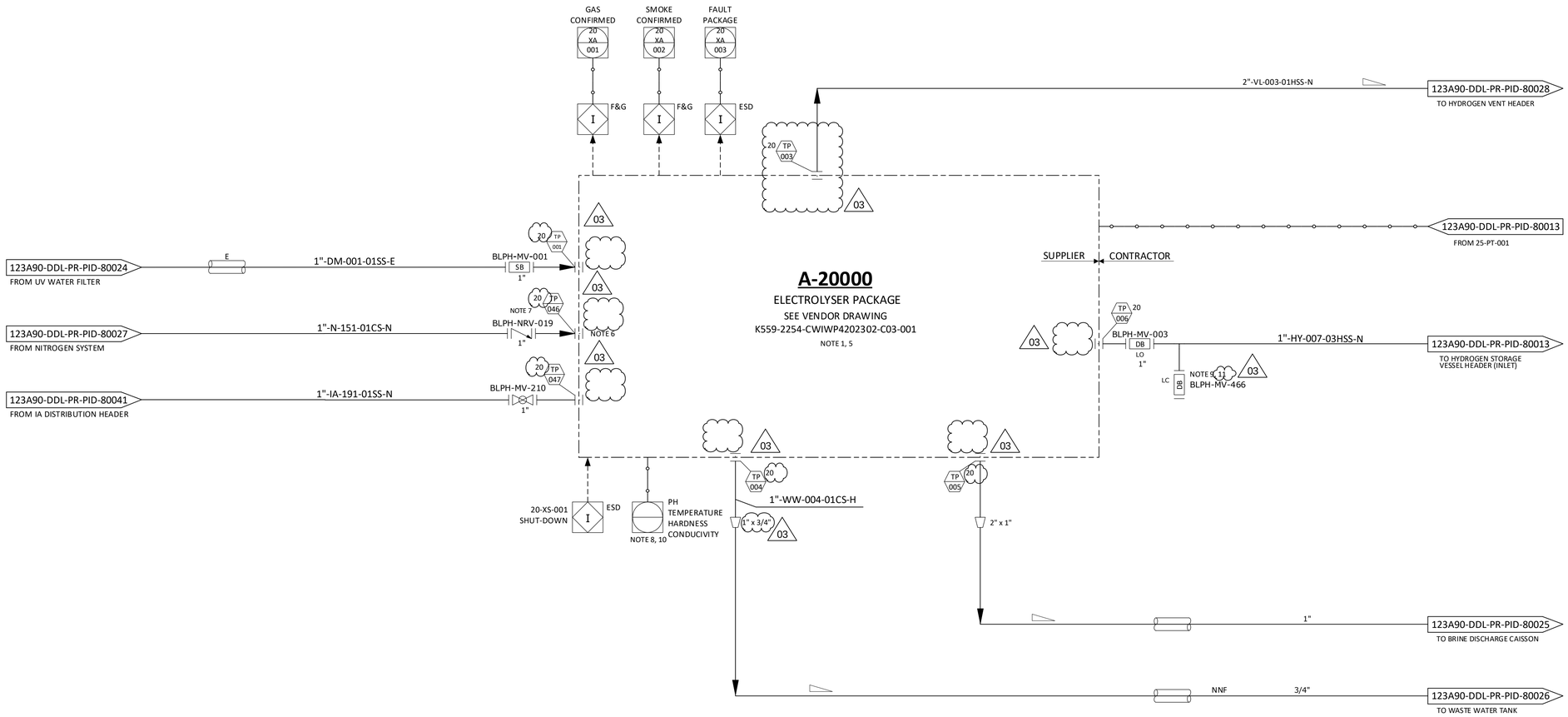
DRAWING NO. DRAWING_NO.

REV. REV

A-20000

ELECTROLYSER PACKAGE

DUTY: 2.5MW
DESIGN PRESSURE: 40 barg
DESIGN TEMPERATURE: 80 °C
H2 GENERATING CAPACITY: 500 Nm³/h



NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.
7. CHECK VALVE NRV-019 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE ELECTROLYSER PACKAGE A-20000.
8. SERIAL COMMUNICATION WITH CONTROL SYSTEM.
9. NITROGEN PURGING CONNECTION TO BE LOCATED AS CLOSE AS POSSIBLE TO MANUAL VALVE BLPH-MV-003.
10. PH, TEMPERATURE, HARDNESS AND CONDUCTIVITY SHALL BE SENT FROM CONTROL SYSTEM TO ELECTROLISER UCP IN ADDITION TO THE OTHER SOFTWARE SIGNALS. 03
11. MANUAL VALVE BLPH-MV-466 TO BE CONNECTED WITH MANUAL VALVE BLPH-MV-275 (INSTALLED ON NITROGEN GENERATION PACKAGE EXIT LINE) BY MEAN ON A FLEXIBLE HOSE DURING COMMISSIONING PHASE FOR PURGING OPERATION.

HOLDS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	09/09/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	12/06/2024	CIM	RZI	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

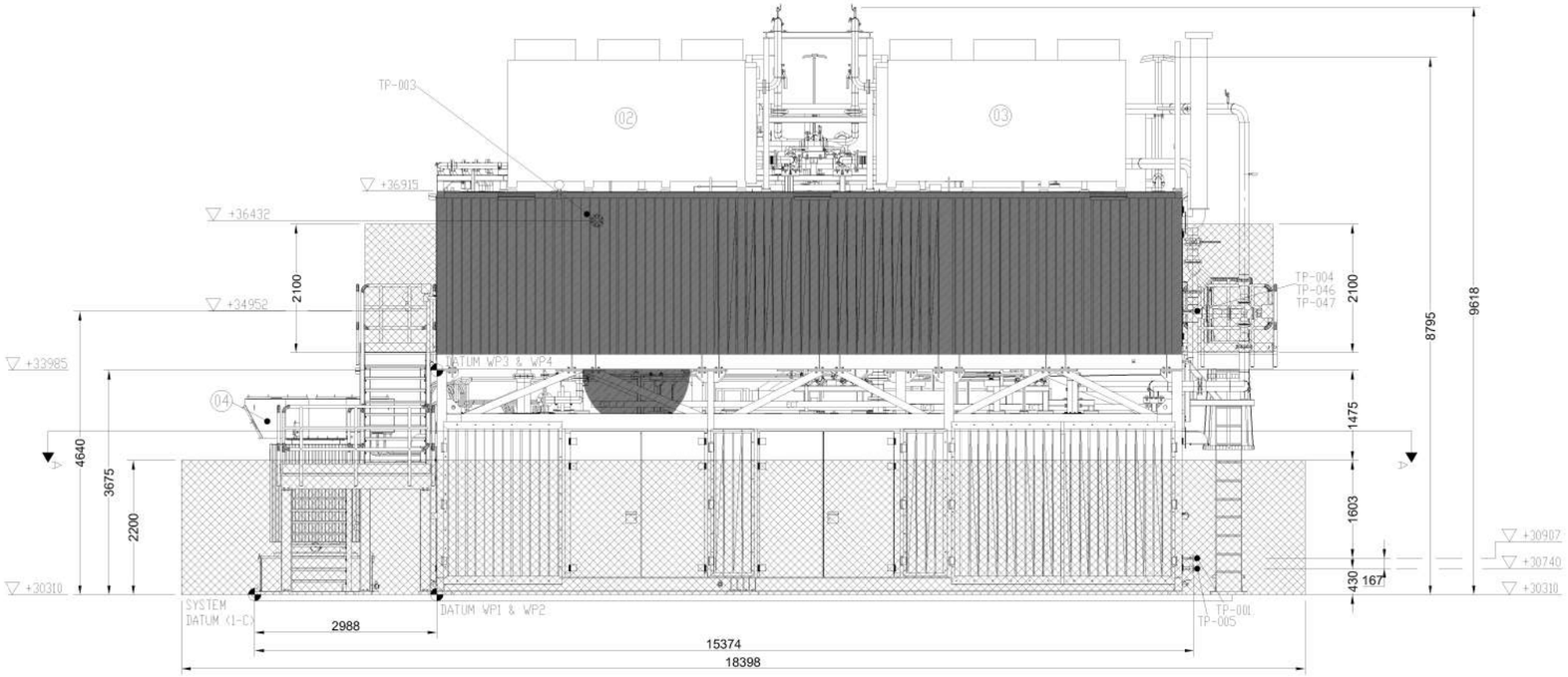
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE

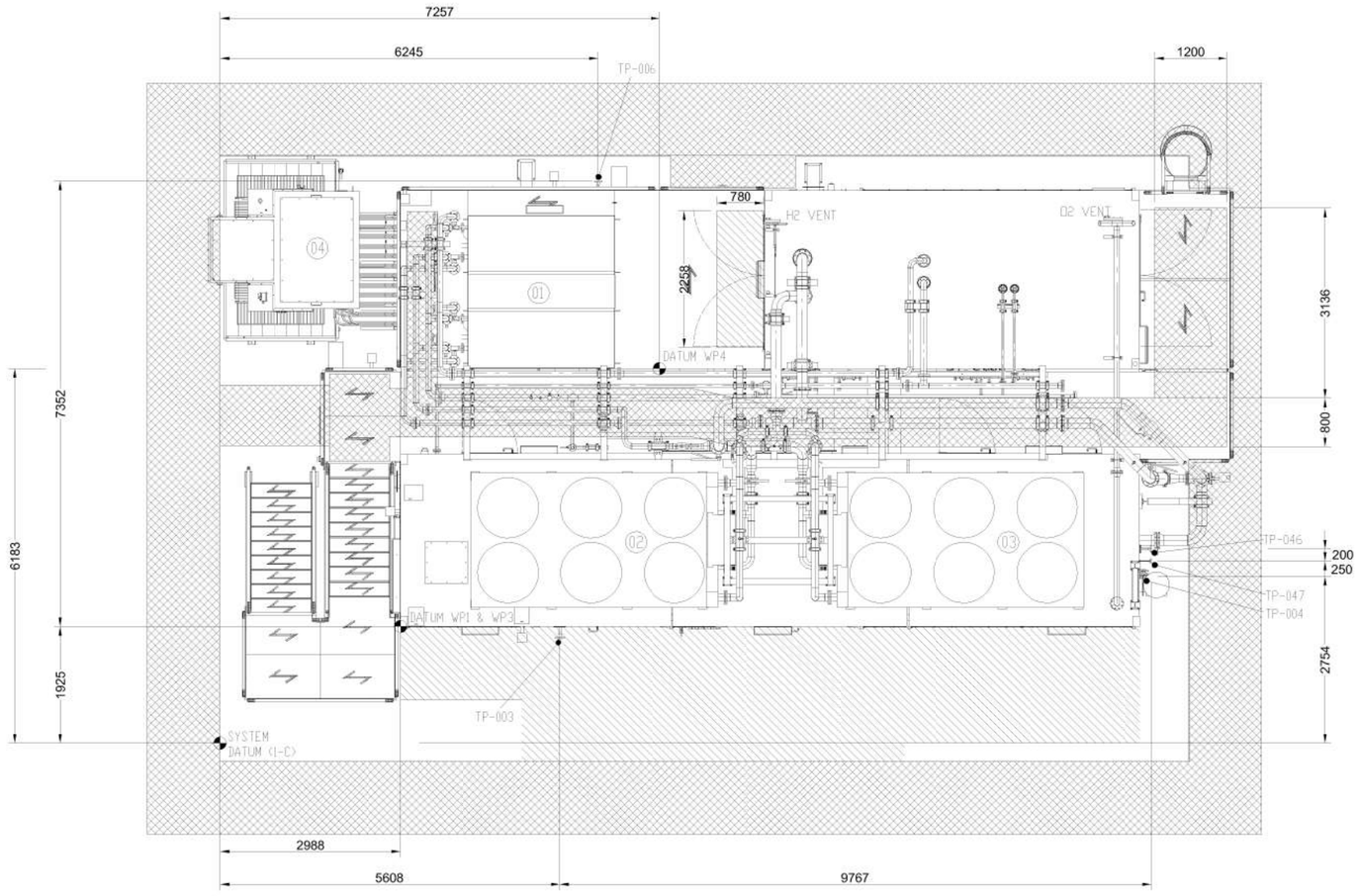
A1	DRAWING NO. 123A90-DDL-PR-PID-80011	SHEET 001	REV. 03

File Name : FILE_NAME





SOUTH VIEW



PLAN VIEW

REFERENCE DRAWINGS	
TITLE	DOCUMENT NUMBER
Process and Instrumentation Diagrams	C63-PID-001
E&I Layout and Cable Trays Routing	C0063-FOR-DWG-EL-003
Isometrics Booklet (incl. heat tracing)_Interconnection	C0063-FOR-DTB-MP-007
Ducting General Arrangement Drawing	C0063-FOR-DWG-MP-003
General structure Drawings Stair,Ladder & Handrail	C0063-FOR-DWG-CS-005
Foundation loading diagram	C0063-FOR-DWG-CS-006

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE COORDINATES OF THE TIE-IN POINT ARE REFERRED TO THE SYSTEM DATUM POINT (1-C)
3. FOR WEIGHT DETAILS REFER TO DOC. Nr. C0063-FOR-REG-MP-001 (WEIGHT REGISTER)

EQUIPMENT LIST		
ITEM	DESCRIPTION	TAG
01	WATER CHILLER	WC-400/401
02	DRY COOLER	DC-200
03	DRY COOLER	DC-201
04	TRANSFORMER	TR-01

ZONES DEFINITION		
ITEM	DESCRIPTION	TAG
05	PROCESS CONTAINER - LOWER LEVEL	WP1
06	WATER PURIFICATION/ELECTRICAL PANEL & CONTROL ROOM - LOWER LEVEL	WP2
07	PROCESS CONTAINER - UPPER LEVEL	WP3
08	HVAC CONTAINER - UPPER LEVEL	WP4

TIE-IN POINT LIST (NOTE2)							
OLD NAME	NEW NAME	DESCRIPTION	DIAMETER	RATING	E	N	EL.
A	TP001	Water supply	1"Fl. ASME B16.5	150 lb	15374	8590	+597
B	TP006	H2 Production	1"Fl. ASME B16.5	300 lb	6245	9276	+360
C	TP003	H2 Vent	2"Fl. ASME B16.5	300 lb	5608	1724	+6122
D	TP046	Nitrogen supply	1"Fl. ASME B16.5	150 lb	15375	3204	+4640
E	TP005	Pure Water drainage	2"Fl. ASME B16.5	150 lb	15374	7999	+430
F	TP004	Water drainage	3/4"Fl. ASME B16.5	150 lb	15375	2754	+4640
I	TP047	IA supply	1/2"Fl. ASME B16.5	150 lb	15375	3004	+4640

LEGEND:

- MAINTENANCE WAY
- ESCAPE ROUTE WAY
- ECT — ELECTRICAL CABLE TRAY
- ICT — INSTRUMENT CABLE TRAY
- ATEX ZONE 2

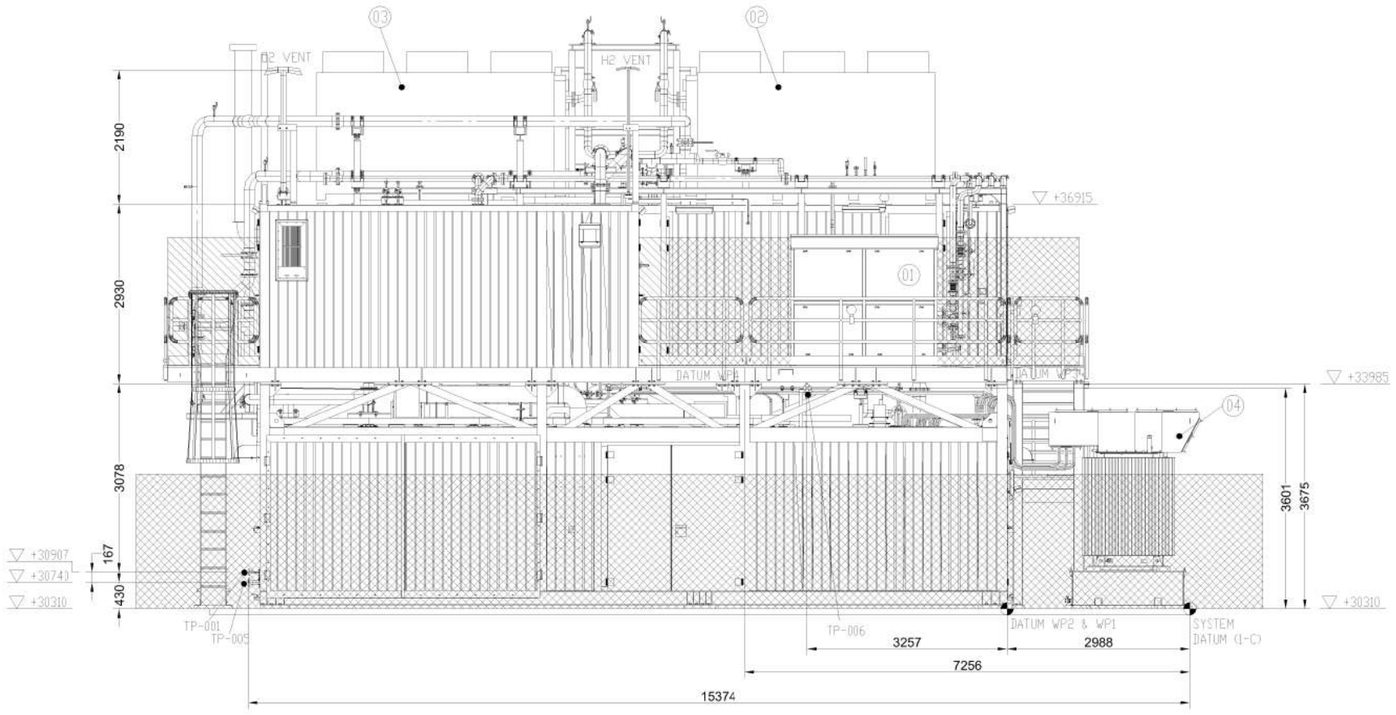
REV.	DATE	DESCRIPTION	PREPARED	VERIFIED	APPROVED	A.I.
01	28/11/2024	ISSUE FOR REVIEW	D.Crescimbeni	M. Chiarucci	L. Maioli	
			By	Checked	Approved	
0	09/08/2024	ISSUE FOR REVIEW	STONENG	M. Chiarucci	L. Maioli	
			By	Checked	Approved	

elogen

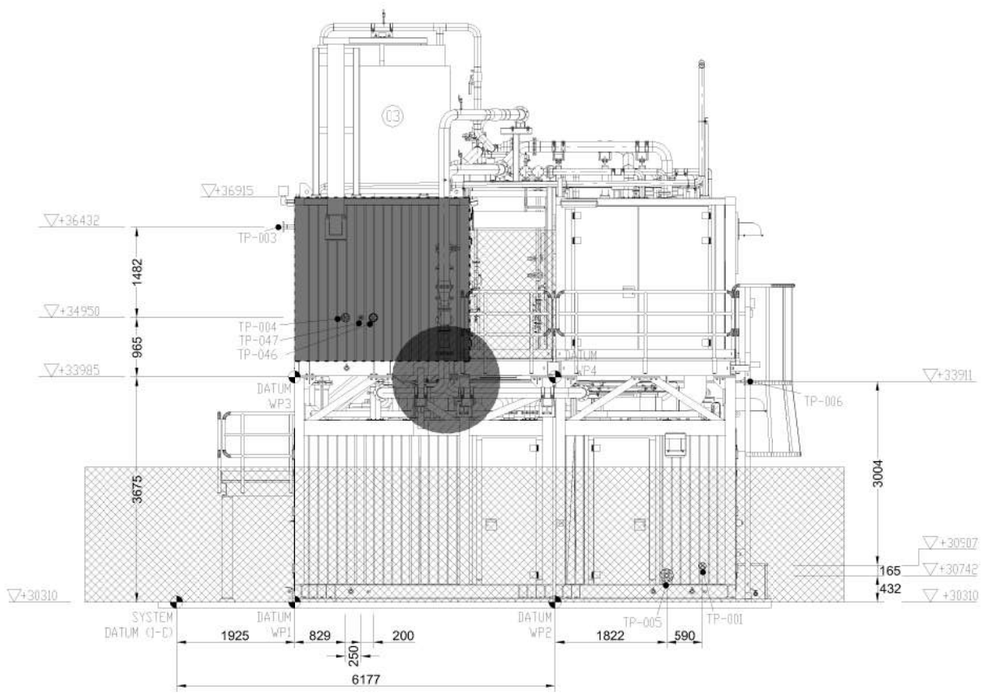
PROJECT	C63 - CROSSWIND PROJECT - ELECTROLYZER PACKAGE			
ELOGEN PROJECT DOCUMENT NUMBER	C0063-FOR-GAD-MP-001			
ELOGEN PROJECT DOCUMENT TITLE	General Arrangement_OVERALL			
CROSSWIND PROJECT DOCUMENT NUMBER	FORES-INN-BPH-DWG-00016			
FORES DOCUMENT NUMBER AND REVISION	224J10-DDL-PP-DA-60001			
	FORMAT	A1	SHEET	01 of 04

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1:50



NORTH VIEW



EAST VIEW

REFERENCE DRAWINGS	
TITLE	DOCUMENT NUMBER
Process and Instrumentation Diagrams	C63-PID-001
E&I Layout and Cable Trays Routing	C0063-FOR-DWG-EL-003
Isometrics Booklet (incl. heat tracing)_Interconnection	C0063-FOR-DTB-MP-007
Ducting General Arrangement Drawing	C0063-FOR-DWG-MP-003
General structure Drawings Stair,Ladder & Handrail	C0063-FOR-DWG-CS-005
Foundation loading diagram	C0063-FOR-DWG-CS-006

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE COORDINATES OF THE TIE-IN POINT ARE REFERRED TO THE SYSTEM DATUM POINT (1-C)
3. FOR WEIGHT DETAILS REFER TO DOC. Nr. C0063-FOR-REG-MP-001 (WEIGHT REGISTER)

EQUIPMENT LIST		
ITEM	DESCRIPTION	TAG
01	WATER CHILLER	WC-400/401
02	DRY COOLER	DC-200
03	DRY COOLER	DC-201
04	TRANSFORMER	TR-01

ZONES DEFINITION		
ITEM	DESCRIPTION	TAG
05	PROCESS CONTAINER - LOWER LEVEL	WP1
06	WATER PURIFICATION/ELECTRICAL PANEL & CONTROL ROOM - LOWER LEVEL	WP2
07	PROCESS CONTAINER - UPPER LEVEL	WP3
08	HVAC CONTAINER - UPPER LEVEL	WP4

TIE-IN POINT LIST (NOTE2)							
OLD NAME	NEW NAME	DESCRIPTION	DIAMETER	RATING	E	N	EL.
A	TP001	Water supply	1"Fl. ASME B16.5	150 lb	15374	8590	+597
B	TP006	H2 Production	1"Fl. ASME B16.5	300 lb	6245	9276	+360
C	TP003	H2 Vent	2"Fl. ASME B16.5	300 lb	5608	1724	+6122
D	TP046	Nitrogen supply	1"Fl. ASME B16.5	150 lb	15375	3204	+4640
E	TP005	Pure Water drainage	2"Fl. ASME B16.5	150 lb	15374	7999	+430
F	TP004	Water drainage	3/4"Fl. ASME B16.5	150 lb	15375	2754	+4640
I	TP047	IA supply	1/2"Fl. ASME B16.5	150 lb	15375	3004	+4648

LEGEND:

- MAINTENANCE WAY
- ESCAPE ROUTE WAY
- ECT — ELECTRICAL CABLE TRAY
- ICT — INSTRUMENT CABLE TRAY
- ATEX ZONE 2

REV.	DATE	DESCRIPTION	PREPARED	VERIFIED	APPROVED	A.I.
01	28/11/2024	ISSUE FOR REVIEW	D.Crescimbeni (By)	M. Chiarucci (Checked)	L. Maioli (Approved)	
0	09/08/2024	ISSUE FOR REVIEW	STONENG (By)	M. Chiarucci (Checked)	L. Maioli (Approved)	

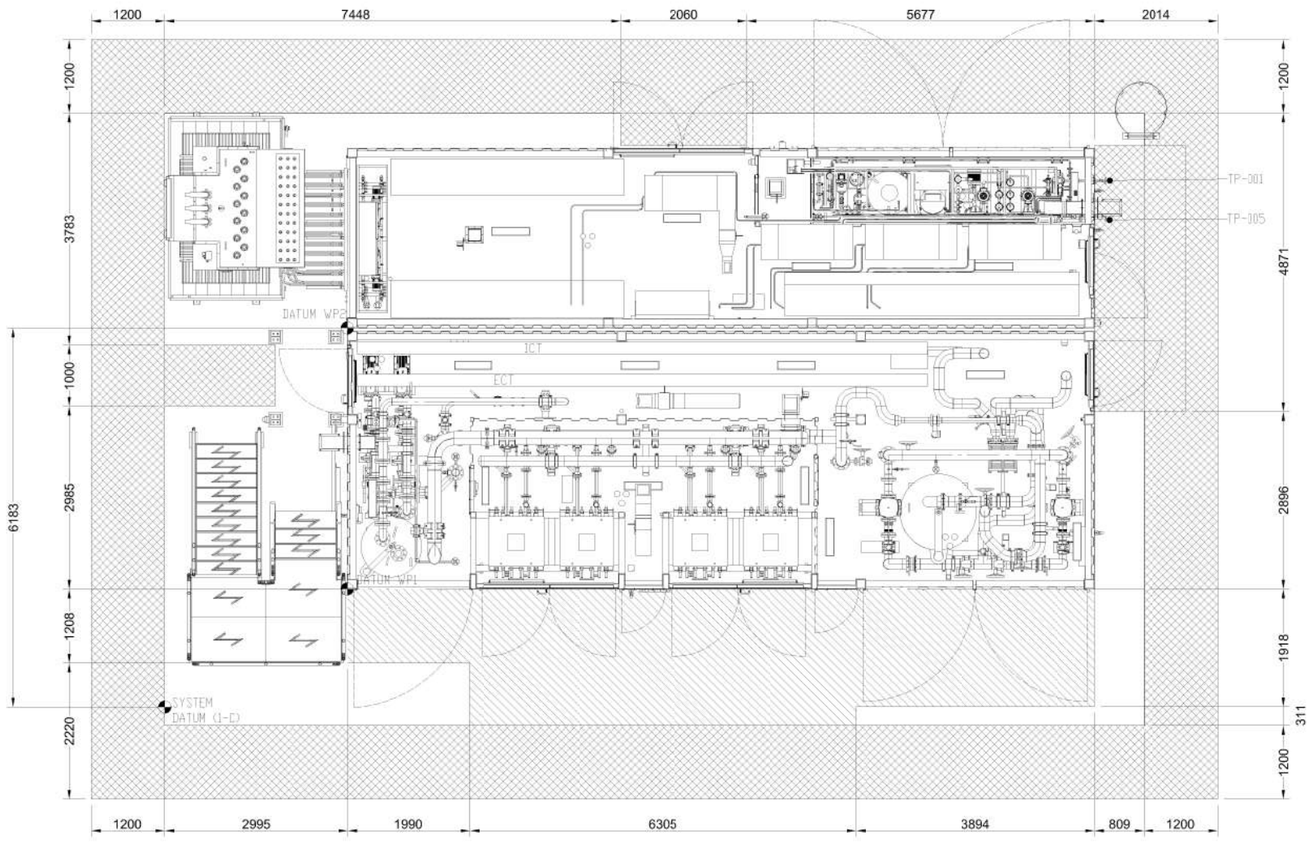
elogen

PROJECT	C63 - CROSSWIND PROJECT - ELECTROLYZER PACKAGE
ELOGEN PROJECT DOCUMENT NUMBER	C0063-FOR-GAD-MP-001
ELOGEN PROJECT DOCUMENT TITLE	General Arrangement_OVERALL (incl. interfaces)
CROSSWIND PROJECT DOCUMENT NUMBER	FORES-INN-BPH-DWG-00016
FORES DOCUMENT NUMBER AND REVISION	224J10-DDL-PP-DA-60001

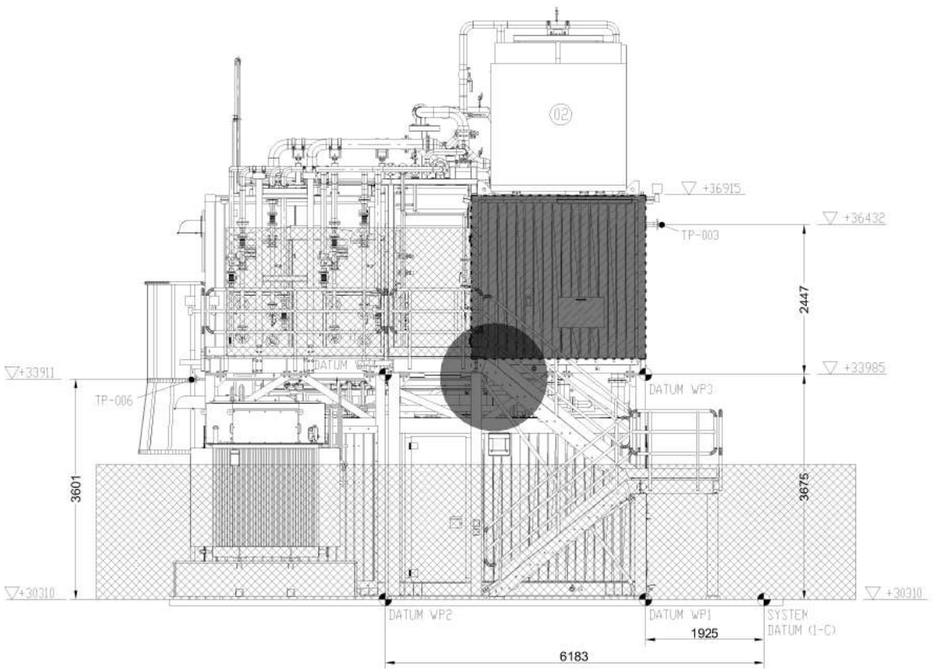
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FORMAT	A1	SHEET	02 of 04	1:50





Section A-A



WEST VIEW

REFERENCE DRAWINGS	
TITLE	DOCUMENT NUMBER
Process and Instrumentation Diagrams	C63-PID-001
E&I Layout and Cable Trays Routing	C0063-FOR-DWG-EL-003
Isometrics Booklet (incl. heat tracing)_Interconnection	C0063-FOR-DTB-MP-007
Ducting General Arrangement Drawing	C0063-FOR-DWG-MP-003
General structure Drawings Stair,Ladder & Handrail	C0063-FOR-DWG-CS-005
Foundation loading diagram	C0063-FOR-DWG-CS-006

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE COORDINATES OF THE TIE-IN POINT ARE REFERRED TO THE SYSTEM DATUM POINT (1-C)
3. FOR WEIGHT DETAILS REFER TO DOC. Nr. C0063-FOR-REG-MP-001 (WEIGHT REGISTER)

EQUIPMENT LIST		
ITEM	DESCRIPTION	TAG
01	WATER CHILLER	WC-400/401
02	DRY COOLER	DC-200
03	DRY COOLER	DC-201
04	TRANSFORMER	TR-01

ZONES DEFINITION		
ITEM	DESCRIPTION	TAG
05	PROCESS CONTAINER - LOWER LEVEL	WP1
06	WATER PURIFICATION/ELECTRICAL PANEL & CONTROL ROOM - LOWER LEVEL	WP2
07	PROCESS CONTAINER - UPPER LEVEL	WP3
08	HVAC CONTAINER - UPPER LEVEL	WP4

TIE-IN POINT LIST (NOTE2)							
OLD NAME	NEW NAME	DESCRIPTION	DIAMETER	RATING	E	N	EL.
A	TP001	Water supply	1"Fl. ASME B16.5	150 lb	15374	8590	+597
B	TP006	H2 Production	1"Fl. ASME B16.5	300 lb	6245	9276	+360
C	TP003	H2 Vent	2"Fl. ASME B16.5	300 lb	5608	1724	+6122
D	TP046	Nitrogen supply	1"Fl. ASME B16.5	150 lb	15375	3204	+4640
E	TP005	Pure Water drainage	2"Fl. ASME B16.5	150 lb	15374	7999	+430
F	TP004	Water drainage	3/4"Fl. ASME B16.5	150 lb	15375	2754	+4640
I	TP047	IA supply	1/2"Fl. ASME B16.5	150 lb	15375	3004	+4640

LEGEND:

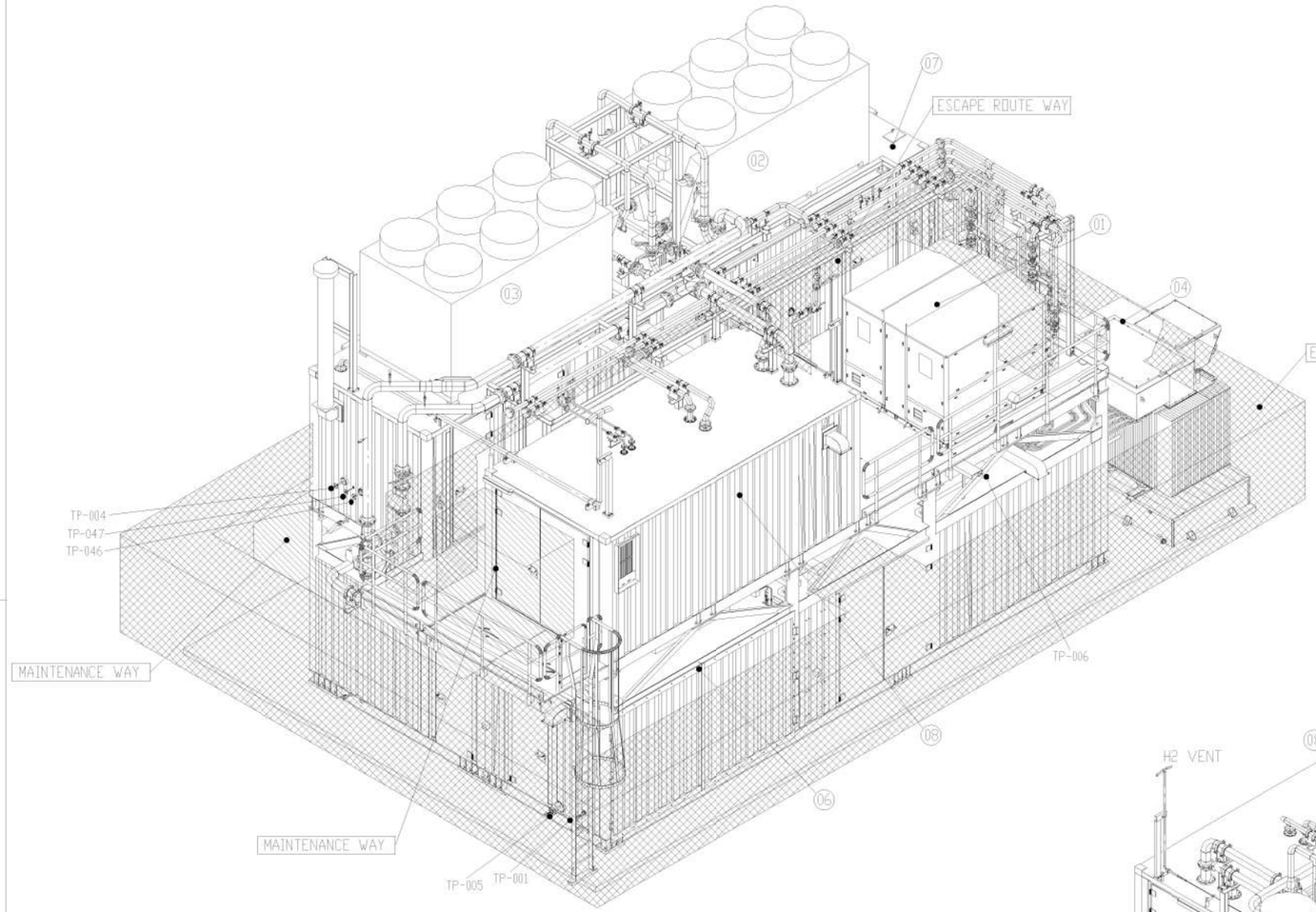
- MAINTENANCE WAY
- ESCAPE ROUTE WAY
- ECT — ELECTRICAL CABLE TRAY
- ICT — INSTRUMENT CABLE TRAY
- ATEX ZONE 2

REV.	DATE	DESCRIPTION	PREPARED	VERIFIED	APPROVED	A.I.
01	28/11/2024	ISSUE FOR REVIEW	D.Crescimbeni	M. Chiarucci	L. Maioli	
			By	Checked	Approved	
0	09/08/2024	ISSUE FOR REVIEW	STONENG	M. Chiarucci	L. Maioli	
			By	Checked	Approved	

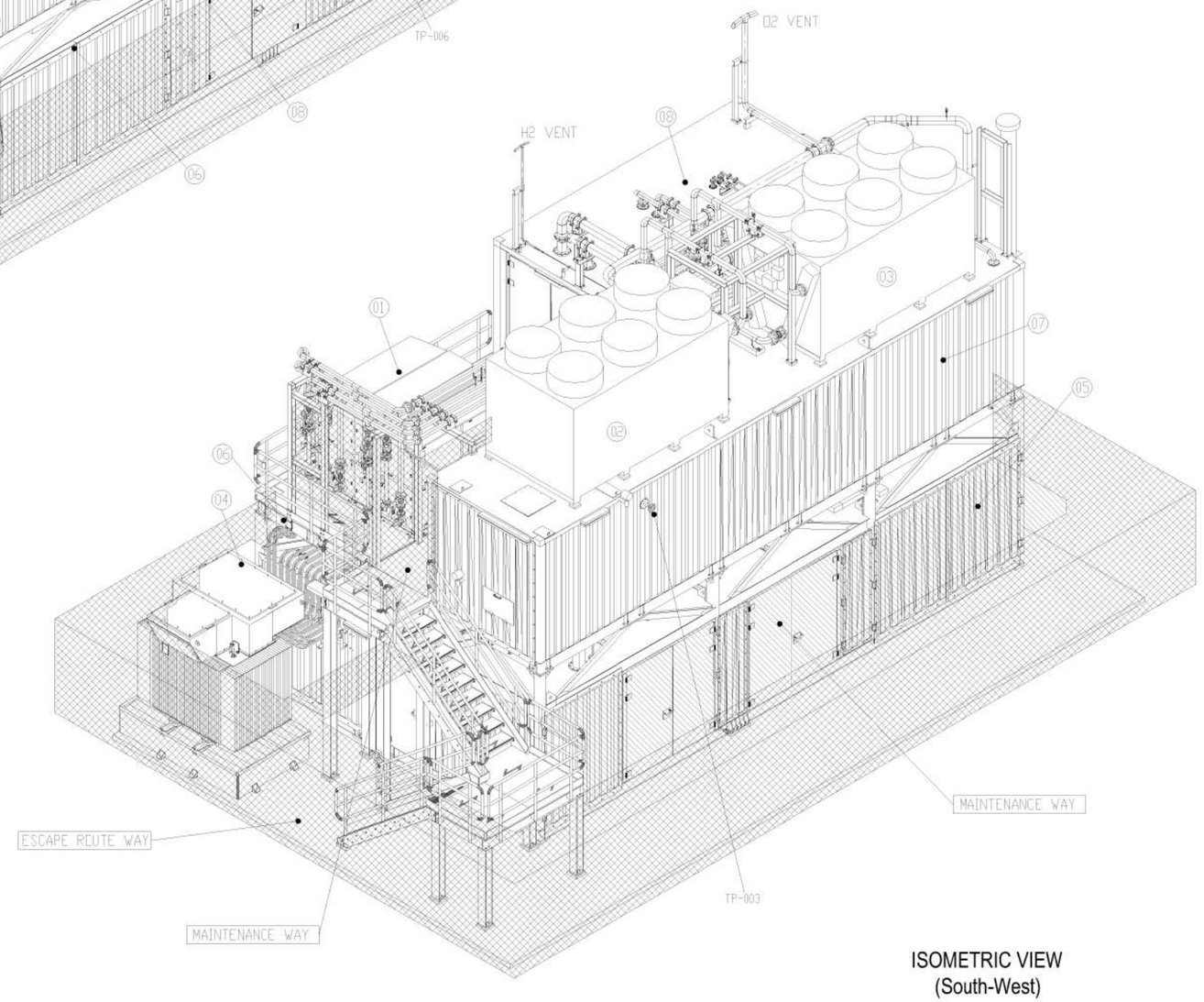
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PROJECT	C63 - CROSSWIND PROJECT - ELECTROLYZER PACKAGE				
ELOGEN PROJECT DOCUMENT NUMBER	C0063-FOR-GAD-MP-001				
ELOGEN PROJECT DOCUMENT TITLE	General Arrangement_OVERALL				
CROSSWIND PROJECT DOCUMENT NUMBER	FORES-INN-BPH-DWG-00016				
FORES DOCUMENT NUMBER AND REVISION	224J10-DDL-PP-DA-00001				
	FORMAT	A1	SHEET	03 of 04	1:50

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ISOMETRIC VIEW
(North-East)



ISOMETRIC VIEW
(South-West)

REFERENCE DRAWINGS	
TITLE	DOCUMENT NUMBER
Process and Instrumentation Diagrams	C63-PID-001
E&I Layout and Cable Trays Routing	C0063-FOR-DWG-EL-003
Isometrics Booklet (incl. heat tracing)_Interconnection	C0063-FOR-DTB-MP-007
Ducting General Arrangement Drawing	C0063-FOR-DWG-MP-003
General structure Drawings Stair,Ladder & Handrail	C0063-FOR-DWG-CS-005
Foundation loading diagram	C0063-FOR-DWG-CS-006

GENERAL NOTES:

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LEGEND:

- MAINTENANCE WAY
- ESCAPE ROUTE WAY
- ECT — ELECTRICAL CABLE TRAY
- ICT — INSTRUMENT CABLE TRAY
- ATEX ZONE 2

REV.	DATE	DESCRIPTION	PREPARED	VERIFIED	APPROVED	A.I.
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			By	Checked	Approved	

elogen

PROJECT	C63 - CROSSWIND PROJECT - ELECTROLYZER PACKAGE				
ELOGEN PROJECT DOCUMENT NUMBER	C0063-FOR-GAD-MP-001				
ELOGEN PROJECT DOCUMENT TITLE	General Arrangement_OVERALL (incl. interfaces)				
CROSSWIND PROJECT DOCUMENT NUMBER	FORES-INN-BPH-DWG-00016				
FORES DOCUMENT NUMBER AND REVISION	224J10-DDL-PP-DA-00001				
	FORMAT	A1	SHEET	04 of 04	1:50

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Section 8 MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 20-00 & process: MC & discipline : T

Telecom	20-00 Electrolyser Package (A-20000)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
20-UCP-001/B400-NET-001.01	COMMUNICATION / NETWORK CABINET	ONSHORE	C10004346	CIX09	100	2025-01-29	RFC 2
20-UCP-001/B400-NET-001.02	COMMUNICATION / NETWORK CABINET	ONSHORE	C10004347	CIX09	100	2025-01-29	RFC 2

ITEM	Tag	20-UCP-001/B400-NET-001.01	: COMMUNICATION / NETWORK CABINET			Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	20-00	: Electrolyser Package (A-20000)			Module	UD/LD_B-400
TASK	code	C10004346		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Telecom	Form	CIX09 Telecom Cable RJ45

CABLE DATA

Type: FTP-LSZH-IS-OS-SWB-LSZH | Cores/Size mm²: 4X2X23AWG mm2 | Color: GREY

From: 20-UCP-001 | To: B400-NET-001

1	Confirm cable is as specified in project cable schedule	OK
2	Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Confirm cable labelling is in accordance with specifications.	PL
8	Check cable is correctly loomed and segregated in accordance with specification.	OK
9	Check proper fitting of heat shrink sleeves and cable glands (if applicable).	OK
10	Check cores marking are in accordance with termination diagram.	OK
11	Check terminations are in accordance with latest termination diagram.	OK
12	To roll up that measured lenght complies with pulled lenght.	OK
13	To roll up the cable complies with Cat. 5E performance requirements (250 Mhz).	OK
14	Attach LAN tester print out to this test sheet.	OK
15	if required produce Red Line Mark Up for "AS BUILT"	

Comments: Nota 5: refer to PL C30000680/C30000682

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-28	2025-01-29	
Signature	Digitaly signed by Michele Tartaglia 2025-01-28T07:51:21.712Z	Digitaly signed by Giovanni Tangianu 2025-01-29T13:56:37.749Z	

Cable ID: 20-UCP-001/B400-NET-001.01

Test Summary: PASS

Test Limit: ISO11801 PL2 Class Ea
Limits Version: V7.6
Date / Time: 27-01-2025 14:55:25
Headroom 4.9 dB (NEXT 3,6-4,5)
Cable Type: Cat 6A U/UTP
NVP: 68.2%

Main: Versiv
S/N: 2226344
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000 (DSX-PLA804)
S/N: 22340270

Remote: Versiv
S/N: 2226336
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000R (DSX-PLA804)
S/N: 22340257

Length (m), Limit 90.0	[Pair 4,5]	68.3
Prop. Delay (ns), Limit 496	[Pair 1,2]	341
Delay Skew (ns), Limit 43	[Pair 1,2]	7
Resistance (ohms), Limit 20.60	[Pair 3,6]	11.16
Insertion Loss Margin (dB)	[Pair 3,6]	3.4
Frequency (MHz)	[Pair 3,6]	500.0
Limit (dB)	[Pair 3,6]	41.6

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	3,6-4,5	3,6-4,5	3,6-4,5
NEXT (dB)	5.3	4.9	5.3	4.9
Freq. (MHz)	499.0	499.0	499.0	499.0
Limit (dB)	29.3	29.3	29.3	29.3
Worst Pair	4,5	4,5	4,5	4,5
PS NEXT (dB)	5.0	5.7	5.2	5.7
Freq. (MHz)	461.0	499.0	498.0	499.0
Limit (dB)	27.2	26.4	26.4	26.4

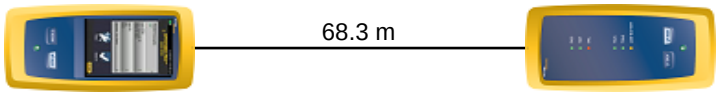
PASS	MAIN	SR	MAIN	SR
Worst Pair	7,8-4,5	4,5-7,8	7,8-4,5	4,5-7,8
ACR-F (dB)	13.3	13.6	13.3	13.6
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	11.3	11.3	11.3	11.3
Worst Pair	4,5	4,5	4,5	4,5
PS ACR-F (dB)	14.0	15.8	14.0	15.8
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	8.3	8.3	8.3	8.3

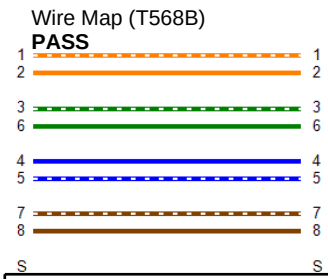
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	3,6-4,5	3,6-4,5	3,6-4,5
ACR-N (dB)	9.4	9.1	9.6	9.2
Freq. (MHz)	448.0	499.0	500.0	500.0
Limit (dB)	-8.9	-12.3	-12.4	-12.4
Worst Pair	4,5	3,6	3,6	3,6
PS ACR-N (dB)	8.8	9.4	9.0	9.4
Freq. (MHz)	461.0	500.0	500.0	500.0
Limit (dB)	-12.6	-15.3	-15.3	-15.3

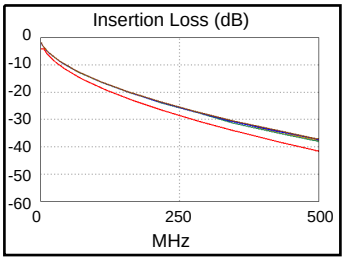
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5	4,5	4,5	4,5
RL (dB)	6.3	3.2	7.1	3.2
Freq. (MHz)	6.5	500.0	449.0	500.0
Limit (dB)	21.0	8.0	8.0	8.0

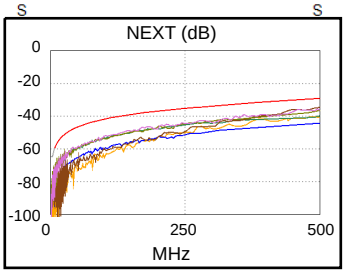
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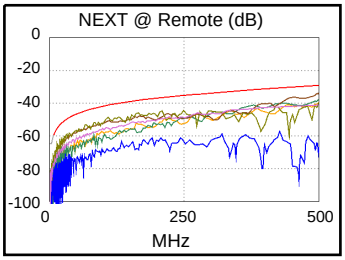
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	2.5GBASE-T	5GBASE-T
10GBASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

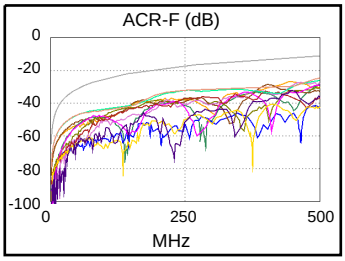


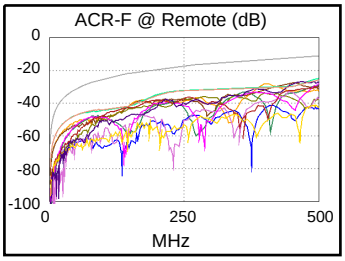


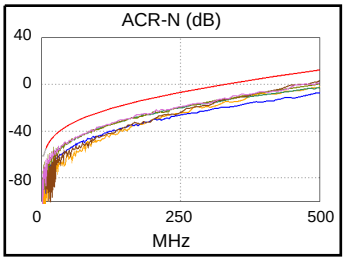


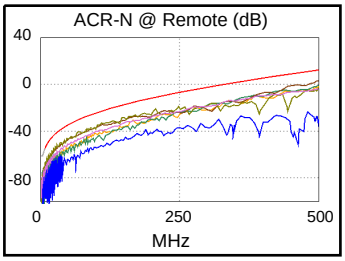


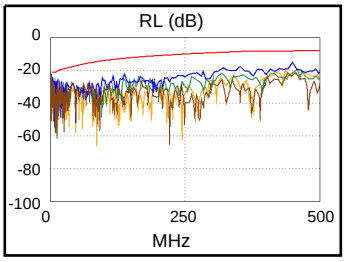


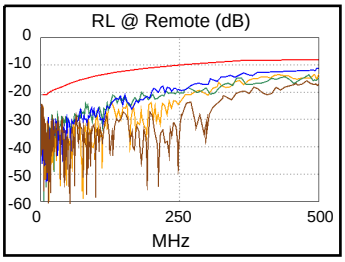






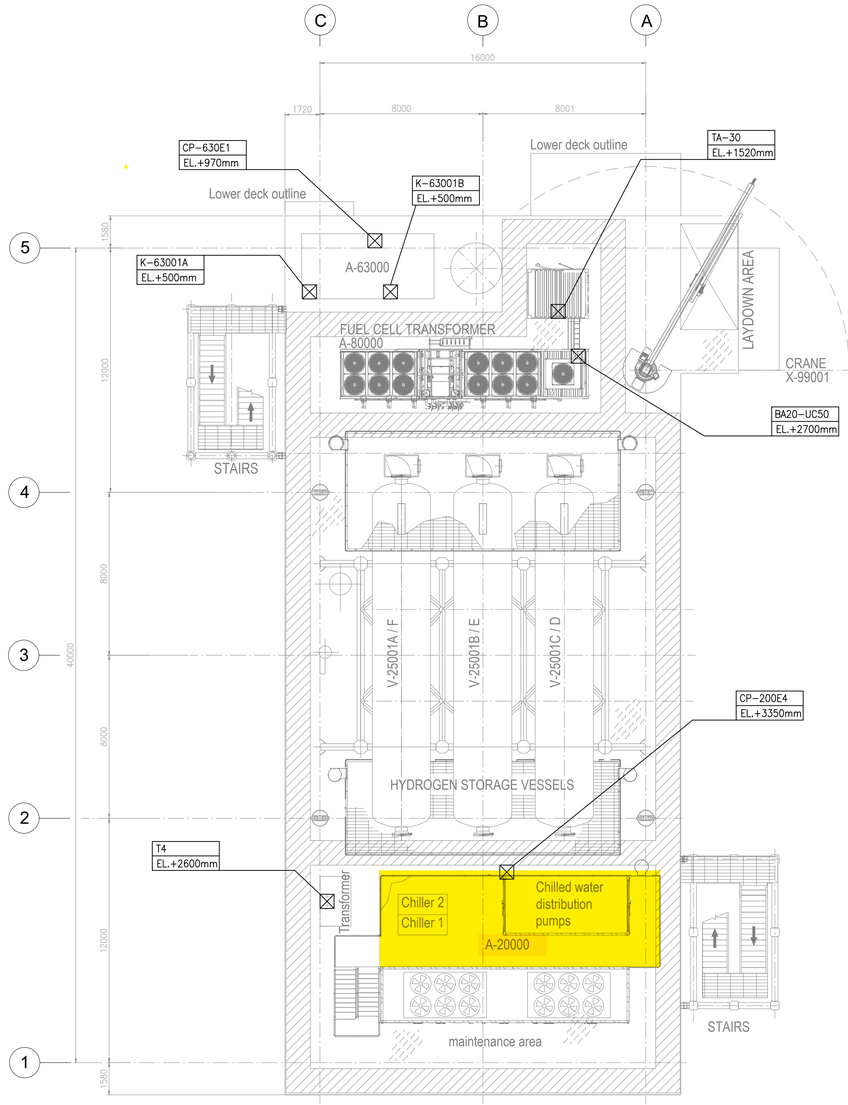




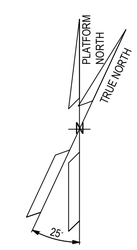


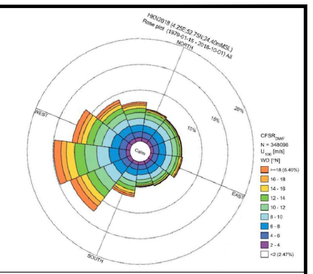
DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.





NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2	TAG ITEM
EL.+500mm	REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

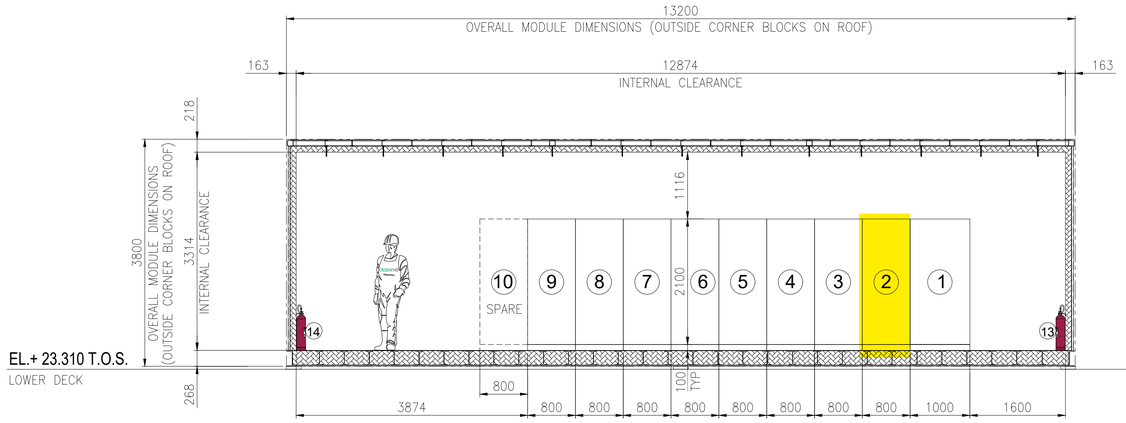
TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

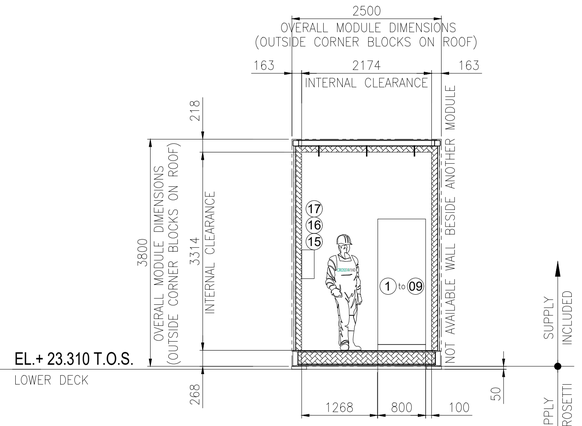
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File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

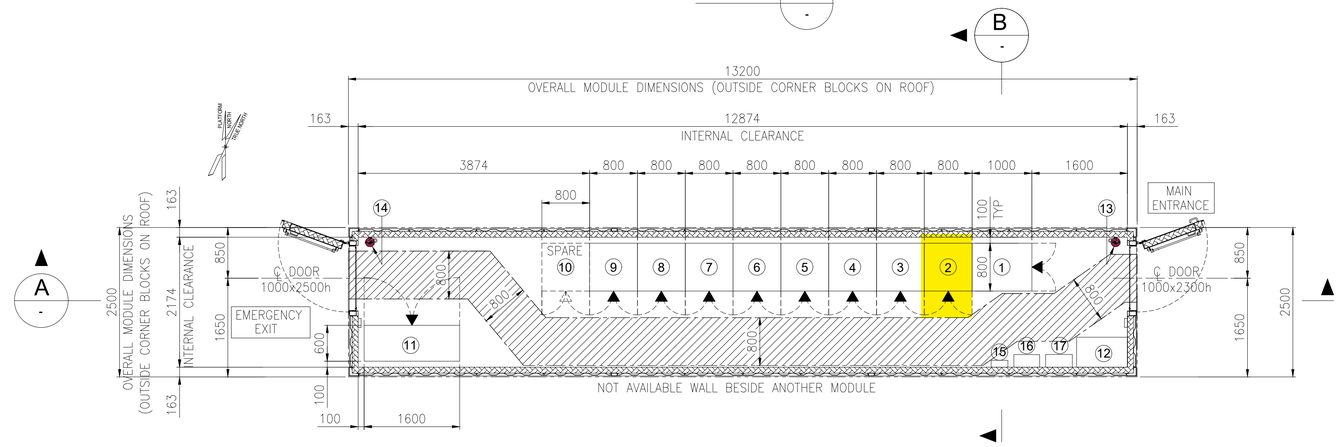
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



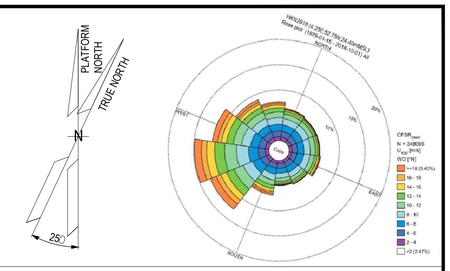
SECTION B -



EQUIPMENT LAYOUT
"B-400" I&T EQUIPMENT ROOM
BOTTOM PLAN

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	B400-SRV-001	SERVER CABINET	1000	800	2100	
2	B400-NET-001	NETWORK CABINET	800	800	2100	
3	B400-EMCS-001	EMCS SYSTEM CABINET	800	800	2100	
4	B400-PCS-002	PCS MARSHALLING CABINET	800	800	2100	
5	B400-PCS-001	PCS SYSTEM CABINET 03	800	800	2100	
6	B400-FGS-003	FGS MARSHALLING CABINET 2	800	800	2100	
7	B400-FGS-002	FGS MARSHALLING CABINET 1	800	800	2100	
8	B400-FGS-001	FGS SYSTEM CABINET	800	800	2100	
9	B400-SIS-001	SIS SYSTEM/MARSHALLING CABINET	800	800	2100	
10	-	SPARE				
11	B400-HSB-001	DISTRIBUTION & HVAC PANEL - I&T ROOM	1600	600	2300	
12	-	TABLE	850	500	750	
13	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
14	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
15	-	FIRST AID KIT	280	115	200	
16	-	RESUSCITATION UNIT	430	210	480	
17	-	CABINET INCLUDED N.10 ESCAPE MASK	448	213	422	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DOCUMENT VALID ONLY FOR INSTRUMENT COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.

LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR – WIDTH 800mm.
_____ EQUIPMENT ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

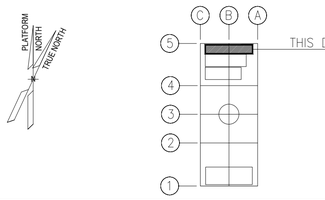
HOLDS

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REFERENCE

DOCUMENT TITLE	DOCUMENT NUMBER
Control System Architecture Detailed Drawings	123A90-DDL-IN-DD-40096
Data Network Architecture Drawings	123A90-DDL-IN-DD-40019
Earthing layouts drawings (CCR, ITER)	123A90-DDL-IN-DL-40013
Instrument and Telecom MCT Layout – Lower Deck	123A90-DDL-IN-DL-40086
"B-400" I&T Equipment Room – Architectural Layout	123A90-DDL-AR-DL-10015
"B-400" ARCHITECTURAL GENERAL LAYOUT PLAN, WIEW, SECTIONS & TYP. DETAILS	123A90-DDL-AR-DL-10015
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DA-00017
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DD-00021
"B-400" HVAC SYSTEM G.A. and DETAILS	1724000049-HV-DA-00067

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	27/05/24	MGA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	22/01/24	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)
00	07/11/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND — ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40012**

REV.:	DATE:	SIGNATURE:
3_A	07/10/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
OFF-SHORE ITER
EQUIPMENT LAYOUT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:33,3
DRAWN MGA	CHECKED LCA	APPROVED DLO	DATE 27/05/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40012	SHEET 001	REV. 03

File Name : 123A90-DDL-IN-DL-40012 Rev.03.dwg

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

FIELD				I&T EQUIPMENT ROOM (ITER B400)		
				NETWORK CABINET - B400-NET-001		
				<01>		
BESS (A-85000) P320 PLC	ITEM: NOTE 5 PORT: NOTE 5	RJ45	P320PLC/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P01	
BESS (A-85000) P320 PLC	ITEM: NOTE 5 PORT: NOTE 5	RJ45	P320PLC/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P11	
ELECTROLYSER (A-20000) 20-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	20-UCP-001/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P02	
ELECTROLYSER (A-20000) 20-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	20-UCP-001/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P09	
FUEL CELL (A-80000) 80-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	80-UCP-001/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P10	
FUEL CELL (A-80000) 80-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	80-UCP-001/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P03	

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_H	24/01/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
COMMUNICATION – CAT-6

CONTRACT NO./TITLE			SCALE 1:1
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-IN-DG-40015	037	01

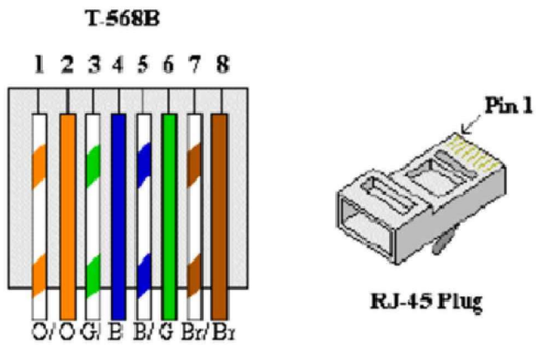
File Name : 123A90-DDL-IN-DG-40015_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



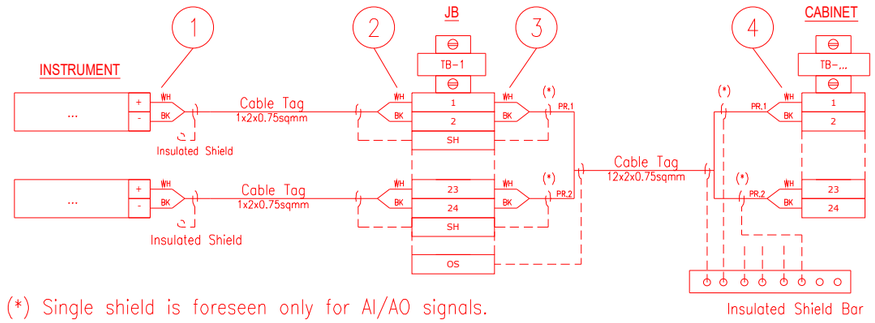
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

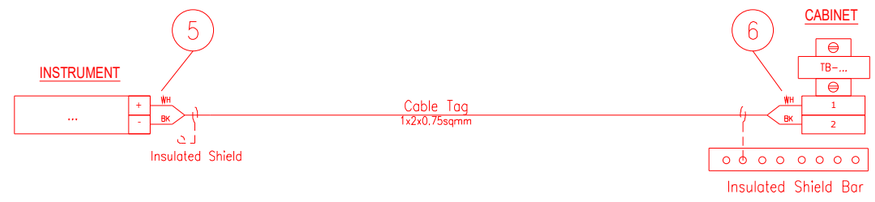
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

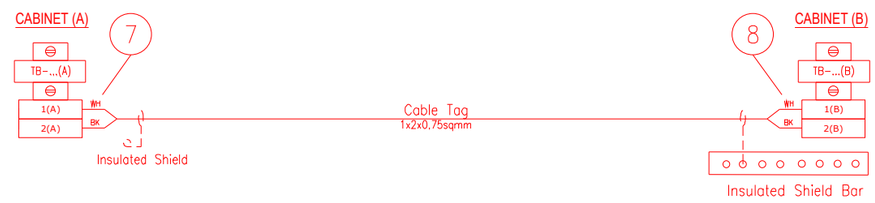
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_H	24/01/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

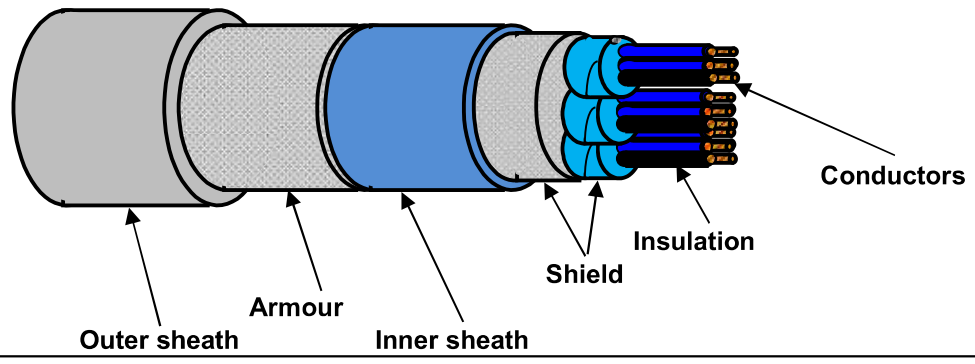
File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
20-UCP-001/B400-NET-001.01	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						20-UCP-001	Communication	Upper Deck	B400-NET-001	Network Cabinet / EMCS System	Lower Deck (B-400)	TELCV03-4X2X23AWG	Cable CAT 6A S/FTP 4x2x23AWG Armoured LSZH - Grey	M20S	n.a.			n.a.				I-MCT-U05 / L-SEC-15 / L-SEC-1L / L-SEC-1J / L-SEC-1I / L-SEC-1H / L-SEC-1G / L-SEC-1F / L-SEC-1E / L-SEC-1D / L-SEC-1C / L-SEC-1B / L-SEC-1A / B-400-SEC-3A / B-400-SEC-2I / B-400-SEC-2G / B-400-SEC-2E / B-400-SEC-2C / B-400-SEC-3B / I-MCT-402

FLEI s.r.l.

CAT. 6A S/FTP ARMOURED LSZH

4X2X23AWG - Based on Draka UC500 HS23



TECHNICAL FEATURES

Conductors :	**SOLID** plain annealed copper wires (AWG23) **ø 0,56 mm**
Insulation :	Foamskin PE - **ø 1,38 mm**
Cores colour code :	**blue/white; orange/white; green/white; brown/white**
Pair Assembling :	Cores twisted in pairs
Pair Shield :	Al-laminated plastic foil
Overall Shield:	Tinned copper braid
Inner sheath :	Extruded LSZH Thermoplastic Compound
Inner sheath color code:	**Blue**
Armour :	**Galvanized Steel Wire Braid Armour (coverage ≥ 90%)**
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm
Outer sheath color code:	**Grey**
Outer printing (INKJET) :	**FLEI - 4X2X23AWG - CAT.6A S/FTP ARMOURED LSZH - IEC 60332.1.2 - IEC 60332.3.22 -**
(every 1000 mm)	**Year of Manufacture - CE + Meter Marking**
Under armour diameter :	(7,5 ± 10%) mm
Over armour diameter :	(8,3 ± 10%) mm
Outer diameter :	(10,7 ± 10%) mm
Bending radius :	cable outer diameter x 8 (in fixed installation)
Test Voltage :	1000 V DC for 1' (Between Cores) / 1000 V DC for 1' (Between Cores - Shield)
Loop Resistance :	≤ 154 Ω/Km (@ 20°C)
Insulation Resistance :	≥ 2000 MΩ x km (@ 20°C)
Mutual Capacitance :	Nom. 43 nF/km
Characteristic Impedance :	(100 ± 5) Ω
Applicable Standards	
Design Guidelines :	**Generally to ISO/IEC 11801 / IEC 61156-5 / EN 50173-1 / EN 50288-10 / IEEE 802.3at / af / bt**
ON COMPLETE CABLE	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22
Acid Gas generation :	IEC 60754.1/2
Smoke density/Light Transm	IEC 61034.2 (LT ≥ 60%)
Hazardous Areas :	IEC 60079.14 par.9.3.2a
Temperature Range :	
ON COMPLETE CABLE	
During Operation :	(-20°C up to +60°C) (in fixed installation)
During installation :	(0°C up to +50°C)
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner Sheath together with correct ATEX approved equipment or accessories.**

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/05/2024	Messa			
Checked :	29/05/2024	Spaccasassi			
Approved :	29/05/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	20-UCP-001/B400-NET-001.02	: COMMUNICATION / NETWORK CABINET		Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	20-00	: Electrolyser Package (A-20000)		Module	UD/LD_B-400	
TASK	code	C10004347		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Telecom	Form	CIX09 Telecom Cable RJ45

CABLE DATA

Type	FTP-LSZH-IS-OS-SWB-LSZH	Cores/Size mm²	4X2X23AWG mm2	Color	GREY
From	20-UCP-001		To	B400-NET-001	

1	Confirm cable is as specified in project cable schedule	OK
2	Check cable physical integrity.	OK
3	Check is installed in accordance with layout drawing (segregation, distance…).	OK
4	Check cable is supported and fixed to rack according to project specification.	OK
5	Check bending radius is within the specified limits.	OK
6	Confirm cable glands suit for cable type, correctly mounted and tightened.	OK
7	Confirm cable labelling is in accordance with specifications.	PL
8	Check cable is correctly loomed and segregated in accordance with specification.	OK
9	Check proper fitting of heat shrink sleeves and cable glands (if applicable).	OK
10	Check cores marking are in accordance with termination diagram.	OK
11	Check terminations are in accordance with latest termination diagram.	OK
12	To roll up that measured lenght complies with pulled lenght.	OK
13	To roll up the cable complies with Cat. 5E performance requirements (250 Mhz).	OK
14	Attach LAN tester print out to this test sheet.	OK
15	if required produce Red Line Mark Up for "AS BUILT"	

Comments: Nota 5: refer to PL C30000680/C30000682

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Michele Tartaglia	Giovanni Tangianu	
Date	2025-01-28	2025-01-29	
Signature	PROVERLIS Digitaly signed by Michele Tartaglia 2025-01-28T07:51:34.613Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2025-01-29T13:57:57.099Z	

Cable ID: 20-UCP-001/B400-NET-001.02

Test Summary: PASS

Test Limit: ISO11801 PL2 Class Ea
Limits Version: V7.6
Date / Time: 27-01-2025 14:39:05
Headroom 2.9 dB (NEXT 1,2-3,6)
Cable Type: Cat 6A U/UTP
NVP: 68.2%

Main: Versiv
S/N: 2226344
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000 (DSX-PLA804)
S/N: 22340257

Remote: Versiv
S/N: 2226336
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000R (DSX-PLA804)
S/N: 22340270

Length (m), Limit 90.0	[Pair 4,5]	68.1
Prop. Delay (ns), Limit 496	[Pair 1,2]	341
Delay Skew (ns), Limit 43	[Pair 1,2]	8
Resistance (ohms), Limit 20.60	[Pair 3,6]	11.15
Insertion Loss Margin (dB)	[Pair 3,6]	3.9
Frequency (MHz)	[Pair 3,6]	500.0
Limit (dB)	[Pair 3,6]	41.6

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	1,2-3,6	3,6-4,5	1,2-4,5
NEXT (dB)	5.5	2.9	5.6	4.2
Freq. (MHz)	499.0	114.5	500.0	493.0
Limit (dB)	29.3	40.9	29.2	29.4
Worst Pair	4,5	3,6	4,5	3,6
PS NEXT (dB)	5.3	4.1	5.3	4.1
Freq. (MHz)	500.0	491.0	500.0	491.0
Limit (dB)	26.4	26.6	26.4	26.6

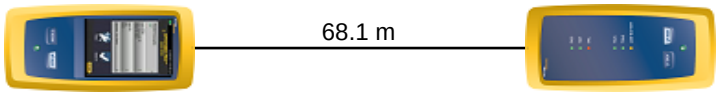
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5-7,8	7,8-4,5	4,5-7,8	7,8-4,5
ACR-F (dB)	11.3	11.0	12.1	11.7
Freq. (MHz)	267.0	260.0	500.0	500.0
Limit (dB)	16.7	16.9	11.3	11.3
Worst Pair	4,5	4,5	4,5	4,5
PS ACR-F (dB)	13.3	13.5	13.6	13.7
Freq. (MHz)	207.5	260.0	500.0	500.0
Limit (dB)	15.9	13.9	8.3	8.3

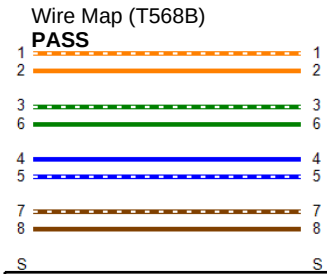
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	1,2-3,6	3,6-4,5	1,2-4,5
ACR-N (dB)	10.1	5.2	10.2	9.3
Freq. (MHz)	499.0	114.5	500.0	498.0
Limit (dB)	-12.3	22.0	-12.4	-12.3
Worst Pair	3,6	1,2	3,6	3,6
PS ACR-N (dB)	9.5	7.2	9.6	8.5
Freq. (MHz)	499.0	114.5	500.0	500.0
Limit (dB)	-15.2	19.4	-15.3	-15.3

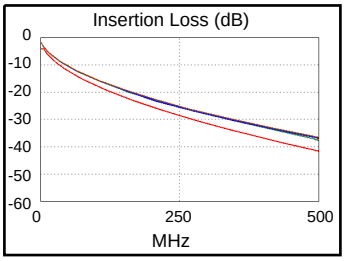
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6	4,5	4,5	4,5
RL (dB)	6.5	2.0	6.9	2.0
Freq. (MHz)	4.9	424.0	500.0	424.0
Limit (dB)	21.0	8.0	8.0	8.0

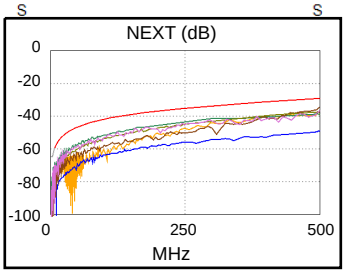
Compliant Network Standards:

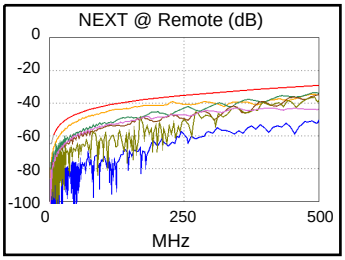
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	2.5GBASE-T	5GBASE-T
10GBASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

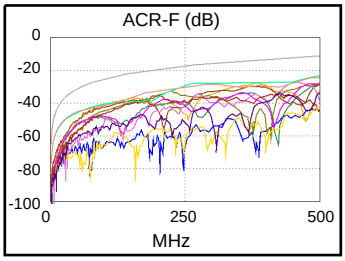


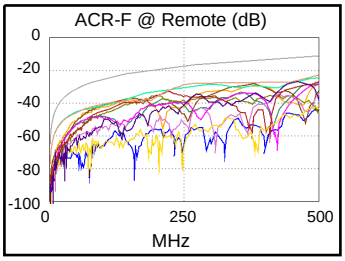


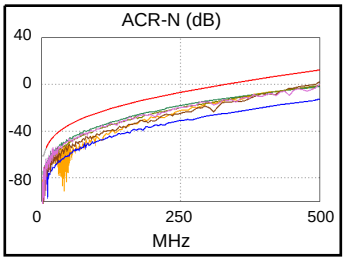


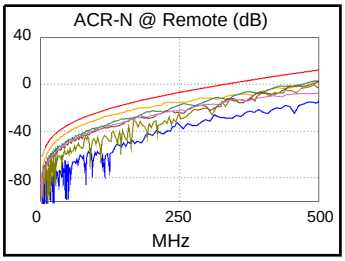


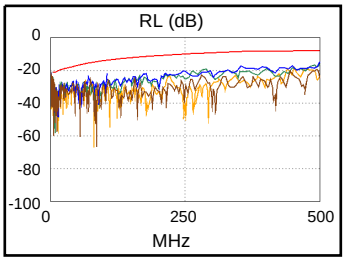


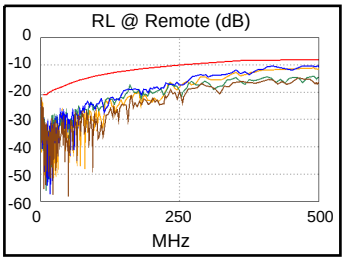












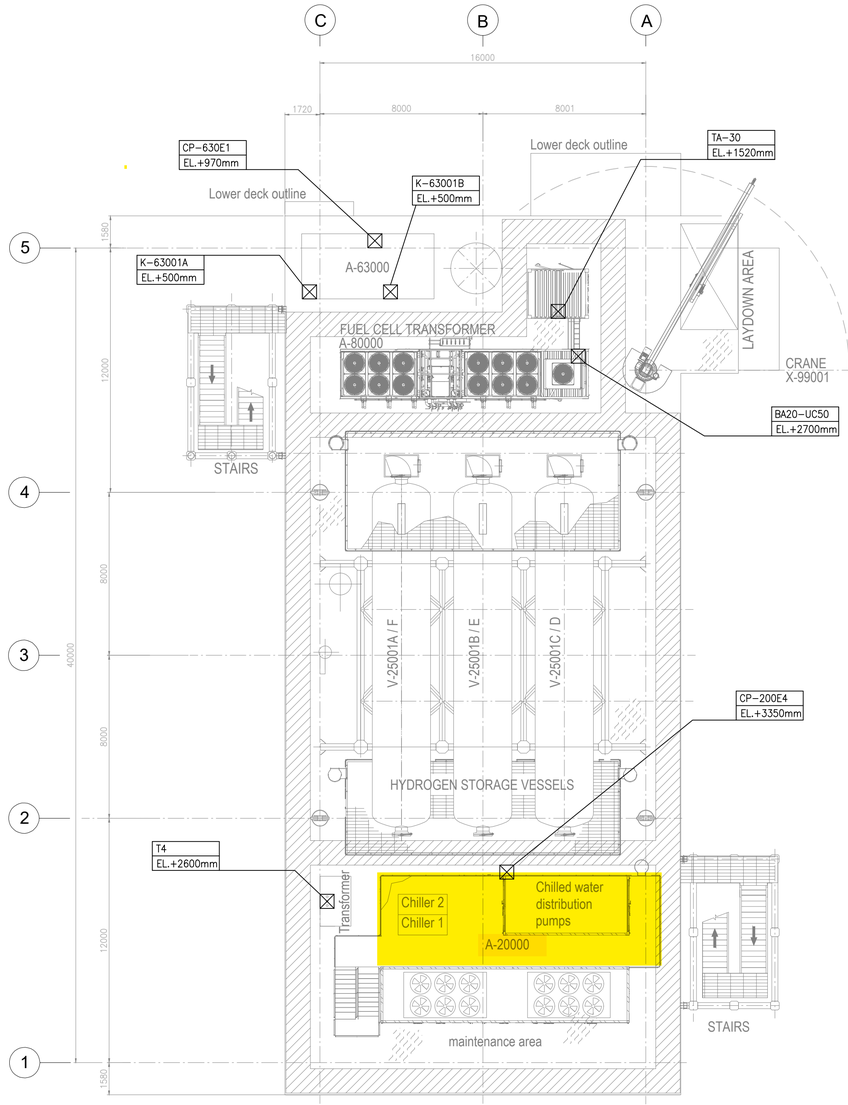
LinkWare™ PC Version 11.4

Project: CROSSWIND
Site: Not Set
Floor: Not Set
Rack: Not Set
CrossWind.flw

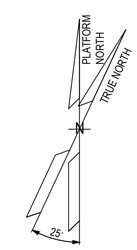
Building: Not Set
Room: Not Set
Patch: Not Set

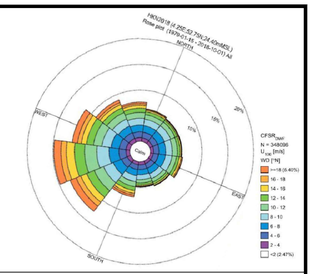
DRAWING NO. 123A90-DDL-EL-DL-20100

REV. 01



PLAN ON TOP DECK
EL+30.310 T.O.S.





NOTES

1. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS IN METERS. UNLESS NOTED OTHERWISE.
3. ELEVATIONS REFER TO T.O.S. UNLESS NOTED OTHERWISE.
4. AFTER INTERFACE PANEL/BATTERY LIMIT CABLES WILL BE ROUTED INSIDE VENDOR CABLETRAYS

LEGEND

⊠	INTERFACE PANEL/BATTERY LIMIT
JB-200E2	TAG ITEM
EL.+500mm	REFERED ELEVATION TO T.O.S. (TOP OF STEEL)

HOLDS

REFERENCE DOCUMENTS

123A90-DDL-PP-DL-70070	PLOT PLAN - LOWER & UPPER DECK
123A90-DDL-EL-DL-20140	ELECTRICAL HEAT TRACING JUNCTION BOX LAYOUT
123A90-DDL-EL-DL-20118	LIGHTING & SOCKET LAYOUT - TOP DECK

INSERT SUBCONTRACTOR / VENDOR LOGO HERE

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	22/07/24	SPS	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	29/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20100**

REV.:	DATE:	SIGNATURE:
1_A	08/08/24	G.Randi

ROSETTI MARINO SpA

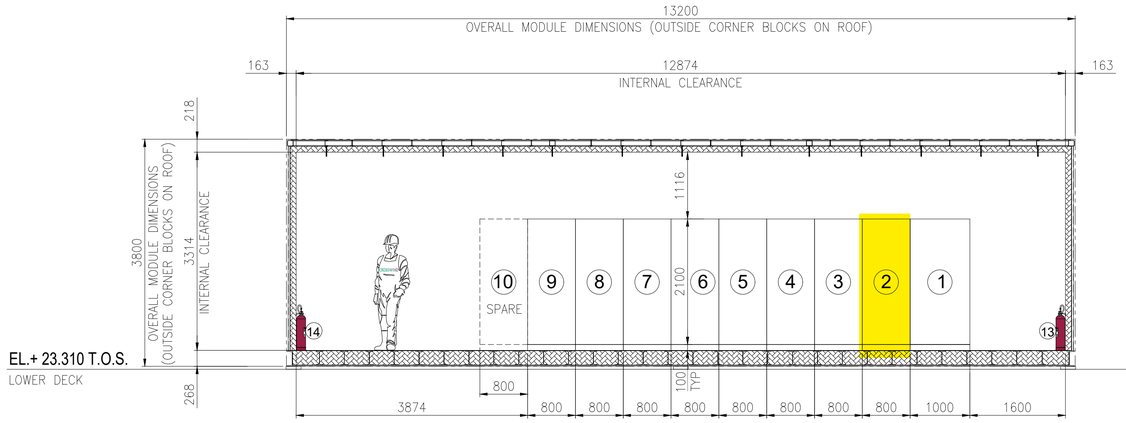
TITLE :
BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
TOP DECK

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:150
DRAWN SPS	CHECKED FMA/AMA	APPROVED FPA/DLO	DATE 22/07/24

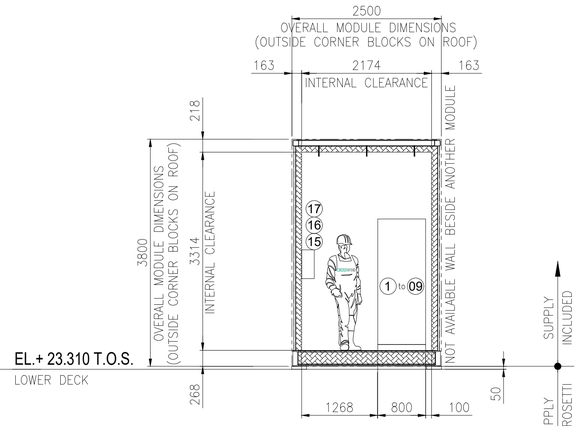
A1	DRAWING NO. 123A90-DDL-EL-DL-20100	SHEET 001	REV. 01

File Name : 123A90-DDL-EL-DL-20100-Electrical Equipment Layout - Top Deck

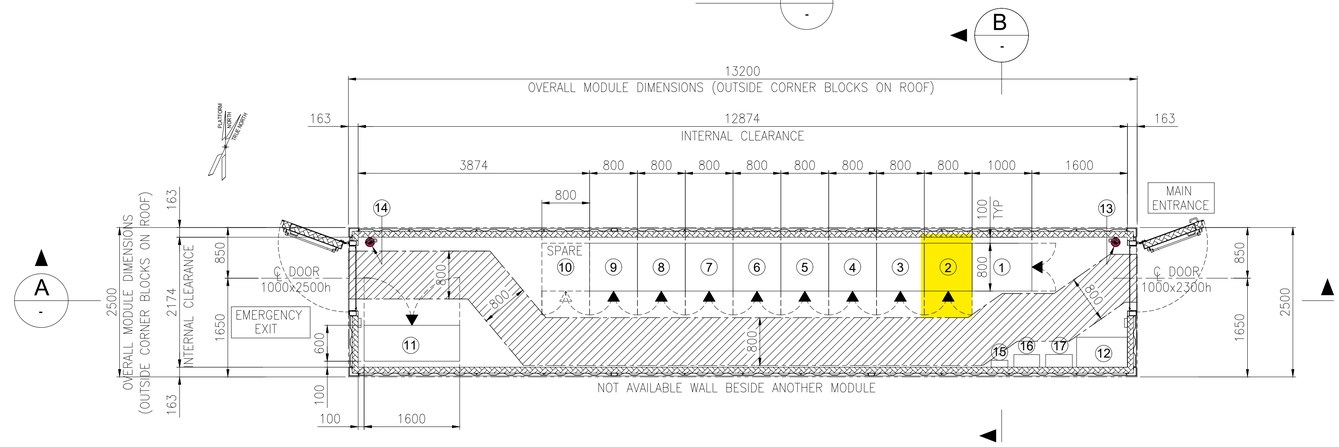
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



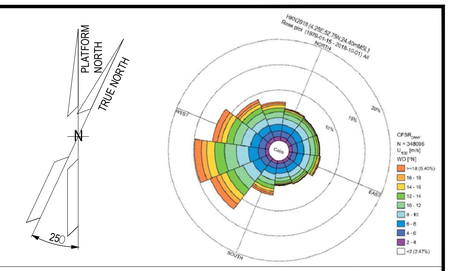
SECTION B -



EQUIPMENT LAYOUT
"B-400" I&T EQUIPMENT ROOM
BOTTOM PLAN

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
1	B400-SRV-001	SERVER CABINET	1000	800	2100	
2	B400-NET-001	NETWORK CABINET	800	800	2100	
3	B400-EMCS-001	EMCS SYSTEM CABINET	800	800	2100	
4	B400-PCS-002	PCS MARSHALLING CABINET	800	800	2100	
5	B400-PCS-001	PCS SYSTEM CABINET 03	800	800	2100	
6	B400-FGS-003	FGS MARSHALLING CABINET 2	800	800	2100	
7	B400-FGS-002	FGS MARSHALLING CABINET 1	800	800	2100	
8	B400-FGS-001	FGS SYSTEM CABINET	800	800	2100	
9	B400-SIS-001	SIS SYSTEM/MARSHALLING CABINET	800	800	2100	
10	-	SPARE				
11	B400-HSB-001	DISTRIBUTION & HVAC PANEL - I&T ROOM	1600	600	2300	
12	-	TABLE	850	500	750	
13	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
14	-	PORTABLE EXTINGUISHER (CO2) 5 Kg.	150	150	750	
15	-	FIRST AID KIT	280	115	200	
16	-	RESUSCITATION UNIT	430	210	480	
17	-	CABINET INCLUDED N.10 ESCAPE MASK	448	213	422	



NOTES

1. U.N.O. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DOCUMENT VALID ONLY FOR INSTRUMENT COMPONENT, FOR OTHER SCOPE LOCATION AND INFORMATION, PLEASE REFER TO VENDORS AND PROJECT DOCUMENTS.

LEGEND

U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR – WIDTH 800mm.
_____ EQUIPMENT ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

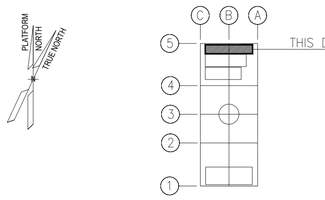
HOLDS

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REFERENCE

DOCUMENT TITLE	DOCUMENT NUMBER
Control System Architecture Detailed Drawings	123A90-DDL-IN-DD-40096
Data Network Architecture Drawings	123A90-DDL-IN-DD-40019
Earthing layouts drawings (CCR, ITER)	123A90-DDL-IN-DL-40013
Instrument and Telecom MCT Layout – Lower Deck	123A90-DDL-IN-DL-40086
"B-400" I&T Equipment Room – Architectural Layout	123A90-DDL-AR-DL-10015
"B-400" ARCHITECTURAL GENERAL LAYOUT PLAN, WIEW, SECTIONS & TYP. DETAILS	123A90-DDL-AR-DL-10015
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DA-00017
"B-400" GENERAL ARRANGEMENT DRAWING	1724000049-AR-DD-00021
"B-400" HVAC SYSTEM G.A. and DETAILS	1724000049-HV-DA-00067

KEY PLAN



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	04/10/24	VBA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
02	27/05/24	MGA	LCA	DLO	ACCEPTED FOR CONSTRUCTION (AFC)
01	22/01/24	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)
00	07/11/23	VBA	LCA	DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND — ROSETTI MARINO

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DL-40012**

REV.:	DATE:	SIGNATURE:
3_A	07/10/24	G.Randi

ROSETTI MARINO SpA

TITLE : BASE LOAD POWER HUB (BLPH)
OFF-SHORE ITER
EQUIPMENT LAYOUT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:33,3
DRAWN MGA	CHECKED LCA	APPROVED DLO	DATE 27/05/24
A1	DRAWING NO. 123A90-DDL-IN-DL-40012	SHEET 001	REV. 03

File Name : 123A90-DDL-IN-DL-40012 Rev.03.dwg

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

FIELD				I&T EQUIPMENT ROOM (ITER B400)		
				NETWORK CABINET - B400-NET-001		
				<01>		
BESS (A-85000) P320 PLC	ITEM: NOTE 5 PORT: NOTE 5	RJ45	P320PLC/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P01	
BESS (A-85000) P320 PLC	ITEM: NOTE 5 PORT: NOTE 5	RJ45	P320PLC/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P11	
ELECTROLYSER (A-20000) 20-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	20-UCP-001/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P02	
ELECTROLYSER (A-20000) 20-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	20-UCP-001/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P09	
FUEL CELL (A-80000) 80-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	80-UCP-001/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P10	
FUEL CELL (A-80000) 80-UCP-001	ITEM: NOTE 5 PORT: NOTE 5	RJ45	80-UCP-001/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,~~GREEN~~,NIS GREY	RJ45	SWITCH: COOP-02 PORT: P03	

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_H	24/01/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
COMMUNICATION – CAT-6

CONTRACT NO./TITLE			SCALE 1:1
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO.	SHEET	REV.
	123A90-DDL-IN-DG-40015	037	01

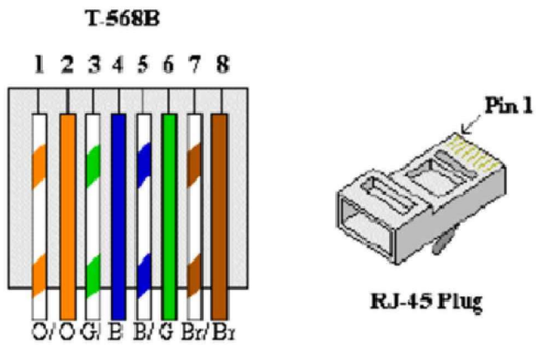
File Name : 123A90-DDL-IN-DG-40015_Rev.01

DRAWING NO. 123A90-DDL-IN-DG-40015

REV. 01

NOTES:

1. ALL SPARE ENTRIES SHALL BE PROVIDED WITH CERTIFIED EX PROOF PLUGS.
2. CABLE SCREENS / DRAIN WIRE SHALL BE SECURELY INSULATED AND TIED BACK IN THE INSTRUMENT SIDE AND SHAL BE TERMINATED IN THE MARSHALLING SIDE OF THE PANEL.
3. SPARE PAIRS / TRIADS SHALL BE CONNECTED TO TERMINALS IN JUNCTION BOX AND PANEL / MARSHALLING CABINETS.
4. ALL CABLE SCREENS TO BE TERMINATED AT THE INSTRUMENT EARTH BAR IN THE RESPECTIVE EARTH BARS (IS OR NIS) AS APPLICABLE IN THE MARSHALLING CABINET.
5. SWITCH TAG NAME AND PORT WILL BE DEFINED DURING THE CONSTRUCTION PHASE
6. FOR OPTICAL FIBERS, USE THE FOLLOWING COLOR CODING:
   - 01- RED
   - 02- GREEN
   - 03- BLUE
   - 04- YELLOW
   - 05- GREY
   - 06- PURPLE
   - 07- BROWN
   - 08- ORANGE
   - 09- WHITE
   - 10- PINK
   - 11- BLACK
   - 12- TURQUOISE
7. CAT.6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



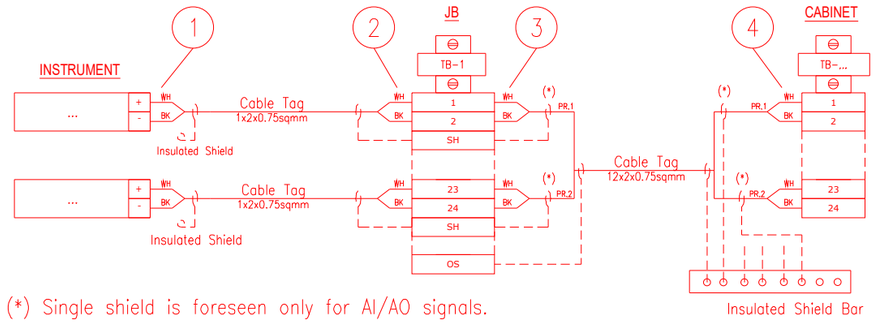
8. FOR INTRISICALLY SAFE CIRCUIT USE LIGHT BLUE CABLE OR ALTERNATIVELY ORANGE CABLE WITH HEAT SHRINKABLE SLEEVE BLUE AT BOTH END (SEE DOC. 123A90-FDL-IN-DD-40017).

LEGENDS & SYMBOLS:

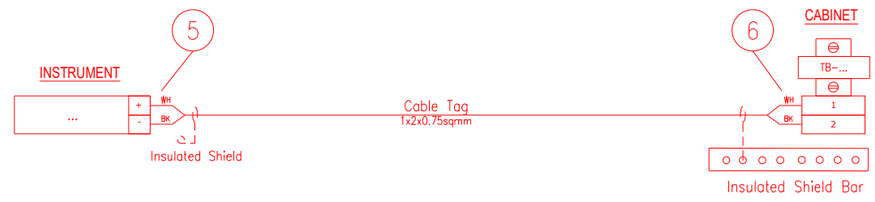
I.E.	- GREEN ⟶ INSTRUMENT SIGNAL EARTH
P.E.	- GREEN / YELLOW ⟶ P.E. EARTH / BONDING
	- TERMINAL BLOCK (TB)
WH	- WHITE
BK	- BLACK
RD	- RED
S	- SHIELD TERMINAL
OS	- OVERALL SHIELD TERMINAL
O/A Shld	- OVERALL SHIELD
I&O/A Shld	- INDIVIDUAL & OVERALL SHIELD
NIS	- NON INTRINSICALLY SAFE
IS	- INTRINSICALLY SAFE
P.E.	- PLANT EARTH
PCS	- PROCESS CONTROL SYSTEM
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS

PHILOSOPHY OF CROSS-FERRULING:

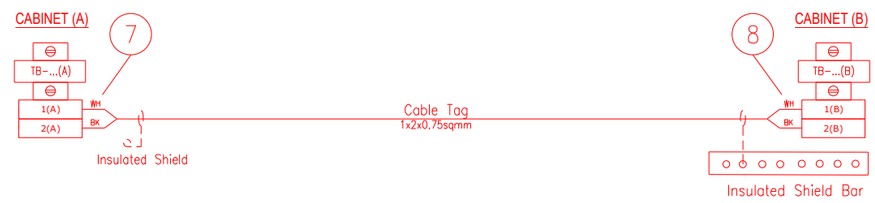
INSTRUMENT CONNECTION THROUGH MARSHALLING JB TO CABINET



INSTRUMENT CONNECTION STRAIGHT TO CABINET



CABINET CONNECTION TO CABINET



1 - INSTR. TERMINAL NO. OR POLARITY / JB TAG / JB TERMINAL NO.
2 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / JB TERMINAL NO.
3 - JB TERMINAL NO. / JB TERMINAL STRIP / CABINET TERMINAL STRIP / PAIR OR CORE NO.
4 - PAIR OR CORE NO. / JB TAG / JB TERMINAL NO. / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
5 - INSTR. TERMINAL NO. OR POLARITY / CABINET TAG / CABINET TERMINAL STRIP / CABINET TERMINAL NO.
6 - INSTR. TERMINAL NO. OR POLARITY / INSTR. TAG / CABINET TERMINAL STRIP/ CABINET TERMINAL NO.
7 - TERMINAL NO. (A) / TERMINAL STRIP (A) / CABINET TAG (B) / CABINET TERMINAL NO. (B) / PAIR OR CORE NO.
8 - PAIR OR CORE NO. / CABINET TERMINAL NO. (A) / CABINET TAG (A) / TERMINAL STRIP (B) / TERMINAL NO. (B)

NOTES: A - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
HEAT SHRINKABLE BLUE FOR SHIELD OF IS INSTRUMENT CABLE.
B - ABOVE DESCRIBED PHILOSOPHY IS INTENDED FOR CONNECTION AS REPRESENTED:
IN CASE OF CONNECTION FROM THE OPPOSITE SIDE, ORDER OF FERULE TAG SHALL BE MIRRORED.
C - SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO SHIELDS TERMINATED ON TERMINAL STRIP.

REFERENCE DRAWINGS:

PIPING AND INSTRUMENT DIAGRAM 123A90-DDL-PR-PID-80009
INSTRUMENT INDEX 123A90-DDL-IN-LIS-40088
F&G DETECTORS LAYOUT 123A90-DDL-SAF-DL-30027

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_H	24/01/25	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
INSTRUMENT – PCS WIRING DIAGRAMS
GENERAL NOTES/LEGENDS

CONTRACT NO./TITLE			SCALE N/A
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

A3	DRAWING NO. 123A90-DDL-IN-DG-40015	SHEET 003	REV. 01

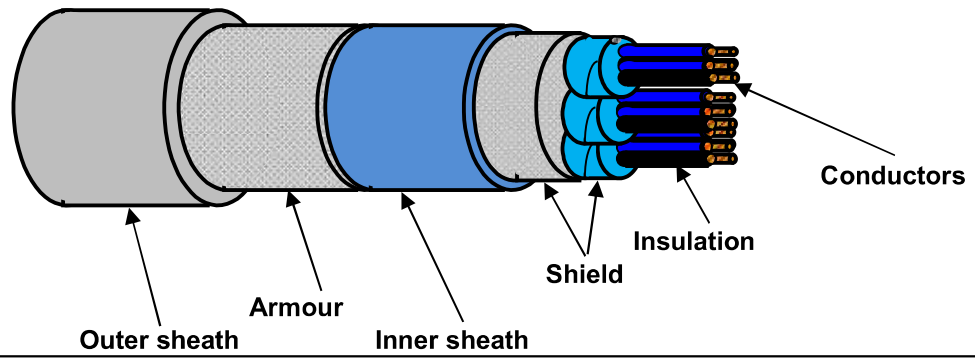
File Name : 123A90-DDL-IN-DG-40015_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Function	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Stand	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
20-UCP-001/B400-NET-001.02	Cable	IN	VFC	123A90-DDL-IN-US-40091						20-UCP-001	Communication	Upper Deck	B400-NET-001	Network Cabinet / EMCS System	Lower Deck (B-400)	TELCV03-4X2X23AWG	Cable CAT 6A S/FTP 4x2x23AWG Armoured LSZH - Grey	M20S	n.a.			n.a.				I-MCT-UJ05 / L-SEC-1S / L-SEC-1L / L-SEC-1J / L-SEC-1I / L-SEC-1H / L-SEC-1G / L-SEC-1F / L-SEC-1E / L-SEC-1D / L-SEC-1C / L-SEC-1B / L-SEC-1A / B-400-SEC-3A / B-400-SEC-2I / B-400-SEC-2G / B-400-SEC-2E / B-400-SEC-2C / B-400-SEC-3B / I-MCT-402

FLEI s.r.l.

CAT. 6A S/FTP ARMOURED LSZH

4X2X23AWG - Based on Draka UC500 HS23



TECHNICAL FEATURES

Conductors :	**SOLID** plain annealed copper wires (AWG23) **ø 0,56 mm**
Insulation :	Foamskin PE - **ø 1,38 mm**
Cores colour code :	**blue/white; orange/white; green/white; brown/white**
Pair Assembling :	Cores twisted in pairs
Pair Shield :	Al-laminated plastic foil
Overall Shield:	Tinned copper braid
Inner sheath :	Extruded LSZH Thermoplastic Compound
Inner sheath color code:	**Blue**
Armour :	**Galvanized Steel Wire Braid Armour (coverage ≥ 90%)**
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, moisture/abrasion/UV Resistant, Average Thickness 1,2 mm
Outer sheath color code:	**Grey**
Outer printing (INKJET) :	**FLEI - 4X2X23AWG - CAT.6A S/FTP ARMOURED LSZH - IEC 60332.1.2 - IEC 60332.3.22 -**
(every 1000 mm)	**Year of Manufacture - CE + Meter Marking**
Under armour diameter :	(7,5 ± 10%) mm
Over armour diameter :	(8,3 ± 10%) mm
Outer diameter :	(10,7 ± 10%) mm
Bending radius :	cable outer diameter x 8 (in fixed installation)
Test Voltage :	1000 V DC for 1' (Between Cores) / 1000 V DC for 1' (Between Cores - Shield)
Loop Resistance :	≤ 154 Ω/Km (@ 20°C)
Insulation Resistance :	≥ 2000 MΩ x km (@ 20°C)
Mutual Capacitance :	Nom. 43 nF/km
Characteristic Impedance :	(100 ± 5) Ω
Applicable Standards	
Design Guidelines :	**Generally to ISO/IEC 11801 / IEC 61156-5 / EN 50173-1 / EN 50288-10 / IEEE 802.3at / af / bt**
ON COMPLETE CABLE	
Flame Retardant test :	IEC 60332.1.2 - IEC 60332.3.22
Acid Gas generation :	IEC 60754.1/2
Smoke density/Light Transm	IEC 61034.2 (LT ≥ 60%)
Hazardous Areas :	IEC 60079.14 par.9.3.2a
Temperature Range :	
ON COMPLETE CABLE	
During Operation :	(-20°C up to +60°C) (in fixed installation)
During installation :	(0°C up to +50°C)
Note :	**To meet the requirements of installation and use in Zone 1 & Zone 2 (IEC 60079-14) and "Gas & Vapour Tight" the cable must be provided with Penetrating Inner Sheath together with correct ATEX approved equipment or accessories.**

Office	Date	Sign	Rev.	Date	Sign
Drawn by :	29/05/2024	Messa			
Checked :	29/05/2024	Spaccasassi			
Approved :	29/05/2024	Cucinotta			

The data provided, lending assent for the treatment, will be used to the sense of the article 13 of of the Regulation (UE) 2016/679, also through outsiders, in order to allow the realization of the fulfilments informatives, administrative, commercial and accounting related to the contractual relationship. Integral copy of the informative could be requested at our offices.

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Section 9 MECHANICAL COMPLETION STATUS INDEX - HVAC DISCIPLINE

NOT APPLICABLE

Section 10 MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE

NOT APPLICABLE

Section 11 MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE

NOT APPLICABLE

Section 12 FAT / VENDOR REPORTS

NOT APPLICABLE

Section 13 MECHANICAL COMPLETION CHANGES / MARK-UPS

NOT APPLICABLE