

TECHNICAL SPECIFICATION OF GMAW (MIG) WELDING MACHINE

NOTE:-

Date -27-08-18

1. 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.
2. The offer and all documents enclosed with offer should be in English language only.
3. All the supplied accessories shall be supplied from OEM.

NAME & ADDRESS OF THE SUPPLIER :
TELEPHONE NO.:
FAX NOS:
EMAIL ADDRESS:

SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to specify/Confirm	OFFERED PARAMETERS	DEVIATIONS	REMARKS
1	PURPOSE & WORKPIECE MATERIAL				
1.1	Purpose: (Operations/Jobs involved) :Inverter based GMAW (MIG) to do spatter free and heavy duty flux cored/solid wire CO ₂ or Ar, CO ₂ (mixed gas) welding on mild steel, alloy steel, stainless steel, copper and aluminium. The model must be rugged and suitable for continuous work in heavy fabrication shop in rough environment	Vendor to confirm			
2	Specifications of Inverter based MIG Welding Machine.:				
2.1	Welding Power Source				
2.1.1	Make: LINCOLN / MILLER / FRONIUS / KEMPPI / EWM /OTC/ESAB/PANASONIC.Vendor has to furnish authorization certificate from OEM.	Vendor to specify and confirm			
2.1.2	Type: Inverter based on IGBT/MOSFET technology with switching frequency of min. 20 KHZ.	Vendor to specify			
2.1.3	Characterstic: CV.	Vendor to confirm			
2.1.4	Model:	Vendor to specify			
2.1.5	Welding current capacity : min. 380 A@100%, 40°C	Vendor to confirm			
2.1.6	Welding current capacity min. 500 A@ 60 % duty cycle, 40°C	Vendor to confirm			
2.1.7	Welding Voltage range:	Vendor to specify			
2.1.8	Application Class : S	Vendor to confirm			
2.1.9	Type of Cooling: Forced Air.	Vendor to confirm			
2.1.10	Protection class (Type of enclosure) IP 23S.	Vendor to confirm			
2.1.11	Open Circuit Voltage :	Vendor to specify			
2.1.12	Power Factor at max. current : min. 0.90	Vendor to confirm			
2.1.13	Electrical efficiency at 100% duty cycle: min. 87%	Vendor to confirm			
2.1.14	Fuse :	Vendor to specify			
2.1.15	Weight of the power source :	Vendor to specify			
2.1.16	Gas test facility shall be available	Vendor to confirm			
2.1.17	Crater fill facility shall be available.	Vendor to confirm			
2.2	Wire Feeder				
2.2.1	Type: minimum 2 roll drive. Heavy duty metallic with idlers for straightening of wires. BHEL prefers to have wire feeder enclosure to protect feeder from dust and dirt.	Vendor to confirm			
2.2.2	Wire Feed rate range: minimum 1 -16 M/min	Vendor to confirm			
2.2.3	Solid wire sizes to be used: 1.2, 1.6 mm	Vendor to confirm			
2.2.4	Flux cored wire sizes to be used: 1.2, 1.6 mm diameter	Vendor to confirm			
2.2.5	Spool dia: 300mm (approx.)	Vendor to confirm			
2.2.6	Weight of wire spool: 15 kg -17.5 Kgs	Vendor to confirm			
2.2.7	Wire spool mounting arrangement with braking device	Vendor to confirm			
2.2.8	Load capacity 500 A@ 60% duty cycle:	Vendor to confirm			
2.2.9	Load capacity 380 A@ 100% duty cycle :	Vendor to confirm			

for electric

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2.2.10	Weight of wire feeder :	Vendor to specify			
2.2.11	Type: One Air cooled torch fitted with On-Off switch.	Vendor to confirm			
2.2.12	Roller Suitable to wire size 1.2 & 1.6 mm - 2 sets of each size is required.	Vendor to confirm			
2.3	Torch (make to be same as offered machine)	Vendor to confirm			
2.3.1	Type of cooling-Gas cooled	Vendor to confirm			
2.3.2	Capacity: min. 380 A@100 % duty cycle	Vendor to confirm			
2.3.3	Shape: Goose neck shape.	Vendor to confirm			
2.3.4	Length : 4.5 M	Vendor to confirm			
2.3.5	Wire sizes to be used: 1.6 mm, 1.2mm	Vendor to confirm			
2.3.6	Type of end connection: Euro Connector	Vendor to confirm			
2.4	Cables	Vendor to specify			
2.4.1	Power source to wire feeder Interconnection Cable should be 10 M length, welding cable in interconnection cable should be of 70sqmm Copper	Vendor to Confirm			
2.4.2	Interconnection cable - Make to be same as offered machines	Vendor to Confirm			
2.4.3	Length of cable from Mains to power source -10m.	Vendor to Confirm			
2.4.4	Earthing Clamp- 1 nos with each machine	Vendor to Confirm			
2.5	OPERATION AND CONTROL SYSTEM:				
2.5.1	Welding Process Controller:	Vendor to Confirm			
	1) All parameters (Current, voltage, etc.) should be display digitally in power source	Vendor to Confirm			
	2) Control of Welding Voltage & Current through independent knobs in Wire feeder	Vendor to Confirm			
	3) Digital Display of Welding Voltage and Current.	Vendor to Confirm			
	4) Wire inching facility.	Vendor to Confirm			
	5) Crater control and fill.	Vendor to Confirm			
	6) 2 / 4 track control to be provided.	Vendor to Confirm			
	7) Selection of CO2 / ARCO2 mix gas	Vendor to Confirm			
2.6	CO2 Gas Regulator and CO2 Heater (preferably 110V) with core assembly -shall be of reputed make. Power for preheater shall be drawn from welding power source. Proper pin connection shall be available on welding	Vendor to specify make and confirm			
3	ELECTRICAL/ ELECTRONIC SYSTEM :				
3.1	415V (+/-10%), 50 / 60 HZ , 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, 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			
3.2	All electrical & electronic control cabinets & panels should be dust and vermin proof. Vendor should ensure proper earthing for the machine and its peripherals.	Vendor to Confirm			
3.3	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 compartments.	Vendor to Confirm			
3.4	Supplier shall specifically mention the protections taken such as seals etc. used to prevent entry of dust etc. in to the machine.	Vendor to Confirm			
3.5	All electronics shall be suitably protected during shortcircuiting at the output. Details of measures taken for protection. Schematic drawing of components added etc shall be furnished.	Vendor to Confirm			
3.6	Documentation: 1. Operation, service and troubleshooting manual along with the electrical circuit diagram of machine as commissioned. (All hard bind copies in 4 sets.) Soft copy to be provided.	Vendor to Confirm			

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4	AMBIENT CONDITIONS & THERMAL STABILITY :				
4.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 415 V - 10%, +10% Frequency: 50 / 60 Hz No. of phases = 3 Ambient Conditions: Temperature = 5 to 40 degree celsius with variation of 25 degree celcius (max), dusty atmosphere. Relative Humidity = 95% max. (Vendor to confirm that machine is suitable for above and details of	Vendor to Confirm			
5	PACKING:				
5.1	The machine shall be properly packed	Vendor to Confirm			
6	GUARANTEE :				
6.1	Supplier should guarantee the machine performance for 24 months from the date of acceptance of machine and shall provide spares and services during guarantee period to maintain the machine in working condition.	Vendor to Confirm			
6.2	Service to be provided within 5 days of informing the supplier.	Vendor to Confirm			
7	Scope of Supply :Each machine shall consist of				
7.1	Power source -1no.	Vendor to Confirm			
7.2	Wirefeeder-1no.	Vendor to Confirm			
7.3	Interconnection cable-10 mtrs	Vendor to Confirm			
7.4	MIG Torch-500 amps-1no. suitable for 1.6mm diameter wire.	Vendor to Confirm			
7.5	CO2 regulator-1no.	Vendor to Confirm			
7.6	Heater with core assembly-1no.	Vendor to Confirm			
7.7	Input supply cable-10 mtrs	Vendor to Confirm			
7.8	Rollers 1.2mm and 1.6 mm - 2sets for each diameter.	Vendor to Confirm			
8	Test to be carried out at BIHEL works while commissioning the machine :				
8.1	Demonstration of all features of the machine and all accessories to the satisfaction of BIHEL for their efficient and effective use.	Vendor to Confirm			
8.2	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to Confirm			
8.3	Training of BIHEL machine operators in operation of complete machine & accessories etc by the supplier's experts / engineers during their stay at BIHEL works	Vendor to Confirm			
8.4	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			
9	EQUIPMENT ACCEPTANCE: (Tests/Activities To be Performed by	Should be accepted & confirmed by Vendor			
9.1	Tests/Activities should be carried out at supplier's works on the equipment before dispatch :				
9.1.1	The equipment should be tested for repeated testing operations. If any break down occurs during this test, the test should be repeated.	Vendor to confirm			
9.1.2	Demonstration of all features of the equipment, and all accessories.	Vendor to confirm			
9.1.3	Three BIHEL Persons should be trained at supplier's / BIHEL Works for mutually agreed period in the area of (a) Electrical, Electronic maintenance for equipment & other supplied equipments (b) Mechanical, Electrical & Electronic maintenance of the equipment & other supplied equipments (c) Operation of the equipment & other supplied equipments.	Vendor to confirm			
9.1.4	Vendor to quote for training on man / week basis	Vendor to confirm			

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10	EVALUATION CRITERIA / QUALIFYING REQUIREMENT:				
10.1	Only those models should be quoted, of which atleast 5 nos were commissioned in the last (5) years. Indicate the number of such welding machines sold in India. a) Number of "IGBT based Inverter controlled Welding Machine for GMAW" supplied & commissioned till date.	Vendor to specify and provide			
10.2	Name of the customer / company where similar machine is installed.	Vendor to specify and provide			
10.3	Complete postal address of the customer	Vendor to specify and provide			
10.4	Year of commissioning.	Vendor to specify and provide			
10.5	Name and designation of the contact person of the customer.	Vendor to specify and provide			
10.6	Phone, FAX no. and email address of the contact person of customer.	Vendor to specify and provide			
10.7	Performance certificate of GMAW machine for atleast one year from the customer regarding satisfactory performance of same quoted model.	Vendor to specify and provide			
10.8	BHEL reserves the right to verify information provided by vendor. In case the information provided by vendor is found to be false/incorrect, the offer shall be rejected.	Vendor to specify and provide			