



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 7653
Fax : +91 431 252 0031
Email : skaruna@bheltry.co.in
Web : www.bhel.com

TWO PART BID

Enquiry
Number:

Enquiry
Date:

Due date for submission
of quotation:

Tender to be submitted in two parts

2601700004

13.05.2017

20.06.2017

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	Qty.	(Indigenous Vendors) Matl. Will be Delivered to
10	"Deep Bore Seat Ring Welding to Valve Body" as per the technical specification, BHEL commercial terms & conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 Set	FOR, BHEL, Stores, High Pressure Boiler Plant, Trichirappalli - 620014

Important points to be taken care during submission of offer

1. Material shall be delivered to (By indigenous vendors): As stated above.
2. By foreign vendors: CFR Chennai Seaport/Airport.
3. Delivery required 7 months (Excluding PDI) from the date purchase order.
4. Erection & Commissioning period required 4 Weeks from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
5. EMD for this Tender will be (INR): 2, 00,000.00.
6. Compliance Forms. TRY/IMP/02 & TRY/IND/02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
7. 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 / GENL 1001 – 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 Enquiry reference "2601700004".

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


S. PARTHASARATHY
MANAGER
CAPITAL EQUIPMENT / MM
BHEL, TRICHY-620014.

PART A***QUALIFYING CRITERIA FOR THE SUPPLY OF*****DEEP BORE SEAT RING WELDING TO VALVE BODY SYSTEM****SECTION – I**

The BIDDER is expected to give complete details against each clause in the table given below and wherever necessary an additional sheet may be attached (giving clear reference number) to cover the required details.

S. No.	PARTICULARS	VENDOR's RESPONSE
1.0	Number of Years of Experience of the BIDDER (Original Equipment Supplier) in the field of design, manufacture and supply of 'Seat ring welding to valve body'	
2.0	YEAR of LAUNCH of the MODEL quoted against this ENQUIRY	
3.0	Number of 'Deep bore seat ring welding to valve body system' supplied, till date in the QUOTED MODEL	
4.0	Details on International Standards followed in Deep bore seat ring welding to valve body system.	
5.0	Comprehensive Details, on Performance Testing of Deep bore seat ring welding to valve body system carried out at the Factory, to be furnished with the Technical Offer.	
6.0	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India, to be furnished compulsorily. The agents / service centers claiming to provide 'Service after sales' shall have been registered as an authorized service agency of the OEM (Original Equipment Manufacturer) on or before the date of release of this tender.	
7.0	BIDDER to indicate the Country of Origin for the supply of Deep bore seat ring welding to valve body system.	

SECTION – II

The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the 'Induction Heat Treatment System'

S. No.	REQUIREMENTS	VENDOR's COMMENTS
8.0	The BIDDER shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of GTAW based welding/cladding systems related to valve components.	
9.0	The BIDDER should have supplied atleast one 'Deep bore seat ring welding to valve body system' with similar capabilities to an Indian (or) International customer. Also, indicate the number of such 'Deep bore seat ring welding to valve body system / machines sold internationally / within India.	
10.0	Reference of the Customer and Performance Certificate with full contact details of CONTACT PERSON, who are the End Users of the MODEL (given under Clause No.10.0) of 'Deep bore seat ring welding to valve body system' that the bidder wishes to offer against the technical specifications provided in this tender	
11.0	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	

SECTION – III

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

S.No.	REQUIREMENTS	VENDOR's COMPLIANCE
12.0	The BIDDER shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.	
13.0	The Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each clause. 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. In case of any deviations in any of the technical specifications, such deviations	

DEEP BORE SEAT RING WELDING TO VALVE BODY SYSTEM SPECIFICATIONS

	should be clearly specified in the comparative statement. All systems and sub systems proposed in the solution should be detailed in description with illustrations/photographs, if required	
14.0	The BIDDER shall assure a continuous support for SPARES and SERVICE for five years, from the date of commissioning of the equipment at BHEL Works.	
15.0	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details / literature on the QUOTED MODELS of Deep bore seat ring welding system(s).	
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 for the scope of supply.	
17.0	Earlier performance & field experience (service support) with BHEL (if any) will be a reckoning factor for the technical qualification of the OFFER. Vendor can quote of supply to BHEL units of systems of similar capability.	

PART B

TECHNICAL SPECIFICATIONS FOR 'DEEP BORE SEAT RING WELDING TO VALVE BODY'

AA. APPLICATION :			
Sl.No.	FEATURES / BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
AA.1	This shall be a system (complete with accessories) capable of carrying out welding of seat ring to valve body (both of Inconel 617 material). This system shall work on GTAW welding and shall be a compact work station configuration including positioners for holding valve body. The system should offer a mechanized solution for the torch to travel through at least 600 mm inside the valve body and fuse the body with the Inconel seat ring. The schematic of the valve and seat ring for the application is provided in Annexure I. Further, the system offered shall be capable of viewing the weld inside using a camera provided with the torch and pre heating arrangements for the valve body. Suitable column and boom arrangements with a turntable/positioner shall be a standard part of the system.		
BB. MACHINE CONFIGURATION : [The scope of supply shall consist of the following]			
Sl.No.	FEATURES / BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
BB.1	Deep Bore Seat ring welding to valve body system that caters to all dimensional and functional requirements of the valve body in Annexure I.		
BB.2.	Turn table/positioner for holding the valve body with minimum 2 tonne capacity		
BB.3	Column and Boom to support the torch positioning inside the valve body and is to be operated with servo controls.		
BB.4	Integrated closed loop water cooling system for torches. There has to be a wire feeder unit with a 0.1 to 11.0 m/min for the torch.		
BB.5	Data logger and recorder for operating process variables in the system		
BB.6	System controllers with HMI option should be made available with touch screen options. Remote control HMI is mandatory apart from system controls at individual locations (as applicable).		

Deep Bore seat ring welding to valve body equipment

BB.7	Camera unit to visualise the process inside the valve. The functioning and control of this camera unit should be controlled with the HMI functions and also for data logging.		
BB.8	Pre heating provision for the valve body.		
BB.9	Other mandatory/indispensable accessories including mounting brackets, ground cables and hoses.		
BB.10	Operation & Maintenance Manuals of all components and systems- Two Copies in both hard and soft forms.		
BB.11	Commissioning of Equipment at BHEL Works and Performance Prove-out of the offered equipment by Supplier/Supplier's representative		

CC. EQUIPMENT SPECIFICATION : DEEP BORE SEAT RING WELDING TO VALVE BODY				
Sl.No.	FEATURES	BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
CC.1	Type & rating	The following three power sources are to be provided with the machines: (i) State of the art Inverter based GTAW power source with current capacity upto 500 A. This is to have a 100% duty cycle at minimum of 300 A. (ii) For Hot wire in GTAW, a power source of minimum of 200 A rating. It should have 100% duty cycle at a minimum of 140 A. (iii) A power source or 75 KVA (6 channels) rating for electrical heating requirement. It is to provide safe low voltage power to feed flexible heaters for the purpose of preheating & post weld heat treatment.		
CC.2.	Primary side Voltage	400/440 V (AC)		
CC.3.	Primary Side Current	250 A		
CC.4.	Primary side frequency	50 / 60 Hz		
CC.5.	Connection to Mains	There shall be a suitable connection (wires/hoses/cables etc.) between the input terminals of the power source with the main supply of our factory.		

Deep Bore seat ring welding to valve body equipment

CC.6.	Portability	The power source shall be mounted on with hard rubber lined wheels for portability of the power source by manual pushing to various places, as and when required. If the power source is made part of the system, then portability is not an issue.		
CC.7	Power cable	Suitable power cables shall be provided for all power sources for connections to the job. All cabling and hose requirement from the system/equipment till the input power supply and to the job is in the scope of supply of the vendor. He can consider suitable length as per the dimensions of the supplied component.		
CC.13.	System Controller	There shall be a program controller for precisely programming, executing and controlling the GTAW weld joint, by means of an appropriate feedback control system. The detailed requirements of the program controller are provided below: The program controller shall allow for inputting the following details with regard to the welding of seat ring to valve body welds: (1) The control system is to be integrated into the setup and should be able to offer control to welding head, welding power source, water cooling mechanism, camera unit and be offered through a programmable approach. It should be possible to set, view and control welding parameters through a HMI display for operator. (2) System controller should be able to effect continuous speed of rotation for the torch in the range of 0.2 – 2 rpm (speed upper limit can be increased at the discretion of the vendor) with continuous step less changes. (3) The axial position of the torch should be adjustable with ± 5 mm range. The weld head should remain stationery allowing the welding torch to rotate during operation. (4) System controller functions are to be integrated in a programmable controller based HMI and offer functions to all systems and sub systems configured for the Deep Bore welding of seat ring to valve body system.		

CC.14.	Cooling arrangement for the power source	There shall be a forced ventilation housing provided in the induction heating power source.		
CC.15.	Total noise emission during operation	The total emission of the sound from the equipment should comply with applicable international standards.		
CC.16.	Digital Control	All control functions indicated in the system/subsystem/equipment should be digital in nature.		
CC.17.	Power Input	The power source and other accessories of the equipment shall be capable of working by accepting input supply in the following condition 415 ± 10% V AC, 3 Phase, 50 ± 2% Hz, through a 3 Wire System [4 th wire for EARTHING] – No Neutral Conductor		
CC.18.	Protection [BIDDER has to specifically furnish technical details on how these protective measures are addressed in the Machine Design]	a) Inbuilt protection for the Power source against Overload / Short-Circuit conditions b) All electronic circuitry of the power source shall be protected suitably to prevent damage from dust and grinding particles c) Machine Design to ensure proper earthing for the machine and its peripherals d) Degree of protection shall be according to IP 21 e) All emergency/fault detection/identification/Alarm/Annunciators to be made standard part of configuration. f) Protective Sheathing to be provided for the cables so as to withstand shopfloor/operating environment rough use for the entire length of the cables.		
CC.19.	Motion Controls	Torch rotation: constant or pulsed Wire feeding: constant or pulsed/automatic wire retract. Should be having precise and smooth transport of the filler metal from the wire spool to the work piece for the dimensions specified. Arc Voltage Control, Torch Oscillation Welding speed: minimum of 50 mm/min.		

CC.20.	Welding Torch	- Integrated Closed loop water cooling system for torches with flow safety valve - If there are different torches to approach the depth requirements with respect to the valve body diameter (ranging from 25 mm till 350 mm) and depth upto 1000 mm then all the torches should be supplied individually with adapter and accessories.		
CC.21.	Torch Oscillation Unit	AC servo controlled oscillation unit with 75 mm stroke length, 3 to 40 mm width, dwell time of 0 to 2 seconds (both right and left) and speed of 150 mm till 2500 mm /min.		
DD. EQUIPMENT SPECIFICATION : DATA RECORDER FEATURES				
S.No.	PARTICULARS	BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
DD.1.	Application	The data recorder shall be capable of measuring and recording all operating variables including voltage, current, gas flow rate etc. for the entire duration.		
DD.2.	Configuration	The recorder should have sufficient channels to record the operating variables including the pre heat temperature of the valve body and sufficient provisions to take the data away for further processing.		
DD.3.	Software	Any software requirements for addressing the data recording and processing (to analyse the data in a computer in different forms) to be supplied as part of the system.		
DD.4.	Input Power	Shall operate in 230 V AC input power		
EE. EQUIPMENT SPECIFICATION : OTHER MANDATORY/INDISPENSABLE ACCESSORIES FEATURES				
S.No.	PARTICULARS	BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
EE.1	Type	Other mandatory/indispensable accessories required for using the offered equipment for the application mentioned in item number AA.1 shall be supplied in sufficient numbers for trouble-free operation of the equipment for a year. (This is not withstanding the guarantee/warranty period)		
FF. OPERATION & MAINTENANCE (O&M) MANUALS :				

S.No.	PARTICULARS	BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
FF.1	No. of Copies	2 (Two) sets containing manuals of the equipment consisting of all the items mentioned in item numbers BB.1 to BB.5 to be sent along with the machine both in hard and soft copy formats.		
FF.2	Language	English		
FF.3	Manual Details :	a. Manual shall contain all instructions for machine installation and for all components/systems supplied by the vendor. b. Manuals shall described all operating parts of the system with illustrations and diagrams c. Manuals shall include step by step guide for all programming features of HMI. d. Manual shall contain general circuit diagrams, showing the interconnection of various elements and also details on PCBs [Printed Circuit Board] like tapping voltages, main electronic elements' specifications and ratings, etc. e. Manual to give other details like troubleshooting details, safety precautions and working procedures for all sub systems/ systems. f. Master List of Parts & Spares used in the systems with Make, Model, Rating, etc.		

GG. GENERAL POINTS :

S.No.	PARTICULARS	BHEL SPECIFICATION	OFFER BY BIDDER	DEVIATIONS
GG.1.	Commissioning	The equipment shall be installed and commissioned at free of cost by the supplier/supplier's representative at BHEL Works.		
GG.2.	Pre-dispatch Inspection	The equipment shall be submitted for pre-dispatch inspection (PDI) at the manufacturer's works by BHEL Engineers before despatching the same to the BHEL, Trichy.		

GG.3.	Training	The Supplier's SERVICE ENGINEER shall give training in the Operation and Maintenance of the Machine for BHEL Staff, after the successful commissioning of the equipment at WRI.		
GG.4.	Guarantee	The equipment shall be guaranteed for a minimum of 24 months from the date of commissioning at WRI/BHEL		
GG.5.	Warranty	The machine shall have warranty of at least twelve months from the date of commissioning at WRI, BHEL		
GG.6.	Calibration certificates	Calibration certificates for all machines, meters and equipment to be provided by the vendor.		

Deep Bore seat ring welding to valve body equipment

Annexure I: Drawing of the Valve body

