

**TECHNICAL SPECIFICATION FOR PROFILE PROJECTOR**

Indent no. - 20133610

Sr. No.	Requirement	Vendor Remarks / Confirmation
	<b>Purpose:</b> During blade fitting work in Inner casings of steam turbine, a specific value of interference is to be maintained between joint blades. For calculating this interference, two lines are scribed on joint blades root & shroud by fitting in both halves of inner casing. Profile projector is to be used for precise measurement of gap between these scribed lines on blade root & blade shroud.	
1	Model no. (including all the agreed features)	To be informed by vendor.
2	Catalogue - 2 Copies	To be submitted with offer.
3	Projected Image	Erect-Unreversed image
4	Protractor screen effective measurement diameter	Dia 300mm or more
5	Protractor screen measuring range	±360 deg.
6	Protractor screen angle display	Digital
7	Protractor screen angle display Resolution	To be informed by vendor.
8	Protractor screen should have clearly visible 90 deg. solid cross-hair line.	To be confirmed by vendor.
9	Provision of Protractor screen Angle counter with Zero setting.	To be informed by vendor.
10	Projection lens	10X
11	Magnification accuracy	To be informed by vendor.
12	Maximum work-piece height	100mm or more.
13	Maximum Focusing range of 0 to 100mm or more (0 is at glass level)	To be confirmed by vendor.
14	Focusing Feed (Manual)- Minimum value	To be informed by vendor.
15	Surface illumination - Scribed lines on metallic workpiece should be clearly visible on screen.	To be confirmed by vendor.
16	Stage glass size (Length x width) / Working Area	(320mm or more) X (150mm or more)
17	Stage stroke (X-axis x Y-axis)- suitable for working area as per point no. 16.	To be confirmed by vendor. Vendor to specify values.
18	Stage Size	To be informed by vendor.
19	Measurement Accuracy in X & Y axis	{5µm (or less) + 0.05Lµm} or better. (L= Measurement Length (mm))
20	Maximum Load capacity of Glass stage	10 Kg or More
21	Separate digital display for X & Y axis values	Vendor to confirm
22	XY Display Measurement Unit	mm
23	XY Display Resolution	0.005mm or less.
24	XY Display Functions	To be informed by vendor.
25	X & Y axis movement (with zero setting) & focusing movement should be smooth, precise & with provision of fine adjustment using manual hand wheels.	To be confirmed by vendor.
26	External Dimensions for complete unit (L x W x H)	To be informed by vendor.
27	Main Unit Mass	To be informed by vendor.
28	Power Consumption	To be informed by vendor.

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29	Power Supply (415VAC±10%/50HZ, 3 phase+Earth (without neutral), 3-Wire Supply shall be provided. Supplied equipment should be suitable for this.	To be confirmed by vendor.	
30	Warranty for trouble free operation from the date of successful commissioning of the Equipment at BHEL, Haridwar works.	24 months from the date of commissioning.	
31	Pre-despatch inspection will be done by BHEL team at supplier's work for mutually agreed period to ensure specifications compliance and functioning of the equipment. The supplier to give prior notice in advance (15 days from the planned date for PDI) for carrying out the pre-despatch inspection.	To be confirmed by vendor.	
32	Final acceptance shall be made by BHEL at its plant following successful establishment of unit which includes installation, functional demonstration & establishment of actual working of the equipment & training of BHEL personnel. It shall be the responsibility of the supplier to arrange and provide all required items, tools & tackles as required for the successful commissioning of the equipment. BHEL will provide power supply only. After successful demonstration of equipment, it will be used for one day for specified purpose for final acceptance.	To be confirmed by vendor.	
33	Equipment supply condition: Equipment to be supplied in ready to operate condition.	To be confirmed by vendor.	
34	Packing : The machine shall be packed rigidly to avoid any transit damage.	To be confirmed by vendor.	
35	<p><b>SPARES:</b></p> <p><b>Essential Spares:</b> Vendor must Essentially quote the following spare parts ( <b>as used / applicable on the equipment</b>):</p> <p>(i)Scale &amp; Scanning head for X &amp; Y axis - One no. each</p> <p>(ii)Display unit - One no.</p> <p>(iii)Measuring system cables - one set</p> <p>(iv)All type of indicator lamps , focusing lamps,rotary switches with knobs etc. - One no. each type type.</p> <p>(vii) Projector lamp-10 nos. each type.</p> <p>(viii) Projector lamp holder-05 nos. each type.</p> <p><b>Optional Spares:</b> Following optional spares to be quoted ( <b>as used / applicable on the equipment</b> )</p> <p>(i) All electronic PCBs used on the equipment -One no.each type.</p> <p>(ii)Keyboard- One no. each type.</p>	To be informed & offered by vendor.	
36	Vendor must submit list of all items used including Power Card,Control card , Measuring Board, Display and Measuring system etc. List will contain the details of the bought-out items along with description and supplier details.	To be confirmed by vendor	
37	Operation & Maintenance Manual including electronic circuit diagrams & wiring / connector details.	4 sets	

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Qualifying Conditions For Profile Projector

Indent no. - 20133610

Requirment	Vendor Remarks / Confirmation
a) The supplier should be a Original Equipment manufacturer or Authorized supplier of OEM of Profile Projector.	
b) Only those vendors, who have supplied and commissioned at least two Profile Projectors of same or higher sizes (Protractor Screen Diameter, Stage Glass size ) in the past five years (on the date of opening of tender) and such equipment is presently working satisfactorily for more than one year after commissioning (on the date of opening of tender), should quote. The following information is to be submitted by the vendor about the companies where similar machines have been supplied. This is required from all the vendors for qualification of their offer.	
1. Name of the customer / company where similar machine is installed.	
2. Complete postal address of the customer.	
3. Month & Year of commissioning.	
4. Application for which the machine is supplied.	
5. Name and designation of the contact person of the customer.	
6. Phone, FAX no. and email address of the contact person of the customer.	
7. Performance certificate from the customers regarding satisfactory performance of machine supplied to them.	
8. BHEL reserves the right to verify the information provided by vendor. In case the information is found to be false /incorrect, the offer shall be rejected.	

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