

<b><u>BHARAT HEAVY ELECTRICAL LIMITED RAMACHANDRAPURAM</u></b>			<b>Enquiry No. :</b>		
<b>UNIT'S ADDRESS:</b>			<b>Due Date :</b>		
<b>UNIT'S PHONE NOS.</b>			<b>Supplier Qtn. No.:</b>		
<b>CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL (FROM PURCHASE DEP'T.)</b>			<b>Date :</b>		
<b>SPECIFICATION CUM COMPLIANCE CERTIFICATE FOR DIGITAL ULTRASONIC TESTING EQUIPMENT. QUANTITY: 1 No.</b>					
<b>NOTE:</b>					
<b>1. Vendor must submit complete information against clause nos. 29 The offer meeting this clause would only be processed.</b>					
<b>2. 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>					
<b>ADDRESS OF THE SUPPLIER :</b>			<b>Address of the Indian Agents:</b>		
<b>TELEPHONE NOS.:</b>			<b>TELEPHONE</b>		
<b>FAX NOS.:</b>			<b>FAX NOS.:</b>		
<b>E-MAIL ADDRESS :</b>			<b>E-MAIL</b>		
<b>SNo.</b>	<b>Description for BHEL Requirement</b>	<b>REQUIRED</b>	<b>OFFERED</b>	<b>DEVIATIONS</b>	<b>REMARKS</b>
1.00	<b>PURPOSE:</b>				
1.01	Digital Ultrasonic Testing Equipment suitable for flaw detection in Ferrous & Non-Ferrous materials such as Castings, Forgings, Bars, Plates, Pipes, Weldments and Composites.	confirm			
1.02	<b>Make and model :</b>	specify			
2.00	<b>Test Modes :</b>				
2.01	Pulse echo and transmit/receive. Single crystal, Double crystal.	confirm			
3.00	<b>Display modes : A-scan</b>	confirm			

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4.00	<b>Material velocity range</b> : 260 to 16000 m/s	confirm			
5.00	<b>Pulser :</b>				
5.01	Pulser mode : spike and square wave	confirm			
5.02	Pulser Voltage : 100 V to 300 V with steps	confirm			
5.03	Pulser Width : 30 ns to 500 ns with steps	confirm			
5.04	Pulser Amplitude : Low:100 V , High: 300 V	confirm			
5.05	Damping : 50 and 400 Ohms selectable	confirm			
5.06	<b>PRF</b> : Automatically optimized between 5 Hz to 2000 Hz & Manual control of PRF from 5 Hz to 2000 Hz	confirm			
6.00	<b>Connectors</b> : Lemo or BNC	confirm			
7.00	<b>Reciever :</b>				
7.01	Range : 0-10000 mm at steel longitudinal wave	confirm			
7.02	<b>Digital Gain</b> : Dynamic range of 110 dB, with 0.2,0.5,1,2,6 dB steps	confirm			
7.03	Analog Bandwidth : 0.2 MHz to 20 MHz	confirm			
7.04	<b>Rectification</b> : Full wave, positive half wave, negative half wave and RF	confirm			
7.05	<b>System Linearity</b> : Horizontal + or -0.2%FSW and vertical +or-0.5%FSH	confirm			
7.06	Reject : Upto 80%FSH	confirm			
8.00	<b>Gate :</b>				
8.01	<b>Independent Gates</b> : Two Gates (1 and 2), Gate 2 can support triggering by Gate 1	confirm			
8.02	Rectification : Full Wave Positive	confirm			
	RF Negative	confirm			
8.03	Measurement : Peak Flank	confirm			
8.04	Measurement units : in, mm, $\mu$ s	confirm			
	Amplitude %dB	confirm			

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9.00	<b>Memory :</b>				
9.01	Capacity : 4 GB storage (minimum)	specify			
10.00	<b>LCD Display:</b>				
10.01	Active Area : 105 mm x 65 mm or more	specify			
10.02	Screen Diagonal : 5" or more	specify			
10.03	Resolution : 600 x 480 pixels or better	specify			
11.00	<b>Battery :</b>				
11.01	Operating time : minimum 8 hours in continuous operation <b>Charging</b> : Indication of battery charging status with adaptor <b>Charger</b> : Universal AC (100-240 V, 50-60 Hz)	confirm			
12.00	Calibration standard : EN12668-1:2010 or Equivalent Standard	specify			
13.00	<b>Protection for Equipment:</b>				
13.01	Water proof, shock proof, vibration proof	confirm.			
14.00	<b>Software Options</b> : DAC, DGS/AVG and AWSD1.1(optional)	confirm.			
15.00	<b>Operating Temperature range:</b> Upto 50 deg.C	specify			
16.00	<b>Weight</b> : Not more than 3.0 kg with battery	confirm.			
	<b>ACCESSORIES :</b>				
17.00	<b>PROBES :</b>				
17.01	Straight beam probe, 4 Mhz, 24 mm	1			
17.02	Straight beam probe, 4 Mhz, 10 mm	2			
17.03	Straight beam probe, 2 Mhz, 24 mm	1			
17.04	Straight beam probe, 2 Mhz, 10 mm	2			
17.05	TR probe, 4 Mhz, 20 - 24 mm	1			
17.06	TR probe, 4 Mhz, 10 mm	2			
17.07	TR probe, 2 Mhz, 18 - 24 mm	1			

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17.08	TR probe, 2 Mhz, 10 mm	2			
17.09	Angle beam probe, 45 deg, 4 Mhz, 20x22 mm	1			
17.10	Angle beam probe, 45 deg, 4 Mhz, 8x9 mm	2			
17.11	Angle beam probe,45 deg, 2 Mhz, 20x22 mm	1			
17.12	Angle beam probe, 45 deg, 2 Mhz, 8x9 mm	1			
17.13	Angle beam probe, 60 deg, 4 Mhz, 20x22 mm	1			
17.14	Angle beam probe, 60 deg, 4 Mhz, 8x9 mm	2			
17.15	Angle beam probe,60 deg, 2 Mhz, 20x22 mm	1			
17.16	Angle beam probe, 60 deg, 2 Mhz, 8x9 mm	1			
17.17	Angle beam probe, 70 deg, 4 Mhz, 20x22 mm	1			
17.18	Angle beam probe, 70 deg, 4 Mhz, 8x9 mm	2			
17.19	Angle beam probe,70 deg, 2 Mhz, 20x22 mm	1			
17.20	Angle beam probe, 70 deg, 2 Mhz, 8x9 mm	1			
18.00	<b>CABLES :</b>				
18.01	Connecting cable for straight beam probes (for size: 24 mm)	3			
18.02	Connecting cable for angle beam probes (for size: 20x22 mm)	2			
18.03	Connecting cable for straight beam probes(for size: 10 mm)	5			
18.04	Connecting cable for angle beam probes(for sizes: 8x9 mm)	5			
18.05	Connecting cable for TR probes(for size:18-24 mm)	2			
18.06	Connecting cable for TR probes ( for size:10 mm)	5			

SNo.	Description for BHEL Requirement	REQUIRED	OFFERED	DEVIATIONS	REMARKS
19.00	<b>SPARES</b> : standard spares for 2 years trouble free operation after guarantee period to be quoted seperately giving itemised break up.	specify			
20.00	<b>One set of battery with charger</b> extra to be provided along with the equipment.	confirm			
21.00	<b>INSPECTION</b> : Pre-dispatch inspection at supplier's works by BHEL Engineers. The equipment to be operated at maximum capacity on a test piece. Test piece should be provided by supplier for demonstration.	confirm			
22.00	<b>Erection and commissioning</b> : At BHEL works by qualified Engineers of supplier.	confirm			
23.00	<b>PROVE-OUT</b> : The equipment to be proved for its full capacity at BHEL works.	confirm			
24.00	<b>TRAINING</b> : for BHEL personnel ( two engineers of NDT and one electrical/electronic maintainance engineer) at BHEL works for 3 days after commissioning.	specify			
25.00	<b>Gaurantee : 24 months from date of commissioning</b>	confirm			
26.00	<b>Service after sales : during and after gaurentee period.</b>	specify			
27.00	<b>DELIVERY in months:</b>	Specify			

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28.00	<b>DOCUMENTS</b> : 5 Sets of operating and maintenance manuals in English for complete system with electrical, electronics and general arrangement drawings shall be furnished along with the equipment. Trouble shooting charts to be provided by the supplier	Specify			
29.00	<b>REFERENCE LIST / QUALIFYING CONDITIONS:</b>	Specify			
29.01	Only those vendors, who have supplied and commissioned atleast one of same or higher sizes for similar applications in the past ten years and such equipment(s) is working satisfactorily for more than one year, after commissioning should quote. However, if such machine(s) has /had been supplied to BHEL, then such equipment should be presently working satisfactory for more than six months after its commissioning and acceptance in BHEL, should quote. The following information should be submitted by the vendor about the companies where similar equipment(s) have been supplied. This is required from all the vendors for qualification of their offer.	Specify			
29.02	Name of the customer / company where similar machine is installed.	Specify			
29.03	Complete postal address of the customer.	Specify			
29.04	Year of commissioning.	Specify			
29.05	Performance certificate from the customer	Furnish			
29.06	Phone, FAX no. and email address of the contact person of the customer.	Specify			