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

PR : 1000016693
Rfx : 6100000689

Technical Specifications :

Benchtop Stylus Profilometer

1	General	A. The tabletop profilometer should be of a stylus (not optical) type. The equipment will be used for step height & etch depth measurements. B. The system should be configured to run off Indian mains supply ~230V ac/ 50 Hz.
2	Measurement Range and scan parameters	A. It should have a vertical step height measurement range of upto 1000 micron (1 millimeter or better) B. Step height repeatability should be better than 0.5% on standard samples like calibration step-heights C. The length of the scan should be at least 20 mm (or better) D. The vertical resolution should be at least 0.5 nm (or better) in the lowest z-range. E. The lateral resolution should be 100 nm or better. F. The scan speed should be variable, (i.e. have at least slow/medium/fast settings) enabling one to compare the results obtained by varying the speed of the stylus. The minimum speed should be at most 10 micron/sec and the maximum speed at least 100 micron/sec. G. The system should be able to accommodate sample thicknesses upto 1 centimeter or more.
3	Measurement Technique & Stylus	A. The stylus force should be variable with a range of 1 - 10mg or better. B. The stylus shape, radius etc should be discussed with the user before submitting the quote. Acceptable range is approximately 2-15 microns tip radius C. The stylus should be replaceable by the user. Necessary kit for the safe replacement of the tip should be supplied. D. One spare stylus should be included in the cost.
4	Stage movement	A. The XY stage movement range should be at least 20 mm or better in both (XY) directions. B. Full 360 degree manual rotation on theta. C. It should be possible to move the stage manually.

		D. The stage should offer some amount of tilt control such that systematic slopes can be compensated or corrected manually. E. The stage should be large enough toaccommodate a 4inch (100mm) wafer.
4	Camera	A. A camera should have focus and zoom control enabling one to view the stylus and the active area of the sample during positioning and scanning. B. The camera should be able to give a field of view of 2mm x 2mm to 0.5mm x 0.5mmor a better range.
5	Software	A. The software running the instrument should work on Windows 10 and preferably interface with the hardware through USB port. B. The software should have a "levelling" capability, allowing the rotation of the entire trace such that any two points to be brought to the zero level. C. The software should have some averaging capability over user defined "bands" such that quantities like the average step height can be measured in presence of some fluctuations. D. It should be possible to save the height-vs-scan-distance data in simple text (ascii) format such that it can be read by other programs. E. The computer/laptop supplied by the manufacturer should have sufficient USB ports such that memory sticks/external drives may be connected whenever necessary. F. The software/hardware for 2D stress measurement should be included in the offer.
6	Accessories to be included	A. Two standard steps/etched pits should be provided for regular calibration purposes. One should be around 0.5micron and another approximately 50 microns. B. A vibration isolation slab (not table) with elastomer type pads (eg Sorbothene) should be included.
7	Warranty and spare parts	A. **Warranty** 3yr should be included in cost. B. OEM should give a spare part availability commitment for at least 7(seven) years after discontinuation/withdrawal of the product from the market.
8	Installation and demonstration	A. During installation of the equipment at customer site (IIT Bombay) it should be clearly demonstrated that the stylus does not scratch/damage standard Photo-resist (eg. S1800, AZ5200, SU8 etc) and PMMA during scanning.
9	Other Indian users	A. The model offered should be a proven model with installations in Indian universities and R&D institutes. A list of at least 5 (five) such installations is to be provided.