Base Load Power Hub (BLPH)

Technical Specification with BOM

Document Number: 1723001595-EL-SP-00005

Document Class: 3

ROSETTI MARINO

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

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

Sign	Date
Luca Maculo	25/10/2024

Rev.	Date	Description	Prepared	Reviewed	Approved
4	18/10/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
3	29/08/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
2	16/04/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
1	02/02/2024	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO
00	17/11/2023	Issue for Information (IFI)	Y.D.LEE	Y.W.LEE	S.J.CHO

HYOSUNG HEAVY INDUSTRIES

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1723001595-EL-SP-00005_Technical Specification with BOM_R4_AFC_241018.pdf Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Table of Contents

SH.	DESCRIPTION	REVISIONS							
		00	01	02	03	04			
1	Cover	X	X	X	X	X			
2	Table of Contents	X	X	X	X	X			
3	Revision / Change Log	X	X	X	X	X			
4	Scope of Supply (BOM)	X	X	X	X	X			
5	Technical Specification - 1	X	X	X	X	X			
6	Technical Specification - 2	X	X	X	X	X			
7	Technical Specification - 3	X	X	X	X	X			
8	Technical Specification - 4	X	X	X	X	X			

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1723001595-EL-SP-00005_Technical Specification with BOM_R4_AFC_241018.pdf Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
00	ISSUE FOR INFORMATION (IFI)
01	ISSUE FOR INFORMATION (IFI)
02	ISSUE FOR INFORMATION (IFI)
03	ISSUE FOR INFORMATION (IFI)
04	ISSUE FOR INFORMATION (IFI)

HOLDS LIST

No.	Description
1.	
2.	
3.	
4.	

This document undergoes an issuance cycle within EDMS "Fusionlive".
File: 1723001595-EL-SP-00005_Technical Specification with BOM_R4_AFC_241018.docx Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

1 SCOPE OF SUPPLY (BOM)

1.1 GIS bay HNA6-AFA70 [Qty: 1]

composed of the following 3-phase encapsulated modules :

1 : Circuit breaker for 3 phases

2 : Combined disconnector & earthing switch for 3 phases

1 : Low power instrument transformer for 3 phase [LPIT type]

1 : Low power instrument transformer for 3 phase [LPVT type]

2 : Cable connection part including F-Bushing and Voltage Detecting Sensor

1.2 Local control panel CP-100E1 [Qty: 1]

2 TECHNICAL DATA

2.1 Environment

- Installation : Indoor
- Altitude : ≤ 1000 above sea level
- Ambient temperature : -5 ℃ ~ 40 ℃ (Indoor)

2.2 Complete GIS Module

- Type designation : HSGE-074B
- System voltage : 66 kV
- Rated voltage : 72.5 kV
- Number of phases : 3Φ
- Earth system : Ungrounded
- Rated frequency : 50 Hz
- Rated continuous current
  - Feeder : 1250 A
- Rated short-time withstand current : 31.5 kA rms
- Rated peak withstand current : 78.75 kA peak
- Rated duration of short-circuit : 1 sec
- Rated short-duration power-frequency withstand voltage (1 min)
  - Phase-to-earth, across open switching device and between phases : 140 kV rms
  - Across isolating distance : 160 kV rms
- Rated lightning impulse withstand voltage (1.2/50μs)
  - Phase-to-earth, across open switching device and between phases : 325 kV peak
  - Across isolating distance : 375 kV peak
- Rated switching impulse withstand voltage (250/2500μs)
  - Phase-to-earth : Not Applicable
  - Across open switching device : Not Applicable
  - Across isolating distance : Not Applicable
- Partial discharge level : ≤ 5 pC
- Gas pressure (bar.G, at 20 ℃)
  - Design : 6.59 (CB) / 6.59 (Others)

• Rated	: 5 (CB) / 5 (Others)
• 1st alarm signal	: 4.7 (CB) / 4.7 (Others)
• Minimum (2nd alarm signal)	: 4.5 (CB) / 4.5 (Others)
- Rated control voltage	: 110 Vdc
- Enclosure type	: 3 phases common type
- Maximum gas leakage rate [Dry air]	: 0.5 %/year
- The phases are fully insulated.	

2.3 Circuit Breaker (CB)

- Type designation	: HCSP-E074C
- Rated continuous current	
• Feeder	: 1250 A
- Rated short-circuit breaking current	: 31.5 kA rms
- Rated short-circuit making current	: 78.75 kA peak
- Rated short-line fault breaking current	: 28.35 kA rms
- Rated out-of-phase breaking current	: 7.875 kA rms
- Rated capacitive switching current	
• Rated line-charging breaking current	: 10 A
• Rated cable-charging breaking current	: 125 A
- Rated short-time withstand current	: 31.5 kA rms
- Rated duration of short-circuit	: 1 sec
- Rated breaking time	: 3 cycle (60ms)
- Operating duty cycle	: O-0.3s-CO-3m-CO
- Rated short-duration power-frequency withstand voltage (1 min)	
• Phase-to-earth, between phases	: 140 kV rms
• Across open switching device	: 140 kV rms
- Rated lightning impulse withstand voltage (1.2/50μs)	
• Phase-to-earth, between phases	: 325 kV peak
• Across open switching device	: 325 kV peak
- Rated switching impulse withstand voltage (250/2500μs)	
• Phase-to-earth	: Not Applicable
• Across open switching device	: Not Applicable

- Operating method : Charged Spring
- No load closing time : < 70 ms
- No load opening time : < 32 ms
- First-pole-to-clear factor : 1.5
- Trip coil current : ≤ 5 A
- Close coil current : ≤ 5 A
- Rated control voltage : 110 Vdc
- Motor power (1 motor for 3 phase) : 260 Watt

2.4 Disconnecting Switch (DS)

- Type designation : HDMO-E74E
  HDMO-E74F
- Rated continuous current
  - Feeder : 1250 A
- Rated short-time withstand current : 31.5 kA rms
- Rated duration of short-circuit : 1 sec
- Rated short-duration power-frequency withstand voltage (1 min)
  - Phase-to-earth, between phases : 140 kV rms
  - Across isolating distance : 160 kV rms
- Rated lightning impulse withstand voltage (1.2/50μs)
  - Phase-to-earth, between phases : 325 kV peak
  - Across isolating distance : 375 kV peak
- Rated switching impulse withstand voltage (250/2500μs)
  - Phase-to-earth : Not Applicable
  - Across isolating distance : Not Applicable
- Operating method : Motor driven & Manual
- Motor & control voltage : 110 Vdc
- Motor power (1 motor for 3 phase) : 350 Watt

2.5 Maintenance Earthing Switch (ES)

- Type designation : HEMO-E074D
  HEMO-E074E
- Rated short-time withstand current : 31.5 kA rms

- Rated duration of short-circuit : 1 sec
- Rated short-duration power-frequency withstand voltage (1 min) : 140 kV rms
- Rated lightning impulse withstand voltage (1.2/50μs) : 325 kV peak
- Rated switching impulse withstand voltage (250/2500μs) : Not Applicable
- Operating method : Motor driven & Manual
- Motor & control voltage : 110 Vdc
- Motor power (1 motor for 3 phase) : 350 Watt

2.6 Low Power Current Transformer (LPCT)

- Type : LPCT
- Polarity : Subtractive
- Rated Primary Current [A], Ipr : In 250, Imax 1250
- Accuracy Class : 0.2S / 5TPE
- Rated short-time thermal current : 31.5 kA rms
- Rated short-duration power-frequency withstand voltage (1 min)
  - Main circuit : 140 kV rms
  - Secondary circuit : 2.2 kV rms
- Rated lightning impulse withstand voltage (1.2/50μs) : 325 kV peak

2.7 Low Power Voltage Transformer (LPVT)

- Type : LPVT
- Primary voltage [kV] : 66/ √3
- Primary voltage Factor, Fv : 1.9 x Upr
- Accuracy class : 0.5 / 3P
- Rated short-duration power-frequency withstand voltage (1 min)
  - Main circuit : 140 kV rms
  - Secondary circuit : 2.2 kV rms
- Rated lightning impulse withstand voltage (1.2/50μs) : 325 kV peak
- Rated switching impulse withstand voltage (250/2500μs) : Not Applicable

2.8 Local Control Panel

- Type	: Stand Alone
- Size [mm]	: 1000(W), 700(D), 2250(H)
- IP	: 55
- Metal Thickness of Panel	: SPHC 2.3mm
- Ground bus bar	: 6T x 30
- Gland plate	: 3T Al plate
- Front door opening angle	: 120°
- Cable entry from top	

2.9 HV cable Termination with VD (voltage detecting) sensor

- Type	: F bushing
	VD sensor built in type
- Manufactuerer	: TE connectivity
- Rated Voltage	: 72.5 kV
- Rated continuous current	: 1250 A
- Rated lightning impulse withstand voltage	: 325 kV peak
- Power frequency withstand voltage	: 155kV/1min
- Partial discharge	: 63kV < 10pc
	: 44kV < 5pc