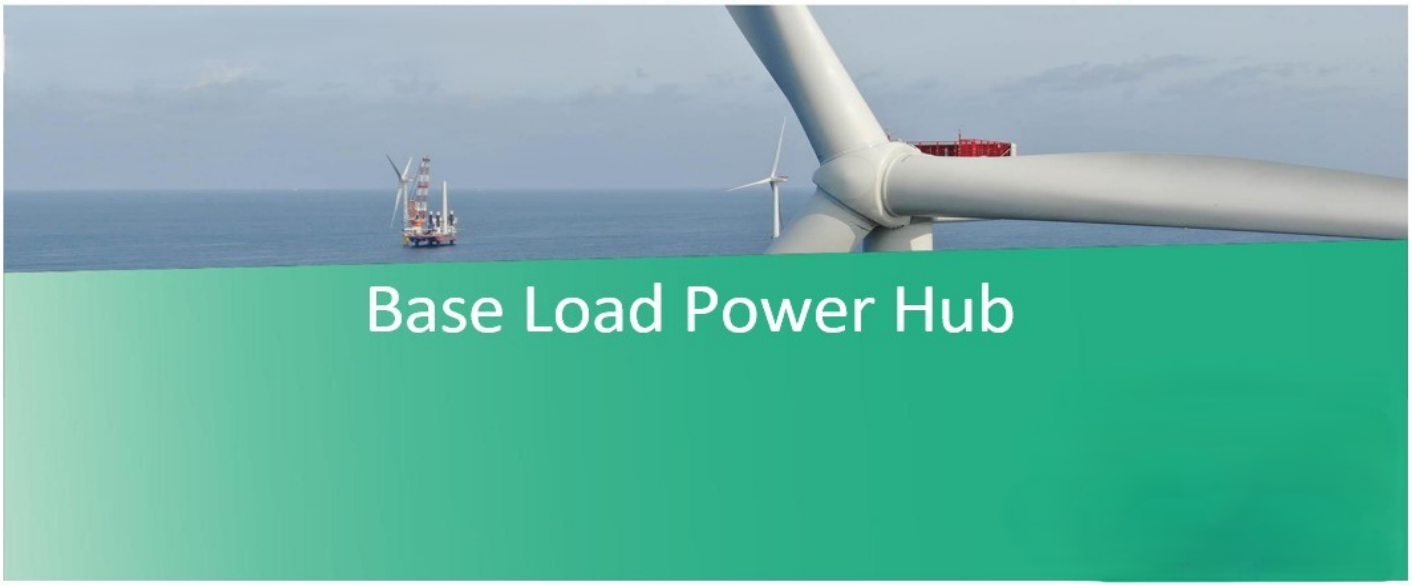
CROSSWIND

ROSETTI MARINO

PROVERLIS

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



MECHANICAL COMPLETION DOSSIER (ONSHORE)

SYSTEM	82 Main Power Distribution Medium Voltage 6.6 kV
SUBSYSTEM	82-00 MV 6.6 kV Switchboard (SG-100D1)

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

Sub System N°:	82-00	Tick as appropriate	ONSHORE	O
Description:	MV 6.6 kV Switchboard (SG-100D1)		OFFSHORE	NA

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*	NA
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*	NA
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*	NA
10.	***MECHANICAL COMPLETION STATUS INDEX - PIPING DISCIPLINE*** *Piping Sub-System Status Index and Check/Test Sheets*	NA
11.	***MECHANICAL COMPLETION INDEX - SAFETY DISCIPLINE*** *Safety Sub-System Status Index (Print out) and Check/Test Sheets*	NA
12.	***FAT / VENDOR REPORTS*** *Fat reports issued by vendors and/or vendor reports*	OK
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*	NA

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:	1		Issued on:	2024-11-29	
System:	82	/	Main Power Distribution Medium Voltage 6.6 kV		
SubSystem:	82-00	/	MV 6.6 kV Switchboard (SG-100D1)		

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	B
	'0	14

REMARKS:

	CONTRACTOR Construction Manager	**CONTRACTOR** Commissioning Manager	**COMPANY** Construction Lead (if required)	**COMPANY** Commissioning Lead (if required)
Name	Wolmer Borghi	Anthony Iveson	CPY NOT PRESENT	CPY NOT PRESENT
Date	2024-11-30	2024-11-30	2024-11-30	2024-11-30
Signature	PROVERLIS Digitaly signed by Wolmer Borghi 2024-11-30T09:39:14.470Z	PROVERLIS Digitaly signed by Anthony Iveson 2024-11-30T09:47:53.382Z	PROVERLIS Digitaly signed by CPY NOT PRESEN 2024-11-30T09:56:02.114Z	PROVERLIS Digitaly signed by CPY NOT PRESEN 2024-11-30T09:56:12.755Z

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 82-00 & process: MC

Electrical	82-00 MV 6.6 kV Switchboard (SG-100D1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
82013-CEC	6.6KV HV Switchgear / LV Switchgear	ONSHORE	C10002111	CPX10	100	2024-11-26	RFC 1
83005-CEC	LV Switchgear / 6.6KV HV Switchgear	ONSHORE	C10002112	CPX10	100	2024-11-22	RFC 1
83006-CEC	LV Switchgear / 6.6KV HV Switchgear	ONSHORE	C10002113	CPX10	100	2024-11-22	RFC 1
83119-CEL	Lighting & Small Power DB BoP / Auxiliary 6.6kV Switchboard	ONSHORE	C10000638	CPX09	100	2024-11-22	RFC 1
84103-CEL	DC UPS DB / DC Control for 6,6 kV Switchgear Line-A	ONSHORE	C10000567	CPX09	100	2024-11-22	RFC 1
84104-CEL	DC UPS DB / DC Control for 6,6 kV Switchgear Line-B	ONSHORE	C10000568	CPX09	100	2024-11-22	RFC 1
SG-100D1	MV 6,6kV Switchgear	ONSHORE	C10000864	CPX04	100	2024-09-12	RFC 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 82-00 & process: MC

Instrumental	82-00 MV 6.6 kV Switchboard (SG-100D1)

ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
C-SG-100D1-001/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	ONSHORE	C10000189	CJX10	100	2024-11-29	RFC 1
C-SG-100D1-002/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	ONSHORE	C10000190	CJX10	100	2024-11-29	RFC 1
C-SG-100D1-003/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	ONSHORE	C10000191	CJX10	100	2024-11-29	RFC 1

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 82-00 & process: MC

Telecom	82-00 MV 6.6 kV Switchboard (SG-100D1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
SG-100D1/B400-NET-001.01	MV 6,6kV Switchgear / Network Cabinet / EMCS System	ONSHORE	C10004361	CIX09	100	2024-11-22	RFC 1
SG-100D1/B400-NET-001.02	MV 6,6kV Switchgear / Network Cabinet / EMCS System	ONSHORE	C10004362	CIX09	100	2024-11-22	RFC 1
SG-100D1/B400-NET-001.03	MV 6,6kV Switchgear / Network Cabinet / EMCS System	ONSHORE	C10004363	CIX09	100	2024-11-22	RFC 1

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM	82	Main Power Distribution Medium Voltage 6.6 kV
SUBSYSTEM	82-00	MV 6.6 kV Switchboard (SG-100D1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000096	B	SG-100D1	Voltimeter broken. To be repiaced on column A5		New Voltimeter Installed.	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000097	B	SG-100D1	Track to be repiaced in TV compartment - column A5		Track replaced.	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000098	B	SG-100D1	Segregation plates to be installed		Installation	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000099	B	SG-100D1	Missing fuses 250A — column A4		Installed.	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000104	B	SG-100D1	All documentation shall be re-issued and approval in final revision after mark-up during FAT			SLinari 2024-08-02			
C30000108	B	SG-100D1 C10000864	Damage on roof for columns: A1/A3/A5/A7 (see attached pictures)	change roof	Problem fixed.	SLinari 2024-08-22	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000751	B	84104-CEL C10000568	Core identification tags are wrong on both terminations	.		Pschintu 2024-11-22			
C30000753	B	83119-CEL C10000638	Missing core identification tags by SG-100D1 side	.		Pschintu 2024-11-22			
C30000762	B	83005-CEC C10002112	Core identification tags are wrong or missing on both sides	.		Pschintu 2024-11-22			

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 82 Main Power Distribution Medium Voltage 6.6 kV

SUBSYSTEM 82-00 MV 6.6 kV Switchboard (SG-100D1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000763	B	82013-CEC C10002111	Missing core identification tags on both sides	.		Pschintu 2024-11-22			
C30000764	B	83006-CEC C10002113	Missing cable SS tags on external routing	.		Pschintu 2024-11-22			
C30000765	B	83006-CEC C10002113	Core identification tags are missing inside SG-200N1	.		Pschintu 2024-11-22			
C30000956	B	82013-CEC C10002111	Cable must be dressed properly inside and outside SG-100D1 panel	.		Pschintu 2024-11-26			

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 82 Main Power Distribution Medium Voltage 6.6 kV

SUBSYSTEM 82-00 MV 6.6 kV Switchboard (SG-100D1)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001047	B	C-SG-100D1-001/B400-SIS-001 C10000189	Missing core identification tag by SG-100D1 side	.		Pschintu 2024-11-29			
C30001048	B	C-SG-100D1-001/B400-SIS-001 C10000189	Missing cable tag all along the route	.		Pschintu 2024-11-29			
C30001049	B	C-SG-100D1-003/B400-SIS-001 C10000191	Missing core identification tag by SG-100D1 side	.		Pschintu 2024-11-29			
C30001050	B	C-SG-100D1-002/B400-SIS-001 C10000190	Missing core identification tag by SG-100D1 side	.		Pschintu 2024-11-29			
C30001051	B	C-SG-100D1-003/B400-SIS-001 C10000191	Missing cable tag all along the route	.		Pschintu 2024-11-29			
C30001052	B	C-SG-100D1-002/B400-SIS-001 C10000190	Missing cable tag all along the route	.		Pschintu 2024-11-29			

Section 2 CONSOLIDATED PUNCH LISTS

CROSSWIND

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Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 82 Main Power Distribution Medium Voltage 6.6 kV

SUBSYSTEM 82-00 MV 6.6 kV Switchboard (SG-100D1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000096	B	SG-100D1	Voltimeter broken. To be repiaced on column A5		New Voltimeter Installed.	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000097	B	SG-100D1	Track to be repiaced in TV compartment - column A5		Track replaced.	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000098	B	SG-100D1	Segregation plates to be installed		Installation	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000099	B	SG-100D1	Missing fuses 250A — column A4		Installed.	SLinari 2024-08-02	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000104	B	SG-100D1	All documentation shall be re-issued and approval in final revision after mark-up during FAT		all documents marked up during FAT , has been re isssue - as built rev	SLinari 2024-08-02	SLinari 2024-12-05	SLinari 2024-12-05	2024-12-05
C30000108	B	SG-100D1 C10000864	Damage on roof for columns: A1/A3/A5/A7 (see attached pictures)	change roof	Problem fixed.	SLinari 2024-08-22	Vendor 2024-10-02	SLinari 2024-10-02	2024-10-02
C30000751	B	84104-CEL C10000568	Core identification tags are wrong on both terminations	.		Pschintu 2024-11-22	2025-02-19	AAndreani 2025-02-19	2025-02-19
C30000753	B	83119-CEL C10000638	Missing core identification tags by SG-100D1 side	.		Pschintu 2024-11-22	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30000762	B	83005-CEC C10002112	Core identification tags are wrong or missing on both sides	.		Pschintu 2024-11-22	2025-02-26	Gtangianu 2025-02-26	2025-02-26

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 82 Main Power Distribution Medium Voltage 6.6 kV

SUBSYSTEM 82-00 MV 6.6 kV Switchboard (SG-100D1)

Electrical

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30000763	B	82013-CEC C10002111	Missing core identification tags on both sides	.		Pschintu 2024-11-22	2025-02-26	Gtangianu 2025-02-26	2025-02-26
C30000764	B	83006-CEC C10002113	Missing cable SS tags on external routing	.		Pschintu 2024-11-22	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30000765	B	83006-CEC C10002113	Core identification tags are missing inside SG-200N1	.		Pschintu 2024-11-22	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30000956	B	82013-CEC C10002111	Cable must be dressed properly inside and outside SG-100D1 panel	.		Pschintu 2024-11-26	2025-04-11	Gtangianu 2025-04-11	2025-04-11
C30004336	B	SG-100D1	Cracked screen on EXETHERM display (see attached picture)		Exertherm HMI module installed on 6.6kV SWGR SG-100D1 unit A5 has been	DMusgrove 2025-04-28	Alveson 2025-07-21	Alveson 2025-07-21	2025-07-21

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

PUNCH LIST REPORT

SYSTEM 82 Main Power Distribution Medium Voltage 6.6 kV

SUBSYSTEM 82-00 MV 6.6 kV Switchboard (SG-100D1)

Instrumental

CODE	CAT	ITEM	DEFECT DESCRIPTION	CORRECTIVE ACTION	PERFORMED ACTION	ISSUED	CARRIED	CHECKED	APPROVED
C30001047	B	C-SG-100D1-001/B400-SIS-001 C10000189	Missing core identification tag by SG-100D1 side	.		Pschintu 2024-11-29	2025-02-04	Pschintu 2025-02-04	2025-02-04
C30001048	B	C-SG-100D1-001/B400-SIS-001 C10000189	Missing cable tag all along the route	.		Pschintu 2024-11-29	2025-01-30	APolo 2025-01-30	2025-01-30
C30001049	B	C-SG-100D1-003/B400-SIS-001 C10000191	Missing core identification tag by SG-100D1 side	.		Pschintu 2024-11-29	2025-05-22	Gtangianu 2025-05-22	2025-05-22
C30001050	B	C-SG-100D1-002/B400-SIS-001 C10000190	Missing core identification tag by SG-100D1 side	.		Pschintu 2024-11-29	2025-05-22	Gtangianu 2025-05-22	2025-05-22
C30001051	B	C-SG-100D1-003/B400-SIS-001 C10000191	Missing cable tag all along the route	.		Pschintu 2024-11-29	2025-02-26	Pschintu 2025-02-26	2025-02-26
C30001052	B	C-SG-100D1-002/B400-SIS-001 C10000190	Missing cable tag all along the route	.		Pschintu 2024-11-29	2025-02-26	Pschintu 2025-02-26	2025-02-26

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000765

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002113	1.4 Discipline	Electrical
1.2 Item	83006-CEC		LV Switchgear / 6.6KV HV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Core identification tags are missing inside SG-200N1

Name: Paolo Schintu

Date: 2024-11-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000956

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002111	1.4 Discipline	Electrical
1.2 Item	82013-CEC		6.6KV HV Switchgear / LV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Cable must be dressed properly inside and outside SG-100D1 panel

Name: Paolo Schintu

Date: 2024-11-26

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-26
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Done.

Name: Giovanni Tangianu

Date: 2025-04-11

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001047

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000189	1.4 Discipline	Instrumental
1.2 Item	C-SG-100D1-001/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	
1.3 Subsystem	82-00	MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Missing core identification tag by SG-100D1 side

Name: Paolo Schintu

Date: 2024-11-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001048

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000189	1.4 Discipline	Instrumental
1.2 Item	C-SG-100D1-001/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	
1.3 Subsystem	82-00	MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Missing cable tag all along the route

Name: Paolo Schintu

Date: 2024-11-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Alessio Polo

Date: 2025-01-30

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001049

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000191	1.4 Discipline	Instrumental
1.2 Item	C-SG-100D1-003/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	
1.3 Subsystem	82-00	MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Missing core identification tag by SG-100D1 side

Name: Paolo Schintu

Date: 2024-11-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-05-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001050

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000190	1.4 Discipline	Instrumental
1.2 Item	C-SG-100D1-002/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	
1.3 Subsystem	82-00	MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Missing core identification tag by SG-100D1 side

Name: Paolo Schintu

Date: 2024-11-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-05-22

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001051

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000191	1.4 Discipline	Instrumental
1.2 Item	C-SG-100D1-003/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	
1.3 Subsystem	82-00	MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Missing cable tag all along the route

Name: Paolo Schintu

Date: 2024-11-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30001052

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000190	1.4 Discipline	Instrumental
1.2 Item	C-SG-100D1-002/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	
1.3 Subsystem	82-00	MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Missing cable tag all along the route

Name: Paolo Schintu

Date: 2024-11-29

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-29
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30004336

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Cracked screen on EXETHERM display (see attached picture)

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	David Musgrove
3.4 Activity code	COMM Commissioning	Date	2025-04-28
3.5 Action by	VND Vendor	Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Exertherm HMI module installed on 6.6kV SWGR SG-100D1 unit A5 has been replaced and tested with positive result on 11-July-2025.

Name Anthony Iveson

Date 2025-07-21

Signature

5 - CLEARANCE CHECK

See attached photo of new HMI module installed on SG-100D1 unit A5.

Name Anthony Iveson

Date 2025-07-21

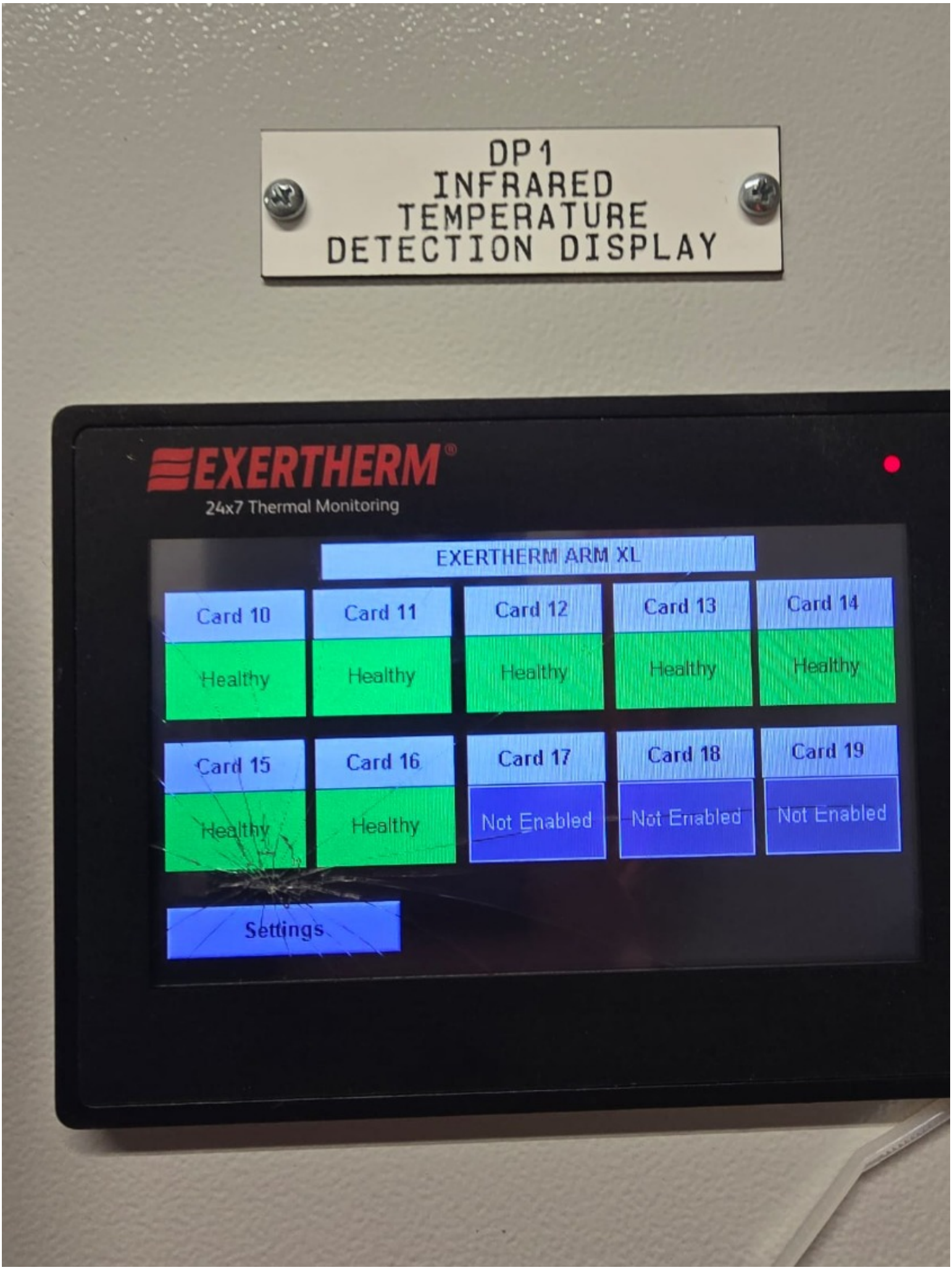
Signature

6- CLEARANCE APPROVAL

Name

Date 2025-07-21

Signature


DP1
INFRARED
TEMPERATURE
DETECTION DISPLAY
EXERTHERM
24x7 Thermal Monitoring
EXERTHERM ARM XL
Card 10
Healthy
Card 11
Healthy
Card 12
Healthy
Card 13
Healthy
Card 14
Healthy
Card 15
Healthy
Card 16
Healthy
Card 17
Not Enabled
Card 18
Not Enabled
Card 19
Not Enabled
Settings


New Exertherm module installed and tested on 11-July-2025
DANGER
MEASURING
IMESA

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000096

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Voltimeter broken. To be repiaced on column A5

Name: Stefano Linari

Date: 2024-10-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority: B PL B

3.4 Activity code: MC Mechanical Completion

3.5 Action by

Name: Stefano Linari

Date: 2024-08-02

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

4 - PERFORMED ACTION

New Voltimeter Installed.

Name: Vendor Crosswind

Date: 2024-10-02

Signature:

5 - CLEARANCE CHECK

NEW VOLTMETRO INSTALLED (SEE ATTACHED BELOW)

Name: Stefano Linari

Date: 2024-10-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000096

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Electrical

1.2 Item SG-100D1 — MV 6,6kV Switchgear

1.3 Subsystem 82-00 — MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Voltimeter broken. To be repiaced on column A5

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 MC Mechanical Completion

3.5 Action by

Name Stefano Linari

Date 2024-08-02

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

4 - PERFORMED ACTION

Name SIMONE VERDOLINI

M.E.S. S.p.A.
Via Vittorio, 14 - 60035 JESI
☎ 0731/211034 - Fax 0731/211055
Cod. Fisc. e P.IVA 00155630429

Date 29/03/24

Signature

5 - CLEARANCE CHECK

NEW VOLTMETRO INSTALLED

Name ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

Date 29/03/24

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000097

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Track to be repiaced in TV compartment - column A5

Name: Stefano Linari

Date: 2024-10-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	MC Mechanical Completion	Date	2024-08-02
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Track replaced.

Name: Vendor Crosswind

Date: 2024-10-02

Signature:

5 - CLEARANCE CHECK

TRACK REPLACED (SEE ATTACHED)

Name: Stefano Linari

Date: 2024-10-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000097

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Electrical

1.2 Item SG-100D1 — MV 6,6kV Switchgear

1.3 Subsystem 82-00 — MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Track to be replaced in TV compartment - column A5

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 MC Mechanical Completion

3.5 Action by

Name Stefano Linari

Date 2024-08-02

Signature

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

4 - PERFORMED ACTION

Name SIMONE SAFFI

Via G. Di Vittorio, 14 – 60035 JESI
☎ 0731/211034 – Fax 0731/211055
Cod. Fisc. e P.IVA 0015563 042 8

Date 30/08/24

Signature

5 - CLEARANCE CHECK

TRACK REPLACED (see picture)

Name ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

Date 30/08/24

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000098

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Segregation plates to be installed

Name: Stefano Linari

Date: 2024-10-08

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	MC Mechanical Completion	Date	2024-08-02
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Installation

Name: Vendor Crosswind

Date: 2024-10-02

Signature:

5 - CLEARANCE CHECK

INSTALLED

Name: Stefano Linari

Date: 2024-10-08

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000098

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Electrical

1.2 Item SG-100D1

MV 6,6kV Switchgear

1.3 Subsystem 82-00

MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Segregation plates 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 Stefano Linari

3.4 Activity code MC Mechanical Completion

Date 2024-08-02

3.5 Action by

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

4 - PERFORMED ACTION

Name SIMONE VERDOLINI

Date 29/08/24

Signature

IMES A.M.E.S.A. S.p.A.
Via G. Di Vittorio, 14 – 60035 JESI
T 0731/211034 – Fax 0731/211035
Cod. Fisc. e P.IVA 00155630429

5 - CLEARANCE CHECK

INSTALLED

Name ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

Date 29/08/24

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000099

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Missing fuses 250A — column A4

Name: Stefano Linari

Date: 2024-10-10

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	MC Mechanical Completion	Date	2024-08-02
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Installed.

Name: Vendor Crosswind

Date: 2024-10-02

Signature:

5 - CLEARANCE CHECK

installed (see below)

Name: Stefano Linari

Date: 2024-10-10

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000099

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task

1.4 Discipline Electrical

1.2 Item SG-100D1 — MV 6,6kV Switchgear

1.3 Subsystem 82-00 — MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Missing fuses 250A — column A4

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 MC Mechanical Completion

3.5 Action by

Name Stefano Linari

Date 2024-08-02

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

4 - PERFORMED ACTION

Name SIMONE [illegible]

Date 29/03/24

Signature

5 - CLEARANCE CHECK

INSTALLED (see pictures)

Name ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

Date 29/03/24

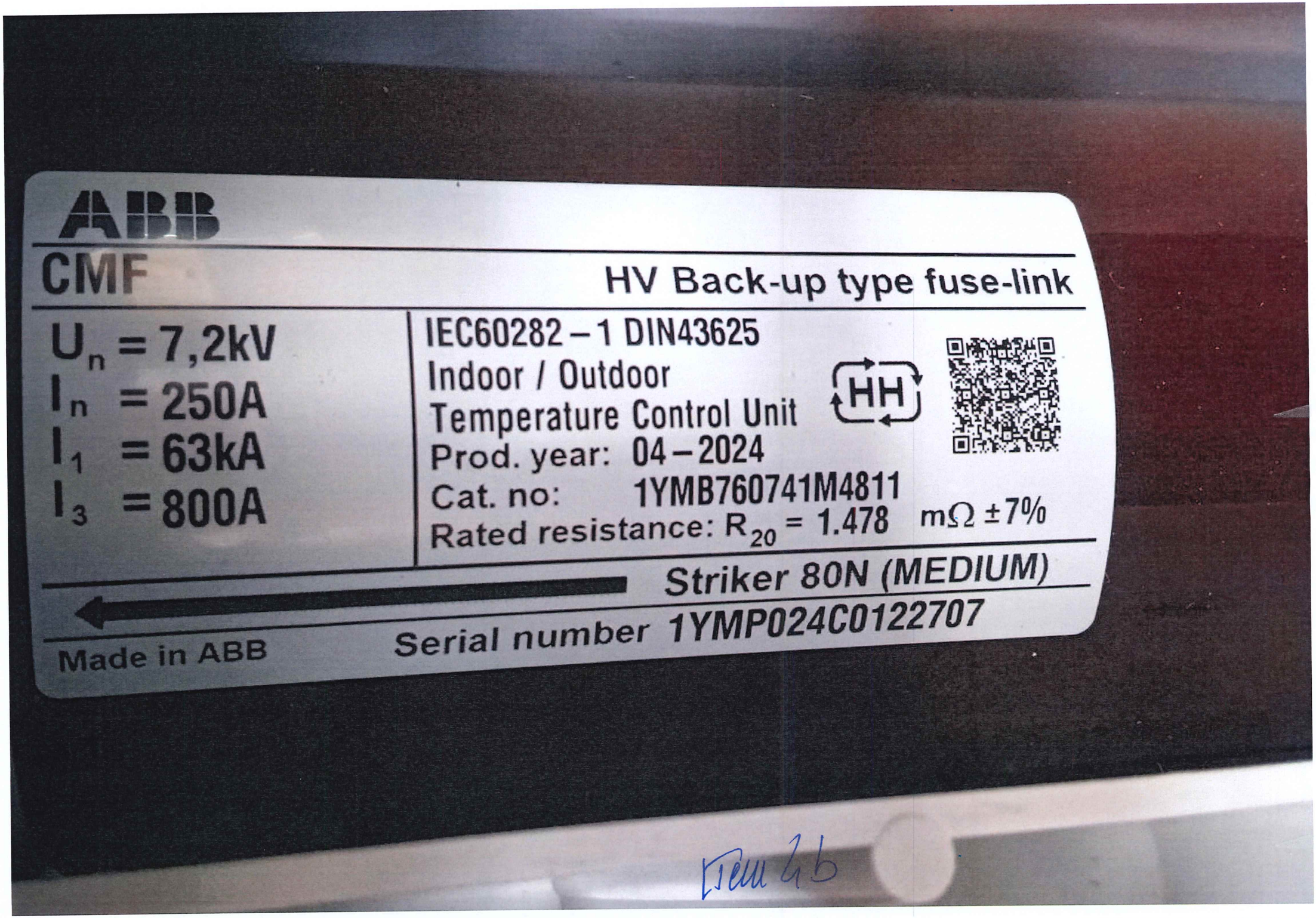
Signature

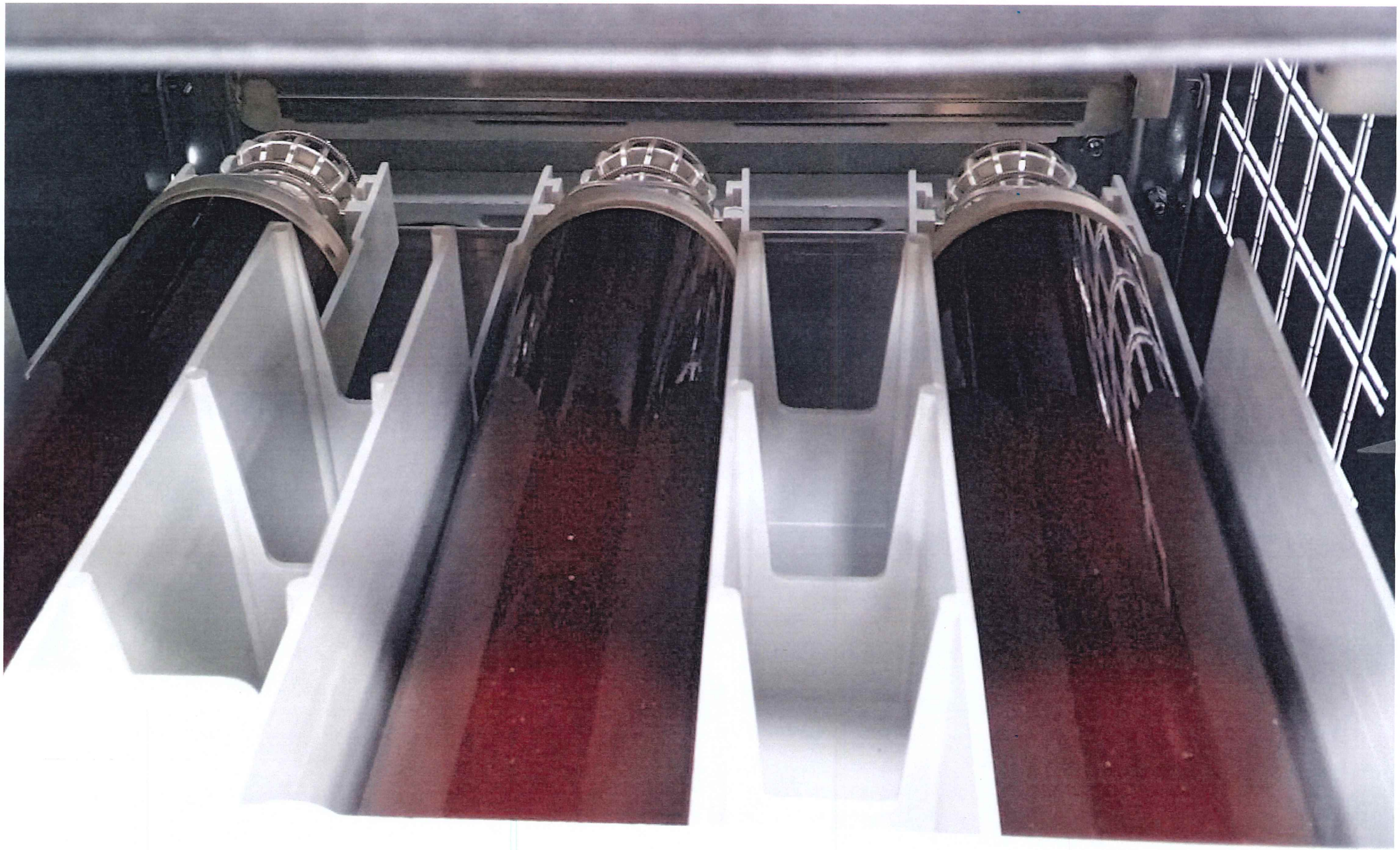
6- CLEARANCE APPROVAL

Name

Date

Signature


ABB
CMF
HV Back-up type fuse-link
U_n = 7,2kV
I_n = 250A
I_1 = 63kA
I_3 = 800A
IEC60282 – 1 DIN43625
Indoor / Outdoor
Temperature Control Unit
HH
Prod. year: 04 – 2024
Cat. no: 1YMB760741M4811
Rated resistance: R_{20} = 1.478 mΩ ±7%
Striker 80N (MEDIUM)
Made in ABB
Serial number 1YMP024C0122707



Пил. 42

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000104

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task		1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

All documentation shall be re-issued and approval in final revision after mark-up during FAT

Name

Date

Signature

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	MC Mechanical Completion	Date	2024-08-02
3.5 Action by		Signature	--- Proverlis --- Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

all documents marked up during FAT , has been re isssue - as built rev

Name VENDOR IMESA

Date 2024-12-05

Signature

5 - CLEARANCE CHECK

all documents marked up during FAT , has been re isssue - as built rev

Name Stefano Linari

Date 2024-12-05

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000108

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000864	CPX04	1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear	
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Damage on roof for columns: A1/A3/A5/A7 (see attached pictures)

Name: Stefano Linari

Date: 2024-10-10

Signature:

3 - DEFECT ASSESSMENT

3.1 Corrective action proposal: change roof

3.2 Material required:

3.3 Priority: B PL B

3.4 Activity code: VEND Vendor

3.5 Action by:

Name: Stefano Linari

Date: 2024-08-22

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

4 - PERFORMED ACTION

Problem fixed.

Name: Vendor Crosswind

Date: 2024-10-02

Signature:

5 - CLEARANCE CHECK

fixed

Name: Stefano Linari

Date: 2024-10-10

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000108

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000864	CPX04	1.4 Discipline	Electrical
1.2 Item	SG-100D1		MV 6,6kV Switchgear	
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)	

2 - OBSERVATION

Damage on roof for columns: A1/A3/A5/A7 (see attached pictures)

Name

Date

Signature

3 - DEFECT ASSESSMENT

change roof

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Stefano Linari
3.4 Activity code	VEND Vendor	Date	2024-08-22
3.5 Action by		Signature	— Proverlis — Duplicata issued from database information Signature is on original form

4 - PERFORMED ACTION

Name

Date 29/08/24

Signature

IMESA S.p.A.
Via G. Di Vittorio, 14 - 60035 JESI
Tel. 0731/211034 - Fax 0731/211055
Cod. Fisc. e P.IVA 00155630429

5 - CLEARANCE CHECK

Problem Fixed
Accepted by IMESA (see pictures)

Name ROSETTI MARINO SpA
Stefano Linari
Quality Control Dept.

Date 29/08/24

Signature

6- CLEARANCE APPROVAL

Name

Date

Signature



ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000751

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000568	1.4 Discipline	Electrical
1.2 Item	84104-CEL		DC UPS DB / DC Control for 6,6 kV Switchgear Line-B
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Core identification tags are wrong on both terminations

Name: Paolo Schintu

Date: 2024-11-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Andrea Andreani

Date: 2025-02-19

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000753

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10000638	1.4 Discipline	Electrical
1.2 Item	83119-CEL		Lighting & Small Power DB BoP / Auxiliary 6.6kV Switchboard
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Missing core identification tags by SG-100D1 side

Name: Paolo Schintu

Date: 2024-11-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-04

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000762

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002112	1.4 Discipline	Electrical
1.2 Item	83005-CEC		LV Switchgear / 6.6KV HV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Core identification tags are wrong or missing on both sides

Name: Paolo Schintu

Date: 2024-11-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Changed.

Name: Giovanni Tangianu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000763

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002111	1.4 Discipline	Electrical
1.2 Item	82013-CEC		6.6KV HV Switchgear / LV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Missing core identification tags on both sides

Name: Paolo Schintu

Date: 2024-11-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

Installed.

Name: Giovanni Tangianu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

Name:

Date:

Signature:

ROSETTI MARINO
CROSSWIND

PUNCH ITEM ENTRY / CLEARANCE FORM

C30000764

PROVERLIS

1 -ELEMENT IDENTIFICATION

1.1 Task	C10002113	1.4 Discipline	Electrical
1.2 Item	83006-CEC		LV Switchgear / 6.6KV HV Switchgear
1.3 Subsystem	82-00		MV 6.6 kV Switchboard (SG-100D1)

2 - OBSERVATION

Missing cable SS tags on external routing

Name: Paolo Schintu

Date: 2024-11-22

Signature:

3 - DEFECT ASSESSMENT

.

3.1 Corrective action proposal

3.2 Material required

3.3 Priority	B PL B	Name	Paolo Schintu
3.4 Activity code	MC Mechanical Completion	Date	2024-11-22
3.5 Action by	RM_CONSTR RM	Signature	

4 - PERFORMED ACTION

Name:

Date:

Signature:

5 - CLEARANCE CHECK

DONE

Name: Paolo Schintu

Date: 2025-02-26

Signature:

6- CLEARANCE APPROVAL

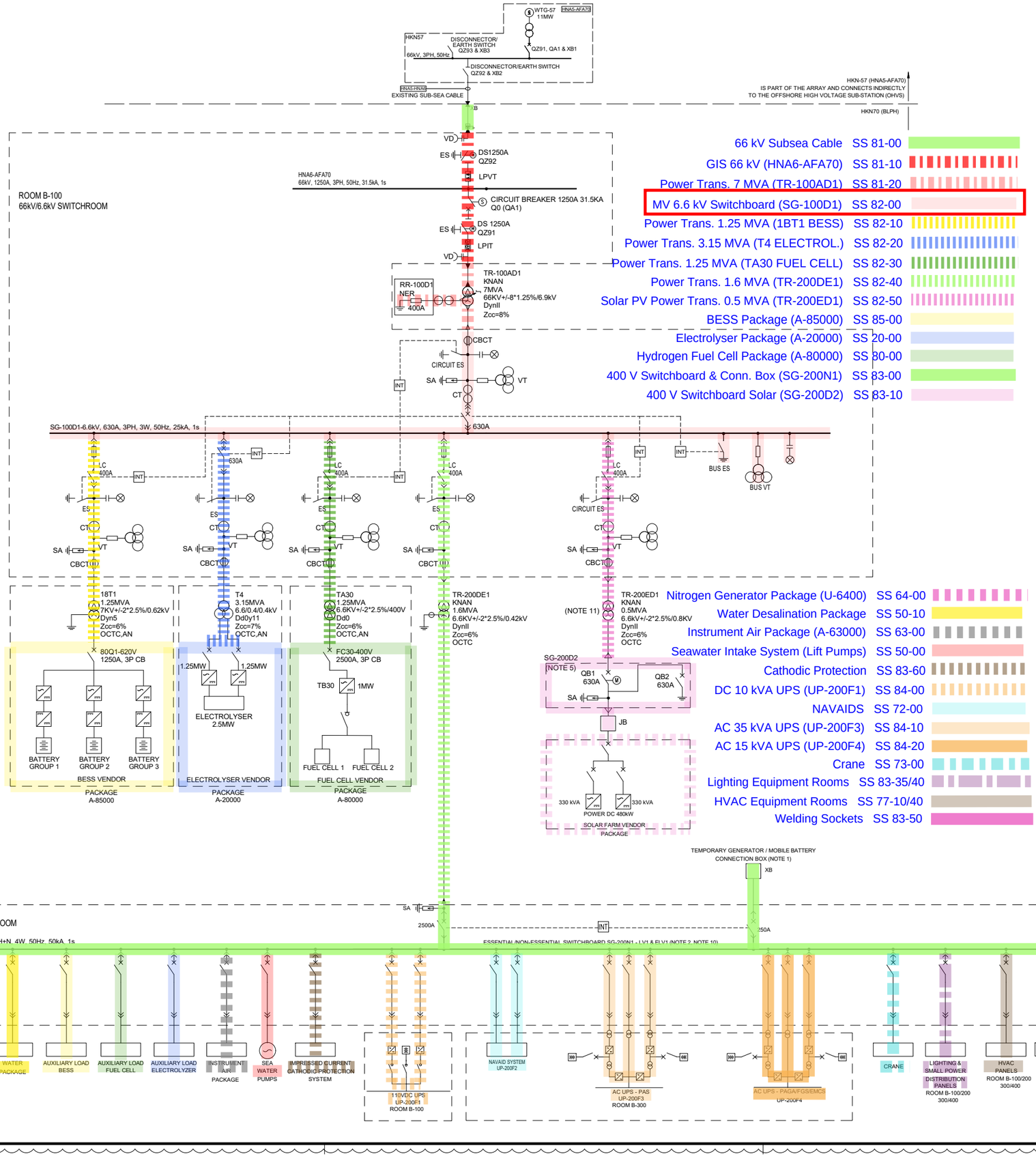
Name:

Date:

Signature:

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

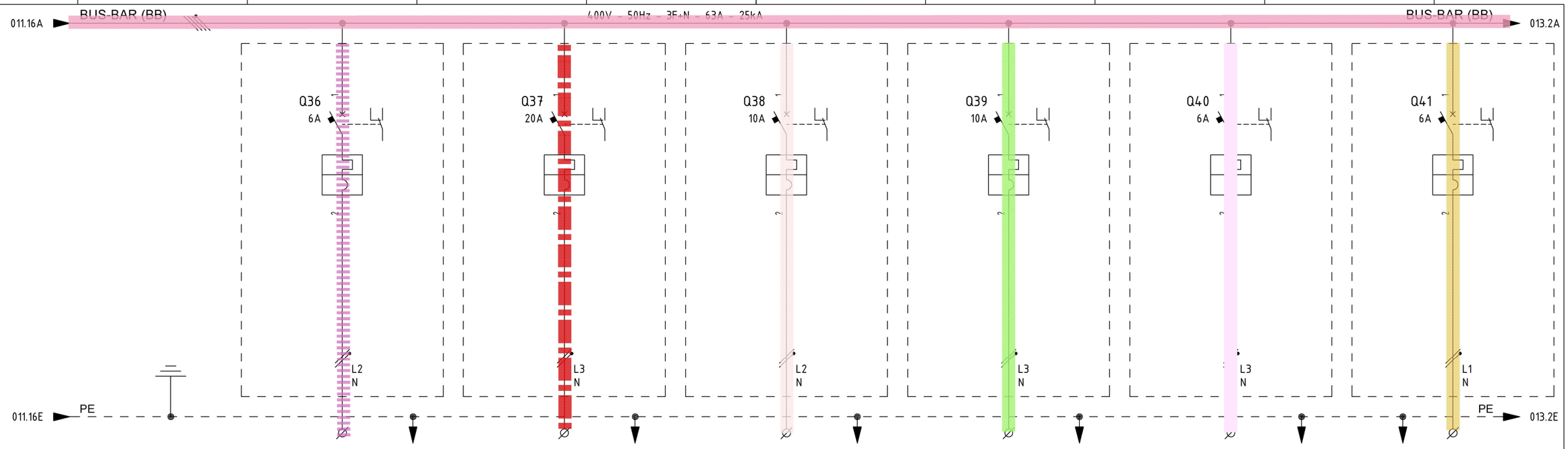
TITLE :

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



ITEM			1	CP-200E2	CP-100E1	SG-100D1	SG-200N1	SG-200D2	UP-200F3
UTILITY			2	AUXILIARY TRAFO SOLARE 0.5MVA	AUXILIARY GIS	AUXILIARY 6.6KV SWITCHBOARD	AUXILIARY LV SWITCHBOARD	AUXILIARY LV SWITCHBOARD 800/460V	AC UPS PAS AUXILIARY
CUBICLE			3	+03	+03	+03	+03	+03	+03
RATED POWER | RATED CURRENT			4/5	0.5 KW | 2.72 A	3 KW | 16.3 A	1 KW | 5.43 A	1 KW | 5.43 A	0.5 KW | 2.72 A	0.2 KW | 0.82 A
TYPICAL FUNCTIONAL			6	-	-	-	-	-	-
CIRCUIT BREAKER (ABB)	TYPE		7	S302P-C6	S302P-C20	S302P-C10	S302P-C10	S302P-C6	S302P-C6
	VERSION		8	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE	2P / MINIATURE
	TRIP UNITS		9	In=6A - Curve C	In=20A - Curve C	In=10A - Curve C	In=10A - Curve C	In=6A - Curve C	In=6A - Curve C
	Icu	KA	10	25kA	25kA	25kA	25kA	25kA	25kA
OVERLOAD	L	Range A	11	-	-	-	-	-	-
		Range t	12	-	-	-	-	-	-
SEL. SHORT-CIRCUIT	S	Range A	13	-	-	-	-	-	-
		Range t	14	-	-	-	-	-	-
INST. SHORT-CIRCUIT	I	Range A	15	-	-	-	-	-	-
		Range t	16	-	-	-	-	-	-
EARTH FAULT PROTECTION	G	Range A	17	-	-	-	-	-	-
		Range t	18	-	-	-	-	-	-
CONTACTOR (ABB)			19	-	-	-	-	-	-
THERMAL OVERLOAD RELAY (ABB)			20	-	-	-	-	-	-
SURGE ARRESTERS (DHENN)			21	-	-	-	-	-	-
TOROIDAL CURRENT TRANSFORMER (FRER)			22	-	-	-	-	-	-
FUSE HOLDER (ABB)			23	-	-	-	-	-	-
TWILIGHT SWITCH (ABB)			24	-	-	-	-	-	-
VOLTMETER (FRER)			25	-	-	-	-	-	-
CURRENT TRANSFORMER FOR MEASURE (FRER)	TYPE		26	-	-	-	-	-	-
	PERFORMANCE/CLASS		27	-	-	-	-	-	-
VOLTAGE TRANSFORMER FOR MEASURE (FRER)	TYPE		28	-	-	-	-	-	-
	PERFORMANCE/CLASS		29	-	-	-	-	-	-
POWER TERM. BLOCK (CABUR)		Type/mm²	30	SCREW / 4	SCREW / 6	SCREW / 4	SCREW / 4	SCREW / 4	SCREW / 4
POWER CONDUCTOR		mm²	31	3G2.5	3G6	3G2.5	3G2.5	3G2.5	3G2.5

SUBSYSTEM 82-50 | SUBSYSTEM 81-10 | SUBSYSTEM 82-00 | SUBSYSTEM 83-00 | SUBSYSTEM 83-10 | SUBSYSTEM 84-10

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
3	05/07/2024	Santinelli	Flamminio	Sigismondi	Accepted for construction (AFC)
2	24/04/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
1	15/03/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)
0	08/02/2024	Santinelli	Flamminio	Sigismondi	Issued for review (IFR)

=

+

DWG n° : 231298/SD/13

Item n° : PF1002888/101

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "DP-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-00013

SHEET 012

REV. 03

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DG-00013 Rev. 03

AEGPS_DOC_REV01
CAE EPLAN Electric P8
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+REC1
UP-200F1 A

-M1/2
220-240 Vca
50-60Hz
FAN

-PR2-TH1
THERMOSTAT 100º

-PR2-TH2
THERMOSTAT 90º

-PR1-TH1
THERMOSTAT 100º

-PR1-TH2
THERMOSTAT 90º

SS:8400

Charger
100A 12Pulses

-Z1
0/450V

-X1
L1
70 mm²
4G16 mm2
unamoured cable

MAINS
3x400Vac 50Hz -50kA

L1;L2;L3;PE

-Q1
50A

-T1
110V/100A
019.6KVA

-PR2
TPC

-PR1
TPC

-A320
INTERFACE

-R2
100mV
130A

-C1
3x6800µF
160V
Filtering 1%

-F1
NH00
125A

-V21
100A

-Q2
160A

-R3
100mV
130A

-Q3
160A

BATTERY
110Vdc
-X3
+/-
70 mm²

Battery
symmetry
-X31
+/-
4 mm²

-A10
BATTERY SIMMETRY
FAULT

-L+/-
2P 125A
BUS BAR
110 VDC

+BP
BATTERY PROTECTION

+BAT

2 (1x25) mm2
Int

-F100
Plastic
box 80*80

-SD1
-SD2

-Q10
50A-C
-X2 1+/1-
16 mm²
3G16 mm2
amoured cable
SS 8110
(+REC1-A1 /1.4) / SD1

CP-100F1
DC CONTROL 66kV G/S
LINE A-5.2KW

-Q11
20A-C
-X2 2+/2-
16 mm²
3G16 mm2
amoured cable
SS 8110
(+REC2-A1 /1.4) / SD2

CP-100F1
DC CONTROL 66kV G/S
LINE B-2KW

-Q12
16A-C
-X2 3+/3-
16 mm²
3G16 mm2
amoured cable
SS 8200

SG-100D1
DC CONTROL 6,6kV
SWITCHGEAR LINE A-1KW

-Q13
16A-C
-X2 4+/4-
16 mm²
3G16 mm2
amoured cable
SS 8200

SG-100D1
DC CONTROL 6,6kV
SWITCHGEAR LINE B-1KW

-Q14
50A-C
-X2 5+/5-
16 mm²
SPARE 5,5KW

-Q15
20A-C
-X2 6+/6-
16 mm²
SPARE 2KW

-Q16
16A-C
-X2 7+/7-
16 mm²
SPARE 1KW

-F10/F11
DEHNguard

-A21
EARTH +/-

-A1
GCAU
CONTROL UNIT

-A5.1
Relays

-CR1-X5

-A71

-A300
DISPLAY

-A310
KEY PAD

-A73
MODBUS-TCP/IP

-A8
Isolated

-KF
PSR-SCP- 24DC / SIL3

SD1 / (+BAT-SD1 /1.8)

AUXILIARY SUPPLY
230Vac-50Hz

-X7
L/N
6 mm²
3G2.5 mm2
unamoured cable

-Q6
02A-C

-H3

-Q7
02A-C

-THF4
0/60ºC

-E50
100W

-Z2
400V

-X8
4 mm²
CHARGERS
INTERCONNECTION

2,5 mm²

INTERCONNECTION
-X6
50 mm²
PH4 35 mm²

-A8
(+REC1-CR1-J13:1 /1.4)

+REC2
UP-200F1 B

-M1/2
220-240 Vca
50-60Hz
FAN
-PR2-TH1
THERMOSTAT 100º
-PR2-TH2
THERMOSTAT 90º
-PR1-TH1
THERMOSTAT 100º
-PR1-TH2
THERMOSTAT 90º
Charger
100A 12Pulses
-Z1
0/450V
-X1
L1
70 mm²
4G16 mm2
unamoured cable
MAINS
3x400Vac 50Hz -50kA
L1;L2;L3;PE
-Q1
50A
-T1
110V/100A
019.6KVA
-PR2
TPC
-PR1
TPC
-A320
INTERFACE
-R2
100mV
130A
-C1
3x6800µF
160V
Filtering 1%
-F1
NH00
125A
-V21
100A
-Q2
160A
-A1
GCAU
CONTROL UNIT
-A5.1
Relays
-CR1-X5
-A71
-A300
DISPLAY
-A310
KEY PAD
-A73
MODBUS-TCP/IP
-A8
Isolated
AUXILIARY SUPPLY
230Vac-50Hz
-X7
L/N
6 mm²
-Q6
02A-C
-H3
-Q7
02A-C
-THF4
0/60ºC
-E50
100W
-X8
4 mm²
CHARGERS
INTERCONNECTION
-X6
50 mm²
INTERCONNECTION
-A8
(+REC2-CR1-J13:1 /1.4)

2,5 mm²
Int

SD2 / (+BAT-SD2 /1.8)

A8 / (+REC2-X8 /1.4)

Battery
symmetry
-X31
+/-
4 mm²

-A10
BATTERY SIMMETRY
FAULT

2,5 mm²
Int

ES5214.64

				Date	21/03/2024	3W POWER S.P.A.	AEG POWER SOLUTIONS	Single-line	1724000372-EL-DG-00006
				Editor	EBM	Hollandse Kust Noord (HKN) wind farm		System	
				Checked	JOP				
Stat	Alteration	Date	Name	Standard					ES521464 en

= System
+ 8 / 47
& EFA
A3
Sheet 1
Sheets 1

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: 82-00 & process: MC & discipline : E

Electrical	82-00 MV 6.6 kV Switchboard (SG-100D1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
82013-CEC	6.6KV HV Switchgear / LV Switchgear	ONSHORE	C10002111	CPX10	100	2024-11-26	RFC 1
83005-CEC	LV Switchgear / 6.6KV HV Switchgear	ONSHORE	C10002112	CPX10	100	2024-11-22	RFC 1
83006-CEC	LV Switchgear / 6.6KV HV Switchgear	ONSHORE	C10002113	CPX10	100	2024-11-22	RFC 1
83119-CEL	Lighting & Small Power DB BoP / Auxiliary 6.6kV Switchboard	ONSHORE	C10000638	CPX09	100	2024-11-22	RFC 1
84103-CEL	DC UPS DB / DC Control for 6,6 kV Switchgear Line-A	ONSHORE	C10000567	CPX09	100	2024-11-22	RFC 1
84104-CEL	DC UPS DB / DC Control for 6,6 kV Switchgear Line-B	ONSHORE	C10000568	CPX09	100	2024-11-22	RFC 1
SG-100D1	MV 6,6kV Switchgear	ONSHORE	C10000864	CPX04	100	2024-09-12	RFC 1

ITEM	Tag	84103-CEL	: DC UPS DB / DC Control for 6,6 kV Switchgear Line-A			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD
TASK	code	C10000567		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/MGT/EPR/LSZH/GSWB/LSZH	Cores/Size mm²	3G16 mm2	Color	Orange
From	DP-200F1	To	SG-100D1		

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.	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	Check gland plate for single core cables is non ferrous (non -magnetic).	NA
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	OK
10	Check cable earthing against lastest drawings.	OK
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	84103-CEL	: DC UPS DB / DC Control for 6,6 kV Switchgear Line-A			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD
TASK	code	C10000567		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX09 LV Power Cable

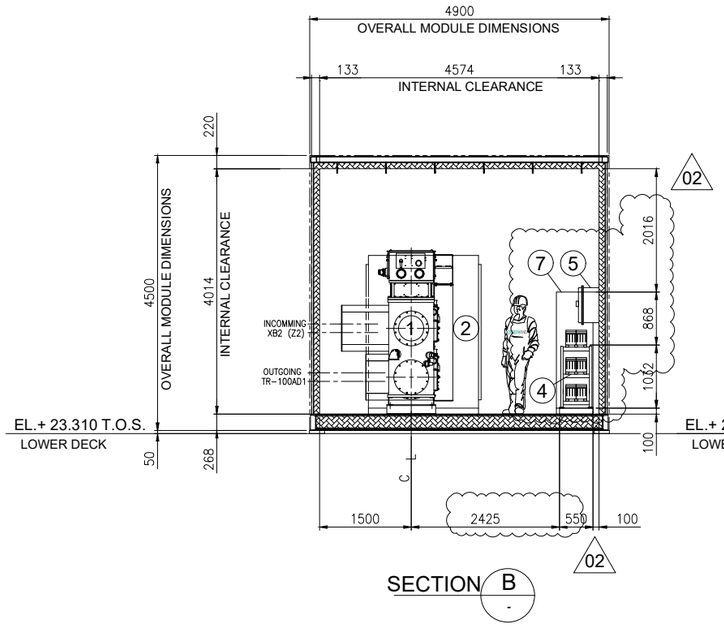
CONTINUITY				
5	CORE CONTINUITY Ω	PH 1	0.6	
6		PH 2	0.6	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		0.6	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		0.6	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	> 1999	
11		PH2 / PH1-PH3-A-E	> 1999	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		Yes	

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

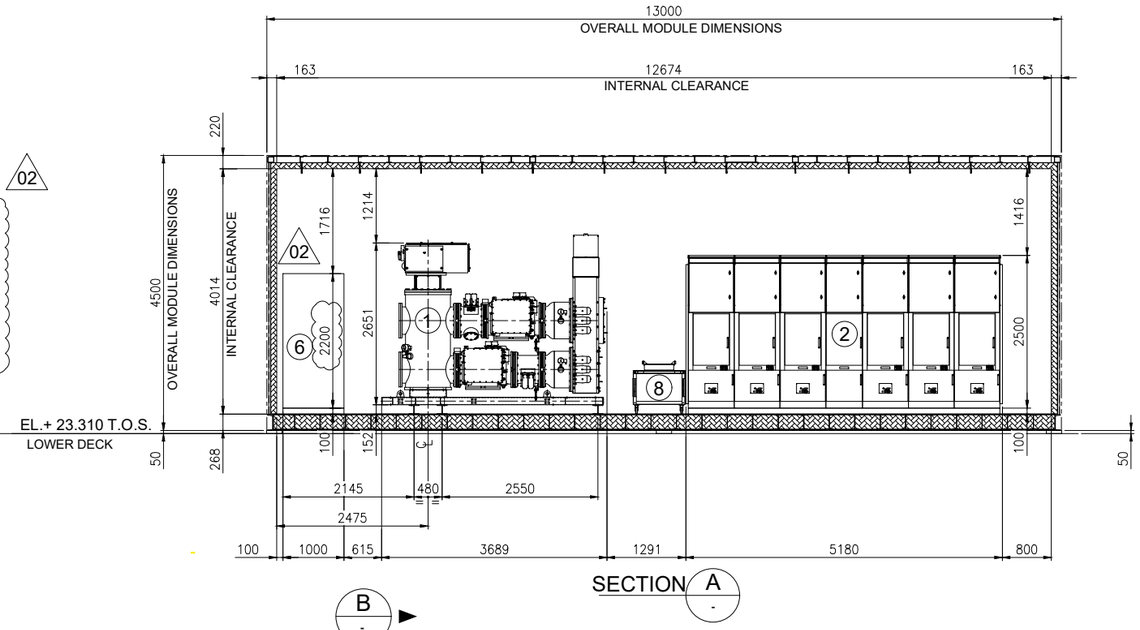
Comments: Note 4: Refer to PL C30000679

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Paolo Schintu	
Date	2024-11-05	2024-11-22	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-05T11:05:33.799Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-22T11:50:05.635Z	

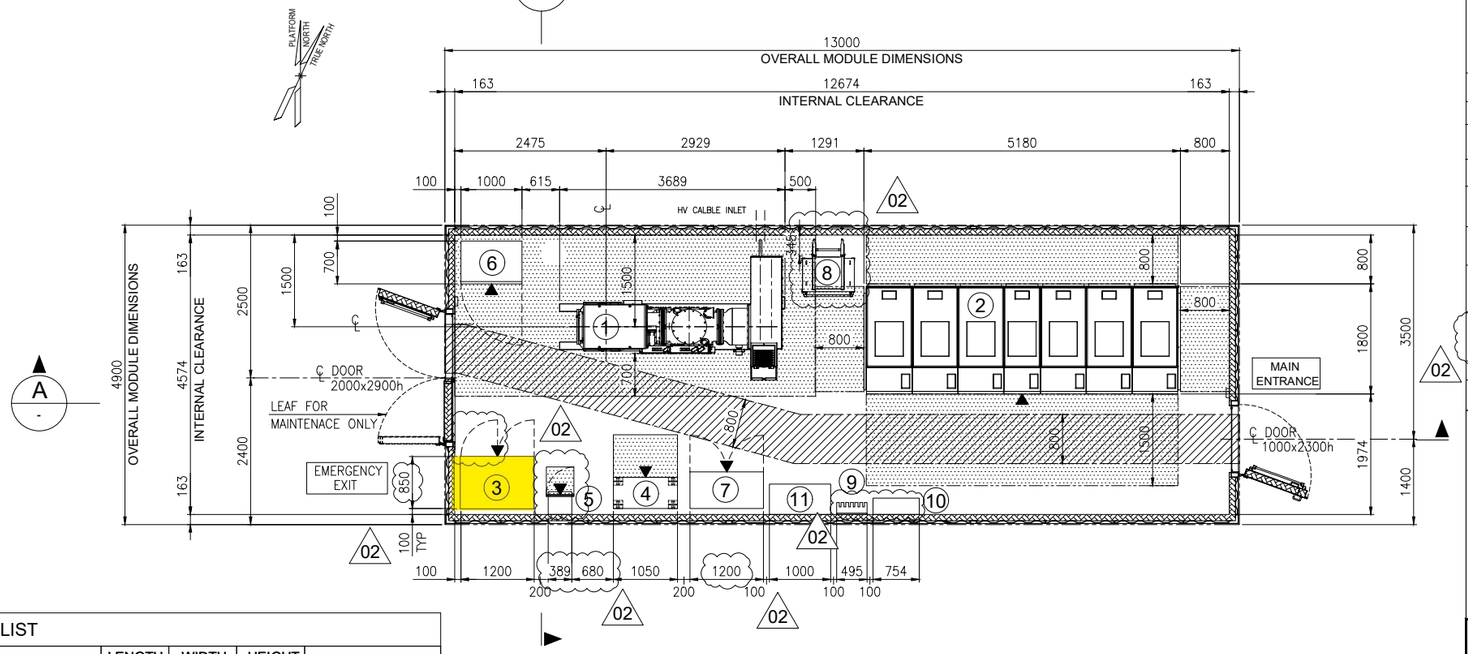
DRAWING NO. 123A90-DDL-EL-DL-20104 | REV. 02



SECTION B -



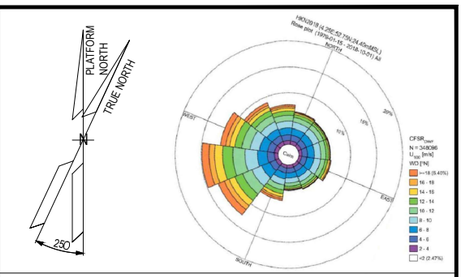
SECTION A -



A -

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	



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

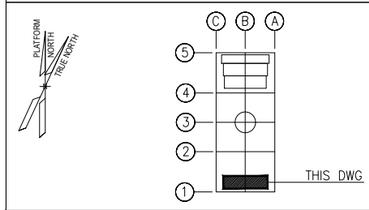
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

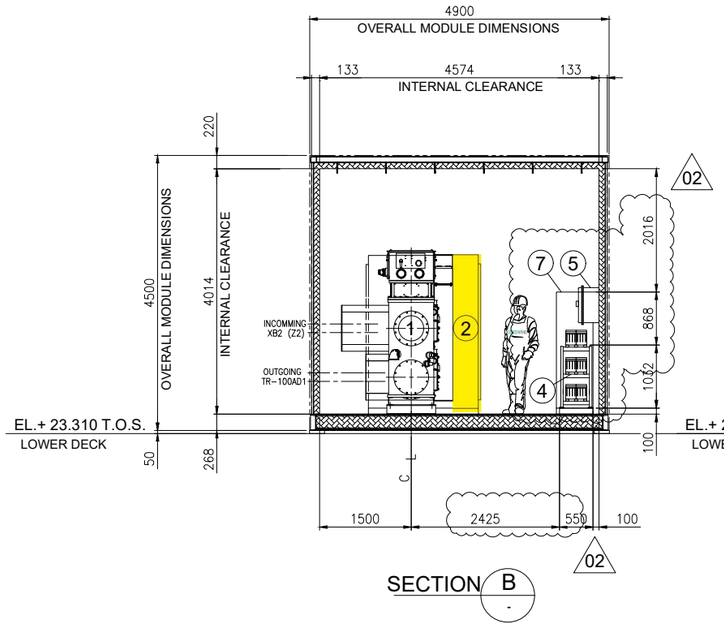
CROSSWIND | ROSETTI MARINO

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

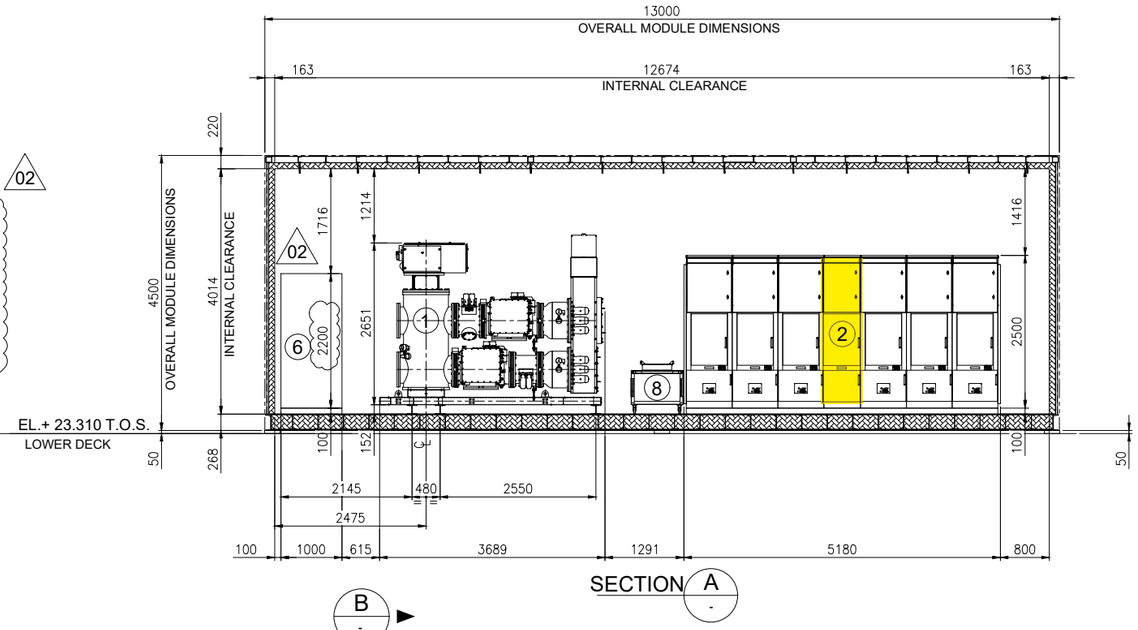
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

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

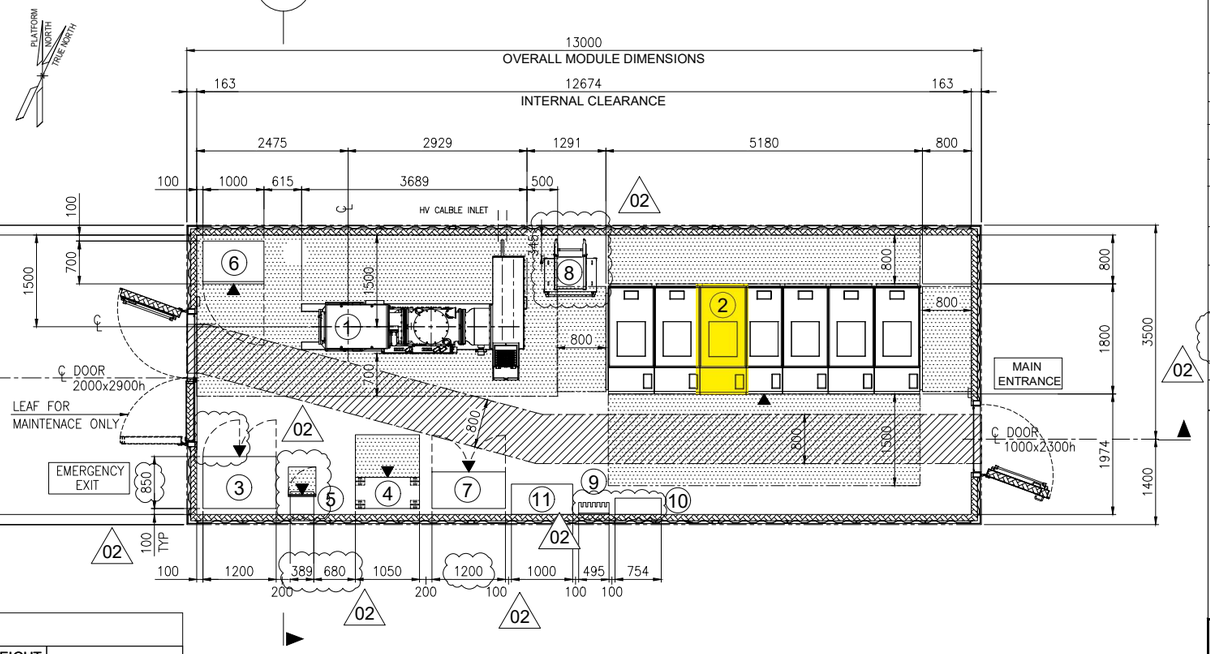
DRAWING NO. 123A90-DDL-EL-DL-20104 | REV. 02



SECTION B -



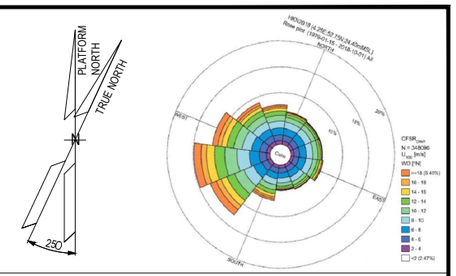
SECTION A -



A -

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	



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

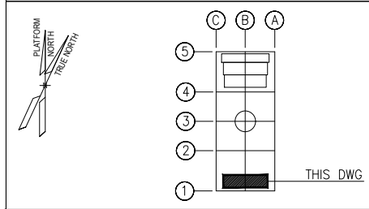
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

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

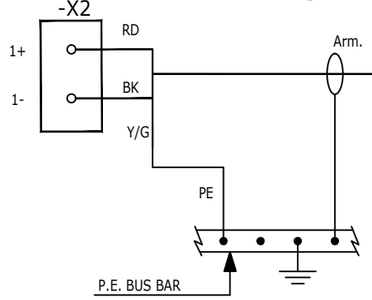
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

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

FROM	TO

DESCRIPTION: DC UPS DB
TAG NUMBER: DP-200F1

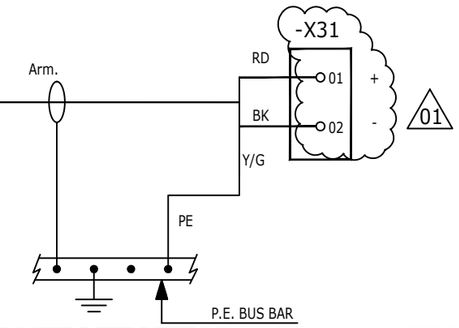
CB: -Q10



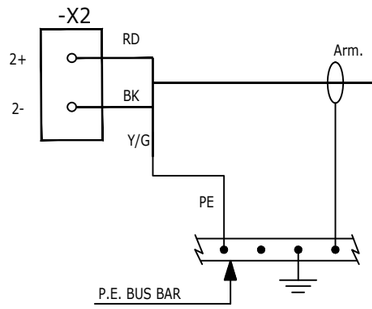
84101-CEL
3G16 mm²

DESCRIPTION: DC CONTROL FOR 66 KV GIS LINE-1
TAG NUMBER: CP-100E1 (01)

PANEL: LCP



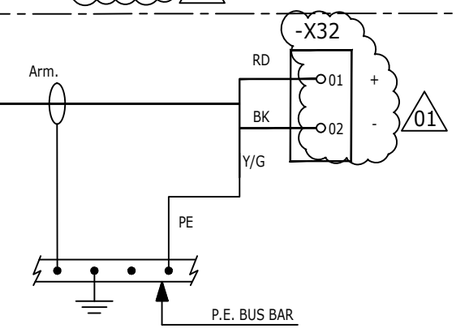
CB: -Q11



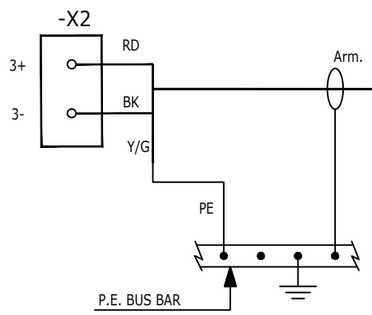
84102-CEL
3G16 mm²

DESCRIPTION: DC CONTROL FOR 66 KV GIS LINE-2
TAG NUMBER: CP-100E1 (01)

PANEL: LCP



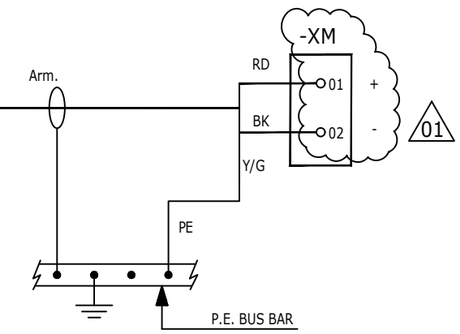
CB: -Q12



84103-CEL
3G16 mm²

DESCRIPTION: DC CONTROL FOR 6,6 KV SWITCHGEAR LINE-A
TAG NUMBER: SG-100D1

COLUMN/CUBIC.: A5 (01)



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

REV.:	DATE:	SIGNATURE:
1_A	17/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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
DC UPS DB DP-200F1

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

SCALE : 1:X

A3

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

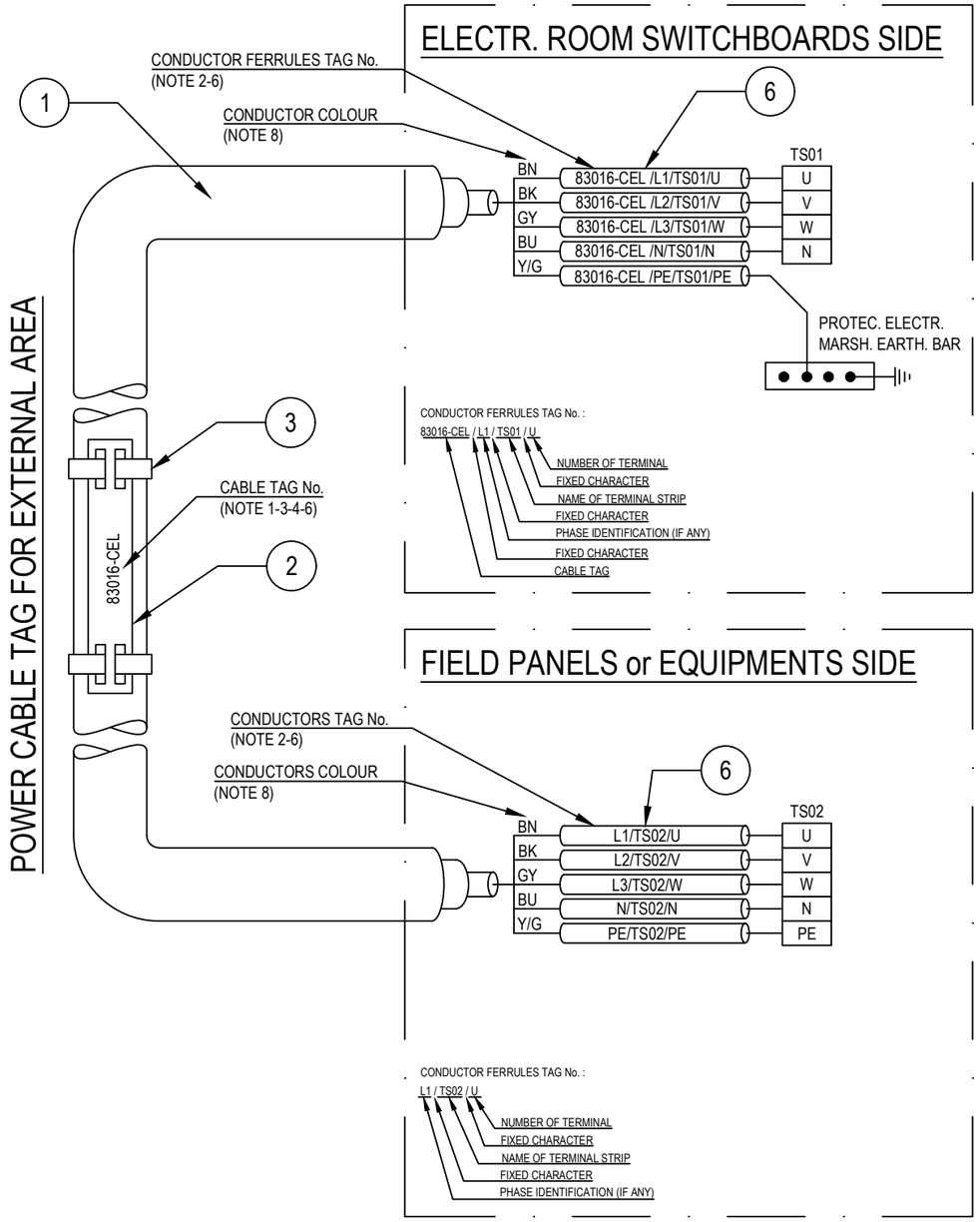
SHEET 033

REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

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.

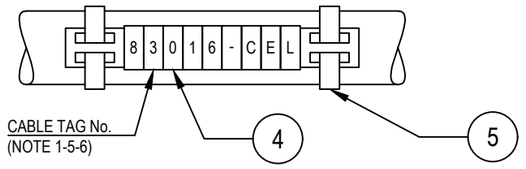
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

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.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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)

CROSSWIND

ROSETTI MARINO

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

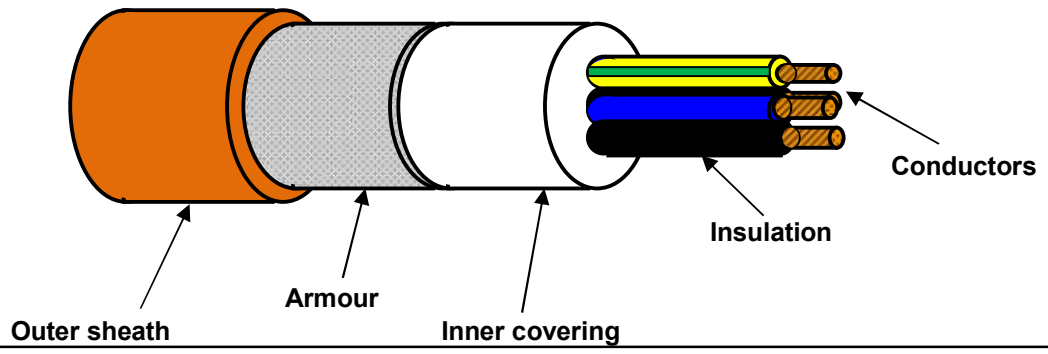
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

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
84103-CEL	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						DP-200F1	DC UPS 10 kVA Distribution Board	Lower Deck (B-100)	SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	ELECV18-3G16	Cable Cu Cl.2/MGT/EPR/LSZH/GSWB/LSZH 0,6/1kV 3G16mm² - Orange-DC	M25	T2_M25_Double			n.a.				L-300-101-LVT-060 / L-600-101-LVT-058 / L-300-101-LVT-059

FLEI s.r.l.

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

3G16 - DC POWER CABLE - Fire Resistant & Flame Retardant - ARMOURED



TECHNICAL FEATURES

Conductors :	**STRANDED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	Mica/Glass Tape/s (MGT) plus EPR compound, quality to IEC 60092.360, Nominal Thickness 1,0 mm	
Cores colour code :	**Red - Black - Yellow/Green**	
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:	Not required	
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 :	**Galvanized Steel Wire Braid Armour (coverage ≥ 90%)**	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,6 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 3G16 SQMM - MGT/EPR/LSZH/GSWB/LSZH - 0,6/1 KV - IEC 60331.21 - IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under Armour diameter :	(19,2 ± 10%) mm	
Over Armour diameter :	(20,4 ± 10%) mm	
Outer diameter :	(23,6 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Voltage test :	3,5 kV a.c. for 5' (Between Cores - Armour)	
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 460 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
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%)	
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.

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	84104-CEL	: DC UPS DB / DC Control for 6,6 kV Switchgear Line-B			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-100
TASK	code	C10000568		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/MGT/EPR/LSZH/GSWB/LSZH	Cores/Size mm²	3G16 mm2	Color	Orange
From	DP-200F1	To	SG-100D1		

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.	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	Check gland plate for single core cables is non ferrous (non -magnetic).	NA
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	OK
10	Check cable earthing against lastest drawings.	OK
11	Check cores marking are in accordance with termination diagram	PL
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	84104-CEL	: DC UPS DB / DC Control for 6,6 kV Switchgear Line-B			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-100
TASK	code	C10000568		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	0.4	
6		PH 2	0.4	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		0.4	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		0.4	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>1999	
11		PH2 / PH1-PH3-A-E	>1999	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		Yes	

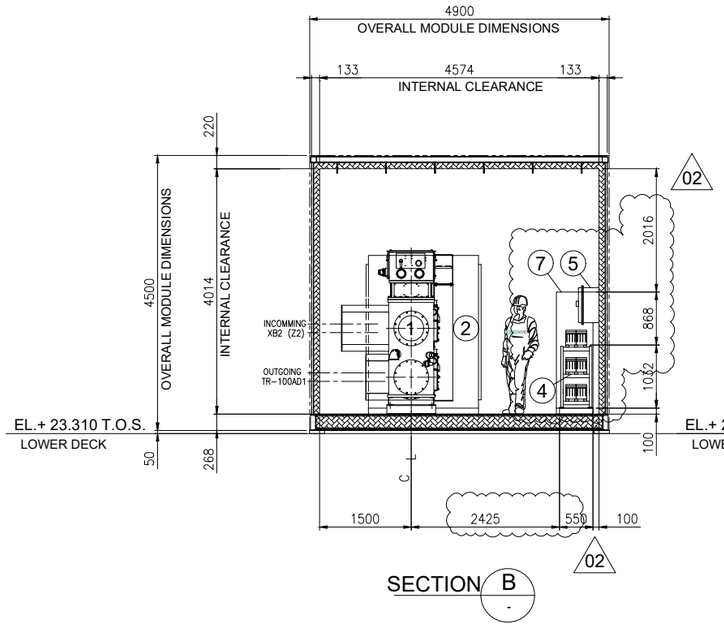
TESTING INSTRUMENTS USED

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

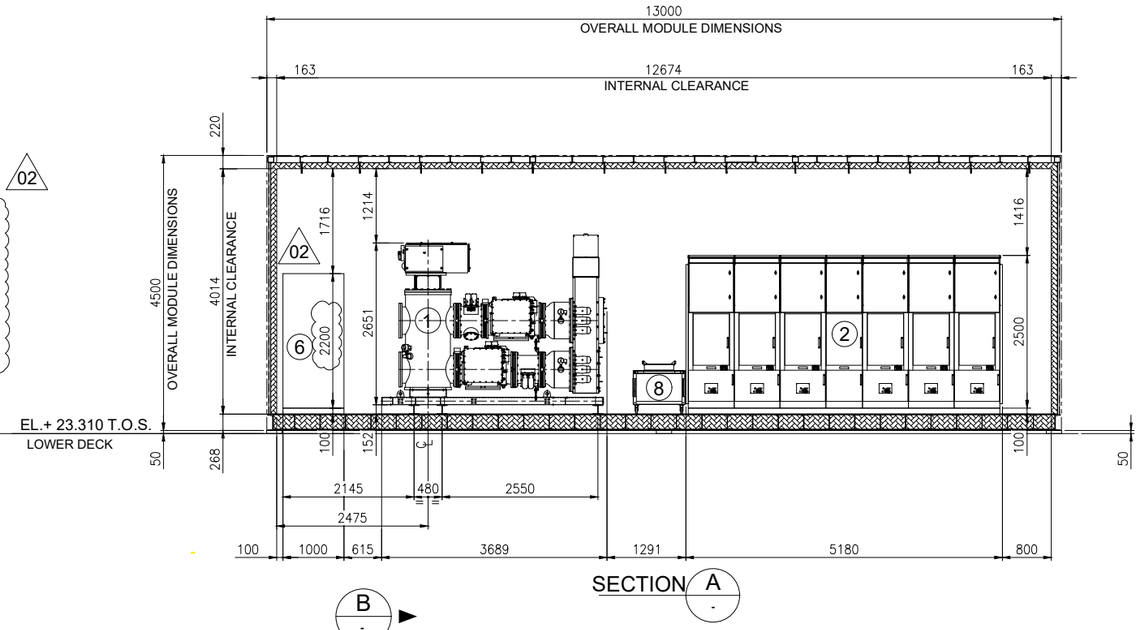
Comments:

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Paolo Schintu	
Date	2024-11-05	2024-11-22	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-05T11:05:47.421Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-22T12:32:55.148Z	

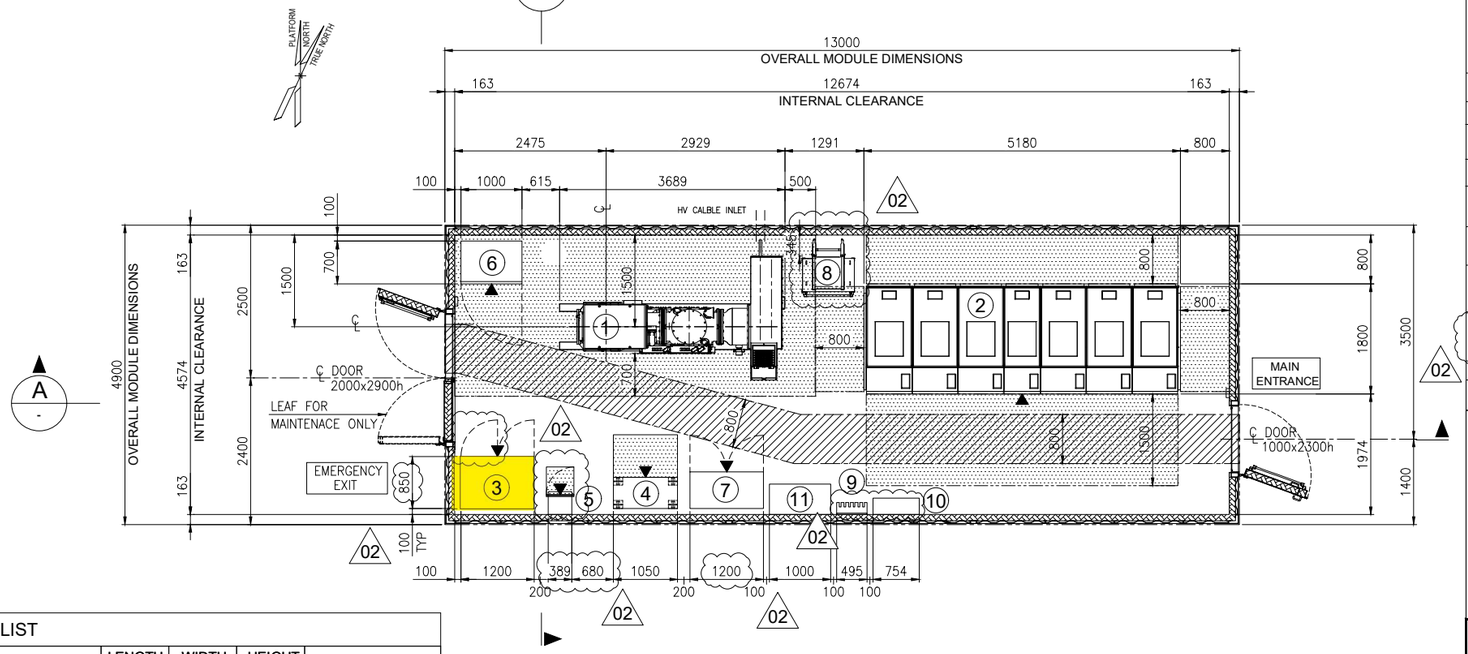
DRAWING NO. 123A90-DDL-EL-DL-20104 | REV. 02



SECTION B -



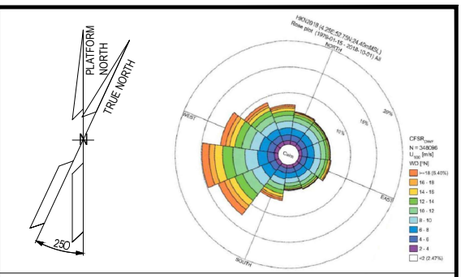
SECTION A -



A -

EQUIPMENT LIST

REF.	TAG No.	DESCRIPTION	LENGTH (mm)	WIDTH (mm)	HEIGHT (mm)	NOTE
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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	



NOTES

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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

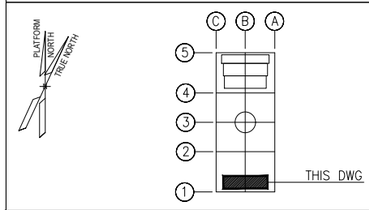
LEGEND

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

REFERENCES

DOCUMENT TITLE	DOCUMENT NUMBER
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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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

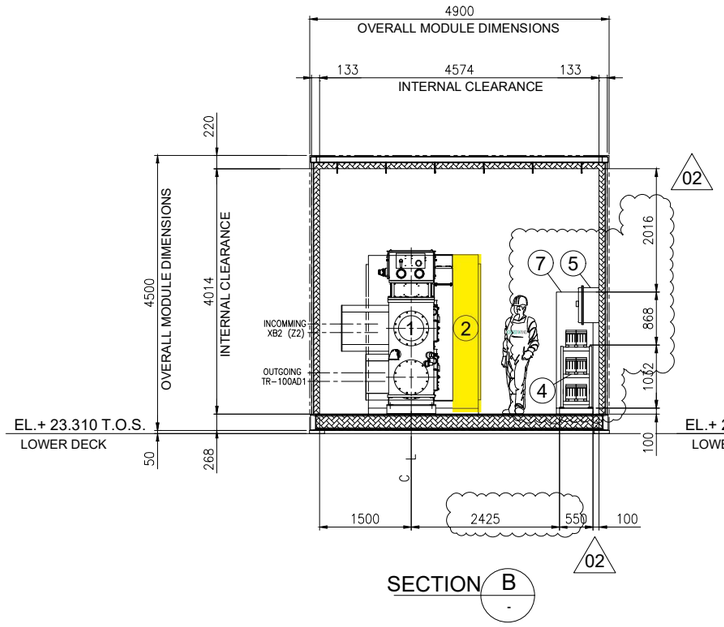
CROSSWIND | ROSETTI MARINO

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

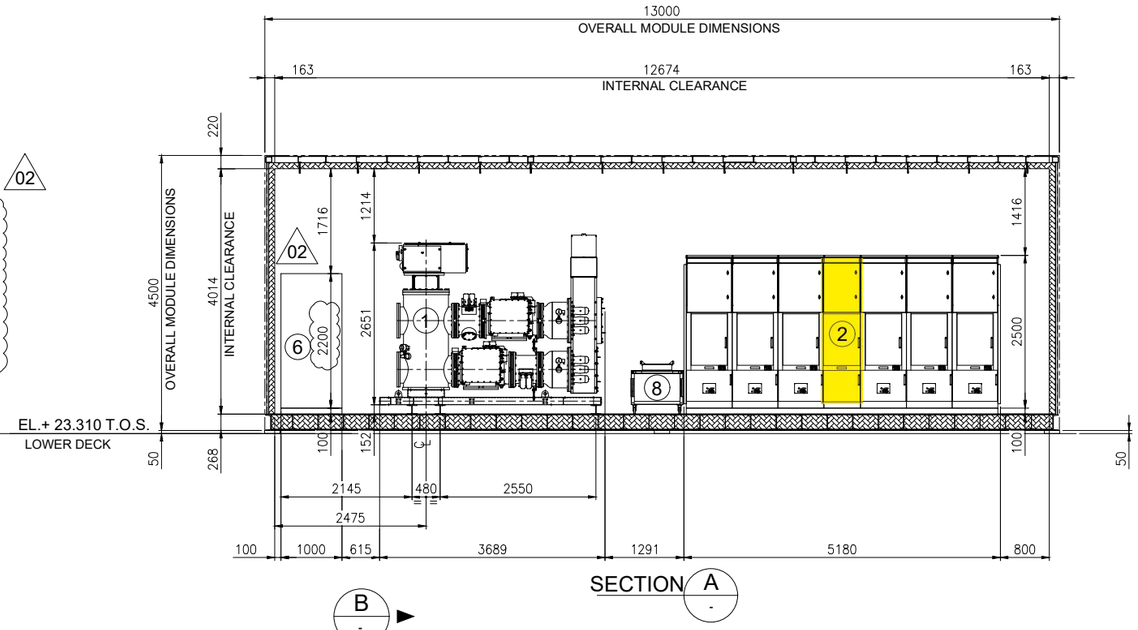
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

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

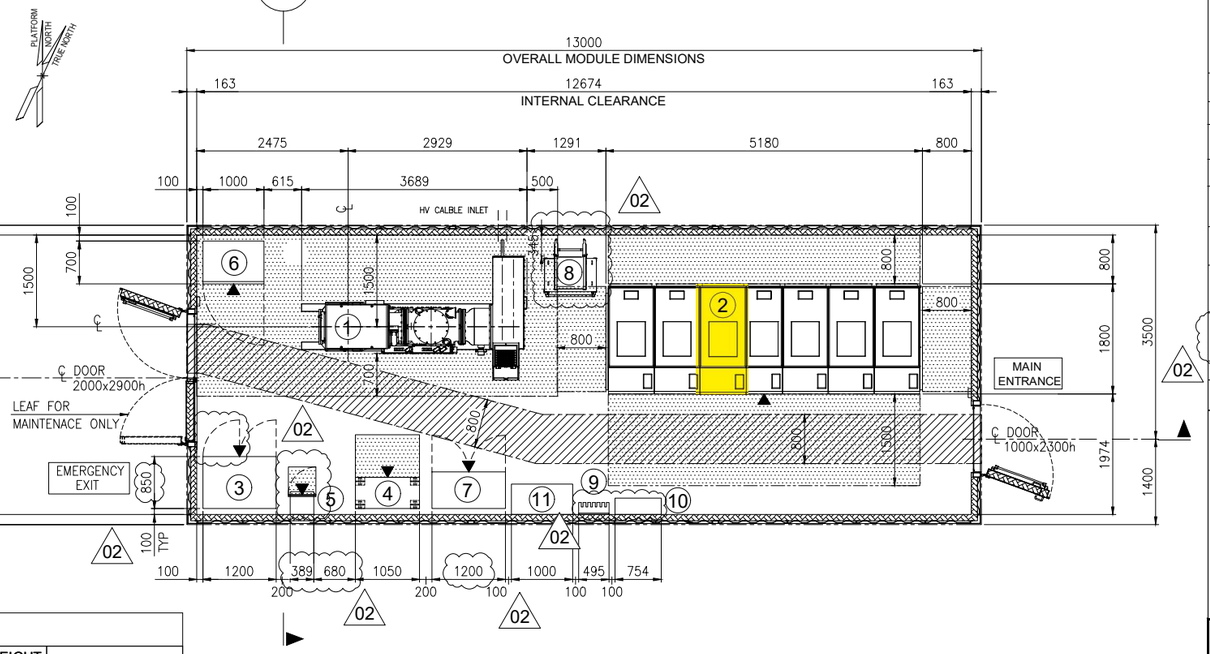
DRAWING NO. 123A90-DDL-EL-DL-20104 | REV. 02



SECTION B -



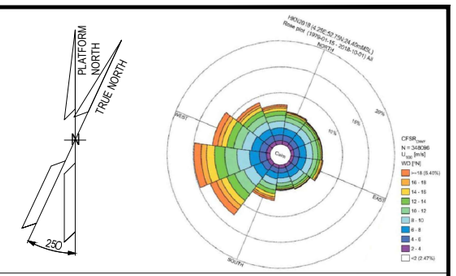
SECTION A -



A -

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	



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

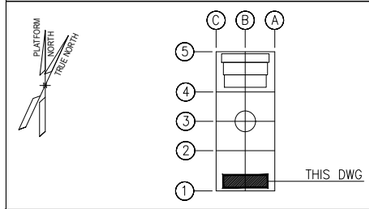
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

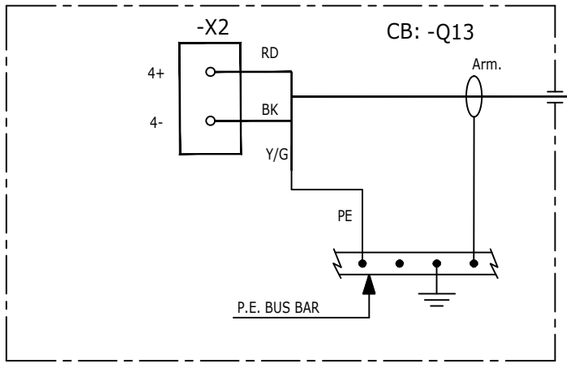
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
HV SWITCHROOM

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

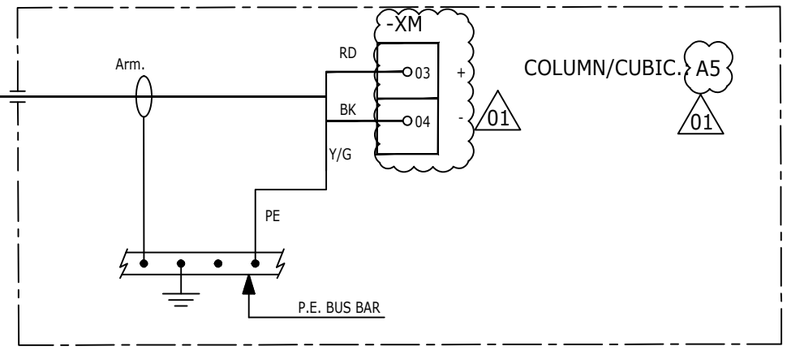
FROM	TO

DESCRIPTION: DC UPS DB
TAG NUMBER: DP-200F1

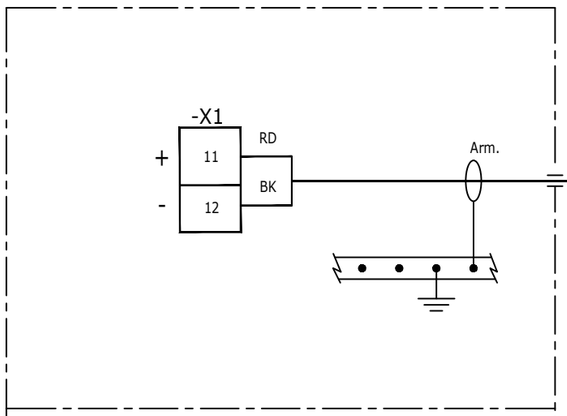


84104-CEL
3G16 mm²

DESCRIPTION: DC CONTROL FOR 6,6 KV SWITCHGEAR LINE-B
TAG NUMBER: SG-100D1

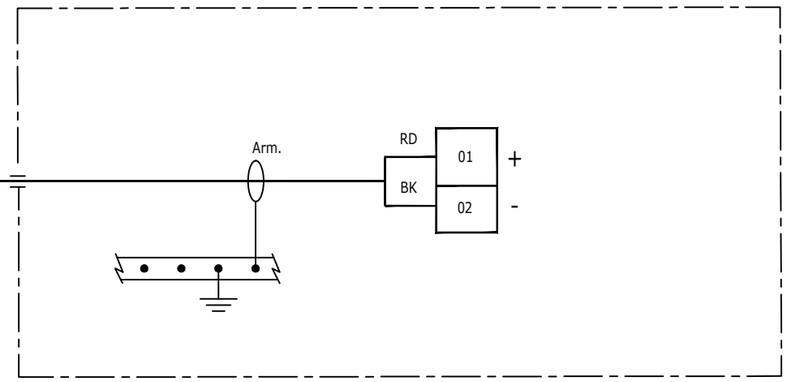


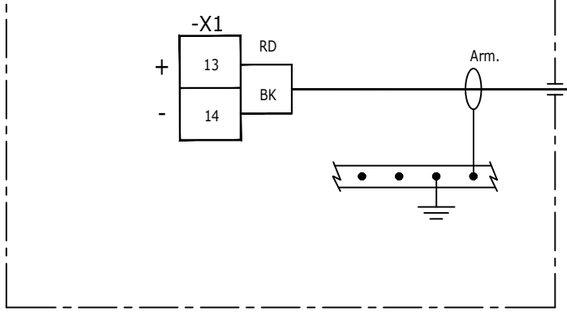
DESCRIPTION: DC UPS NAVAID SYSTEM
TAG NUMBER: NC-200F2



72201-CEL
2C X 2.5 mm²

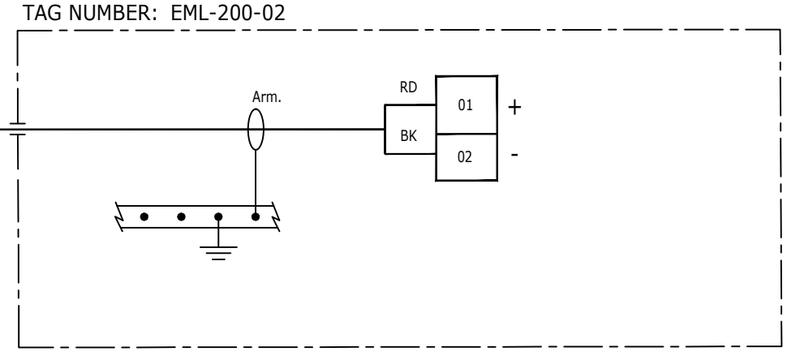
DESCRIPTION: NAV AIDS MAIN YELLOW LANTERNS
TAG NUMBER: EML-200-01





72202-CEL
2C X 2.5 mm²

DESCRIPTION: NAV AIDS MAIN YELLOW LANTERNS
TAG NUMBER: EML-200-02



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

REV.:	DATE:	SIGNATURE:
1_A	17/10/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
DC UPS DB & DC UPS NAVAID SYSTEM

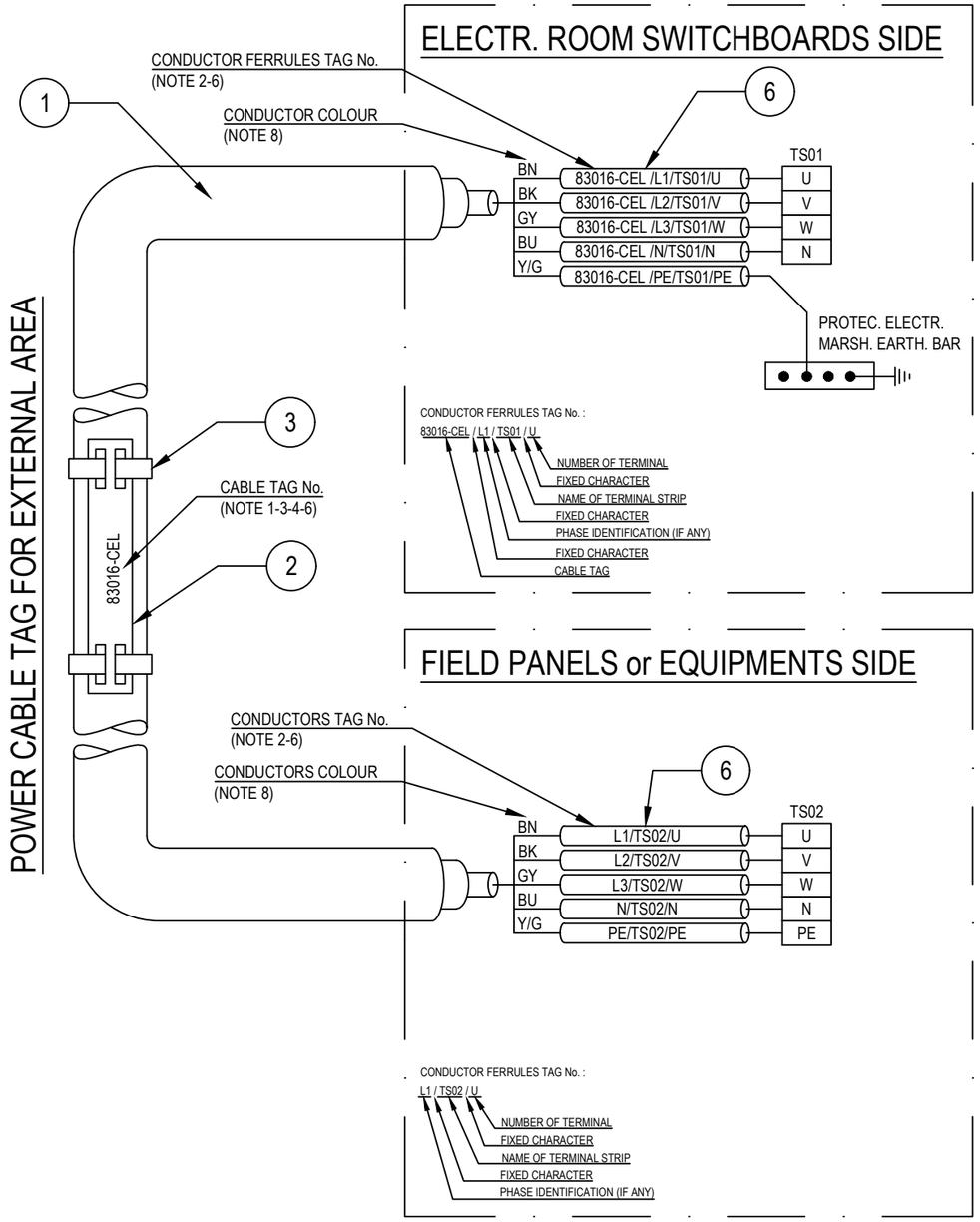
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 034 | REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

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.

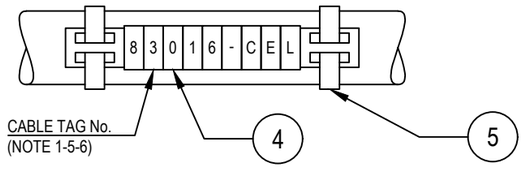
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

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.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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)

CROSSWIND

ROSETTI MARINO

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

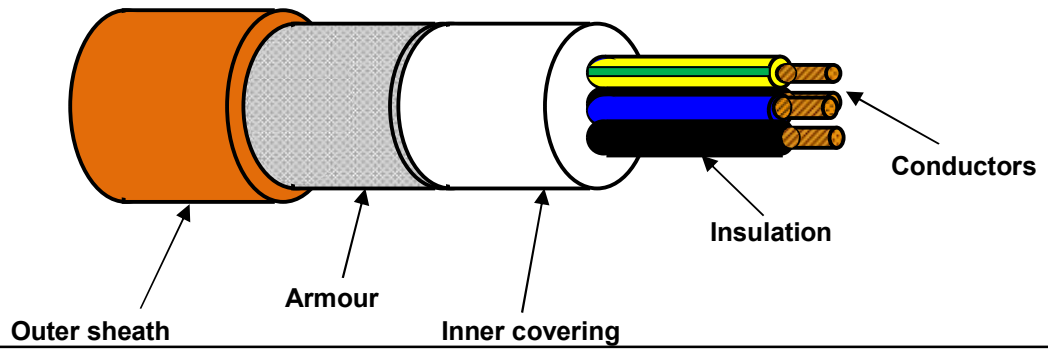
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

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
84104-CEL	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						DP-200F1	DC UPS 10 kVA Distribution Board	Lower Deck (B-100)	SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	ELECV18-3G16	Cable Cu Cl.2/MGT/EPR/LSZH/GSWB/LSZH 0,6/1kV 3G16mm² - Orange-DC	M25	T2_M25_Double			n.a.				L-300-101-LVT-060 / L-600-101-LVT-058 / L-300-101-LVT-059

FLEI s.r.l.

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

3G16 - DC POWER CABLE - Fire Resistant & Flame Retardant - ARMOURED



TECHNICAL FEATURES

Conductors :	**STRANDED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	Mica/Glass Tape/s (MGT) plus EPR compound, quality to IEC 60092.360, Nominal Thickness 1,0 mm	
Cores colour code :	**Red - Black - Yellow/Green**	
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:	Not required	
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 :	**Galvanized Steel Wire Braid Armour (coverage ≥ 90%)**	
Outer sheath :	Extruded LSZH Thermoplastic Compound (O.I. ≥ 30%), type **SHF1** to IEC 60093.360, Average Thickness 1,6 mm	
Outer sheath color code:	**Orange**	
Outer printing (INKJET) :	**FLEI - ELECTRIC CABLE - 1000V - 3G16 SQMM - MGT/EPR/LSZH/GSWB/LSZH - 0,6/1 KV - IEC 60331.21 - IEC 60332.1.2 - IEC 60332.3.22 - Year of Manufacture - CE + Meter Marking**	
Under Armour diameter :	(19,2 ± 10%) mm	
Over Armour diameter :	(20,4 ± 10%) mm	
Outer diameter :	(23,6 ± 10%) mm	
Bending radius :	cable outer diameter x 10	(in fixed installation)
Voltage test :	3,5 kV a.c. for 5' (Between Cores - Armour)	
Conductors DC Resistance :		IEC 60228 Class 2
Insulation Resistance :	≥ 460 MΩ x Km (@ 20°C)	
Applicable Standards		
Design Guidelines :	**IEC 60092.353**	
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%)	
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.

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	83119-CEL	: Lighting & Small Power DB BoP / Auxiliary 6.6kV Switchboard		Dwg	123A90-DDL-EL-LIS-20148	
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)		Module	LD_B-200/LD_B-100	
TASK	code	C10000638	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 3G2.5 Color Grey

From DP-200N1 To SG-100D1

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).	NA
8	Confirm cable labelling is in accordance with specifications.	OK
9	Check cable is correctly loomed and segregated in accordance with specification.	OK
10	Check cable earthing against lastest drawings.	OK
11	Check cores marking are in accordance with termination diagram	PL
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	83119-CEL	: Lighting & Small Power DB BoP / Auxiliary 6.6kV Switchboard			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-200/LD_B-100
TASK	code	C10000638		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	0.4	
6		PH 2	0.4	
7		PH 3	NA	
8	ARMOUR CONTINUITY Ω		0.5	
9	PROTECTIVE CONDUCTOR CONTINUITY Ω		0.4	
INSULATION				
10	CORES / ARMOUR+EARTH MΩ	PH1 / PH2-PH3-A-E	>1999	
11		PH2 / PH1-PH3-A-E	>1999	
12		PH3 / PH1-PH2-A-E	NA	
13	CABLE IS CORRECTLY RE-CONNECTED.		Yes	

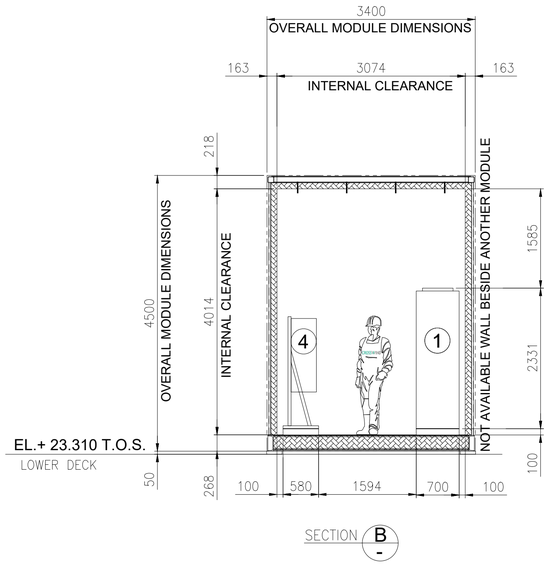
TESTING INSTRUMENTS USED

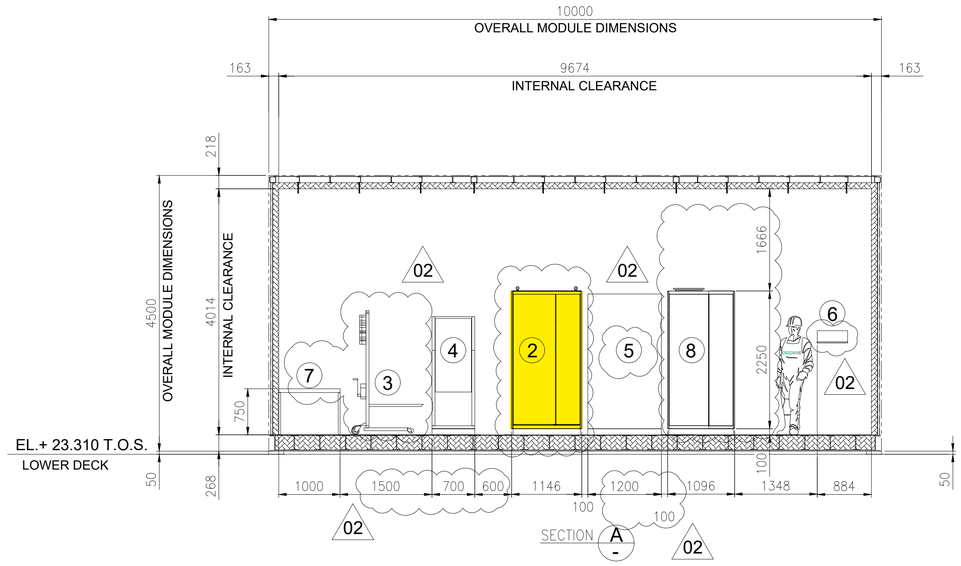
TYPE / SERIAL N° :	MEGGER : KEW3125A SERIAL: W8330207	TYPE / SERIAL N° :	MULTIMETER: FLUKE 175 SERIAL:AW1/018(17140769)
Calibration certificate N° and date:	N°7722/24 _ 10/07/2024	Calibration certificate N° and date:	N°7715/24 _ 10/07/2024

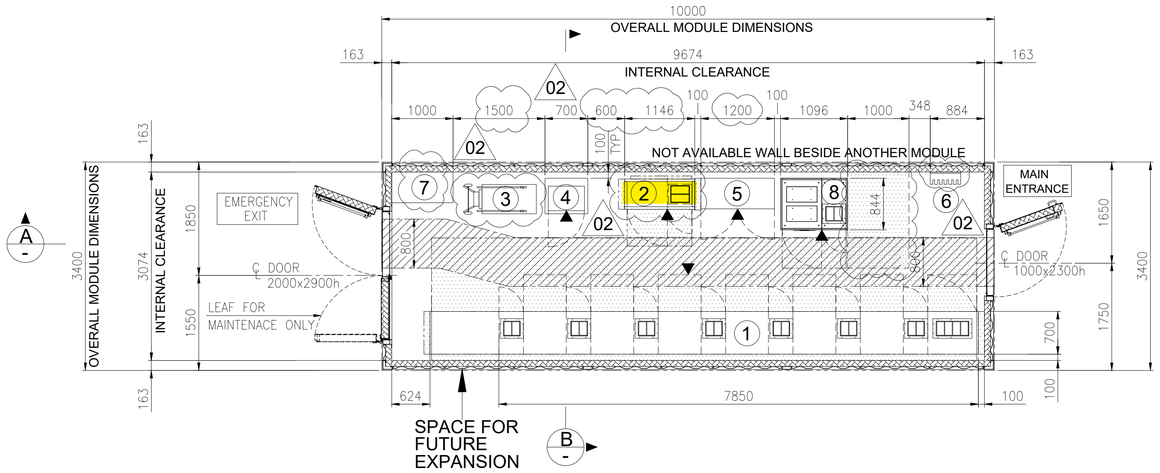
Comments: Note 4 : refer to PL C30000679

	Performed by	☉ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Paolo Schintu	
Date	2024-11-04	2024-11-22	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-04T17:06:35.774Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-22T12:52:51.220Z	

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







EQUIPMENT LAYOUT

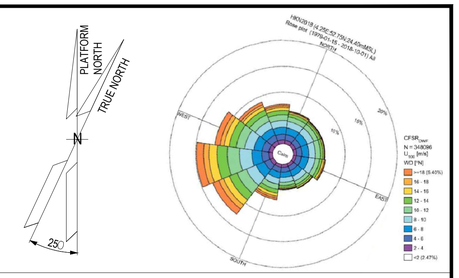
"B-200" LV (400V) SWITCHGEAR ROOM

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

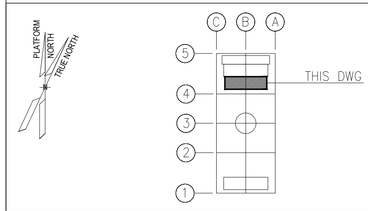
_____ FRONT OF EQUIPMENT

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

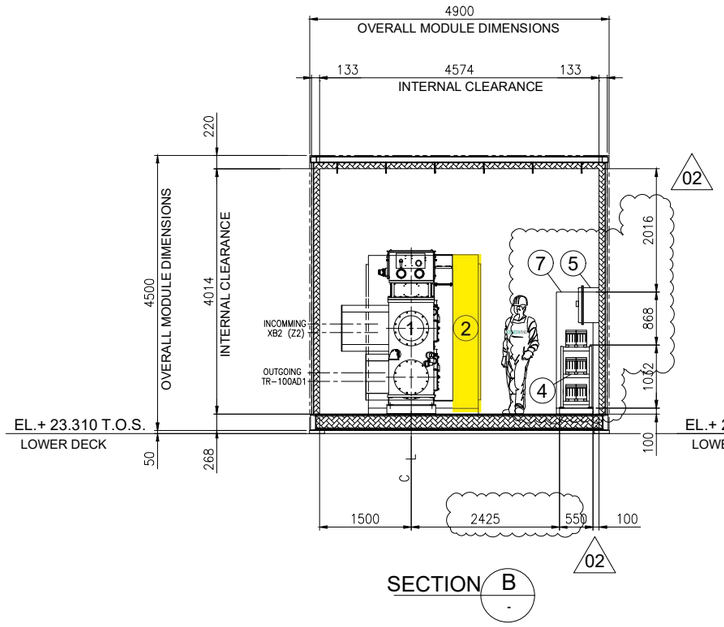
ROSETTI MARINO SpA

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

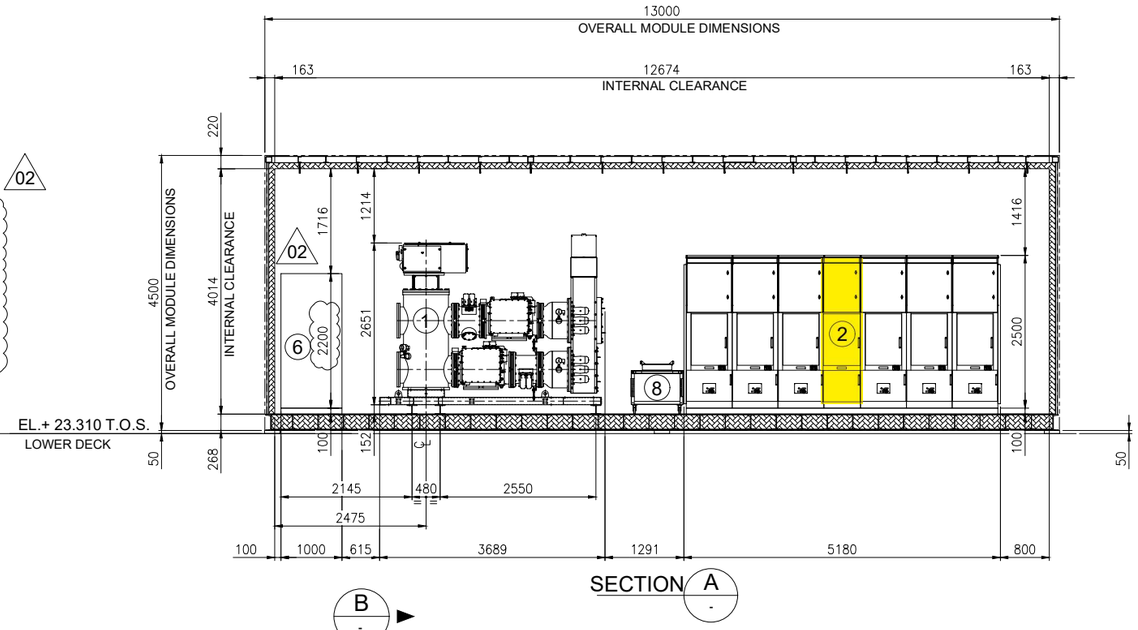
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

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

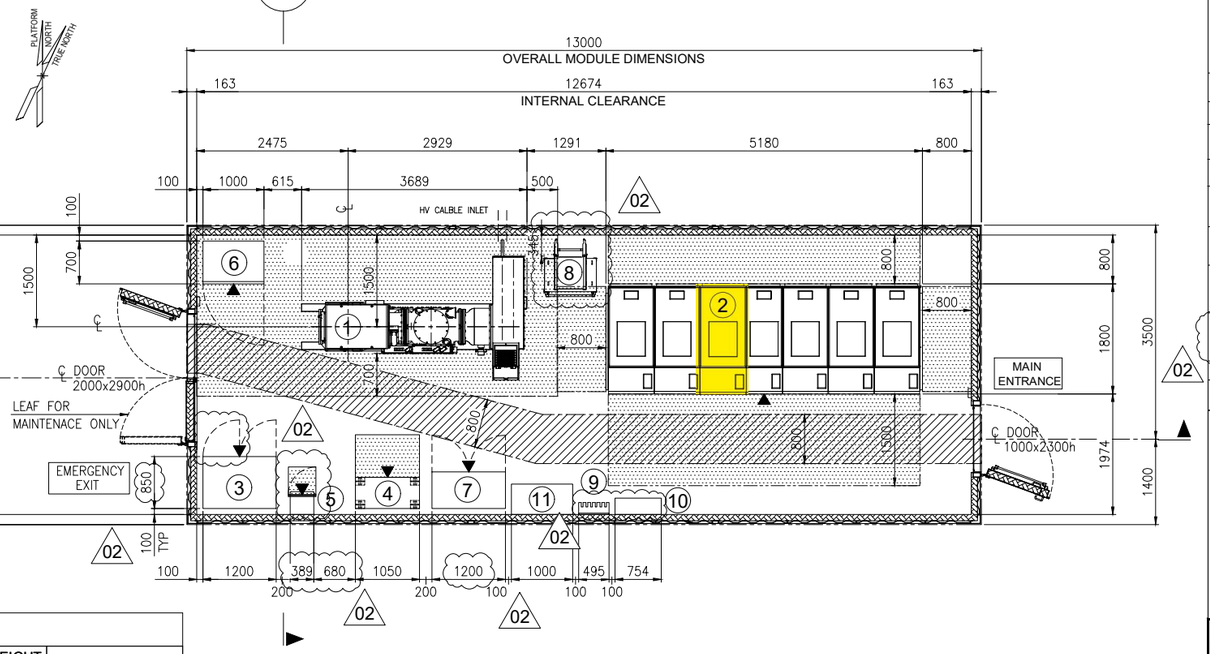
DRAWING NO. 123A90-DDL-EL-DL-20104 | REV. 02



SECTION B -



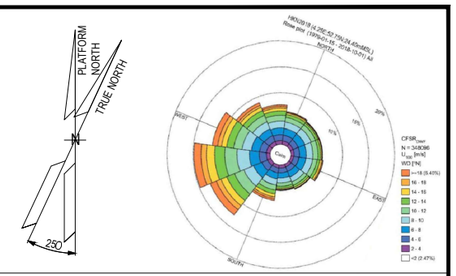
SECTION A -



A -

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	



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

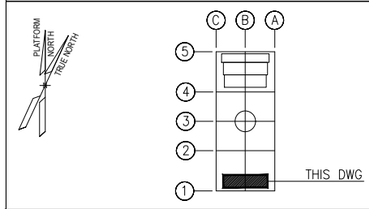
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND | ROSETTI MARINO

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

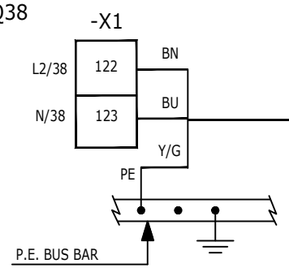
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

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

FROM	TO

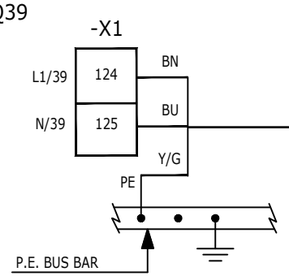
DESCRIPTION: LIGHTING & SMALL POWER DB BOP
TAG NUMBER: DP-200N1

CUBICLE/CB: +03/Q38



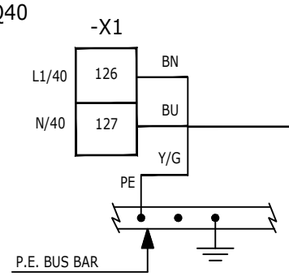
83119-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q39



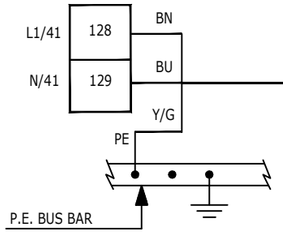
83120-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q40



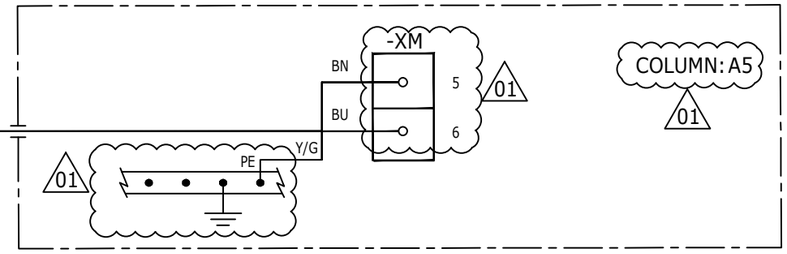
83121-CEL
3G2.5 mm²

CUBICLE/CB: +03/Q41

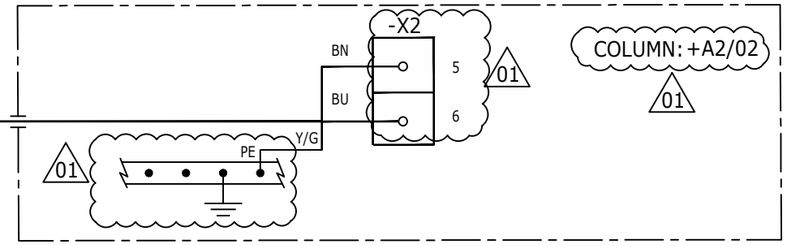


83122-CEL
3G2.5 mm²

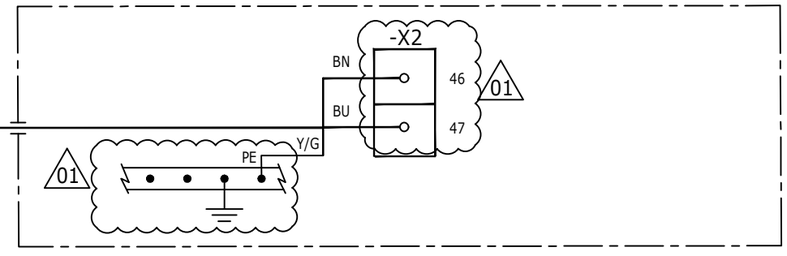
DESCRIPTION: AUXILIARY 6.6KV SWITCHBOARD
TAG NUMBER: SG-100D1



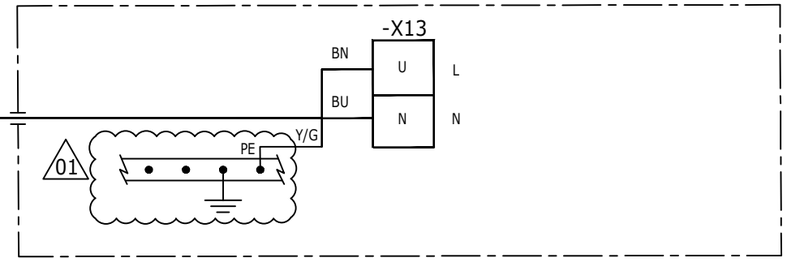
DESCRIPTION: AUXILIARY LV
TAG NUMBER: SG-200N1



DESCRIPTION: LV SWBD 800/460V AUXILIARY
TAG NUMBER: SG-200D2



DESCRIPTION: AC UPS PAS AUXILIARY
TAG NUMBER: UP-200F3



VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20149

REV.:	DATE:	SIGNATURE:
1_A	17/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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
LIGHTING & SMALL POWER DB BOP

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

SCALE : 1:X

A3

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

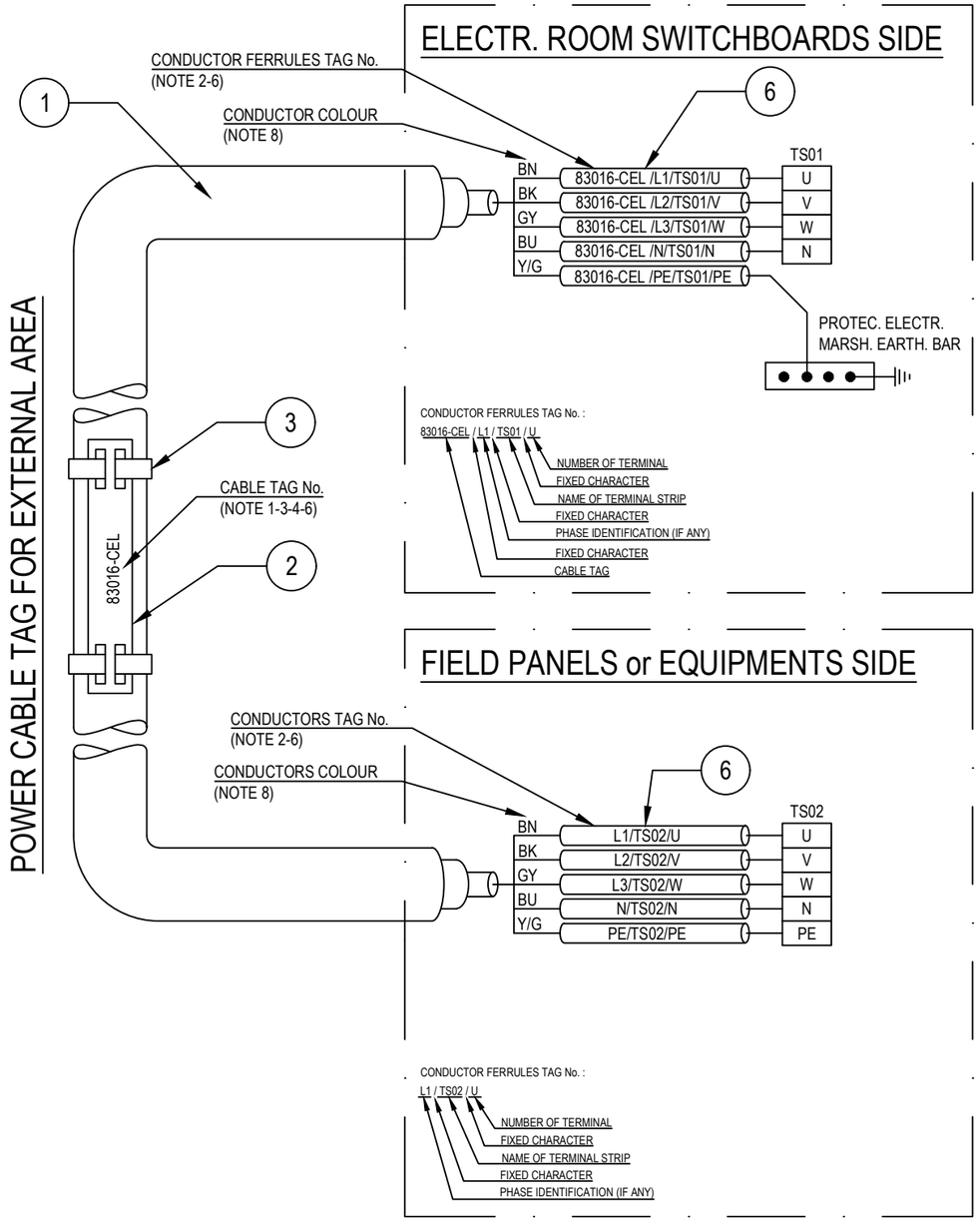
SHEET 056

REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

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.

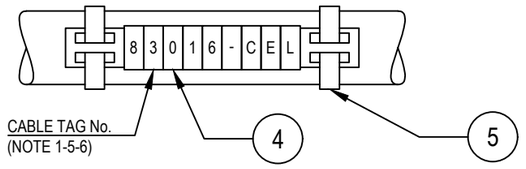
5) THE CABLE TAG FOR INTERNAL AREA SHALL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

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.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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)

CROSSWIND

ROSETTI MARINO

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

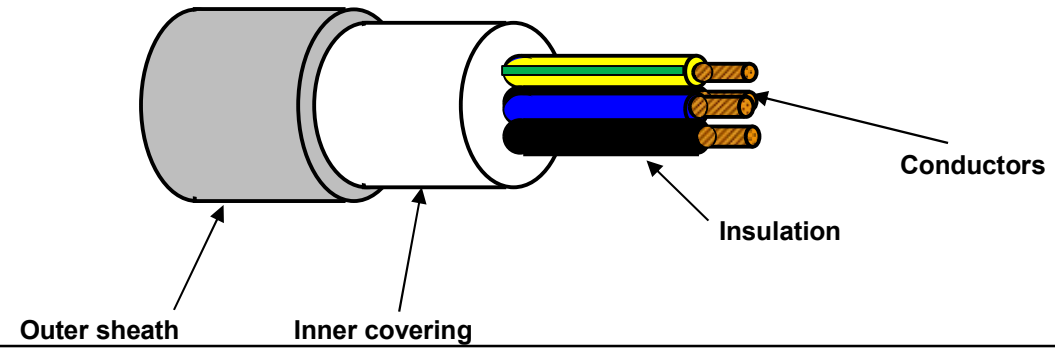
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

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
83119-CEL	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						DP-200N1	LV 0,4 / 0,23 kV Distribution Switchgear	Lower Deck (B-200)	SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	ELECV06-3G2,5	Cable Cu Cl.2/EPR/LSZH 0,6/1kV 3G2,5mm² - Grey	M20	n.a.			n.a.				L-450-101-LVT-030 / L-600-101-LVT-020 / L-600-101-LVT-018 / L-600-101-LVT-017 / E-MCT-201 / L-750-101-LVT-011 / 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/EPR/LSZH 0,6/1 KV

3G2,5 - L.V. POWER CABLE - Flame Retardant



TECHNICAL FEATURES

Conductors :	**STRANDED** plain/bare annealed copper wires	IEC 60228 Class 2
Insulation :	EPR compound, quality to IEC 60092.360, Nominal Thickness 1,0 mm	
Cores colour code :	**Brown - Blue - Yellow/Green**	
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:	Not required	
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 - 3G2,5 SQMM - EPR/LSZH - 0,6/1 KV - IEC 60332.1.2 - IEC 60332.3.22 -**	
	Year of Manufacture - CE + Meter Marking	
Outer diameter :	(13,0 ± 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 :	≥ 1100 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.

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	SG-100D1	: MV 6,6kV Switchgear			Dwg	123A90-DDL-EL-DS-20020
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-100
TASK	code	C10000864		Location	Onshore Activities	User	Rosetti Marino Quality Control
FORM	Process	MC	Activity CCK	Discipline	Electrical	Form	CPX04 HV Switchboard

1	Check switchboard is de-energized and safe.	OK
2	Check conformity against latest data sheet and project specification.	Note
3	Check that anti-condensation heaters are ready to be energized.	OK
4	Check equipment is correclty aligned, leveled, rigid and secured with correct bolting.	OK
5	Check all panel mounted devices are undamaged and tagged in accordance with data.	Note
6	Check if construction rating plate data is correct.	Note
7	Check bus bars and supports are clean and clear of debris, torque all bolts to specification.	OK
8	Check earthing and bonding of all equipment against latest drawings.	OK
9	Check all switching devices are mechanically operational and undamaged.	OK
10	Check switchgear mechanical interlocks against interlock diagram.	OK
11	Check all shutters are identified, operational and lockable.	OK
12	Check C.T's &VT's are properly installed and match drawing and protection diagram.	OK
13	Check interconnection wiring against latest drawings.	Note
14	Check suppliers document	OK
15	If required produce Red Line Mark Up for "AS BUILT"	

ITEM	Tag	SG-100D1	: MV 6,6kV Switchgear		Dwg	123A90-DDL-EL-DS-20020	
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)		Module	LD_B-100	
TASK	code	C10000864	Location	Onshore Activities	User	Rosetti Marino Quality Control	
FORM	Process	MC	Activity CCK	Discipline Electrical	Form	CPX04	HV Switchboard

SWITCHBOARD DATA

Manufacturer :	IMESA	Serial N° :	231151/SD/010/2024	Voltage	6.6KV
Current	630A	IP Rating	IP30	Datasheet	123A90-EL-DS-20020
RATED SC CURRENT (RMS):	25	**kA:1s**		Specification	

Testing & measurement instruments used

Type	Serial n°	Calibration certificate	Validity

TEST RESULTS

CONTINUITY	Bus bars R	Bus bars S	Bus bars T	Polarity distribution Control	Polarity distribution Signalling	Space heater circuit	Motor rearming wiring
Continuity A							
Continuity B							

			Control wiring	Signaling wiring	Space heater circuit	Motor rearming wiring
Utility Insulation Resistance	Test V	Min Req.	MΩ			

				R-STE	S-RTE	T-RSE
1st Insulation Resistance	Test Voltage	Min Required	MΩ			
HV test 1 min	Test Voltage	Min Required	MΩ			
2nd Insulation Resistance	Test Voltage	Min Required	MΩ			

VT IDENTITY	CONTINUITY Primary U1	U2	U3	Secondary V1a	V2a	V3a	V1b	V2b	V3b	INSULATION Prim/secondary-Earth U1/E	U2/E	U3/E	Secondary/primary- Earth V1a-E	V2a-E	V3a-E	V1b-E	V2b-E	V3b-E

Note: for VT tests neutral to be disconnected from Secondary

Comments: Note: For check 2,5,6 refer to FAT punch list N' C30000104.

Note: For check 13, check on wiring will be done during cables inspection. Please refer to the relevant ITR.

See Attached

Page 2/2	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS Impianti Srl	RM (ROSETTI MARINO)	
Name	Carmelo Bongiovanni	Giovanni Tangianu	
Date	2024-09-11	2024-09-12	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-09-11T15:31:20.410Z	Firma Digitale Sicura Giovanni Tangianu 2024-09-12T09:42:02+0200	

RAPPORTO DI PROVA
TEST REPORT

Fornitore/ Supplier: IMESA S.p.A. Via G. Di Vittorio, 14 JESI (Ancona) – ITALIA
Tel.+39 0731 211034 - Fax.+39 0731 211055 - imesa@imesaspa.com - www.imesaspa.com

N° Certificato/ Certificate N°:	**323**	**Data / Date:**	**30/08/24**
Commessa N° / Workorder N°:	**240875**		
Matricola N° / Serial N°:	**231151/SD/044**		
Ordine N° / Order N°:			
Cliente / Customer:	**ROSETTI MARINO**		

Collaudo eseguito alla presenza di: / *Test surveyed by:*

Sig. / Mr.	Azienda / Company	Firma / Signature
VERDOLINI SIMONE	**IMESA S.P.A.**	

RAPPORTO DI PROVA
TEST REPORT

N° Certificato/ Certificate N°:		Data / Date:	30/08/24

Materiale collaudato a Norme: **IEC 62271-200**
Material tested according to
Procedura collaudo Quadri MT :
Procedure test Switchboards MT

QUADRO ELETTRICO MT SWITCHBOARD MV	Tipologia / Type:	MINIVER-C INTERNAL ARC PROOF (AFLR 25kA/1s)
Tensione Nominale di Isolamento (Ui): ***Rated Insulation Voltage* (Ui)**	**Kv 7,2**	

CARATTERISTICHE ELETTRICHE/ELECTRICAL INFORMATION:

Ue= **7,2** kV
Up= **60** kV
f= **50** Hz
Ir= **630** A
Ip= **65** kA
Ik= **25** Ka / t= **1** s

DESCRIZIONE/DESCRIPTION:
HV SWITCHBOARD 6,6kv QUADRO "SG-100D1"

DISEGNI/DRAWINGS	DESCRIZIONE/DESCRIPTION

N° Certificato/ Certificate N°:		Data / Date:	30/08/24

PROVE INDIVIDUALI (secondo lo standard IEC 62271-1): ■ = **OK**
INDIVIDUAL TESTS (according to standard IEC 62271-1)*:*

■ **7.1 PROVE DI ISOLAMENTO DEL CIRCUITO PRINCIPALE**
***DIELECTRIC TEST OF THE MAIN CIRCUIT* (60sec.)**
PROVA DI TENSIONE A FREQUENZA DI ESERCIZIO
POWER-FREQUENCY VOLTAGE TEST
CIRCUITI PRINCIPALI (Ud)16 Kv t=1min
MAIN CIRCUITS
Leakage current: L1=2,6mA;L2=2,6mA;L3= 2,8mA

☐ **7.2.1 ISPEZIONE SUI CIRCUITI AUSILIARI**
TEST ON AUXILIARY CIRCUITS
VERIFICA VISIVA: QUALITA' ASSEMBLAGGIO,UBICAZIONE DISPOSITIVI,PERCORSO CAVI,IDENTIFICAZIONE COMPONENTI E MORSETTI
VISUAL CHECK: ASSEMBLY QUALITY,DEVICE LOCATION,CABLES ROUTE,COMPONENTS AND TERMINALS IDENTIFICATION

☐ **7.2.2 PROVE DI FUNZIONAMENTO DELLE LOGICHE DI CONTROLLO**
CONTROL LOGIC OPERATION TESTS
VERIFICA DI FUNZIONAMENTO: CIRCUITI AUSILIARI E DI COMANDO
CHECKING OF OPERATIONS: AUXILIARY AND CONTROL CIRCUIT

☐ **7.2.3 VERIFICA DELLA PROTEZIONE CONTRO LA SCOSSA ELETTRICA**
CONTROL OF PROTECTION AGAINST ELECTRIC SHOCK
VERIFICA VISIVA SULLE PROTEZIONI CONTRO IL CONTATTO DIRETTO DEL CIRCUITO PRINCIPALE E L'ACCESSIBILITA'IN SICUREZZA ALLE PARTI AUSILIARI E DI COMANDO
VISUAL CHECK OF THE PROTECTIONS AGAINST DIRECT CONTACT OF THE MAIN CIRCUIT AND SAFE ACCESSIBILITY TO THE AUXILIARY AND CONTROL PARTS

☐ **7.2.4 PROVE DI ISOLAMENTO (1 sec.)**
TEST OF INSULATION (* … sec.)
PROVA DI TENUTA CON TENSIONE A FREQUENZA DI ESERCIZIO DI BREVE DURATA SU CIRCUITI AUSILIARI
TIGHTNESS TEST WITH SHORT-TERM OPERATING FREQUENCY VOLTAGE ON AUXILIARY CIRCUIT
CIRCUITI AUSILIARI (Ui) **……**kV
AUXILIARY CIRCUITS
Leakage current:

■ **7.3 MISURA DELLA RESISTENZA DEL CIRCUITO PRINCIPALE**
MEASUREMENT OF THE RESISTANCE OF THE MAIN CIRCUIT
MISURA CADUTA DI TENSIONE O RESISTENZA SU CIRCUITO PRINCIPALE (DOC.MOD. CQ12)
MEASUREMENT OF VOLTAGE OR RESISTANCE DROP ON THE MAIN CIRCUIT (DOC.MOD. CQ12)

■ **7.5 VERIFICHE DI PROGETTO E VISIVE**
PROJECT AND VISUAL CHECKS

☐ CONTROLLO VISIVO E DIMENSIONALE
VIUAL AND DIMENSIONAL CHECK

■ CONTROLLO CARPENTERIA, SBARRE E CONNESSIONI PRIMARIE-SERRAGGI,TERRE
STRUCTURAL WORKS, BUS-BAR CONTROL-TIGHTENINGS,GROUND

☐ CONTROLLO DATI NOMINALI APPARECCHIATURE
EQUIPMENT RATED DATA CONTROL

☐ CONTROLLO TARGHETTE/ETICHETTE
LABEL / DATA PLATE CONTROL

☐ CONTROLLO OSSERVANZA ALLE SPECIFICHE DI PROGETTO
CHECK OF COMPLIANCE TO PROJECT SPECIFICATIONS

☐ GRADO DI PROTEZIONE
PROTECTION DEGREE

■ VERIFICA SEGREGAZIONI INTERNE
VERIFY INTERNAL SEGREGATIONS

☐ CONTROLLO VERNICIATURA (RAL **…** ≥ 60 µ)
PAINTING CONTROL

☐ **7.102 PROVE DI FUNZIONAMENTO MECCANICO**
MECHANICAL OPERATION TEST
VERIFICA DI FUNZIONAMENTO:
SEZIONATORI,INTERRUTTORI,PORTE,CHIAVI ELE PARTI MECCANICHE CHE FORMANO IL QUADRO
OPERATION TEST:
DISCONNECTORS,SWITCHES,DOORS,KEYS AND THE MECHANICAL PARTS THAT FORM THE PANEL

RULES-------
Secondo lo Standard IEC 62271-200
According to Standard IEC 62271-200

RAPPORTO DI PROVA
TEST REPORT

N° Certificato/ Certificate N°:		Data / Date:	30/08/24

■ **MISURA RESISTENZA D'ISOLAMENTO**
MEASURE OF INSULATION RESISTANCE
IL TEST SI CONSIDERA SUPERATO SE PER UN MINUTO NON AVVENGONO SCARICHE DISRUPTIVE
SI PRENDE IL VALORE PIU' BASSO DI RESISTENZA DI ISOLAMENTO DOPO LA PROVA DIELETTRICA
THE TEST IS CONSIDERED PASSED IF NO DISRUPTIVE DISCHARGES OCCUR
LOWER INSULATION RESISTANCE VALUE TAKEN AFTER THE DIELECTRIC TEST

CIRCUITI DI POTENZA = 100,7 GΩ
POWER CIRCUIT

BEFORE TEST	AFTER TEST
L1 143,9 GΩ	**L1 122,7 GΩ**
L2 103,9 GΩ	**L2 100,7 GΩ**
L3 149,9 GΩ	**L3 119,3 GΩ**

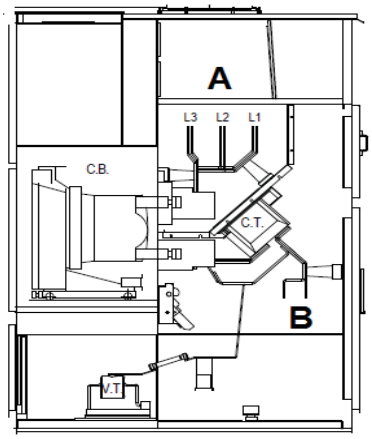
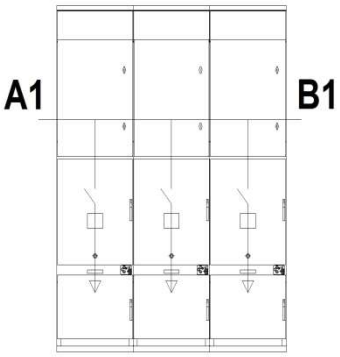
Apparecchiature utilizzate/ Equipment used: ***Scadenza Taratura /Expiration date***

MEGGER N° SP177 per prova isolamento	10/2024
TRASFORMATORE N°SP143 per prova dielettrica	03/2025
GENERATORE 100A N°SP151 per prova continuità sbarre	07/2025
CHIAVE DINAMOMETRICA N°SCD 58	01/2025
MULTIMETRO SP172	08/2025

Note/ *Notes:*

IMESA FIRMA/ *SIGNATURE* CLIENTE/ *CUSTOMER*
VERDOLINI SIMONE

MISURA DELLA RESISTENZA DEL CIRCUITO PRINCIPALE
MEASUREMENT OF RESISTANCE OF MAIN CIRCUIT

DISEGNO *DRAWING* PROGETTO: 240875 *PROJECT:*	**SCOMPARTO** ***COMPARTMENT***	Fase **L1** / Phase Misura della resistenza/ *Resistence measured* **(μΩ)***	Fase **L2** / Phase Misura della resistenza/ *Resistence measured* **(μΩ)***	Fase **L3** / Phase Misura della resistenza/ *Resistence measured* **(μΩ)***
	A1-A7	198,560	224	200,6
				

Nota I valori delle cadute di tensione di ciascuna fase di ogni singolo scomparto (allaccio/ uscita) non devono avere scostamenti reciproci superiori al 30%.

* *Per avere il valore della resistenza (μΩ) è sufficiente moltiplicare per 10 la c.d.t. (mV) misurata (esempio: c.d.t. di 1,4 mV = 14 μΩ).*

Note *The voltage drop values of each phase of any compartment (connection/ exit) must not have mutual deviations higher of 30% .*

* *To have the measure of resistance (μΩ) is sufficient to multiply for 10 the v.d. measured (mv) measured (ex: voltage drop of 1.4 mV = 14 μΩ)*

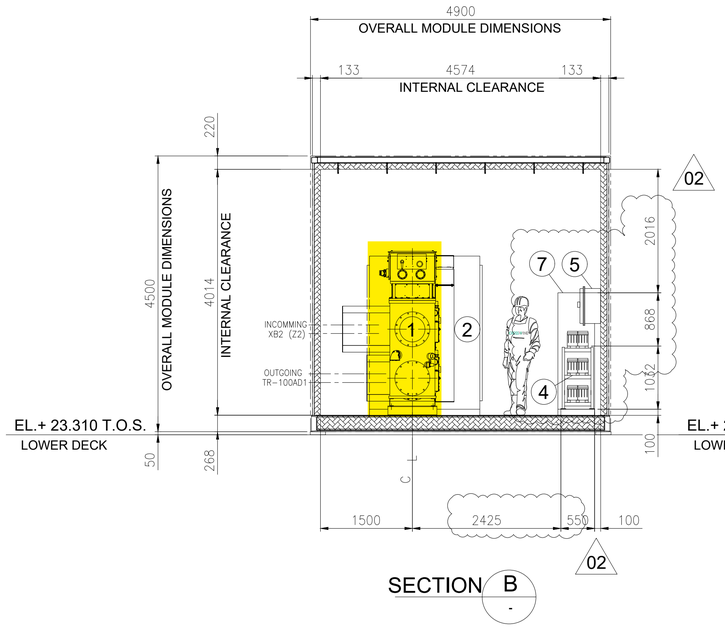
OPERATORE VERDOLINI SIMONE

CODICE MULTIMETRO: SP172
MULTIMETER CODE

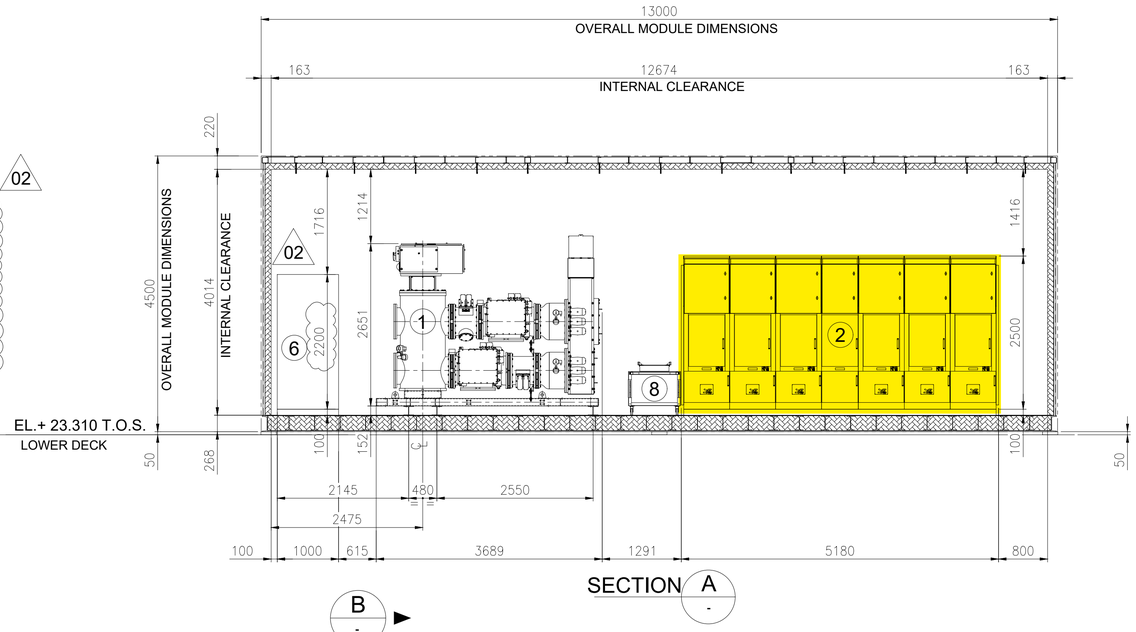
DATA 30/08/24
DATE

GENERATORE 100A C.C.: SP151
GENERATOR 100A D.C.

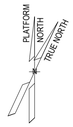
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



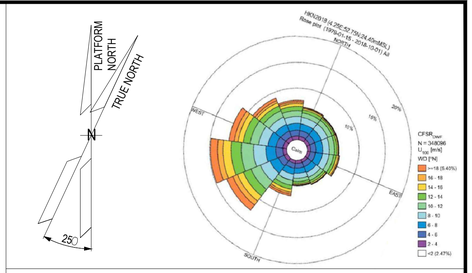
SECTION A -



A -

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	



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

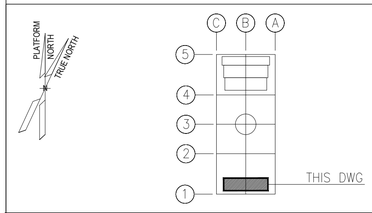
LEGEND

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



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	DYFO/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

PLATFORM NORTH
TRUE NORTH

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DL-20136**

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

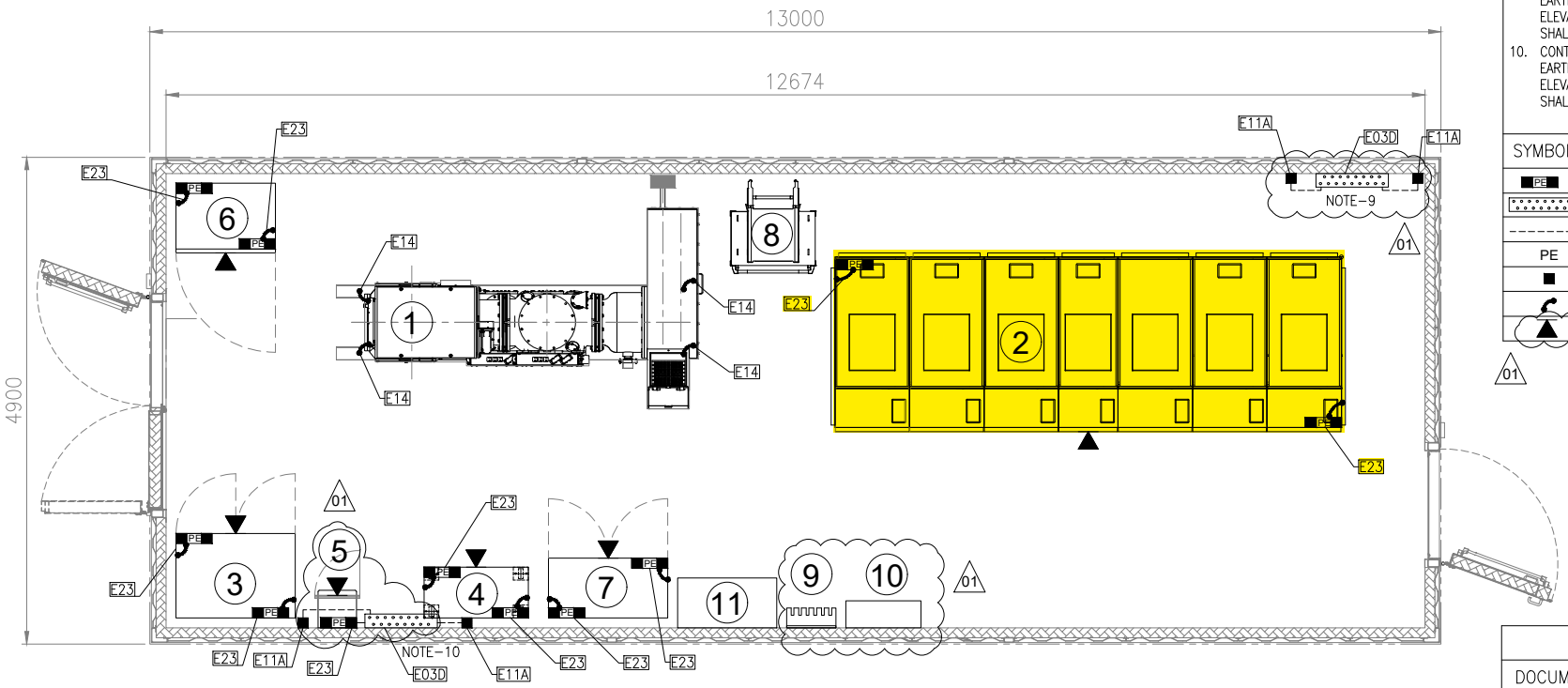
ROSETTI MARINO SpA

EQUIPMENT LIST		
REF.	TAG No.	DESCRIPTION
1	HNA6-AFA70	66kV SWITCHGEAR (GIS)
2	SG-100D1	6.6kV SWITCHGEAR
3	UP-200F1	DC UPS PANEL
4	BA-200F1	DC UPS BATTERY RACK
5	CB-200F1	ISOLATOR FOR DC UPS
6	CP-100E1	66 kV SWITCHGEAR LOCAL CONTROL PANEL
7	B100-HSB-001	DISTRIBUTION & HVAC PANEL – HV SWITCH ROOM
8	–	SERVICE TROLLEY FOR 6.6kV SWITCHGEAR
9	–	TOOL BOX
10	–	ELECTRIC SAFETY KIT
11	–	TABLE

01

NOTES

1. THIS DOUCMENT IS VALID ONLY FOR EARTHING LAYOUT.
2. THE CABLE SIZE SHALL BE CONFIRMED.
3. THE EXACT POSITION OF EARTHING/MARSHALLING BUS BAR SHALL BE DEFINED BY VENDOR.
4. THE EARTHING BUS BAR INSTALLATION SHALL BE PREFERABLY IN VERTICAL MODE.
5. FOR TYPICAL DETAILS PLEASE REFER DOCUMENT "123A90-DDL-EL-DD-20090-ELECTRICAL TYPICAL INSTALLATION DETAILS- EARTHING SYSTEM".
6. DUE TO THE TOP CABLE ENTRIES THE EARTHING BUS BAR INSIDE THE CABINETS SHALL BE INSTALLED AT THE TOP OF THE CABINETS THEMSELVES.
7. FOR LIGHTNING PROTECTION SYSTEM SURGE PROTECTIVE DEVICES (SPD), REFER DOCUMENT 123A90-DDL-EL-RE-20154.
8. ALL NON WELDED OBJECTS SHALL BE EARTHED.
9. CONTAINER WILL HAVE A BTH (EARTHING BAR TINNED COPPER) WITH 2 EARTHING BOSS, INSTALLED IN THE NORTH-EAST CORNER AT AN ELEVATION OF 2.8M FROM THE CONTAINER FLOOR. EARTHING BOSS SHALL BE INSTALLED AT SAME ELEVATION 2.8M.
10. CONTAINER WILL HAVE A BTH (EARTHING BAR TINNED COPPER) WITH 2 EARTHING BOSS, INSTALLED IN THE SOUTH-WEST CORNER AT AN ELEVATION OF 2.5M FROM THE CONTAINER FLOOR. EARTHING BOSS SHALL BE INSTALLED AT SAME ELEVATION 2.5M.



EARTHING LAYOUT
B-100-HV(66kV/6.6kV) SWITCHROOM
PLAN
EL.+ 23.310 T.O.S.

SYMBOL	DESCRIPTION
PE	EARTHING BUS
	EARTHING BAR TINNED COPPER WITH no.18 HOLES
	35sq.mm Y/G INSULATED COPPER CONDUCTOR FOR PE
PE	PROTECTIVE EARTH
	EARTHING BOSS AISI316L
	JUMPER CONNECTION
	FRONT OF EQUIPMENT

01

REFERENCE	
DOCUMENT NUMBER	DOCUMENT TITLE
123A90-DDL-EL-DD-20090	ELECTRICAL TYPICAL INSTALLATION DETAILS -EARTHING SYSTEM
123A90-DDL-EL-DL-20104	ELECTRICAL EQUIPMENT LAYOUT- HV SWITCHROOM
1724000049-AR-DD-00018	B-100 DETAILED DRAWINGS-E&I SHELTERS

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	25/07/24	ASR	FMA/AMA	FPA/DLO	ACCEPTED FOR CONSTRUCTION (AFC)
00	21/05/24	SPS	FMA/AMA	FPA/DLO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
EARTHING & LIGHTNING LAYOUT-HV SWITCHROOM "B-100"HV SWITCHROOM

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

SCALE : 1:50

A3

DRAWING NO. 123A90-DDL-EL-DL-20136

SHEET 003

REV. 01

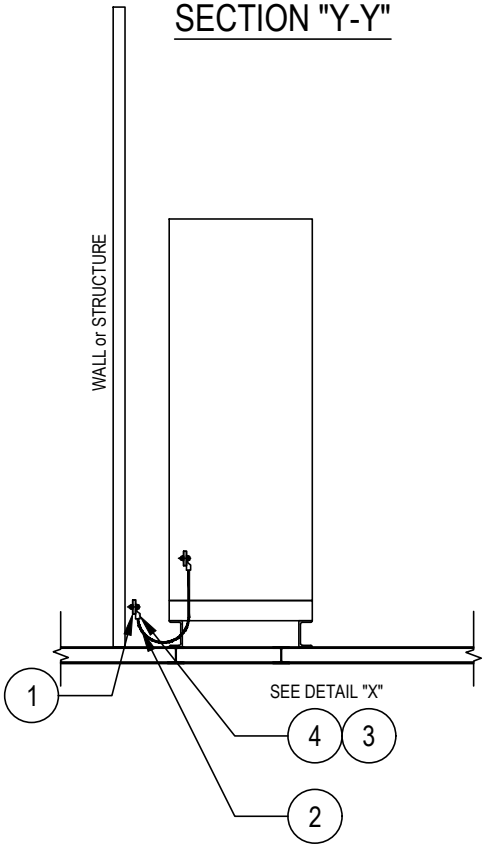
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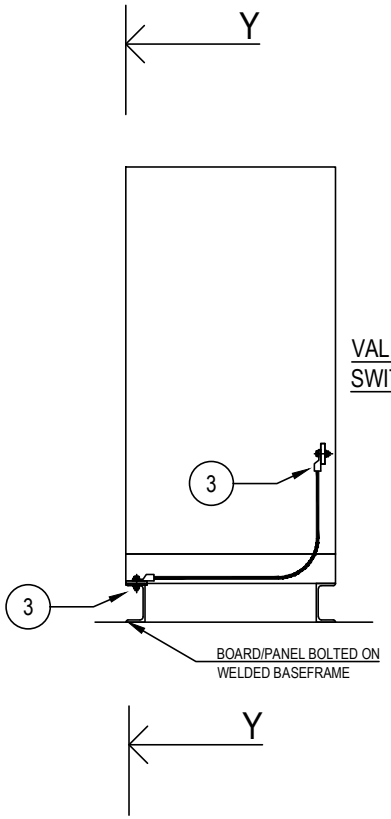
F.to UNI A3: 420mmx297mm

E23

POS.	DESCRIPTION	MATERIAL	SIZE	Q.TY	NOTE
1	MARSHALLING EARTHING BAR	TINNED COPPER	50X5		NOTE 1
2	Y/G INSULATING COPPER CONDUCTOR	COPPER			NOTE 1
3	COMPRESSION TYPE LUG FOR INSULATION COPPER CONDUCTOR	TINNED COPPER	35mm^2	4	NOTE 1
4	BOLT, PLANE WASHER, GROWER SPRING WASHER AND NUT	AISI 316L	M10X30	4	

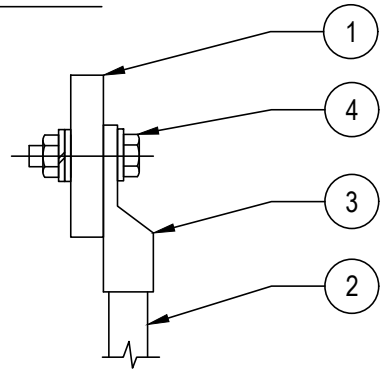
SECTION "Y-Y"





VALID FOR HV/LV SWITCHGEAR

DETAIL "X"



NOTES:

1) FOR SIZE OF THE EARTHING CABLE SEE EARTHING LAYOUT DRAWINGS OF RESPECTIVE AREAS

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-EL-DD-20090**

REV.:	DATE:	SIGNATURE:
2_A	26/08/24	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 PANELS/BOARDS IN TECHNICAL ROOM

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	011	02

F.to UNI A3: 420mmx297mm

CROSSWIND

ROSETTI MARINO

File Name : 123A90-DDL-EL-DD-20090 REV.02.DWG

IOGP S-620D (2.0) Procurement Data Sheet for High-voltage Switchgear and Controlgear (IEC)

Row	Ref. Clause	Description	Purchaser requirement	Purchaser requirement UOM	Supplier offered value	Supplier offered UOM	Additional notes	Issue
3		**Identifier**						
4		Tag number :	SG-100D1		SG-100D1			01
5		Tag description :	6.6 kV Switchgear		6.6 kV Switchgear			01
6		**General information**						
7		Conformity assessment system (CAS) level :	D		D			
8		Project country :	Netherlands		Netherlands			01
9		Project region :	Netherlands		Netherlands			01
10		**Location environment**						
11	6.101,9.5	Location environment :	offshore – fixed		offshore – fixed			01
12		Ambient air temperature - upper limit :	40	°C	40	°C		
13		Ambient air temperature - daily average maximum :	35	°C	35	°C		
14		Ambient air temperature - lower limit :	-8.4	°C	-8.4	°C		01
15		Altitude :	1000	m	1000	m		
16		Humidity conditions - 24 h average relative humidity :	95	%	95	%		
17	4 paragraph 3	Site pollution severity (SPS) class :	very light		very light			
18		Seismic activity zone in accordance with IEC 60721-2-6 :	not applicable		not applicable			
19	6.101	Maximum rolling of vessel in dynamic conditions :	input data	HOLD	input data			
20	6.101	Maximum pitching of vessel in dynamic conditions :	input data	HOLD	input data			
21		**Rated voltage**						
22	5.2	Nominal and rated system voltage (U_r) :	6.6 (7.2)	kV	6.6 (7.2)	kV		01
23	9.102	Type of system earthing :	impedance earthed neutral		impedance earthed neutral			01
24		**Rated insulation level**						
25	5.3	Rated short-duration power-frequency withstand voltage (U_d) :	20 / 23	kV	20 / 23	kV		01
26	5.3	Rated lightning impulse withstand voltage (U_p) kV peak :	60 / 70	kV	60 / 70	kV		01
27		**Rated frequency**						
28	5.4	Rated frequency (f_r) :	50	Hz	50	Hz		01
29		**Rated continuous current**						
30	5.5,E.2.1	Rated continuous current (I_r) :	630	A	630	A		01
31		**Rated short-time withstand current**						
32	5.6.102,5.6.101 ,E.2.2,E.4.2	Rated short-time withstand current (I_k, I_{ke}) :	25	kA	25	kA		01
33	5.6.102	Rated short-time phase-to-earth withstand current (I_{ke}) :	87 % of Ik	kA	87 % of Ik	kA		01
34		**Rated peak withstand current**						
35	5.7.102	Rated peak phase-to-earth withstand current (I_{pe}) :	87 % of Ip	kA	87 % of Ip	kA		01
36		**Rated duration of short circuit**						
37	5.8.101,E.2.4,E .4.2	Rated duration of short-circuit (t_k) :	1	s	1	s		
38		**Rated supply voltage of closing and opening devices and of auxiliary and control circuits**						
39	5.9	Closing and tripping devices :	110 V DC		110 V DC			01
40	5.9	Indication :	110 V DC		110 V DC			01
41	5.9	Control :	110 V DC		110 V DC			01
42	6.108.2.3	Circuit breaker spring charging motors :	110 V DC		110 V DC			01
43	6.4.1.2	Auxiliary circuits (e.g. panel lighting) :	230	V AC	230	V AC		01
44		**Ratings of the internal arc classification (IAC)**						
45	6.101,5.103.2	Accessibility type :	Type A		Type A			
46		**Design and construction**						
47		Main device type withdrawal requirements :	withdrawable		withdrawable			
48		Mounting arrangement :	longitudinal channels flush with floor		longitudinal channels flush with floor			
49	6.101	Back-to-wall switchgear configuration required :	no		no			01
50		Cable termination chamber location :	rear access		rear access			01
51		**Requirements for gases in switchgear and controlgear**						
52	6.1	High-voltage compartment insulating medium :	air		air			01
53		**Earthing of the high-voltage conductive parts**						
54	5.101	Classification of earthing switches for short-circuit making :	E1		E1			
55	7.102.1	Earthing switch mechanical endurance class :	M0		M0			
56		Earthing device operator location(s) :	remote operation		front of panel operation only			01
57		Provision of earthing truck :	not required	HOLD	not required			
58		**Voltage detecting and indicating systems**						
59	6.3.107.1,6.3.1 07.2,6.3.107.3	VDIS provision:	manufacturer's standard		manufacturer's standard			01
60		**Heating elements**						
61	6.4.5.2.1,6.4.5. 2.2,6.4.5.2.3,6. 4.5.2.4,6.4.5.2. 5,6.4.5.2.6	Low-voltage auxiliary compartment space heater provision :	required		not required			01
62	6.4.5.2.1,6.4.5. 2.2,6.4.5.2.3,6. 4.5.2.4,6.4.5.2. 5,6.4.5.2.6	High-voltage connection compartment space heater provision :	required		manufacturer's standard		On the rear in the cable compartment.	01
63		Space heater rated voltage :	200-240	V AC	200-240	V AC		01
64		Space heater control method :	thermostat		thermostat			01
65		Remote motor space heater supply provision :	not required		not required			01
66		Remote motor space heater supply voltage :	not applicable	V AC	not applicable	V AC		01
67		**Low- and high-pressure interlocking and monitoring devices**						
68	6.1	Method of local gas pressure indication/alarm :	manufacturer's standard		select		Not applicable	01
69		**Gas and vacuum tightness - General**						
70	6.16	Circuit breaker switching medium :	vacuum		vacuum			01
71	6.16	Contactor switching medium :	vacuum		vacuum			01
72		**Controlled pressure systems for gas**						
73	6.103.2.3	Provision of controlled pressure systems :	N/A		not permitted			
74		**Fire hazard (flammability)**						
75		Auxiliary and control circuit cable insulation :	low smoke zero halogen		low smoke zero halogen			
76		**Enclosure - general**						
77	6.102.1,6.14.2	Minimum degree of protection by enclosure with doors closed :	IP3XW		select		IP30	01
78	6.102.1	Consideration of floor surface :	floor is not part of enclosure		floor is not part of enclosure			01
79		**Locking facilities**						
80		Low-voltage compartments :	padlockable	6 mm hasp	manufacturer's standard locking facility		hinged doors with handle key lock	01
81		Safety shutters, disconnectors and switches :	padlockable	8 mm hasp	padlockable		by key	01
82		Padlock provider :	manufacturer supplied		manufacturer supplied		No padlock for shutter are provided, however they can be padlockable.	01
83		**Partitions and shutters - general**						
84	10.2	Partition class :	manufacturer's standard		manufacturer's standard			
85		Minimum degree of protection by enclosure with doors open - partitions :	IP2X		select		IP20	01
86		Minimum degree of protection by enclosure with doors open - shutters :	IP2X		select		IP20	01
87		**Removeable parts**						
88	6.104	Facilities for remote testing of withdrawable units :	not required		not required			01
89		**Labelling and identification**						
90	6.103.3.2,6.107 .1.2,6.107.1.3	Main component, primary identification language :	English		English			
91		**Supplementary colour marking of conductors**						
92		Phase 1 :	brown		brown		Color is relevant to the bar label	01
93		Phase 2 :	black		black		Color is relevant to the bar label	01
94		Phase 3 :	grey		grey		Color is relevant to the bar label	01

Row	IOGP S-620D (2.0) Procurement Data Sheet for High-voltage Switchgear and Controlgear (IEC)							Issue
2	Ref. Clause	Description	Purchaser requirement	Purchaser requirement UOM	Supplier offered value	Supplier offered UOM	Additional notes	
95		Neutral :	blue		not required		Not applicable	01
96	6.107.3	Supplementary conductor colour marking for DC circuits. :	required	(+) Red (-) White	required		Red/white as requested	01
97		**Mimic diagrams**						
98		Mimic (synoptic) diagrams :	required		required			
99		**Isolating switching devices (disconnectors)**						
100		Switch electrical endurance class :	E2		E2			01
101	7.102.1	Switch mechanical endurance class :	M1		M1			01
102		Capacitive breaking capability class of switches :	no classification		no classification			
103		**Circuit-breakers**						
104		Circuit-breaker electrical endurance class :	E2		E2			
105		Circuit-breaker restrike class :	C1		C1			
106	7.102.1	Circuit-breaker mechanical endurance class :	M1		M1			
107		Circuit-breaker system class :	S1		S1			
108		**Surge arrestors**						
109	6.111.1	Provision of metal oxide surge arresters to IEC 60099-4 :	required		required			01
110		**Voltage transformers**						
111		Incomer voltage transformer arrangement :	manufacturer's standard		manufacturer's standard			01
112		Outgoing feeder voltage transformer arrangement :	manufacturer's standard		manufacturer's standard			01
113		Motor starter voltage transformer arrangement :	select	N/A	select		Not applicable	01
114		Busbar voltage transformer arrangement :	manufacturer's standard		withdrawable			01
115	6.109.7	Energy tariff voltage transformer :	not required		not required			
116		**Digital instruments**						
117		Multi-function digital measuring device accuracy :	0,5 S		select		Measurements from multifunction protection relay	01
118		**Protection devices**						
119	6.113.1	Protection relay type :	IED - manufacturer's standard		IED - manufacturer's standard			
120		**Terminals for external conductors**						
121	6.114.1.4	Incoming (supply) unit external conductor type :	cable - bolted lugs		cable - bolted lugs			01
122		Incoming cable entry direction. :	top		top			01
123	6.114.1.4	Outgoing (load) unit external conductor type :	cable - bolted lugs		cable - bolted lugs			01
124		Outgoing cable entry direction. :	top		top			01
125		**Terminals for control and auxiliaries**						
126		Auxiliary cable entry direction :	top		top			01
127	6.114.2.7	Spare terminal provision for future use :	10 % spare		10 % spare			
128		**Condition monitoring**						
129	6.116.1	Thermal monitoring :	required		required			01
130	6.116.1	Partial discharge monitoring :	required		required			01
131	6.116.1	Circuit breaker condition monitoring :	required		required			01
132		Motor condition monitoring equipment :	not required.		not required.			
133		Additional data visualization :	not required	HOLD	not required			
134		Condition monitoring to site system interface media :	manufacturer's standard		manufacturer's standard			01
135		Condition monitoring to site system interface protocol :	select	HOLD	IEC 61850			01
136		**Interface with control systems**						
137		IED brand :	manufacturer's standard		manufacturer's standard		ABB REX640	01
138		Process control interface (ICSS/DCS) media :	manufacturer's standard		manufacturer's standard		Not applicable	01
139		Process control interface (ICSS/DCS) protocol :	IEC 61850		not required		Not applicable	01
140		Process control interface (ICSS/DCS) network redundancy :	select	HOLD	select		Not applicable	
141		Electrical control interface (ECMS) media :	not required	HOLD	ethernet (Cu)			01
142		Electrical control interface (ECMS) protocol :	IEC 61850		IEC 61850			01
143		Electrical control interface (ECMS) network redundancy :	not applicable	HOLD	parallel redundancy protocol (PRP)			01
144		IED remote configuration via the ECMS :	not applicable	HOLD	not applicable			
145		**Switchgear interlocking/intertripping interfaces**						
146		Interlocking/intertripping interface media :	manufacturer's standard	HOLD	manufacturer's standard			
147		Interlocking/intertripping interface protocol :	hardwired	HOLD	hardwired			
148		**Power management system (PMS) interfaces**						
149		IED to PMS interface media :	manufacturer's standard		other		Not applicable	01
150		IED to PMS interface protocol :	IEC 61850		other		Not applicable	01
151		IED to PMS network redundancy :	not applicable	HOLD	not applicable			
152		**Generator control panel interfaces**						
153		IED to generator control panel interface media :	not required		not required			
154		IED to generator control panel interface protocol :	not required		not required			
155		**Application of communication protocols to protective functions**						
156		Conformance class :	class c		class c			
157		Availability class :	A2		A2			
158		Network redundancy protocol :	select	HOLD	parallel redundancy protocol (PRP)			01
159		**Routine tests**						
160	7.2.10	Partial discharge measurement test :	not required		not required			01
161		ECMS simulation test :	required		required			01
162		**Cyber security**						
163	6.4.5.1	Security certification for industrial automation and control system components :	required		required		Switches and protection relays as per vendor standard data sheet.	01
164		**Internal arc fault supplementary protective measures**						
165	9.103.3	Integrated internal arc fault detection system :	required		required			01
166		**Information to be given with enquiries, tenders and orders**						
167		Language used for all provided information :	English		English			
168		**Transport, storage, installation, operation and maintenance**						
169	11.2	Transport and storage environmental conditions :	Vendor to advise		within defined site conditions			01
170		Equipment integration location :	Integration at Ship Yard priot to Sailway		Integration at Ship Yard priot to Sailway			01
171		Load certified hoist for components > 25 kg :	not required	HOLD	not required			
172		Circuit breaker trolley :	required		required			01

MASTER
29/07/24

BASE LOAD POWER HUB (BLPH)

"SG-100D1" HV SWBD 6,6kV

GENERAL ARRANGEMENTS DWG AND FOUNDATION LOAD CALCULATION INCLUDING COG

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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+					
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DWG n°: 231151/SD/6
Item n°: PF1113279/4

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Cover

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 001

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

INDEX SHEETS

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8	9
001	Cover / GENERAL ARRANGEMENTS	X	X	X							
002	Index / GENERAL ARRANGEMENTS	X	X	X							
003	Switchgear Characteristics / GENERAL ARRANGEMENTS	X	X	X							
004	Switchgear Characteristics / GENERAL ARRANGEMENTS	X	X	X							
005	Switchgear Name Plate / GENERAL ARRANGEMENTS	X	X	X							
006	Switchgear Lay-Out - Front View / GENERAL ARRANGEMENTS	X	X	X							
007	Switchgear Lay-Out - Bottom View / GENERAL ARRANGEMENTS	X	X	X							
008	Switchgear Lay-Out - Top View / GENERAL ARRANGEMENTS	X	X	X							
009	Switchgear Lay-Out - Baseframe View / GENERAL ARRANGEMENTS	X	X	X							
010	Switchgear Lay-Out - Rear View / GENERAL ARRANGEMENTS	X	X	X							
011	Switchgear Lay-Out - Typical Baseframe / GENERAL ARRANGEMENTS	X	X	X							
012	Switchgear Lay-Out - Typical Column Bottom / GENERAL ARRANGEMENTS	X	X	X							
013	Base Frame Fixing System / GENERAL ARRANGEMENTS	X	X	X							
014	Base Frame Fixing System / GENERAL ARRANGEMENTS	X	X	X							
015	Switchgear Center of Gravity / GENERAL ARRANGEMENTS	X	X	X							
016	Extraction Truck for Circuit Breaker/Contactor / GENERAL ARRANGEMENTS	X	X	X							

Sheet	Description	Revision 0	1	2	3	4	5	6	7	8	9

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DWG n°: 231151/SD/6
Item n°: PF1113279/4

IMESA ELECTRICAL ENGINEERING

CROSSWIND

ROSETTI MARINO

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Index

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 002

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

A	ENVIRONMENTAL DATA	
1	AMBIENT	MARINE - OFFSHORE
2	INSTALLATION	INDOOR
3	AMBIENT AIR TEMPERATURE - DELAY AVERAGE MAXIMUM	35 °C
4	AMBIENT AIR MINIMUM/MAXIMUM TEMPERATURE	-8,4 ÷ +40 °C
5	RELATIVE HUMIDITY AVERAGE	95 %
6	RELATIVE HUMIDITY MAXIMUM	-
7	POLLUTION LEVEL DEGREE	VERY LIGHT

B	SWITCHGEAR ELECTRICAL FEATURES	
1	RATED VOLTAGE (Ue)	6,6 kV
2	RATED INSULATION VOLTAGE (Ur)	7,2 kV
3	RATED FREQUENCY (fr)	50 Hz
4	RATED POWER-FREQUENCY WITHSTAND VOLTAGE (Ud)	20 kV
5	RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE (Up)	60 kV
6	RATED NORMAL CURRENT (Ir)	630 A
7	RATED SHORT TIME WITHSTAND CURRENT (Ik)	25 kA
8	RATED DURATION OF SHORT CIRCUIT (tk)	1 s
9	RATED PEAK WITHSTAND CURRENT (Ipk)	65 kA
10	INTERNAL ARC CLASSIFICATION IAC	25 kA x 1 s
11	ACCESSIBILITY TYPE	AFLR
12	NUMBER OF PHASES	3
13	PHASES IDENTIFICATION	L1-L2-L3
14	EARTHING CIRCUITS MAIN BUSBAR SECTION	>200mmq
15	REFERENCE STANDARDS	IEC 62271-200
16	CLASS REFERENCE	not applicable

C	SWITCHGEAR MECHANICAL FEATURES	
1	EXTERNAL DEGREE OF PROTECTION	IP3X OK
2	INTERNAL DEGREE OF PROTECTION	IP2X OK
3	EXTERNAL MECHANICAL IMPACT PROTECTION	IK10
4	ACCESSIBILITY	FRONT AND REAR
5	TYPE DESIGNATION	LSC2B-PM
6	POWER CABLES (INCOMING)	FROM THE TOP (by MCT)
7	POWER CABLES (OUTGOING)	FROM THE TOP (by MCT)
8	AUXILIARY CABLES	FROM THE TOP (by MCT)
9	BASE FRAMES	PROVIDED
10	MIMIC DIAGRAM (BLACK)	PROVIDED
11	BOTTOM CLOSING	UNDRILLED ALUMINIUM REMOVABLE PLATES
12	PAINTING COLOUR	RAL 7035 OK
13	PAINTING SPECIFICATION CYCLE	C3-MEDIUM, > 60µ (IMESA CYCLE "A") OK
14	SURFACE NOT PAINTED	ZINC PLATED OR TROPICALIZED
15	FRONT DOORS (AUXILIARY COMPARTMENT)	HINGED WITH KEY LOCKS
16	FRONT DOOR (C.B./CONTACTOR COMPARTMENT)	PADLOCKABLE LOCK
17	REAR PANELS	BOLTED
18	MINIMUM CLEARANCE	TO THE FRONT 1500 mm
19		TO THE REAR 800 mm
20		TO THE TOP 600 mm
21		TO THE SIDE 800 mm
22	WEIGHTS	7.400 kg ± 10% (ESTIMATED)

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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/6

Item n°: PF1113279/4

TITLE : "SG-100D1"

GENERAL ARRANGEMENTS
Switchgear Characteristics

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 003

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

D	BUSBAR SYSTEM	
1	MATERIALS	ELECTROLYTIC COPPER
2	BUSBAR SURFACE TREATMENT	not applicable
3	INSULATION BUSBARS	SHEATHED (only main bus-bars & upper connection of power devices)
4	JOINT AND CONNECTIONS TREATMENT	not applicable
5	INSULATION JOINTS	REMOVABLE SOLID DIELECTRIC PROTECTIONS
6	BULKHEADS FOR POWER BARS	YES
7	PHASES IDENTIFICATION	L1 (BROWN)
8		L2 (BLACK)
9		L3 (GREY)
10		PE
11	MARKING OF PHASES	ADHESIVE LABELS PLACED ON BARS

E	POWER / AUXILIARY CIRCUITS CABLES		
1	LOW VOLTAGE CABLE TYPE		SH-W (MARINE APPROVAL)
2	INSULATION		HLPE (600/1000 V)
	SIZE / COLOUR CODE		
3	MEASURE & CONTROL & SIGNAL CIRCUITS	AC/DC CIRCUIT (Internal Heating / Motor Spring Charger / Internal Distribution)	≥ 2,5 mmq / BLACK
4		VT SECONDARY CIRCUIT	1,5 mmq / BLACK
5		CT SECONDARY CIRCUIT	2,5 mmq / BLACK
6		AC CIRCUIT	≥ 1,5 mmq / BLACK
7		DC CIRCUIT	≥ 1,5 mmq / + RED - -WHITE
8		GROUND CIRCUIT	YELLOW / GREEN
9		PHASES IDENTIFICATION FOR AC POWER CIRCUIT TERMINATION WITH SHRINKABLE SHEATH	not applicable
10			not applicable
11			not applicable

F	TERMINAL BLOCKS	
1	TERMINAL BLOCK TYPE	SPRING CLAMP (CABUR HMM grey)
2	DISCONNECT/TEST TERMINAL BLOCK TYPE	SPRING CLAMP (CABUR HMM grey)
3	MATERIAL	POLYAMIDE
4	SIZE	≥ 4mmq

G	AUXILIARY CIRCUIT VOLTAGE	
1	AUXILIARY COMMAND CIRCUITS	110 Vdc (External Supply)
2	AUXILIARY SIGNALLING CIRCUITS	110 Vdc (External Supply)
3	AUXILIARY PROTECTION CIRCUITS	110 Vdc (External Supply)
4	SPRING CHARGING MOTOR C.B.	110 Vdc (External Supply)
5	INTERNAL LIGHTINGS	230 Vac (External Supply)
6	ANTICONDENSATION HEATER	230 Vac (External Supply)
7	SPACE MOTOR HEATER (If Applicable)	230 Vac (External Supply)

H	LABELS	
1	MATERIAL	TRAFFOLYTE
2	BACKGROUND	WHITE
3	LETTERS	BLACK
4	LANGUAGE	ENGLISH
5	WARNING LABEL LANGUAGE	ENGLISH
6	FIXING	SCREWED
7	MARKING DEVICES / WIRES	INDIPENDENT
8	AC CIRCUIT	SEQUENTIAL
9	DC CIRCUIT	SEQUENTIAL WITH PREFIX "+" OR "-"

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/6

Item n°: PF1113279/4

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TITLE : "SG-100D1"

GENERAL ARRANGEMENTS
Switchgear Characteristics

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 004

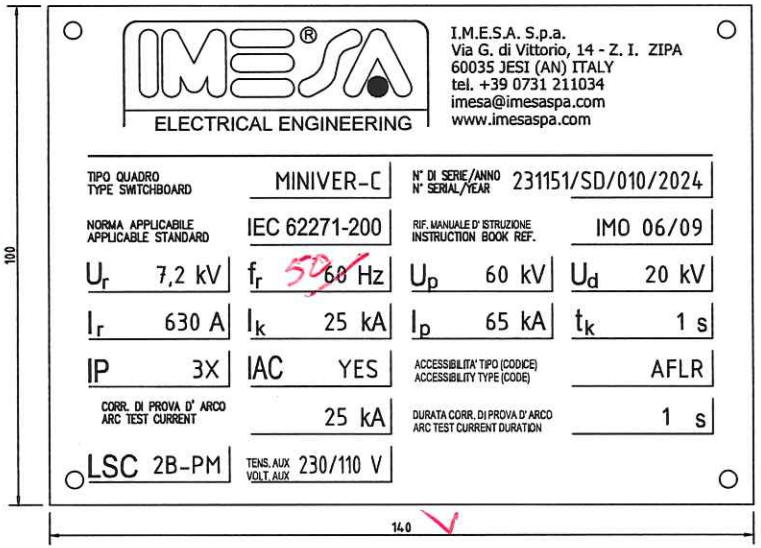
REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

NAMEPLATE DATES

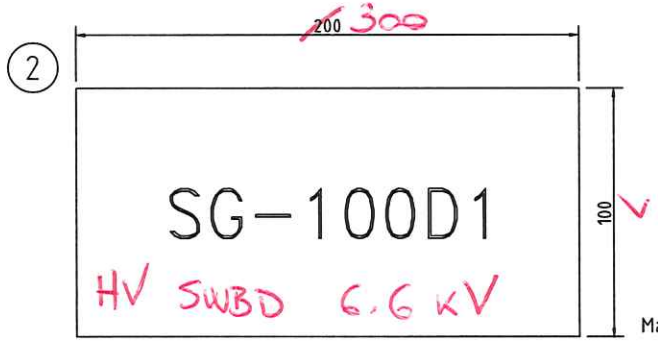
1



Material: Alloy

SWITCHGEAR TAG PLATE

2



Material: Traffolyte

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+					
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DWG n°: 231151/SD/6
Item n°: PF1113279/4

CROSSWIND

ROSETTI MARINO

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Name Plate

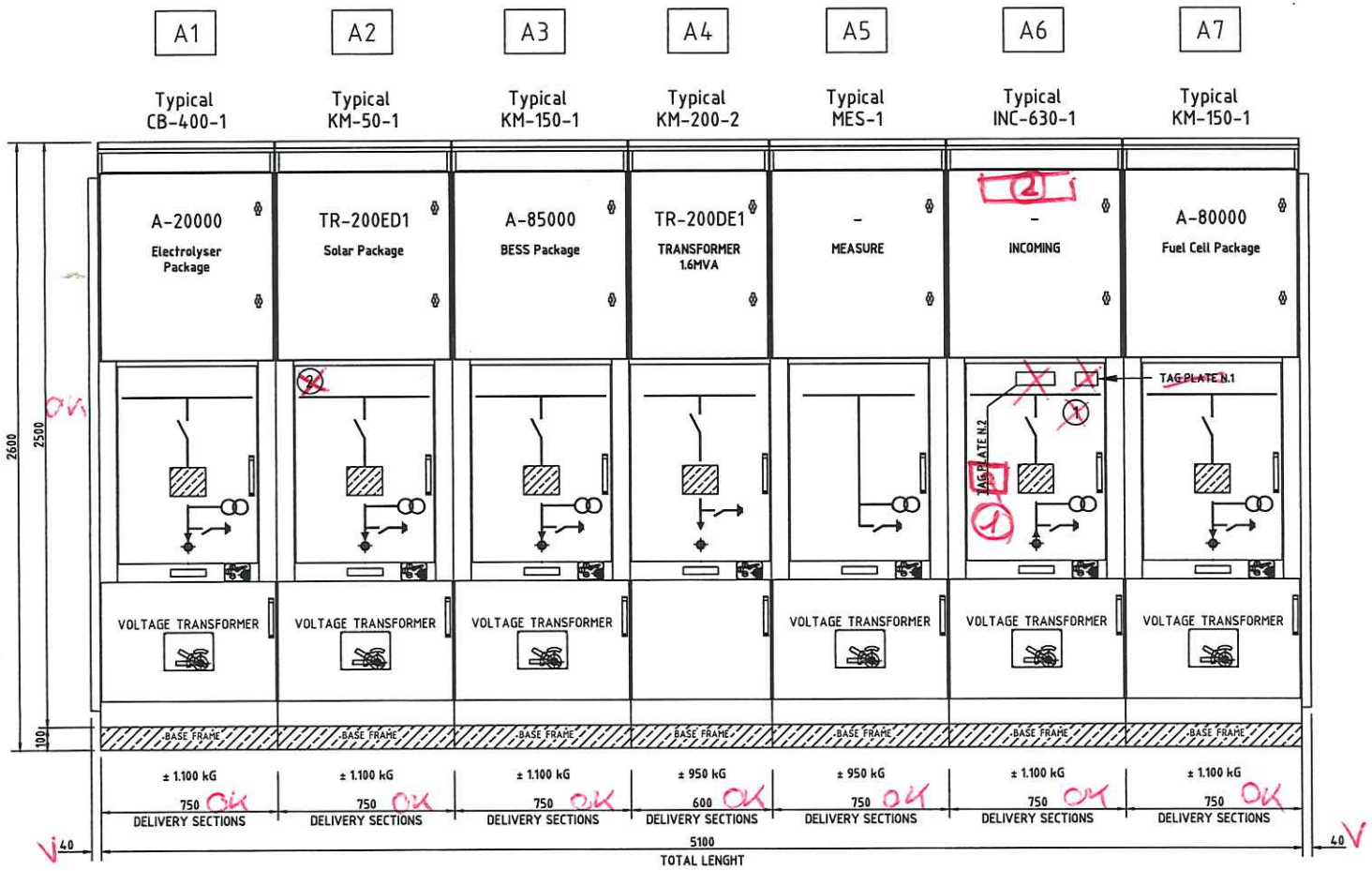
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A3 | DRAWING NO. 1723002197-EL-DA-00006 | SHEET 005 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

FRONT VIEW



NOTE :
1. Measurement Tollerance + 0,25%
2. Weight Tollerance ± 10%
3. Mimic features - Colour : BLACK - Material : PLASTIC - Dimension : 10x3mm

scale 1/20

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IMESA ELECTRICAL ENGINEERING
DWG n° : 231151/SD/6
Item n° : PF1113279/4

CROSSWIND

ROSETTI MARINO

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Lay-Out - Front View

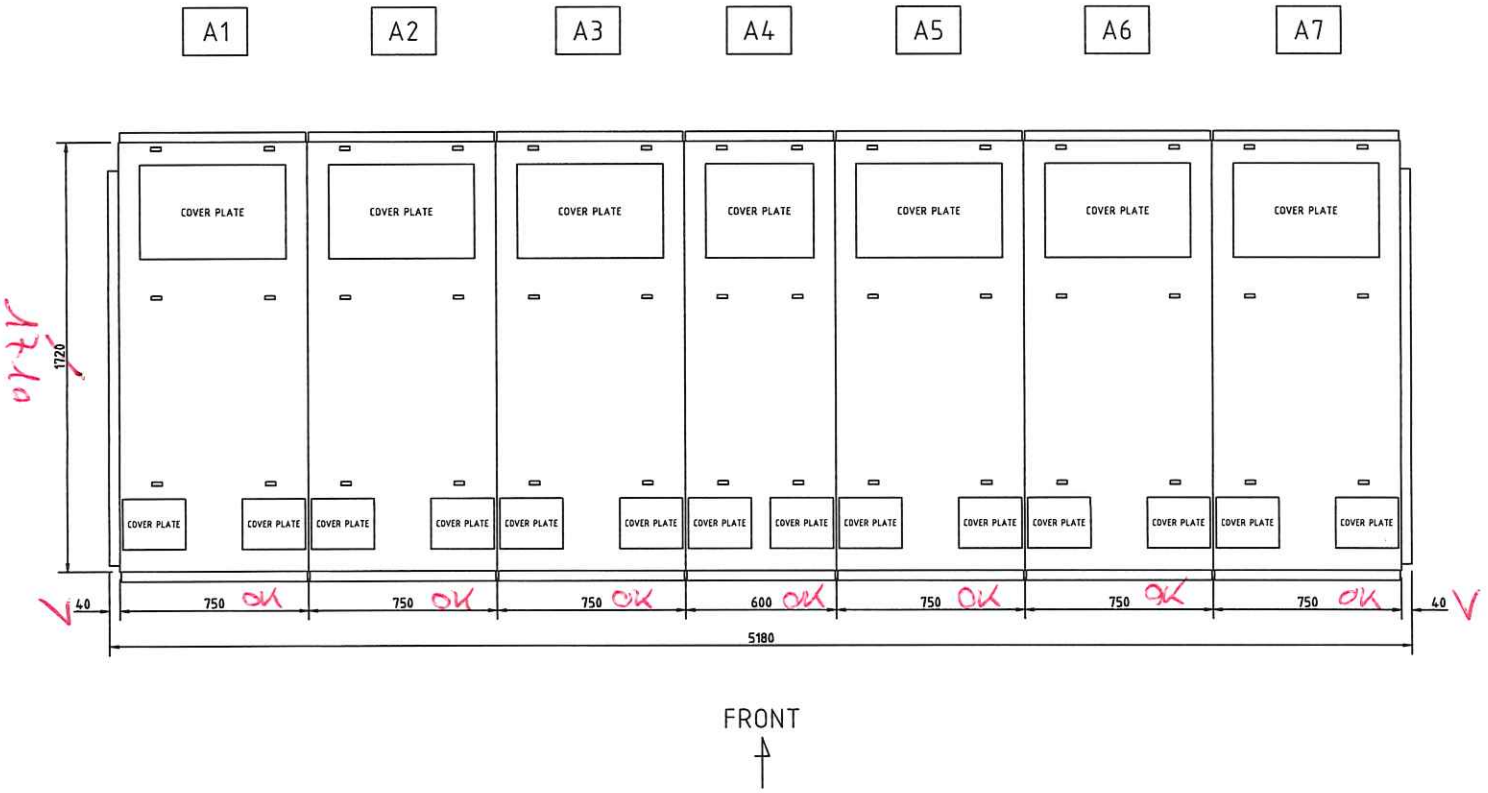
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A3 | DRAWING NO. 1723002197-EL-DA-00006 | SHEET 006 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

BOTTOM VIEW



NOTE :
1. Measurement Tollerance + 0,25%

scale 1/20

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CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n° : 231151/SD/6
Item n° : PF1113279/4

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Lay-Out - Bottom View

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

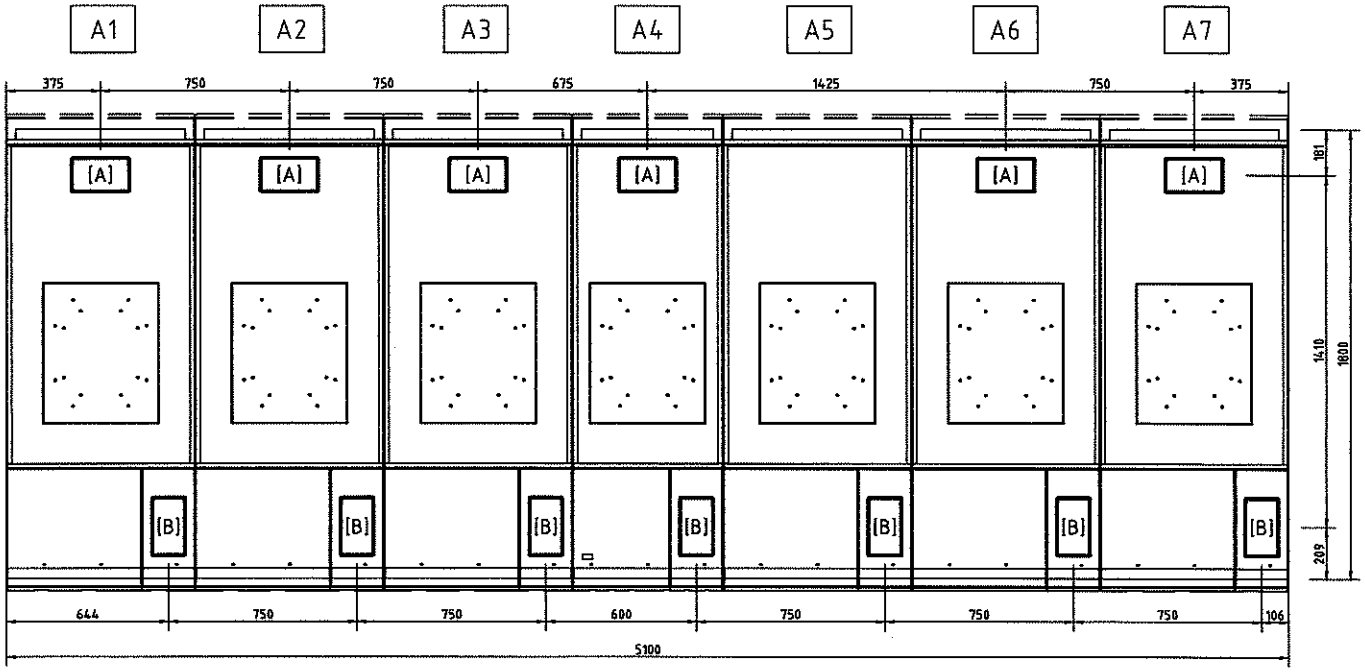
SHEET 007

REV. 02

F.to UNI A3: 420mmx297mm

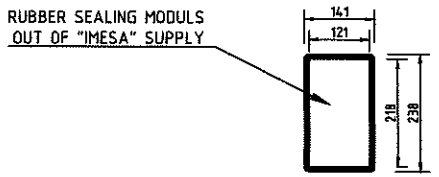
File Name : 1723002197-EL-DA-00006 Rev. 02

TOP VIEW



FRONT

"S6X1" MCT DETTAILS



NOTE :
1. Measurement Tollerance + 0,25%
2. [A] MCT for power cable - type S6x1
3. [B] MCT for auxialiary cable - - type S6x1

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231151/SD/6
Item n° : PF1113279/4

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Lay-Out - Top View

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

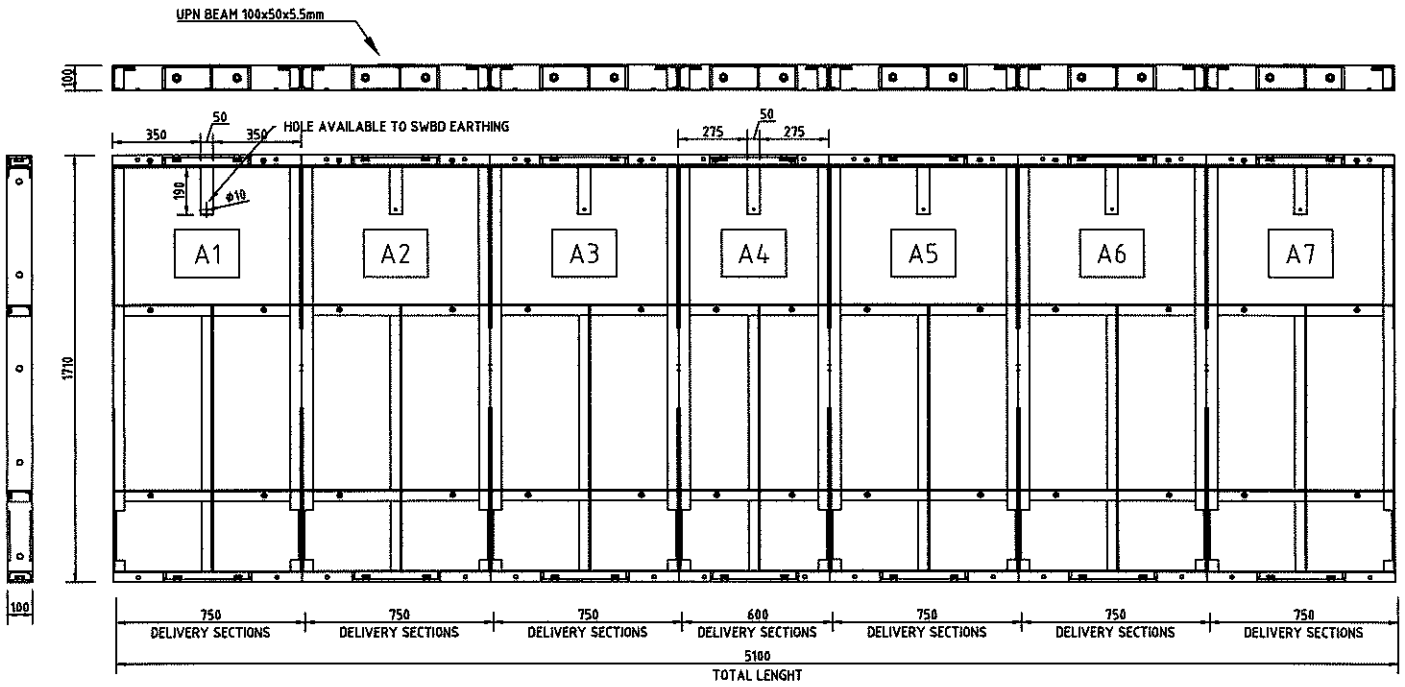
SHEET 008

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

BASEFRAME VIEW



NOTE :

1. Measurement Tollerance + 0,25%

scale 1/20

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
=					
+					
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/6

Item n°: PF1113279/4

TITLE : "SG-100D1"

GENERAL ARRANGEMENTS
Switchgear Lay-Out - Baseframe View

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 009

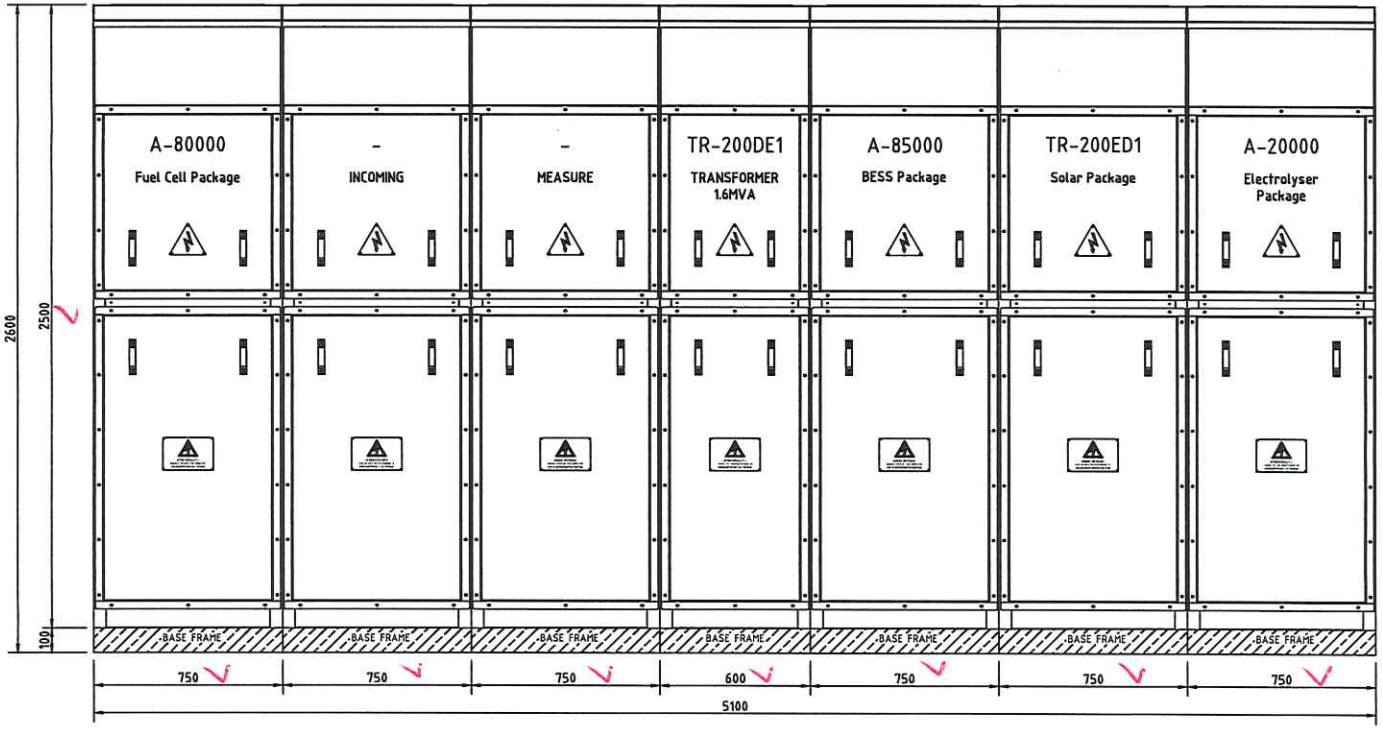
REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

REAR VIEW

A7 A6 A5 A4 A3 A2 A1



NOTE :
1. Measurement Tollerance + 0,25%

scale 1/20

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231151/SD/6
Item n° : PF1113279/4

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Lay-Out - Rear View

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 010

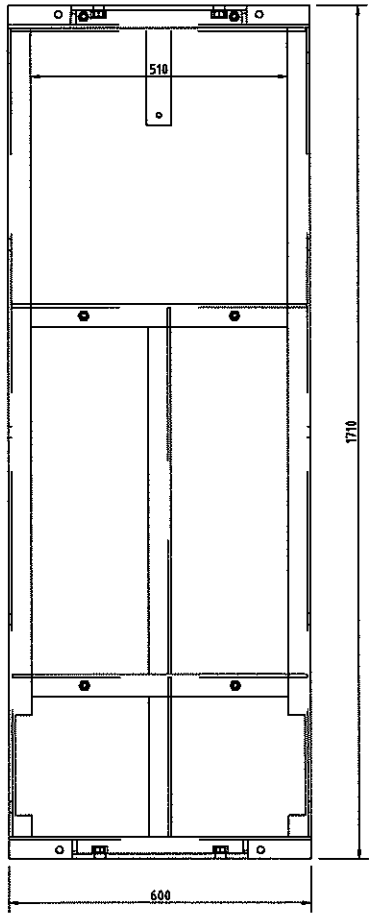
REV. 02

F.to UNI A3: 420mmx297mm

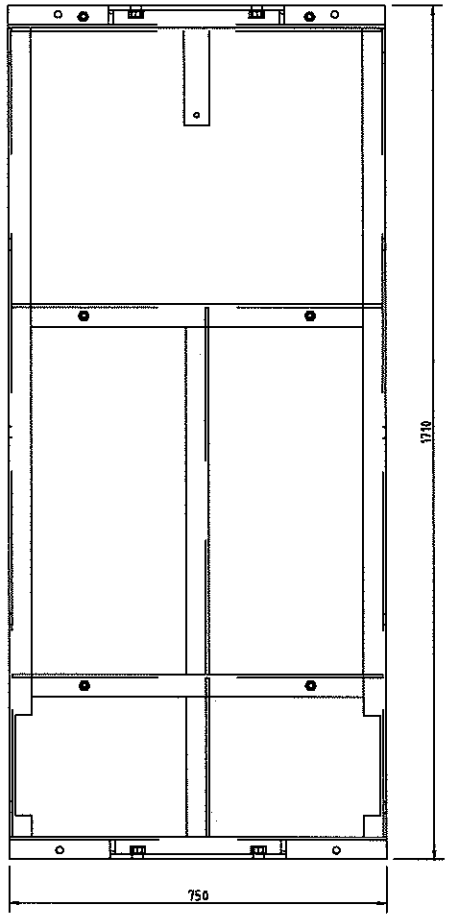
File Name : 1723002197-EL-DA-00006 Rev. 02

TYPICAL BASE FRAME

TYPICAL BASE FRAME FOR COLUMNs
with width 600mm



TYPICAL BASE FRAME FOR COLUMNs
with width 750mm



NOTE :
1. Measurement Tollerance + 0,25%

scale 1/20

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231151/SD/6
Item n° : PF1113279/4

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Lay-Out - Typical Baseframe

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 011

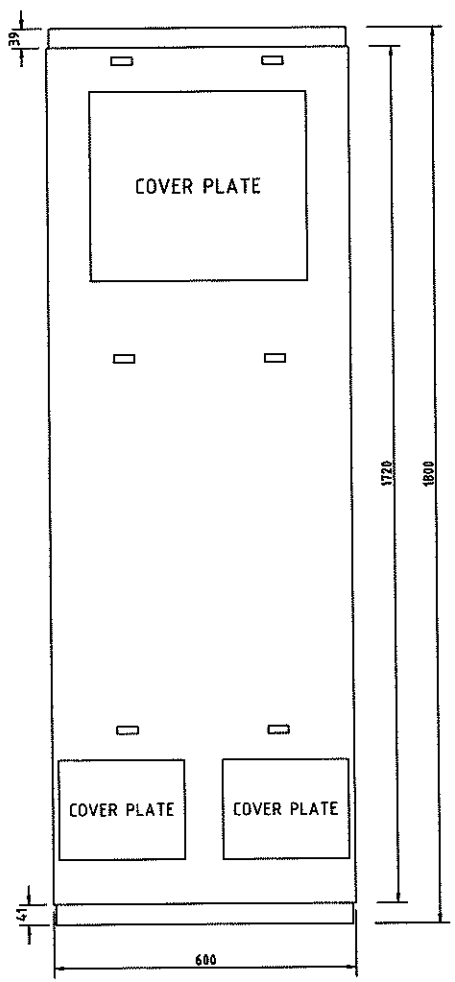
REV. 02

F.to UNI A3: 420mmx297mm

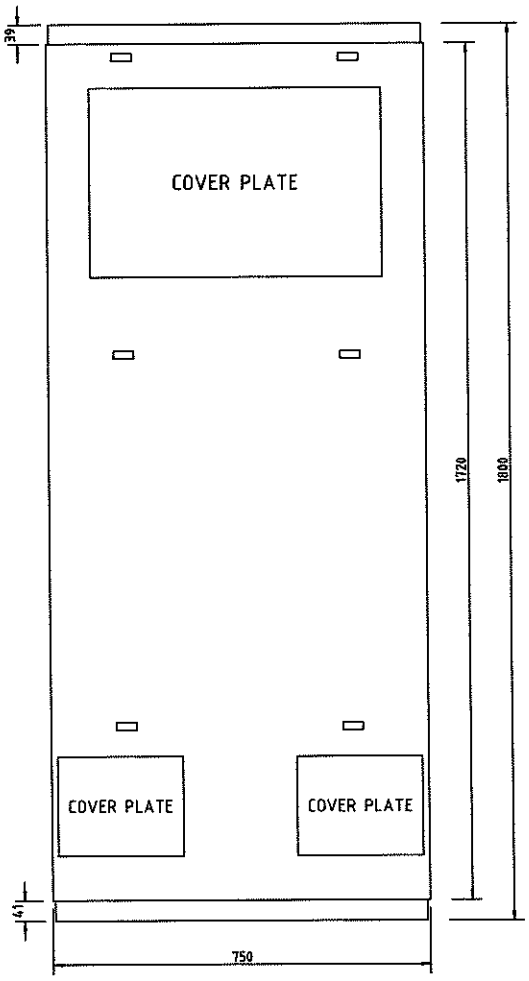
File Name : 1723002197-EL-DA-00006 Rev. 02

TYPICAL COLUMNS BOTTOM VIEW

TYPICAL BASE FRAME FOR COLUMNs
with width 600mm



TYPICAL BASE FRAME FOR COLUMNs
with width 750mm



NOTE :
1. Measurement Tollerance + 0,25%

scale 1/20

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
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0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

IMESA ELECTRICAL ENGINEERING

ROSETTI MARINO

DWG n°: 231151/SD/6
Item n°: PF1113279/4

TITLE : "SG-100D1"
GENERAL ARRANGEMENTS
Switchgear Lay-Out - Typical Column Bottom

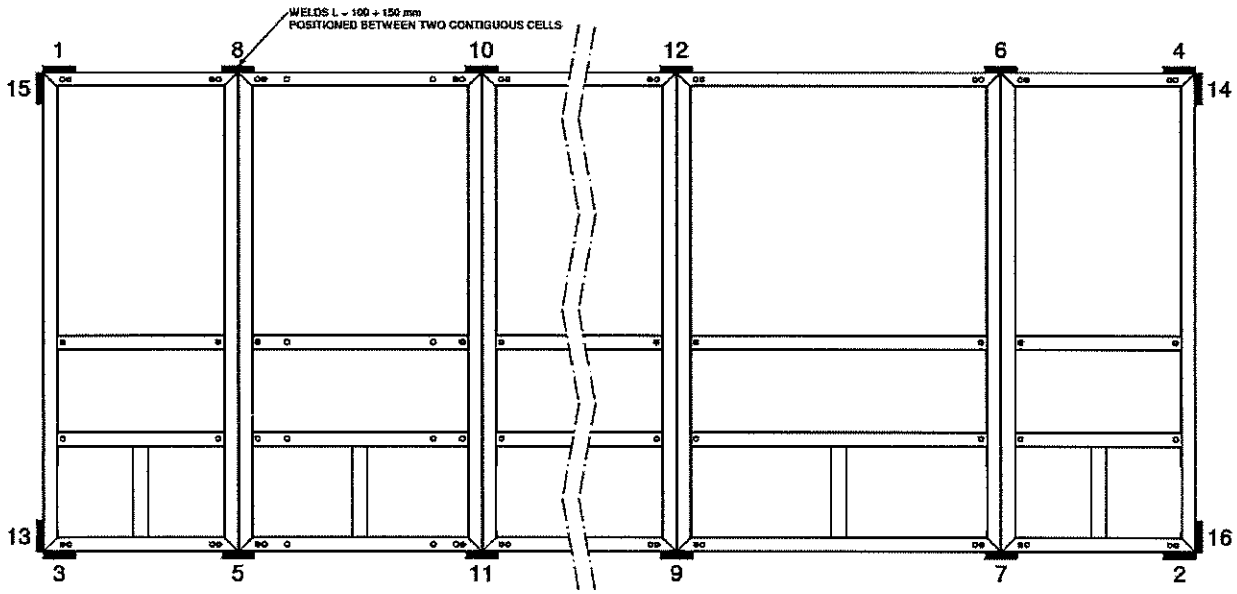
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : NTS

A3 | DRAWING NO. 1723002197-EL-DA-00006 | SHEET 012 | REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

BASE FRAME FIXING SYSTEM



REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

OWG n°: 231151/SD/6

Item n°: PF1113279/4

TITLE : "SG-100D1"

GENERAL ARRANGEMENTS
Base Frame Fixing System

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 014

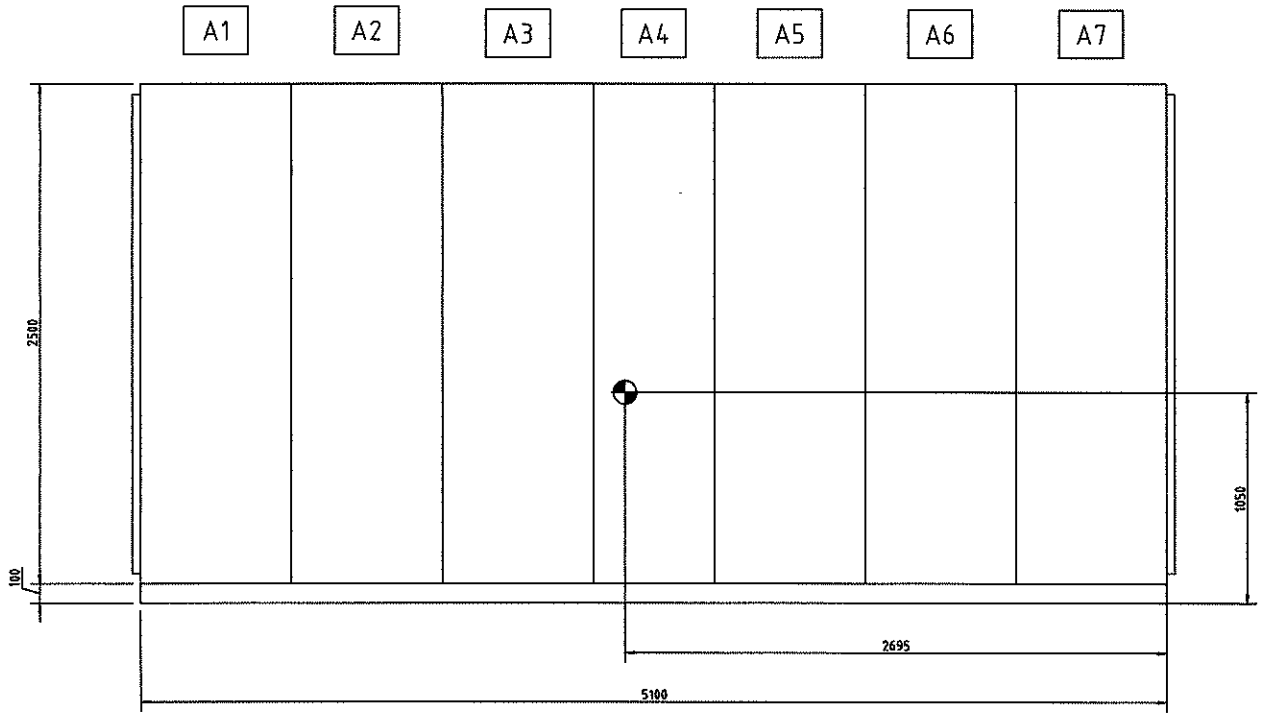
REV. 02

F.to UNI A3: 420mmx297mm

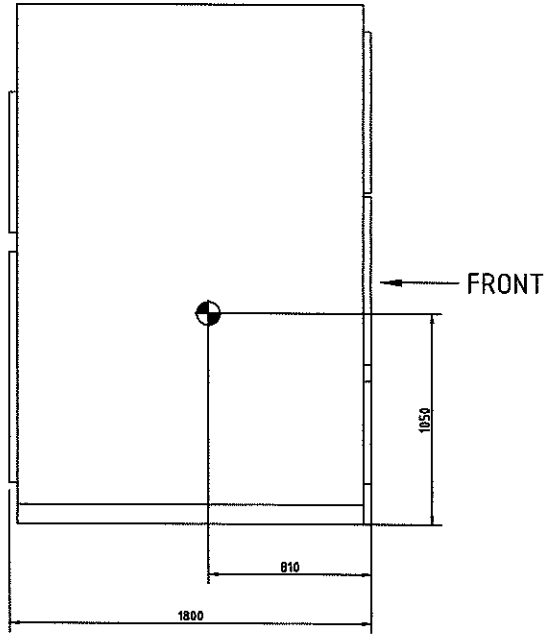
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CENTER OF GRAVITY

FRONT VIEW



SIDE VIEW



scale 1/25

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n°: 231151/SD/6

Item n°: PF1113279/4

TITLE : "SG-100D1"

GENERAL ARRANGEMENTS
Switchgear Center of Gravity

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 015

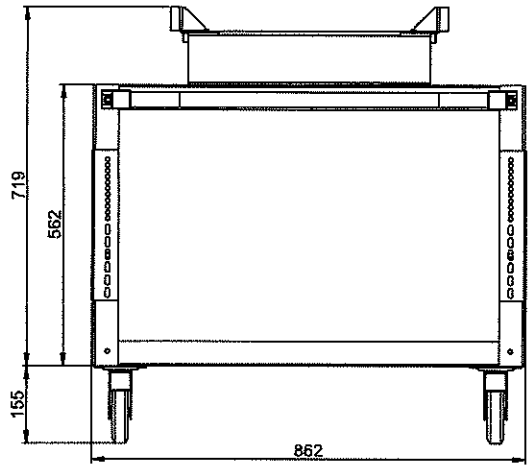
REV. 02

F.to UNI A3: 420mmx297mm

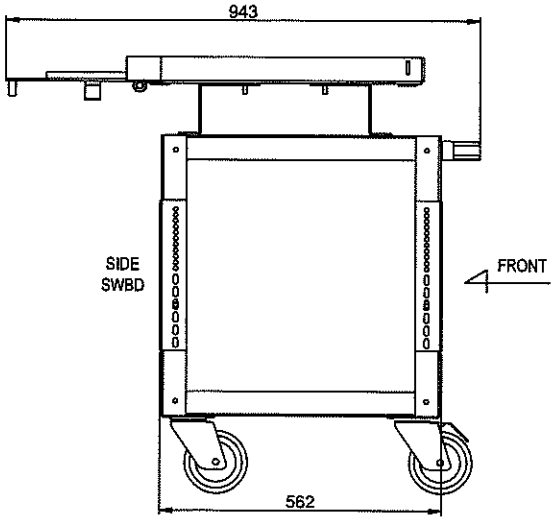
File Name : 1723002197-EL-DA-00006 Rev. 02

EXTRACTION TRUCK FOR CIRCUIT BREAKER/CONTACTOR

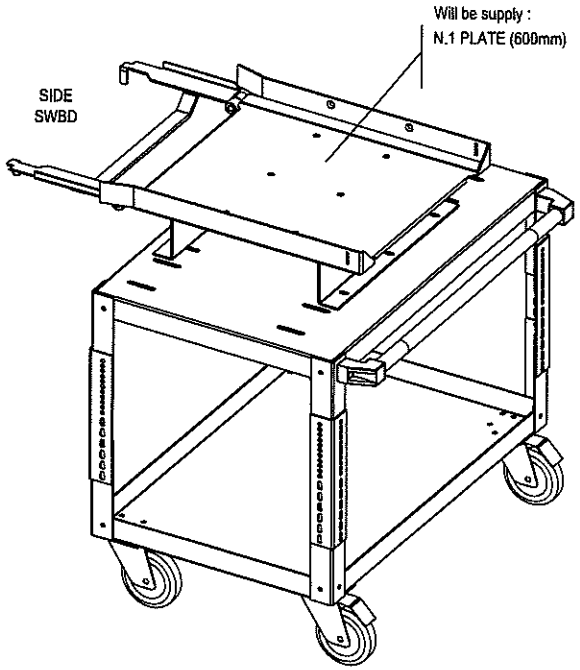
FRONT VIEW

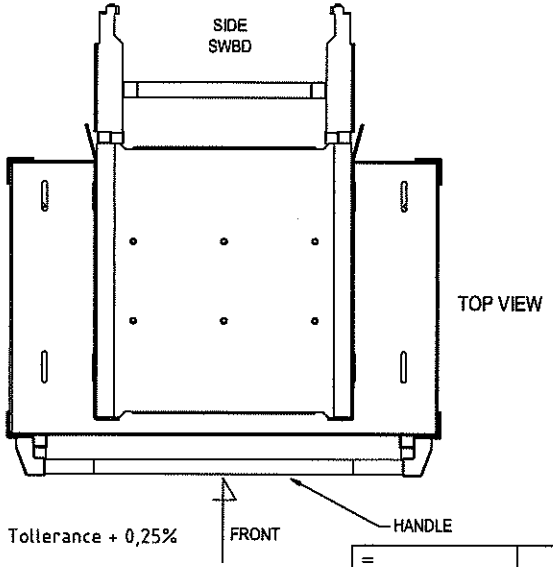


SIDE VIEW



ASSONOMETRIC VIEW





NOTE :
Measurement Tollerance + 0,25%

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
2	03/07/2024	Flamminio	Santinelli	Santinelli	Accepted for Construction (AFC)
1	04/03/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)
0	07/02/2024	Flamminio	Santinelli	Santinelli	Issued for review (IFR)

CROSSWIND

ROSETTI MARINO

IMESA ELECTRICAL ENGINEERING

DWG n° : 231151/SD/6

Item n° : PF1113279/4

TITLE : "SG-100D1"

GENERAL ARRANGEMENTS
Extraction Truck for Circuit Breaker/Contactor

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

SCALE : NTS

A3

DRAWING NO. 1723002197-EL-DA-00006

SHEET 016

REV. 02

F.to UNI A3: 420mmx297mm

File Name : 1723002197-EL-DA-00006 Rev. 02

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	82013-CEC	: 6.6KV HV Switchgear / LV Switchgear			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-100
TASK	code	C10002111		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	SG-100D1	To	SG-200N1		

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.	PL
5	Check bending radius is within the specified limits.	OK
6	Check cable and core marking against latest drawings	PL
7	Check cable labelling is in accordance with latest specification.	OK
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	0.6
	CORE 2 / All cores+screen+armour+earth	0.6
	CORE 3 / All cores+screen+armour+earth	0.6
	CORE 4 / All cores+screen+armour+earth	0.6
	CORE 5 / All cores+screen+armour+earth	0.6
	CORE 6 / All cores+screen+armour+earth	0.6
	CORE 7 / All cores+screen+armour+earth	0.6
	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	1000

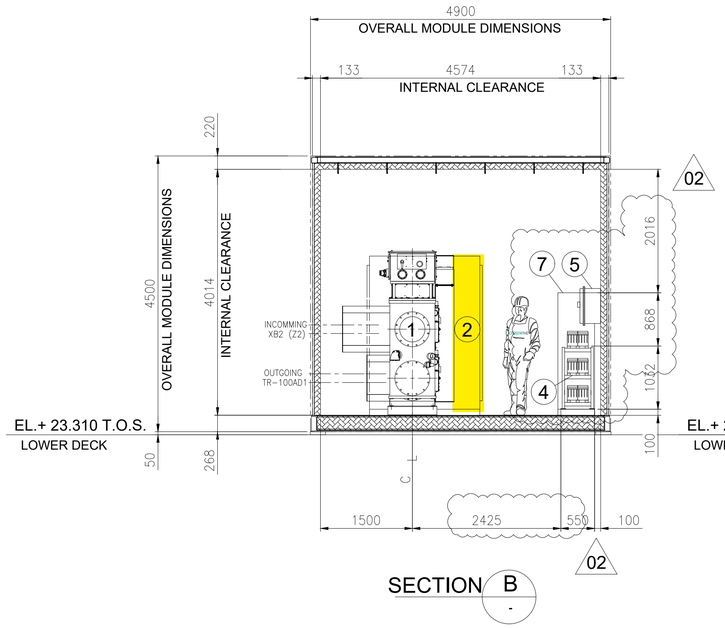
TESTING INSTRUMENTS USED

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

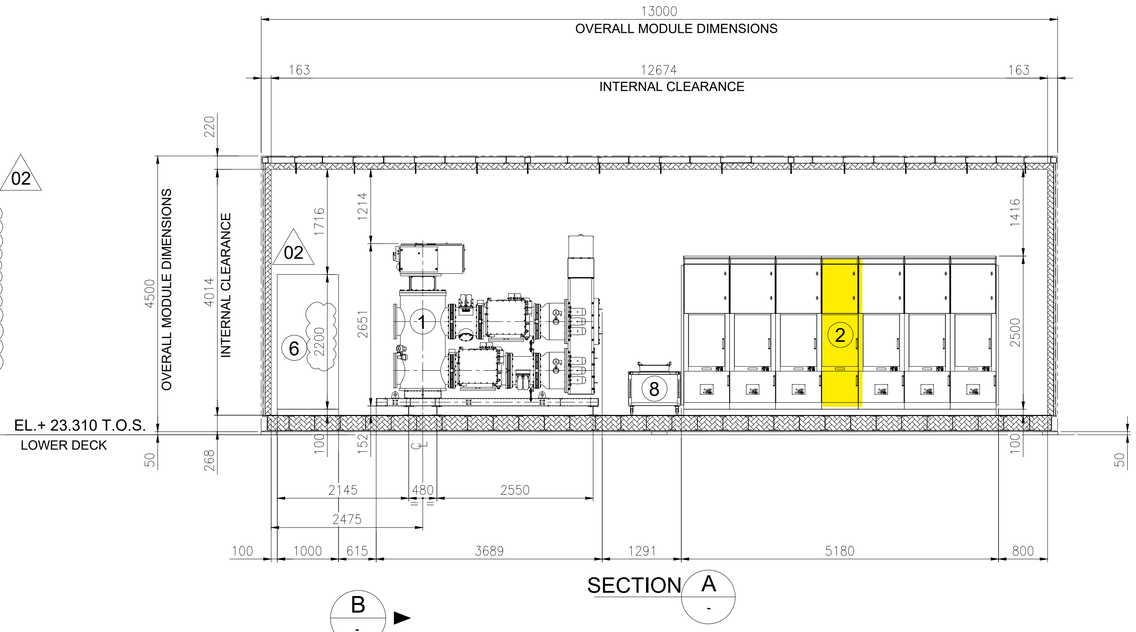
Comments: Note 4 : refer to PL C30000679

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Paolo Schintu	
Date	2024-11-04	2024-11-26	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-04T17:09:28.489Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-26T18:47:01.797Z	

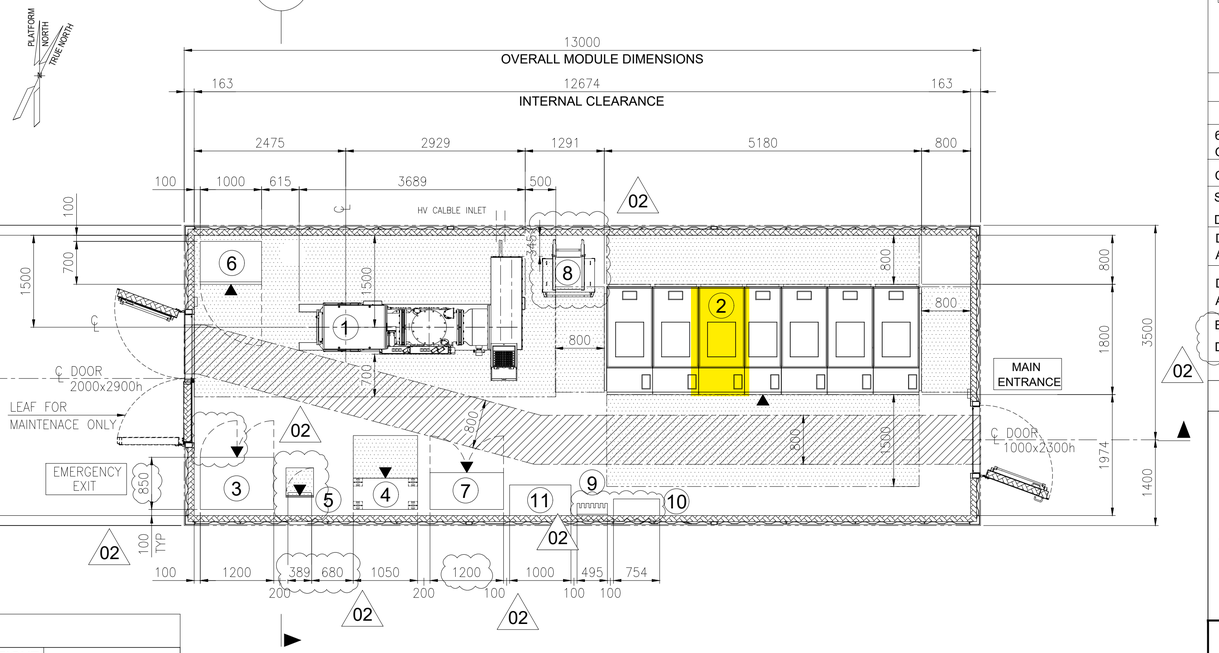
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -

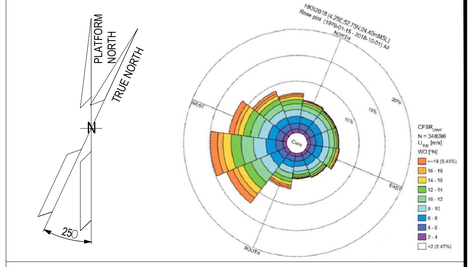


SECTION A -



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	



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

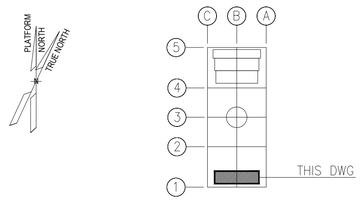
LEGEND

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



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

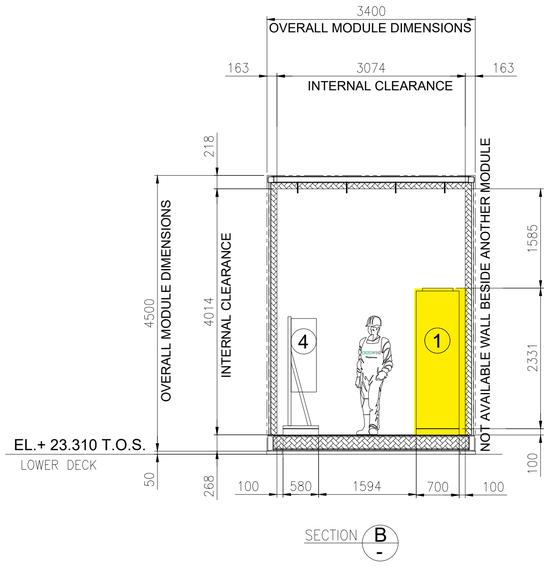
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
HV SWITCHROOM

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

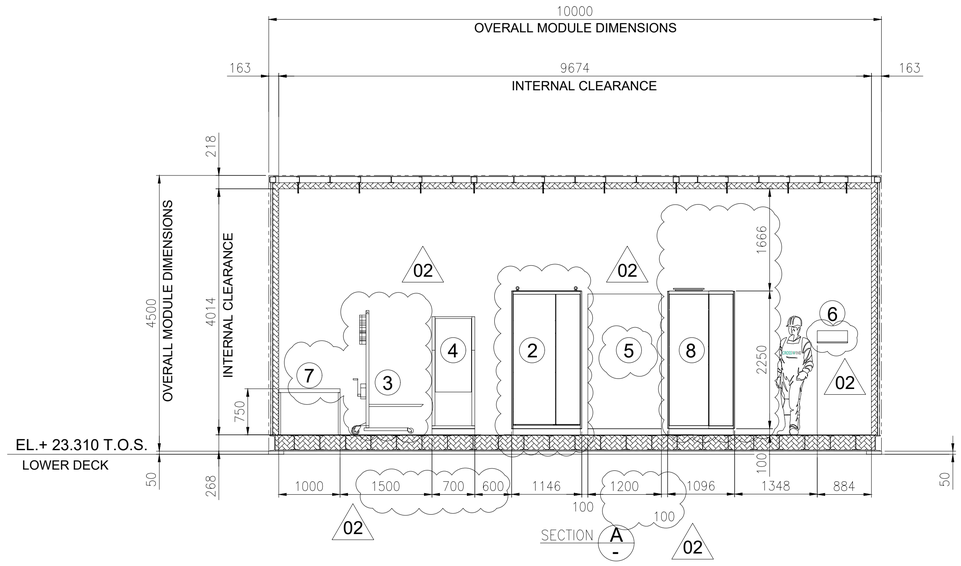
A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

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

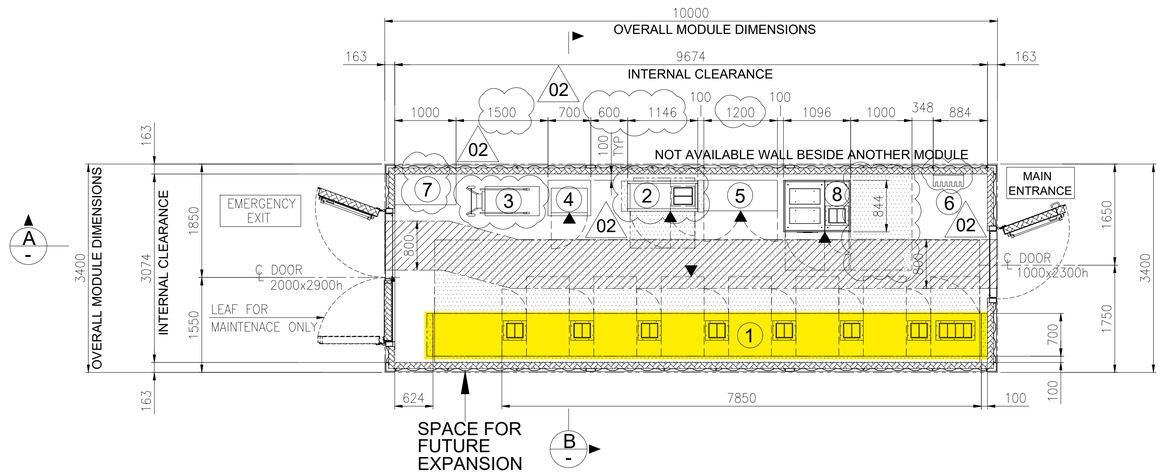
DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02



SECTION B -



SECTION A -



A -

SPACE FOR FUTURE EXPANSION

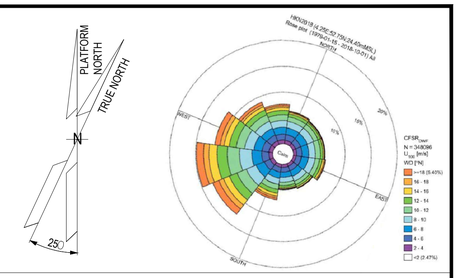
B -

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

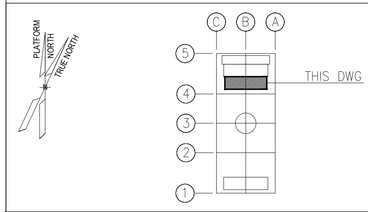
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

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

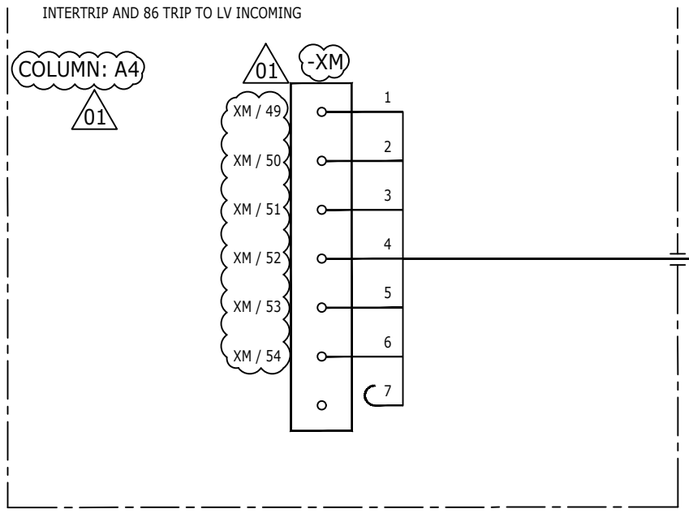
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
LV SWITCHROOM

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

FROM	TO

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

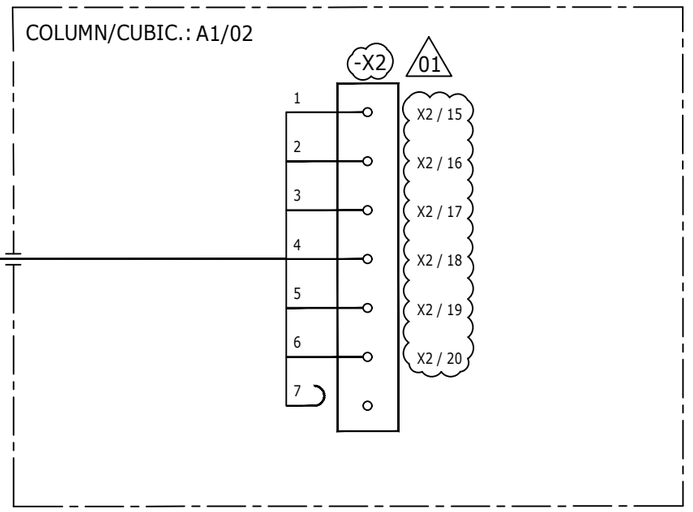


BK

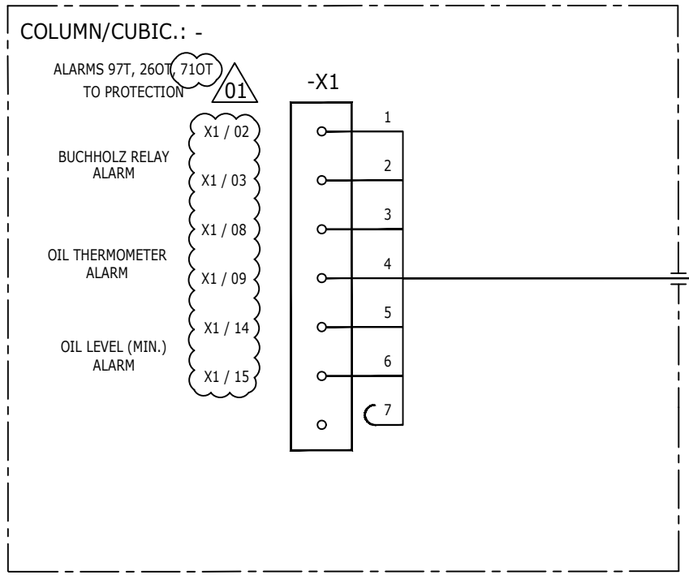
82013-CEC
7C X 1.5 mm²

BK

DESCRIPTION: LV SWITCHGEAR
TAG NUMBER: SG-200N1



DESCRIPTION: 6.6/0.415 KV TRANSFORMER
TAG NUMBER: CP-200DE1A

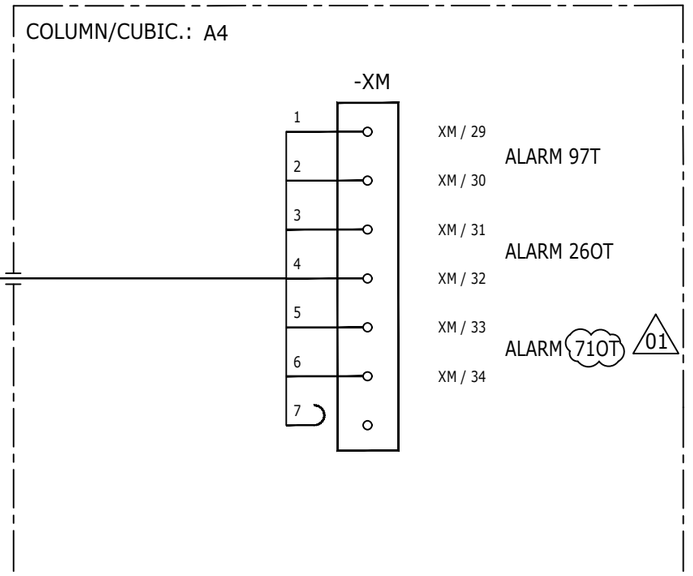


BK

83001-CEC
7C X 1.5 mm²

BK

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



VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20149

REV.:	DATE:	SIGNATURE:
1_A	17/10/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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
CP-200DE1A TRANSFORMER ALARMS PROTECTION

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

SCALE : 1:X

A3

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

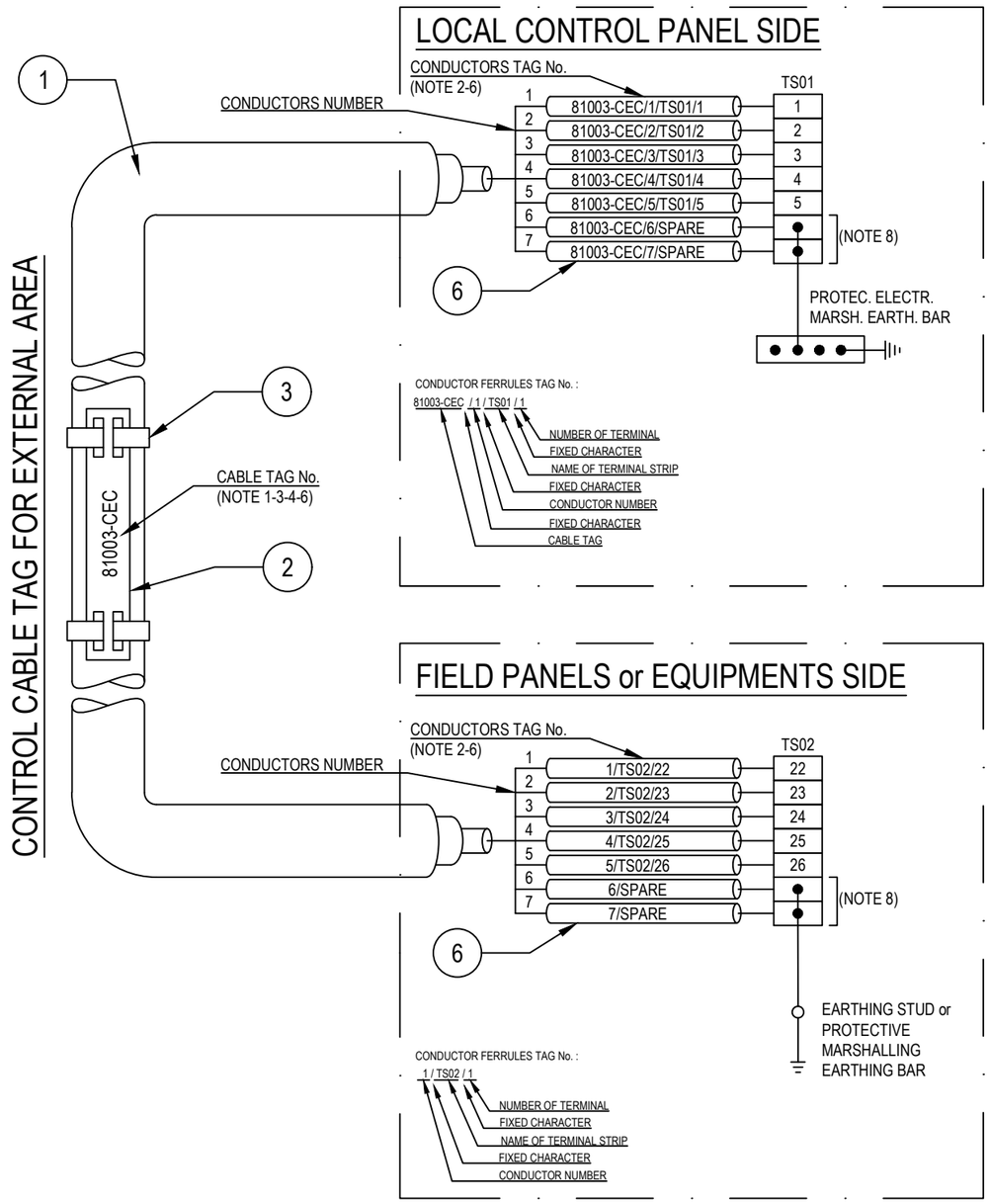
SHEET 078

REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

C04



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.

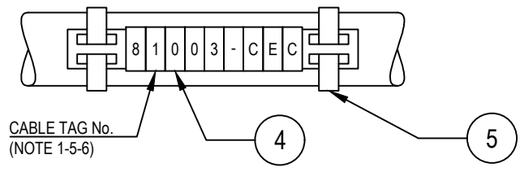
5) THE CABLE TAG FOR INTERNAL AREA SHAL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

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.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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)

CROSSWIND

ROSETTI MARINO

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

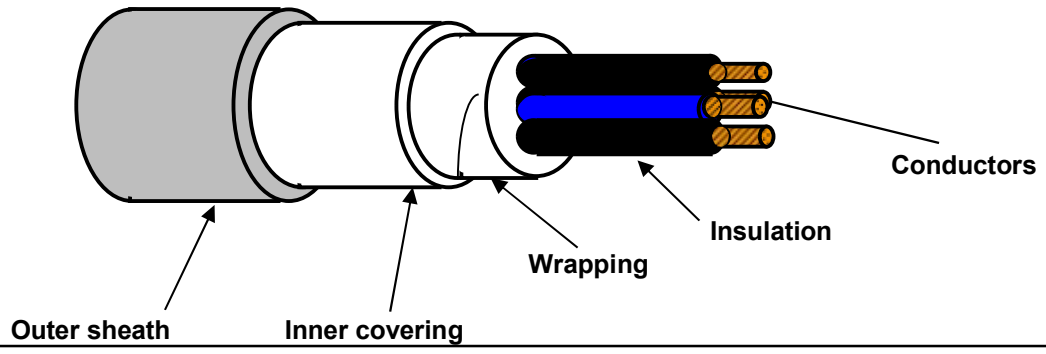
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

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
82013-CEC	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	ELECV34-7X1,5	Cable Cu Cl.2/XLPE/LSZH 0,6/1kV 7Cx1,5mm² - Grey	M25	n.a.			n.a.				L-300-101-LVT-059 / L-600-101-LVT-058 / E-MCT-105 / L-300-101-LVT-074 / L-600-101-LVT-012 / L-750-101-LVT-011 / E-MCT-201 / L-600-101-LVT-017 / L-450-101-LVT-021

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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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	83005-CEC	: LV Switchgear / 6.6KV HV Switchgear			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-200/LD_B-100
TASK	code	C10002112		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: SG-200N1 | 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	PL
7	Check cable labelling is in accordance with latest specification.	OK
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	0.6
	CORE 2 / All cores+screen+armour+earth	0.6
	CORE 3 / All cores+screen+armour+earth	0.6
	CORE 4 / All cores+screen+armour+earth	0.6
	CORE 5 / All cores+screen+armour+earth	0.6
	CORE 6 / All cores+screen+armour+earth	0.6
	CORE 7 / All cores+screen+armour+earth	0.6
	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	1000

TESTING INSTRUMENTS USED

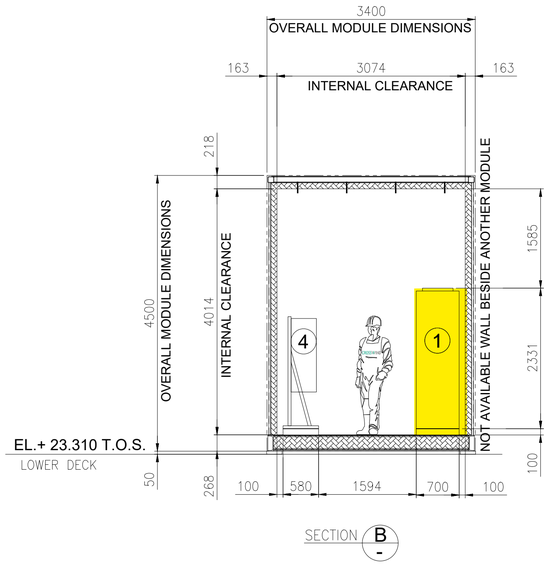
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TYPE / SERIAL N° : Calibration certificate N° and date:	TYPE / SERIAL N° : Calibration certificate N° and date:

Comments: Note 4: Refer to PL C30000679

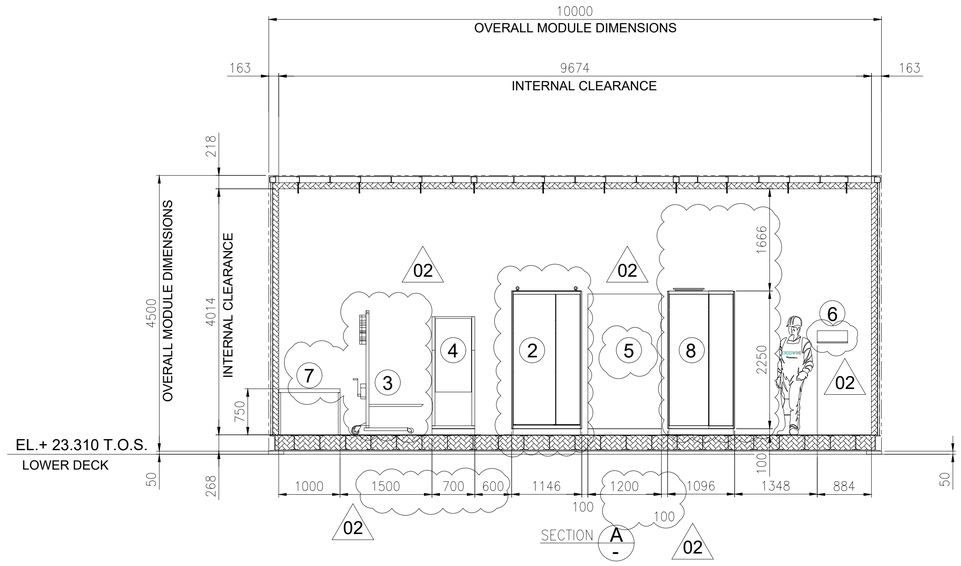
Page 1/1

	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Paolo Schintu	
Date	2024-10-28	2024-11-22	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-10-28T09:14:23.242Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-22T13:42:00.675Z	

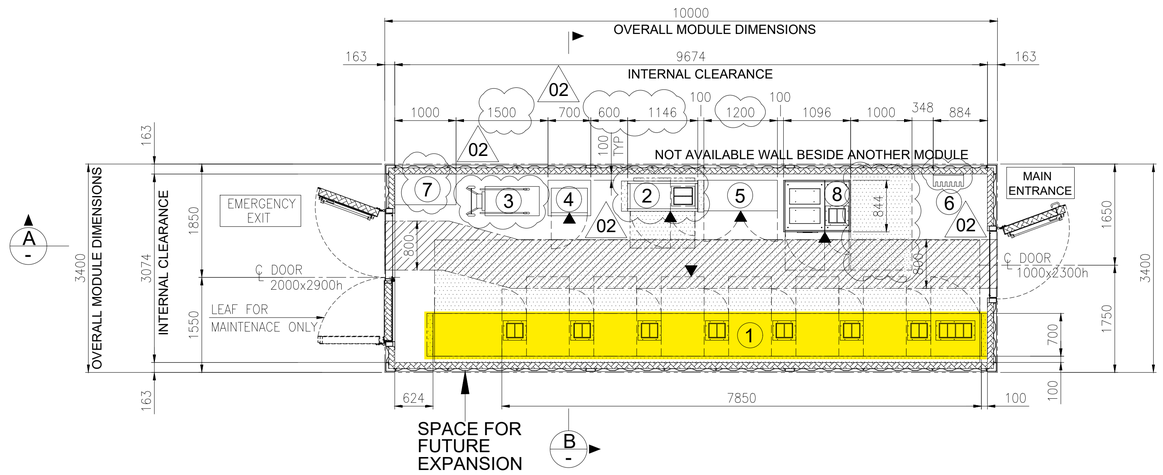
DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02



SECTION B -



SECTION A -



A -

SPACE FOR FUTURE EXPANSION

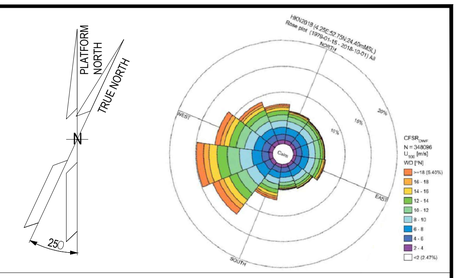
B -

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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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

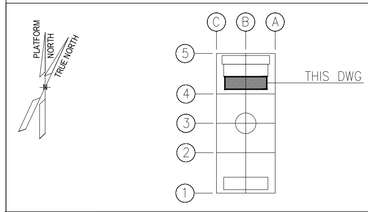
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

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

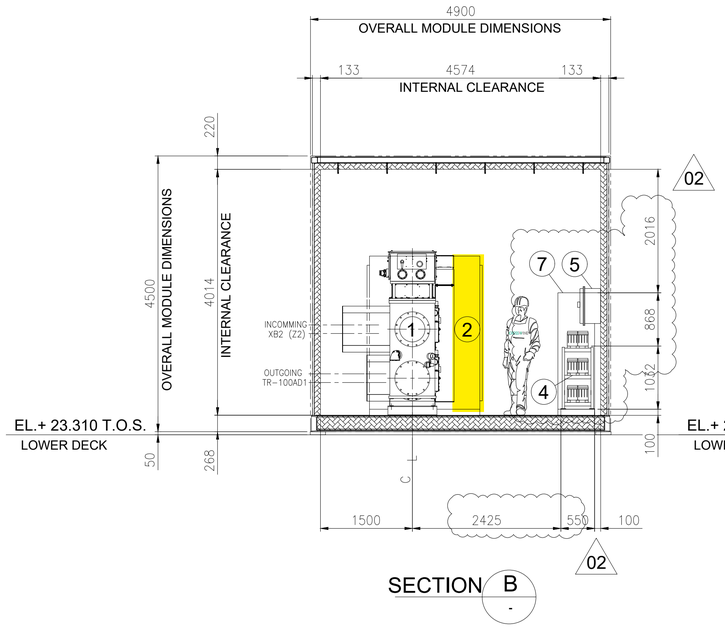
ROSETTI MARINO SpA

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

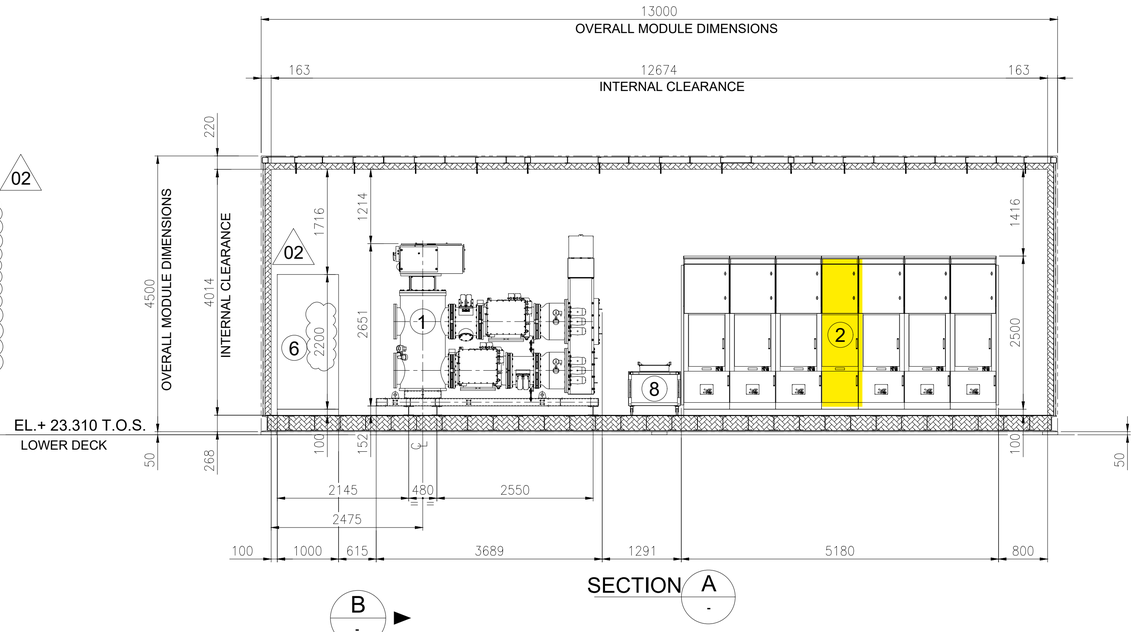
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

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

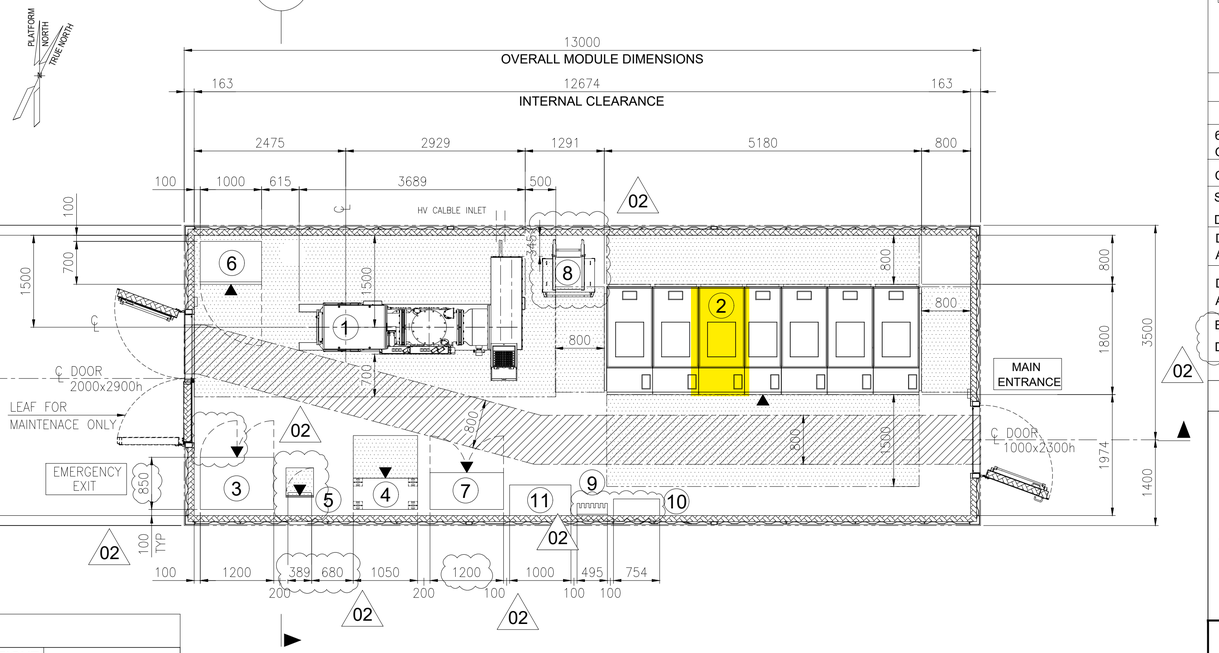
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -

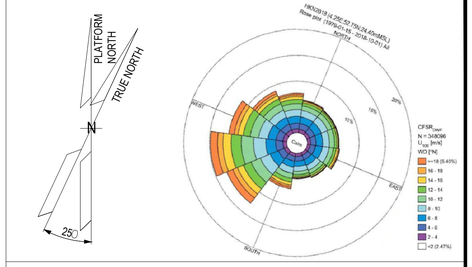


SECTION A -



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	



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

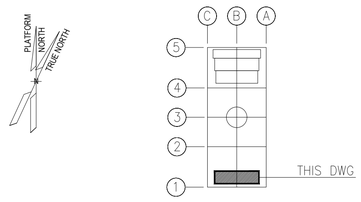
LEGEND

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



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: 6.6/0.415 KV TRANSFORMER
TAG NUMBER: CP-200E1 (01)

TRIP 63T, 49T TO RELAY (01)

-X1

WIND. TEMPERATURE TRIP	X1 / 36	1
	X1 / 38	2
	X1 / 20	3
PRESSURE RELAY TRIP	X1 / 21	4
		5
		6
		7

BK — 83004-CEC, 7C X 1.5 mm² — BK

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

-XM

1	XM / 23	WIND. TEMPERATURE TRIP
2	XM / 24	
3	XM / 21	PRESSURE RELAY TRIP
4	XM / 22	
5		
6		
7		

DESCRIPTION: LV SWITCHGEAR
TAG NUMBER: SG-200N1

COLUMN/CUBIC. A2/08

PERMISSIVES FROM LV TO 6.6KV FEEDER CB AND EARTHING SWITCH

-X2

X2 / 21	1	
X2 / 22	2	
X2 / 23	3	
X2 / 24	4	
X2 / 25	5	
X2 / 26	6	
	7	

BK — 83005-CEC, 7C X 1.5 mm² — BK

-XM

1	XM / 27	CB OPENED FROM LV SWBD
2	XM / 28	
3	XM / 39	CB IN TEST POSITION FROM LV SWBD
4	XM / 40	
5	XM / 41	FROM LV SWBD TRIPPED
6	XM / 42	
7		

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

REV.:	DATE:	SIGNATURE:
1_A	17/10/24	G.Randi

ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR & 6.6KV HV SWITCHGEAR INTERLOCKS

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

SCALE : 1:X

A3

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

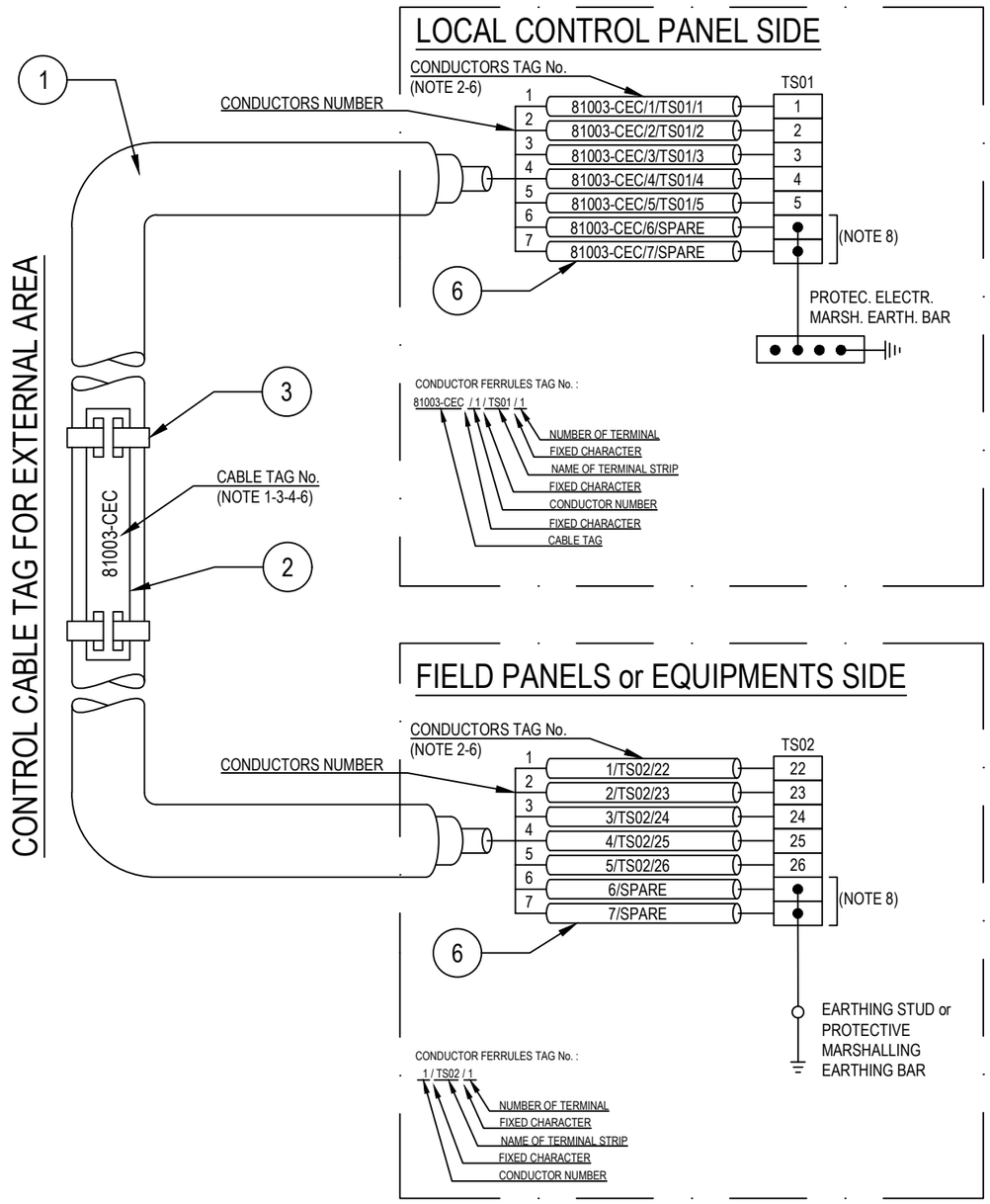
SHEET 080

REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

C04



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.

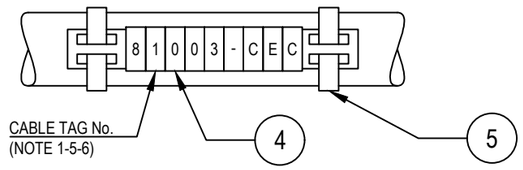
5) THE CABLE TAG FOR INTERNAL AREA SHAL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

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.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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)

CROSSWIND

ROSETTI MARINO

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

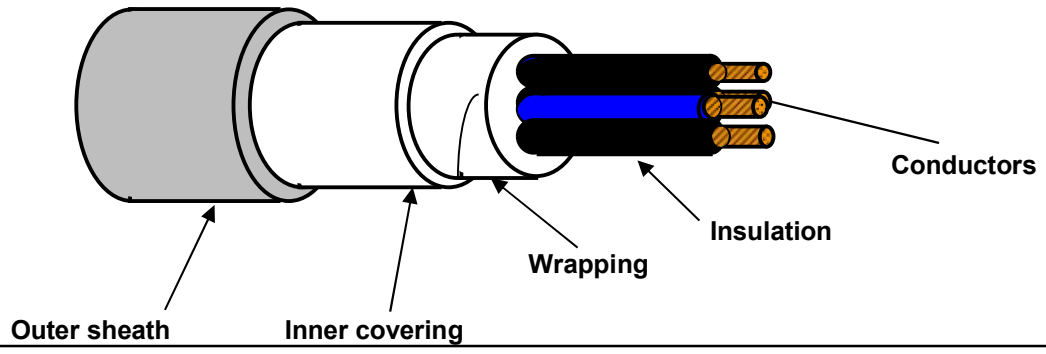
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	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
83005-CEC	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	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-450-101-LVT-021 / L-600-101-LVT-017 / E-MCT-203 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-450-101-LVT-075 / E-MCT-106 / 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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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	83006-CEC	: LV Switchgear / 6.6KV HV Switchgear			Dwg	123A90-DDL-EL-LIS-20148
	S/Sys	82-00	: MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-200/LD_B-100
TASK	code	C10002113		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: SG-200N1 | 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	PL
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	0.6
	CORE 2 / All cores+screen+armour+earth	0.6
	CORE 3 / All cores+screen+armour+earth	0.6
	CORE 4 / All cores+screen+armour+earth	0.6
	CORE 5 / All cores+screen+armour+earth	0.6
	CORE 6 / All cores+screen+armour+earth	0.6
	CORE 7 / All cores+screen+armour+earth	0.6
	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	1000

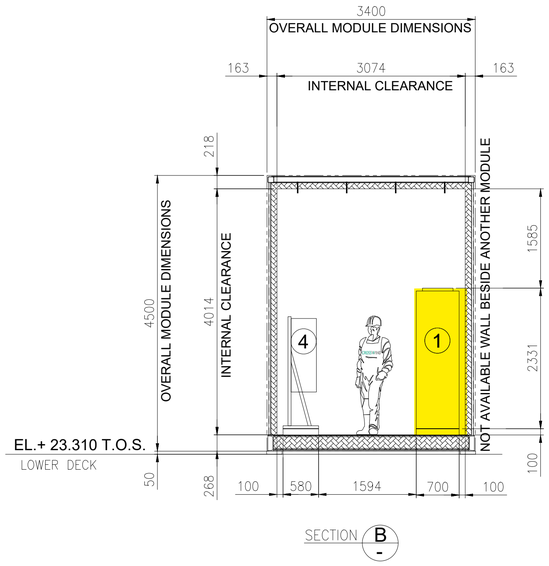
TESTING INSTRUMENTS USED

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

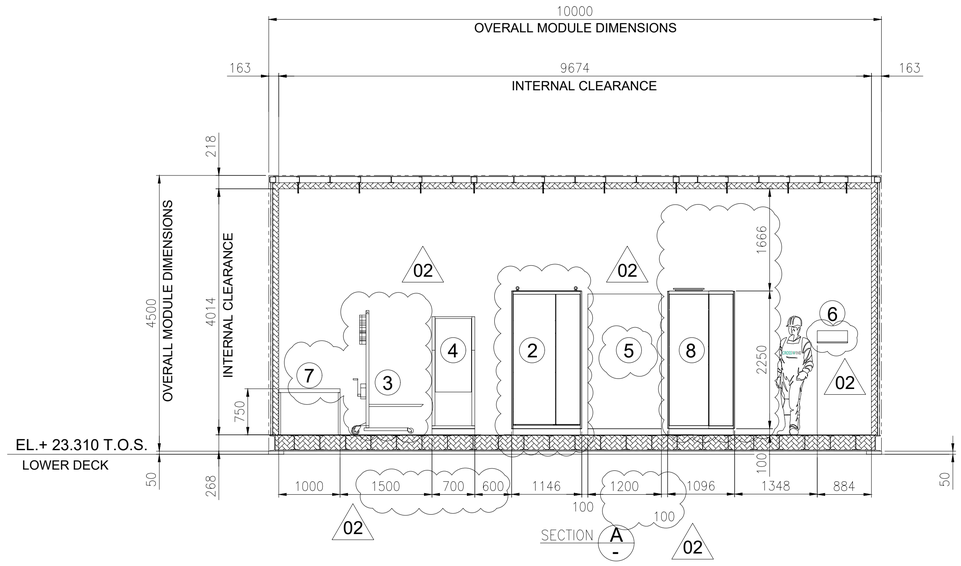
Comments: Note 4: Refer to PL C30000679

Page 1/1	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM (Rosetti Marino)	
Name	Carmelo Bongiovanni	Paolo Schintu	
Date	2024-10-28	2024-11-22	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-10-28T09:14:33.290Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-22T13:49:24.745Z	

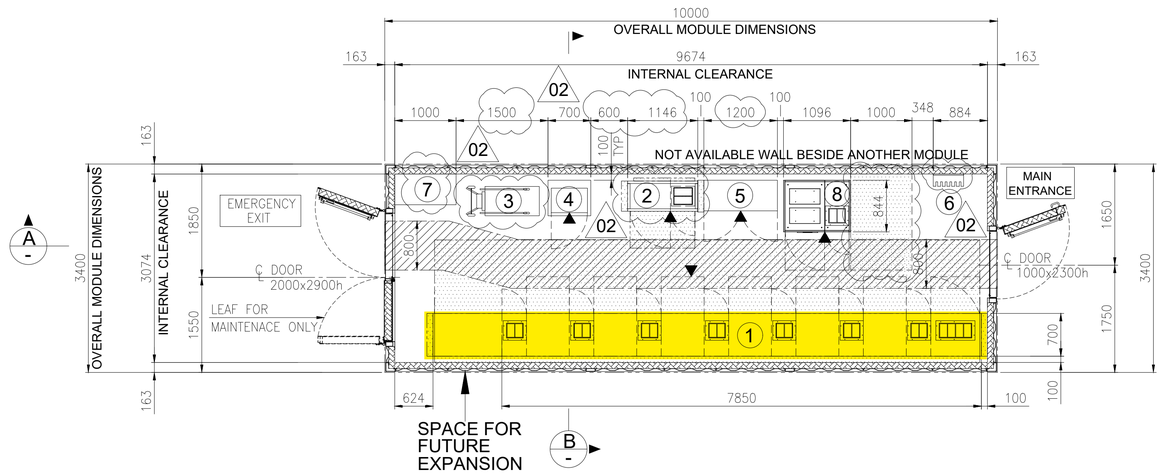
DRAWING NO. 123A90-DDL-EL-DL-20105 REV. 02



SECTION B -



SECTION A -



A -

SPACE FOR FUTURE EXPANSION

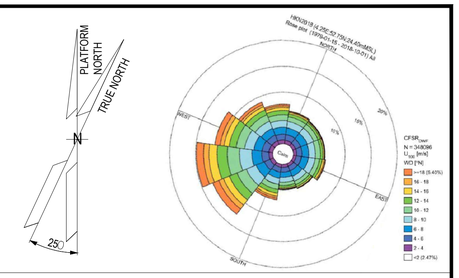
B -

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

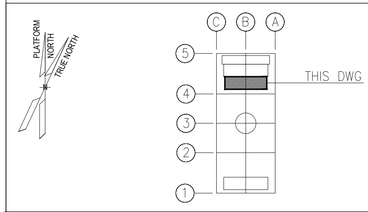
U.N.O. _____ UNLESS NOTED OTHERWISE
T.O.S. _____ TOP OF STEEL
_____ ESCAPE CORRIDOR - WIDTH 800mm.
_____ MAINTENANCE AREA - VENDOR REQUIREMENT
_____ SWITCHGEAR ROOM ENCLOUSURE
_____ FRONT OF EQUIPMENT

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

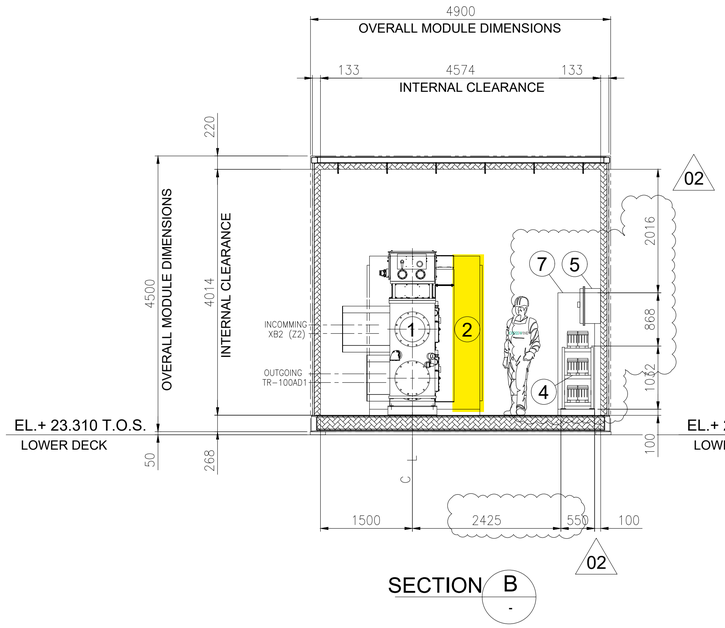
ROSETTI MARINO SpA

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

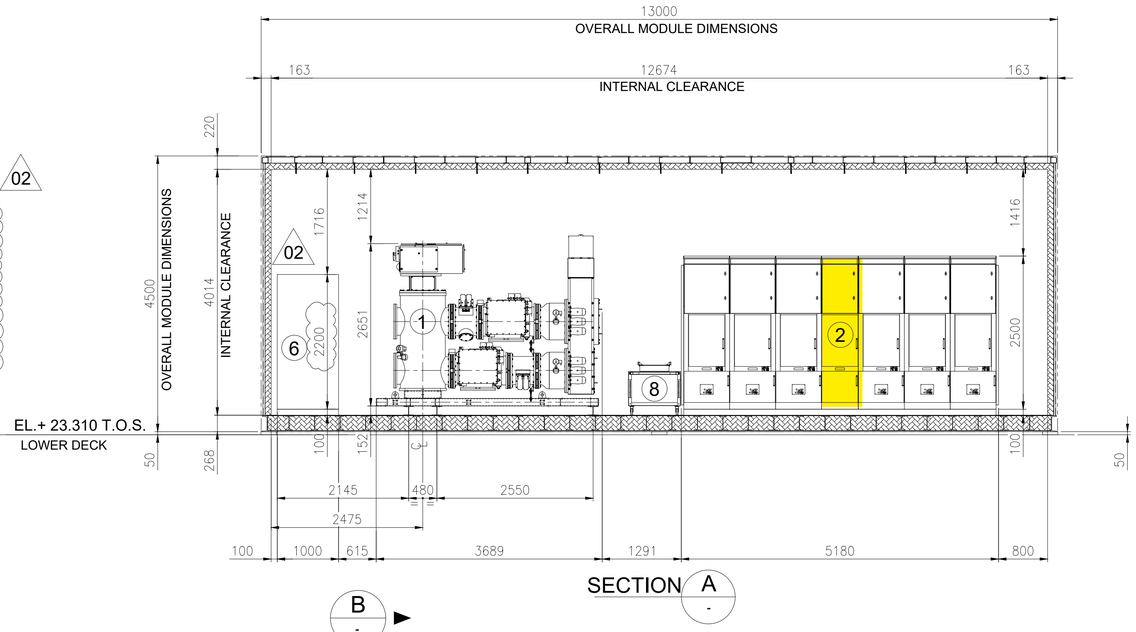
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN FMO	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024
A1	DRAWING NO. 123A90-DDL-EL-DL-20105	SHEET 001	REV. 02

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

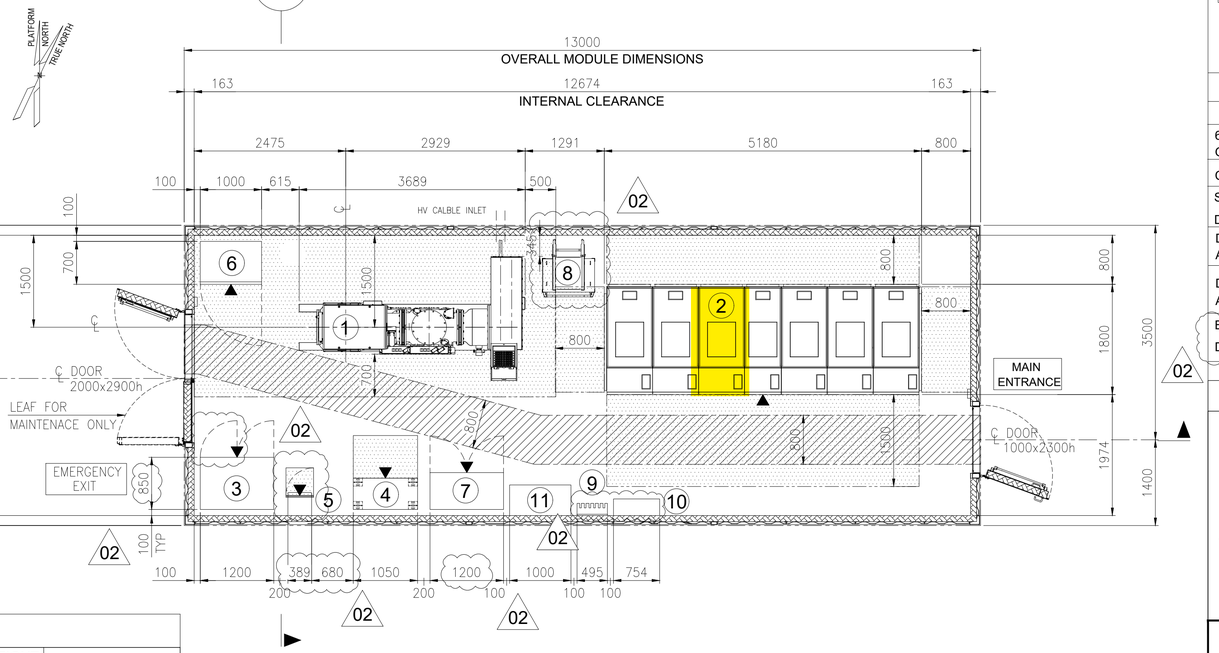
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -

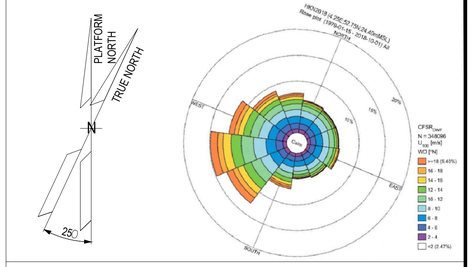


SECTION A -



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	



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

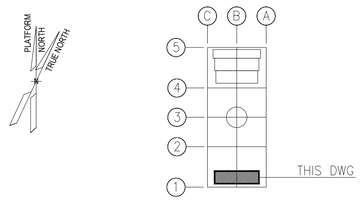
LEGEND

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



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

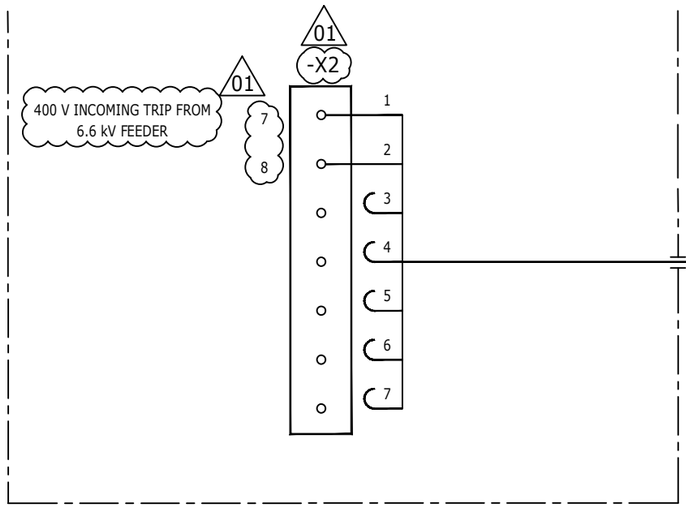
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

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

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

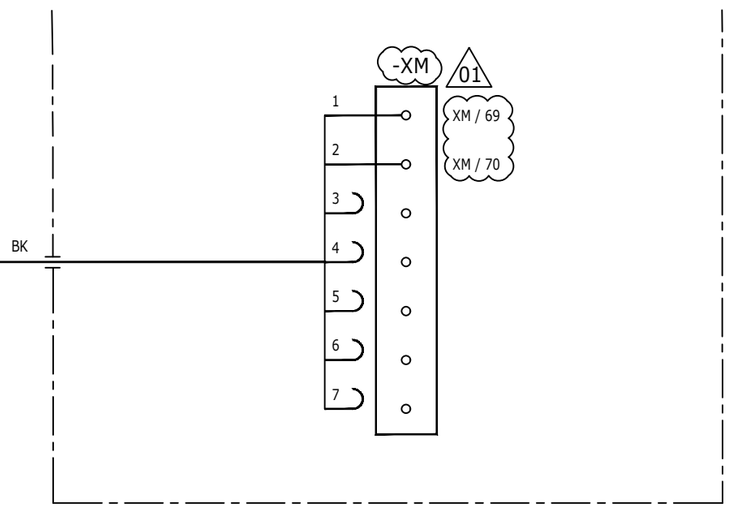
FROM	TO

DESCRIPTION: LV SWITCHGEAR
TAG NUMBER: SG-200N1

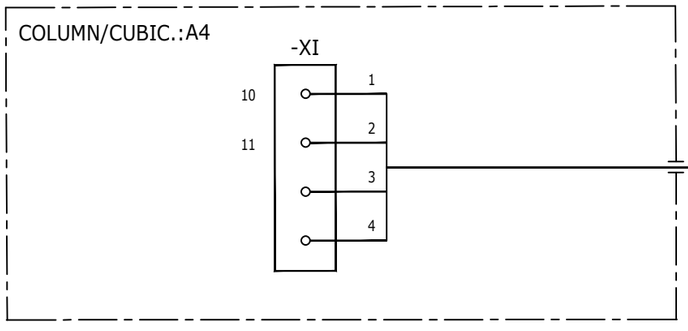


83006-CEC
7C X 1.5 mm²

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

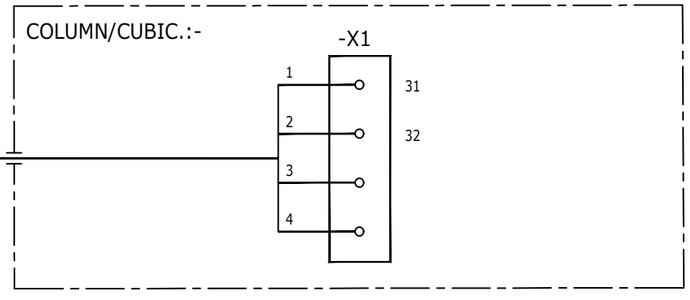


DESCRIPTION: 6.6KV HV SWITCHGEAR
TAG NUMBER: SG-100D1



82015-CEC
4C X 4 mm²

DESCRIPTION: 6.6/0.415 kV, 1.6MVA Transformer
TAG NUMBER: CP-200E1



01

VALID FOR CONSTRUCTION
FDL DWG: 123A90-FDL-EL-DL-20149
REV.: 1_A | DATE: 17/10/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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)

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL INTERCONNECTING WIRING DIAGRAM
LV SWITCHGEAR & 6.6KV HV SWITCHGEAR INTERLOCKS

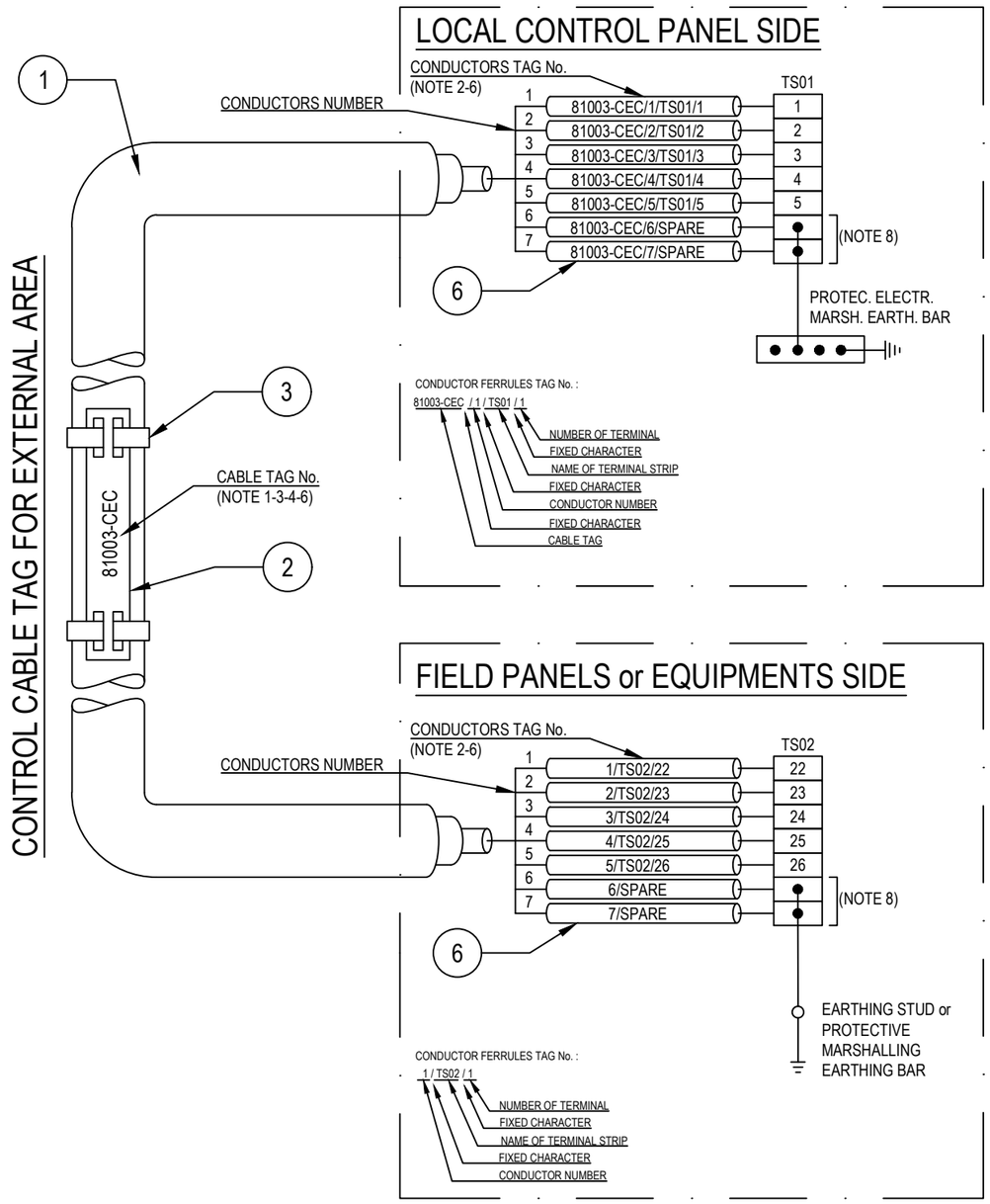
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE : 1:X

A3 | DRAWING NO. 123A90-DDL-EL-DG-20149 | SHEET 081 | REV. 01

F.to UNI A3: 420mmx297mm

File Name : 123A90-DDL-EL-DG-20162 Rev. 01

C04



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.

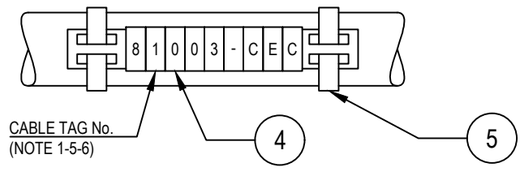
5) THE CABLE TAG FOR INTERNAL AREA SHAL BE DONE BY ENGRAVED PLASTIC SLIP ON CHARACTERS ONTO PLASTIC TIE, BLACK LETTER (H=5mm) ON WHITE.

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.: 2_A | DATE: 28/08/24 | SIGNATURE: G.Randi
ROSETTI MARINO SpA

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)

CROSSWIND

ROSETTI MARINO

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

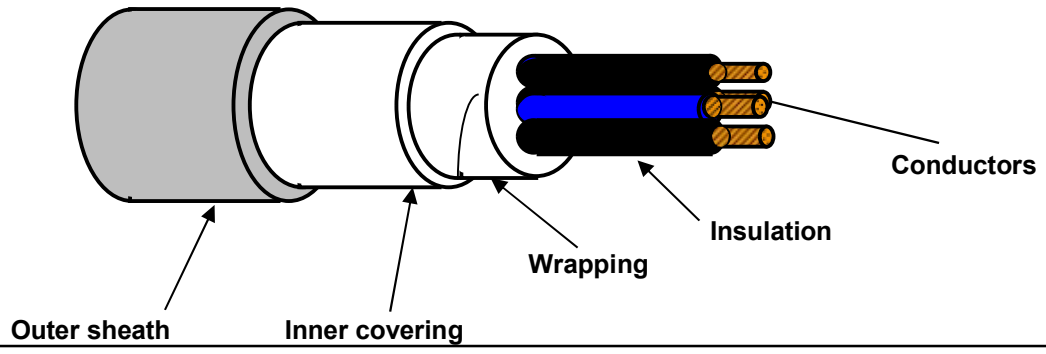
File Name : 123A90-DDL-EL-DD-20092 REV.02.DWG

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	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
83006-CEC	Cable	EL	VFC	123A90-DDL-EL-LIS-20148						SG-200N1	LV 0,4 kV MCC Switchgear	Lower Deck (B-200)	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-450-101-LVT-021 / L-600-101-LVT-017 / E-MCT-203 / L-750-101-LVT-013 / L-750-101-LVT-014 / L-450-101-LVT-075 / E-MCT-106 / 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: 82-00 & process: MC & discipline : I

Instrumental	82-00 MV 6.6 kV Switchboard (SG-100D1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
C-SG-100D1-001/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	ONSHORE	C10000189	CJX10	100	2024-11-29	RFC 1
C-SG-100D1-002/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	ONSHORE	C10000190	CJX10	100	2024-11-29	RFC 1
C-SG-100D1-003/B400-SIS-001	TRIP SIGNAL / MARSHALLING PCS	ONSHORE	C10000191	CJX10	100	2024-11-29	RFC 1

ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	C-SG-100D1-001/B400-SIS-001 : TRIP SIGNAL / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	82-00 : MV 6.6 kV Switchboard (SG-100D1)				Module	LD_B-100/LD_B-400
TASK	code	C10000189		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: SG-100D1 | 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.	PL
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		0.5	Ω
	SCREEN		0.5	Ω
	EARTH		NA	Ω
	ARMr		0.5	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

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

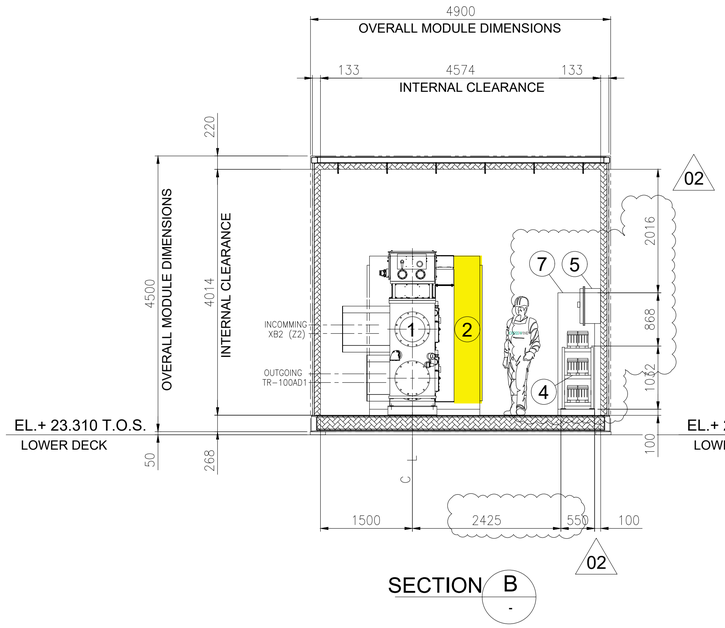
TESTING INSTRUMENTS USED

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

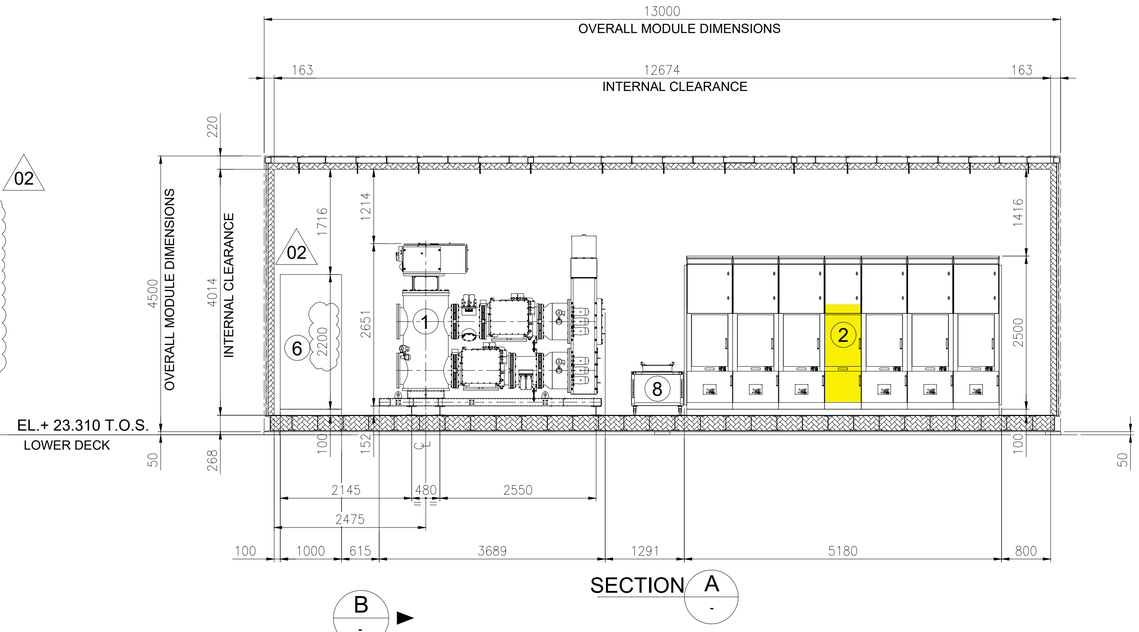
Comments: Nota 5: refer to PL C30000679

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Paolo Schintu	
Date	2024-11-26	2024-11-29	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-11-26T09:31:42.562Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-29T14:49:07.296Z	

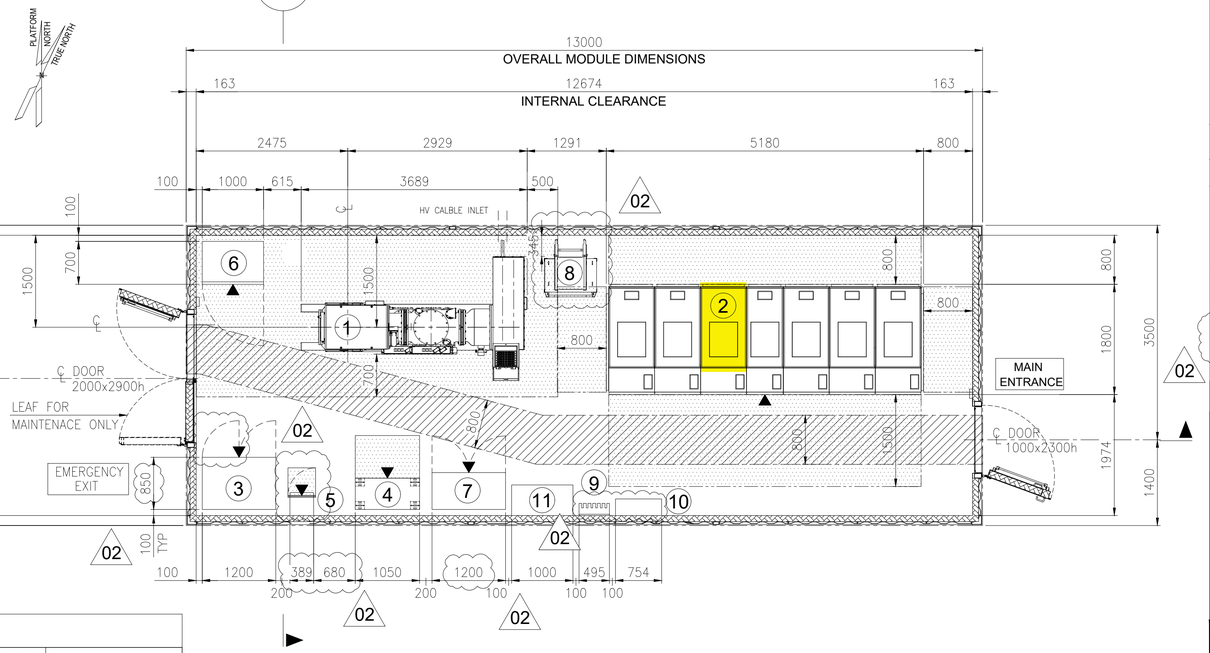
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



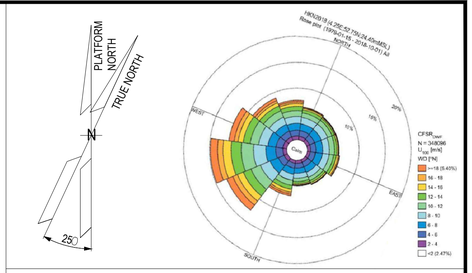
SECTION A -



A -

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	



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

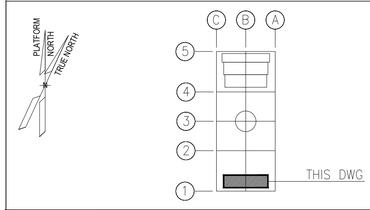
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

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

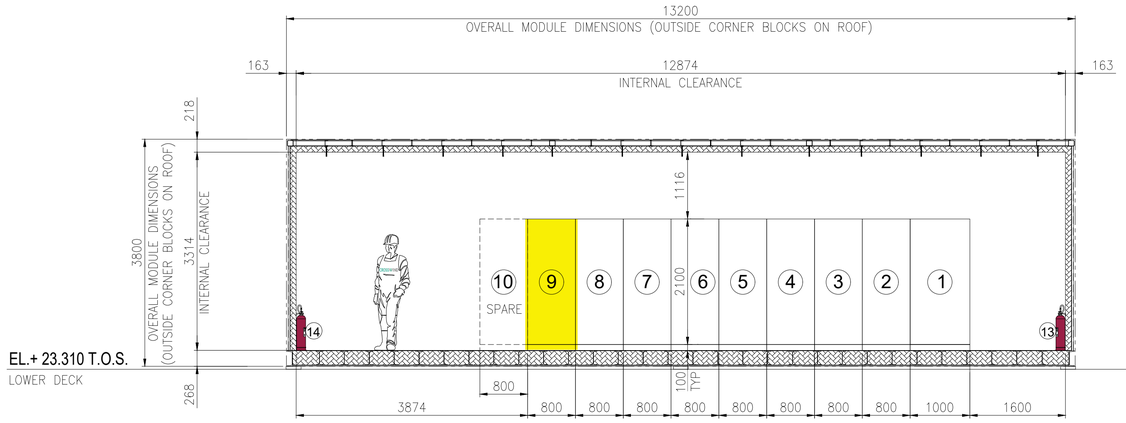
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

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

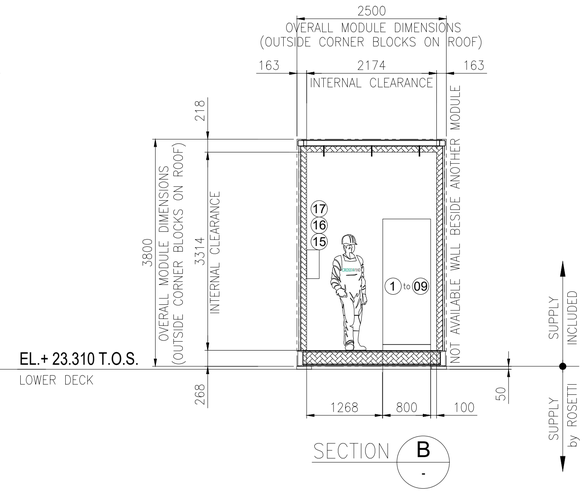
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DRAWING NO. 123A90-DDL-IN-DL-40012

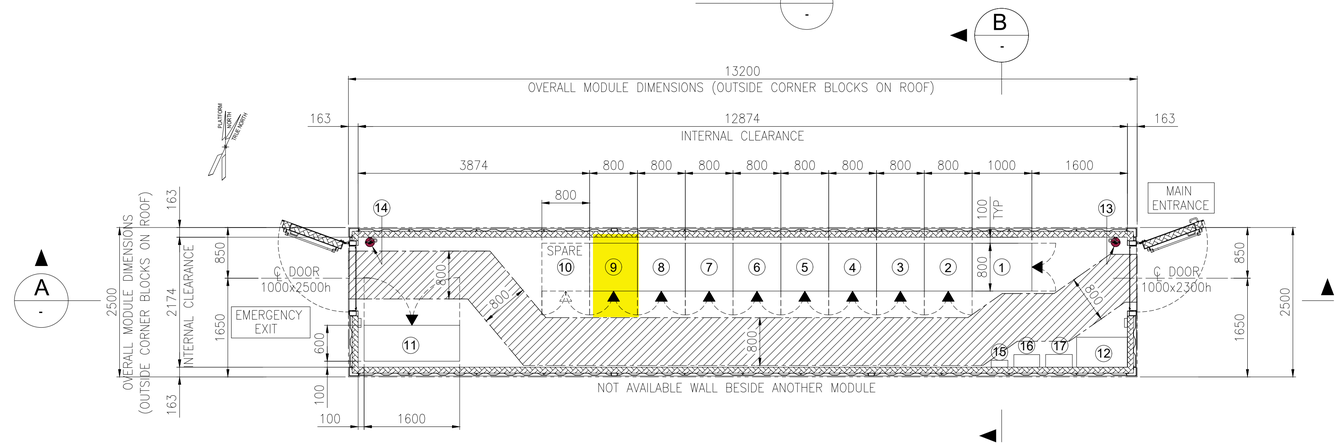
REV. 03



SECTION A -



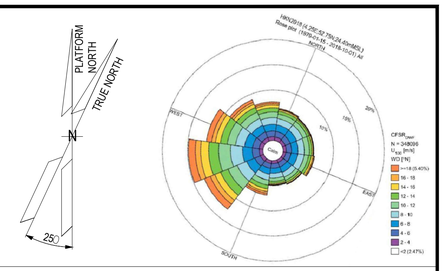
SECTION B -



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

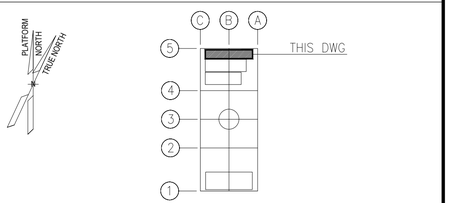
HOLDS

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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. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		I&T EQUIPMENT ROOM (ITER)
B-100 - HV SWITCHGEAR ROOM	CABLE NO	MARSHALLING CABINET B400-SIS-001

<01>

OPEN WIND FARM INCOMING CIRCUIT BREAKERS (CP-100E1)	81-XS-001	TB-X13 13 14 1BK 2BK NOTE-2	C-CP-100E1/B400-SIS-001 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 31 32 1BK 2BK	81-XS-001
OPEN SOLAR INCOMING CIRCUIT BREAKERS (SG-100D1)	82-XS-001	TB-XM 51 52 1BK 2BK NOTE-2	C-SG-100D1-001/B400-SIS-001 ~~SG-100D1-001/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 33 34 1BK 2BK	82-XS-001
OPEN BESS A-85000 INCOMING CIRCUIT BREAKERS (SG-100D1)	82-XS-002	TB-XM 43 44 1BK 2BK NOTE-2	C-SG-100D1-002/B400-SIS-001 ~~SG-100D1-002/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 35 36 1BK 2BK	82-XS-002
OPEN FUEL CELL A-80000 INCOMING C. BREAKERS (SG-100D1)	82-XS-003	TB-XM 37 38 1BK 2BK NOTE-2	C-SG-100D1-003/B400-SIS-001 ~~SG-100D1-003/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 37 38 1BK 2BK	82-XS-003
DISCONNECT DC UPS BATTERY DC UPS (CB-200F1)	84-XS-006	TB-X3 7 8 1BK 2BK NOTE-2	C-CB-200F1/B400-SIS-001 ~~CB-200F1/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 39 40 1BK 2BK	84-XS-006
INHIBIT. BATTERY CHARGING DA UPS (UP-200F1)	84-XS-009	TB-X10 1 2 1BK 2BK NOTE-2	C-UP-200F1/B400-SIS-001 ~~UP-200F1/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 41 42 1BK 2BK	84-XS-009

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

REV.:	DATE:	SIGNATURE:
1_K	18/11/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

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

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

	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	022	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

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

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. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

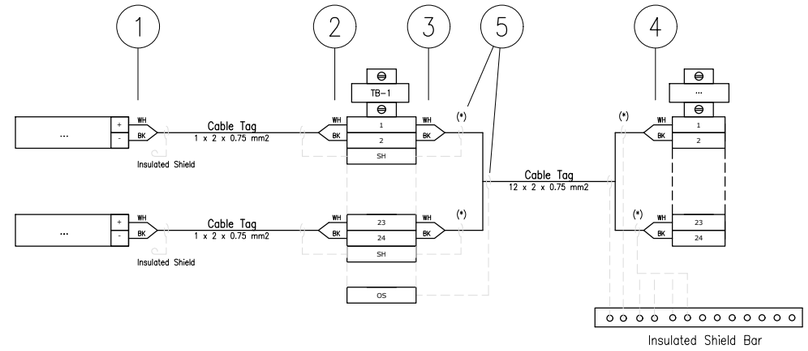
LEGENDS & SYMBOLS:

LEGEND:

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 <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

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

REV.:	DATE:	SIGNATURE:
1_K	18/11/24	G.Randi

ROSETTI MARINO SpA

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

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

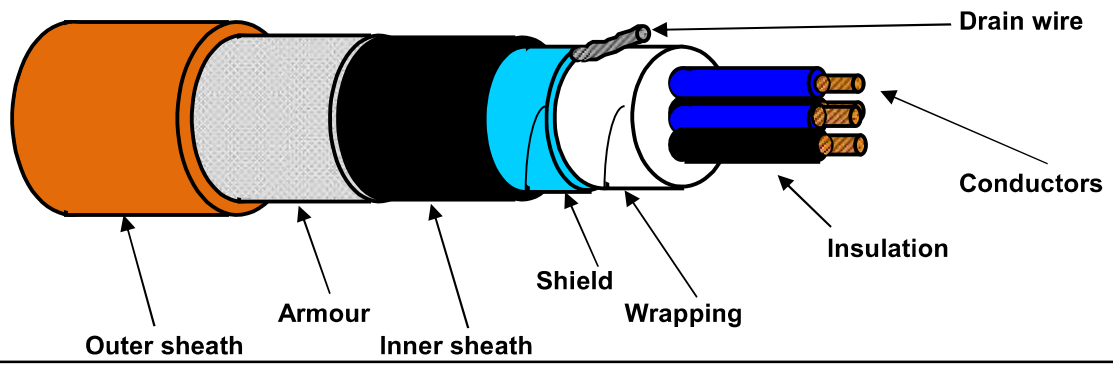
	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	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-SG-100D1-001/B400-SIS-001	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	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-101 / B-100-SEC-1E / B-100-SEC-1C / B-100-SEC-1A / L-SEC-17 / L-SEC-1N / L-SEC-1M / 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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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	C-SG-100D1-002/B400-SIS-001 : TRIP SIGNAL / MARSHALLING PCS				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	82-00 : MV 6.6 kV Switchboard (SG-100D1)				Module	LD_B-100/LD_B-400
TASK	code	C10000190		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: SG-100D1 | 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.	PL
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		0.5	Ω
	SCREEN		0.5	Ω
	EARTH		NA	Ω
	ARMr		0.5	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

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

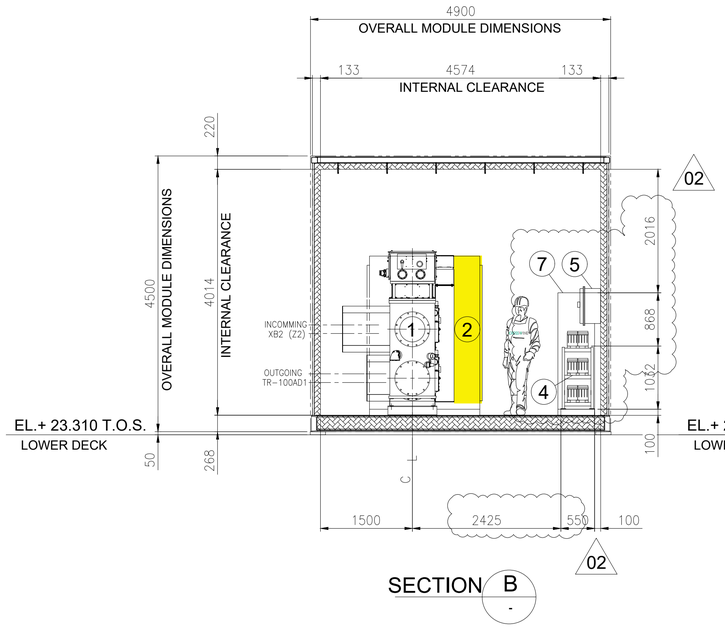
TESTING INSTRUMENTS USED

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

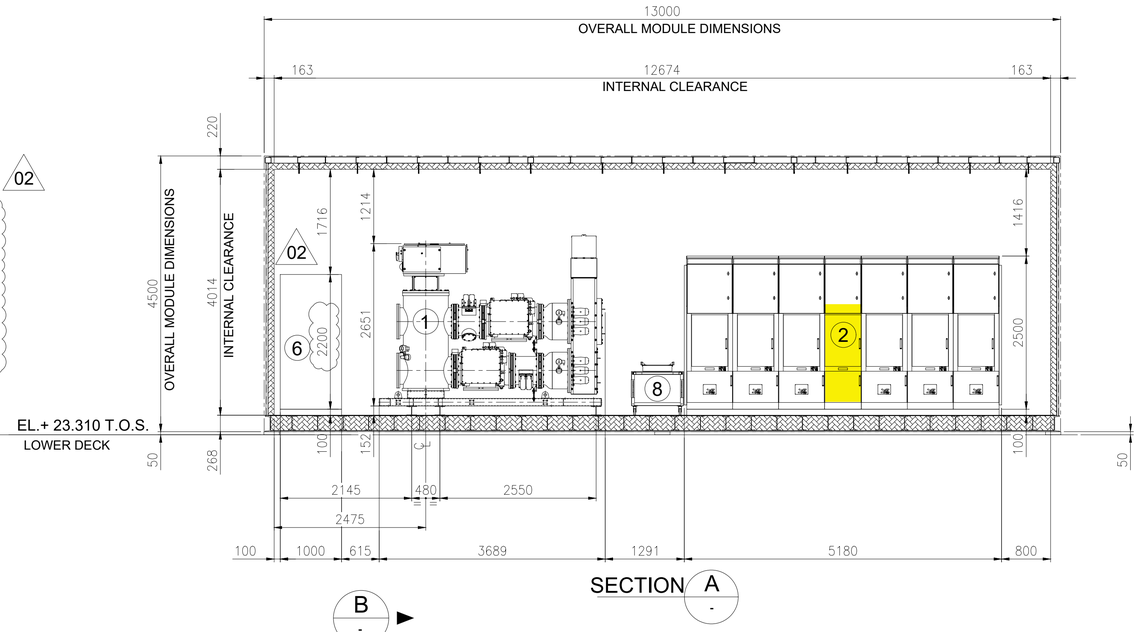
Comments: Nota 5: refer to PL C30000680

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Paolo Schintu	
Date	2024-11-26	2024-11-29	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-11-26T09:32:03.816Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-29T14:53:40.106Z	

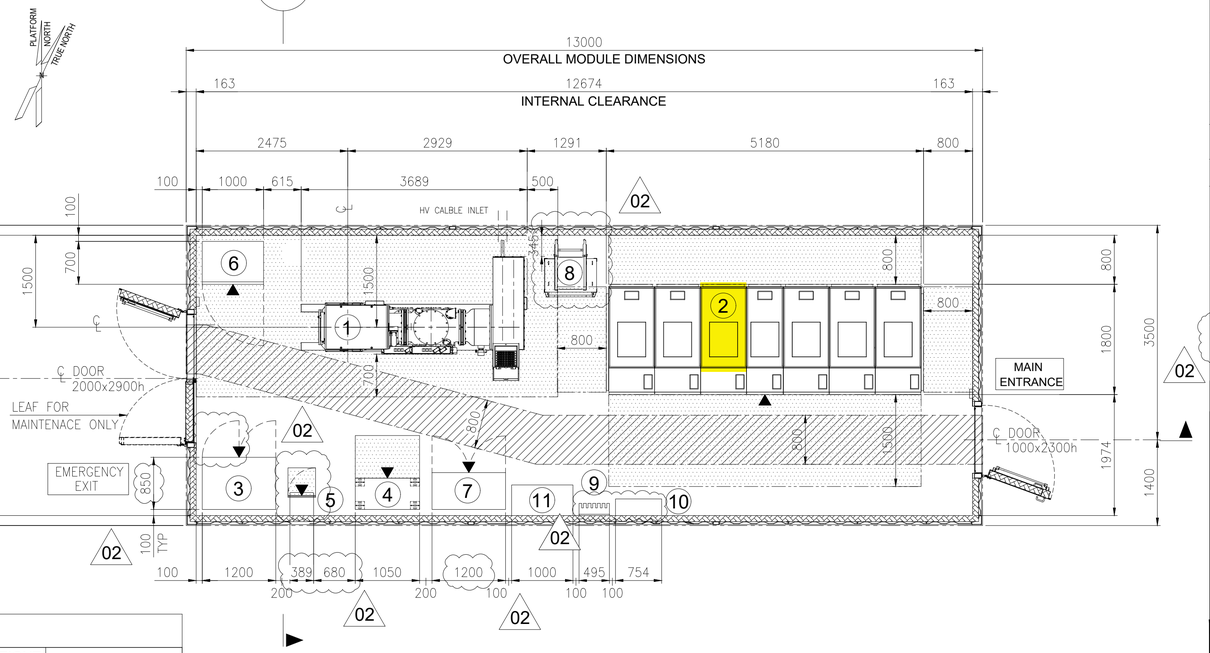
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



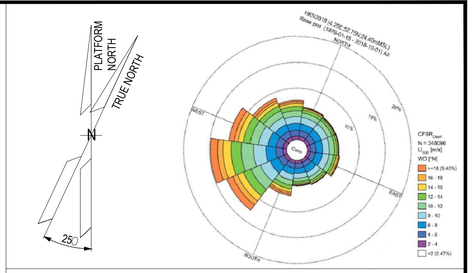
SECTION A -



A -

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	



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

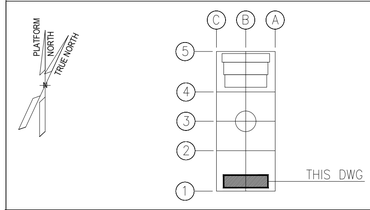
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

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

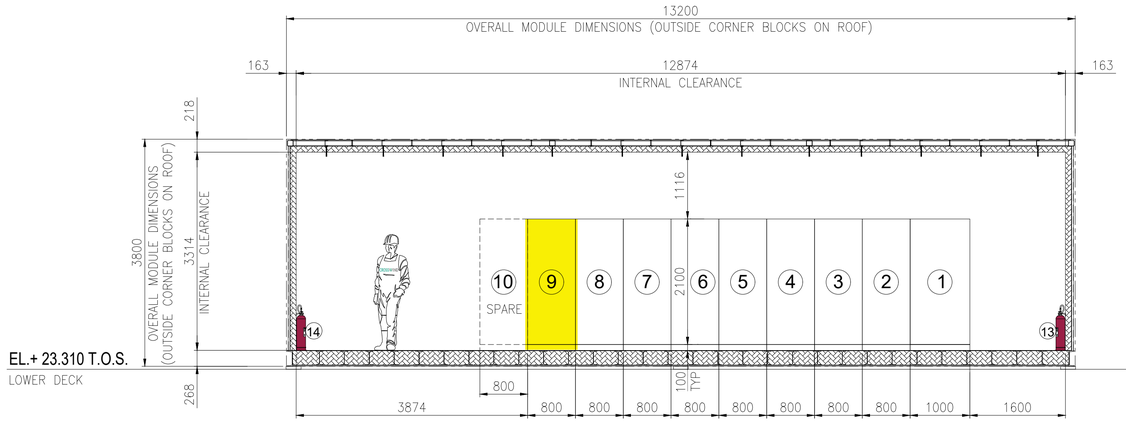
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

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

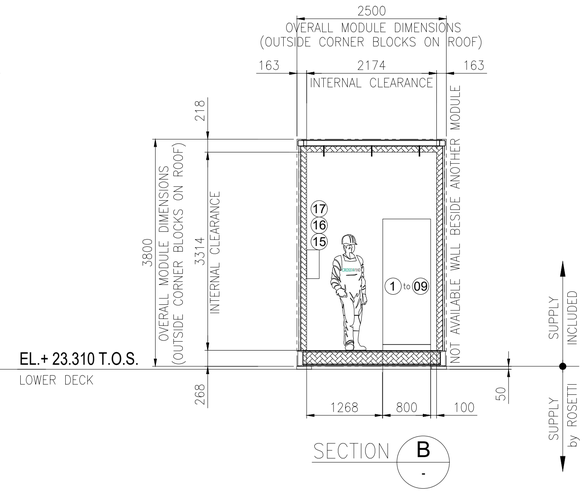
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DRAWING NO. 123A90-DDL-IN-DL-40012

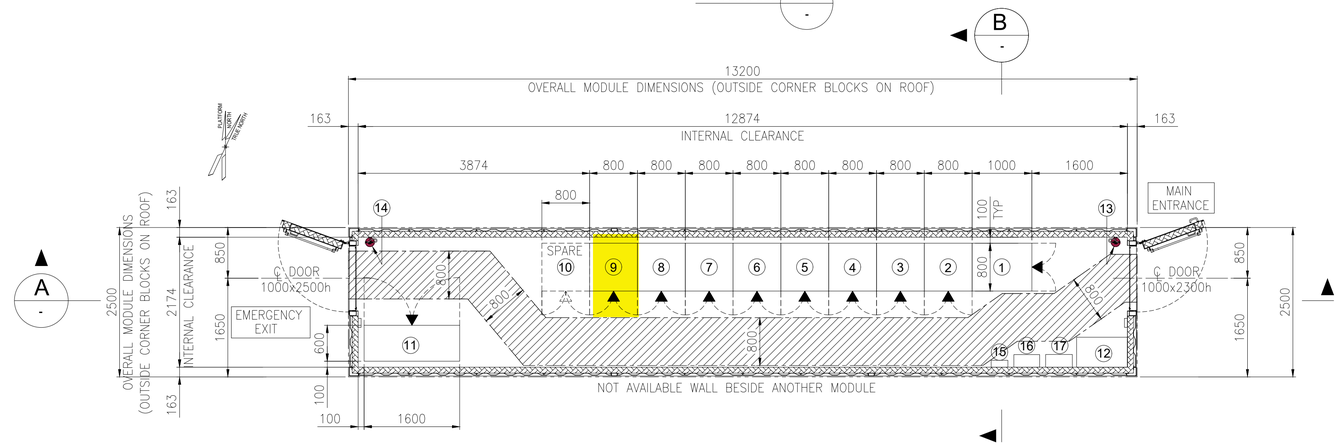
REV. 03



SECTION A -



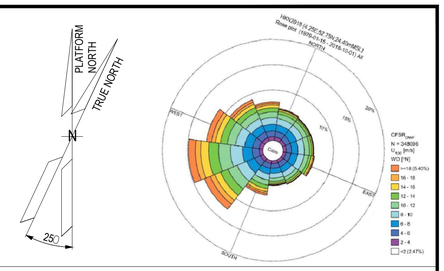
SECTION B -



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

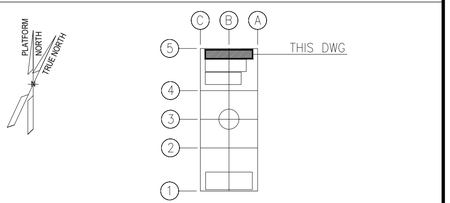
HOLDS

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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. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		I&T EQUIPMENT ROOM (ITER)
B-100 - HV SWITCHGEAR ROOM	CABLE NO	MARSHALLING CABINET B400-SIS-001

<01>

OPEN WIND FARM INCOMING CIRCUIT BREAKERS (CP-100E1)	81-XS-001	TB-X13 13 (1BK) 14 (2BK) NOTE-2	C-CP-100E1/B400-SIS-001 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 31 (1BK) 32 (2BK)	81-XS-001
OPEN SOLAR INCOMING CIRCUIT BREAKERS (SG-100D1)	82-XS-001	TB-XM 51 (1BK) 52 (2BK) NOTE-2	C-SG-100D1-001/B400-SIS-001 ~~SG-100D1-001/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 33 (1BK) 34 (2BK)	82-XS-001
OPEN BESS A-85000 INCOMING CIRCUIT BREAKERS (SG-100D1)	82-XS-002	TB-XM 43 (1BK) 44 (2BK) NOTE-2	C-SG-100D1-002/B400-SIS-001 ~~SG-100D1-002/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 35 (1BK) 36 (2BK)	82-XS-002
OPEN FUEL CELL A-80000 INCOMING C. BREAKERS (SG-100D1)	82-XS-003	TB-XM 37 (1BK) 38 (2BK) NOTE-2	C-SG-100D1-003/B400-SIS-001 ~~SG-100D1-003/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 37 (1BK) 38 (2BK)	82-XS-003
DISCONNECT DC UPS BATTERY DC UPS (CB-200F1)	84-XS-006	TB-X3 7 (1BK) 8 (2BK) NOTE-2	C-CB-200F1/B400-SIS-001 ~~CB-200F1/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 39 (1BK) 40 (2BK)	84-XS-006
INHIBIT. BATTERY CHARGING DA UPS (UP-200F1)	84-XS-009	TB-X10 1 (1BK) 2 (2BK) NOTE-2	C-UP-200F1/B400-SIS-001 ~~UP-200F1/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 41 (1BK) 42 (2BK)	84-XS-009

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

REV.:	DATE:	SIGNATURE:
1_K	18/11/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–SAFETY SYSTEM WIRING DIAGRAMS
ELECTRICAL EQUIPMENT – SHUTDOWN

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

	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	022	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

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

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. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

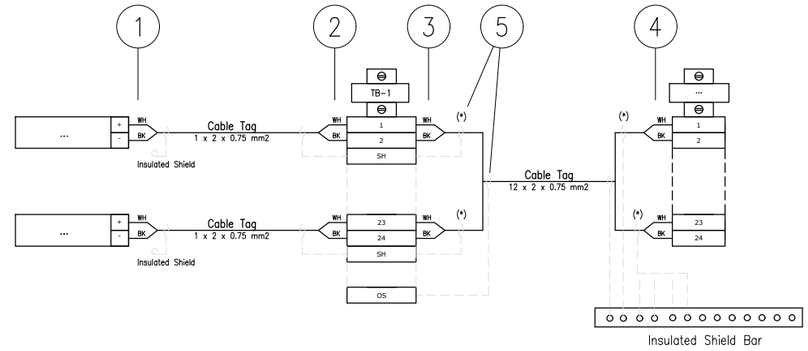
LEGENDS & SYMBOLS:

LEGEND:

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 <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

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

REV.:	DATE:	SIGNATURE:
1_K	18/11/24	G.Randi

ROSETTI MARINO SpA

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

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

	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

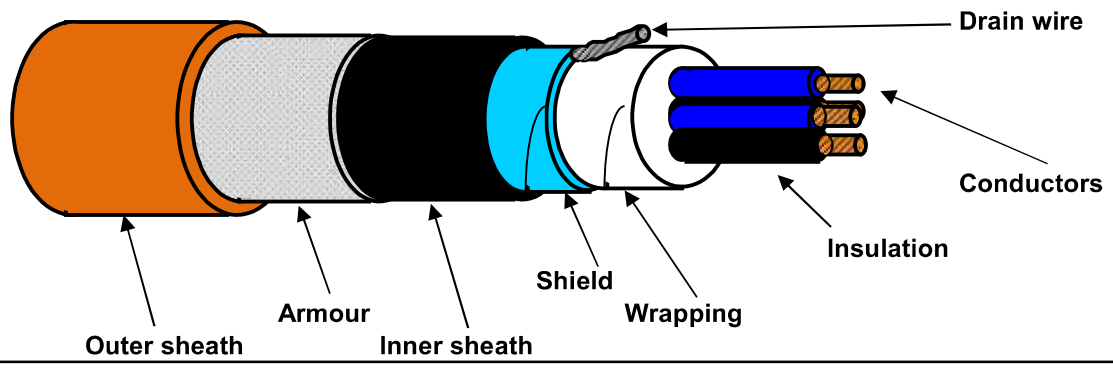
File Name : 123A90-DDL-IN-DG-40016_Rev.01

Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functio	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-SG-100D1-002/B400-SIS-001	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	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-101 / B-100-SEC-1E / B-100-SEC-1C / B-100-SEC-1A / L-SEC-17 / L-SEC-1N / L-SEC-1M / 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

FLEI s.r.l.

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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ROSETTI MARINO | PROVERLIS | CROSSWIND

ITEM	Tag	C-SG-100D1-003/B400-SIS-001 : TRIP SIGNAL / MARSHALLING PCS			Dwg	123A90-DDL-IN-LIS-40091	
	S/Sys	82-00 : MV 6.6 kV Switchboard (SG-100D1)			Module	LD_B-100/LD_B-400	
TASK	code	C10000191	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	SG-100D1	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.	PL
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		0.6	Ω
	SCREEN		0.6	Ω
	EARTH		NA	Ω
	ARMr		0.6	Ω
	TEST VOLTS		500	V

TEST ALL CORES AND RECORD LOWEST VALUE

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

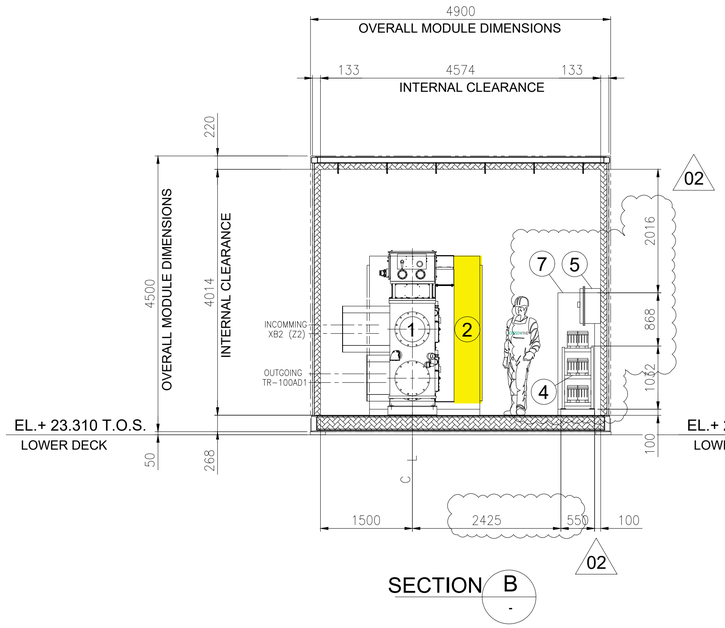
TESTING INSTRUMENTS USED

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

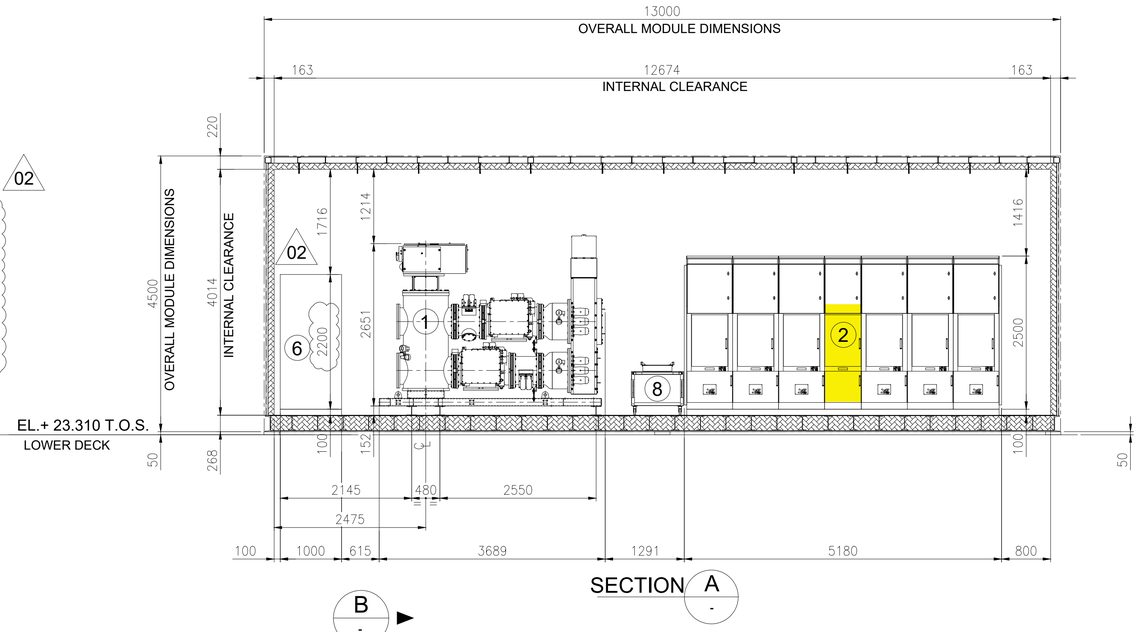
Comments Nota 5: refer to PL C30000680

Page 1/1	Performed by	☑ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Francesco Zucca	Paolo Schintu	
Date	2024-11-26	2024-11-29	
Signature	PROVERLIS Digitaly signed by Francesco Zucca 2024-11-26T09:32:20.047Z	PROVERLIS Digitaly signed by Paolo Schintu 2024-11-29T14:53:25.224Z	

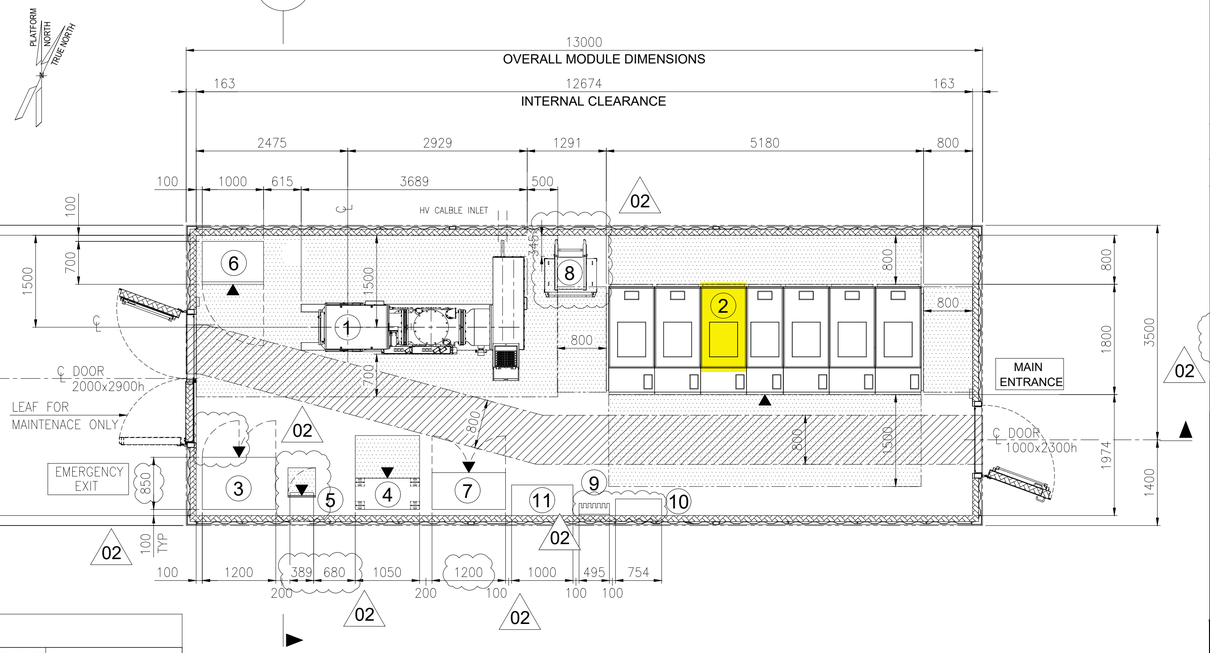
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



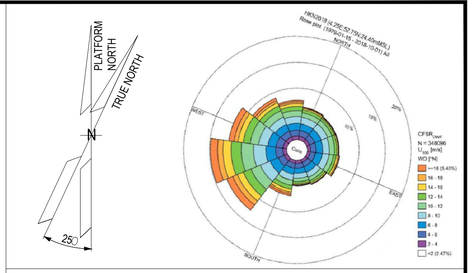
SECTION A -



A -

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	



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

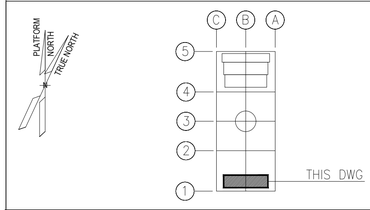
LEGEND

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



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	DYFO/MDO	ISSUE FOR REVIEW (IFR)

CROSSWIND

ROSETTI MARINO

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

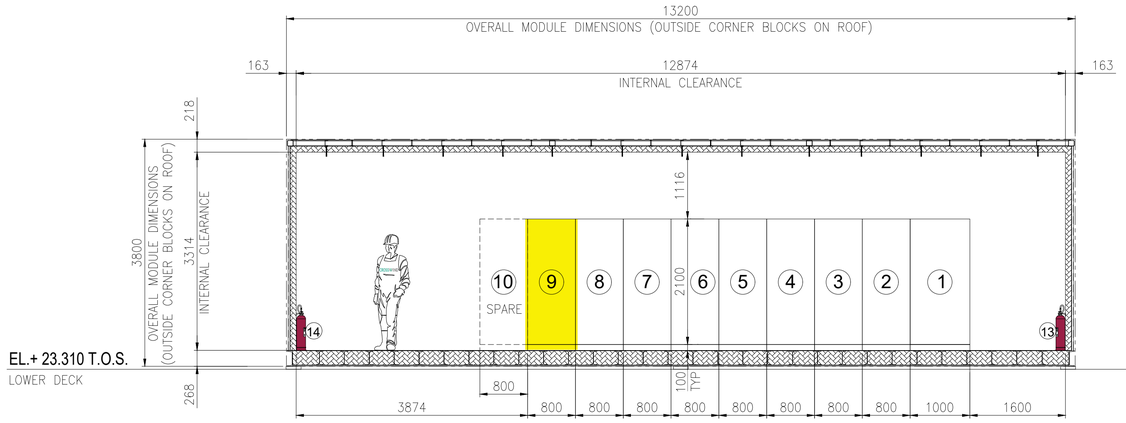
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN GPA	CHECKED LMA/AMA	APPROVED LMA/MDO	DATE 27/05/2024

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

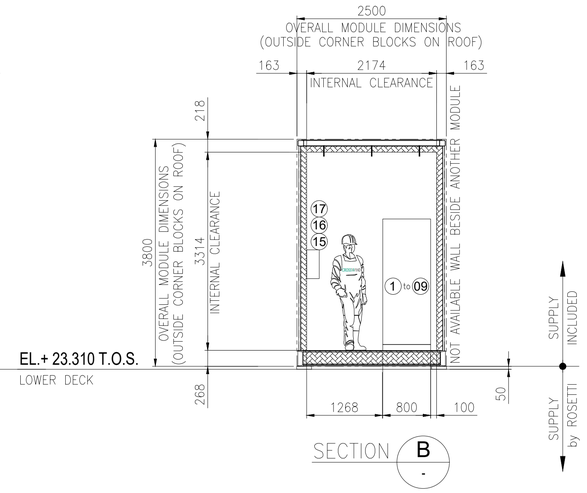
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DRAWING NO. 123A90-DDL-IN-DL-40012

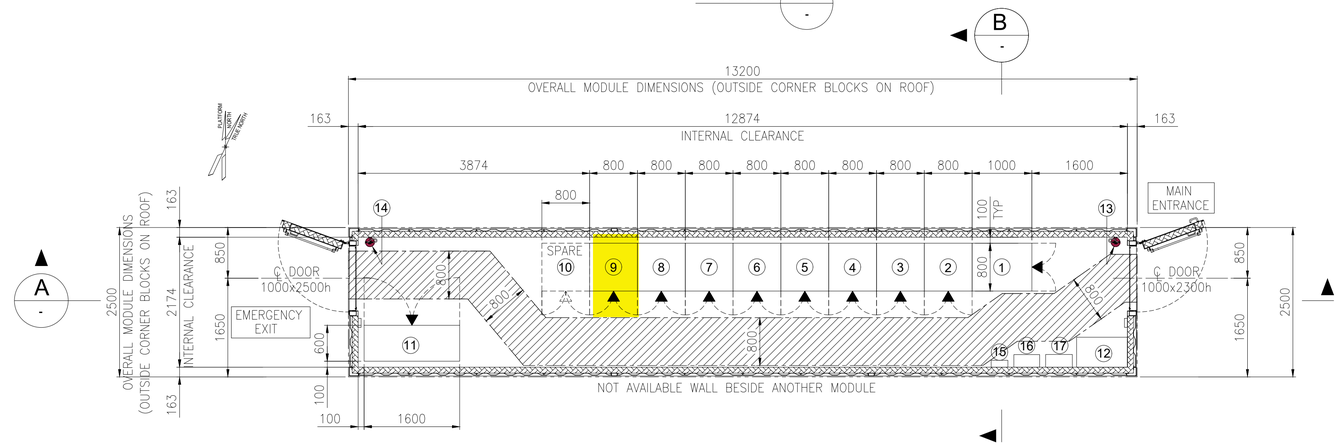
REV. 03



SECTION A -



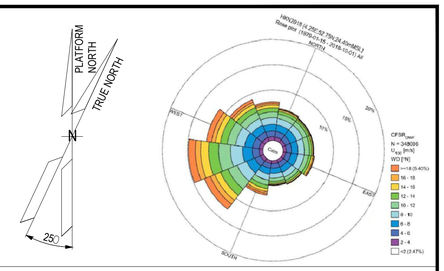
SECTION B -



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

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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

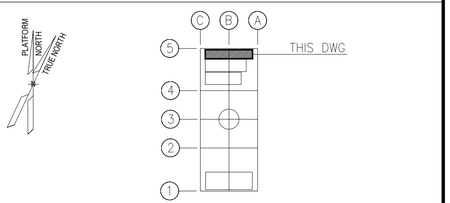
HOLDS

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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. 123-A90-DDL-IN-DG-40016

REV. 01

FIELD		I&T EQUIPMENT ROOM (ITER)
B-100 - HV SWITCHGEAR ROOM	CABLE NO	MARSHALLING CABINET B400-SIS-001

<01>

OPEN WIND FARM INCOMING CIRCUIT BREAKERS (CP-100E1)	81-XS-001	TB-X13	13 (1BK) 14 (2BK) NOTE-2	C-CP-100E1/B400-SIS-001 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 31 (1BK) 32 (2BK) 81-XS-001
OPEN SOLAR INCOMING CIRCUIT BREAKERS (SG-100D1)	82-XS-001	TB-XM	51 (1BK) 52 (2BK) NOTE-2	C-SG-100D1-001/B400-SIS-001 ~~SG-100D1-001/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 33 (1BK) 34 (2BK) 82-XS-001
OPEN BESS A-85000 INCOMING CIRCUIT BREAKERS (SG-100D1)	82-XS-002	TB-XM	43 (1BK) 44 (2BK) NOTE-2	C-SG-100D1-002/B400-SIS-001 ~~SG-100D1-002/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 35 (1BK) 36 (2BK) 82-XS-002
OPEN FUEL CELL A-80000 INCOMING C. BREAKERS (SG-100D1)	82-XS-003	TB-XM	37 (1BK) 38 (2BK) NOTE-2	C-SG-100D1-003/B400-SIS-001 ~~SG-100D1-003/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 37 (1BK) 38 (2BK) 82-XS-003
DISCONNECT DC UPS BATTERY DC UPS (CB-200F1)	84-XS-006	TB-X3	7 (1BK) 8 (2BK) NOTE-2	C-CB-200F1/B400-SIS-001 ~~CB-200F1/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 39 (1BK) 40 (2BK) 84-XS-006
INHIBIT. BATTERY CHARGING DA UPS (UP-200F1)	84-XS-009	TB-X10	1 (1BK) 2 (2BK) NOTE-2	C-UP-200F1/B400-SIS-001 ~~UP-200F1/B400-SIS-001~~ 2x2.5mm2,ShT+ARM,F.Res,ORANGE,NIS	Shield Bar	TB-XS-000 41 (1BK) 42 (2BK) 84-XS-009

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

REV.:	DATE:	SIGNATURE:
1_K	18/11/24	G.Randi

ROSETTI MARINO SpA

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
INSTRUMENT–SAFETY SYSTEM WIRING DIAGRAMS
ELECTRICAL EQUIPMENT – SHUTDOWN

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

	DRAWING NO.	SHEET	REV.
A3	123A90–DDL–IN–DG–40016	022	01

File Name : 123A90-DDL-IN-DG-40016_Rev.01

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

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. CONNECTION TERMINAL BLOCK SHALL BE DEFINED DURING CONSTRUCTION PHASE.

<01>

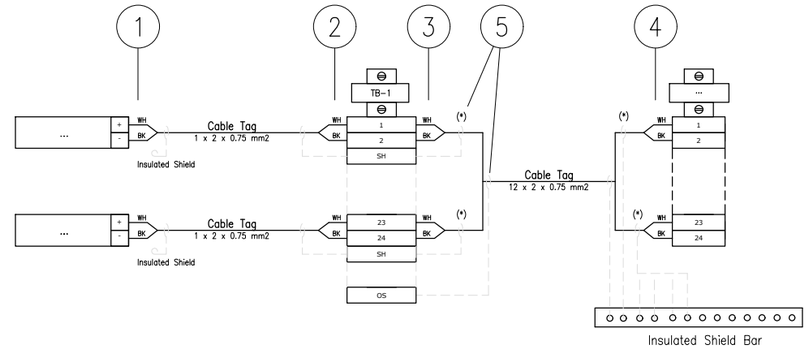
LEGENDS & SYMBOLS:

LEGEND:

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 <01>
ESD	- EMERGENCY SHUTDOWN SYSTEM
SIS	- SAFETY INSTRUMENT SYSTEM
FGS	- FIRE & GAS SYSTEM <01>
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT
JE	- JUNCTION BOX FOR ELECTRICAL SIGNALS <01>

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01
F&G DETECTORS LAYOUT	123A90-DDL-SAF-DL-30027

CROSSWIND

ROSETTI MARINO

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

REV.:	DATE:	SIGNATURE:
1_K	18/11/24	G.Randi

ROSETTI MARINO SpA

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

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

	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40016	003	01

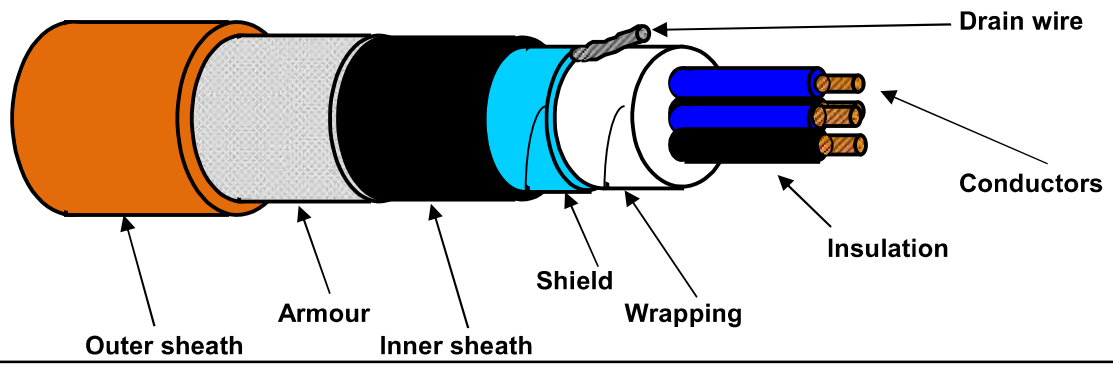
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Tag Number	Category	Discipline	Eng Status	NativeDoc	Layout	Parent Tag	Main Function	Secondary Functi	Area	From Tag	From Main Function	From Area	To Tag	To Main Function	To Area	Material ID	Material Desc.	Gland Standard	From Gland	From Entry	From Fitting	To Gland	To Entry	To Fitting	Routing	Routing Manual
C-SG-100D1-003/B400-SIS-001	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	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-101 / B-100-SEC-1E / B-100-SEC-1C / B-100-SEC-1A / L-SEC-17 / L-SEC-1N / L-SEC-1M / 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

FLEI s.r.l.

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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Section 7 MECHANICAL COMPLETION STATUS INDEX - MECHANICAL DISCIPLINE

NOT APPLICABLE

Section 8 MECHANICAL COMPLETION STATUS INDEX - TELECOMMUNICATION DISCIPLINE

CROSSWIND

ROSETTI MARINO

Project CROSSWIND

STATUS INDEX DETAIL

Filtered on subsystem: 82-00 & process: MC & discipline : T

Telecom	82-00 MV 6.6 kV Switchboard (SG-100D1)						
ITEM		TASK					
Code	Description	Location	Code	Form	Progress	Date	Certificate
SG-100D1/B400-NET-001.01	MV 6,6kV Switchgear / Network Cabinet / EMCS System	ONSHORE	C10004361	CIX09	100	2024-11-22	RFC 1
SG-100D1/B400-NET-001.02	MV 6,6kV Switchgear / Network Cabinet / EMCS System	ONSHORE	C10004362	CIX09	100	2024-11-22	RFC 1
SG-100D1/B400-NET-001.03	MV 6,6kV Switchgear / Network Cabinet / EMCS System	ONSHORE	C10004363	CIX09	100	2024-11-22	RFC 1

ROSETTI MARINO

CROSSWIND

ITEM	Tag	SG-100D1/B400-NET-001.01 : MV 6,6kV Switchgear / Network Cabinet / EMCS System				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	82-00 : MV 6.6 kV Switchboard (SG-100D1)				Module	LD_B-100/LD_B-400
TASK	code	C10004361		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	SG-100D1		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.	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	Confirm cable labelling is in accordance with specifications.	OK
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 4: refer to PL C3000680

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Carmelo Bongiovanni	Giovanni Tangianu	
Date	2024-11-21	2024-11-22	
Signature	PROVERLIS Digitaly signed by Carmelo Bongiovanni 2024-11-21T14:40:36.188Z	PROVERLIS Digitaly signed by Giovanni Tangianu 2024-11-22T16:21:12.688Z	

ROSETTI MARINO

Cable ID: SG-100D1/B400-NET-001.01

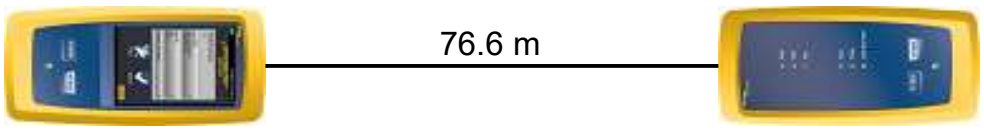
Test Summary: PASS

Test Limit: ISO11801 PL2 Class Ea
Limits Version: V7.6
Date / Time: 21-11-2024 10:04:09
Headroom 5.4 dB (NEXT 3,6-4,5)
Cable Type: Cat 6A S/FTP
NVP: 77.0%

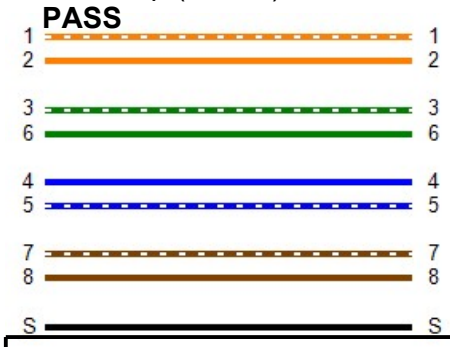
Main: Versiv
S/N: 2226344
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000 (DSX-PLA804)
S/N: 22340270

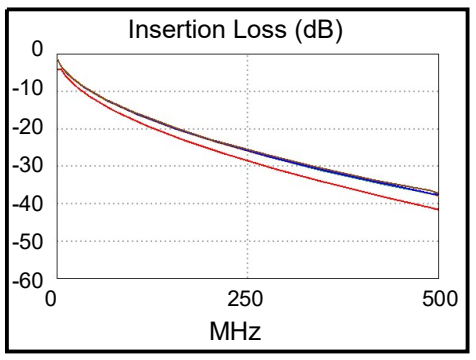
Remote: Versiv
S/N: 2226336
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000R (DSX-PLA804)
S/N: 22340257

Length (m), Limit 90.0	[Pair 4,5]	76.6
Prop. Delay (ns), Limit 496	[Pair 1,2]	339
Delay Skew (ns), Limit 43	[Pair 1,2]	7
Resistance (ohms), Limit 20.60	[Pair 3,6]	10.41
Insertion Loss Margin (dB)	[Pair 1,2]	3.5
Frequency (MHz)	[Pair 1,2]	500.0
Limit (dB)	[Pair 1,2]	41.6

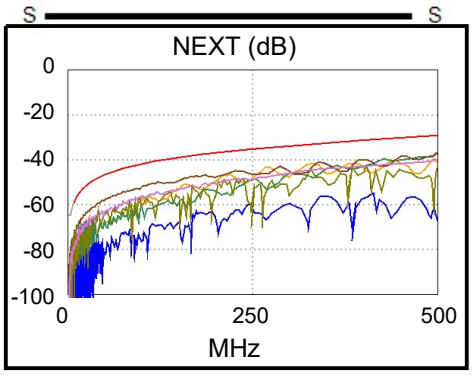


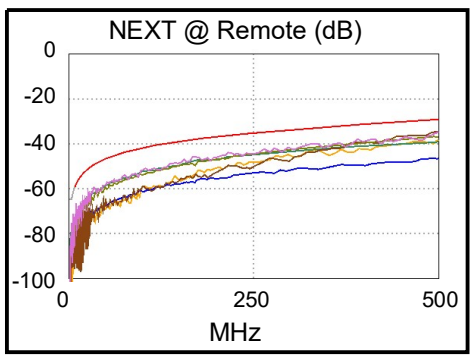
Wire Map (T568B)
PASS



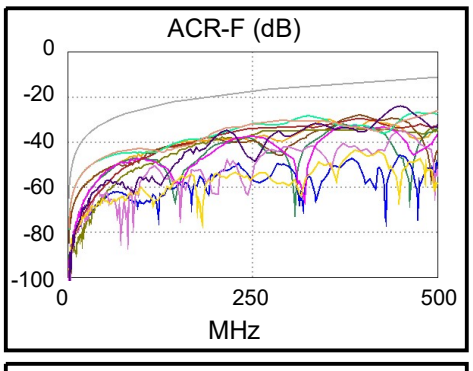


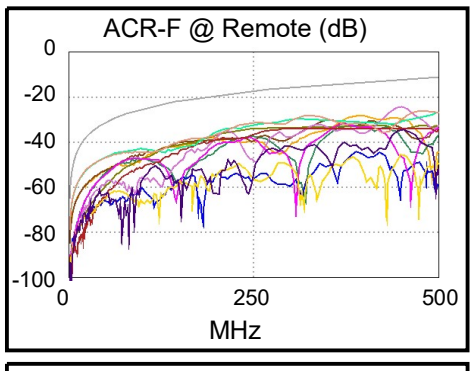
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	1,2-4,5	3,6-4,5	1,2-4,5	3,6-4,5
NEXT (dB)	7.8	5.4	7.9	5.5
Freq. (MHz)	499.0	494.0	500.0	500.0
Limit (dB)	29.3	29.4	29.2	29.2
Worst Pair	4,5	4,5	4,5	4,5
PS NEXT (dB)	6.7	4.7	6.7	4.7
Freq. (MHz)	500.0	499.0	500.0	499.0
Limit (dB)	26.4	26.4	26.4	26.4



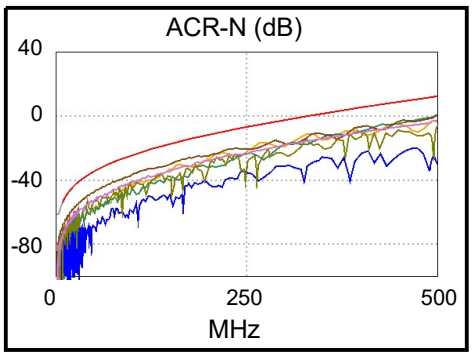


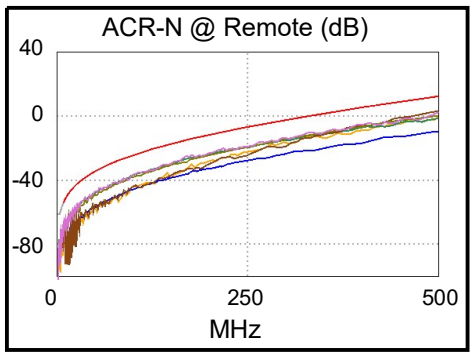
PASS	MAIN	SR	MAIN	SR
Worst Pair	7,8-3,6	3,6-7,8	7,8-3,6	3,6-7,8
ACR-F (dB)	11.7	12.1	11.8	12.2
Freq. (MHz)	451.0	451.0	452.0	452.0
Limit (dB)	12.2	12.2	12.1	12.1
Worst Pair	3,6	7,8	3,6	7,8
PS ACR-F (dB)	14.0	14.2	14.1	14.3
Freq. (MHz)	451.0	451.0	452.0	452.0
Limit (dB)	9.2	9.2	9.1	9.1



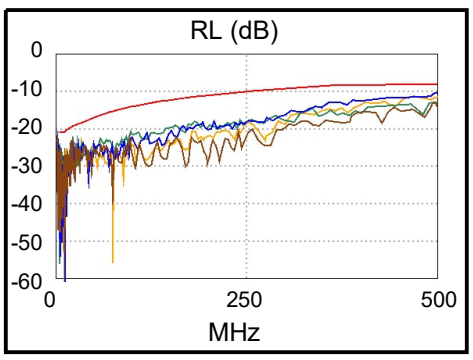


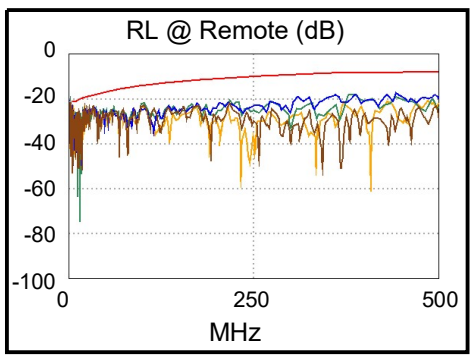
PASS	MAIN	SR	MAIN	SR
Worst Pair	1,2-3,6	3,6-4,5	1,2-4,5	3,6-4,5
ACR-N (dB)	10.9	9.3	11.7	9.3
Freq. (MHz)	268.0	500.0	500.0	500.0
Limit (dB)	5.2	-12.4	-12.4	-12.4
Worst Pair	3,6	4,5	4,5	4,5
PS ACR-N (dB)	10.5	8.5	10.6	8.5
Freq. (MHz)	339.0	499.0	500.0	499.0
Limit (dB)	-3.5	-15.2	-15.3	-15.2





PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5	4,5	4,5	4,5
RL (dB)	2.3	3.7	2.3	9.4
Freq. (MHz)	500.0	34.0	500.0	442.0
Limit (dB)	8.0	18.3	8.0	8.0





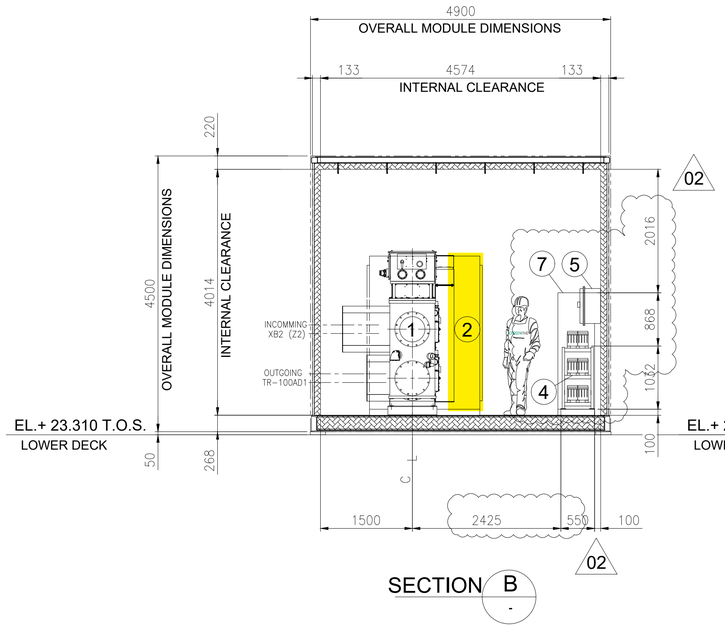
Compliant Network Standards:

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	

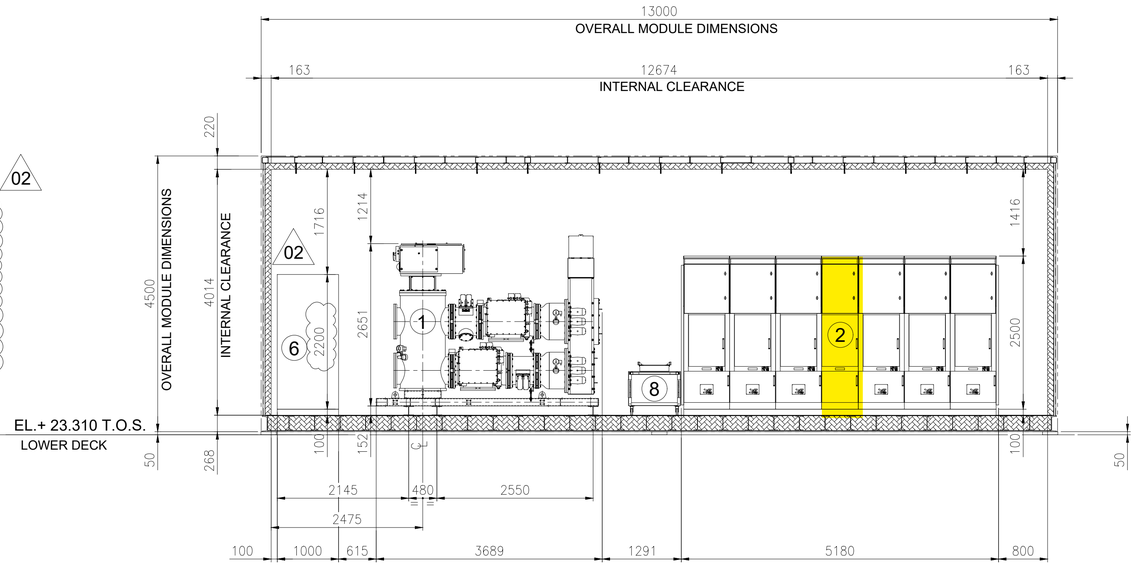
LinkWare™ PC Version 11.4

FLUKE networks

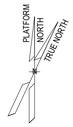
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



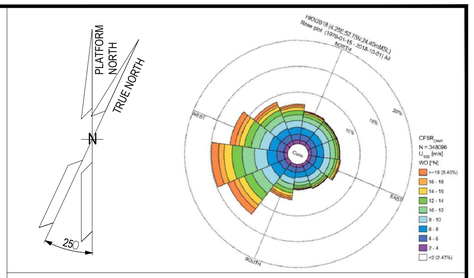
SECTION A -



A -

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	



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

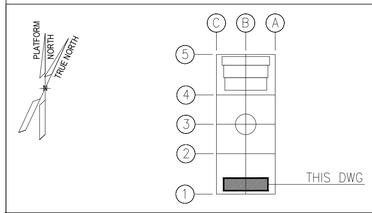
LEGEND

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



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

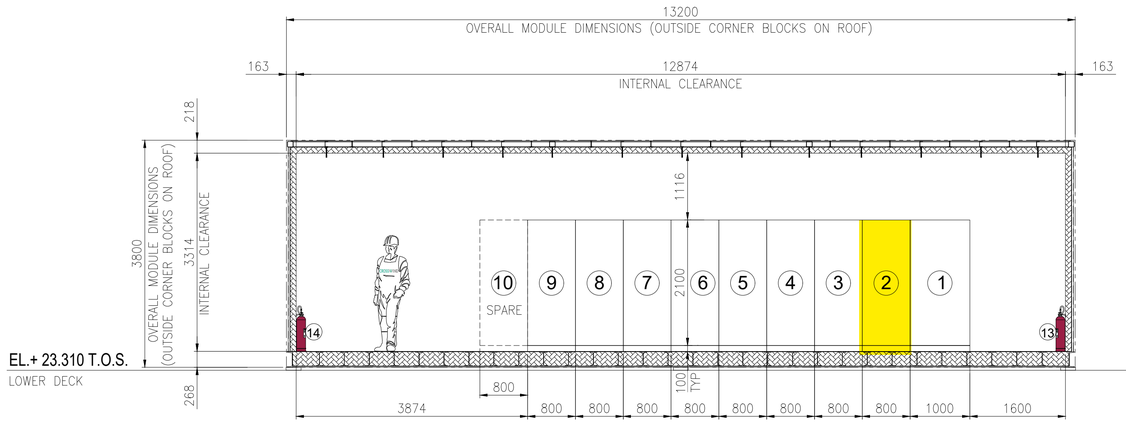
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
HV SWITCHROOM

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

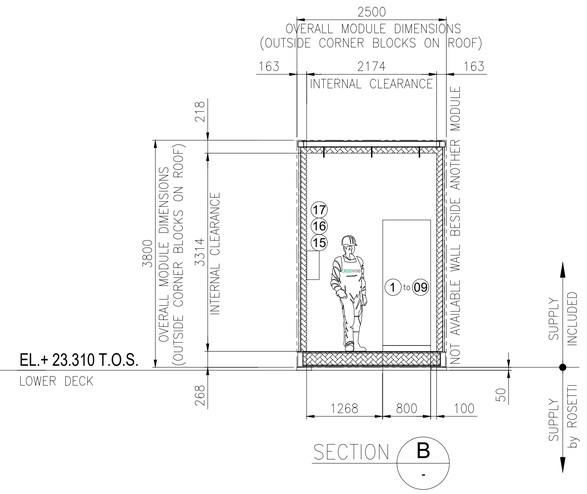
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File Name : 123A90-DDL-EL-DL-20104_REV02.dwg

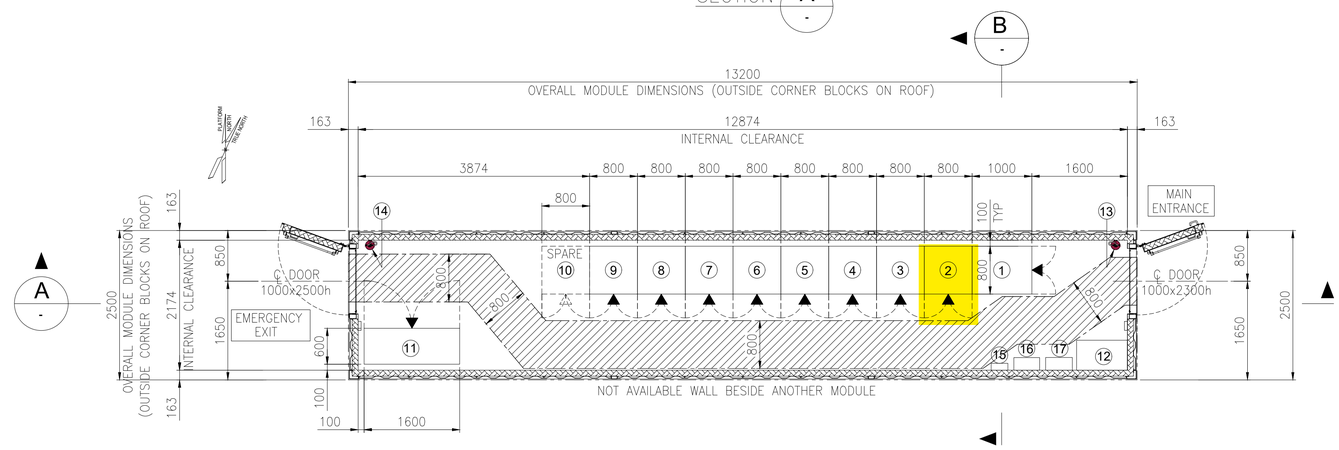
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



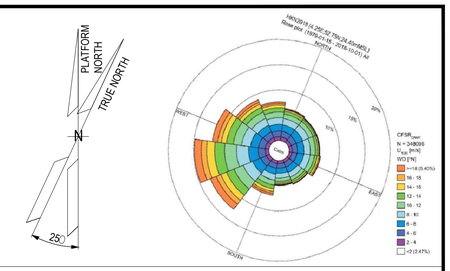
SECTION B -



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

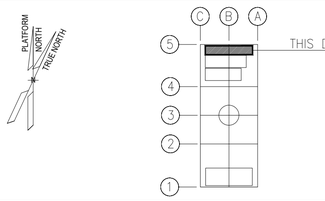
HOLDS

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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

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

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

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

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

REV. 01

HV SWITCHROOM (B-100)

I&T EQUIPMENT ROOM (ITER B400)

NETWORK CABINET - B400-NET-001

<01>

HVAC CABINET B100-HSB-001	ITEM: SCALANCE XC208 PORT: P3 LAN	RJ45	B100-HSB-001/B400-NET-001 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P11
Ref. Vendor Doc.: 1724000049-HV-DA-00026					
DCS UPS PANEL UP-200F1	ITEM: -A1 GCAU (/8.2) -A73 NCS-TCP/IP PORT: IN	RJ45	UP-200F1/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P09
Ref. Vendor Doc.: 1724000372-EL-DG-00010					
DCS UPS PANEL UP-200F1	ITEM: -A1 GCAU (/11.2) -A73 NCS-TCP/IP PORT: IN	RJ45	UP-200F1/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P10
Ref. Vendor Doc.: 1724000372-EL-DG-00010					

~~EMCS SYSTEM - B400-EMCS-001~~

6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.A PORT: 8	RJ45	SG-100D1/B400-NET-001.01 ~~SG-100D1/B400-EMCS-001.01~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P20
Ref. Vendor Doc.: 1723002197-EL-DG-00022					
6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.B PORT: 8	RJ45	SG-100D1/B400-NET-001.02 ~~SG-100D1/B400-EMCS-001.02~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P01
Ref. Vendor Doc.: 1723002197-EL-DG-00022					
6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.C PORT: 1	RJ45	SG-100D1/B400-NET-001.03 ~~SG-100D1/B400-EMCS-001.03~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P03
Ref. Vendor Doc.: 1723002197-EL-DG-00022					

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_E	19/11/24	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. 123A90-DDL-IN-DG-40015	SHEET 033	REV. 01

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

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

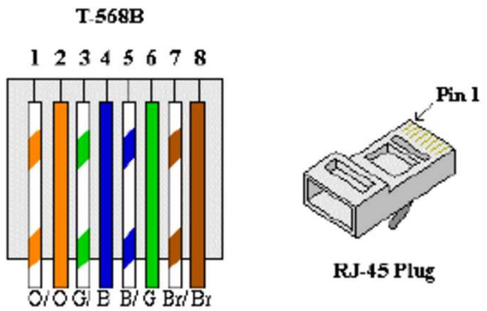
REV. 01

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. FIBER OPTIC TAG NAME WILL BE DEFINED DURING THE CONSTRUCTION PHASE.

<01>

7. CAT. 6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



RJ-45 Plug

8. 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

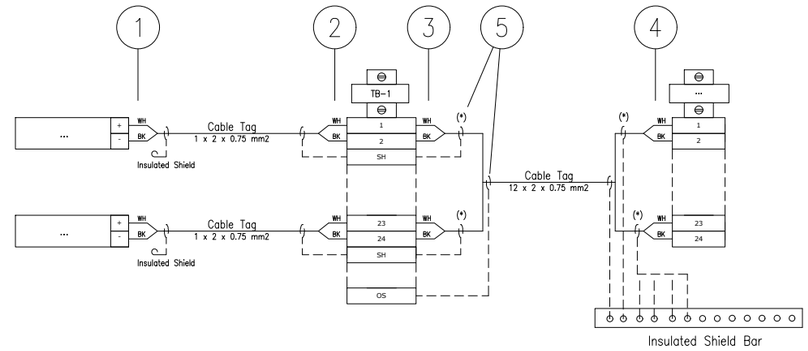
LEGENDS & SYMBOLS:

LEGEND:

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
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_E	19/11/24	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 1:1
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

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

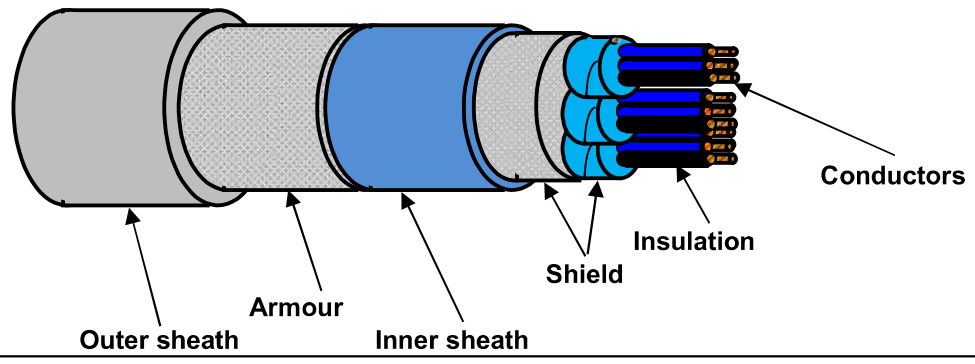
File Name : 123A90-DDL-IN-DG-40015_Rev.01

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
5G-100D1/B400-NET-001.01	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						5G-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	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-102 / B-100-SEC-1E / B-100-SEC-1C / B-100-SEC-1A / L-SEC-17 / L-SEC-1N / L-SEC-1M / 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

CROSSWIND

ITEM	Tag	SG-100D1/B400-NET-001.02 : MV 6,6kV Switchgear / Network Cabinet / EMCS System				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	82-00 : MV 6.6 kV Switchboard (SG-100D1)				Module	LD_B-100/LD_B-400
TASK	code	C10004362		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	SG-100D1		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.	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	Confirm cable labelling is in accordance with specifications.	OK
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 4: refer to PL C3000680

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Carmelo Bongiovanni	Giovanni Tangianu	
Date	2024-11-21	2024-11-22	
Signature	Digitaly signed by Carmelo Bongiovanni 2024-11-21T14:40:45.471Z	Digitaly signed by Giovanni Tangianu 2024-11-22T16:21:34.031Z	

ROSETTI MARINO

Cable ID: SG-100D1/B400-NET-001.02

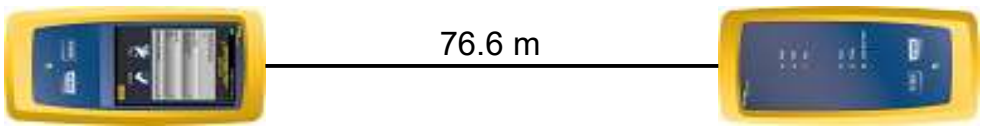
Test Summary: PASS

Test Limit: ISO11801 PL2 Class Ea
Limits Version: V7.6
Date / Time: 21-11-2024 11:08:42
Headroom 5.1 dB (NEXT 3,6-4,5)
Cable Type: Cat 6A S/FTP
NVP: 77.0%

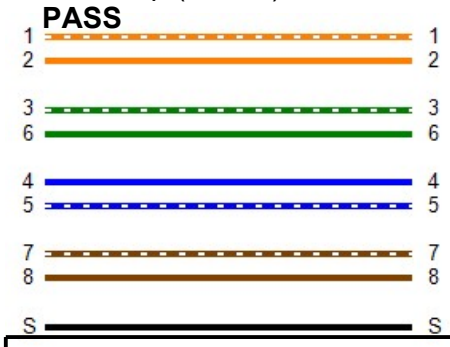
Main: Versiv
S/N: 2226344
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000 (DSX-PLA804)
S/N: 22340270

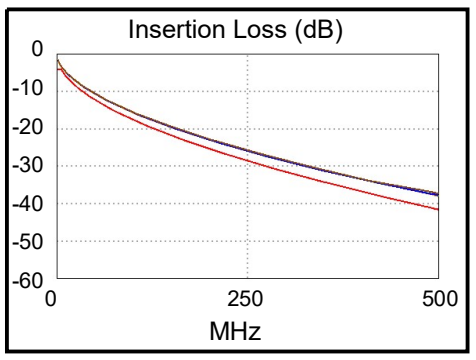
Remote: Versiv
S/N: 2226336
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000R (DSX-PLA804)
S/N: 22340257

Length (m), Limit 90.0	[Pair 4,5]	76.6
Prop. Delay (ns), Limit 496	[Pair 1,2]	338
Delay Skew (ns), Limit 43	[Pair 1,2]	6
Resistance (ohms), Limit 20.60	[Pair 3,6]	10.54
Insertion Loss Margin (dB)	[Pair 1,2]	3.5
Frequency (MHz)	[Pair 1,2]	500.0
Limit (dB)	[Pair 1,2]	41.6

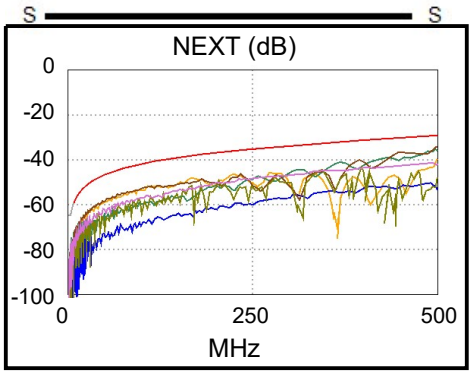


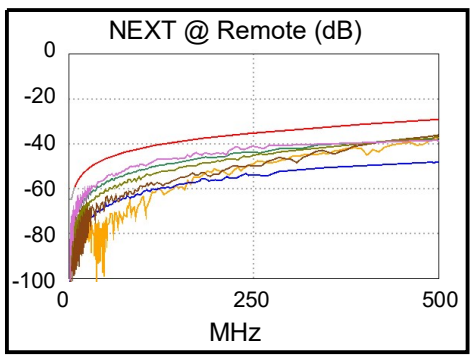
Wire Map (T568B)
PASS



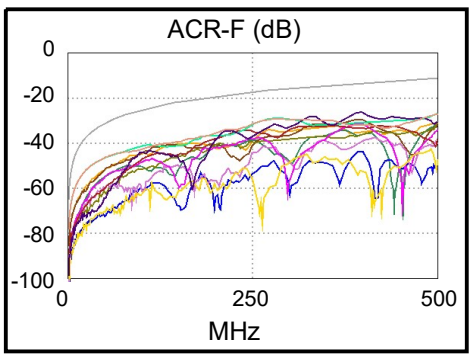


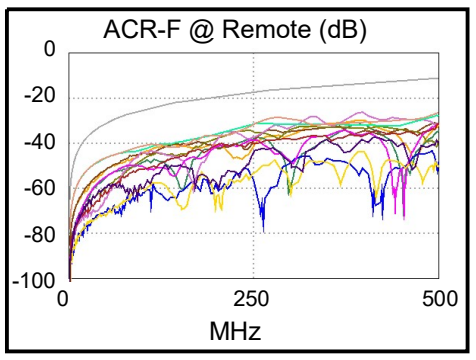
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	4,5-7,8	3,6-4,5	3,6-4,5
NEXT (dB)	5.1	5.2	5.1	6.8
Freq. (MHz)	498.0	227.0	498.0	500.0
Limit (dB)	29.3	36.0	29.3	29.2
Worst Pair	4,5	4,5	4,5	3,6
PS NEXT (dB)	5.1	5.4	5.1	5.6
Freq. (MHz)	498.0	345.0	498.0	500.0
Limit (dB)	26.4	30.0	26.4	26.4



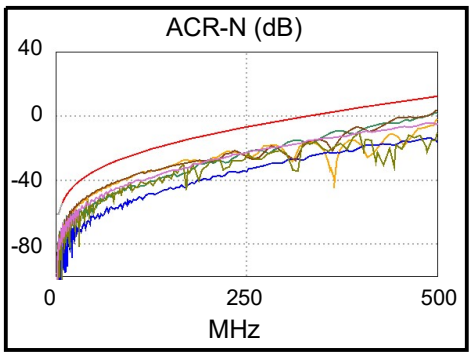


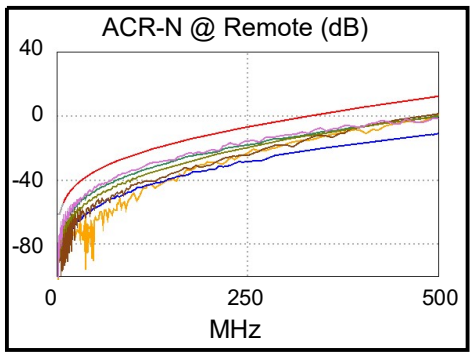
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5-7,8	7,8-4,5	7,8-3,6	3,6-7,8
ACR-F (dB)	12.5	12.2	12.6	12.7
Freq. (MHz)	279.0	278.0	393.0	393.0
Limit (dB)	16.3	16.4	13.3	13.3
Worst Pair	3,6	7,8	3,6	7,8
PS ACR-F (dB)	13.8	13.4	14.5	14.7
Freq. (MHz)	330.0	323.0	393.0	393.0
Limit (dB)	11.9	12.1	10.3	10.3



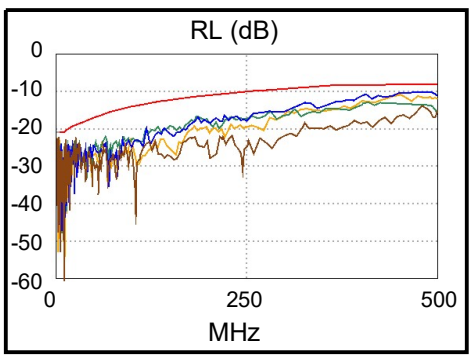


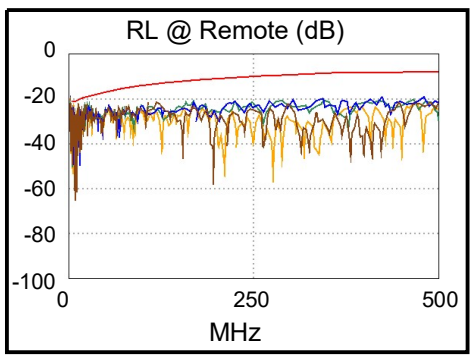
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	4,5-7,8	3,6-4,5	3,6-4,5
ACR-N (dB)	8.9	7.8	9.1	10.6
Freq. (MHz)	497.0	227.0	500.0	500.0
Limit (dB)	-12.2	8.9	-12.4	-12.4
Worst Pair	4,5	4,5	4,5	3,6
PS ACR-N (dB)	8.9	8.2	8.9	9.3
Freq. (MHz)	498.0	227.0	498.0	500.0
Limit (dB)	-15.1	6.2	-15.1	-15.3





PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5	1,2	4,5	4,5
RL (dB)	1.4	4.1	1.4	10.9
Freq. (MHz)	485.0	4.9	485.0	478.0
Limit (dB)	8.0	21.0	8.0	8.0





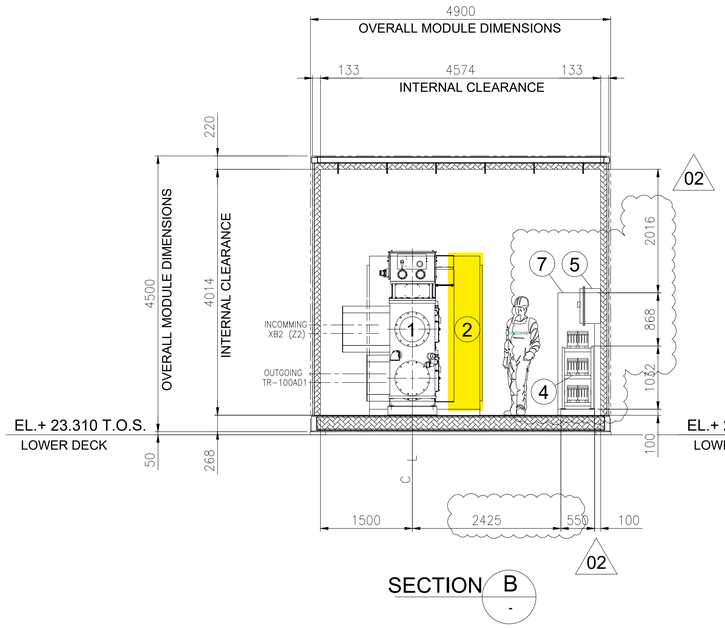
Compliant Network Standards:

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	

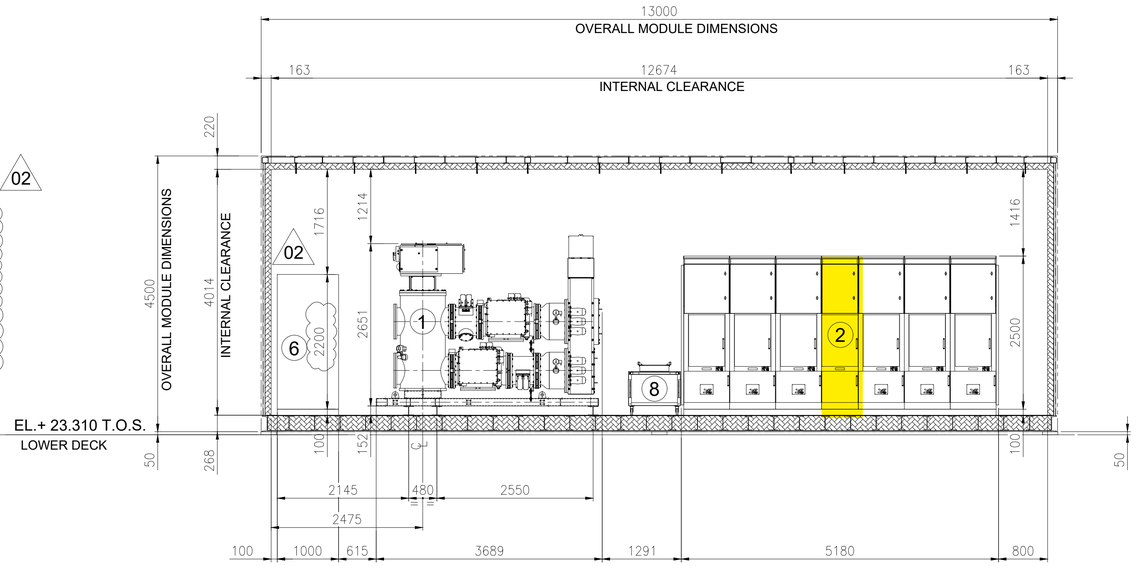
LinkWare™ PC Version 11.4

FLUKE networks

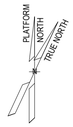
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



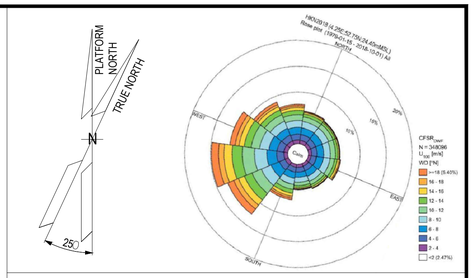
SECTION A -



A -

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	



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

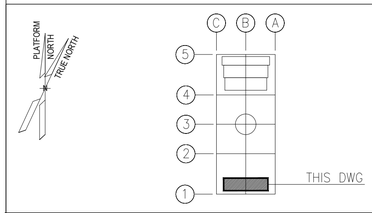
LEGEND

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



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

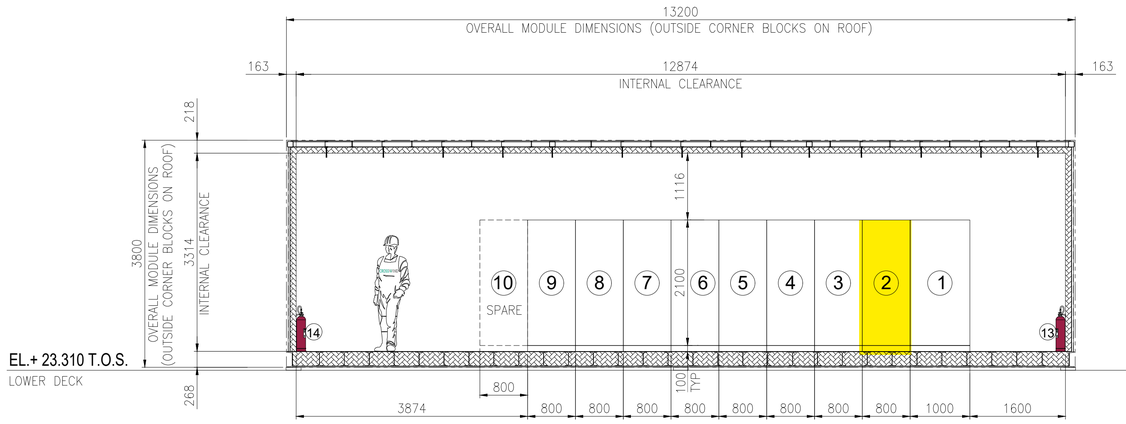
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
HV SWITCHROOM

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

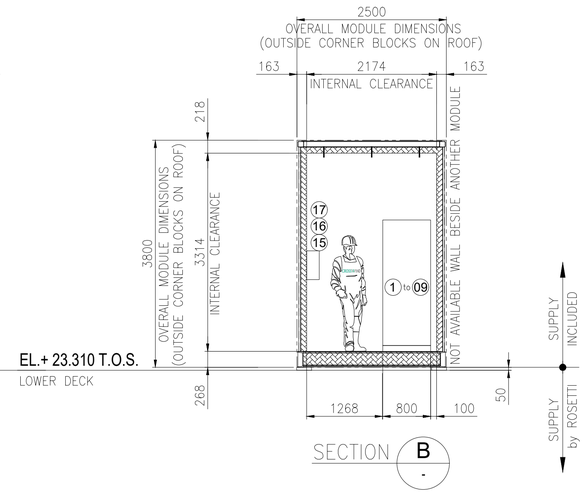
A1	DRAWING NO. 123A90-DDL-EL-DL-20104	SHEET 001	REV. 02

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

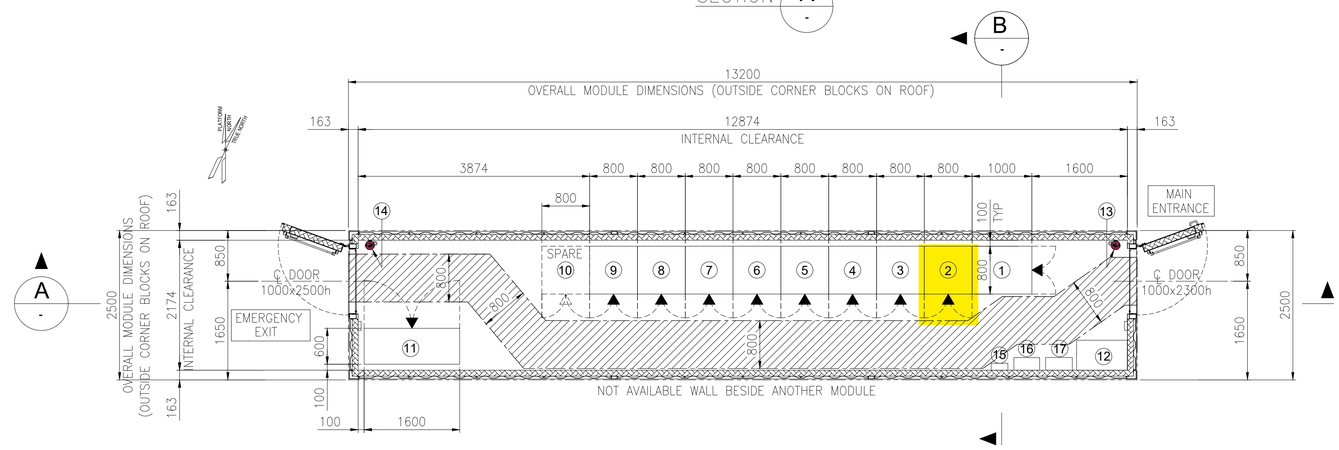
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



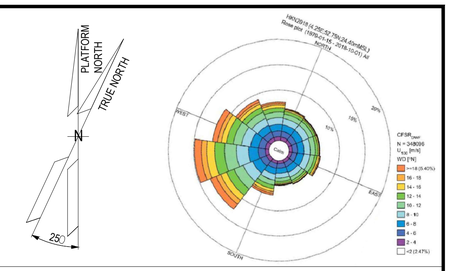
SECTION B -



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

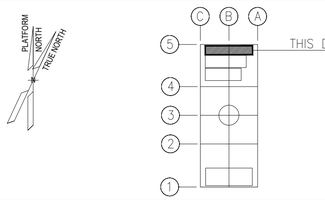
HOLDS

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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

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

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

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

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

REV. 01

HV SWITCHROOM (B-100)

I&T EQUIPMENT ROOM (ITER B400)

NETWORK CABINET - B400-NET-001

<01>

HVAC CABINET B100-HSB-001	ITEM: SCALANCE XC208 PORT: P3 LAN	RJ45	B100-HSB-001/B400-NET-001 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P11
Ref. Vendor Doc.: 1724000049-HV-DA-00026					
DCS UPS PANEL UP-200F1	ITEM: -A1 GCAU (/8.2) -A73 NCS-TCP/IP PORT: IN	RJ45	UP-200F1/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P09
Ref. Vendor Doc.: 1724000372-EL-DG-00010					
DCS UPS PANEL UP-200F1	ITEM: -A1 GCAU (/11.2) -A73 NCS-TCP/IP PORT: IN	RJ45	UP-200F1/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P10
Ref. Vendor Doc.: 1724000372-EL-DG-00010					

~~EMCS SYSTEM - B400-EMCS-001~~

6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.A PORT: 8	RJ45	SG-100D1/B400-NET-001.01 ~~SG-100D1/B400-EMCS-001.01~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P20
Ref. Vendor Doc.: 1723002197-EL-DG-00022					
6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.B PORT: 8	RJ45	SG-100D1/B400-NET-001.02 ~~SG-100D1/B400-EMCS-001.02~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P01
Ref. Vendor Doc.: 1723002197-EL-DG-00022					
6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.C PORT: 1	RJ45	SG-100D1/B400-NET-001.03 ~~SG-100D1/B400-EMCS-001.03~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P03
Ref. Vendor Doc.: 1723002197-EL-DG-00022					

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_E	19/11/24	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. 123A90-DDL-IN-DG-40015	SHEET 033	REV. 01

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

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

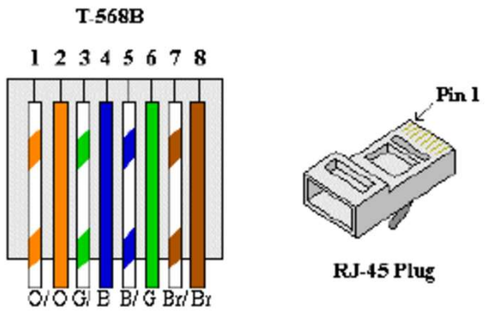
REV. 01

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. FIBER OPTIC TAG NAME WILL BE DEFINED DURING THE CONSTRUCTION PHASE.

<01>

7. CAT. 6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



RJ-45 Plug

8. 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

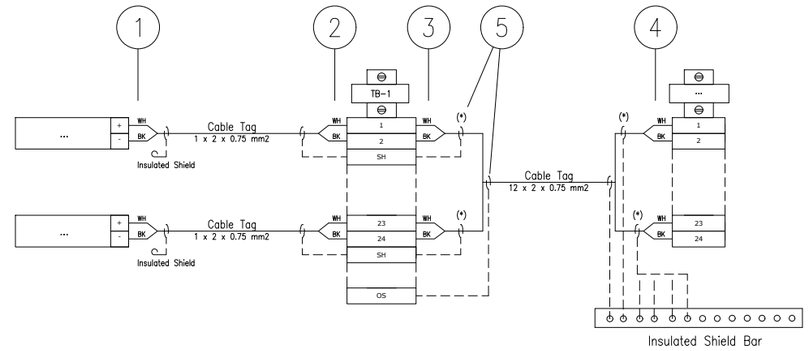
LEGENDS & SYMBOLS:

LEGEND:

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
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_E	19/11/24	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 1:1
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

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

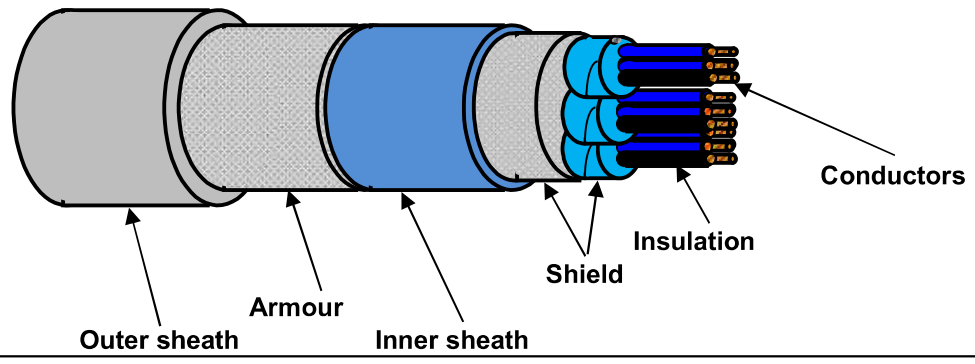
File Name : 123A90-DDL-IN-DG-40015_Rev.01

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
SG-100D1/B400-NET-001.02	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						SG-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	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-102 / B-100-SEC-1E / B-100-SEC-1C / B-100-SEC-1A / L-SEC-17 / L-SEC-1N / L-SEC-1M / 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

CROSSWIND

ITEM	Tag	SG-100D1/B400-NET-001.03 : MV 6,6kV Switchgear / Network Cabinet / EMCS System				Dwg	123A90-DDL-IN-LIS-40091
	S/Sys	82-00 : MV 6.6 kV Switchboard (SG-100D1)				Module	LD_B-100/LD_B-400
TASK	code	C10004363		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	SG-100D1	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.	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	Confirm cable labelling is in accordance with specifications.	OK
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 4: refer to PL C3000680

	Performed by	● WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company	ICS IMPIANTI	RM(ROSETTI MARINO)	
Name	Carmelo Bongiovanni	Giovanni Tangianu	
Date	2024-11-21	2024-11-22	
Signature	Digitaly signed by Carmelo Bongiovanni 2024-11-21T14:40:54.446Z	Digitaly signed by Giovanni Tangianu 2024-11-22T16:22:46.765Z	

ROSETTI MARINO

Cable ID: SG-100D1/B400-NET-001.03

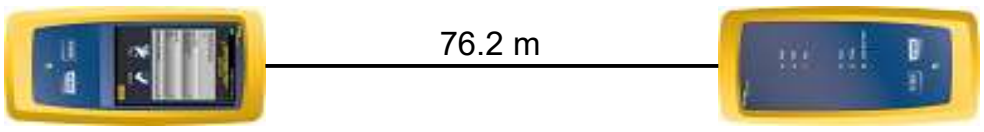
Test Summary: PASS

Test Limit: ISO11801 PL2 Class Ea
Limits Version: V7.6
Date / Time: 21-11-2024 11:04:24
Headroom 5.8 dB (NEXT 4,5-7,8)
Cable Type: Cat 6A S/FTP
NVP: 77.0%

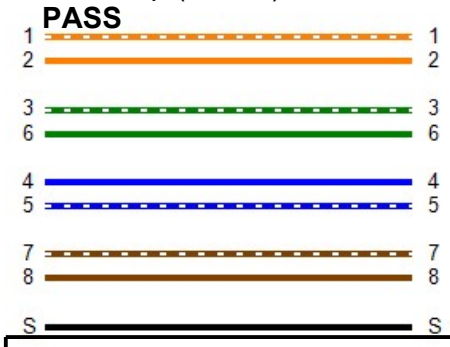
Main: Versiv
S/N: 2226344
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000 (DSX-PLA804)
S/N: 22340270

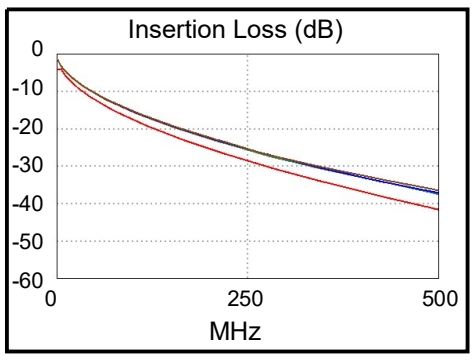
Remote: Versiv
S/N: 2226336
Software Version: V6.7 Build 1
Calibration Date: 12-12-2022
Adapter: DSX-8000R (DSX-PLA804)
S/N: 22340257

Length (m), Limit 90.0	[Pair 4,5]	76.2
Prop. Delay (ns), Limit 496	[Pair 1,2]	337
Delay Skew (ns), Limit 43	[Pair 1,2]	7
Resistance (ohms), Limit 20.60	[Pair 3,6]	10.52
Insertion Loss Margin (dB)	[Pair 3,6]	4.1
Frequency (MHz)	[Pair 3,6]	500.0
Limit (dB)	[Pair 3,6]	41.6

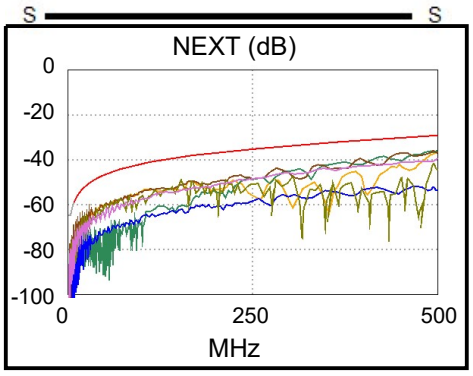


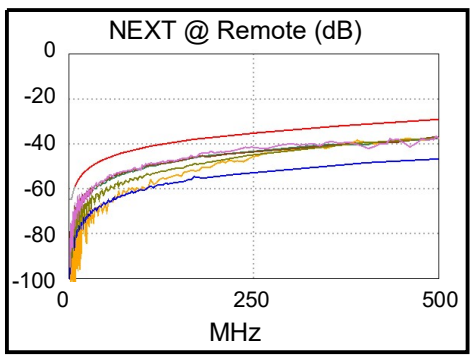
Wire Map (T568B)
PASS



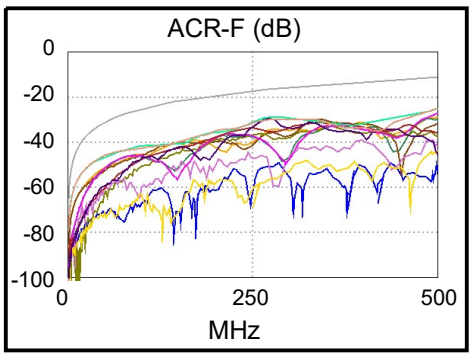


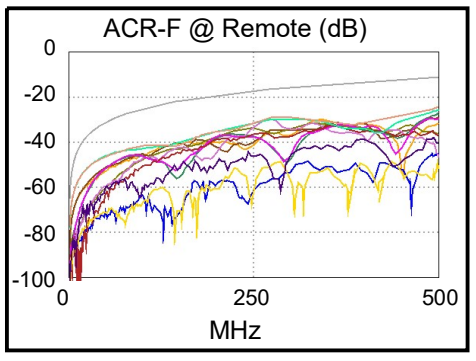
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	4,5-7,8	3,6-4,5	4,5-7,8
NEXT (dB)	6.5	5.8	6.7	7.6
Freq. (MHz)	448.0	237.0	494.0	497.0
Limit (dB)	30.3	35.7	29.4	29.3
Worst Pair	4,5	4,5	4,5	3,6
PS NEXT (dB)	6.1	4.9	6.1	6.1
Freq. (MHz)	498.0	290.0	498.0	500.0
Limit (dB)	26.4	31.6	26.4	26.4



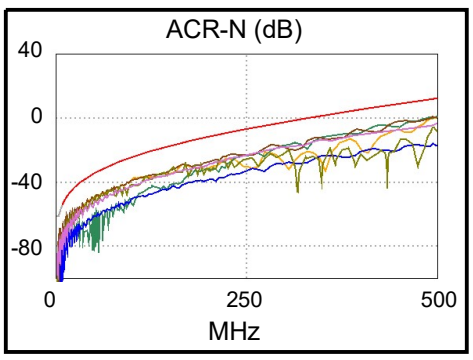


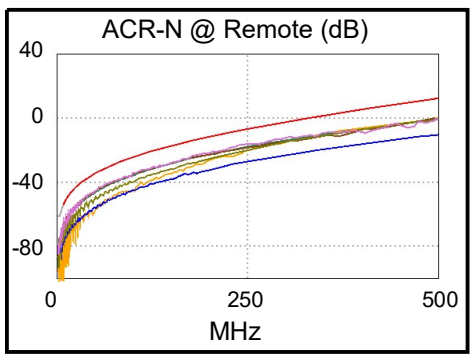
PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5-7,8	7,8-4,5	4,5-7,8	7,8-4,5
ACR-F (dB)	12.3	12.2	13.7	13.2
Freq. (MHz)	281.0	281.0	500.0	500.0
Limit (dB)	16.3	16.3	11.3	11.3
Worst Pair	3,6	7,8	4,5	4,5
PS ACR-F (dB)	14.0	13.2	15.5	14.3
Freq. (MHz)	274.0	271.0	500.0	499.0
Limit (dB)	13.5	13.6	8.3	8.3



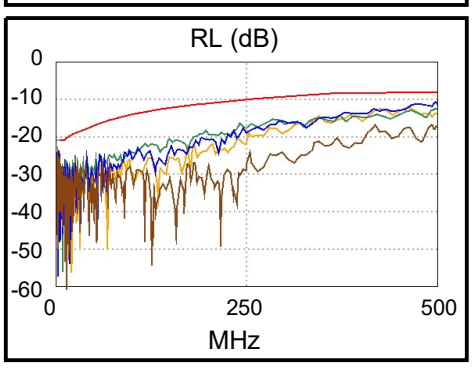


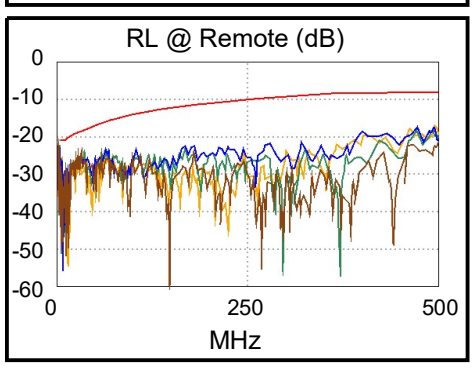
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	4,5-7,8	1,2-4,5	1,2-3,6
ACR-N (dB)	10.6	8.9	11.4	12.1
Freq. (MHz)	448.0	237.0	499.0	495.0
Limit (dB)	-8.9	7.9	-12.3	-12.1
Worst Pair	4,5	4,5	4,5	3,6
PS ACR-N (dB)	10.5	7.8	10.5	10.3
Freq. (MHz)	498.0	182.0	498.0	500.0
Limit (dB)	-15.1	10.9	-15.1	-15.3





PASS	MAIN	SR	MAIN	SR
Worst Pair	4,5	7,8	4,5	1,2
RL (dB)	2.7	5.5	2.7	9.0
Freq. (MHz)	497.0	32.0	497.0	495.0
Limit (dB)	8.0	18.5	8.0	8.0





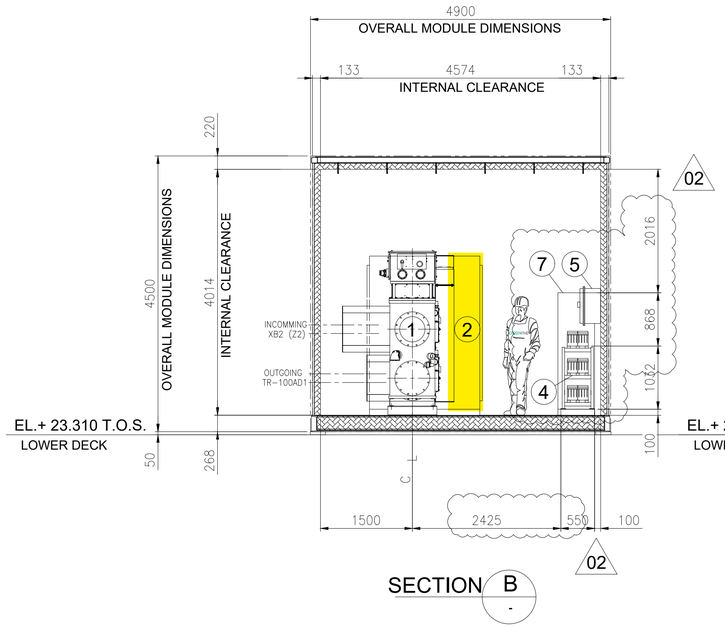
Compliant Network Standards:

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	

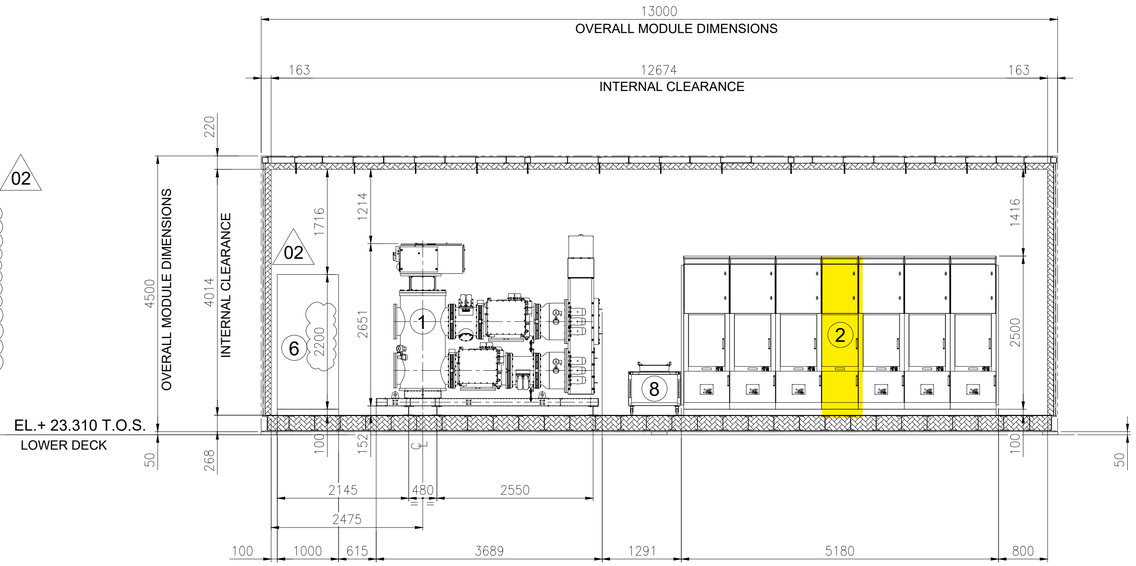
LinkWare™ PC Version 11.4

FLUKE networks

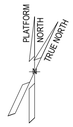
DRAWING NO. 123A90-DDL-EL-DL-20104 REV. 02



SECTION B -



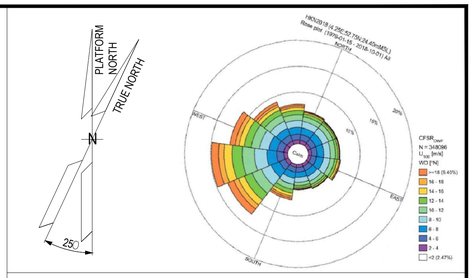
SECTION A -



A -

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	



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

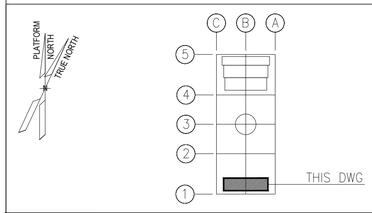
LEGEND

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



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

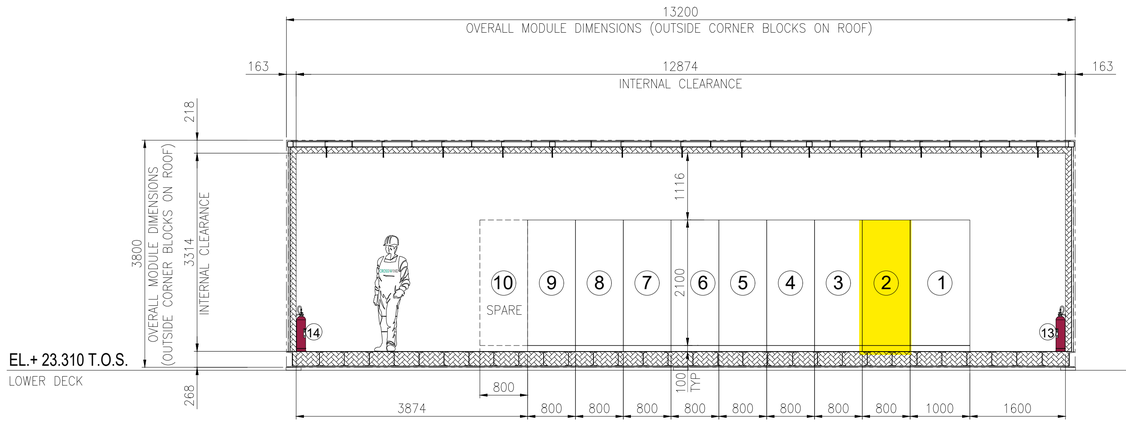
TITLE : BASE LOAD POWER HUB (BLPH)
ELECTRICAL EQUIPMENT LAYOUT
HV SWITCHROOM

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

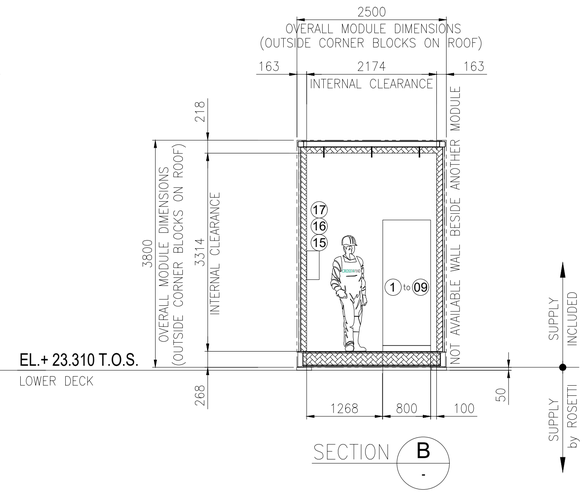
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File Name : 123A90-DDL-EL-DL-20104_REV02.dwg

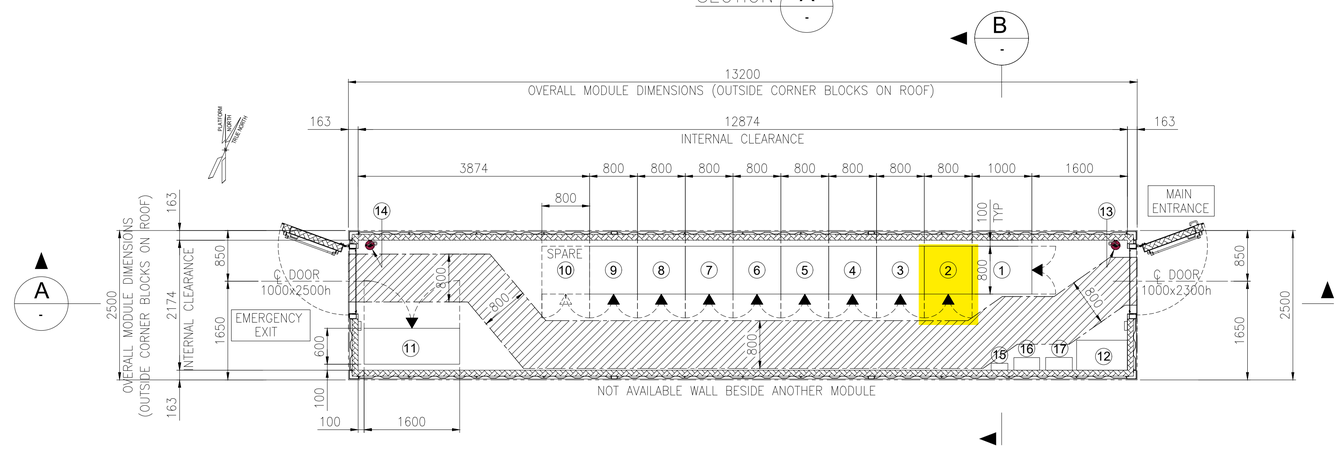
DRAWING NO. 123A90-DDL-IN-DL-40012 REV. 03



SECTION A -



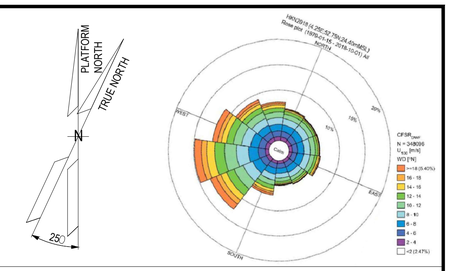
SECTION B -



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

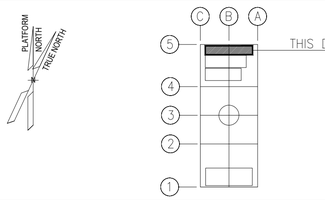
HOLDS

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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

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

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

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

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

REV. 01

HV SWITCHROOM (B-100)

I&T EQUIPMENT ROOM (ITER B400)

NETWORK CABINET - B400-NET-001

<01>

HVAC CABINET B100-HSB-001	ITEM: SCALANCE XC208 PORT: P3 LAN	RJ45	B100-HSB-001/B400-NET-001 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P11
Ref. Vendor Doc.: 1724000049-HV-DA-00026					
DCS UPS PANEL UP-200F1	ITEM: -A1 GCAU (/8.2) -A73 NCS-TCP/IP PORT: IN	RJ45	UP-200F1/B400-NET-001.01 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P09
Ref. Vendor Doc.: 1724000372-EL-DG-00010					
DCS UPS PANEL UP-200F1	ITEM: -A1 GCAU (/11.2) -A73 NCS-TCP/IP PORT: IN	RJ45	UP-200F1/B400-NET-001.02 CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P10
Ref. Vendor Doc.: 1724000372-EL-DG-00010					

~~EMCS SYSTEM - B400-EMCS-001~~

6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.A PORT: 8	RJ45	SG-100D1/B400-NET-001.01 ~~SG-100D1/B400-EMCS-001.01~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P20
Ref. Vendor Doc.: 1723002197-EL-DG-00022					
6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.B PORT: 8	RJ45	SG-100D1/B400-NET-001.02 ~~SG-100D1/B400-EMCS-001.02~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P01
Ref. Vendor Doc.: 1723002197-EL-DG-00022					
6.6kV SWITCHGEAR SG-100D1	ITEM: VT BUS BARS "A5" SWH.C PORT: 1	RJ45	SG-100D1/B400-NET-001.03 ~~SG-100D1/B400-EMCS-001.03~~ CAT.6A4x2xAWG23,Sh+ShT+ARM,F.Ret,GREEN,NIS	RJ45	SWITCH: COOP-01 PORT: P03
Ref. Vendor Doc.: 1723002197-EL-DG-00022					

VALID FOR CONSTRUCTION

FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_E	19/11/24	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

	DRAWING NO.	SHEET	REV.
A3	123A90-DDL-IN-DG-40015	033	01

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

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

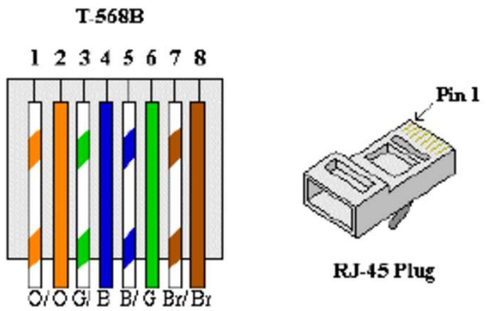
REV. 01

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. FIBER OPTIC TAG NAME WILL BE DEFINED DURING THE CONSTRUCTION PHASE.

<01>

7. CAT. 6A CABLE SHALL BE TERMINATED MEETING REQUIREMENTS OF STANDARD EIA/TIA 568B:



RJ-45 Plug

8. 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

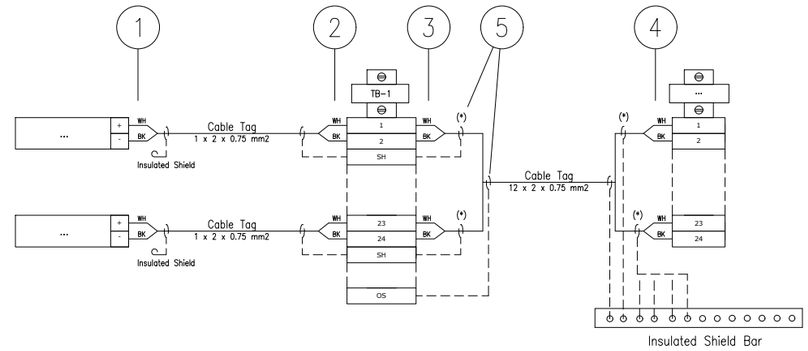
LEGENDS & SYMBOLS:

LEGEND:

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
MC	- MARSHALLING CABINET
AI	- ANALOGUE INPUT
AO	- ANALOGUE OUTPUT
DI	- DIGITAL INPUT
DO	- DIGITAL OUTPUT

TYPICAL WIRE CROSS-FERRULING:

PHILOSOPHY OF CROSS-FERRULING: <01>



(*) Single shield is foreseen only for AI/AO signals.

1 - INSTRUMENT TERMINAL NO. OR POLARITY/JB NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

2 - INSTRUMENT TERMINAL NO. OR POLARITY/INSTRUMENT TAG NO./JB TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

3 - PAIR OR CORE NO./MARSHALLING CABINET NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

4 - PAIR OR CORE NO./JB NO./JB TERMINAL NO./TB NO./TERMINAL NO.
(SAME TAGGING PHILOSOPHY SHALL APPLIED ALSO TO THE SHIELD)

5 - HEAT SHRINKABLE BLACK FOR SHIELD OF NIS INSTRUMENT CABLE.
(HEAT SHRINKABLE BLUE FOR SHIELD OF NIS INSTRUMENT CABLE)

6 - IN CASE OF CONNECTION FROM RIGHT TO LEFT, ORDER OF INFORMATION SHALL BE MIRRORED

REFERENCE DRAWINGS

PIPING AND INSTRUMENT DIAGRAM	123A90-DDL-PR-PID-80009
INSTRUMENT INDEX	123A90-DDL-IN-LIS-40088 Rev.01

VALID FOR CONSTRUCTION
FDL DWG: **123A90-FDL-IN-DG-40015**

REV.:	DATE:	SIGNATURE:
1_E	19/11/24	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 1:1
DRAWN VBA	CHECKED LCA	APPROVED DLO	DATE 23/02/2024

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

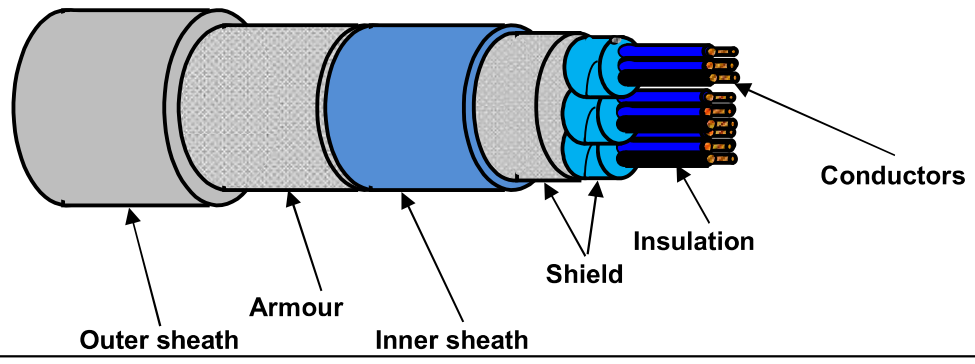
File Name : 123A90-DDL-IN-DG-40015_Rev.01

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
5G-100D1/B400-NET-001.03	Cable	IN	VFC	123A90-DDL-IN-LIS-40091						5G-100D1	MV 6,6kV Switchgear	Lower Deck (B-100)	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-102 / B-100-SEC-1E / B-100-SEC-1C / B-100-SEC-1A / L-SEC-17 / L-SEC-1N / L-SEC-1M / 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

RAPPORTO DI PROVA
TEST REPORT

Fornitore/ Supplier: IMESA S.p.A. Via G. Di Vittorio, 14 JESI (Ancona) – ITALIA
Tel.+39 0731 211034 - Fax.+39 0731 211055 - imesa@imesaspa.com - www.imesaspa.com

N° Certificato/ Certificate N°:	**303**	**Data / Date:**	**29/07 ÷ 01/08/2024**
Commessa N° / Workorder N°:	**231151/SD**		
Matricola N° / Serial N°:	**231151/SD/010**		
Ordine N° / Order N°:	**1723002197**		
Cliente / Customer:	**ROSETTI MARINO S.P.A.**		

Collaudo eseguito alla presenza di: / *Test surveyed by:*

Sig. / Mr.	Azienda / Company	Firma / Signature
FAVA STEFANO	IMESA SPA	IMESA SPA TESTING OFFICE
VINCENZO FRANZESE	IMESA SPA	
SANTINELLI DAMIANO	IMESA SPA	
TASSINARI GABRIELE	ROSETTI MARINO SPA	
CASTELLANI KRISTIAN	ROSETTI MARINO SPA	
MADASCHI ANDREA	ROSETTI MARINO SPA	
IVESON ANTHONY	ROSETTI MARINO SPA	
MACULAN LUCA	ROSETTI MARINO SPA	
LINARI STEFANO	ROSETTI MARINO SPA	
MARANGONI MASSIMILIANO	O.b.o. CROSSWIND	

N° Certificato/ Certificate N°:	303	Data / Date:	29/07 ÷ 01/08/2024

Materiale collaudato a Norme: **IEC 62271-200**
Material tested according to

Procedura collaudo Quadri MT : **Document number *FAT procedure:***
Procedure test Switchboards MT customer **: 1723002197-QC-PRO-00044** ; owner: **231151/SD/044**

QUADRO ELETTRICO MT SWITCHBOARD MV	Tipologia / Type:	MINIVER-C INTERNAL ARC PROOF (AFLR 25 kA/1s)
Tensione Nominale di Isolamento (Ui): ***Rated Insulation Voltage (Ui)***	**7,2 kV**	

CARATTERISTICHE ELETTRICHE/ELECTRICAL INFORMATION:

Ue= **6,6** kV
Up= **60** kV
f= **50** Hz
Ir= **630** A
Ip= **65** kA
Ik= **25** kA / t= **1** s
Vaux= **110** Vdc; **230** Vac

DESCRIZIONE/DESCRIPTION:

HV SWITCHBOARD 6,6 Kv - BASE LOAD POWER HUB (BLPH)

PROJECT: CROSSWIND HOLLANDSE KUST NOORD WIND PARK

TAG: "SG-100D1"

N° Certificato/ Certificate N°:	303	Data / Date:	29/07 ÷ 01/08/2024

DISEGNI/DRAWINGS

DOCUMENT ID	*TITLE*
1723002197-EL-DA-00006	SG-100D1 GENERAL ARRANGEMENTS DWG AND FOUNDATION LOAD CALCULATION INCLUDING COG
1723002197-EL-DG-00010	SG-100D1 ELECTRICAL SINGLE LINE DIAGRAM
1723002197-EL-DG-00015	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - INCOMING FEEDER (including Terminals and BOM)
1723002197-EL-DG-00016	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - BUS BAR METERING (including Terminals and BOM)
1723002197-EL-DG-00017	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - BESS FEEDER (including Terminals and BOM)
1723002197-EL-DG-00018	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - ELECTROLYSER FEEDER (including Terminals and BOM)
1723002197-EL-DG-00019	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - FUEL CELL FEEDER (including Terminals and BOM)
1723002197-EL-DG-00020	SG-100D1 MV SWG FUNCTIONAL DIAGRAM - TRANSFORMER TR200ED1 (including Terminals and BOM)
1723002197-EL-DG-00021	SG-100D1 MV SWG FUNCTIONAL DIAGRAM – TRANSFORMER TR200DE1 (including Terminals and BOM)
1723002197-EL-DG-00022	SG-100D1 MV SWG INTERCONNECTING AND AUX DISTRIBUTION DIAGRAM (including BOM)
1723002197-EL-DG-00023	SG-100D1 MV SWG LOGIC DIAGRAM - INCOMING FEEDER
1723002197-EL-DG-00025	SG-100D1 MV SWG LOGIC DIAGRAM - BESS FEEDER
1723002197-EL-DG-00026	SG-100D1 MV SWG LOGIC DIAGRAM - ELECTROLYSER FEEDER
1723002197-EL-DG-00027	SG-100D1 MV SWG LOGIC DIAGRAM - FUEL CELL FEEDER
1723002197-EL-DG-00028	SG-100D1 MV SWG LOGIC DIAGRAM - TRANSFORMER FEEDER TR200ED1
1723002197-EL-DG-00029	SG-100D1 MV SWG LOGIC DIAGRAM - TRANSFORMER FEEDER TR200DE1

N° Certificato/ Certificate N°:	303	Data / Date:	29/07 ÷ 01/08/2024

PROVE INDIVIDUALI (secondo lo standard IEC 62271-1;200): ■ = OK NA = NOT APPLICABLE
INDIVIDUAL TESTS (according to standard IEC 62271-1)*:;200)*

■ **8.2 PROVE DI ISOLAMENTO DEL CIRCUITO PRINCIPALE**
DIELECTRIC TEST OF THE MAIN CIRCUIT **(60sec.)**
PROVA DI TENSIONE A FREQUENZA DI ESERCIZIO
POWER-FREQUENCY VOLTAGE TEST *point 4.3 FAT Proc*
CIRCUITI PRINCIPALI (Ud) **20** kV
MAIN CIRCUITS
Leakage current: L1= 8 mA; L2= 9 mA; L3= 9 mA

■ **8.3.1 ISPEZIONE SUI CIRCUITI AUSILIARI**
TEST ON AUXILIARY CIRCUITS
VERIFICA VISIVA: QUALITA' ASSEMBLAGGIO,UBICAZIONE DISPOSITIVI,PERCORSO CAVI,IDENTIFICAZIONE COMPONENTI E MORSETTI
VISUAL CHECK: ASSEMBLY QUALITY,DEVICE CORRECT LOCATION,CABLES ROUTE,COMPONENTS AND TERMINALS IDENTIFICATION *point 3.4 FAT Proc*

■ **8.3.2 PROVE DI: FUNZIONAMENTO DELLE LOGICHE DI CONTROLLO**
TESTS OF:CONTROL LOGIC OPERATION, *point 4.1 FAT Proc*
VERIFICA DI FUNZIONAMENTO: CIRCUITI AUSILIARI E DI COMANDO, VERIFICA RAPPORTI TRASFORMAZIONE TV-TA
CHECKING OF OPERATIONS: AUXILIARY AND CONTROL CIRCUIT, CHECK OF VT's-CT's TRANSFORMATION RATIO
CUBICLE TESTED: SEE ANNEX "A"

■ **8.3.3 VERIFICA DELLA PROTEZIONE CONTRO LA SCOSSA ELETTRICA**
CONTROL OF PROTECTION AGAINST ELECTRIC SHOCK
VERIFICA VISIVA SULLE PROTEZIONI CONTRO IL CONTATTO DIRETTO DEL CIRCUITO PRINCIPALE E L'ACCESSIBILITA'IN SICUREZZA ALLE PARTI AUSILIARI E DI COMANDO
VISUAL CHECK OF THE PROTECTIONS AGAINST DIRECT CONTACT OF THE MAIN CIRCUIT AND SAFE ACCESSIBILITY TO THE AUXILIARY AND CONTROL PARTS *point 3.1 FAT Proc*

■ **8.3.4 PROVE DI ISOLAMENTO (1 sec.)**
TEST OF INSULATION (* 60 sec.)
PROVA DI TENUTA CON TENSIONE A FREQUENZA DI ESERCIZIO DI BREVE DURATA SU CIRCUITI AUSILIARI
TIGHTNESS TEST WITH SHORT-TERM OPERATING FREQUENCY VOLTAGE ON AUXILIARY CIRCUIT *point 4.4 FAT Proc*
CIRCUITI AUSILIARI (Ui)
AUXILIARY CIRCUITS :24Vdc= **0,5** kV, 110Vdc=230Vac= **1,5** kV
Leakage current; 24Vdc= 1mA; 110Vdc= 9 mA;230Vac=3mA;

■ **8.4 MISURA DELLA RESISTENZA DEL CIRCUITO PRINCIPALE**
MEASUREMENT OF THE RESISTANCE OF THE MAIN CIRCUIT
MISURA CADUTA DI TENSIONE O RESISTENZA SU CIRCUITO PRINCIPALE (DOC.MOD. CQ12) *point 4.6 FAT Proc*
MEASUREMENT OF VOLTAGE OR RESISTANCE DROP ON THE MAIN CIRCUIT (DOC.MOD. CQ12) **#documental**

■ **8.6 VERIFICHE DI PROGETTO E VISIVE**
PROJECT AND VISUAL CHECKS

■ **CONTROLLO VISIVO E DIMENSIONALE**
VISUAL AND DIMENSIONAL CHECK *point 3.1 FAT Proc*

■ **CONTROLLO CARPENTERIA, SBARRE E CONNESSIONI**
STRUCTURAL WORKS, BUS-BAR CONTROL-TIGHTENINGS,GROUND

■ **CONTROLLO DATI NOMINALI APPARECCHIATURE**
EQUIPMENT RATED DATA CONTROL *point 3.4 FAT Proc*

■ **CONTROLLO TARGHETTE/ETICHETTE**
LABEL / DATA PLATE CONTROL *point 3.4 FAT Proc*

■ **CONTROLLO OSSERVANZA ALLE SPECIFICHE DI PROGETTO**
CHECK OF COMPLIANCE TO PROJECT SPECIFICATIONS
point 3.1 FAT Proc

■ **VERIFICA DEL GRADO DI PROTEZIONE**
CHECK OF IP CODE RATING *point 3.3 FAT Proc*

■ **VERIFICA SEGREGAZIONI INTERNE**
VERIFY INTERNAL SEGREGATIONS *point 3.1 FAT Proc*

■ **CONTROLLO VERNICIATURA** (RAL **7035** ≥ **60** µm)
PAINTING CONTROL *point 3.1 FAT Proc*

■ **CONTROLLO DI CONTINUITA' DEL CIRCUITO DI TERRA**
CHECKING OF ELECTRICAL CONTINUITY EARTH CIRCUIT = **≤ 0,1Ω**
(MAX VALUE MEASURED = 0,007) *point 4.5 FAT Proc*

■ **VERIFICA HARDWARE E FUNZIONE RELE' DI PROTEZIONE**
VERIFICATIONE OF THE PROTECTIVE RELAYS HARDWARE AND FUNCTIONALITY *point 4.1 FAT Proc*

■ ***TEST RIDONDANZA DELLE LINEE IN INGRESSO***
EXTERNAL AUXILIARY POWER SUPPLY (REDUNDANCY TEST OF INCOMING SUPPLY) *point 4.6 FAT Proc*

■ **ARC FLASH TEST VANO CAVI,BUSBAR & C.B.**
ARC FLASH TEST ON CABLE COMP.,BUSBAR &C.B. point 4.8 FAT proc

■ **INTERFACCIA CON SISTEMA AUTOMAZIONE EMS #**
INTERFACE TEST WITH EMS SYSTEM *point 4.9 FAT Proc*
OUT OF IMESA SCOPE OF SUPPLY

■ **8.102 PROVE DI FUNZIONAMENTO MECCANICO**
MECHANICAL OPERATION TEST
VERIFICA DI FUNZIONAMENTO: SEZIONATORI, INTERRUTTORI,PORTE,CHIAVI E LE PARTI MECCANICHE CHE FORMANO IL QUADRO VERIFICA INTERBLOCCHI INTERRUTTORI E SEZIONATORE DI TERRA,INTERCAMBIABILITA' INTERRUTTORI
OPERATION TEST:DISCONNECTORS,SWITCHES,DOORS,KEY LOCKS AN INTERCHANGEABILITY *point 3.2 FAT Proc*

RULES :
According to Standard IEC 62271-200

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■ MISURA RESISTENZA D'ISOLAMENTO
MEASURE OF INSULATION RESISTANCE
IL TEST SI CONSIDERA SUPERATO SE NON AVVENGONO SCARICHE DISRUPTIVE DURANTE LA PROVA
SI PRENDE IL VALORE PIU' BASSO DI RESISTENZA DI ISOLAMENTO DOPO LA PROVA DIELETTRICA
SI APPLICA UNA TENSIONE DI 5000Vdc PER 10" TRA OGNI FASE E TERRA NEL CASO DEI CIRCUITI DI POTENZA
SI APPLICA UNA TENSIONE DI 500 Vdc PER 5" TRA OGNI CIRCUITO AUSILIARIO VERSO TERRA
APPLYING A VOLTAGE OF 5000 Vdc FOR 10" BETWEEN THE POWER CIRCUITS (IN SEQUENCE L1, L2, L3) AND GROUND.
APPLYING A VOLTAGE OF 500 Vdc FOR 5" BETWEEN THE AUX CIRCUITS AND GROUND
THE TEST IS CONSIDERED PASSED IF NO DISRUPTIVE DISCHARGES OCCUR DURING THE TEST
LOWER INSULATION RESISTANCE VALUE TAKEN AFTER THE DIELECTRIC TEST

CIRCUITI DI POTENZA = 19,2 GΩ *point 4.3 FAT Proc*
POWER CIRCUIT

BEFORE TEST	AFTER TEST
L1= 9,43 GΩ	L1= 28,7 GΩ
L2= 17,4 GΩ	L2= 26,8 GΩ
L3= 15,3 GΩ	L3= 19,2 GΩ

CIRCUITI AUSILIARI 24 Vdc= >500 MΩ; 110Vdc = 208 MΩ; 230Vac= >500 MΩ *point 4.4 FAT Proc*
AUXILIARY CIRCUITS

BEFORE TEST	AFTER TEST
24 Vdc= 498 MΩ	24 Vdc= >500 MΩ
110 Vdc= 225 MΩ	110 Vdc= 208 MΩ
230 Vac= >500 MΩ	230 Vac= >500 MΩ

RAPPORTO DI PROVA
TEST REPORT

N° Certificato/ Certificate N°:	303	Data / Date:	29/07 ÷ 01/08/2024

The Equipment is :

Compliant [X] **/ Non Compliant** [ ]

Referring to the FAT Procedure and relevant documents

Apparecchiature utilizzate/ Equipment used:	***Scadenza Taratura /Expiration date***
SP 118 INSULATION TESTER	03/2025
PP 120 AC DIELECTRIC TEST SET	03/2025
SP 186 MULTITEST FOR DIELCETRIC TEST	10/2024
PP 143 DIGITAL THICKNESS GAUGE	12/2024
SC 05 TEST FINGER IP2X	07/2025
SC 06 TEST FINGER IP3X	07/2025
SP 158 DIGITAL MULTIMETER	03/2025
SP 198 OMICRON RELAYS TEST SET	12/2025
SCD 59 TORQUE WRENCH (20-100Nm)	01/2025

Note/ *Notes:*

SEE PUNCH LIST Report n PL-IME-2197-01

ALL protection test will be performed during SAT activities

FIRMA/ *SIGNATURE*

IMESA SPA

IMESA SPA
TESTING OFFICE

ROSETTI MARINO SPA

Liguori Stefano
01/08/2024

O.b.o. CROSSWIND

M. MARANGON
01.08.24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: C.B. feeders			
	FUNCTION	DEVICE	*Tested Unit:* Electrolyser Package (A1)			
1	C.B. SPRING CHARGING MOTOR *point 4.1 FAT Proc*	MAS	✓			
2	C.B. SHUNT OPENING RELEASE *point 4.1 FAT Proc*	MBO1 MBO2	✓			
3	C.B. CLOSING RELEASE *point 4.1 FAT Proc*	MBC	✓			
4	C.B. INHIBIT TO CLOSE *point 4.1 FAT Proc*	RLE1	✓			
5	C.B. LOCAL CLOSING *point 4.1 FAT Proc*	-	✓			
6	C.B. LOCAL OPENING *point 4.1 FAT Proc*	-	✓			
7	C.B. REMOTE CLOSING *point 4.1 FAT Proc*	-	✓			
8	C.B. REMOTE OPENING *point 4.1 FAT Proc*	-	✓			
9	AUTOMATIC TRANSFER SYSTEM (If applicable) *point 4.1 FAT Proc*	-			✓	
10	MECHANICAL/ELECTRICAL TEST FOR INSERTION / DISCONNECTION OF C.B. *point 3.2 FAT Proc*	RLE2 / RLE4	✓			
11	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 3.2 FAT Proc*	/	✓			
12	EARTHING SWITCH OPERATION LOCK (If applicable) *point 3.2 FAT Proc*	RLE3	✓			
13	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
14	AMMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TI - TO	✓			
15	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
16	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H...	✓			
17	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓		✓	
18	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
19	EXTERNAL ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	KH / H..			✓	
20	ARC FLASH TEST *point 4.8 FAT Proc*	SF1-2-3	✓			
21						
22						
23						
24						
25						

ROSETTI MARINO
LANARI STEFANO
01/08/24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: Contactor Feeder			
	FUNCTION	DEVICE	*Tested Unit:* Solar Package (A2)			
1	CONTACTOR SHUNT OPENING/CLOSING RELEASE *point 4.1 FAT Proc*	DI2	✓			
2	CONTACTOR INHIBIT TO CLOSE (THROUGH UNDERVOLTAGE RELEASE) *point 4.1 FAT Proc*	AA	✓			
3	CONTACTOR LOCAL CLOSING *point 4.1 FAT Proc*	-	✓			
4	C.B. LOCAL OPENING *point 4.1 FAT Proc*	-	✓			
5	C.B. REMOTE CLOSING *point 4.1 FAT Proc*	-	✓			
6	C.B. REMOTE OPENING *point 4.1 FAT Proc*	-	✓			
7	MECHANICAL/ELECTRICAL TEST FOR INSERTION / DISCONNECTION OF CONTACTOR *point 4.1 FAT Proc*	RLE2 / RLE4	✓			
8	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 4.1 FAT Proc*	/	✓			
9	EARTHING SWITCH OPERATION LOCK (If applicable) *point 4.1 FAT Proc*	RLE3	✓			
10	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
11	AMMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TI - TO	✓			
12	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
13	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H..	✓			
14	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓		✓	
15	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
16	EXTERNAL ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	KH / HL9			✓	
17	RTD TEST	FP1 / FP6	✓			
18	ARC FLASH TEST *point 4.8 FAT Proc*	SF2-3	✓			
19						
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22						
23						
24						
25						

obo CROSSWIND

KRISTIAN OSTERGAARD

ROSETTI MARINO
NARI STEFANO
01/08/24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: Contactor Feeder			
	FUNCTION	DEVICE	*Tested Unit:* Bess Package (A3)			
1	CONTACTOR SHUNT OPENING/CLOSING RELEASE *point 4.1 FAT Proc*	DI2	✓			
2	CONTACTOR INHIBIT TO CLOSE (THROUGH UNDERVOLTAGE RELEASE) *point 4.1 FAT Proc*	AA	✓			
3	CONTACTOR LOCAL CLOSING *point 4.1 FAT Proc*	-	✓			
4	C.B. LOCAL OPENING *point 4.1 FAT Proc*	-	✓			
5	C.B. REMOTE CLOSING *point 4.1 FAT Proc*	-	✓			
6	C.B. REMOTE OPENING *point 4.1 FAT Proc*	-	✓			
7	MECHANICAL/ELECTRICAL TEST FOR INSERTION / DISCONNECTION OF CONTACTOR *point 4.1 FAT Proc*	RLE2 / RLE4	✓			
8	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 4.1 FAT Proc*	/	✓			
9	EARTHING SWITCH OPERATION LOCK (If applicable) *point 4.1 FAT Proc*	RLE3	✓			
10	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
11	AMMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TI - TO	✓			
12	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
13	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H..				
14	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓			
15	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
16	EXTERNAL ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	KH / HL9			✓	
17	RTD TEST	FP1 / FP6	✓			
18	ARC FLASH TEST *point 4.8 FAT Proc*	SF2-3	✓			
19						
20						
21						
22						
23						
24						
25						

960 CROSSWIND

RECUTIAN POSITIVE

ROSETTI MARINO
LUNARI STEFANO
01/08/24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: Contactor Feeder			
	FUNCTION	DEVICE	*Tested Unit:* Transformer TR-200DE1 (A4)			
1	CONTACTOR SHUNT OPENING/CLOSING RELEASE *point 4.1 FAT Proc*	DI2	✓			
2	CONTACTOR INHIBIT TO CLOSE (THROUGH UNDERVOLTAGE RELEASE) *point 4.1 FAT Proc*	AA	✓			
3	CONTACTOR LOCAL CLOSING *point 4.1 FAT Proc*	-	✓			
4	C.B. LOCAL OPENING *point 4.1 FAT Proc*	-	✓			
5	C.B. REMOTE CLOSING *point 4.1 FAT Proc*	-	✓			
6	C.B. REMOTE OPENING *point 4.1 FAT Proc*	-	✓			
7	MECHANICAL/ELECTRICAL TEST FOR INSERTION / DISCONNECTION OF CONTACTOR *point 4.1 FAT Proc*	RLE2 / RLE4	✓			
8	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 4.1 FAT Proc*	/	✓			
9	EARTHING SWITCH OPERATION LOCK (If applicable) *point 4.1 FAT Proc*	RLE3	✓			
10	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
11	AMMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TI - TO	✓			
12	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
13	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H..	✓			
14	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓			
15	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
16	EXTERNAL ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	KH / HL9			✓	
17	RTD TEST	FP1 / FP6	✓			
18	ARC FLASH TEST *point 4.8 FAT Proc*	SF2-3	✓			
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obo CROSSWIND

ROSETTI MARINO
LUNARI STEFANO
01/08/24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: Contactor Feeder			
	FUNCTION	DEVICE	*Tested Unit:* METERING UNIT (A5)			
1	MECHANICAL TEST FOR INSERTION / DISCONNECTION OF VT TRUCK *point 4.1 FAT Proc*	-				VT's box damaged
2	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 4.1 FAT Proc*	-	✓			
3	EARTHING SWITCH OPERATION LOCK *point 4.1 FAT Proc*	RLE3	✓			
4	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
5	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
6	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓			
7	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
8	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H..			✓	
9	EXERTHERM :TEST OF ALL TEMPERATURE SIGNALS point 4.1. FAT proc		✓			
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ROSETTI, MARINO
LIMANI STEFANO
01/08/24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: C.B. feeders			
	FUNCTION	DEVICE	*Tested Unit:* Incoming (A6)			
1	C.B. SPRING CHARGING MOTOR *point 4.1 FAT Proc*	MAS	✓			
2	C.B. SHUNT OPENING RELEASE *point 4.1 FAT Proc*	MBO1 MBO2	✓			
3	C.B. CLOSING RELEASE *point 4.1 FAT Proc*	MBC	✓			
4	C.B. INHIBIT TO CLOSE *point 4.1 FAT Proc*	RLE1	✓			
5	C.B. LOCAL CLOSING *point 4.1 FAT Proc*	-	✓			
6	C.B. LOCAL OPENING *point 4.1 FAT Proc*	-	✓			
7	C.B. REMOTE CLOSING *point 4.1 FAT Proc*	-	✓			
8	C.B. REMOTE OPENING *point 4.1 FAT Proc*	-	✓			
9	AUTOMATIC TRANSFER SYSTEM (If applicable) *point 4.1 FAT Proc*	-			✓	
10	MECHANICAL/ELECTRICAL TEST FOR INSERTION / DISCONNECTION OF C.B. *point 3.2 FAT Proc*	RLE2 / RLE4	✓			
11	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 3.2 FAT Proc*	/	✓			
12	EARTHING SWITCH OPERATION LOCK (If applicable) *point 3.2 FAT Proc*	RLE3	✓			
13	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
14	AMMETRICAL CIRCUITS (Primary Injection) *point 4.1 FAT Proc*	TI - TO	✓			
15	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
16	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H...			✓	
17	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓			
18	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
19	EXTERNAL ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	KH / H..			✓	
20	ARC FLASH TEST *point 4.8 FAT Proc*	SF1-2-3	✓			
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TESTED IEC 61850: C-X1-10, C-X1-15, C-X2-1, C-X1-13, C -X1-9, C-X1-1,D-X1-11,D-X1-3

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KRISTIAN CASTELLAN

ROSETTI MARINO
LUNARI STEFANO
01/08/24

Type of switchboard:	HV SWGR / Miniver-C	Comm. :	231151/SD	ELE Resp. :	SD	Node:	10
Client:	ROSETTI MARINO			Annex A			

Ref.	ACTIVITY (DEPT.)		YES	NO	N/A	REMARK
ELECTRICAL OPERATING TESTS (CAB)			UNIT: Contactor Feeder			
	FUNCTION	DEVICE	*Tested Unit:* Fuel Cell Package (A7)			
1	CONTACTOR SHUNT OPENING/CLOSING RELEASE *point 4.1 FAT Proc*	DI2	✓			
2	CONTACTOR INHIBIT TO CLOSE (THROUGH UNDERVOLTAGE RELEASE) *point 4.1 FAT Proc*	AA	✓			
3	CONTACTOR LOCAL CLOSING *point 4.1 FAT Proc*	-	✓			
4	C.B. LOCAL OPENING *point 4.1 FAT Proc*	-	✓			
5	C.B. REMOTE CLOSING *point 4.1 FAT Proc*	-	✓			
6	C.B. REMOTE OPENING *point 4.1 FAT Proc*	-	✓			
7	MECHANICAL/ELECTRICAL TEST FOR INSERTION / DISCONNECTION OF CONTACTOR *point 4.1 FAT Proc*	RLE2 / RLE4	✓			
8	KEY INTERLOCKS CHECKING FOR PUTTING IN SERVICE AND OUT OF SERVICE OF THE UNIT *point 4.1 FAT Proc*	/	✓			
9	EARTHING SWITCH OPERATION LOCK (If applicable) *point 4.1 FAT Proc*	RLE3	✓			
10	MCB AUX. CONTACTS TEST *point 3.2 FAT Proc*	/	✓			
11	AMMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TI - TO	✓			
12	VOLTMETRICAL CIRCUITS (Secondary Injection) *point 4.1 FAT Proc*	TU	✓			
13	TEST FOR SIGNALLING LAMPS / LED *point 4.1 FAT Proc*	H..	✓			
14	AVAILABLE SIGNALS AND CONTACTS AT THE TERMINAL BOARD *point 3.4 FAT Proc*	XM..	✓			
15	ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	EH1 - THR	✓			
16	EXTERNAL ANTICONDENSATION HEATING CIRCUIT *point 4.1 FAT Proc*	KH / HL9			✓	
17	RTD TEST	FP1 / FP6	✓			
18	ARC FLASH TEST *point 4.8 FAT Proc*	SF2-3	✓			
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KRISTIAN CATTELAN

ROSETTI MARINO
LIVIANI STEFANO
01/08/24

Section 13 MECHANICAL COMPLETION CHANGES / MARK-UPS

NOT APPLICABLE