

	<u>BHARAT HEAVY ELECTRICAL LIMITED</u>		Enquiry No. :		
	<u>UNIT'S ADDRESS:</u>		Due Date :		
	<u>UNIT'S ADDRESS:</u>		Supplier Qtn. No.:		
			Date :		
<u>SPECIFICATION CUM COMPLIANCE CERTIFICATE OF PORTABLE HARDNESS TESTER</u>					
NOTE:-					
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.					
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: SUPPLY, ERECTION & COMMISSIONING OF PORTABLE HARDNESS TESTER COMPLYING WITH SPECIFICATIONS AS BELOW					
SNO	DESCRIPTION FOR BHEL REQUIREMENT	Vendor to Specify/Confirm	OFFERED Parameters	DEVIATIONS	REMARKS

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1.0	PURPOSE & WORKPIECE MATERIAL				
1.1	Purpose: (Operations/Jobs involved) :Rebound type In-situ hardness measurment for testing metallic materials, the hardness of which ranges from very low to very high.	Vendor to confirm			
2.0	PORTABLE HARDNESS TESTER CONSISTING OF :				
2.1	Impact device: D	Vendor to confirm			
2.1.1	Type: D	Vendor to confirm			
2.1.2	Hardness testing range: 81-940 HV; 40 - 655 HB	Vendor to confirm			
2.1.3	The indicating unit must correct the influence of different impact directions automatically. It should be based on rebound principal.	Vendor to confirm			
2.1.4	Material: Mild steel, alloy steel, hardened steel, stainless steel and non ferrous materials	Vendor to confirm			
2.2	Connection cable length:	Vendor to specify			
2.3	Hardness reference Block: (Vendor to specify details about type, reference values and accuracies)	Vendor to confirm			
2.4	Set of batteries suitable for equipment (vendor to specify details)	Vendor to confirm			
2.5	Transport case	Vendor to confirm			
2.6	Cleaning Brush	Vendor to confirm			
2.7	Coupling Plate	Vendor to confirm			
2.8	Carrying Case	Vendor to confirm			
2.9	Weight of complete Instrument ≤ 10 Kg	Vendor to confirm			
3.0	Accuracy:				
3.1	Measuring Accuracy: ± 0.5 %	Vendor to confirm			
3.2	Display of Hardness readings in different scales e.g. Sore, Brinell, Rockwell & Vickers etc. Mean conversion deviation when converting into static indentation methods (HB, HV or HRC) $\leq \pm 5$ %	Vendor to confirm			
3.3	Test certificate from Original equipment manufacturer is must regarding accuracies and performance of machine	Vendor to confirm			

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4.0	Electronic Indicating Device				
4.1	On -Off button	Vendor to confirm			
4.2	Selection of Different Inputs	Vendor to confirm			
4.3	Digital display and graphic Recording of the measured L values	Vendor to confirm			
4.4	Should show last hardness or average hardness reading.	Vendor to confirm			
4.5	Calculation of mean value, standard deviation and Range	Vendor to confirm			
4.6	Conversion into other hardness numbers	Vendor to confirm			
4.7	Data Storage with output facility to transfer data to Computer	Vendor to confirm			
4.8	Selection of impact direction	Vendor to confirm			
4.9	Selection of hardness scale and material	Vendor to confirm			
4.10	Fault diagnosis system	Vendor to confirm			
5.0	ENVIRONMENTAL PERFORMANCE OF THE MACHINE :	Vendor to confirm			
	The equipment shall conform to following factors related to environment :				
	(a) If any safety / environmental protection enclosure is required it should be built in the machine by the vendor.				
	(b) Paint of the machine should be oil / coolant resistant and should not peel off and mix up with coolant.				
6.0	Machine Maintenance Spares:				
6.1	Itemised breakup of spares used in the machine in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation should be offered by vendor. (Unit Price of each item of spare should be offered)	Vendor to quote and attach separate detailed list of spares along with un-priced bid.			
6.2	All types of spares for total equipment and accessories should be available for atleast ten years after supply of the machine. If equipment 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 confirm			

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7.0	DOCUMENTATION : Five sets of following documents (Hard copies) in English language should be supplied along with the machine	Vendor to confirm			
7.1	Operating and maintenance manuals of Machine and all supplied accessories.				
7.2	Detailed Maintenance manual of machine				
7.3	Complete Master List of parts and spares used in the machine (with identifications, make, model, rating , price and name & address of suppliers of all items) shall be submitted by the vendor.				
7.4	One additional set of all the above documentation on CD ROM, wherever possible.				
8.0	AMBIENT CONDITIONS & THERMAL STABILITY :				
8.1	Total machine and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 400 V - 10%, +10% Frequency: 50 Hz + /- 0.5 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 provisions on the machine for the same are to be furnished by Vendor)	Vendor to confirm			
9.0	Test to be carried out by Vendor at BHEL works while commissioning the machine :				
9.1	Demonstration of all features of the machine & all accessories to the satisfaction of BHEL for their efficient and effective use.	Vendor to confirm			

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9.2	Demostration by actual use of all supplied attachments and accessories to their full capacity.	Vendor to confirm			
9.3	Training of BHEL maintenance personnels on machine for trouble shooting and effective maintenance of complete machine & accessories by the manufacturer's experts/ engineers during their stay at BHEL works.	Vendor to confirm			
9.4	Training of BHEL welder in operation of complete machine & accessories etc by the manufacturer's experts / engineers during their stay at BHEL works	Vendor to confirm			
9.5	Insrument must be calibrated and proved.	Vendor to confirm			
10.0	PACKING: Sea worthy & rigid packing for all items of complete machine.				
11.0	GUARANTEE : Supplier should guarantee the machine performance for 12 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			
12	GENERAL : The vendor should submit the following information:				
12.1	Machine Model	Vendor to specify			
12.2	Total connected load (KVA):	Vendor to specify			
12.3	Total weight of the machine	Vendor to specify			
13.0	QUALIFYING CONDITIONS:				
13.1	Makes of companies who have supplied at least two hardness testing equipment of similar capacity and such equipment is presently working satisfactorily for more than one year after delivery 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.	Vendor to confirm			

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13.1.1	1. Name of the customer / company where similar machine is installed.	Vendor to specify			
13.1.2	2. Name, designation, phone, fax, email & postal address of the contact person of the customer.	Vendor to specify			
13.1.3	3. Year of commissioning.	Vendor to specify			
13.1.4	4. Application for which the machine is supplied.	Vendor to specify			
14.0	INSTALLATION & COMMISSIONING:				
14.1	Vendor to commission the machine at BHEL works free of cost	Vendor to confirm			