



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076.

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Technical Specifications for Contact-type Profilometer

S N.	SPECIFICATIONS/ PART/ACCESSORIES	DESCRIPTION & DETAILS
1.	Mode and method of scanning	Contact-type using stylus or tracer
2.	Measurement parameters	a) 2D and 3D form and surface profiles, surface texture, surface contours, and roughness b) Measurements must be run in a fully automatic manner
3.	Sample type	Performance must be demonstrable on samples provided by IIT Bombay to all the shortlisted bidders, and the final technical qualification will be decided after the demonstration and evaluations of results.
4.	Measurement range, resolution, and accuracy	a) Z-axis: travel range of 24 mm or more, motorized, resolution of 1 nm or better b) X-axis: travel range of 12 mm or more, motorized, resolution of 5 nm or better, speed of 200 mm/sec or faster c) Vertical column with travel range 500 mm or more, motorized, resolution of 50 nm or better d) Additional Y-axis table of minimum 200 mm x 200 mm dimension to allow fully-automated 3D contour measurements e) Y-axis: travel range of 200 mm or more, motorized, resolution of 50 nm or better, the loading capacity of 20 kg or more, speed of 200 mm/sec or faster f) Drive speed: 40 mm/sec or faster in each direction g) Drive straightness: 0.25 microns or better over 100 mm, and 0.5 microns or better over 200 mm in each direction h) Probe unit accuracy of $\pm(0.3 + 0.02H)$ microns or better i) Accuracy between two measured points $\pm(2 + 0.02L)$ microns or better j) The drive unit must allow automatic inclination from -45 deg to + 10 deg to enable precise alignment of the drive unit with the test component

5.	Stylus/tracers	<ul style="list-style-type: none"> a) (Qty. 2 nos.) standard length stylus, R 5 micron, 40 deg, diamond tip b) (Qty. 1 nos.) long-range stylus, R 5 micron, 40 deg, 25 mm depth, diamond tip c) (Qty. 1 nos.) long-range stylus, R 2 micron, 60 deg, 25 mm depth, diamond tip d) (Qty. 2 nos.) standard length ball stylus, R 250 micron, sapphire tip e) (Qty. 1 nos.) long-range ball stylus, R 250 micron, depth 25 mm, sapphire tip
6.	Working environment	<ul style="list-style-type: none"> a) System monitoring and logging of temperatures and vibrations b) Insensitive to vibrations c) Insensitive to ambient lighting d) Insensitive to temperature changes. e) Can maintain the required accuracy in ambient temperatures ranging from 20 deg – 28 deg f) Noise-free operation g) Protective enclosure
7.	Oeprating voltage	100-240 VAC, 50-60 Hz
13.	Vibration isolation table	Standard active vibration isolation table or unit and worktable. The performance of the machine must not be affected by any induced and natural vibration
14.	Software	<p>Compatible software for data acquisition and analysis in a single platform and package with the following capabilities:</p> <ul style="list-style-type: none"> a) Automated and user-friendly operations, profile form measurement, volume measurement, step height measurement, surface roughness measurement, surface texture measurement, edge and contour measurement and analysis, micro-contour analysis, advanced 3D analysis using Y-table, export of measurement data in standard file formats, offline processing capability. b) No 3rd party software other than MS Office and OS c) Software Licence Validity: Minimum 15 years and above with free updates when released d) Minimum 5 additional software for analysis
15.	Computer:	Branded and updated PC with Windows 10 operating system, i7 processor, 32 GB RAM, 2 TB hard drive, two flat-panel 27-inch monitors, DVD writer, keyboard, mouse, joystick.
16.	Documentation (Manual, Drawings, if any, and literature):	Complete set of documentation in hard copy as well as softcopy
17.	Installation and Commissioning:	a) The lead time for the delivery of the equipment should not be more than three months from the date of receipt of the purchase order.

		<ul style="list-style-type: none"> b) The instrument to be installed, tested and commissioned by the manufacturer's qualified engineer/representative at IIT Bombay, and performance must be tested on NIST certified standards. c) Trained service engineers in India (preferably in Mumbai) should be available to resolve any technical problems in the future.
18.	Warranty:	Twenty-four months of warranty after successful installation/commissioning and acceptance. Including replacement of parts.
19.	Spares Availability Assurance:	The vendor must confirm the availability for at least ten years of the spare support of the offered system.
20.	Standards: NIST Certified Standards	Certified standards for form, roughness, step height calibration must be supplied
21.	Required accessories	<ul style="list-style-type: none"> a) XY leveling table with digital heads b) Stand/trolley for the computer c) UPS
22.	Training and installation	<ul style="list-style-type: none"> a) Installation: Required. b) Minimum of three days of on-site training. Training to operate the instrument must be given to our research scholars free of charge.
23.	Annual Maintenance Cost (AMC)	Annual Maintenance Cost for three years after warranty period (24 Months) must be quoted on a year-wise basis.