



Indian Institute of Technology Kanpur

Advanced Center for Materials Science

Enq. No.: ACMS/ AU/ 2012-13/ E-2

Enquiry Dated: March 02, 2013

Closing Date: March 18th, 2013

ACMS requires the quotation for **Instrumented microhardness tester** (with sample leveler, desirable = scratch tester). It should provide load-displacement curve and help in determining the elastic modulus and hardness of the sample under consideration. The specifications for the equipment are in the addendum. The closing date for the above item is **March 18th, 2013**.

The prospective suppliers are required to send quotation in two parts in sealed envelopes, as “Technical Bid” and “Financial Bid”. The Technical Bid should contain detailed technical specification of the product being offered and should not mention any prices. The Financial Bid should include the detailed price quotation clearly including the cost of the equipment, taxes, service charges if any, shipping and handling charges. The two separate and sealed envelopes should be clearly marked appropriately as “Technical Bid” and “Financial Bid”.

Terms and Conditions:

1. Maximum education discount, if any should be offered
2. Validity of quotation should be at least for 60 days
3. Prices should be on CIF and FOB separately (if imported)
4. Prices should include the installation and training cost
5. Warranty should be for at least three years after installation
6. Normal payment terms for the Institute will be applicable (90% on delivery of the items and the remaining 10% after satisfactory installation/ inspection)
7. Quotation should carry proper certifications like agency certificate, proprietary certificate, etc.
8. An undertaking that the vendor will supply all the spares and services for the equipment for at least 5 years from the date of commissioning
9. Delivery must be within 6 months (updated March 7th, 2013)

Kindly send the Technical and Financial bids in sealed envelopes latest by 18th March 2013 to:

Dr. Anish Upadhyaya
Head, Advanced Center for Materials Sciences
IIT Kanpur, U.P. 208016, India.
e-mail: anishu@iitk.ac.in

Technical Specifications for Instrumented Micro-hardness tester

Sr. No.	Parameter	Requirement*
1	General specifications	<ul style="list-style-type: none"> • Dynamic micro indentation measurement for Hardness and Elastic Modulus • Constant reference of the surface • Force sensor AND depth sensor installed (LVDT depth sensor and no optical sensor) • Max load: 10N in Instrumented Indentation Testing (IIT) • 30 N in maximum load with optical observation • Displacement resolution : 0.3 nm or better • Maximum indentation depth : 200 μm or better • Depth Resolution: 0.3 nm or better • Load Resolution: 0.3 mN or better • Load Rate upto 300N/min • Sample in horizontal direction • Vicker diamond indenter with calibration certificate (3 in number)
2	Software	<ul style="list-style-type: none"> • Full software package for data acquisition and analysis including • Real time display of force and depth data during acquisition, with the possibility to initiate an instantaneous user controlled unloading during the experiment • Video imaging with Multi Focus mode : automatic focus at different heights of the indent • Fully user definable indentation modes (single/multi cycle, linear and square root loading ramps, unlimited hold time) • Powerful indentation modes including: Visual indentation mode, CMC (Continuous Multi Cycle) and large area mapping • System setting programmable for every single indent in a multi-indent experiment. • Creep calculated in software • Multiple models for hardness and elastic modulus evaluation • Hardness ISO standard evaluation conform to ISO 14577 and ASTM2806 • Powerful and fully integrated statistical module • Superposition of curves • Data export in ASCII format
3	Platform	<ul style="list-style-type: none"> • Suitable platform with vibration damping capacity • Motorized xyz table • Optical microscope and CCD camera • Power backup • Additional bulbs (6 number) • Different objectives 5x, 20x and 50x

Technical Specifications for Instrumented Micro-hardness tester

4	Standard Samples and indenters	<ul style="list-style-type: none"> • Sample holder • Calibration set for indenter Vicker and Rokwell (3 each) • Additional indenters: Spherical and Knoop (3 each) • Sample for hardness calibration • Sample for distance calibration • Installation tools
5	Hot Stage	<ul style="list-style-type: none"> • Temperature testing: heating module as an (up to 450°C) and Zircon indenter • Vibration isolation system : <ul style="list-style-type: none"> ○ Standard active air table including compressor ○ The air table is mounted on floor feet
6	Scratch tester (optional)	<ul style="list-style-type: none"> • Minimum load applied: 30 mN • Maximum load applied : 30 N • Maximum scratch depth : 200 μm • Rockwell C diamond indenter (R = 100 μm – cone angle = 120°) • At least 2 simultaneous objectives • 2 PC or dual screen • Friction module: <ul style="list-style-type: none"> ○ Maximum friction force: 30 N or better ○ Scratching speed : from 0.4 to 600 mm/min ○ Friction Resolution 0.3 mN or better ○ Load Resolution: 0.3 mN or better ○ Maximum Scratch Length: 120 mm or better ○ Friction Module
7	Installation & User Training	Included in the quotation
8	Annual Maintenance Cost	Include the cost of annual maintenance for each year for five years after the guarantee/ warranty period. Provide the amount and the terms, Note that those providing better after sales service and support with written evidence will be given preference
<p>*Additional optional accessories should be indicated separately along with their price. The above specs are desirable and the actual numbers achievable for your system should be indicated.</p>		