



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

An ISO 9001
Company

ENQUIRY	NOTICE INVITING TENDER	Phone: +91 431 257 7938 Fax : +91 431 252 0031 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two parts.	2631400006	14.02.2014	14.03.2014

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.

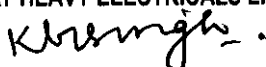
Item	Description	Quantity	Delivery
10	Electrode Baking Oven 100Kg – 54 0^o C as per the technical specification, BHEL commercial terms & conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	2 Nos.	14.06.2014

Important points to be taken care during submission of offer

1. Compliance Form to be duly filled and enclosed along with your offer, failing which the offer will not be considered for evaluation.
2. 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 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 "2631400006".

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

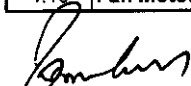
Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**

Engineer/MM / Capital Equipment

KUMAR GAUTAM SINGH
Engineer
MM / Capital Equipment
BHEL, TRICHY - 620 014.

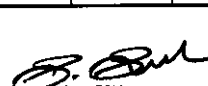
Technical specification for "Electrically heated 100 kg - 540° C Electrode Baking Oven"


Scope of Supply as per specification given below:

Clause	PARTICULARS AND BHEL SPECIFICATION	Qty:	Bidder's response
1.0	Scope: The scope of supply includes Design, Manufacture, Supply, Erection and Commissioning of 100Kg. Electrode Baking Ovens with complete accessories. Electrode Baking Ovens shall be heavy duty Industrial design for long operating life .	2 Nos.	To be confirmed
2.0	Application: The Electrode Baking ovens are required for heating and drying of "Welding Electrodes" to a temperature range between 200°C 540°C, keeping them at that temperature for a desired duration and then keeping the electrodes at a desired lower temperature (approx. 150 – 250 °C) continuously. Welding Electrodes of 100 Kg is to be loaded in 8 numbers of trays.		To be confirmed
3.0	Heating Oven Parameters:		
3.1	Type: Electric Oven.		To be specified.
3.2	Maximum temperature: 600 Deg C (approx)		To be specified.
3.3	Electrode Baking Temperature: 540 °C		To be specified.
3.4	Rate of Heating: Ranging from 20 °C/hr to 200 °C/hr.		To be confirmed
3.5	Weight of Electrode to be handled in a single charge: 100 kg (min).		To be confirmed
3.6	Power Rating; 21 KW (Minimum)		To be confirmed
3.7	Skin temperature: 60 °C (maximum). Thermal calculation to be enclosed.		To be specified & calculation sheet shall be attached.
4.0	Construction:		
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.		To be confirmed
4.2	Working height of around 600mm for the bottom tray from the ground level shall be provided for easy operation of the equipment.		To be confirmed
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.		To be confirmed
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.		To be confirmed
4.5	Door: Oven door should be of Single swivel door type and loading should be done from the front side of the Oven. 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.		To be confirmed
4.6	Clear heating chamber dimensions (Minimum): 500 mm (Length) X 500mm (Width) X 950 mm (Height)		To be confirmed
4.7	Tray: The inner chamber is to be provided with 8 numbers of wire mesh type flat Trays made up of Stainless Steel of suitable rod size to load the Electrodes. Trays shall be designed to hold and handle 12 to 15 Kg of Electrodes and should leave sufficient space between them for all-round heating.	8 x 2 = 16 Nos.	To be confirmed
4.8	Tray racks made of S.S material shall be provided to hold the above mentioned trays with sufficient space between them for better all-round heating. It should be easy to perform manual "pulling out / pushing in" of the loaded trays over the racks.		To be confirmed
4.9	In addition to the 8 numbers of trays mentioned vide 4.7; four more numbers of trays are to be supplied as spare.	2 x 2 = 4 Nos.	To be confirmed
4.10	All the 12 trays shall be identical and shall be able to be loaded in any of the rack in the heating chamber (ie) to be interchangeable.		To be confirmed
4.11	Internals material: The inner wall and the baffle shall be made of Stainless Steel (minimum of 2 mm thickness) to withstand temperature of up to 600 °C on continuous duty.		Materials of construction to be specified.
4.12	Working Chamber (including door) shall be faced with Ceramic Fibre vacuum formed boards.		To be confirmed
4.13	Trays should not come in contact with the heating coils		To be confirmed
4.14	Input power supply of 415 V with a fluctuation of +/- 10%, 50Hz, 3Ph (3 wire system-without neutral) will be provided by BHEL.		To be confirmed
4.15	Design of Heating Elements: Vendor to furnish heating element design drawing and Mounting of heating elements		Drawings to be submitted
4.16	Heating elements: Ni-Cr 80/20 resistance (Kanthal A-1 grade/APM grade) wires in the form of coils		To be specified.
4.17	Pilot hole shall be provided on the back wall as well as side walls for inserting thermocouple for inspection		To be confirmed
4.18	Circulation fan: 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.		Details to be provided.
4.19	Fan Motor capacity		To be specified.


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Scope of Supply as per specification given below:

Clause	PARTICULARS AND BHEL SPECIFICATION	Qty:	Bidder's response
4.20	Motor make: Shall be of Crompton / Bharat Bijlee, Siemens, KEC or ABB only.		To be confirmed
4.21	Motors shall conform to IEC or Indian Standards		To be confirmed
4.22	All adapters / receptacles should have compatibility with Indian equivalents.		To be confirmed
5.0	Safety: (i) 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. (ii) Excess temperature controller is to be provided, which is to be used to shut off the Oven in case of PID controller failure.		To be confirmed
6.0	Controls:		
6.1.0	Functional and constructional requirement of "Temperature and Timer control":		
6.1.1	Programmable temperature controller with PID function and 8 no. of ramps. 92x92 cut out sized programmable PID temperature controller with auto/manual function.		Details & make of controller to be provided.
6.1.2	The controller should have two temperature setting – one high and one low and Timer setting.		To be confirmed
6.1.3	The "set temperature (high)" is to be achieved at the specified rate of heating (set temperature in the specified time duration)		To be confirmed
6.1.4	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.		To be confirmed
6.1.5	After the set time elapses, the controller is to switch over automatically to low temperature setting.		To be confirmed
6.1.6	From High temperature to the Low temperature, rate of cooling also to be maintained at the specified rate.		To be confirmed
6.1.7	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. 5.0 should not affect the programmed value of the temperature.		To be confirmed
6.1.8	By pressing a "Reset" push button, the controller should switch to the high temperature setting and the entire cycle should start again automatically.		To be confirmed
6.1.9	It should be able to stop and alter a program cycle at any point of time.		To be confirmed
6.1.10	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.		To be confirmed
6.1.11	Temperature controller shall be only with mineral insulated (MI) duplex Cr/Al thermocouple ('K' Type) and compensating lead wires.		To be confirmed
6.1.12	Make of the controller: shall be Eurotherm, Yokogawa or Chinu-Laksons only.		To be specified.
6.1.13	Temperature variation shall be within the Oven at any location shall be within +/- 5 °C.		To be confirmed
6.1.14	Tolerance: Within +/- 5 °C of set temperature		To be confirmed
6.2.0	Requirements in the control panel:		
6.2.1	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).		Details of display to be specified
6.2.2	"ON" push button to start a new cycle / program		To be confirmed
6.2.3	"OFF" push button to stop the cycle / program		To be confirmed
6.2.4	"Reset" push button in the front panel to restart the cycle / program		To be confirmed
6.2.5	"Main – ON" indicators for three phases separately		To be confirmed
6.2.6	Fan "ON" indicator		To be confirmed
6.2.7	Heater "ON" indicator		To be confirmed
6.3.0	Control Transformer: Control transformer for Single-phase supply for control unit to be provided		To be confirmed
6.4.0	Location of the Control Panel: 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.		Details to be provided with drawing.


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Scope of Supply as per specification given below:


Clause	PARTICULARS AND BHEL SPECIFICATION	Qty:	Bidder's response
7.0	O&M Spares (Electrical and mechanical) are to be supplied along with the Ovens:		To be confirmed
	A) Limit switch -----	2 Nos.	
	B) Plummer Block -----	2 Nos.	
	C) Fan Motor -----	1 No.	
	D) Contactor for fan -----	2 Nos.	
	E) Contactor for Heater -----	2 Nos.	
	F) Ceramic tube - 3 nos -----	3 Nos.	
	G) Control transformer -----	1 No.	
	H) Indicator -----	3 Nos.	
	I) PID Controller -----	1 No.	
	a) Heating elements -----	2 Sets.	
	b) Thermocouple -----	3 Nos.	
	c) fan to motor belt -----	2 Nos.	
	d) Push buttons - 1 No. in each color -----	1 Set	
e) ON/OFF Switch -----	2 Sets.		
8.0	Painting: All non-working surfaces and control panels shall be given a primer coat & two coats of Heat resistant Aluminium paint.		To be confirmed
9.0	Documentation: 3 sets of the following documents (in English) shall be furnished during inspection and supply:		To be confirmed
9.1	GA drawing : Exploded view & Cross section details		
9.2	Make of Bought out items with Part no/Specification with catalogues		
9.3	Guarantee / warranty cards of all bought-outs		
9.4	The operator instruction manual		
9.5	Maintenance instruction manual		
9.6	Safety instruction manual		
9.7	The controller operation manual and circuit diagram with proper identification of potentiometers		To be confirmed
10.0	Acceptance :		
10.1	Acceptance at vendor's works: The "Flux Heating Oven" shall be offered for BHEL' Inspection at vendor's works prior to dispatch. All features shall be demonstrated.		To be confirmed
10.2	Acceptance at BHEL works: During commissioning the vendor should demonstrate all features of the "Flux Heating Oven".		To be confirmed
11.0	Installation and commissioning at BHEL: Installation and commissioning of the "Flux Heating Oven" at BHEL shall be in the scope of vendor.		To be confirmed
12.0	Packing: The "Flux Baking Oven" and other accessories, spares etc shall be packed rigidly to avoid any transit damage and dispatched.		To be confirmed
13.0	GUARANTEE: 12 months from the date of acceptance of the "Flux Baking Oven" at BHEL or 18 months from dispatch whichever is earlier.		To be confirmed
14.0	Check List: The following documents (in English) shall be furnished along with the technical offer for Technical evaluation:		Requisit documents to be provided
	a) Completely filled " Technical Specification "		
	b) GA drawing / detailed catalogue of the offered "Flux heating Oven" with details & dimensions.		
	c) Construction features		
	d) Details like rating, specification, make of electric and mechanical bought-out items shall be listed in the general arrangement drawing		
	e) Catalogues of the Bought-out Items		
f) Vendors with minimum of 3 years of experience in design, manufacture and commissioning of Ovens of similar capacity only will be entertained. Hence necessary documents to prove the experience and list of customers with year of supply are to be submitted, without which the offer will be disqualified.			

Note: No column shall be left blank in "Bidders response". Values / details shall be provided where ever requested.


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