

	<b><u>BHARAT HEAVY ELECTRICAL LIMITED</u></b>			Enquiry No. :		
	<b><u>UNIT'S ADDRESS:</u></b>			Due Date :		
	<b><u>CONTACT PERSON'S:</u></b>			Supplier Qtn. No.:		
				Date :		
<b><u>SPECIFICATION CUM COMPLIANCE CERTIFICATE OF 20 TON WELDING MANIPULATOR</u></b>						
<b>NOTE:-</b>						
<b>1. Vendor must submit complete information against clause no. 19.0 The offer meeting this clause would only be processed</b>						
<b>2. The "Offered" Column and where applicable, the "Deviations" &amp; "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.</b>						
<b>3. The offer and all documents enclosed with offer should be in English language only.</b>						
NAME & ADDRESS OF THE SUPPLIER :						
NAME & ADDRESS OF THE SUPPLIER :						
FAX NOS.:						
E-MAIL ADDRESS :						
SCOPE: SUPPLY, ERECTION & COMMISSIONING OF WELDING POSITIONER COMPLYING WITH SPECIFICATIONS AS BELOW						

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED	OFFERED	DEVIATIONS	REMARKS
1.0	<b>PURPOSE: (Operations/Jobs involved): Rotation of Jobs upto 20 Ton at various angles as required by job geometry various prespecified RPM.</b>	Vendor to Confirm			
2.0	<b>SPECIFICATION:</b>				
2.1	Load Capacity: 20 ton at minimum 300 mm offcentre & 300 mm Centre of Gravity	Vendor to Confirm			
2.2	Rotational Speed range of Table: 0.02 - 0.5 RPM	Vendor to Confirm			
2.3	Tilt: 135 ° ( i.e. 90° from flat to vertical & further 45° inclination from vertical) - Tilting time not more than 2 minutes.	Vendor to Confirm			
2.4	Table Size (Dia without Extension arms): ≥ 3000 mm	Vendor to Confirm			
2.5	Table Size (Dia with Extension arms): 4500 mm (Min.)	Vendor to Confirm			
2.6	No of T -Slots on Face plate: ≥ 4	Vendor to Confirm			
2.7	Overall Height	Vendor to Specify			
3.0	<b>Motor (AC)</b>				
3.1	Type: Gear Driven	Vendor to confirm			
3.2	Make and Model	Vendor to specify			
3.3	Rating of Motor	Vendor to specify			
3.4	Controller for Motor Variabe speed control (Vendor to furnish details)	Vendor to confirm			
3.5	Maximum welding current for the jobs to be welded on Manipulator = 1200 Amp. Welding return current collector (earthing) to be provided with suitsble terminal near the Face Plate so that welding current does not travel through Bearings and Motor.	Vendor to confirm			
4.0	<b>Operation &amp; Control System:</b>				
4.1	On-Off switch with indication lamp.	Vendor to Confirm			
4.2	Safety Disconnect switch	Vendor to Confirm			
4.3	Magnetic reversing starter	Vendor to Confirm			

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4.4	Rotational speed indicator	Vendor to Confirm			
4.5	<b>Dust tight Remote control pendant shall have following control:</b>	Vendor to Confirm			
	a) Start stop switch	Vendor to Confirm			
	b) Switch for tilting of positioner at specified angle	Vendor to Confirm			
	c) Rev Switch for rotation in clockwise and anticlockwise directon.	Vendor to Confirm			
	d) Rapid traverse	Vendor to Confirm			
	e) Rotational speed controller with Speed infinitely variable between 0.025-0.5 RPM	Vendor to Confirm			
	<b>5.0 CONSTRUCTION:</b>				
5.1	Positioner should be fabricated to suit Robust work environment, frequent handling and temperature due to welding of Jobs placed on it.	Vendor to confirm			
	<b>6.0 ELECTRICAL SYSTEM :</b>				
6.1	415V $\pm 10\%$ , 50HZ $\pm 3\%$ , 3 Phase AC (3 wire system with out neutral) Power Supply Source will be provided by BHEL at a single point near the positioner, 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 positioner/control cabinets, shall be the resposibility of vendor. Requirement of grounding/earthing with required material details is to be informed by vendor well in advance so that same could be incorporated during construction of foundation.	Vendor to confirm			
6.2	<b>Tropicalisation:</b> All electrical / electronic equipment shall be tropicalized	Vendor to confirm			
6.3	All electrical & electronic control cabinets & panels should be dust and vermin proof	Vendor to confirm			
6.4	All electrical components in the cabinets should be mounted on DIN Rail	Vendor to confirm			
6.5	Motors shall conform to IEC or Indian Standards	Vendor to confirm			
6.6	Vendor should ensure the proper earthing for equipment and its peripherals.	Vendor to confirm			

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<b>7.0</b>	<b>ENVIRONMENTAL PERFORMANCE OF THE positioner :</b>	<b>Vendor to confirm</b>			
	The positioner shall conform to following factors related to environment :				
	(a) If any safety / environmental protection enclosure is required it should be built in the by the vendor.				
	(b) Paint of the positioner should not peel off during positioner operation..				
<b>8.0</b>	<b>LEVELING &amp; ANCHORING SYSTEM</b>				
8.1	Complete anchoring system including foundation bolts, anchoring materials, fixators,	Vendor to confirm			
8.2	Layout details for the preparation of foundation to be sent by the vendor, within one month after placement of order.	Vendor to confirm			
<b>9.0</b>	<b>ACCESSORIES:</b> 16 nos. Job Clamping elements suitng to size of T-slots on the of the machine to be supplied alongwith the machine, alongwith one set of spares.	Vendor to confirm			
<b>10.0</b>	<b>SPARES:</b>				
10.1	Unit price list for itemised breakup of mechanical, electrical and electronic spares used on the positioner 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			
10.2	All types of spares for total positioner and accessories should be available for atleast ten years after supply of the positioner. If positioner 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 specify			
10.3	Recommended set of spares for all attachments are to be offered with details.	Vendor to specify			

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10.4	Vendor to confirm that complete list of spares for positioner and accessories, along with specification / type / model, name & address of the spare supplier shall be furnished along with documentation to be supplied with the positioner	Vendor to confirm			
<b>11.0</b>	<b>DOCUMENTATION : Five sets of following documents (Hard copies) in English language should be supplied along with the positioner</b>	Vendor to confirm			
11.1	Operating manuals of positioner.	Vendor to confirm			
11.2	Detailed Maintenance manual of positioner with all drawings of positioner assemblies/sub-assemblies/parts including electrical diagrams. All Assembly/ Sub Assembly Drawings shall be supplied with the part list also	Vendor to confirm			
11.3	Catalogues, Q&M Manuals of all bought out items including drawings, wherever applicable.	Vendor to confirm			
11.4	Detailed specification of all rubber items and hydraulic/lube fittings	Vendor to confirm			
11.5	Operating Manuals, Maintenance Manuals & Catalogues for supplied supplied Accessories.	Vendor to confirm			
11.6	Complete Master List of parts used in the positioner shall be submitted by the vendor.	Vendor to confirm			
11.7	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor to confirm			
<b>12.0</b>	<b>TRAINING:</b>				
12.1	BHEL Persons should be trained at supplier's / BHEL Works for mutually agreed period in the area of (a) Mechanical, Electrical & Electronic maintenance of the positioner & other supplied equipments (b) Operation of the positioner & other supplied equipments.	<b>Vendor to confirm</b>			
12.2	Vendor to quote for training on man / week basis	Vendor to specify			

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<b>13.0</b>	<b>ERECTION &amp; COMMISSIONING</b>				
13.1	Supplier to take full responsibility for carrying out the erection, start up, testing of positioner, it's control system & all types of other supplied equipment.. Service requirement like power, air, shall be provided by BHEL at only one point to be indicated by supplier in advance. 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 to confirm			
13.2	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. All tests, as mentioned at clause 15 (positioner Acceptance) shall form part of the commissioning activity.	Vendor to confirm			
13.3	Tools, instruments and other necessary equipment required to carry out all above activities should be brought by the supplier.	Vendor to confirm			
13.4	Commissioning spares, required for commissioning of the positioner within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to confirm			
13.5	Portion, if any, of the positioner, 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			
13.6	Schedule of Erection and Commissioning shall be submitted with the offer.	Vendor to confirm			
13.7	Charges, duration, terms & conditions for E&C should be furnished in detail	Vendor to confirm			
13.8	Machine to be supplied with first filling of oil & grease.	Vendor to confirm			
<b>14.0</b>	<b>AMBIENT CONDITIONS &amp; THERMAL STABILITY :</b>				

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14.1	Total positioner including all system and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 415 V, $\pm 10\%$ Frequency: 50 Hz $\pm 3\%$ No. of phases = 3 Ambient Conditions: Temperature = 5 to 50 degree celsius Relative Humidity = 95% max. (Vendor to confirm that positioner is suitable for above and details of provisions on the positioner for the same are to be furnished by Vendor)	Vendor to confirm			
14.2	The positioner, 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 confirm			
15.0	<b>Positioner ACCEPTANCE: (Tests/Activities To be Performed by Vendor)</b>	<b>Should be accepted &amp; confirmed by Vendor</b>			
15.1	<b>Tests/Activities should be carried out at supplier's works on the positioner before dispatch :</b>				
15.1.1	The positioner should be tested for continuous running at full capacity and at various speeds.	Vendor to confirm			

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15.1.2	Demonstration of all features of the positioner, and all accessories.	Vendor to confirm			
<b>15.2</b>	<b>Test to be carried out at BHEL works while commissioning the positioner</b>	Vendor to confirm			
15.2.1	Demonstration of all features of the positioner & all accessories to the satisfaction of BHEL.	Vendor to confirm			
15.2.2	Demonstration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to confirm			
15.2.3	On Job prove out.	Vendor to confirm			
15.2.4	Two weeks independent operation of positioner by BHEL after job proveout.	Vendor to confirm			
15.2.5	Training of BHEL positioner operators in operation of complete positioner & accessories etc by the supplier's experts / engineers during their stay at BHEL works	Vendor to confirm			
<b>16.0</b>	<b>PACKING: Sea worthy &amp; rigid packing for all items of complete positioner, all Accessories and other supplied items to avoid any damage/loss in transit.</b>	Vendor to confirm			
<b>17.0</b>	<b>GUARANTEE : 12 months from the date of acceptance of the positioner.</b>	Vendor to confirm			
<b>18.0</b>	<b>GENERAL : The vendor should submit the following information:</b>				
18.1	Floor area required (Length, Width, Height) for complete positioner & accessories	Vendor to specify			
18.2	Total weight of the positioner	Vendor to specify			
18.3	Weight of heaviest part of positioner	Vendor to specify			
18.4	Dimensions of largest part/ subassembly/ assembly of the positioner	Vendor to specify			
18.5	Vendor to submit, along with offer, the reference list of customers where similar positioners have been supplied mentioning the customer, positioner Model, major specifications of the supplied positioner, Year of Supply etc	Vendor to specify			

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18.6	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Vendor to specify			

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<b>19.0</b>	<b>QUALIFYING CONDITIONS :</b>				
19.1	Makes of companies who have supplied at least two positioners of 20 Ton or higher capacity and tilting angle of 135 ° or higher with variable speed control in the past ten years and such machine is presently working satisfactorily for more than three years after commissioning should only be quoted in the tender. The following information is to be submitted by the vendor about the companies where similar machines have been supplied.	<b>Vendor to Confirm</b>			
19.1.1	Name of the customer / company where similar machine is installed.	Vendor to Confirm			
19.1.2	Complete postal address of the customer.	Vendor to Confirm			
19.1.3	Year of commissioning.	Vendor to Confirm			
19.1.4	Application for which the machine is supplied with details of accuracies achieved on the job.	Vendor to Confirm			
19.1.5	5. Name and designation of the contact person of the customer.	Vendor to Confirm			
19.1.6	Phone, FAX no. and email address of the contact person of the customer.	Vendor to Confirm			
19.1.7	Performance certificate from the customers regarding satisfactory performance of machine supplied to them	Vendor to Confirm			