



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
Email : skaruna@bheltry.co.in,
prince@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	2601700020	19.05.2017	22.06.2017

You are requested to quote the Enquiry number date and due date in all your correspondence. 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	IGBT controlled DC pulsed SMAW/GTAW portable single phase power source – 200 Amps rating as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	4 Nos.

Important points to be taken care during submission of offer

1. Compliance Form No: TRY/IMP/03 & TRY/IMP/03A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. Delivery period required is 3 months from the date of P.O.
3. Commissioning and performance prove out shall be done at BHEL Trichy by the supplier
4. Time period required for commissioning and performance prove out shall be 3 weeks from the date of intimation by BHEL
5. EMD for this tender Rs.40,000/-
6. 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/001- EMD), compliance form and technical specification 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.

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

Devasi
PRINCE DEVASI
Engineer

Engineer / Capital Equipment / MM

PART A**QUALIFYING CRITERIA FOR THE SUPPLY OF IGBT CONTROLLED DC PULSED SMAW/GTAW PORTABLE SINGLE PHASE POWER SOURCE - 200 AMPS RATING.**

SECTION: I - The BIDDER is expected to give complete details against each clause in the table given below and wherever necessary additional sheets may be attached (giving clear reference number) to cover the requisite details.

S.No.	PARTICULARS	VENDOR'S RESPONSE
01	Number of Years of Experience of the VENDOR (Original Equipment Supplier) in the field of design, manufacture and supply of 'INVERTER/IGBT CONTROLLED DC PULSED SMAW/GTAW portable Single phase Welding Machines for Radiographic Quality Welding Applications for Pressure Parts Fabrication	
02	YEAR of LAUNCH of the MODEL quoted against this ENQUIRY - Vendor to Specify	
03	Number of "INVERTER/IGBT CONTROLLED DC PULSED SMAW/GTAW PORTABLE SINGLE PHASE Welding Machines supplied to FABRICATION / MANUFACTURING INDUSTRIES, till date in the QUOTED MODEL	
04	Number of 'Inverter Controlled DC pulsed SMAW/GTAW Portable single phase welding Machines (200 Amps. Rating with 60 % Duty Cycle)' supplied and commissioned till date.	
05	Details on International Standards followed in Design and Testing of the subject model of Welding Machines – copies of the relevant standards (IEC/EN/ISO) are to be furnished with the TECHNICAL BID compulsorily.	
06	Comprehensive Details on Performance Testing of Welding Machines carried out at the Factory are to be furnished with the TECHNICAL BID compulsorily.	
07	Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India, to be furnished compulsorily - to ensure continuous equipment availability.	
08	VENDOR to indicate the Country of Origin for the supply of welding machines.	

SECTION : II - The VENDOR's offer need to compulsorily contain the following to get qualified for submitting an offer for the 'Inverter Controlled AC/DC TIG Welding Machine'.

S.No.	PARTICULARS	VENDOR'S RESPONSE
9	The VENDOR shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of 'Inverter Controlled DC Pulsed SMAW/GTAW portable single phase Welding Machines' (for quoted model).	

S.No.	PARTICULARS	VENDOR'S RESPONSE
10	The VENDOR should have supplied a minimum of 50 number of 'Inverter Controlled DC Pulsed SMAW/GTAW portable single phase Welding Machines 'with rating 200 Amps. (@ 60 % Duty Cycle) and above to Customers in India. VENDOR has to furnish the customer list with contact details, giving the number of such Welding Machines supplied to them.	
11	Bidder has to submit Performance Certificate from minimum 3 customers (Heavy Engineering / Fabrication Companies) for satisfactory performance of the equipment (stated under Clause No. 10.0) for a minimum period of 1 year from the date of commissioning (as on the first date of opening of tender) from customers to whom such equipment has been supplied. A suggestive format of the performance certificate is enclosed in Annexure A.	
12	If warranted, two number of welding machines in the quoted model shall be demonstrated for a period of 15 days at BHEL for performance prove-out and design evaluation.	

SECTION : III -The VENDOR has to comply with the following, for accepting the Technical Offer for scrutiny and evaluation by the Purchaser

S.No.	PARTICULARS	VENDOR's COMPLIANCE
13	The VENDOR shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial Terms and Price Bid.	
14	The Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the VENDOR, against each clause. A just 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical offer may lead to disqualification of the Technical Offer	
15	The VENDOR shall assure a continuous support for SPARES and SERVICE for TEN Years, from the date of commissioning of the equipment at BHEL Works.	
16	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details / literature on the QUOTED MODEL of Welding Powersource.	
17	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.	
18	Earlier performance & field experience (service support) with BHEL (if any) will be a reckoning factor for the technical qualification of the OFFER.	
19	The expected delivery period (including the time for Pre-Dispatch Inspection clearance by BHEL) for the welding machine is not more than 20 weeks from the date of issue of BHEL Purchase Order.	

Enclosure : ANNEXURE – A (Performance Certificate)

ANNEXURE-A

PERFORMANCE CERTIFICATE

The Performance of the subject model Welding Powersource should be certified by the customer on Customer's Letter Head, in the following pattern/format and submitted along with the TECHNICAL OFFER positively.

- 1.0 Name of the Machine Supplier (OEM) :
- 2.0 MODEL/MAKE of the Welding Machine :
- 3.0 Month & Year of Commissioning of the Machine :
- 4.0 Brief Details on the Application/Use of the Machine :
-
- 5.0 Performance of the Welding Machine stated above : Very Good /
Satisfactory /
Not Good
- 6.0 Availability of the Welding Machine stated above : Good / Poor
- 7.0 Service After Sales support given by the OEM /
Indian Representative, including spares supply : Satisfactory /
Not Satisfactory
- 8.0 Special Remarks / Recommendations :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

To

DGM / Purchase

MM / SERVICES

BHEL /TRICHY – 620 014

PART B**TECHNICAL SPECIFICATIONS FOR IGBT CONTROLLED DC PULSED SMAW/GTAW
PORTABLE SINGLE PHASE POWER SOURCE - 200 AMPS RATING**

S.No.	SPECIFICATION PARTICULARS	VENDOR's RESPONSE
1.0	Application : The proposed Welding Power source is intended for use in manual welding modes for the processes GTAW (with and without PULSED Mode) and SMAW process for Radiographic Quality Welds like Butt Joints (coming in plates and pipes), Fillet Welds, and Single Groove Welds with 200 Amps power rating at various sites	
2.0	Machine Configuration : To suit to the below given applications	
2.1	Welding Power source shall be portable and suitable for connecting in single phase power supply	
2.2	Manual Arc Welding (MMAW) Control Unit Integrated with Power source (For Hot Start & Arc Dynamics Control)	
2.3	Power source shall be suitable for DC pulsed GTAW Welding and GTAW Welding with High Frequency unit and also with Scratch Start	
2.4	Set of Inter-Connecting Cables, Hoses, Quick-fix connectors, Adaptors, etc.	
2.5	Welding Cable and Welding Holder for Manual Arc Welding for a length of 15 mtrs. from the Welding Power source	
2.6	Return Current Cable with Screw or Crocodile Grip Earth Clamp with 15 mtrs. length	
2.7	Weight of the machine – Not to exceed 15 kgs.	
2.8	External dimensions of the machine - vendor to specify	
2.9	Facility for portability – Vendor to specify	
3.0	Powersource Features : Suitable for SMAW/MMAW, GTAW and Pulsed GTAW DC modes under selection	
3.1	The Power source shall be Inverter (IGBT) Controlled having options for plain DC welding and pulsed DC welding (with or without high frequency unit for arc striking) and capable of delivering a smooth Constant Current even with a fluctuation of 10 % in the Input Electrical Power Voltage	
3.2	The make of the IGBT used and the Switching Frequency of the Inverter Circuit have to be furnished. {BHEL has the right to reject the offer, if IGBT of internationally reputed companies are not used in the Power source}	
3.3	The Electrical Power Input will be through a 230 ± 10% V AC, Single Phase, 50± 2% Hz, through a 3 Wire System [3 rd wire for EARTHING	
3.4	Output Current Rating shall be a minimum of 140 Amp. @ 100 % Duty Cycle DC	

S.No.	SPECIFICATION PARTICULARS	VENDOR's RESPONSE
3.5	Operating Range for Welding Current : For GTAW - 05 Amps. to 200 Amps. and for SMAW - 10 Amps. To 200 Amps. (all with step less variation)	
3.6	The preferred Open Circuit Voltage (OCV) for the offered Power source is above 65 Volts. The Vendor to specify is the same for the offered model.	
3.7	Suitability for Materials to be welded: Low & Medium Alloy Carbon Steels, Austenitic Stainless Steel, and Nickel Alloys.	
3.8	The variation in the set value of the welding current to the actual value, shall not exceed 1 %.	
3.9	Factory Installed Digital Ammeter & Voltmeter on the front panel shall be with easy removal and replacement for periodic instrument calibration	
3.10	Insulation Class "H" – to suit Tropical Working Conditions	
3.11	Power source shall be provided with an Input Power Cable of minimum FIVE meter in length (power cable to have protective sheathing)	
3.12	Control Panel to have Switches for Power ON / OFF, Remote ON / OFF, Voltage & Ampere Control, Polarity Change, Pulse Control, Weld Sequence Control, Gas Pre and Post Flow Controls, , Hot Start Control, GTAW/SMAW Mode Selection, etc.	
3.13	Pulse Control in DC mode : upto 5000 pulses /second	
3.14	Current Up-slope & Down-slope Control : Up- slope : from 0 to 50 seconds Down-slope : from 0 to 50 seconds	
3.15	Shielding Gas Control : Pre-flow time : from 0 to 25 seconds Post flow time : from 0 to 50 seconds	
3.16	Arc Dynamics Control: Electronic Inductance Variable Control shall be ensured to minimise spatter and optimise weld- bead wetting action, during welding of special materials like Nickel Alloys.	
3.17	Machine Cooling : The Power source shall have forced air cooling system that ensures adequate cooling of the components while preventing dust and metal particles from being drawn in.	
3.18	Power Rating [in kVA] of the Power source and the power consumption [in Watts] at NO-LOAD condition to be specified.	
3.19	Functional / Elemental Design Protection - a) In-built protection for the IGBT in Power source against Thermal / Overload / Short-Circuit / Single Phase Power Input Conditions. b) All PCBs shall be sprayed with mould coating to prevent damage from dust and grinding particles. c) Machine Design to ensure proper earthing for the machine and its peripherals	[BIDDER has to specifically furnish technical details on how these protective measures are addressed in the Machine Design and Construction]
3.20	MODEL Number of the Power source offered	

S.No.	SPECIFICATION PARTICULARS	VENDOR's RESPONSE
4.0	TIG WELDING TORCHES' FEATURES	
4.1	Suitable for GTAW Process and for the nature of welding works listed under Clause Sl. No. 1.0 & 3.7 shall be possible with the offered welding Power source.	
4.2	Reputed international makes such as WELD-CRAFT / LINCOLN ELECTRIC / MILLER of USA, KEMPPI of FINLAND, OTC/PANASONIC of JAPAN to be quoted	
4.3	Torch Configuration preferred : The Torch Head – Gas Lens & Nozzle configuration shall be suitable for performing the following weld joints : a) Tube Butt Welds in close pitched tubular panels with a minimum clear gap of 12 mm between the adjacent tubes [Gas Nozzle end diameter is to be 10 mm for a length of 25 mm] b) Root GTAW pass welding in a 100 mm (wall thickness) Pipe Butt Welds [Gas Nozzle End diameter is to be around 12 mm for a length of 45/65 mm]	
4.4	Protective Sheathing to be provided for the TIG Torch Cables & Hoses, to withstand shop floor rough use for the entire length of the cables / hoses assembly.	
4.5	VENDOR to quote for 1. Gas Cooled Torches with rating of 220 to 240 Amps. @ 100% Duty Cycle 2. Gas cooled Torches with the rating of 150 to 180Amps. @ 100 % Duty Cycle with Cable Length : Not less than 4.0 Metres	
5.0	Operation & Maintenance MANUALS	
5.1	Three Copies in printed formats (HARD PAPER COPY) and One Copy in the CD Form / Pen Drive	
5.2	Language of O&M Manual : English only	
5.3	Manual Details : - a) Manual shall contain all instructions for machine Installation and welding trial testing, in sequence. b) Manual to give 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. c) Manual to give other details like trouble shooting chart, weld parameters selection guidelines for various base metals & joint designs, etc. d) Master List of Parts & Spares used in the machine with Make, Model, Rating, etc.	

S.No.	SPECIFICATION PARTICULARS	VENDOR's RESPONSE
6.0	SPARES FOR Power Source - All type of Spare Parts NECESSARY FOR 2 YEARS OF TROUBLE FREE OPERATION including the following items 1 IGBT Kit -----2 Nos. 2 Control-Transformers --2 Nos 3. PCB – complete set -----1 Set 4 Ignition Device Board----- 1 Set 5 Controller ----- 1 Set 6 Rectifiers, Thermistors, Capacitors---- 1 Set 7 Switches & Knobs Main Switch ---- 1 Set	<u>To submit compulsorily the quote for all the listed spares</u>
7.0	GENERAL INSTRUCTIONS	
7.1	Inspection a) The welding machine shall be offered for (PDI) inspection by BHEL Engineers at supplier's works for performance evaluation prior to despatch.	
7.2	Commissioning : The equipment shall be commissioned, free of cost by the supplier's representative at BHEL Works.	
7.3	Prove out Trails at BHEL : During commissioning, the commissioning engineer has to prove the capability of power source as per clause 1.0 and 3.7	
7.4	Training : The Supplier's SERVICE ENGINEER shall give training in the Operation and Maintenance (mainly on electric / electronic troubleshooting) of the Machine for BHEL Staff, after the successful commissioning of the Welding Machine.	
7.5	Guarantee: Guarantee period of the equipment shall be 24 months from the date of commissioning at BHEL works.	
7.6	AMC Rate : The vendor has to quote for the AMC (Annual Maintenance Contract) for the machine for a period of one year, after the guarantee period of 24 months.	