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 79 38 Fax : +91 431 252 00 31 Email : tvenkat@bheltry.co.in Web : www.bhel.com

TWO PART BID Tender to be submitted in two Parts	**Enquiry Number:** **2851300031**	**Enquiry Date:** **26.11.2013**	**Due date for submission of quotation:** **31.12.2013**

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	Qty.	Delivery Required	Delivery Terms Required
10	**Tandem SAW Machine with Column and Boom Track Mounted as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)**	**2 Nos.**	**8 Months from the date of Purchase Order.**	**F.O.R, BHEL Stores, POWER EQUIPMENT FABRICATION PLANT, BHARAT HEAVY ELECTRICALS LIMITED, Mundipar- 441804, Sakoli Taluk, Bhandara District, Maharashtra State.**

Important points to be taken care during submission of offer:-

1. **Compliance Form No. BND/IMP/02 & BND/IND/02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.**
2. **EMD for this Tender will be Rs. 2,00,000.00/-**
3. **Delivery shall not exceed 8 months from the date of Purchase Order.**
4. **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.**
5. **The time period required for Erection & Commissioning of the item shall be 1 month from the date of intimation from BHEL requesting supplier to depute Service Engineers about site readiness**
6. **All the technical documents should be submitted in duplicate.**

BHEL's General guidelines / instructions (refer MM/CE/GENL/001-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 "2851300031".

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

T. VENKATESWARAN
Senior Manager
Capital Equipment
BHEL, Tiruchirappalli

Tandem SAW machine with Column & Boom track mounted

PART - A

SECTION- 1:Qualifying Criteria

The BIDDER has to compulsorily meet the Qualifying Criteria indicated in **Section 1** to get qualified. Otherwise the technical offer will not be considered.

S No.	REQUIREMENTS	VENDOR'S RESPONSE
1.1	The BIDDER / VENDOR (OEM) shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of "**Tandem SAW machine with Column & Boom track mounted**". Vendor shall indicate the actual no. of years of experience in the field	
1.2	Only those vendors (OEMs) should quote, who have commissioned in the past (10) years (on the original date of opening of Tender) at least ONE'**Tandem SAW machine with Column & Boom track mounted'** having all the following features: 1. Effective column and boom movement shall be min. 6.0mx6.0m with column movement on track and mounted with tandem welding heads (2 Nos) powered by 1000A – 100% duty cycle digitally controlled welding power sources. 2. Machine operation by Digital control system. **EITHER** (i) in at least one country other than the country of origin to establish vendor's (OEM's) global business activity **OR** (ii) in India; and the referred machine is presently working satisfactorily for more than one year after commissioning (on the original date of opening of Tender). The name and contact addresses of the customers to whom the machine has been supplied has to be furnished with details. BHEL reserves the right to accept or reject the OEMs based on the assessment of their technical and financial capability.	
1.3	Vendor has to submit at least ONE PERFORMANCE CERTIFICATE from their customers in India or from the customers to whom the machine was supplied outside the country of origin, for satisfactory performance of the machine as given under Clause 1.2 above, for a minimum period of one year (on the original date of opening of Tender). (Original Certificate or through E-mail directly from the customer). The original performance certificate may be returned after verification by BHEL, if required. For obtaining the Performance certificate, a suggestive format is provided.	

S No.	REQUIREMENTS	VENDOR'S RESPONSE
1.4	BHEL reserves the right to verify the information provided by the Vendor for the referred machine at their referred customer's works. It shall be the responsibility of the vendor to facilitate the visit of BHEL's team at their referred customer works .The Travel and Boarding expenses for BHEL Personnel shall be borne by BHEL. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	

SECTION - 2

The BIDDER / VENDOR are requested to provide the following information:-

S No.	REQUIREMENTS	VENDOR'S RESPONSE
2.1	The BIDDER / VENDOR to furnish Reference List of Customers, with complete address, details of contact person, where Track mounted tandem SAW machine have been supplied in the past.	
2.2	Specify details of Track mounted tandem SAW machine supplied to other units of BHEL, if any (Year of commissioning, Capacity, features etc.)	
2.3	Details on SERVICE-AFTER-SALES Set-up in India including the Address of Agents / Service Centres in India.	
2.4	Any Additional data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

SECTION - 3

The BIDDER to note:

S No.	REQUIREMENTS	VENDOR'S RESPONSE
3.1	The BIDDER / VENDOR shall submit the offer in TWO parts. 1. Technical Offer [**with PART A & PART B**] 2. Commercial Offer and Price bid.	
3.2	The Technical Offer shall contain complete details against all clauses of Technical Specifications given by BHEL.	
3.3	The Technical Offer shall be supported by copies of product Catalogues, DataSheets and technical details of Bought- Out-Items	
3.4	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.	

Suggestive Format of Performance Certificate:

The Performance certificate should be produced on **Customer's Letter Head**and submitted along with the offer.

PERFORMANCE CERTIFICATE

1.0	Machine Supplied by(Manufacturer's name)		
2.0	Make & Model number of the Machine		
3.0	Month & Year of Commissioning		
4.0	Application for which m/c is used		
5.0	**Machine Details:**		
5.1	Range of movement of column and boom		
5.2	Tandem welding heads		
5.3	No. of power sources, types		
5.4	Current range of power sources		
5.5	Digital controller		
5.6	Communication system		
5.7	Weld seam tracker		
5.8	Flux flow and recovery system		
6.0	Performance of the Machine (Please tick the appropriate option)	Not Satisfactory	
		Average	
		Good	
		Satisfactory	
7.0	Service after sales (Please tick the appropriate option)	Not Satisfactory	
		Average	
		Good	
		Satisfactory	
8.0	Other remarks (if any)		
Date:		Signature & Seal of the Authority Issuing the Performance Certificate	

PART - B: Technical Specification

Revision No. 00 -- 01-09-2013

Note:-

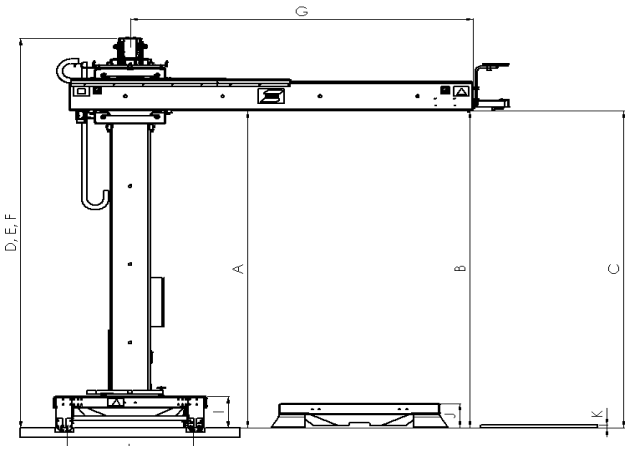
1. The Column “Vendor’s offer with Technical details" in this specification shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance.
2. The offer and all documents enclosed with offer should be in English language only.

3. Name & Address of the Supplier:
Name & Address of the Indian agent (if any)
Telephone no.:
Fax no.:
e-mail:

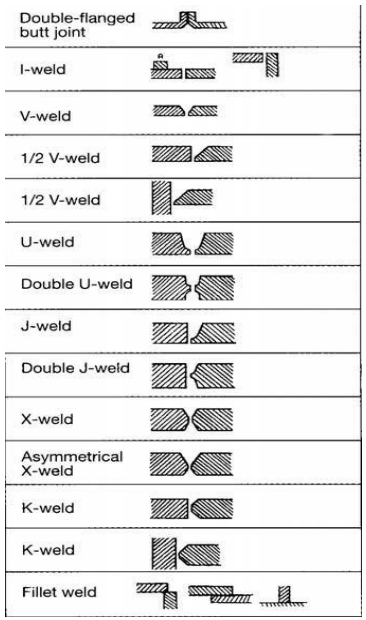
SCOPE: SUPPLY AND COMMISSIONING OF TRACK MOUNTED SUBMERGED ARC WELDING MACHINE - Qty. 2 nos.

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1	**PURPOSE & WORKPIECE MATERIAL**				
1.1	Purpose : Tandem Head Submerged Arc Welding machine to do submerged arc welding using thyristor/invertor based power sources.	Vendor to confirm			
2	**Column and Boom**				
2.1	A welding station consisting of a column and boom 6M x 6M on movable base	Vendor to confirm and specify (C&S)			
2.2	The base shall have a two-wheel drive carriage with guide rollers to secure the positioning of the complete column and boom.	Vendor to (C&S)			
2.3	Base transport speed 1.0 m/min.	Vendor to (C&S)			
2.4	Base track width 1830 mm.	Vendor to (C&S)			
2.5	The rails shall be levelled above the workshop floor and locking device shall be used. The required rails shall be arranged by the vendor	Vendor to (C&S)			
2.6	Effective travelling length of base shall be min. 10M	Vendor to (C&S)			
2.7	Base shall have floor cable chain and rails for travelling	Vendor to (C&S)			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
2.8	The column shall have manual swiveling with locking feature.	Vendor to (C&S)			
2.9	Vertical working stroke (boom) is measured from bottom of boom.	Vendor to (C&S)			
2.10	The lift drive has a reliable safety factor and is supplied with a security device, which regardless of boom position, immediately locks the boom to prevent unwanted descent in the event of a breakdown.	Vendor to (C&S)			
2.11	The vertical eccentric column is connected to the boom in a saddle using guide rollers to provide maximum load-bearing capacity with ample safety margins for reliable operation.	Vendor to (C&S)			
2.12	Column shall have cable drag chain to the saddle for all cables for the vertical movement of boom	Vendor to (C&S)			
2.13	The Boom shall have horizontal working stroke, measured from the centre of column.	Vendor to (C&S)			
2.14	The horizontal boom can be positioned both in the vertical and horizontal direction. The rack and pinion drive secures an even and stable welding speed of 0.5– 2.0 m/min.	Vendor to (C&S)			
2.15	Operators seat at boom front end.	Vendor to (C&S)			
2.16	The boom shall have cable chain for all the cables for the horizontal boom movement	Vendor to (C&S)			
2.17	Maximum weight at the end of boom shall be min. 250 Kg including operator	Vendor to (C&S)			
2.18	Parameters of column and boom				

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
					
2.18.1	Effective working range--6M x 6M	Vendor to (C&S)			
2.18.2	Boom height A using movable carriage (mm), top position-- >7100 mm	Vendor to (C&S)			
2.18.3	Boom height A using movable carriage (mm), lower position--1100 mm	Vendor to (C&S)			
2.18.4	Total height D using movable carriage (mm), about-- 8220 +/- 20	Vendor to (C&S)			
2.18.5	Lifting speed (mm/min)-- 700 +/- 25	Vendor to (C&S)			
2.18.6	Total load on column platform (kg)-- 600 +/- 10	Vendor to (C&S)			
2.18.7	Boom Extension G (mm) (max)-- 6650	Vendor to (C&S)			
2.18.8	Boom Extension G (mm) (min)-- 650 +/- 25	Vendor to (C&S)			
2.18.9	Permissible load at one end of Boom (kg)	Vendor to specify			
2.18.10	Welding Speed (m/min) Variable-- 0-1.2	Vendor to (C&S)			
2.18.11	Track width L, inside to inside (mm)	Vendor to (C&S)			
2.18.12	Trolley Width (mm)-- 3050 +/- 50	Vendor to (C&S)			
2.18.13	Trolley Length (mm)-- 3000 +/- 50	Vendor to (C&S)			
2.18.14	Trolley Height (mm)-- 365 +/- 10	Vendor to (C&S)			
2.18.15	Trolley Speed – Constant (M/min)-- 2	Vendor to (C&S)			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
2.19	Column, boom and trolley controls should **also** be provided at suitable location that can be operated from base of the column	Vendor to (C&S)			
3.	**Welding Head**				
3.1	The Tandem welding head each fitted with Motor and gear Box having gear ratio 156:1 for DC/AC.	Vendor to (C&S)			
3.2	Front mounted 2x30 kg wire reels each shall be suitable for 3 to 6 mm wire size	Vendor to (C&S)			
3.3	Flux Hopper - capacity 5Kg	Vendor to (C&S)			
3.4	Power sources, Welding head and digital process controller shall be of ESAB / Lincoln / Oerlikon / SAF Airliquide / Haane make only.	Vendor to (C&S)			
4.	**Joint tracking unit**				
4.1	There shall be an electro-mechanical sensor to ensure accurate joint tracking, shall control the motorised ball bearing slides of a stroke of 300 mm vertical x 300 mm Horizontal to adjust the welding torch into the correct position in the joint. The operator does not need to focus on the weld head and its position.	Vendor to (C&S)			
4.2	Joint/seam tracking unit shall be of ESAB / Lincoln / Oerlikon / SAF Airliquide / Haane/Dauhong make only.				
4.3	The operator shall be able to use the joystick to guide the welding head and mechanical sensor finger into correct position. Need not require any programming. The unit can be set in track mode and the welding can start.	Vendor to (C&S)			
4.4	Shall be able to track the following weld joints	Vendor to (C&S)			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
					
5	**Power Source**				
5.1	**Welding Rectifier Unit**				
5.1.1	Input Voltage 3 Ph, 50 Hz, 400/415/500 V	Vendor to (C&S)			
5.1.2	Maximum load at 100% duty Cycle A/V-- min. 1000 A / 44 V	Vendor to (C&S)			
5.1.3	Open Circuit Power, W (No Load Power)-- max. 220	Vendor to (C&S)			
5.1.4	Open Circuit Voltage, V	Vendor to specify			
5.1.5	Setting Range, A/V-- min. 40/22 to1000/44 or more	Vendor to specify			
5.1.6	Efficiency	Vendor to specify			
5.1.7	Power Factor	Vendor to specify			
5.1.8	Enclosure class -- IP23	Vendor to (C&S)			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
5.1.9	Rectifier can be used in combination with OEM's digital process controllers. Shall have good starting and re- ignition properties and shall give good arc stability at both high and low arc voltages.	Vendor to (C&S)			
5.1.10	The welding power source can be adjusted and monitored from the front panel of the digital process controller, which shall permit easy adjustment of all welding parameters.	Vendor to (C&S)			
5.1.11	The welding current range can be extended by connecting two power sources in parallel for the most demanding application. Feature of paralleling required.	Vendor to (C&S)			
5.1.12	Rectifier shall have the feature of communication with most standard protocols like TCP/IP (LAN), Anybus, Profibus, CAN or even straight communication with a PLC.	Vendor to (C&S)			
5.1.13	UL and CSA/ EU norms approved rectifier unit	Vendor to (C&S)			
5.1.14	Input cable length shall be around 10M in length and output shall be connected to the Feeder unit with ample additional length.	Vendor to (C&S)			
5.2	**SQUARE WAVE TRANSFORMER**				
5.2.1	Important features				
	Capacity for continuous welding Presetting of arc voltage Reliable Square wave striking Arc voltage or current Feed back Optimized open circuit voltage Compensation of mains voltage fluctuation Voltage drop compensation for long welding cables High power factor ensuring low power consumption Designed and built for convenient servicing Safety control voltage (Vendor to Specify) Prepared for matching connection of two power sources High productivity using Multi-electrode system No Arc blow	Vendor to (C&S) every point			
5.2.2	The transformer power source shall work on the welding data received from the digital process control unit.	Vendor to (C&S)			
5.2.3	Voltage drop compensation of any voltage drop.	Vendor to (C&S)			
5.2.4	Input Voltage V, 50 Hz-- 400/415/500 V	Vendor to (C&S)			
5.2.5	100% duty Cycle (Min.) A/V -- 1200 A / 44 V	Vendor to (C&S)			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
5.2.6	Setting Range, A/V : 150 A / 28V to 1200 A / 44 V	Vendor to specify			
5.2.7	Open Circuit Voltage (max.)	Vendor to specify			
5.2.8	Open Circuit Power, W (No Load Power)	Vendor to specify			
5.2.9	Efficiency	Vendor to specify			
5.2.10	Power Factor	Vendor to specify			
5.2.11	Enclosure class -- IP23	Vendor to (C&S)			
6.	**Digital Process Controller**				
6.1	Shall be a CAN BUS or equivalent controller with facility for presetting of min. 250 welding parameter	Vendor to (C&S)			
6.2	Shall have provision for pre-setting of all welding parameters	Vendor to (C&S)			
6.3	Shall be a single controller for welding parameter control and boom forward / reverse speed control for welding application	Vendor to (C&S)			
6.4	Constant current (CA) or constant wire speed (CW)	Vendor to (C&S)			
6.5	Heat input shall be visible on display	Vendor to (C&S)			
6.6	Encoder controlled motors for accurate motion control.	Vendor to (C&S)			
6.7	USB slot for data backup and transfer	Vendor to (C&S)			
6.8	Setting limits – limits the parameter setting span for the operator (User)	Vendor to (C&S)			
6.9	Measure limits – supervises actual parameters	Vendor to (C&S)			
6.10	Clear text menus for user friendliness, Large display – easy parameter reading	Vendor to (C&S)			
6.11	Shall have feature for the logging of data for individual welds: - Time for weld start - Duration of weld - Min, max and average current - Min, max and average travel speed - Min, max and average arc voltage - Min, max and average energy per unit length - Records up to 100 welds	Vendor to (C&S)			
6.12	Connection voltage from the power source 42V AC 50 Hz	Vendor to (C&S)			
7.0	**FLUX HANDLING/RECOVERY SYSTEM**				

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
7.1	Flux handling equipment shall be a powerful and reliable system including a flux recovery unit on top of the flux hopper shall be supplied with an inlet pipe to receive flux from the pressure tank with high capacity. The basic recovery unit shall work on the ejector principle using compressed air. Surplus flux shall be recovered into the flux hopper for re-use as welding progresses. A cyclone separator, fitted on top of the flux hopper shall efficiently separate the recovered flux from the dust. The dust shall then be collected in a fine filter. Flux recovered in this way shall pass through a metal sieve to retain slag before being returned to the flux hopper.	Vendor to (C&S)			
7.2	Flux tank capacity (Min.) - 100Kg	Vendor to specify			
7.3	For Flux, Max working temperature 150°C Short term temperature 190° Shall be tested with preheated flux to temperature max 220 °C and weld object temperature max 350 °C	Vendor to (C&S)			
7.4	Sound level (dB) shall be max. 80	Vendor to (C&S)			
7.5	Compressor and dryer system whatever is required for the FLUX HANDLING/RECOVERY SYSTEM shall be in scope of supply of vendor.	Vendor to (C&S)			
8	**Cables**				
8.1	Power source to earth Cable: 20 m.	Vendor to confirm			
8.2	Welding cables, return cables and control cables for complete equipment.	Vendor to confirm			
8.3	Heavy duty earth clamp suitable for rotating jobs	Vendor to (C&S)			
8.4	Earthing wire shall be suitable for 3000Amps.	Vendor to (C&S)			
9.1	415V ± 10% , 50HZ ± 3%, 3 Phase AC (3 wire system without neutral) Power Supply Source will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All types of cables (including at least 10 m input supply cable), connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the machine/control cabinets, shall be the responsibility of vendor.	Vendor to confirm			
9.2	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor to confirm			
9.3	Supplier will specifically mention the protections taken such as seals etc. used to prevent entry of dust etc. in to the machine.	Vendor to confirm			
9.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
9.5	Vendor should ensure the proper earthing for the machine and its peripherals.	Vendor to confirm			
10	**SAFETY ARRANGEMENTS:**				
	Following safety features in addition to other standard safety features should be provided on the machine:				
	1) .Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece and the operator due to the malfunctioning or mistakes. Machine functions should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on display and panels) should be available.	Vendor to confirm			
	2). All the cables etc. on the machine should be well supported and protected.	Vendor to confirm			
11	**ENVIRONMENTAL PERFORMANCE OF THE MACHINE :**				
	The Machine shall conform to following factors related to environment :	Vendor to confirm			
	(a) If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to confirm			
	(b) Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	Vendor to confirm			
12	**Accessories**				
12.1	Rotating earth coupling rated for 3000 A	Vendor to confirm			
12.2	Optional Accessories (If any) : to be quoted seperately	Vendor to specify			
13	**SPARES:**				
13.1	Itemised breakup of mechanical, electrical and electronic spares used on the machine in sufficient quantity as per recommendation of vendor for 2 years of trouble free operation on three shifts continuous running basis should be offered by vendor. The list to include following, in addition to other recommended spares: (Unit Price of each item of spare should be offered)	Vendor to specify			
13.2	All types of spares for total machine and accessories should be available for at least 10 years after supply of the machine. If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
13.3	Vendor to confirm that complete list of spares for machine and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	Vendor to confirm			
14	**DOCUMENTATION :** Five sets of following documents (Hard copies) in English language should be supplied along with the machine	Vendor to confirm			
14.1	Operating and maintenance manuals of Machine and all supplied accessories.	Vendor to confirm			
14.2	Detailed Maintenance manual of machine which shall contain System Description, Block diagram, Schematic drawings, Circuit diagrams &. Trouble shooting charts, All Assembly/ Sub Assembly Drawings shall be supplied with the part list.	Vendor to confirm			
14.3	For all electronic system complete details like circuit diagram, PLC ladder diagram, interfaces etc shall be provided in the manual.	Vendor to confirm			
14.4	Complete Master List of parts used in the machine shall be submitted by the vendor.	Vendor to confirm			
14.5	One additional set of all the above documentation in soft copy, to be furnished wherever possible.	Vendor to confirm			
15	**AMBIENT CONDITIONS & THERMAL STABILITY :**				
15.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Ambient Conditions: Temperature = 5 to 45 degree Celsius with variation of 25 degree Celsius (max) on any given day. Relative Humidity = 95% max. (Vendor to confirm that machine is suitable for above and details of provisions on the machine for the same are to be furnished by Vendor)	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
16	FOUNDATION : Vendor shall submit the preliminary layout drawing for getting BHEL's approval within one month from the date of Letter of Intent (LOI) / P.O. whichever is earlier. Soil condition data will be furnished by BHEL along with the approval. Complete Foundation Design including details of reinforcement and Final Layout drawings shall be submitted by the supplier within three months after getting BHEL's approval. The layout should consist of all requirements pertaining to complete machine including space requirement for any other accessories. BHEL shall construct complete foundation for the machine under supervision of supplier and at supplier's responsibility. Vendor should arrange equipments required for the testing of foundation, if required by the vendor. The vendor shall also indicate detailed specifications of grouting compound and Grouting procedure etc. for foundation bolts of the machine.	Vendor to Confirm			
17.0	**ERECTION & COMMISSIONING**				
17.1	Supplier to take full responsibility for carrying out the erection, start up, testing of machine, it's control & all types of other supplied equipment etc. Service requirement like power, air & water shall be provided by BHEL at only one point to be indicated by supplier in their foundation/layout drawings. All material handling and necessary man power for E&C including track/rails laying shall be in the scope of Vendor.	Vendor to Confirm			
17.2	Successful proving of BHEL components by the supplier shall be considered as part of commissioning.	Vendor to Confirm			
17.3	Commissioning spares, required for commissioning of the machine within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to Confirm			
17.4	All cover plates required for the machine and its peripherals including pits, if any, shall be supplied and installed by the vendor.	Vendor to Confirm			
17.5	Portion, if any, of the machine, accessories and other supplied items where paint has rubbed off or peeled during transit or erection should be repainted and merged with the original surrounding paint by the vendor. For this purpose, the vendor should supply sufficient quantity of touch-up paint of various colours of paint used.	Vendor to Confirm			
17.6	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to Specify			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
17.7	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	Vendor to Specify			
18	**MACHINE ACCEPTANCE**: (Tests/Activities should be performed by vendor before dispatch in presence of BHEL Inspection team:)	Vendor to Confirm			
18.1	Demonstration of all features of the machine, control system & accessories.	Vendor to Confirm			
18.2	SAW on test piece using all sizes of wires in single and tandem heads. For demonstration test pieces to be arranged by vendor.	Vendor to Confirm			
19	**Tests/Activities should be carried out at BHEL works while commissioning the machine :**				
19.1	Demonstration of all features of the machine, control system & accessories to the satisfaction of BHEL for efficient and effective use of the machine	Vendor to Confirm			
19.2	Test at various current and voltage settings.	Vendor to Confirm			
19.3	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to Confirm			
19.4	Instrument must be calibrated and proved against setting knob as well as against actual current measured by tong tester while welding a job.	Vendor to confirm			
20	**Training**				
20.1	BHEL Persons should be trained at supplier's Works for mutually agreed period in the area of (a) Operation of the machine & other supplied equipments. Technology, Use of all Features, Systems & supplied accessories etc. (b) Electronic maintenance for machine & other supplied equipments (c) Electrical, Mechanical & Hydraulic maintenance of the machine & other supplied equipments.	Vendor to confirm			
20.2	Two weeks supervision of independent operation of machine by BHEL after job prove out	Vendor to Confirm			
20.3	Training of BHEL machine operators in operation of complete machine & accessories etc by the supplier's experts / engineers during their stay at BHEL works	Vendor to Confirm			
20.4	Air-fare, boarding & lodging for the trainees shall be borne by BHEL.	Vendor to confirm			

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
20.5	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel.	Vendor to confirm			
20.6	Vendor to quote for training on man / week basis	Vendor to confirm			
20.7	Vendor should commit to organize training for advanced features and specialised training if so required by BHEL	Vendor to confirm			
21	**PACKING:** Sea worthy & rigid packing for all items of complete machine.	Vendor to confirm			
22	**GUARANTEE**: 24 months from the date of acceptance of the machine at BHEL.	Vendor to confirm			
23	**GENERAL:** The vendor should submit the following information:				
23.1	Machine Model	Vendor to specify			
23.2	Total connected load (KVA):	Vendor to specify			
23.3	Floor area required (Length, Width, Height) for complete machine & accessories	Vendor to specify			
23.4	Total weight of the machine	Vendor to specify			
23.5	Detailed catalogues, sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Vendor to confirm			