



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

An ISO 9001
Company

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

ENQUIRY

Phone: +91 431 257 79 39
Fax : +91 431 252 07 19
Email : tvenkat@bheltry.co.in
Web : www.bhel.com

Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
2621000142	15.11.2010	15.12.2010

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	Description	Quantity
10	Electrode Baking Oven as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	6 Nos.

Important points to be taken care during submission of offer:

1. Delivery required 6 months from the date of purchase order.
2. Grace period of 2 weeks beyond the above delivery period will be considered.
3. Check-list to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.

Note: Offer should be

Indigenous Vendors:
FOR, BHEL, Stores
Power Plant Piping Unit
Tirumayam
Pudukkottai Dist

BHEL's General guidelines / instructions 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 Enquiry reference "2621000142".

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.Manager / Capital Equipment / MM

PART-A.**QUALIFYING CRITERIA FOR THE SUPPLY OF ELECTRODE BAKING OVEN****SECTION – I :**

The BIDDER has to necessarily provide the following details, for making an assessment of the firm's capability and competency :

S.No.	PARTICULARS	BIDDER's RESPONSE
1.0	Number of Years of Experience of the BIDDER in the field of Design, Manufacture & Supply of Electrode Baking Ovens with Power Rating not less than 20 kW, for Heavy Engineering/Fabrication Industries	
2.0	Number of Electrode Baking Ovens supplied till date in the following category: a) Power Rating 20 kW and Above b) Weight of Charge 500 kgs. and above	
3.0	Details on Standards or Codes followed in the Design & Manufacture of Electrode Baking Ovens	
4.0	Details of Manufacturing Facilities available for manufacturing Electrode Baking Ovens : a) Fabrication Facilities b) Electrical Panel Building Facilities c) Assembly & Testing Facilities	
5.0	Details of Quality Assurance System followed for Material Procurement, Fabrication and Testing & other Processes involved	
6.0	Details on Network or Set-Up built up for the AFTER-SALES-SERVICE needs by BHEL / Thirumayam Plant	

SECTION – II :

The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the ELECTRODE BAKING OVENS :

S.No.	REQUIREMENTS	BIDDER's COMMENTS
7.0	The BIDDER shall have a minimum of FIVE Years of Continuous Experience of in the Field of Design, Manufacture & Supply of Electrode Baking Ovens of higher power ratings (not less than 20 kW)	
8.0	The BIDDER might have supplied atleast TEN Numbers of Electrode Baking Ovens with Power Rating not less than 20 kW.	

S.No.	REQUIREMENTS	BIDDER's COMMENTS
9.0	The bidding FIRM should have 'in-house' or 'self-owned' facility for FABRICATION and TESTING at the design/rated capacity .	
10.0	Reference List of Customers (including contact addresses) with the specification of Electrode Baking Ovens supplied to them, to be furnished for cross reference by BHEL. In case of any false data or wrong information furnished, might lead to disqualification of the Technical Offer.	
11.0	Performance Certificate from CUSTOMERS (minimum TWO Customers) with details of CONTACT PERSON, for whom Electrode Baking Ovens with Power Rating not less than 20 kW, have been supplied, in the FORMAT given under ANNEXURE-A	

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
12.0	The BIDDER shall submit the offer in TWO PARTS - Technical & Commercial and Price Bid. The Technical Offer shall be in line with the BHEL Technical Specifications and the Guidelines or Annexures mentioned, wherever applicable.	
13.0	The Technical Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each clause of the Tender Specifications.	
14.0	A just 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer .	
15.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details of 'Bought-Out-Items' with copies of Product Catalogue and Selection Criteria	
16.0	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	
17.0	The expected delivery period is six months from the date of issue of Purchase Order by BHEL. Delayed delivery will draw the Penalty Clause. The basic design data and general arrangement drawings are to be submitted for BHEL Approval, prior to taking up of manufacture of the ovens.	

ANNEXURE-A

PERFORMANCE CERTIFICATE – [SAMPLE FORMAT]

(On Customer's Letter Head with Additional Sheet – if necessary)

1. Supplier of the Electric Oven :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Type of Electrodes for which Oven is used :
5.
 - a. Equipment Serial Number :
 - b. Holding Capacity in kgs. per Charge :
 - c. Power Rating of the Oven in kW/ k VA :
 - d. Operating Temperature Range Available :
 - e. Oven Chamber Dimensions :
 - f. Type of Temperature Controller used in Oven :
6. Performance of the Equipment : Satisfactory /
Good /
Average /
Not Satisfactory
7. Feed- back on 'After Sales Service' by the Supplier :
8. Remarks / Reasons for Recommendations to BHEL :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

PART-B.**TECHNICAL SPECIFICATIONS FOR ELECTRODE BAKING OVENS**

S.No.	SPECIFICATION / PARTICULARS		BIDDER'S OFFER
1.0	SCOPE OF SUPPLY		
	a. The scope of supply includes Design, Manufacture, Supply, Installation and Commissioning of Electrode Baking Oven with complete accessories at specified locations in Bharat Heavy Electricals Limited (BHEL), Thirumayam Plant. b. The Baking Oven, including the Electrodes Holding Cage, Controller Unit, etc. shall be a complete package. c. The equipment shall be compact but with good accessibility for routine maintenance. d. The expected life span of the oven is minimum TEN years on continuous usage.		
2.0	APPLICATION		
	The Electrode Baking Ovens are required for heating and drying of welding electrodes used for the fabrication of high pressure pipe line components as per International Codes and Standards.		
3.0	HEATING OVEN PARAMETERS		
3.1	Type	Electric Heating	
3.2	Operating Temperature Range	Ambient to 500 °C	
3.3	Rate of Heating	200° C / hr.	
3.4	Weight of Electrodes	750 kgs. maximum per charge	
3.5	Power Rating (kW)	Bidder to Specify (not to be less than 24 kW and the design calculations are to be submitted with the offer)	
3.6	Input Power Supply	Through a 415 ±10% V, 50Hz, 3 Phase AC System (3 wire system – without neutral)	
4.0	HEATING CHAMBER		
4.1	Clear Heating Chamber Dimensions	Height 950mm X Width 600mm X Depth 600mm.	

S.No.	SPECIFICATION / PARTICULARS		BIDDER'S OFFER
4.2	Internals Material	The inner wall and the baffle shall be made of 2 mm thick SS 304 (or better material) to withstand temperatures upto 500° C on continuous duty.	
4.3	Construction	The oven casing shall be of double wall type construction involving a 200 mm (minimum) thick ceramic fibre blanket / ceramic wool insulation in between inner and outer wall. There shall not be any heat leakage to outside	
4.4	Casing Outer Wall Temperature on Continuous Duty	50 degree C (maximum) – [Thermal calculations are to be submitted with the offer]	
4.5	Operational Safety	A suitable electric interlock shall be provided to cut-off the electric power supply to the Heating Element Contactors, whenever the oven door is opened or kept in open condition.	
4.6	Circulation Fan	<ol style="list-style-type: none"> 1. Suitable electric 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. 	
4.7	Fan Motor Capacity	Bidder to specify	
4.8	Motor Make	Crompton / Bharat Bijlee, NGEF / Siemens	
4.9	Heating Elements	Ni-Cr 80/20 resistance wires in the form of coils.	
4.10	Design of Heating Elements	Bidder has to furnish heating element design drawing and mounting of heating elements.	
4.11	Mounting of Oven	The oven shall be mounted on steel reinforced legs at four corners with a clearance of 180 mm from floor, for easy handling with Fork-Lift Trucks.	

S.No.	SPECIFICATION / PARTICULARS		BIDDER'S OFFER
4.12	Oven Door Type	a. Oven Door shall be of double wall construction with double hinged swiveling type. b. Oven loading shall be from the front side of the oven. c. Handle shall be provided on the door for opening and closing with a spring locking mechanism. d. The surface temperature around the oven door shall never exceed 60 Deg. C, for which proper insulation design and packing to be ensured.	
5.0	ELECTRODE HOLDING CAGE		
5.1	18 Partitions - as shown in the sketch given under ANNEXURE-B		
5.2	The cage size to be as per sketch. Height 900 mm x Width 540 mm x Depth 450 mm		
5.3	The Electrode cage shall be removable to facilitate cleaning of the chamber.		
5.4	The cage with partitions shall be of rigid construction with suitable supports to hold 750 kgs. of Electrodes.		
5.5	The bottom support and sides for each partition should be of at least TWO mm thick stainless steel plates. Plates to be perforated with not more than dia.15mm holes evenly spaced to provide sufficient ventilation for air circulation.		
5.6	The front side of the cage to be open for loading electrodes and the rear side to be covered fully with stainless steel plate without slots.		
5.7	The electrodes holding cage will be kept in the center of heating chamber-leaving space on all sides for air circulation and uniform heat distribution.		
5.8	Stainless Steel sheets and Stainless Steel angle supports only are to be used		
6.0	SYSTEM CONTROLS		
6.1.0	The Temperature and Timer Control Panel shall consist of the following :		
6.1.1	Oven Temperature Indicator cum Controller	Programmable Temperature Controller with PID Function and FOUR number of ramps	
6.1.2	Timer	Bidder to Specify Timer Specifications to suit the Oven Design & Operation	

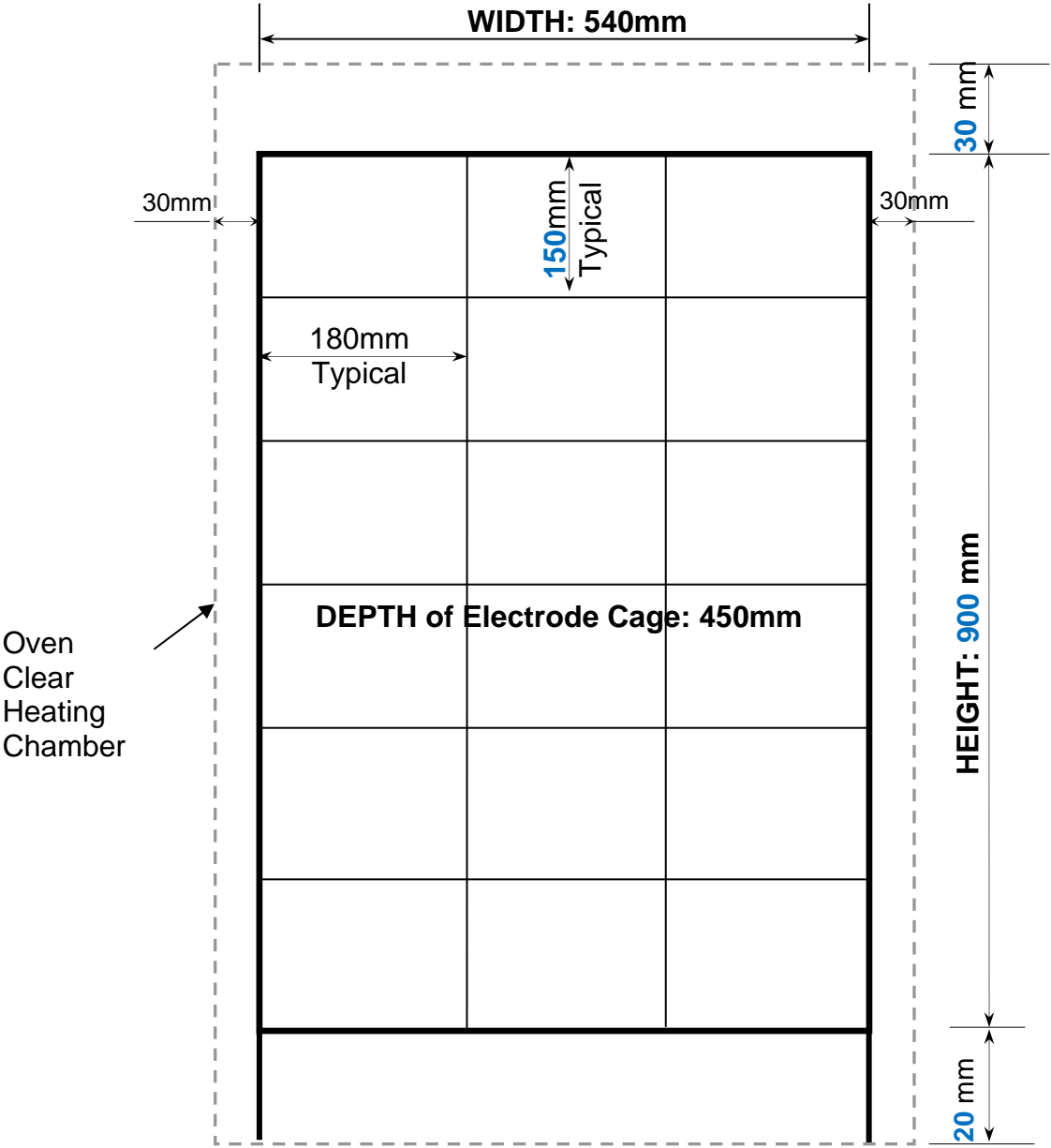
S.No.	SPECIFICATION / PARTICULARS		BIDDER'S OFFER
6.1.3	Switches to be provided	a. Fan Motor Control Push Button b. Control Power ON-OFF Switch c. Heater Element Contactors. d. Reset Button	
6.1.4	Indicators to be provided	a. Mains - ON indicator for three phases separately b. Fan – ON indicator c. Heater- ON indicator	
6.2.0	Temperature and Timer Controller		
6.2.1	Simple Two Set-Point Temperature Controller with timer and re-set button		
6.2.2	The Temperature Controller shall have digital indication		
6.2.3	The temperature inside the oven chamber to be controlled by means of ON/OFF type		
6.2.4	Temperature Controller with <u>Cr/Al Thermocouple ('K' Type)</u> and Compensating Lead wires		
6.2.5	The Controller shall have two temperature settings - one high and one low. Once the high temperature is reached the timer should automatically switch on. Till the set time elapses, the temperature to be maintained at high temperature setting. After the set time elapses, the controller to switch over automatically to low temperature setting for prolonged holding.		
6.2.6	Once the RESET Button is switched on, the Controller shall switch to the high temperature setting and the cycle should start again		
6.2.7	Both the high and low temperature settings and timer shall be settable		
6.2.8	A programmable type of Temperature and Timer Controller which can perform the above functions may be adopted.		
6.2.9	The Controller is to be calibrated and the Calibration Certificate is to be provided along with the Equipment		
6.2.9	Temperature Controller Panel Cut-out Size – Not to be less than 92 mm x 92 mm.		
6.2.10	Make of the Controller	Eurotherm, Yokogawa, Honeywell, Fuji or Chinu-Laksons	
6.2.11	Operating Tolerance	within $\pm 5^{\circ}\text{C}$ of the pre-set temperature value	
6.2.12	Control Transformer for single-phase supply for Control Unit is to be provided		
6.2.13	Pilot hole shall be provided on the back wall as well as side wall for inserting thermocouple for inspection		

S.No.	SPECIFICATION / PARTICULARS	BIDDER'S OFFER
6.2.14	Control Panel can either be annexed to side wall of the OVEN with adequate protection from heat or separate electrical control panel can be provided.	
6.2.15	Temperature Display shall be on the front of the Panel	
7.0	SPARES	
7.1	The Following Spares are to be quoted with Unit Rate a) Heating Elements - 3 Sets b) Thermocouple - 3 Nos. c) Fan to Motor Drive Belt - 3 Nos. d) ON / OFF Switch - 3 Nos.	
7.2	O & M Spares for two year trouble free operation apart from the above listed spares to be listed out along with item wise price	
8.0	GENERAL POINTS	
8.1	Painting: Heat Resistant Aluminium Paint.	
8.2	General Arrangement Drawing for the offered Oven shall be provided with the Technical Offer	
8.3	Details like rating, specification, make of electric and mechanical bought-out items shall be listed in the General Arrangement Drawing.	
9.0	THREE Hard Copies of the detailed Operation and Maintenance Manual with Safety Instructions in English are to be provided with each Oven. The Controller Operation Manual with Electrical Circuit Diagram with proper identification of potentiometers is to be provided separately.	
10.0	The Electrode Baking Ovens shall be offered for BHEL inspection prior to dispatch from the VENDOR's Works.	
11.0	Supplier has to depute Service Technicians and Supervisor for the Installation and Commissioning of the OVENS at BHEL Works.	
12.0	The Performance of the OVEN in total and that of the Bought-out Items shall be guaranteed for a minimum period of TWELVE months from the date of acceptance / commissioning at BHEL Works.	

ANNEXURE - B

ELECTRODE HOLDING CAGE

SCHEMATIC SKETCH (Not to the scale)



Depth of Oven clear heating chamber: 600 mm