



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 76 53 Fax : +91 431 252 00 31 Email : skaruna@bheltry.co.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID Tender to be submitted in two Parts	Enquiry Number: 2621500001	Enquiry Date: 22.01.2015	Due date for submission of quotation: 27.02.2015
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You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	Medium Voltage Switch Gear Panel as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.

Important points to be taken care during submission of offer

- The rate of EMD for this Tender will be (INR) : **1,00,000/-**
- The Checklist for Acceptance of Commercial Terms & Conditions to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
- All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM/CE/GENL/001-EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under above Enquiry reference

Tenders should reach us before 14:00 hours on the due date.
Tenders will be opened at 14:30 hours on the due date.
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present.

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**

Sr. Engineer / MM / Capital Equipment

ANNEXURE - A
QUALIFICATION CRITERIA
Supply of MV Switchgear Panel

S.No	Description	Vendor to Confirm
1	Only those vendors, who have manufactured MV switchgear panel of bus capacity not less than 3000 Amps and supplied, i) to any one company in the past two years or ii) to at least three companies in the past five years and, Such item should be working satisfactorily for atleast one year after commissioning as on the date of opening of this tender.	
2	Panels manufacturer should have the short circuit type test certificate issued by CPRI/ ERDA/ Govt.approved Test Centre for the panel manufactured and the same should be attached with the offer.	
3	The vendor should submit following details which are necessary for qualifying their offer.	
3.1	List of customers for whom similar kind of equipments were supplied along with the details of contact person, mobile no., landline no., Fax, e-mail and address.	
3.2	Along with Technical offer, the Vendor should submit performance certificate from atleast one customer for the satisfactory performance of the same, supplied to them in the customers letter head.	

ANNEXURE B

TECHNICAL SPECIFICATION FOR MV SWITCH GEAR PANEL

Sl.No.	Description	Vendor to confirm	Deviations (if any)
	Design, manufacture and supply of Medium Voltage, floor mounting, free standing, indoor, cubicle type switchgear panel comprising Air Circuit Breaker feeder and conforming to the specification and features given below.		
1.0	Air Circuit Breaker Make : L & T or GE or SIEMENS or SCHNIEDER or ABB.		
2.0	Incomer Breaker : 3200A, 415V, Three Phase and neutral, draw-out type, true, trip free, electrically operated spring closing type, Air Circuit Breakers having 30 V DC shunt trip, emergency hand trip, 4No + 4NC auxiliary contacts, ON / OFF mechanical indication, Integral self powered current release, current transformers of required quantity, burden and accuracy for metering and for protection and confirming to IEC 60947 /2 / IS 13947 (Part 2). Quantity - 2 Nos.		
3.0	Outgoing Breaker : 1000A, 415V, Three Phase and neutral, draw-out type, true, trip free, electrically operated spring closing type, Air Circuit Breakers having 30V DC shunt trip, emergency hand trip, 4No + 4NC auxiliary contacts, ON / OFF mechanical indication, Integral self powered current release, current transformers of required quantity, burden and accuracy for metering and for Protection and confirming to IEC 60947 /2 / IS 13947 (Part 2). Quantity - 16 Nos.		
3.1	Bus coupler Breaker (ACB) : 3200A, 415V, Three Phase and neutral, draw-out type, true, trip free, electrically operated spring closing type, Air Circuit Breakers having 30V DC shunt trip, emergency hand trip, 4No + 4NC auxiliary contacts, ON / OFF mechanical indication and confirming to IEC 60947 /2 / IS 13947 (Part 2) Quantity - 1 No.		
4.0	Bubars 3000A, TPN aluminium busbars.(Size -2 runs of 150mmx10mm for phase & 1 run of 150mmx10mm for neutral.)		

5.0	INCOMER BREAKER PANEL SPECIFICATIONS.		
5.1	Air Circuit Breaker rated current, Voltage, short circuit breaking capacity.	3200A,415V, 75KA	
5.2	Current Transformer Ratio	3200/5A	
5.3	C T: 2 core (reputed make accepted by BHEL)		
5.4	Digital LED multifunction meter of class 1.0 to show the readings of Voltage, Current, Power,PF, frequency and %THD of voltage & current. Required makes of CONSERV, L&T,AE, SECURE , ELmeasure, RISHAB along with RS 485 communication port.		
5.5	Analog type voltmeter (0-500V), 96mm square, accuracy class 1.0 (reputed make acceptable to BHEL).		
5.6	Voltmeter Selector switch make.		
5.7	Digital type Three Phase Over Current & Earth fault Relays with High set Communication and breaker control. (L&T, ABB, C&S, SIEMENS, SCHNEIDER or other reputed make accepted by BHEL).		
5.8	Energy Meter 3 phase, 4 wire, 5A, Class 1.0 Digital meter of reputed make acceptable to BHEL with RS 485 communication port- (L&T, ABB, C&S, SIEMENS, SCHNEIDER or other reputed make accepted by BHEL).		
5.9	LED type indication lamp for breaker On, Off, Trip and RYB indication		
5.10	Bottom side cable Entry (Detachable type) and provision should be made for connecting busduct on the top entry with necessary fasteners.		
6	OUT GOING PANEL SPECIFICATIONS		
6.1	Air Circuit Breaker rated current, Voltage, short circuit breaking capacity.	1000A, 415V, 50KA as specified.	
6.2	Current Transformer Ratio	1000 /5A-16 set	
6.3	C T with 2 core(reputed make acceptable to BHEL)		
6.4	Digital LED multifunction meter of class 1.0 to show the readings of Voltage, Current, Power,PF, frequency and %THD of voltage & current.Required makes of CONSERV,L&T,AE, SECURE , ELmeasure, RISHAB along with RS 485 communication port.		

6.5	Energy Meter 3 phase, 4 wire, 5A, Class 1.0 Digital meter of reputed make acceptable to BHEL with RS 485 communication port- (L&T, ABB, C&S, SIEMENS, SCHNEIDER or other reputed make accepted by BHEL).		
6.6	Digital type Three Phase Over Current & Earth fault Relays with High set Communication and breaker control. (L&T, ABB, C&S, SIEMENS, SCHNEIDER or other reputed make accepted by BHEL).		
6.7	LED type indication lamp for breaker On, Off and Trip indication		
6.8	Bottom side cable Entry (Detachable type)		
7.0	BUS COUPLER PANEL SPECIFICATIONS		
7.1	Air Circuit Breaker rated current, Voltage, short circuit breaking capacity.	2000A, 415V, 50KA as specified.	
7.2	LED type indication lamp for breaker On, Off and Trip indication		
8.0	Specification for MV Switchgear Panel.		
8.1	Approx. overall dimensions of the Panel(Max- 7000mm length, 1500mm depth & 2200mm height acceptable).		
8.2	Make of the accessories in the panel, type, no of ACB, technical leaflet of the ACB and protection release, copy of the type test report of the ACB to be furnished in the offer.		
9.0	3 sets of O & M manual for each panel including spare parts list for the breakers and panel, general arrangement, drawing, power schematic drawing wiring diagram shall be supplied along with the panel.		
10.0	General Features.		
10.1	The panel shall be of modular construction, Incomer feeder & bus coupler panels shall house one ACB whereas outgoing feeder panels shall house two Air Circuit Breakers in two-tier formation along with busbars, metering and other accessories. Sufficient space for maintenance shall be provided in the panel.		

10.2	Bus bars shall be made of high conductivity aluminium alloy with adequate cross section to operate at low operating temperatures. Busbars including neutral and earth bars shall be Type tested as per IS: 8623 for a short circuit fault withstand level of 65 KA for one second and CPRI/ ERDA/ Govt.approved Test centre test certificate should be enclosed.		
10.3	The neutral busbars shall have a continuous current rating of 50% of the phase busbars. All busbars shall be insulated with heat shrinkable insulating sleeve, colour coded for easy identification of individual phases and neutral.		
10.4	The earth busbar of size 50x6 mm copper shall run through out the length of the switch board and be terminated at both the ends with cable eyes.		
10.5	High tensile bolts (cadmium coated) and spring washers shall be provided on all busbars and connection joints.		
10.6	Panel sheet should be of CRCA 3.0 mm thick outside walls and CRCA 2.5mm thick inside separations. All sheet steel work used in the panels shall undergo a rigorous metal treatment process involving alkaline degreasing descaling in dilute sulphuric acid, phaspating and painting.		
10.7	The panel shall have cable chamber housing with suitable supports, end connections and power/ control cable terminations. Adequate safety shall be provided for working in one vertical section without accidental contact with the live parts in an adjacent section.		
10.8	Adequate number of cable riser supports shall be provided to withstand rated short circuit current.		
10.9	Front and rear doors shall be fitted with dust excluded neoprene gaskets with vermin proof.(protection of IP20)		
10.10	External aperture for ventilation shall be covered with a perforated sheet to prevent entry of vermin.		
10.11	The ACBs shall have three distinct positions i.e. service, test and isolated with position indicators. (Mech/elec)		

10.12	Automatic shutters shall be provided to screen the live parts when the breaker is drawn out of the cubicle.		
10.13	The ACB shall be equipped with an integral self powered microprocessor based current release, which works on true RMS values for ensuring accurate protection, Overload, selective short circuit, instantaneous circuit and earth fault protections shall be provided along with the LED indication/ LCD screen. The protection unit should confirm to the EMI / EMC requirement.		
10.14	The min. setting range of protection release should be as follows. (a) Over load protection shall have adjustable setting from 50% to 100% of the circuit breaker rated current in steps of 5% preferably. (b) Short time delayed short circuit protection shall have adjustable current setting from 200% to 1000% of the overload setting and adjustable time setting for time discrimination from 20ms to 400ms. (c) Instantaneous short circuit protection shall be adjustable from 2 to 15 times rated current. (d) Earth fault protection shall have current setting from 20% to 60% of rated current and adjustable time setting from 100ms to 400ms.		
10.15	Trip indication shall be provided in ACB to display the exact nature of fault (LED/LCD screen) like OL/EF/SC. Test facility to test the healthiness of the release and the trip circuit of the breaker shall be provided.		
10.16	The ACB shall be provided with mechanical anti-pumping feature to prevent auto reclosing of the breaker on fault and necessary safety interlocks for closing the ACB.		
10.17	The control panel of ACB along with its operating device shall project through the cutout in the door which is provided with suitable gasket (without any air gap).		
10.18	The ACB shall be suitable and should be able to carry the rated current for an ambient temperature of not less than 45 degree C without any derating and suitable for working in Indian condition.		

10.19	The Ultimate breaking capacity (Icu) should be equal to service breaking capacity (Ics) and short time withstand capacity (Icw) for 1 sec.		
10.20	Provision should be available for the following. (a) to switch "ON" and switch "OFF" ACB from a PLC/SCADA using the closing coil and shunt trip. (b) to monitor the ON / OFF status of the breaker through a PLC/SCADA (c) to monitor and acquire the data regarding parameters like current, voltage, power, energy through the communication port of the digital/energy meter.		
10.21	The cassette and the breaker shall be provided with standard interlocks related to the opening / closing of the doors and the positions of the breaker.		
10.22	All control wiring shall be carried out with 1100 V single core PVC cable having standard FRLS copper conductors of min. 1.5 sq.mm. section for potential circuits and 2.5 sq.mm. section for current transformer circuit wires shall be identified with number ferrules at either end.		
10.23	Removable gland plates shall be provided at the bottom of panel for cable termination.		
10.24	The construction of the panel shall generally conform to the Indian Electricity Rules/CEA regulations.		

	<p>Note :</p> <ol style="list-style-type: none">1) GA drawings and bill of materials to be submitted for approval before manufacturing of the panels.2) Final inspection to be offered at supplier works before despatch.3) During commissioning the MV panel in the substation, programming of the ACB, Protection relays and Energy meters to be supported by the supplier / firm and necessary training to our staffs should be given.4) 3 sets of Operation, Maintenance & programming manual in English . Circuit/ wiring diagram to be supplied along with the each panel Required. Single copy of make, rating, technical details and catalogue of all the bought out items used in each panel.5) Point by point confirmation is required from the supplier otherwise the offer will not be considered.		
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