



BHARAT HEAVY ELECTRICAL LIMITED

UNIT'S ADDRESS

UNIT'S PHONE NOS.

CONTACT PERSON'S NAME/DESIGN./PHONE

Enquiry

No. :

Due Date :

Supplier

Qtn. No.:

Date :

SPECIFICATION CUM COMPLIANCE CERTIFICATION FOR
INVERTER BASED WELDING MACHINE

NOTE:-

1. Vendor must submit complete information against clause no. 20.0 The offer meeting this clause would only be processed.
2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format 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.
3. The offer and all documents enclosed with offer should be in English language only.

ADDRESS OF THE SUPPLIER :	ADDRESS OF THE INDIAN AGENTS :
TELEPHONE NOS.:	TELEPHONE NOS.:
FAX NOS.:	FAX NOS.:
E-MAIL ADDRESS :	E-MAIL ADDRESS :
SCOPE: SUPPLY, ERECTION & COMMISSIONING OF " TWIST DRILL GRINDING MACHINE"	
COMPLYING WITH SPECIFICATION AS BELOW	

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
	1.0 PURPOSE & WORKPIECE MATERIAL				
1.1	Purpose: (Operations/Jobs involved) :Inverter based IGBT/MOSFET technology and switching frequency of 20 KHZ or more. Welding machine to do welding on mild steel and alloy steel, Carbon steel & other steels.	Vendor to conform			
	2.0 SPECIFICATION:				
2.1	Welding Power Source				
2.1.1	Type : Inverter based on IGBT/MOSFET technology to be on primary side.	Vendor to conform			
2.1.2	Characteristic: variable volt & variable current	Vendor to conform			
2.1.3	Model:	Vendor to specify.			
2.1.4	Welding Current Range : 20-400 amps	Vendor to conform			
2.1.5	Welding Current at 100% duty cycle -- 370 A (10 minutes cycle)	Vendor to conform			
2.1.6	Welding Voltage range:	Vendor to specify			
2.1.7	Type of Cooling: Forced Air Cooling	Vendor to conform			
2.1.8	Operation and control system Electronic stepless control of welding current. Digital display of welding current & voltage welding start & stop control emergency stop switch. The welding voltage, current to remain in set stable condition against the supply voltage fluctuation of $\pm 10\%$ and even in case of any change in ambient temperature i.e. 5 to 50°C.	Vendor to conform			

3.0	Cables				
3.1	5 mtrs Welding Cable with MMAW electrode holder.	Vendor to conform			
3.2	5 mtrs earthing cable with clamp	Vendor to conform			
4.0	ELECTRICAL/ELECTRONIC SYSTEM:	Vendor to specify			
4.10	400V \pm 10% , 50 HZ \pm 3 % Phase AC (3 wire) system (without neutral) Power Supply point near the machine, as per layout recommended by Vendor. All types of cables, connections, circuits breaker 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 conform			
4.2	All electrical & electronic control cabinets & panels should be dust and vermin proof.	Vendor to conform			
4.3	Supplier will specifically mention the protections taken such as seals etc used to prevent entry of dust etc. in to the machine.	Vendor to conform			
4.4	All the PCB's shall be sprayed with mould coating to prevent damage from dust grinding particles. The PCB's shall preferably be housed in separate dust proof compartment.	Vendor to conform			
4.5	IGBT shall be suitably protected by semiconductor fuses against shortcircuiting inverter failure.	Vendor to conform			
4.6	All electrical components in the cabinet should be mounted on DIN RAIL	Vendor to conform			
4.7	Vendors should ensure the proper earthing for the machine and its peripherals.	Vendor to conform			
5.0	SAFETY ARRANGEMENTS				

5.1	Following safety features in addition to other standard safety features should be provided on the machine :				
5.2	Machine should have adequate and reliable safety interlocks/devices to avoid damage to the machine, workpiece and the operator due to the malfunctioning or mistakes. Machine function should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on display and panels) should be available.	Vendor to conform			
5.3	All the cables etc on the machine should be well supported and protected.	Vendor to conform			
6.0	SAFETY ARRANGEMENTS:				
6.1	Following safety features in addition to other standard safety features should be provided on the machine:	Vendor to conform			
6.2	1) Machine should have adequate and reliable safety interlocks/devices to avoid damage to the machine, workpiece and the operator due to the malfunctioning or mistakes. Machine function should be continuously monitored and alarm / warning indications through lights/ alarm number with messages (on display and panels) should be available.	Vendor to conform			
6.3	All the pipes, cables etc. on the machine should be well supported and protected.	Vendor to conform			
7.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE :				
7.1	The Machine shall conform to following factors related to environment :	Vendor to conform			

7.2	(a) If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.	Vendor to conform			
7.3	(b) Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.	Vendor to conform			
8.0	Optional Accessories(if any)	Vendor to specify			
9.0	SPARES:				
9.1	Itemwise breakup of mechanical, electrical 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 conform			
9.2	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 conform			
9.3	All types of spares for total machine and accessories should be available for atleast ten 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 conform			
10.0	DOCUMENTATION :				

10.1	Five sets of following documents (Hard copies) in English languages (if possible in Hindi also) should be supplied along with the machine.	Vendor to conform			
10.2	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 conform			
10.3	Complete master list of parts used in machine shall be submitted by the vendor.	Vendor to conform			
10.4	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor to conform			
10.5	Operating and maintenance manuals of Machine and supplied accessories.	Vendor to conform			
11.0	AMBIENT CONDITIONS & THERMAL STABILITY				
11.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies.	Vendor to conform			
11.2	Power Supply				
11.3	Voltage : 400 ± 10% Frequency : 50 HZ ± 3 %				
11.4	No. of Phase : 3	Vendor to conform			
11.5	Ambient Conditions : Temperature = 5 to 50 ° c	Vendor to conform			
11.6	Relative Humidity = 95 % max.	Vendor to conform			

11.7	(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 conform			
12.0	Test to be carried out at BHEL works while commissioning the machine :	Vendor to conform			
12.1	Demonstration of all features of the machine & all accessories to the satisfaction of BHEL for their efficient	Vendor to conform			
12.3	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to conform			
12.4	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 conform			
12.5	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 conform			
13.0	PACKING: Sea worthy & rigid packing for all items of complete machine.	Vendor to conform			
14.0	GUARANTEE : 12 months from the date of acceptance of the machine.	Vendor to conform			
15.0	GENERAL : The vendor should submit the following information:	Vendor to conform			
15.1	Machine Model	Vendor to specify			
15.2	Total connected load (KVA):	Vendor to specify			
15.3	Floor area required (Length, Width, Height) for complete machine & accessories	Vendor to specify			
15.4	Total weight of the machine	Vendor to specify			

15.5	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Vendor to conform			
15.6	The machine, including attachments and accessories, should be suitable for 24 hrs. continuous operation to its full capacity for 24 hour a day and 7 days a week throughout. Vendor to ensure and confirm the same.	Vendor to conform			