



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

An ISO 9001
Company

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
	2620800051	04.07.2008	04.09.2008

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

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Laser Hybrid Welding System as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	1 No.	30.06.2009

Note:

1. A pre-bid conference is proposed to be conducted with prospective vendors to clarify any clause of the tender document. Modifications, if any, would be carried out to the tender document based on the pre-bid discussion and this will form the basis for inviting techno-commercial offer and price bids.
2. Pre-Bid Conference will be held on the date, time, and venue given below
DATE OF PRE-BID CONFERENCE: 4th & 5th August 2008
TIME: 10 AM onwards
VENUE: BHEL, Tiruchirappalli – 620 014

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats along with technical specifications 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 "2620800051".

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 Manager / Capital Equipment / MM
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NOTICE INVITING FOR PRE-BID CONFERENCE



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Bharat Heavy Electricals Limited
(High Pressure Boiler Plant)
Tiruchirappalli – 620014, TAMIL NADU, INDIA
CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

TENDER NOTICE: No 2620800051 dated 04.07.2008

1. BHEL Tiruchirappalli has invited a Tender for supply of “Laser Hybrid Welding System”
2. A pre-bid conference is proposed to be conducted with prospective vendors to clarify any clause of the tender document. Modifications, if any, would be carried out to the tender document based on the pre-bid discussion and this will form the basis for inviting techno-commercial offer and price bids
3. The preliminary tender document on which pre-bid discussions will be held is displayed in our Web Site www.bhel.com under the head Tender Notices as well as in <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page under enquiry reference “2620800051”)
4. Prospective bidders are requested to study the preliminary tender documents and submit their request for clarification, if any, in the format shown below so as to reach Manager, Capital Equipment, MM (tvenkat@bheltry.co.in) Phone +91 431 257 7938 positively before the date of Pre-Bid Conference

Sl. No	PART A / PART B of Tender Document	Page No	Clause No	Subject	Query / Clarification Required

5. Prospective bidders can attend the Pre-Bid Conference on the date and venue mentioned. They are requested to come prepared for stay at Tiruchirappalli for a period of 1 to 2 days. Pre-bid conference will be held in the presence of all the prospective bidders or their authorized representatives
6. Tender documents, with modifications if any, consequent to the Pre-bid Conference, will be will be posted in our web site by **11.08.2008** and the offer to be submitted shall be within the framework of the Tender documents posted after the Pre Bid conference.



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7. Prospective bidders are requested to furnish the contact person's name, phone number, fax number, e-mail ID etc
8. Pre-Bid Conference will be held on the date, time, and venue given below

DATE OF PRE-BID CONFERENCE: 4th & 5th August 2008

TIME: 10 AM onwards

VENUE: BHEL, Tiruchirappalli – 620 014

PART A**QUALIFYING CRITERIA FOR THE SUPPLY OF
LASER HYBRID WELDING SYSTEM****SECTION – I**

The BIDDER / VENDOR has to compulsorily meet the following requirements to get Qualified for submitting an offer for **Laser Hybrid welding system**

S. No.	REQUIREMENTS	Vendor's RESPONSE
1	The BIDDER shall have a minimum of THREE Years of Continuous Experience in the field of Design, manufacture and supply of similar system.	
2	Only those vendors, who have supplied, and commissioned at least one such system for similar applications in the past five years (on the date of opening of Tender) and such system is presently working satisfactorily for more than one year after commissioning (on the date of opening of Tender), should quote. However, if such system (s) has/ had been supplied to BHEL, then such system should be presently working satisfactorily for more than six months after its commissioning and acceptance (on the date of opening of Tender).	
2.1	The vendor should submit the following information where similar system have been supplied, for qualification of their offer.	
2.2	Name and postal address of the customer / company where similar system is installed.	
2.3	Name and designation of the contact person of the customer.	
2.4	Phone, FAX no. and email address of the contact person of the customer.	
2.5	Month and Year of commissioning	
2.6	Application for which the system is supplied.	
2.7	One Performance certificate from the customers regarding satisfactory performance of system supplied to them. The certificate should be current and on the letterhead of the Customer. It should contain information regarding model / Size of system, year of commissioning and performance of M/c.	
3.0	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 – I 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.

S. No	PARTICULARS	VENDOR's RESPONSE
4	Profile of the Company bringing-out the years of Experience of the BIDDER in the field of design, manufacture, integration and supply of Laser Hybrid welding system	
5	Number of Laser Hybrid welding systems supplied, installed and commissioned till date for similar applications (with details on system type / model, configuration, customer and quantity)	
6	YEAR of supply of latest, Laser Hybrid welding system for welding applications and the Technical Specifications of the System supplied [Details to be furnished]	
7	Details on the Firm's Registration and the FINANCIAL STRENGTH of the COMPANY (Balance Sheet for the last 3 years) shall be submitted with the TECHNICAL OFFER	
8	Details on International Standards / Design Process Codes followed in Design and Manufacture of the Equipment.	
9	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in India. Competency & Experience of the Local Service Agency are to be provided	
10	Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment	

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 RESPONSE
11	The BIDDER / VENDOR shall submit the offer in TWO PARTS-Technical [with PART A & PART B] & Commercial and Price Bid.	
12	The Technical Offer shall be supported by Product Catalogues and description.	
13	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 mere 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement [without any supporting technical write-ups, photos and datasheets] may lead to disqualification of the Technical Offer.	
14	The BIDDER / VENDOR shall assure a continuous support for the supply of SPARES and SERVICE for TEN Years, from the date of commissioning of equipment at BHEL Works.	
15	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, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.	
16	Soft copy if any, giving the salient features of the proposed machine with all sub-systems and auxiliaries, and /or showing live-demo of an existing and working machine of similar configuration and capacity may be provided.	
17	BIDDER has to indicate the Country of Origin for the supply of equipment.	
18	The reference List of Customers shall be accompanied with (Phone Number and E-Mail ID) of the CONTACT PERSON for cross reference by BHEL	
19	In case of preliminary qualification of the offer, on technical grounds, the BIDDER may be called for a detailed technical discussion on the original technical offer at BHEL Works, with a sufficient notice period.	

PART – B
TECHNICAL SPECIFICATION FOR LASER – MIG HYBRID WELDING SYSTEM

Sl. No	Particulars and BHEL specification	Bidder's offer (With Complete Technical Details)
1.0	Purpose	
	<p>To carryout capacitor box welding by Laser –MIG Hybrid welding system using a Robot as per the following details:</p> <p>Product : CAPACITOR BOX at BHEL, Bhopal Material & thickness : SS409Ti, 1.6 to 2.0mm Input parts : Sheet for rectangular box and sheet for bottom side enclosure Approx. dimensions : LxBxH : 880 x 400 x 170mm Weld length : 2000 - 2500mm Welding speed : 2000 – 2500mm/min Final product : One side opened rectangular box Acceptance criteria : Leak proof weld joints</p>	
2.0	Scope of supply	
	<p>All the systems should be supplied for the following working environment: Power availability: Three phase three wire supply - 415V ±10%, 49-51Hz Working temperature: max: 40deg C and min: 10 deg C Following are the major scope of supply:</p> <ol style="list-style-type: none"> 1. High accuracy Industrial Robot for laser applications 2. Robot controller 3. Laser hybrid welding head 4. Two axis positioner with controls 5. Laser source 6. Chiller unit 7. MIG welding equipment 8. Seam tracking system with vision based laser range profile sensor 9. Media supply for laser hybrid package 10. Clamping unit for job holding 11. Laser cabin 12. Operating Software (OS) for operation and control 13. Industrial fume extraction system 14. Laser Safety Goggles 15. Manuals 16. Spare parts 	
3.0	<p>High accuracy Industrial Robot for laser applications: No of axis : Six Pay load: 60kg Supplementary load : 35kg Reach : 2000mm min at max payload Repeatability: ± 0.15mm</p>	

4.0	Robot controller Control cabinet- Modular type; Processor unit – with CD drive, Ethernet interface, with battery back-up; programming using windows OS Power stack Position sensor Hand held teach and control pendant with necessary interface for laser and MIG system, with 10m connecting line	
5.0	Laser hybrid welding head With PC as operating panel - windows XP based; Tele-diagnostic system Optics for welding and CCD camera for job location	
6.0	Two axis positioner with controls Capacity: 400kg to carry clamping fixtures and the job while welding One rotational and one tilting axis Speed of rotary axis : 120deg/s Speed of tilt axis : 90 deg/s Rotational radius : ± 190 deg reverse drive Tilting axis : ± 90 deg Provision for welding current transmission via busbar Should be as a synchronous additional axis to the robot	
7.0	Laser source Capacity: 2000watts; Nd:YAG diode – pumped Solid state laser source; Fiber optic cable : 15m length with 600micron Pilot laser and optical arrangement for beam transportation Programme storage and Ethernet interface	
8.0	Chiller unit Water- water chiller suitable for 2000watt diode-pumped Nd:YAG laser system Water inlet temperature : 10 deg to 40deg C	
9.0	MIG welding equipment With interface for process control Profi bus for communication Remote maintenance via modem Provision for expansion for two wire welding; Inverter power source of 450A at 60% duty cycle Suitable 4 wheel driven wire feeder to feed 0.8, 1.0 and 1.2mm stainless steel wires from standard wire spools.	

10.0	Seam tracking system with vision based laser range profile sensor Detection of seam position with a resolution better than 0.05mm Measurement of absolute distance between work piece and sensor head Suitable interface with robot The system shall have standard in-built safety features such as Infrared sensors for work boundary definition, Anti collision system for robot & Interlocks for welding power sources etc	
11.0	Media supply for laser hybrid package Electrical interfaces Pneumatic interface - Pressure switch and display Other interfaces like cross jet, gas flow indicator etc.	
12.0	Clamping unit for job holding To hold the rectangular profile box during the longitudinal welding and to hold in place the bottom enclosure sheet during assembly and welding, with necessary clamping frame, adjustable retaining mechanism to suit different dimensions of capacitor box	
13.0	Laser cabin Steel cabin with minimum dimension of : 5000 x 5000 x 3200mm (L x B x H), with one slidable loading door and one maintenance door. Enclosure consisting of lighting, video control and exhaust system. Suitable laser safety provisions to isolate the work centre from the surrounding work area; Safety interlocks	
14.0	Operating Software (OS) for operation and control Windows based OS for operation and control with provision for upgrading to higher versions	
15.0	Industrial fume extraction system Suitable industrial fume extraction system for laser welding with a minimum of 95% dust collection efficiency	
16.0	Laser Safety Goggles Minimum 6 nos of safety goggles for Nd:YAG wave length of 1.06micrometer	

17.0	<p>Manuals Three sets of following documents (3 Hard copies & soft) in English language</p> <p><u>Machine Operation manuals:</u></p> <ul style="list-style-type: none"> Operating manuals of Machine & Robot with machine specifications, detailed operating instructions for machine operation, setting of machine parameters, precautions, and machine safety details. Programming Manuals of Power source, Laser & Robot system. <p><u>Maintenance and trouble shooting manuals:</u></p> <ul style="list-style-type: none"> Detailed Maintenance manual of machine with all drawings of assemblies/sub-assemblies/parts and part list, Electrical circuit diagrams. Maintenance, Interface & commissioning manuals for system & drives Manufacturing drawings for all supplied holders, adapters, fixtures etc if any. Catalogues, O&M Manuals of all bought out items including drawings, wherever applicable. Detailed specification of all wear items and fittings with part nos. The vendor shall submit complete Master List of parts used in the machine. One additional set of all the above documentation on CD On line fault diagnostic system 	
18.0	<p>Inspection Inspection of the total system and typical job trials at suppliers works before dispatch.</p>	
19.0	<p>Installation and commissioning The total system is to be commissioned at BHEL, Bhopal and actual job welding to be proved</p>	
20.0	<p>Civil foundation Civil and foundation details for Robot, fixtures, positioner and working cabin to be provided by the supplier</p>	
21.0	<p>Warranty : 2 years</p>	

22.0	<p>General Points</p> <ul style="list-style-type: none"> • Make and Model of the machine to be mentioned. Detailed catalogs of the machine to be sent with the offer • Complete description of all systems & sub-systems shall form part of the technical bid • A schematic diagram showing the layout of the machine & associated systems with salient dimensions shall be submitted along with the offer • The operating sequence of the machine with broad outline of various operations involved should be furnished with the offer • Standards for Design, Manufacture and testing of the machine shall be in accordance with internationally accepted standards • Total weight of the Machine & Sub-Systems, Weight of the heaviest part of the machine • Total connected load KVA • Floor area required (Length x width x height) for complete machine and accessories 	
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