



An ISO 9001  
Company

## Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirapalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

<b>ENQUIRY NOTICE INVITING TENDER</b>	Phone: +91 431 257 7653 Fax : +91 431 252 0719 Email : <a href="mailto:skaruna@bheltry.co.in">skaruna@bheltry.co.in</a> Web : <a href="http://www.bhel.com">www.bhel.com</a>
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<b>TWO PART BID</b>  Tender to be submitted in Two Parts	<b>Enquiry Number:</b>  2731200008	<b>Enquiry Date:</b>  dt.24.10.2012	<b>Due date for submission of quotation</b>  dt.24.11.2012
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You are requested to quote the Enquiry number date and due date in all your correspondences. 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 No.	Item Description	Quantity
10	Design , Manufacture , Supply, Erection and commissioning of High Temperature Flux Baking Oven (50 Kg) as per the Technical Specification, & Commercial Conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> )	02 Sets

Important Points to be taken care during the submission of offer:-

1. Bidder's Response Column in technical specification sheet to be duly filled in without fail. Additional details provided in the offer may be supported with documentary evidence.
2. Check list to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.

BHEL's General guidelines /instructions including bank guarantee formats and list of consortium banks, commercial terms checklist 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) Tender Enquiry reference "2731200008"

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  Engineer / MM / Capital Equipment
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**QUALIFYING CRITERIA : PART – A****FOR THE SUPPLY OF “Electrically heated High Temperature Flux baking Oven”– Qty : 2 No.****SECTION – I**

The BIDDER is expected to give complete details against each clause in the table given below, with additional sheets those may be attached (giving clear reference number) to furnish and cover the requisite details / documents.

<b>S. No.</b>	<b>PARTICULARS</b>	<b>BIDDER'S RESPONSE</b>
1	BIDDER to provide the Profile of their Company	
2	The Bidder (OEM) shall have a minimum of five Years of Continuous Experience in the field of Design, Manufacture and Supply of “Electrically heated High Temperature Flux baking Oven”	
3	List of customers to whom “Electrically heated High Temperature Flux baking Oven” were supplied, installed and commissioned till date.	
4	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India.	
5	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

**FOR THE SUPPLY OF “Electrically heated High Temperature Flux baking Oven”– Qty : 2 No.**

**SECTION – II**: The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the “**Electrically heated High Temperature Flux baking Oven**”

<b>S. No.</b>	<b>REQUIREMENTS</b>	<b>BIDDER's RESPONSE</b>
<b>1</b>	Only those Vendors (OEMs), who have Experience of Minimum 5 years in manufacturing of Ovens and supplied and commissioned at least <b>ONE FLUX HEATING OVEN</b> - heating Temp - 1000 °C or more, of capacity 50 Kg or more or above with Programmable temperature controller with circulating fan in the past five years (from the date of Tender) and such equipment is presently working satisfactorily for more than one year after commissioning (from the date of opening of Tender) should quote.	
	The Bidder should submit following information where the “Electrically heated High Temperature Flux baking Oven” have been supplied:	
1.1	Name and postal address of the customer or company where similar equipment is installed.	
1.2	Name and designation of the contact person of the customer.	
1.3	Phone, FAX no and email address of the contact person of the customer.	
1.4	Month and Year of commissioning of the equipment.	
1.5	Application for which the equipment is supplied	
<b>2</b>	Along with the Technical offer, the Bidder should submit the <u>Performance certificates from the customers for the satisfactory performance of the equipment supplied as per clause 1.0 above.</u> (For obtaining the Performance certificate, a suggestive format is provided in <b>SECTION – IV</b> )	
<b>3</b>	Offers of only those Bidders who meet the above Qualifying Criteria will be considered for further evaluation.	
<b>4</b>	BHEL reserves the right to verify the information provided by Bidder. In case the information provided by Bidder is found to be false/ incorrect, the offer shall be rejected.	

FOR THE SUPPLY OF “Electrically heated High Temperature Flux baking Oven”– **Qty : 2 No.****SECTION – III**

The BIDDER has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser:

S. No.	REQUIREMENTS	BIDDER's COMPLIANCE
1	The BIDDER shall submit the offer in TWO PARTS-Technical [ <b>with PART A &amp; PART B</b> ] & Commercial and Price Bid.	
2	The offer shall contain a comparative statement of Technical Specifications given by BHEL and the offered details submitted by the Bidder, against each clause. Merely stating 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words wherever 'Bidder to Specify' details in the technical comparative statement may lead to disqualification of the Technical Offer.	
3	The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.	
4	The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation of the inclusion of all the accessories, tooling's, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
5	BIDDER has to indicate the Country of Origin for the supply of equipment.	

FOR THE SUPPLY OF “Electrically heated High Temperature Flux baking Oven”– Qty : 2 No.**SECTION – IV****PERFORMANCE CERTIFICATE**  
**(On Customer’s Letter Head)**

1. Supplier of the “Electrically heated High Temperature Flux baking Oven” :
2. Make & Model of the “Electrically heated High Temperature Flux baking Oven” :
3. Month & Year of Commissioning :
4. Application for which the “Electrically heated High Temperature Flux baking Oven” is used :
5. Maximum Heating Temperature for which the “Electrically heated High Temperature Flux baking Oven” is used
6. Performance of the equipment : Satisfactory / Good / Average /  
(Strike off whichever is not applicable) Not Satisfactory
7. After Sales Service : Satisfactory / Good / Average /  
Not Satisfactory
8. Any other remarks :

Date:

Signature & Seal of the Authority  
issuing the Performance Certificate

**Electrically heated “High Temperature Flux baking Oven” – Qty : 2 Sets.**

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER With Technical Details
1.0	<b>Scope:</b> The scope of supply includes Design, Manufacture, Supply, Erection and Commissioning of 50Kg. Flux Heating Ovens (2 No.) with complete accessories. Flux Heating Ovens shall be heavy duty Industrial design for <b>long operating life</b> .	
2.0	<b>Application:</b> The Flux Heating ovens are required for heating and drying of “Welding flux” at a temperature of 1100 °C, keeping it at that temperature for a desired duration and then keeping the flux at a desired lower temperature (approx.. 150 – 300 °C) continuously. Welding Flux of 50 Kgs is to be loaded in 4 numbers of trays.	
3.0	<b>Heating Oven Parameters:</b>	
3.1	<b>Type:</b> Electric Oven.	Vendor to confirm
3.2	<b>Maximum temperature:</b> 1200 °C	Vendor to confirm
3.3	<b>Flux heating Temperature:</b> 1100 °C	
3.4	<b>Rate of Heating:</b> Ranging from 20 °C/hr to 200 °C/hr.	Vendor to confirm
3.5	Weight of flux to be handled in a single charge: 50 kg (min).	Vendor to confirm
3.6	Power Rating	Vendor to specify
3.7	<b>Skin temperature:</b> 60 °C (maximum)	Vendor to confirm
4.0	<b>Construction:</b>	
4.1	The oven casing and door shall be of double walled rigid construction with adequate reinforcement and with minimum 200mm of ceramic fiber blanket/ceramic wool insulation in between inner and outer wall. There should not be any heat leak.	Vendor to confirm
4.2	Working height shall be provided for easy operation of the equipment.	Vendor to specify

**Electrically heated “High Temperature Flux baking Oven” – Qty : 2 Sets.**

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER With Technical Details
4.3	The oven shall be mounted on four steel wheels. The front set of wheels shall be of castor wheels. Wheel shall be of minimum 150 mm diameter.	Vendor to confirm
4.4	The base frame shall be rigid enough to transport the oven by using Fork lift and also four Lifting Hooks shall be provided at suitable locations to lift & transport using Crane.	Vendor to confirm
4.5	<b>Door:</b> Furnace door should be of Single swivel door type and loading should be done from the front side of the furnace. Handle should be provided on the door for opening and closing of the door. Also, the door handle shall be fitted with suitable lock for self-locking of the door after closing to prevent heat leakage and it should be able to release the lock by operating the handle for opening.	Vendor to confirm
4.6	<b>Clear heating chamber dimensions (Minimum):</b> 800 mm (Length) X 600mm (Width) X 950 mm (Height) – Please refer Sketch in Annexure-I.	
4.7	<b>Tray:</b> The inner chamber is to be provided with 4 numbers of Stainless Steel Trays to load the flux. Dimensions of Trays shall be designed to hold and handle 12 Kg of Flux and should leave sufficient space between them for all-round heating. The trays shall also be provided with hooks for lifting the trays with flux using crane.	Vendor to confirm & specify the dimensions
4.8	Tray racks made of S.S material shall be provided to hold the above mentioned trays in flux loaded condition with sufficient space between them for better all-round heating. It should be easy to perform manual loading and unloading of the flux filled trays over the racks.	
4.9	In addition to the four numbers of trays mentioned vide 4.7, four more numbers of trays are to be supplied.	Vendor to confirm
4.10	All the 8 trays shall be identical and shall be able to be loaded in any of the rack in the heating chamber (ie) to be interchangeable.	Vendor to confirm

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER With Technical Details
4.11	<b>Internals material:</b> The inner wall and the baffle shall be made of Stainless Steel (minimum of 2 mm thickness) to withstand temperature of up to 1200 °C on continuous duty.	Vendor to confirm & specify the thickness
4.12	Working Chamber (including door) shall be faced with Ceramic Fibre vacuum formed boards.	Vendor to confirm
4.13	<b>Input power supply</b> of 415 V with a fluctuation of +/- 10%, 50Hz, 3Ph (3 wire system-without neutral) will be provided by BHEL.	Vendor to note
4.14	<b>Design of Heating Elements:</b> Vendor to furnish heating element design drawing and Mounting of heating elements	Vendor to furnish
4.15	<b>Heating elements:</b> Ni-Cr 80/20 resistance (Kanthal A-1 grade/APM grade) wires in the form of coils	Vendor to confirm & furnish the details
4.16	Pilot hole shall be provided on the back wall as well as side walls for inserting thermocouple for inspection	Vendor to confirm
4.17	<b>Circulation fan:</b> 1). Suitable fan for air circulation with motor to be mounted on the top of furnace. 2). The fan to be connected to the motor by a belt drive so that the motor shaft does not get heated up.	Vendor to confirm
4.18	Fan Motor capacity	Vendor to specify
4.19	<b>Motor make:</b> Shall be of <b>Crompton</b> / Bharat Bijlee, Siemens, KEC or ABB only.	Vendor to confirm & specify
4.20	Motors shall conform to IEC or Indian Standards	Vendor to confirm
4.21	All adapters / receptacles should have compatibility with Indian equivalents.	Vendor to confirm
4.22	<b>Safety:</b> Heating element contactors to be electrically interlocked with door to shut off power to heaters as door opens and restores power when closed. Also, Suitable protection system should be provided to prevent the operator from electric shock.	Vendor to confirm

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER With Technical Details
<b>5.0</b>	<b><u>Controls:</u></b>		
<b>5.1.0</b>	<b>Functional and constructional requirement of “Temperature and Timer control”:</b>		
5.1.1	Programmable temperature controller with PID function and 4 no. of ramps.	Vendor to specify	
5.1.2	The controller should have two temperature setting – one high and one low and Timer setting.	Vendor to confirm	
5.1.3	The “set temperature (high)” is to be achieved at the specified rate of heating (set temperature in the specified time duration)	Vendor to confirm	
5.1.4	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.	Vendor to confirm	
5.1.5	After the set time elapses, the controller is to switch over automatically to low temperature setting.	Vendor to confirm	
5.1.6	From High temperature to the Low temperature, rate of cooling also to be maintained at the specified rate.	Vendor to confirm	
5.1.7	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 (ie). ON / OFF of power supply as specified in Point No. 4.22 should not affect the programmed value of the temperature.	Vendor to confirm	
5.1.8	By pressing a “Reset” push button, the controller should switch to the high temperature setting and the entire cycle should start again automatically.	Vendor to confirm	
5.1.9	It should be able to stop and alter a program cycle at any point of time.	Vendor to confirm	

**Electrically heated “High Temperature Flux baking Oven” – Qty : 2 Sets.**

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER With Technical Details
5.1.10	Temperature controller shall be with <b>Cr/Al thermocouple ('K' Type)</b> and compensating lead wires	Vendor to confirm
5.1.11	<b>Make of the controller:</b> shall be Eurotherm, Yokogawa, Honeywell, Fuji or Chinu-Laksons only.	Vendor to confirm
5.1.12	<b>Temperature variation</b> within the Oven at any location shall be within +/- 5 °C.	Vendor to confirm
5.1.13	<b>Tolerance:</b> Within +/- 5 °C of set temperature	Vendor to confirm
<b>5.2.0</b>	<b>Requirements in the control panel:</b>	
5.2.1	Digital Panel for program entry and display. Parameters to be displayed in the digital panel are: Set temperature, Actual Temperature inside the chamber, Set Time, Lapsed time and Cycle (High temperature, Rate of heating / time, Holding time, Low temperature and Rate of Cooling / time)	Vendor to confirm
5.2.2	<b>“ON”</b> push button to start a new cycle / program	Vendor to confirm
5.2.3	<b>“OFF”</b> push button to stop the cycle / program	Vendor to confirm
5.2.4	<b>“Reset”</b> push button in the front panel to restart the cycle / program	Vendor to confirm
5.2.5	<b>“Main – ON”</b> indicators for three phases separately	Vendor to confirm
5.2.6	Fan <b>“ON”</b> indicator	Vendor to confirm
5.2.7	Heater <b>“ON”</b> indicator	Vendor to confirm
5.2.8	<b>Control Transformer:</b> Control transformer for Single-phase supply for control unit to be provided	Vendor to confirm.

**Electrically heated “High Temperature Flux baking Oven” – Qty : 2 Sets.**

Clause	PARTICULARS AND BHEL SPECIFICATION		BIDDERS OFFER With Technical Details
5.3.0	<b>Location of the Control Panel:</b> Control panel can either be annexed to side of the furnace with adequate protection from heat or can be a separate electrical control panel. Digital display shall be at the front face of the panel.	Vendor to specify.	
6.0	<b>Spares:</b>		
6.1	<b>O&amp;M Spares</b> (Electrical and mechanical) for <b>two years</b> trouble free operation	Vendor to quote	
6.2	<b><u>Other additional spares :</u></b> a) Heating elements - 2 sets b) Thermocouple - 3 No. c) Fan to motor belt - 2 No. d) Push buttons - 1 No. in each color	Vendor to quote	
7.0	<b><u>Painting:</u></b> All non-working surfaces and control panels shall be given a primer coat & two coats of Heat resistant Aluminium paint	Vendor to confirm	
8.0	<b><u>Documentation:</u></b>		
8.1.0	The following documents (in English) <b>shall be furnished along with the offer :</b>	Vendor to furnish	
8.1.1	GA drawing / detailed catalogue of the offered “Flux heating Oven” with details & dimensions.		
8.1.2	Construction features		
8.1.3	Details like rating, specification, make of electric and mechanical bought-out items shall be listed in the general arrangement drawing		
8.1.4	Catalogues of the Bought-out Items		

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER With Technical Details
<b>8.2.0</b>	3 sets of the following documents (in English) <b>shall be furnished during inspection and supply:</b>	
8.2.1	GA drawing : Exploded view & Cross section details	
8.2.2	Make of Bought out items with Part no/Specification with catalogues	
8.2.3	Guarantee / warranty cards of all bought-outs	
8.2.4	The operator instruction manual	
8.2.5	Maintenance instruction manual	
8.2.6	Safety Instruction manual	
8.2.7	The controller operation manual and circuit diagram with proper identification of potentiometers	
<b>9.0</b>	<b>Acceptance :</b>	
13.1	<b>Acceptance at vendor’s works:</b> The “Flux Heating Oven” shall be offered for BHEL’ Inspection at vendor’s works prior to dispatch. All features shall be demonstrated.	Vendor to confirm
13.2	<b>Acceptance at BHEL works:</b> During commissioning the vendor should demonstrate all features of the “Flux Heating Oven”.	Vendor to confirm
<b>14.0</b>	<b>Installation and commissioning at BHEL:</b> Installation and commissioning of the “Flux Heating Oven” at BHEL shall be in the scope of vendor	Vendor to confirm
<b>15.0</b>	<b>Packing:</b> The “Flux Heating Oven” and other accessories, spares etc shall be packed rigidly to avoid any transit damage and dispatched.	Vendor to confirm
<b>16.0</b>	<b>GUARANTEE:</b> 12 months from the date of acceptance of the “Flux Heating Oven” at BHEL or 18 months from dispatch whichever is earlier.	Vendor to confirm

Clause	PARTICULARS AND BHEL SPECIFICATION	BIDDERS OFFER With Technical Details
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