

		BHARAT HEAVY ELECTRICAL LIMITED		Enquiry No. :	
UNIT'S ADDRESS:				Due Date :	
CONTACT PERSON'S NAME/DESIGN./PHONE NO./				Supplier Qtn. No.:	
E-MAIL (FROM PURCHASE DEPT.)				Date :	
SPECIFICATION CUM COMPLIANCE CERTIFICATE OF 250KVA, 1-Ø RESISTANCE BRAZING MACHINE WITH 20TR COOLING TOWER FOR COMPACTING / SOLIDIFICATION OF THE FLEXIBLE LINK.					
NOTE:-					
1. Vendor must submit complete information against clause no. 22. 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 clause 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.					
NAME & ADDRESS OF THE SUPPLIER :		NAME & ADDRESS OF THE INDIAN AGENT :			
TELEPHONE NOS.:		TELEPHONE NOS.:			
FAX NOS.:		FAX NOS.:			
E-MAIL ADDRESS :		E-MAIL ADDRESS :			
SCOPE: DESIGN, MANUFACTURING, SUPPLY, ERECTION, COMMISSIONING AND PROVING OF 250KVA, 1-Ø RESISTANCE BRAZING MACHINE WITH 20TR COOLING TOWER COMPLYING WITH SPECIFICATIONS AS BELOW.					
Sl.No.	Description for BHEL Requirement	Specified/To be confirmed by	Offered	Deviations	Remarks
1.0	PURPOSE : 250 KVA, 1-Ø Resistance brazing machine with 20 TR cooling tower will be used for compacting /solidification of the flexible link made of thin copper strips.	Vendor			
2.0	SCOPE OF SUPPLY : The scope of supply includes design, manufacturing, supply, erection, commissioning and proving of components on the machine at BHEL, Hyderabad works.	Vendor			
3.0	JOB DETAILS :				
3.1	Thickness of individual copper strips : 0.2/0.3/0.5/1 mm	Vendor			

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	Specification No. S-EMT-248/00 Dt.30.09.2015				
3.2	Details of compacting/ solidification of Flexible link.	Vendor			
3.2.1	Thickness : Minimum 10.0 mm ; Maximum 40.0 mm	Vendor			
3.2.2	Width : Minimum 20.0 mm ; Maximum 150.0 mm	Vendor			
3.2.3	Length : Minimum 50.0 mm ; Maximum 180.0 mm	Vendor			
4	TECHNICAL SPECIFICATION OF THE MACHINE:				
4.1	Rating of the machine	Vendor			
4.1.1	KVA rating : 250 KVA at 100 % duty cycle	Vendor			
4.1.2	Electrode force :	Vendor			
4.1.3	Moving electrode stroke (mm) :	Vendor			
4.1.4	Adjustment of fixed electrode (mm) :	Vendor			
4.1.5	Gap between electrodes (with electrode in new condition) : Min / Max (mm)	Vendor			
4.1.6	Max. available short circuit current (Amps)	Vendor			
4.2	Structure of the machine : The machine should be sturdy and welded steel plate fabrication to avoid any deflection /distortion after prolong use of the machine.	Vendor			
4.3	Control System for Moving Electrode : Heavy duty 2 way pneumatic operated cylinders should be mounted in horizontal plane for the stroke of the moving electrode to clamp the stacked copper strips for compacting/ solidification operation.	Vendor			
4.4	Heat initiation and Control : Heat initiation will be done by foot operated switch connected to low voltage safe initiating switch which will operate the main contactor. Current setting will be done by selecting the tap changer in the primary side of the transformer to match with the job requirement. Tap changer should have provision for adjustment of current in steps from 40-100 % . Tap changer is to be located suitably on the machine for the ease of the operator. Specification details of the transformer is to be furnished to the offer.	Vendor			
4.5	Electrode : Good quality of graphite electrode for easy mounting on the electrode holder, is to be provided. Drawing details of the electrode holder for fixing the graphite electrode, is to be furnished in the offer. The cross section of the graphite electrode should be sufficient for solidification/ compacting of flexible link as per attached annexure-I and Spec.SI.no.3 in two settings.	Vendor			

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4.6	Cooling System: Transformer, platters and electrode holder will be cooled with water. Internal water cooling piping for each circuit is to be provided with machine. The work piece also to be water cooled externally. A water tank of suitable size is to be provided with machine for external cooling of flexible link along with the cooling system. Supplier will furnish the details of cooling system for effective cooling of the parts / components of the machine.	Vendor			
4.6.1	Inlet hot water temperature to cooling tower :	Vendor			
4.6.2	Outlet cold water temperature from cooling tower :	Vendor			
4.6.3	Design wet-bulb temperature of ambient air :	Vendor			
4.6.4	Make & Model of Cooling :	Vendor			
4.6.5	Type & Capacity of cooling tower:	Vendor			
4.6.6	Water flow rate :	Vendor			
4.6.7	Pump Make & Capacity :	Vendor			
4.6.8	Heat Load removal capacity of cooling tower : Kcal/hr.	Vendor			
4.6.9	Mechanical Equipment data				
4.6.10	Motor Make & Capacity (HP):	Vendor			
4.6.11	Motor Type:	Vendor			
4.6.12	Fan Type :	Vendor			
4.6.13	Overall tower size (L x B x H) in mm :	Vendor			
4.6.14	Material of construction :				
4.6.15	Structure/ Body/ Fan desk / Fan stack / Louvers / cold water basin / Fill support :	Vendor			
4.6.16	Suitable end fitting complete with leak proof stop cock and nozzle is to be supplied on chiller for first filling and make up water. Similarly overflow connection is to be provided along with the level indicator. One connection end along with fitting is to be provided for draining out the water from storage tank.	Vendor			
5.0	GENERAL ARRANGEMENT DRAWING OF THE OFFERED MACHINE:				
5.1	Supplier will furnish the general arrangement drawing of the machine including the following points in the offer.	Vendor			
5.1.1	Overall size of the machine.	Vendor			
5.1.2	Mounting details of electrode holder.	Vendor			
5.1.3	Specification details of the transformer.	Vendor			
5.1.4	Specifications details of the pneumatic cylinders.	Vendor			

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	Specification No. S-EMT-248/00 Dt.30.09.2015				
5.1.5	Location of tap changer on the body of the machine.	Vendor			
5.1.6	Steps on tap changer on primary side of the transformer.	Vendor			
5.1.7	Details of cooling circuit for the transformer and electrode holder.	Vendor			
6.0	OPERATIONAL & MAINTENANCE MANUAL :				
6.1	Operation and maintenance manual in English language, will be supplied along with the resistance brazing machine. Qty: Four sets in hard copies (with Ring binders and good quality paper) and one set soft copy in CD.	Vendor			
6.2	In addition to other information, O&M Manual should contain the following also :	Vendor			
6.2.1	Electrical schematic diagram.	Vendor			
6.2.2	Pneumatic circuit diagram.	Vendor			
6.2.3	Wiring diagram indicating layout of cables, plugs, junction boxes, terminal strips etc.	Vendor			
6.2.4	Detailed assembly drawings with clear markings of each component giving reference of manufactures for each assembly / sub-assembly.	Vendor			
6.2.5	Operation & maintenance manual of machine.	Vendor			
6.2.6	Operation & maintenance manual of all auxiliary systems/ equipment.	Vendor			
6.2.7	Spare parts list along with the drawing, specifications and address of the manufacturer.	Vendor			
7.0	FOUNDATION PLAN :				
	Foundation plan of the resistance brazing machine alongwith the cooling tower giving load points, will be supplied by the supplier within one month from the date of issue of purchase order. The foundation will be prepared by BHEL under the supervision of supplier's representative if desired by the supplier.	Vendor			

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Sl.No.	Description for BHEL Requirement Specification No. S-EMT-248/00 Dt.30.09.2015	Specified/To be confirmed by	Offered	Deviations	Remarks
8.0	FOUNDATION BOLTS, ANCHORING MATERIAL : Foundation bolts, anchoring material and other items required for fixing of the resistance brazing machine on foundation will be supplied along with the machine. Specification details of grouting mortar required for the foundation of the brazing machine, is to be furnished by the vendor.	Vendor			
9.0	POWER SUPPLY AND ENVIRONMENT CONDITION :				
9.1	Power Supply: BHEL will provide input power supply 3 phase, 3 wire, 415 + / - 15% volt, 50 + / - 3% Hz to nearby Isolator switch (BHEL Scope). Cable connection from Isolator Switch to the Control Panel of the 250 KVA, 1-Ø Resistance brazing machine with 20 TR cooling tower and remaining cable / wire connection from control panel to the 250 KVA, 1-Ø Resistance brazing machine with 20 TR cooling tower, will be in the Scope of the vendor. There will be no neutral wire and earthing will be provided through shop structure column.	Vendor			
9.2	Environment Conditions: The resistance brazing machine shall be suitable for operation in tropical conditions with ambient temperature from 0 to 50 degree centigrade and relative humidity form 2 to 100%.	Vendor			
9.3	Noise Level: Maximum noise level of resistance brazing machine should be 85 DB (A) at normal load condition, one meter away from the machine with correction factor for background noise, if necessary.	Vendor			
10.0	ERECTION & COMMISSIONING OF THE BRAZING MACHINE : Supplier to take full responsibility for carrying out the erection, start up, testing of machine with cooling tower, it's control & all types of other supplied equipment , machining of test pieces 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. Other requirements like crane and helping personnel shall also be provided by BHEL. Details of these requirements should be informed by vendor in advance.	Vendor			

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11.0	PROVING OF RESISTANCE BRAZING MACHINE: Proving of components at BHEL works by compacting minimum five nos. flexible links, will be carried out by the supplier as per attached Annexure-I in two settings . All the required inputs like graphite electrode, clamps etc. are in the scope of vendor.	Vendor			
12.0	OTHER ESSENTIAL ITEMS : Full description along with quantity and price of other items not covered at Sl. No 4.0 to 11.0 as above but are essential for the installation, commissioning and operation of the resistance brazing machine, is to be mentioned specifically in the offer.	Vendor			
13.0	PAINTING : The resistance brazing machine will be painted to RAL 6011 Reseda green or as per BHEL option. Note: Supplier will repair the painting with the original paint in case the same is damaged in transit.	Vendor			
14.0	SPARES:				
14.1	Set of spares indicating essential and optional on following categories, suitable for 2 years trouble free operation of the resistance brazing machine, is to be offered.	Vendor			
14.2	Mechanical	Vendor			
14.3	Electrical	Vendor			
14.4	Electronics	Vendor			
14.5	Pneumatic	Vendor			
14.6	Detailed item wise-price list of the spares along with the name and address of suppliers for all bought out items to be offered against each of the above categories along with quantity recommended.	Vendor			
14.7	Vendor will give offer validity of two years for the spares after erection & commissioning the Resistance Brazing Machine at BHEL works.	Vendor			
15.0	AIR COMPRESSOR : As per the requirement of pneumatic systems provided in the resistance brazing machine, supplier should offer suitable air compressor if necessary for the operation of the machine.	Vendor			
16.0	TRAINING: Training of two BHEL engineers at suppliers works for 3 days / mutually agreed period in the area of control in electrical/ electronics, operation, mechanical/ pneumatic maintenance of the resistance brazing machine.	Vendor			

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17.0	PRE-ACCEPTANCE WITH TEST RUN AT VENDOR'S WORKS :				
17.1	Demonstration of all features of the machine, control system & accessories to the satisfaction of BHEL for efficient and effective use of the machine	Vendor			
17.2	Pre-acceptance of Resistance Brazing Machine with test run will be witnessed by BHEL Engineers deputed for pre-dispatch Inspection at supplier's works. During pre-dispatch inspection, the supplier shall carry out compacting / solidification of minimum 3 nos. of copper flexible links as per attached Annexure-I and Spec.SI.No.3. Note: Copper strips required as per attached Annexure-I and Spec.SI.No.3 for compacting / Solidification , will be arranged by the supplier.	Vendor			
18.0	GUARANTEE :				
	Guarantee for complete Resistance Brazing Machine and its Control for 24 months from the date of final acceptance of the Machine at BHEL works.	Vendor			
19.0	QUALITY PLAN :				
	Quality plan of the Resistance Brazing machine will be submitted to BHEL for approval within one month from the date of issue of purchase order.	Vendor			
20.0	PACKING :				
	Sea worthy and rigid packing for all the items of the Resistance Brazing Machine and other supplied items, to avoid any damage / loss in transit. All small and loose items like spares etc., should be suitably marked and properly packed in wooden boxes.	Vendor			
21.0	GENERAL INFORMATION :	Vendor			
21.1	Total connected load (KVA)	Vendor			
21.2	Floor area required (Length,Width,Height) for complete machine & accessories.	Vendor			
21.3	Total weight of the machine.	Vendor			
21.4	Weight of the heaviest part of machine.	Vendor			
21.5	Weight of the heaviest assembly / sub-assembly of the Machine.	Vendor			
21.6	In addition all other features of the machine model and points agreed during	Vendor			

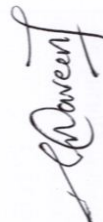
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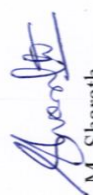
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22.0	QUALIFYING CONDITIONS : Only those vendors (OEMs), who have supplied and commissioned at least one Resistance Brazing Machine for Compacting / Solidification of the Flexible Link or higher sizes for similar applications in the past ten years (on the date of opening of Tender) and referred machine is working satisfactorily for more than one year (on the date of opening of Tender) after commissioning, should quote. The following information should be submitted by the vendor about the companies where referred Machines have been supplied. The vendor to submit the P.O copy / performance certificate, from the companies where referred machines have been supplied. This is required for all the vendors for qualification of their offer.	Vendor			
	1. Name of the customer / company where referred Machine is installed.	Vendor			
	2. Complete postal address of the customer.	Vendor			
	3. Month and year of commissioning.	Vendor			
	4. Parameters of Machine(s) supplied and application for which the Machine is supplied.	Vendor			
	5. Name and designation of the contact person of the customer.	Vendor			
	6. Phone, FAX no. and email address of the contact person of the customer.	Vendor			
	7. Performance certificate from the customers regarding satisfactory performance of Machine supplied to them (Original certificate or Through E-mail directly from the customer). The Original performance certificate may be returned after verification by BHEL, if required.	Vendor			
	8. BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/incorrect, the offer shall be rejected.	Vendor			


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