Base Load Power Hub (BLPH)

Technical Data Sheet (TDS) for T-Connectors & HV/MV Terminations

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Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01						
1	Cover	X	X						
2	Table of Contents	X	X						
3	Revision / Change Log	X	X						
4	Reference Document and Standard:	X	X						
5	General	X	X						
6	Data Sheet for Coupling T-Connectors (IAC Cable Extension-Interface)	X	X						
7	Data Sheet for Base T-Connectors (66kV Cable)	X	X						
8	Data Sheet for Base T-Connectors (6.6kV Cable)	X	X						
9	Data Sheet for Surge Arrester (Coupling) T-Connectors (66kV Cable)	X	X						
10	Data Sheet for 6.6kV Termination Kits 1CX150mm^2	X	X						
11	Data Sheet for 6.6kV Termination Kits 1CX70mm^2	X	X						
12	Supplement	X	X						

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Revision / Change Log

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

HOLDS LIST

No.	Description
1.	
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REFERENCE DOCUMENT AND STANDARD:

1)	Technical Specification for Electrical Requirement in Packaged Units	123A90-DDL-EL-SP-20085
2)	Mobile and fixed offshore units - Electrical Installations - Part 4: Cables	IEC 61892-4
3)	Electrical Engineering Design-DEP Specification	DEP 33.64.10.10-Gen.

NOTES:

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Row	General				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2	Environmental Conditions				
3	Ambient Temperature(min/nom/max) – hourly @ +10m	-8.4 °C/ 10.5°C / 25.0°C			
4	Relative humidity (%)	Maximum 95 %			
5	Atmospheric Pressure (nominal) – hourly @ +10m	1013.7 mbar			
6	Annual average wind speed (at 100m)	9.56 m/s			
7	Extreme Wind Speed for 1-Year Recurrence Period (at 100 m)	33.1 m/s			
8	Extreme Wind Speed for 50-Year Recurrence Period (at 100 m)	41.0 m/s			
9	Atmosphere	Marine Offshore-fixed			
10	Altitude > 1000 m (m)	not more than 1000 m			

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Row	Data Sheet for Coupling T-Connectors (IAC Cable Extension-Interface)				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2	**General**				
3	Manufacturer	By Vendor			
4	Model Number	By Vendor			
5	Serial Number	By Vendor			
6	Order Status	for Purchase			
7	Service	Coupling with Existing RSTF-72B base T-Connectors on IAC Cable			
8	Type	Coupling T-connectors for inline connection			
9	Applicable Standards	CENELEC EN-50673, IEC 60840			
10	Installation Area	Indoor			
11	T-Connectors with Earthing Kits Quantity	3 Nos.		3 Nos. T-connectors for Un-armoured outgoing cable	
12	**Electrical Characteristics**				
13	System	AC - (Alternating Current)			
14	Nominal Voltage phase to phase	66kV			
15	Maximum rated continuous phase-to phase operating	72.5 kV			
16	Voltage Variation (Steady State)	±5 %			
17	Rated Frequency	50Hz			
18	Frequency Variation (Steady State)	±2 %			
19	Number of Phases	3			
20	Rated Current	1250A			
21	Rated Short Circuit symm. r.m.s.	31.5kA / 1sec			
22	Neutral Connection	No			
23	Ingress of Protection	IP 56			
24	Hazardous Area Classification	Safe Area			
25	Lightning Impulse withstand Level as per IEC	by vendor			
26	Short Circuit withstand level Min./Max.	by vendor			
27	**IAC Cable Incoming Subsea Cable Details**				
28	Cable Identifier	Three Single Core Cables			
29	Conductor Material	Aluminium			
30	Conductor Insulation	XLPE			
31	Conductor Class	Class-2			
32	Conductor Shape	Round			
33	Nominal Cross Section of the conductor	400 mm^2			
34	Conductor Diameter Approx.	24.7±0.5 mm			
35	No of Cores	3			
36	Cable Description	3 x 1 x 400 Al			
37	Conductor Insulation Material	XLPE			
38	Conductor screen Material	Welded Aluminium Sheath			
39	Armoured / Unarmoured	Armoured, Grade 34 +Z275 class A			
40	Cable Type	AL/XLPE/Al/SWA/PE 38/66 (72.5) kV			
41	Water blocking Tape Material	Semi conductive compound			
42	Inner Covering Material	LDPE(glue)/HDPE/LDPE(SC)			
43	Outer Sheath	PE Outersheeth			
44	Max. Conductor Temperature	90°C			
45	Max. short-circuit temperature conductor	250°C			
46	Basic Impulse Level	325 kV			
47	Max conductor short circuit current for 1 second (adiabatic)	38.3 kA			
48	**IAC Cable Extension Outgoing Cable Details**				
49	Conductor Material	Copper			
50	Conductor Insulation	EPR			
51	Conductor Class	Class-2			
52	Conductor Shape	Round			
53	Nominal Cross Section of the conductor	300 mm^2			
54	No of Cores	1 core per phase per cable			
55	Cable Description	3 x 1 x 300			
56	Conductor Insulation Material	EPR			
57	Conductor screen Material	Tinned copper wire braid			
58	Armoured / Unarmoured	Unarmoured			
59	Cable Type	Cu/EPR/Cu/PVC 36/60 (72.5) kV			
60	Water blocking Tape Material	Semi conductive compound			
61	Inner Covering Material	compound			
62	Outer Sheath	PVC			
63	Over Insulation Diameter Approx.	42.3±1 mm		Preliminary value is given, Exact value to be confirmed	
64	Max. Conductor Temperature	90°C			
65	Max. short-circuit temperature conductor	250°C			
66	**Earthing Kits**				
67	Earthing Kits suitable for Inline Connection T-Connectors	by vendor			
68	Maximum Short Circuit Current (kA/sec)	by vendor			
69	Earthing Braid, Earthing Cable, Lugs & other required Accessories	by vendor			

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Row	Data Sheet for Base T-Connectors (66kV Cable)				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2		General			
3	Manufacturer	by vendor			
4	Model Number	by vendor			
5	Serial Number	by vendor			
6	Order Status	for Purchase			
7	Service	T-Connectors for 66kV GIS IN/Out & Transformer IN Terminals			
8	Type	Single connection Base T-Connectors			
9	Applicable Standards	CENELEC EN-50673, IEC 60840			
10	Installation Area	Indoor for GIS & Transformer		Inside terminal box of transformer	
11	T-Connectors with Earthing Kits Quantity	9 Nos.		3 Nos. T-connectors for GIS IN Terminals 3 Nos. T-connectors for GIS Out Terminals 3 Nos. T-connectors for Transformer IN Terminals	
12		Electrical Characteristics			
13	System	AC - (Alternating Current)			
14	Nominal Voltage phase to phase	66kV			
15	Maximum rated continuous phase-to phase operating	72.5 kV			
16	Voltage Variation (Steady State)	±5 %			
17	Rated Frequency	50Hz			
18	Frequency Variation (Steady State)	±2 %			
19	Number of Phases	3			
20	Rated Current	1250A			
21	Rated Short Circuit symm. r.m.s.	31.5kA / 1sec			
22	Neutral Connection	No			
23	Ingress of Protection	IP 56			
24	Hazardous Area Classification	Safe Area			
25	GIS Terminals	Type F bushing			
26	Transformer Terminals	Type F bushing			
27	Lightning Impulse withstand Level as per IEC	by vendor			
28	Short Circuit withstand Level Min./Max.	by vendor			
29		66kV Cable Details			
30	Conductor Material	Copper			
31	Conductor Insulation	EPR			
32	Conductor Class	Class-2			
33	Conductor Shape	Round			
34	Nominal Cross Section of the conductor	300 mm²			
35	No of Cores	1 core per phase per cable			
36	Cable Description	3 x 1C x 300			
37	Conductor Insulation Material	EPR			
38	Conductor screen Material	Tinned copper wire braid			
39	Armoured / Unarmoured	Unarmoured			
40	Cable Type	Cu/EPR/Cu/PVC 36/60 (72.5) kV			
41	Water blocking Tape Material	Semi conductive compound			
42	Inner Covering Material	compound			
43	Outer Sheath	PVC			
44	Over Insulation Diameter Approx.	42.3±1 mm		Preliminary value is given, Exact value to be confirmed	
45	Max. Conductor Temperature	90°C			
46	Max. short-circuit temperature conductor	250°C			
47		Earthing Kits			
48	Earthing Kits suitable for Single Connection T-Connectors	by vendor			
49	Maximum Short Circuit Current (kA/sec)	by vendor			
50	Earthing Braid, Earthing Cable, Lugs & other required Accessories	by vendor			

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Row	Data Sheet for Surge Arrester (Coupling) T-Connectors (66kV Cable)				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2	**General**				
3	Manufacturer	by vendor			
4	Model Number	by vendor			
5	Serial Number	by vendor			
6	Order Status	for Purchase			
7	Service	Surge Arrester (Coupling) T-Connectors for 66kV GIS In Terminals			
8	Type	Surge Arrestor Coupling T-Connectors			
9	Applicable Standards	CENELEC EN 50673, IEC 60099-4, IEC 60840			
10	Installation Area	Indoor for GIS			
11	T-Connectors with Earthing Kits Quantity	3 Nos.		3 Nos. for GIS Incoming Terminals	
12	**Electrical Characteristics**				
13	System	AC - (Alternating Current)			
14	Nominal Voltage phase to phase	66kV			
15	Maximum rated continuous phase-to phase operating	72.5 kV			
16	Voltage Variation (Steady State)	±5 %			
17	Rated Frequency	50Hz			
18	Frequency Variation (Steady State)	±2 %			
19	Number of Phases	3			
20	Rated Current	1250A			
21	Rated Short Circuit symm. r.m.s.	31.5kA / 1sec			
22	Neutral Connection	No			
23	Ingress of Protection	IP 56			
24	Hazardous Area Classification	Safe Area			
25	Terminals	Type F bushing			
26	Lightning Impulse withstand Level as per IEC	by vendor			
27	Short Circuit withstand Level Min./Max.	by vendor			
28	**66kV Cable Details**				
29	Conductor Material	Copper			
30	Conductor Insulation	EPR			
31	Conductor Class	Class-2			
32	Conductor Shape	Round			
33	Nominal Cross Section of the conductor	300 mm^2			
34	No of Cores	1 core per phase per cable			
35	Cable Description	3 x 1C x 300			
36	Conductor Insulation Material	EPR			
37	Conductor screen Material	Tinned copper wire braid			
38	Armoured / Unarmoured	Unarmoured			
39	Cable Type	Cu/EPR/Cu/PVC 36/60 (72.5) kV			
40	Water blocking Tape Material	Semi conductive compound			
41	Inner Covering Material	compound			
42	Outer Sheath	PVC			
43	Over Insulation Diameter Approx.	42.3±1 mm		Preliminary value is given, Exact value to be confirmed	
44	Max. Conductor Temperature	90°C			
45	Max. short-circuit temperature conductor	250°C			
46	**Surge Arrestor Characteristics**				
47	Rated Voltage (Ur)	74kV			
48	Continuous operating voltage (Uc)	59.2kV			
49	Maximum Discharge Current(In)	10kA			
50	Line Discharge Class	1			
51	Rated Short Circuit Current/Second (kA)	by vendor			
52	**Earthing Kits**				
53	Earthing Kits suitable for Coupling Connection T-Connectors	by vendor			
54	Maximum Short Circuit Current (kA/sec)	by vendor			
55	Earthing Braid, Earthing Cable, Lugs & other required Accessories	by vendor			

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Row	Data Sheet for Base T-Connectors (6.6kV Cable)				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2		General			
3	Manufacturer	by vendor			
4	Model Number	by vendor			
5	Serial Number	by vendor			
6	Order Status	for Purchase			
7	Service	T-Connectors for 6,6kV IN Terminals Elettrolizer Transformer			
8	Type	Single connection T-Connectors			
9	Applicable Standards	IEC 60092-354 CENELEC EN-50180 and 50181			
10	Installation Area	Indoor			
11	T-Connectors with Earthing Kits Quantity	3 Nos.			
12		Electrical Characteristics			
13	System	AC - (Alternating Current)			
14	Nominal Voltage phase to phase	6,6kV			
15	Maximum rated continuous phase-to phase operating	7,2 kV			
16	Voltage Variation (Steady State)	±5 %			
17	Rated Frequency	50Hz			
18	Frequency Variation (Steady State)	±2 %			
19	Number of Phases	3			
20	Rated Current	630A			
21	Neutral Connection	No			
22	Ingress of Protection	IP 56			
23	Hazardous Area Classification	Safe Area			
24	Terminals type	Plug-in Type C			
25	Bushing Rating	36kV / 630A		Bushing model: Euromold 400AR-3 Interface C1	
26	Impulse voltage	60 kV			
27	Short Circuit withstand Level Min./Max.	by vendor			
28		6,6kV Cable Details			
29	Conductor Material	Plain Copper			
30	Conductor Insulation	EPR			
31	Conductor Class	Class-2			
32	Conductor Shape	Round			
33	Nominal Cross Section of the conductor	150 mm^2			
34	No of Cores	One per phase			
35	Cable Description	3 x 1C x 150 mm^2			
36	Conductor screen Material	Plain copper Taped Screen			
37	Armoured / Unarmoured	Armoured			
38	Armouring material	Plain copper wire braid			
39	Cable Type	Flame retardant, LSZH			
40	Water blocking Tape Material	Semi conductive compound			
41	Inner Covering Material	LSZH compound			
42	Outer Sheath	SHF1			
43	Over Insulation Diameter	24 mm			
44	Conductor Diameter	14,3 mm			
45	Operating temperature	90°C			
46		Earthing Kits			
47	Earthing Kits suitable for Single Connection T-Connectors	by vendor			
48	Maximum Short Circuit Current (kA/sec)	by vendor			
49	Earthing Braid, Earthing Cable, Lugs & other required Accessories	by vendor			

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Row	Data Sheet for 6.6kV Termination Kits 1CX150mm²				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2	General				
3	Manufacturer	by vendor			
4	Model Number	by vendor			
5	Serial Number	by vendor			
6	Order Status	for Purchase			
7	Service	6.6kV 1CX150mm² Termination Kits			
8	Applicable Standards	IEC 60092-354, CENELEC EN-50180 and 50181			
9	Installation Area	Indoor			
10	Quantity of Termination Kits including all accessories	6 Nos.		2R x 1C x 150 mm² TR-100AD1 Transformer Secondary Terminals	
11		2 Nos.		1R x 1C x 150 mm² TR-100AD1 Transformer Secondary Terminal to NER	
12		6 Nos.		2R x 1C x 150 mm² SG-200D1 Switchboard incomer Terminals	
13		3 Nos.		1R x 1C x 150 mm² SG-200D1 Switchboard T4 Transformer outgoing Feeder	
14	Total Quantity	17 Nos.			
15	Electrical Characteristics				
16	Insulation Level	3.6/6kV (7.2 kV)			
17	Voltage Variation (Steady State)	±5 %			
18	Rated Frequency	50Hz			
19	Frequency Variation (Steady State)	±2 %			
20	Number of Phases	3ph			
21	Neutral Connection	No			
22	Exposition of Lightning over Voltage	No			
23	Ingress of Protection	IP 56			
24	Hazardous Area Classification	Safe Area			
25	6.6kV Cable Details				
26	Conductor Material	Plain Copper			
27	Conductor Insulation	EPR			
28	Conductor Class	Class-2			
29	Conductor Shape	Round			
30	Nominal Cross Section of the conductor	150 mm²			
31	No of Cores	One per phase			
32	Cable Description	1C x 150 mm²			
33	Conductor screen Material	Plain copper Taped Screen			
34	Armoured / Unarmoured	Armoured			
35	Armouring material	Plain copper wire braid			
36	Cable Type	Flame retardant, LSZH			
37	Water blocking Tape Material	Semi conductive compound			
38	Inner Covering Material	LSZH compound			
39	Outer Sheath	SHF1			
40	Over Insulation Diameter	24 mm			
41	Conductor Diameter	14,3 mm			
42	Operating temperature	90°C			
43	Earthing Kits including all accessories	Yes			
44	Testing in accordance with IEC standard	by vendor			

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Row	Data Sheet for 6.6kV Termination Kits 1CX70mm²				Rev.
1	Item	Required	Manufacturer Proposal	Comments	
2	General				
3	Manufacturer	by vendor			
4	Model Number	by vendor			
5	Serial Number	by vendor			
6	Order Status	for Purchase			
7	Service	6.6kV 1CX70mm² Termination Kits			
8	Applicable Standards	IEC60502-2			
9	Installation Area	Indoor			
10	Quantity of Termination Kits including all accessories	3 Nos.		1R x 1C x 70 mm² SG-100D1 Switchboard TR-200DE1 Feeder	
11		3 Nos.		1R x 1C x 70 mm² TR-200DE1 Transformer 6.6kV side Termination	
12		3 Nos.		1R x 1C x 70 mm² SG-100D1 Switchboard TR-200ED1 Feeder	
13		3 Nos.		1R x 1C x 70 mm² TR-200ED1 Transformer 6.6kV side Termination	
14		3 Nos.		1R x 1C x 70 mm² SG-100D1 Switchboard TA30 Feeder	
15		3 Nos.		1R x 1C x 70 mm² TA30 Transformer 6.6kV side Termination	
16		3 Nos.		1R x 1C x 70 mm² SG-100D1 Switchboard 18T1 Feeder	
17		3 Nos.		1R x 1C x 70 mm² 18T1 Transformer 6.6kV side Termination	
18	Total Quantity	24 Nos.			
19	Electrical Characteristics				
20	Insulation Level	3.6/6kV (7.2 kV)			
21	Voltage Variation (Steady State)	±5 %			
22	Rated Frequency	50Hz			
23	Frequency Variation (Steady State)	±2 %			
24	Number of Phases	3ph			
25	Neutral Connection	No			
26	Exposition of Lightning over Voltage	No			
27	Ingress of Protection	IP 56			
28	Hazardous Area Classification	Safe Area			
29	6.6kV Cable Details				
30	Conductor Material	Plain Copper			
31	Conductor Insulation	EPR			
32	Conductor Class	Class-2			
33	Conductor Shape	Round			
34	Nominal Cross Section of the conductor	70 mm²			
35	No of Cores	One per phase			
36	Cable Description	1C x 70 mm²			
37	Conductor screen Material	Plain copper Taped Screen			
38	Armoured / Unarmoured	Armoured			
39	Armouring material	Plain copper wire braid			
40	Cable Type	Flame retardant, LSZH			
41	Water blocking Tape Material	Semi conductive compound			
42	Inner Covering Material	LSZH compound			
43	Outer Sheath	SHF1			
44	Over Insulation Diameter ~~Approx.~~	19,6 mm			
45	Conductor Diameter	10 mm			
46	Operating temperature	90°C			
47	Earthing Kits including all accessories	Yes			
48	Testing in accordance with IEC standard	by vendor			

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Row	Supplement	Rev.
1	Tag No. :	
2	Service :	
3	PURCHASE ORDER SPECIFIC REQUIREMENTS	

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