



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)
Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY NOTICE INVITING TENDER	Phone: +91 431 257 76 53 Fax : +91 431 252 00 31 Email : skaruna@bheltry.co.in Web : www.bhel.com
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TWO PART BID Tender to be submitted in two Parts	Enquiry Number: 2631500018	Enquiry Date: 05.10.2015	Due date for submission of quotation: 28.10.2015
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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	Qty.	Delivery Required	Delivery Terms Required
10	Flux Baking Oven as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	07 Nos.	4 months from the date of Purchase Order	F.O.R, BHEL Stores, Tiruchirappalli.

Important points to be taken care during submission of offer:-

1. Compliance Form No. TRY/IND/06 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. Material shall be delivered to FOR ,BHEL Stores, HIGH PRESSURE BOILER PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Tiruchirappalli- 620014, Tamilnadu State.
3. The time period required for Erection & Commissioning of the item shall be 3 Weeks from the date of intimation from BHEL requesting supplier to depute Service Engineers about site readiness.
4. EMD amount of this Tender will be ₹ 1,00,000.00
5. 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 Compliance Form 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 Enquiry reference "2631500018"

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  DGM / Capital Equipment / MM
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S. KARUNANIDHY
Dy. General Manager
Capital Equipment / MM
BHEL, Tiruchirappalli - 620 014.

PART - A
QUALIFYING CRITERIA FOR FLUX BAKING OVEN

S.No	BHEL Specification	Vendor's Offer
1.0	QUALIFYING CRITERIA	
1.1	The BIDDER / VENDOR (OEM) shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of "FLUX BAKING OVEN". Vendor may indicate the actual no. of years of experience in the field	
1.2	Only those vendors (OEMs), who have supplied and commissioned at least TWO numbers of FLUX BAKING OVEN similar to the oven specified under Part B, in the past two years (as on date of opening of Tender) and such oven is presently working satisfactorily for more than one year after commissioning (as on date of opening of Tender) should quote.	
1.3	Vendor has to submit at least one Performance Certificate from their customers, for satisfactory performance of FLUX BAKING OVEN quoted against this enquiry , for a minimum period of one year (as on date of opening tender). For obtaining the Performance certificate, a suggestive format is provided.	
1.4	BHEL reserves the right to verify the information provided by the vendor. In case the information provided by the vendor is found to be false/ incorrect, The offer shall be rejected.	

2.0	INFORMATION TO BE PROVIDED BY VENDOR	
2.1	Year of launch of the model quoted against this enquiry	
2.2	Number of FLUX BAKING OVEN supplied and commissioned till date in the quoted model.	
2.3	The BIDDER/VENDOR to furnish Reference List of Customers	
2.4	Contact details(phone no & email id) including the Address of Agents / Service Centres in India to be provided	

Suggestive Format of Performance Certificate:

The performance certificate should be produced **on Customer's Letter Head.**

PERFORMANCE CERTIFICATE

- | | | |
|---|---|---------------------------------|
| 1 | Supplier of the Flux baking oven | |
| 2 | Make & Model of the Flux baking oven | |
| 3 | Month & Year of Commissioning | |
| 5 | Performance of the Flux baking oven
(Strike off whichever is not applicable) | Satisfactory / Not Satisfactory |
| 6 | After sales service
(Strike off whichever is not applicable) | Satisfactory / Not Satisfactory |
| 7 | Any Other remarks | |

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

PART-B

SPECIFICATION FOR FLUX BAKING OVEN

No. of Flux baking ovens: 07 Nos

The flux baking ovens are required for heating and baking the Welding-Flux used for Submerged Arc Welding process. The welding flux will be held in a metallic tray and loaded in the oven manually with the help of crane. While one tray of flux is under baking, another tray will be kept as standby for next loading. The oven should have a feature of maintaining the inside temperature through programmable automatic temperature controller system. It should have a LED display arrangement for reading the oven temperature.

Sl. No.	Description	Specification	BIDDER'S OFFER
1.0	Type	Electric flux baking oven	
1.1	Operating Temperature range	Ambient to 400 deg.C	
1.2	Rate of Heating	150 to 200 deg. C / hr.	
1.3	Power rating (kW)	Bidder to specify	
1.4	Input power supply	415V±10%, 50Hz, 3Ph (3 wire system – without neutral)	
1.5	No.of flux holding trays	Two Trays to be provided (One tray will be in the oven while another tray will be kept as standby)	
1.6	Temperature controller	The oven should be capable of heating the flux at various temperature values set for the duration as programmed. Minimum 2 programs can be stored.	
2.0	Heating chamber Construction		
2.1	Effective heating chamber dimensions	Bidder to design the heating chamber size based on the tray dimensions for maintaining uniform heat transfer and circulation. Loading of ONE tray per cycle has to be considered. Vendor to provide the proposed design details.	
2.2	No.of Trays per cycle	One.	
2.3	Supports for the trays	Suitable handling supports in stainless steel (SS 304) to be provided to hold the tray and convenient for loading and unloading.	
2.4	Outer shell construction	The outer shell shall be of MS plates of suitable thickness. Vendor to specify the thickness. The construction of oven frame and outer shell shall be rigid enough to avoid distortion due to heat and mechanical handling	
2.5	Internals material	The inner wall shall be made of 2mm SS 304 to withstand temperatures of up to 400 deg. C on continuous duty.	
2.6	Insulation	The construction of insulation between inner shell and outer shell of the oven shall be with ceramic fiber blanket of suitable thickness and density in order to maintain the skin temp.	
2.7	Skin temperature on continuous duty	The skin temperature on all outer walls and door shall not exceed 55 deg C. The ambient temperatures varies between 35 deg C and 45 deg C. Suitable insulation design details to be provided.	

Sl. No.	Description	Specification	BIDDER'S OFFER
2.8	Safety	The Oven should be provided with suitable earthing arrangements as IE regulations. The Oven door shall be electrically interlocked to shut off power when door in open condition.	To be confirmed
2.9	Oven Door	<ul style="list-style-type: none"> a. Oven shall be of single door type construction and loading should be done from the front side of the furnace. b. Handle should be provided on the door for opening and closing of the door. c. Suitable door locking mechanism shall be provided. The door locking shall be tight enough to prevent any hot air from inside the furnace escaping through the gaps. It shall be leak proof. d. The door position should be firm and should not shift with self-weight. Suitable Heavy duty hinges to be provided. e. The automatic engagement of temperature control switch with door while opening and closing to be ensured for long trouble free working life of the oven. 	
2.10	Fan for circulation	<ul style="list-style-type: none"> a. The fan and motor to be mounted on the top. b. The fan to be connected to the motor by a belt drive so that the motor shaft does not get heated up. Forced air circulation is effected by an external pedestal/ flange mounted, belt driven motor for uniformity of inner chamber temperature. c. Vendor to specify motor capacity. d. Make of motor to be Crompton / Bharat Bijlee, NGEF/ABB/KEC/ Siemens. e. Noise level should not exceed 85 dB f. Motors shall conform to IEC or Indian standards 	
2.11	Heating Elements	Ni-Cr 80/20 resistance wires in the form of coils. Vendor to confirm and specify the wire size. Make: KANTHAL (A-1grade/APM grade) OR any other make acceptable to BHEL. The original manufacturer's certificate for resistance wire shall be provided with oven. Heating element drawing showing the constructional aspects & dimensional details are to be submitted along with offer.	
2.12	Design of Heating Elements	Bidder to furnish heating element design drawing with all relevant design details. Mounting of heating elements to be clearly indicated	
3.0	Flux holding tray		
3.1	No.of trays in the chamber at any time	ONE	
3.2	Flux holding capacity of tray	30 kg	
3.3	Material	Minimum 3.15mm Stainless Steel sheet (SS 304) suitably reinforced. Vendor to specify the thickness	
3.4	Tray dimensions	600mm x 450mm x 100mm (DxWxH). Refer annexure-1	
3.5	Handle	Suitable handle to pull or push the tray by hand, to be provided as shown in the sketch	

Sl. No.	Description	Specification	BIDDER'S OFFER
4.0	Flux properties to be considered by the bidder for designing		
4.1	Flux	Agglomerated, fused and bonded	
4.2	Grain size	12 to 65 in Tyler Mesh	
4.3	Bulk density	1.1 to 1.8 kg per litre	
5.0	Temperature control panel: The temperature control panel should consist of the following:		
5.1	Programmable temperature controller with PID function and minimum 2 no. of programs to be stored. 92X92 minimum cut out sized programmable PID temperature controller to be provided. Vendor to confirm.		
5.2	<ul style="list-style-type: none"> a. The controller should have two temperature settings -one high and one low and Timer setting. b. The "set temperature (high)" is to achieved at the specified rate of heating (set temperature in the specified time duration) c. Once the high temperature is reached the Timer should automatically reset for the "holding time "and for the entire holding time, the temperature is to be maintained at the same high temperature. d. After the set "holding time" elapses, the controller is to switch over automatically to low temperature setting. e. Once the low temperature is reached, the controller should maintain the same temperature inside the chamber continuously without any time limit and also without getting disturbed by the opening and closing of the door (i.e.).ON/OFF of the power supply should not affect the programmed value of the temperature. f. Provision to stop and alter the program cycle at any point of time. g. Operator can select the program number/name and can start the cycle. h. The temperature controller shall have Digital Indication 		
5.3	The controller to be calibrated and the calibration certificate to be provided along with the equipment		
5.4	Make of the controller	Eurotherm, Yokogawa, Honeywell, Fuji or Chinu-Laksons	
5.5	Temperature Tolerance	Within +/- 5 deg. C of set temperature	
5.6	Thermocouple	'K' Type thermocouple (Chromel-Alumel) with suitable compensating leads.	
5.7	Switches	<ul style="list-style-type: none"> (i) Fan motor control push button (ii) Control power ON-OFF switch (iii) Heater element contactors (iv) Reset button 	
5.8	Indicators	<ul style="list-style-type: none"> (i) Mains on indicator for three phases separately (ii) Fan on indicator (iii) Heater on indicator 	
5.9	Control Transformer	Control transformer for Single phase supply for control unit to be provided.	
6.0	Location of the control panel: It is preferable that the control panel can be annexed to side of the furnace with adequate protection from heat and vibration. However if it is not possible, then it can be kept separately. All the options as per 5.8 and 5.9 shall be provided at front face of the panel. Vendor to provide details.		

Sl. No.	Description/Specification	BIDDER'S OFFER
7.0	Safety temperature controller: ON/OFF type temperature controller shall be provided to switch off the oven if the temperature of the oven exceeds the maximum SET point of PID controller. Separate contactor (different from the control contactor) to be provided for actuation from the excess/safety temperature controller. This should switch-off the main power in case the control contactor gets jammed.	
8.0	Spares	
8.1	O&M spares (Electrical and mechanical) are to be supplied along with oven: a) Heating elements - 2 sets (Each set must have the entire heating coils used for 3 phases in a single equipment) b) Thermocouple - 3 Nos c) Fan to motor belt - 1 No d) On/Off switch - 1 No	
9.0	General	
9.1	Painting: Durable powder-coated steel exterior with 2 coats of SIEMENS grey RAL 7032 shade for all non-working surfaces. The control panel shall be with one primer coat and 2 coats of SIEMENS grey paint.	
9.2	General arrangement drawing for the oven shall be provided with the offer.	
9.3	Details like rating, specification, make of electric and mechanical bought-out items shall be listed in the general arrangement drawing.	
9.4	O&M manuals: Three copies of the detailed Operation and Maintenance manual and safety instructions in English to be provided along per equipment. The controller operation manual and circuit diagram with proper identification of potentiometers to be provided.	
9.5	Pre Dispatch Inspection: The equipment shall be offered for inspection prior to dispatch at vendors works. One set of documentation to be offered at the time of inspection	
9.6	Commissioning: Supplier to commission the equipment at BHEL works.	
9.7	Performance Guarantee: The equipment performance shall be guaranteed for a minimum period of 12 months from the date of commissioning or 18 months from the date of dispatch whichever is earlier.	

Enclosure: Annexure-1

Annexure I

FLUX HOLDING TRAY

SKETCH (Not to scale)

