

VAD/VOD MCC PANEL OF 415V, 3PHASE, 4 WIRE SYSTEM

TECHENICAL SPECIFICATIONS

S/ N	DETAILS	Vendor's Confirmation
01	The panel will consist of sheet steel enclosure of thickness not less than 2mm. Suitable for three phase four wire system.	
02	Painted first with corrosion resistant paint and then with industrial grade grey paint and mounted on a suitable base frame.	
03	The frame is to be provided with suitable grouting arrangement for installing the panel in free standing installation at floor level & protection against rodent/reptile entry.	
04	The panel should be spacious for maintenance & operation purposes.	
05	Down entry space for cables should be provided for outgoing cables and incoming cables in outgoing and incoming sections respectively.	
06	The panel should be provided with earthing bus bar & cooling arrangement (Net type).	
07	The bus bars are to be sleeved with heat shrunk PVC	
08	Power contactors should be selected for at least 150 % of full load current	
09	Aluminum wires should not be used in power and control circuits.	
10	A three phase to single phase control transformer must be provided for control supply with tappings for voltage correction. (Should not be less than 2KVA)	

INCOMER SECTION

S/ N	DETAILS	Quantity	Vendor's Confirmation
01	MCCB. 630A, 415V, Three Pole, Short Circuit Breaking Capacity 50kA, Over load and short Circuit protection. Operation through rotary drive handle.	01	
02	Voltmeter: 500V, Analog, AE make with selector switch.	01	
03	Ammeter: 630A, Analog, AE make with selector switch.	01	
04	Phase live indicators. High luminosity LED's	03	
05	Digital energy meter.	01	


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OUT GOING SECTIONS

S/N	DETAILS	Quantity	Vendor's Confirmation
01	<u>VAD-1 ISOLATOR (200Amp) :</u> This Section will have MCCB 200A, 415V, Three Pole, Short Circuit Breaking Capacity 35kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase. Note: VAD-1 Isolator should be connected in such a way that it will isolate 1.1 to 1.5 in OFF position.	01	
1.1	<u>Hyd. Pump Starter (20HP) :</u> This section will have MCCB, MPCB and FUSE with POWER CONTACTORS for operating of 20HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	02	
1.2	<u>Trolley Motor Starter (20HP) :</u> This section will have MCCB, MPCB with POWER CONTACTORS for Forward And Reverse operation of 20HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	01	
1.3	<u>VAD-1 Control Supply (32A) :</u> This Section will have MCCB 32A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase.	01	
1.4	<u>Thyristor/DC Drive Power Supply (63A) :</u> This Section will have MCCB 63A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase.	01	
1.5	<u>Control Supply to VCB and Furnace Transformer :</u> This Section will have MCCB 63A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase. 4Nos. MCB 3P, 16A, 415 V AC, 50Hz, Breaking Capacity 10KA. MCBs that will feed to Battery	01	

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	Charger, VCB Spring Charging Motor, Transformer Tap Changer and Transformer Oil pump.		
02	<u>VAD-2 ISOLATOR (200Amp) :</u> This Section will have MCCB 200A, 415V, Three Pole, Short Circuit Breaking Capacity 35kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase. Note: VAD-2 Isolator should be connected in such a way that it will isolate 2.1 to 2.5 in OFF position.	01	
2.1	<u>Hyd. Pump Starter (20HP) :</u> This section will have MCCB, MPCB and FUSE with POWER CONTACTORS for operating of 20HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	02	
2.2	<u>Trolley Motor Starter (20HP) :</u> This section will have MCCB, MPCB with POWER CONTACTORS for Forward And Reverse operation of 20HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	01	
2.3	<u>VAD-2 Control Supply (32A) :</u> This Section will have MCCB 32A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase.	01	
2.4	<u>Thyristor/DC Drive Power Supply (63A) :</u> This Section will have MCCB 63A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase.	01	
2.5	<u>Control Supply to VCB and Furnace Transformer :</u> This Section will have MCCB 63A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase.	01	


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	4Nos. MCB 3P, 16A, 415 V AC, 50Hz. Breaking Capacity 10KA. MCBs that will feed to Battery Charger, VCB Spring Charging Motor, Transformer Tap Changer and Transformer Oil pump.		
03	<u>VOD ISOLATOR (200Amp) :</u> This Section will have MCCB 200A, 415V, Three Pole, Short Circuit Breaking Capacity 35kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase. Note: VOD Isolator should be connected in such a way that it will isolate 3.1 to 3.4 in OFF position.	01	
3.1	<u>Hyd. Pump Starter (12.5HP) :</u> This section will have MCB, MPCB and FUSE with POWER CONTACTORS operating of 12.5HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	02	
3.2	<u>Trolley Motor Starter (10HP) :</u> This section will have MCB, MPCB with POWER CONTACTORS for Forward And Reverse operation of 10HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	01	
3.3	<u>Oxygen Lancer Starter (3HP) :</u> This section will have MCB, MPCB with POWER CONTACTORS for Forward And Reverse operation of 3HP Induction motor. One ammeter with ammeter selection switch and Indications for ON, OFF & TRIP with suitable control circuit. Terminal board having provision to connect ON, OFF push buttons from remote only.	01	
3.4	<u>VOD Control Supply (32A) :</u> This Section will have MCCB 32A, 415V, Three Pole, Short Circuit Breaking Capacity 25kA, Over load and short Circuit protection. Operation through rotary drive handle. One ammeter with ammeter selection switch. Phase live indicators. High luminosity LED's for 3 phase.	01	


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MAKE OF ITEMS

S/N	DETAILS	MAKE	Vendor's Confirmation
01	MCCB	SIEMENS/L&T, with rotary handle drive, with over load and short circuit protection	
02	MCR	SIEMENS/L&T	
03	Volt Meter/Ammeter	AE. 96 *96 Sq.mm., Analog	
04	Indicator LED's, push buttons	L&T/Siemens	
05	CT	KAPPA/AE/Eng. Elect.(Cast Resin)	
06	Bus Bar	Electrolytic Grade Aluminum /Copper Aluminum: Current Density $\leq 1\text{A/Sq.mm.}$ Copper : Current Density $\leq 1.6\text{A/Sq.mm.}$	
07	Ammeter Selector switch	SIEMENS/L&T/KAYCEE	
08	Power contactors	SIEMENS/L&T	
09	Current Density less than 2 A/Sq.mm. should be used for internal power wiring where ever used. Wires for control wiring should be minimum 1.5sqmm and power wiring should be minimum 2.5 sq mm.		
10	Control Transformer		
11	Digital Energy meter	L&T, Schneider, Siemens, Areva, ABB only	

General Specifications:

S/N	DETAILS	Vendor's Confirmation
01	Panel Layout/scheme, wiring drawings, calculations, bill of material along with supporting data should be approved by BHEL before manufacturing. All drawings with complete details and supporting data should be submitted in one lot. Delay on account of incomplete drawing/data will be on vendors account. Time of approval will be two weeks.	
02	Two hard bind copies (good quality prints) and one soft copy in pen drive of final approved drawing to be dispatched with material.	
03	Inspection: Pre-Inspection of panel before dispatch.	
04	Guarantee: Party to provide guarantee /warranty of 18 months from the date of dispatch or twelve months from date of receipt of material at CFFP, BHEL Haridwar.	
05	Erection and Commissioning will be done by BHEL	
06	This panel is to be used to replace the old panel. The size of panel should not exceed the size of existing panel (Length: 4840 mm, Height: 3050 mm, Depth: 500 mm).	


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