

**BHARAT HEAVY ELECTRICAL LIMITED, JHANSI**

SPECIFICATION NO.	7181 R5
ITEM NO.	ME-1/3/2690 TO ME-1/3/2695 & ME-3/3/2726 TO ME-3/3/2728
LOCATION	LOCO ASS./BOGGIE SHOP
QUANTITY	9 NUMBERS

**SPECIFICATION CUM COMPLIANCE CERTIFICATE OF WELDING RECTIFIER SET**

**NOTE:**

1	VENDOR must submit complete information against clause No- 7.0 (Qualifying Condition). The offer meeting this clause would only be processed
2	The "Specified/to be confirmed by vender" Column and where applicable, the " Devitaions" Column of the formate shall be filled in by the Vendor and submitted along with the offer. Technical details also submitted with the offer. Inadequate/ Incomplete. Ambiguous, of unsustainable information against any of the clauses of hte specification / requirement shall be treated as non- compliance.
3	The offer and all documents elclosed with offer should be in English languge only.

**SCOPE:**


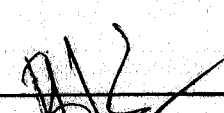
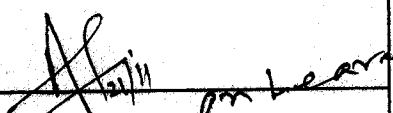

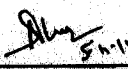


**DESIGN, MANUFACTURING, SUPPLY, ERECTION & COMMISSIONING OF THYRISTORISED WELDING RECTIFIER SET AS PER SPECIFICATION BELOW**

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY VENDER	DEVIATIONS
<b>1.0</b>	<b>REQUIREMENTS</b>		
1.1	Thyristorised Welding rectifier sets are required for arc welding of Loco superstructure and transformer tanks. The welding sets are to be suitable for producing high quality welds with similar / dissimilar metals & alloys. The welding sets are to be designed to withstand heavy production schedule in industrial environment for operation at rated capacity with least maintenance.	Vender to confirm	
1.2	The welding equipment is to be housed in easily removable sturdy sheet metal cover to form a compact unit of streamlined design with least number of projections. Compete equipment is to be mounted on rubber wheels with swiveling base for easy mobility within the shop floor. Make and model of the set should be <u>Esab/L&amp;T/OTC/ Kemppi/ Fronius/ Ador/Technoweld/arctec OR ANY REPUTED COMPANY.</u>	Vender to confirm	
1.3	The welding set consisting of fully copper wound transformer, Thyristor rectifier unit, protection devices, control system etc. The welding rectifier unit is to be equipped with components of latest design & provide with controls for smooth and steeples/ continuous variation of welding current. The welding set is to meet all the requirement of IS: 4559:1968. Welding set is to be provided with protection devices against overload, transient surge voltage, inadequate flow of air & failure of cooling fan etc.	Vender to confirm	
1.4	The welding set is to be supplied complete with on/off switch, plug & sockets for outgoing cable, terminal & cable cleat for earthing terminal, welding current regulation device and other standard accessories required for trouble free service. A switch is to be provided for making the set suitable for air /carbon arc gouging.	Vender to confirm	
1.5	The welding set is also to be suitable for parallel operation for higher welding current.	Vender to confirm	
<b>2.0</b>	<b>SPECIFICATION</b>		
2.1	Input Supply voltage: 415 volt $\pm$ 10% AC , 3-phase, 50 Hz	Vender to specify	
2.2	Open circuit voltage: Not less then 60 volts D.C	Vender to specify	
2.3	Welding current range : 60 Amps. To 600 Amps	Vender to specify	
2.4	Maximum continuous welding current: 600 Amps At 60% duty cycle	Vender to specify	
2.5	Type of cooling : Forced air	Vender to confirm	

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2.6	Working condition : - Temp. Variation 3 to 45 degree C	Vender to confirm	
2.7	95% relative humidity	Vender to confirm	
2.8	Dusty fabrication shop	Vender to confirm	
3.0	<b>The machine should be completed with following accessories so that it is received in ready to use condition</b>		
3.1	Ammeter for indicating the welding current.	Vender to confirm	
3.2	Voltmeter for indicating the open circuit voltage	Vender to confirm	
3.3	Electrode holder of 600 Amps.	Vender to confirm	
3.4	Plug for welding cable.	Vender to confirm	
3.5	Earthing copper cable (5 Meter) with earth clamp	Vender to confirm	
3.6	Input power cable with plug (10 meter)	Vender to confirm	
3.7	Electrode holder 600 amp.	Vender to confirm	
3.8	Welding cable (20 meter)	Vender to confirm	
3.9	Helmet	Vender to confirm	
3.10	Chip hammer	Vender to confirm	
4.0	<b>Details to be furnished by the vender:</b>		
4.1	Relevant technical / descriptive catalogues.	Vender to submit	
4.2	List of standard accessories.	Vender to submit	
4.3	List of optional accessories.	Vender to submit	
4.4	Electrical power requirement.	Vender to submit	
4.5	Primary current at maximum output	Vender to specify	
4.6	Primary current at rated output.	Vender to specify	
4.7	Insulation class.	Vender to specify	
4.8	Cooling media.	Vender to specify	
4.9	Range of open circuit voltage	Vender to specify	
4.10	Power factor of the equipment should not be less then 0.87. Vender to arrange all necessary equipment for measurement at the time of inspection.	Vender to specify	
4.11	Output current at 60% duty cycle.	Vender to specify	
4.12	Output current at 100% duty cycle	Vender to specify	
4.13	KVA rating at 60% duty cycle	Vender to specify	
4.14	KVA rating at 100% duty cycle	Vender to specify	
4.15	Method of setting welding current	Vender to specify	
4.16	Details of various protection/ safety devices incorporated	Vender to specify	
4.17	Recommended cable size for power supply	Vender to specify	
4.18	Overall dimensions & weight	Vender to specify	
4.19	Details of tests carried out.	Vender to specify	
4.20	Capacitor for power factor improvement if applicable.	Vender to specify	
4.21	Recommended spares for 2 years normal working on two shift basis with item wise prices.	Vender to submit	
5.0	<b>MISCELLANIOUS</b>		
5.1	Three sets of operation maintenance manuals should be provided with supply consisting of the following:	Vender to confirm	

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a	Operation and maintenance instruction and Do's/Don'ts.	Vender to confirm	
b	Electronics and electrical circuit diagram	Vender to confirm	
c	PCB circuit diagram upto component label.	Vender to confirm	
d	Trouble shooting and diagnostic system.	Vender to confirm	
e	List of spares with identification No.	Vender to confirm	
5.2	Price of the each major items must be furnished in the offer.	Vender to confirm	
5.3	The entire equipment must be complete inspected and tested at supplier works in full capacity by the representative of BHEL.	Vender to confirm	
5.4	The equipment should be commissioned by the supplier at BHEL, Jhansi	Vender to confirm	
<b>6.0</b>	<b>GUARANTEE</b>		
6.1	The equipment is to be guaranteed in respect of material, construction and operation and against any manufacturing defect for a period of 24 months from the date of commissioning. Any parts of units found defective have to be replaced free of cost.	Vender to confirm	
<b>7.0</b>	<b>QUALIFYING CONDITION</b>		
7.1	A. Only those vendors, who have supplied and commissioned at least 6 numbers Thyristorised welding machine of same or higher capacity for similar applications in past 5 years to any psu or govt organisation and such machine is presently working satisfactorily (As on date of opening of tender) should quote. Vendor to submit performance certificates from the customers whom said machine is supplied for the satisfactory performance of the machine after one year of commissioning of the machine and the machine is presently working satisfactorily. B. Manufacturer should have min 10 year exp. in the same field and relevant proof is to be submitted.	Vendor to submit	
7.2	Name of the customer / company where similar machine is installed.	Vendor to submit	
7.3	Complete postal address of the customer.	Vendor to submit	
7.4	Month & Year of commissioning.	Vendor to submit	
7.5	Name and designation of the contact person of the customer.	Vendor to submit	
7.6	Phone, FAX no. and e-mail address of the contact person of the customer.	Vendor to submit	
8.0	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false/incorrect, the offer shall be rejected.	Vendor to confirm	
	 K.D. Manjhi Sr. DGM(LMM/P)	 B.N. Nark Mgr(LMM)	 Mohd Arshad Mgr(LMM)
	 S.J. Chakraborty Sr. DGM (WE&S)	 A.K. Shivpuri Sr. Mgr(WEX)	 ARJUN SINGH Mgr (WE&S)
			 Y.K. Dhingra Sr. Eng(WEX)