

FURNACE PANEL OF 415V, 3PHASE, 4 WIRE SYSTEM**TECHENICAL SPECIFICATIONS**

S.NO.	DETAILS	Vendors confirmation
1.	The panel will consist of sheet steel enclosure of thickness not less than 2mm, Suitable for three phase four wire system.	
2.	Painted first with corrosion resistant paint and then with industrial grade grey paint and mounted on a suitable base frame.	
3.	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.	
4.	The panel should be spacious for maintenance & operation purposes.	
5.	Down entry space for cables should be provided for outgoing cables and incoming cables in outgoing and incoming sections respectively.	
6.	The panel should be provided with earthing bus bar & cooling arrangement (Net type).	
7.	The bus bars are to be sleeved with heat shrunk PVC	
8.	Power contactors should be selected for at least 150 % of full load current	
9.	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 tapings for voltage correction. (Should not be less than 2KVA)	
11.	Only one panel will have four digital energy meters in outgoing sections.	

INCOMER SECTION

S. NO.	DETAILS	QUANTITY	Vendors confirmation
1.	MCCB. 400A, 415V, Three Pole, Short Circuit Breaking Capacity 50kA, Over load and short Circuit protection. Operation through rotary drive handle.	01	
2.	Voltmeter: 500V, Analog, AE make with selector switch	01	
3.	Ammeter: 400A, Analog, AE make with selector switch	01	
4.	Phase live indicators. High luminosity LED's	03	
5.	Digital energy meter.	01	



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OUT GOING SECTION: 10 Nos.

S. NO.	DETAILS	QUANTITY	Vendors confirmation
1.	ID FAN STARTER 75KW : This section will have MCCB, MPCB and FUSE with POWER CONTACTORS for star delta starting of 75Kw Induction motor. One ammeter with ammeter selection switch & energy meter. ON, OFF push buttons & Indications for ON, OFF & TRIP with suitable control circuit.	01	
2	ID FAN VFD 75KW : This section will have MCCB, FUSE & POWER CONTACTOR with VFD drive for 75Kw Induction motor. One ammeter with ammeter selection switch & energy meter. ON, OFF push buttons & Indications for ON, OFF & TRIP with suitable control circuit.	01	
3.	Combustion Blower Starter 40KW : This section will have MCCB, MPCB & FUSE with POWER CONTACTORS for star delta starting of 40Kw Induction motor. One ammeter with ammeter selection switch & energy meter. ON, OFF push buttons & Indications for ON, OFF & TRIP with suitable control circuit.	01	
4	Combustion Blower VFD 40KW : This section will have MCCB, FUSE & POWER CONTACTOR with VFD drive for 40Kw Induction motor. One ammeter with ammeter selection switch & energy meter. ON, OFF push buttons & Indications for ON, OFF & TRIP with suitable control circuit. Out of two only one outgoing will have energy meter.	02	
5.	Door Drive 7.5KW : This section will have Fuse Switch, MPCB with POWER CONTACTORS for Forward And Reverse operation of 7.5Kw Induction motor. One ammeter with ammeter selection switch. ON, OFF push buttons in Inching mode & Indications for ON, OFF & TRIP with suitable control circuit.	02	
6.	Boogie Drive 15 KW : This section will have Fuse switch, MPCB with POWER CONTACTORS for Forward And Reverse operation of 15Kw Induction motor. One ammeter with ammeter selection switch. ON, OFF push buttons in Inching mode & Indications for ON, OFF & TRIP with suitable control circuit.	03	

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MAKE OF ITEMS:

S.NO.	ITEM	MAKE	Vendors confirmation
1.	MCCB	SIEMENS/L&T, with rotary handle drive, with over load and short circuit protection	
2.	VOLT METER/AMMETER	AE, 96 *96 Sq.mm., Analog	
3.	INDICATOR LED'S, PUSH BUTTONS	L&T/Siemens	
4.	CT	KAPPA/AE/Eng. Elect.(Cast Resin)	
5.	BUS BAR	Electrolytic Grade Aluminum /Copper Aluminum: Current Density less than or equal to 1A/Sq.mm. Copper : Current Density less than or equal to 1.6A/Sq.mm.	
6.	AMMETER SELECTOR SWITCH,	SIEMENS/L&T/KAYCEE	
7.	MCB,POWER CONTACTORS	SIEMENS/L&T	
8.	TIMER	SIEMENS/L&T/BCH	
9.	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.	COPPER CABLES OF LAPP, IGUS, AND FINOLAX MAKE ONLY.	
10	Variable frequency drive(VFD) with protection for Under-voltage and Over-voltage Trip Limit, Ground Fault, Mains Supervision, Motor Phase Supervision, Over-current, Unit Over-temperature, Motor Overload, Along with choke/filters. (Inbuilt or otherwise). Speed control to be regulated through multi turn potentiometer along with metallic scale /dial.	Siemens make, SINAMICS G120 Series only. Potentiometer of bourne make only. Four similar potentiometers to be provided as spare.	

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11	Control Transformer	Reputed
12	Digital Energy meter	L&T, Schneider, Siemens, Areva, ABB only

General Specifications:

S.No.	Details	Vendors confirmation
1.	Panel Layout/scheme, wiring drawings, calculations, bill of material along with supporting data should be approved by BHEL before manufacturing. All the technical details, features & model of VFD drive to be submitted with drawing for approval 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.	
2.	Two hard bind copies (good quality prints) and one soft copy in pen drive of final approved drawing to be dispatched with material. VFD operation and maintenance manual to be submitted with the drawings.	
3.	Inspection: Pre-Inspection of panel before dispatch.	
4.	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.	
5.	Erection and Commissioning will be done by BHEL except VFD.	
6.	Commissioning of VFD drives will be done by vendor.	
7.	This panel is to be used to replace the old panel. The size of panel, location of incoming cables etc. should be designed to suit the existing location and arrangement. Hence the supplier is advised to visit the site before submitting the offer.	

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