

	BHARAT HEAVY ELECTRICAL LIMITED		Enquiry No. :	
	UNIT'S ADDRESS		Due Date :	
	UNIT'S PHONE NOS.		Supplier Qtn. No.:	
	CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL (FROM		Date :	

SPECIFICATION CUM COMPLIANCE CERTIFICATION FOR Portable Hardness Tester for LP Moving Blades

NOTE:-

1. Vendor must submit complete information against clause no. 20.0 The offer meeting this clause would only be
2. The "Offered" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the
3. The offer and all documents enclosed with offer should be in English language only.

ADDRESS OF THE SUPPLIER :		ADDRESS OF THE INDIAN AGENTS :	
TELEPHONE NOS.:		TELEPHONE NOS.:	
FAX NOS.:		FAX NOS.:	
E-MAIL ADDRESS :		E-MAIL ADDRESS :	

SCOPE: SUPPLY & COMMISSIONING OF Portable Hardness Tester for LP Moving Blades COMPLYING WITH SPECIFICATION AS

SL. NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	OFFERED	DEVIATIONS	REMARKS
1.0	Purpose: For measurement of hardness near the inlet edge on the convex side of Steam Turbine LP Moving Blades (with twisted airfoil) after inlet edge hardening. The material of the Blades is 13% Cr steel and the hardness specification in the hardened area is 460 to 520 HV10. Please refer to Annexure-1, showing the Drawing of a typical LP Moving Blade indicating the hardened area where hardness needs to be measured.	Vendor to confirm			
2.0	Principle of operation:	Ultrasonic Contact Impedance (UCI) Method in accordance with ASTM A 1038, with Vickers penetration (diamond angle 136 degrees)			
3.0	Measuring Range:	Vickers Hardness HV 50 to 800.			
4.0	Conversion:	HV, HB, HRC, HRB			
5.0	The instrument shall be capable of operating with both handheld/manual probes and motorised probes.	Vendor to confirm and furnish details			
6.0	Direction:	The instrument should be able to measure hardness in all directions with constant accuracy.			
7.0	Reproducibility:	+/- (3% reading) HV or better.			
8.0	Display Resolution:	1.0 HV 1.0 HB 1.0 N/mm2 1.0 / 0.5 / 0.1 HRB 1.0 / 0.5 / 0.1 HRC			
9.0	Direct reading of hardness.	Vendor to confirm			
10.0	Display of measured values:	Digital display with backlight.			
11.0	Operating Temperature range:	5-45 ° C.			

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12.0	The equipment shall be operable with Rechargeable battery power supply. (a) 2 Nos. Rechargeable battery, with minimum 4 hours battery backup, shall be supplied. (b) 1 No. matching Battery Charger 230V shall be supplied.	Vendor to confirm			
13.0	All Accessories, special bases, Probes and Probe Attachments required for measurement of hardness (a) near the inlet edge on the convex side of Steam Turbine LP Moving Blades (with twisted airfoil), and (b) on flat surfaces shall be supplied.	Vendor to confirm			
14.0	Suitability of the Probes, Probe Attachments and Accessories for reliable hardness measurement on curved surface of the blades shall be explained and illustrated with sketches along with the offer.	Vendor to confirm			
15.0	Vickers Standard Hardness Test Blocks (a) 240 HV10, 1 No., (b) 540 HV10, 1 No., shall be supplied along with Calibration Certificates.	Vendor to comply			
16.0	The following UCI probes shall be supplied along with the main instrument: (a) Handheld probe for 1 kgf (10 N) load, 1 No. (b) Handheld probe for 10 kgf (98 N) load, 1 No.	Vendor to comply and furnish details			
17.0	Stand for the main unit with holding arrangement for the Probe/Probe Attachment shall be supplied.	Vendor to comply			
18.0	Carrying Case shall be supplied.	Vendor to comply			
19.0	Detailed Catalogue of the quoted equipment shall be furnished along with the offer.	Vendor to comply			
20.0	QUALIFYING CONDITIONS				
20.1	Only those suppliers shall quote who have supplied and commissioned at least THREE nos. of such instruments of the same model in past three years and the supplied instruments are presently working satisfactorily for more than one year after commissioning. However, if such a instrument has been supplied to BHEL, then such instrument should be presently working satisfactorily for more than six months after its commissioning and acceptance in BHEL. Performance certificate(s) (with specific mention of Model No.) from the customer(s) regarding satisfactory working for more than one year after commissioning for minimum three instruments shall be furnished.	Vendor to comply and furnish details			
20.2	The following information should be submitted by the vendor about the companies where similar instruments have been supplied. This is required for all vendors for qualification of their offer.				
20.2.1	Name & complete address of the customer / company, where such instruments(s) is(are) working.	Vendor to submit			
20.2.2	Year of Commissioning of the supplied instruments.	Vendor to submit			
20.2.3	Application for which the instrument has been supplied.	Vendor to submit			
20.2.4	Performance certificate(s) (with specific mention of Model No.) from the customer(s) regarding satisfactory working for more than one year after commissioning for minimum three instruments shall be furnished.	Vendor to submit			
20.2.5	Name, designation, address, Phone no., FAX no. and email address of the issuer of the Performance Certificate/ contact person of the customer.	Vendor to submit			

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20.2.6	BHEL reserves the right to verify the information provided by the supplier. In case the information provided by supplier is found to be false/incorrect, the offer shall be rejected.	Vendor to submit			
21.0	Commissioning and Job prove-out to be done at BHEL.	Vendor to comply			
22.0	Training for a period of two days in operation & maintenance at BHEL.	Vendor to comply			