Indian Institute of Technology Kanpur

Advanced Center for Materials Science

Enq. No.: ACMS/ AU/ 2012-13/ E-7

Enquiry Dated: March 02, 2013

Closing Date: March 18th, 2013

ACMS requires the quotation for a **Fully motorized upright research microscope for reflected and transmitted light application with bright field, dark field and DIC**. 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 by 5pm, 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 Upright Research Optical Microscope

Details of the specifications*:-

1. **Research Digital Microscope stand:** consists of stand base with motorized focus drive with Z-resolution of 15 nm or better with dedicated Touch Sensitive TFT/LCD screen attached to microscope frame which should control all the motorized functions of microscope. TFT/LCD screen should also display magnification levels, light intensity and diaphragm position.
2. **Transmitted Light Axis:** With motorized aperture and field diaphragm, motorized shutter, Automatic Constant Color Temperature/Intensity Control(CCIC), Automatic Illumination Manager (automatic controlling aperture, field diaphragm and light intensity). Smart Touch Display and Controlling Contrast management and Motorized Modules including luminous intensity control, aperture and field diaphragm control,
3. **Reflected light axis** motorized with automatic contrast management facility
4. **Reflected light diaphragm,** aperture diaphragm and DIC turret motorized with module type prism.
5. **Easy (one click) switching** between Reflected light and transmitted light
6. **Optical System** Infinity Corrected Harmonic Corrected (HC) Optical System
7. **Nosepiece and Turret:** Stand top consisting of electronically-coded 6-fold motorized nosepiece;
8. **Reflector Turret:** with motorized 6-fold turret for reflector. (Upgradeable to fluorescence light application)
9. **Protection:** Protection of the basic microscopy body from any vibration.
10. **Automated Contrast Manager** so that Complex adjustments and rearrangements for a selected contrast method can be recalled by just one button click and illumination Manager for the settings for light intensity, field diaphragm and aperture diaphragm in the reflected light axis should always be optimal and correlated to the objective and contrasting method. The settings for both transmitted light and reflected light should be completely reproducible. Contrasting technique: automated functions of Reflected Light Bright field, Dark field, Polarization and **One button Differential Interference Contrast (DIC)**; and Transmitted Light Brightfield & Polarization); Motorized: Motorized Filter system ICR for incident light DIC and POL with polarizer/analyzer in cross position and neutral beam-splitter and set of IC objective prisms
11. **Motorised XY- stage** with travel range of 75 X 50 mm or better
12. **Condenser:** Motorized Achromatic-aplanatic universal condenser having N.A. 0.9 for Brightfield, Darkfield, Phase Contrast and DIC modules for transmitted light application.
13. **Motorized rotatable Analyzer and Polarizer** both for Reflected and Transmitted Light.
14. **Trinocular Tube** with viewing angle 30°, field of view 25 mm, 3 beam splitter positions: 100% eyepieces, 50% eyepieces: 50% documentation port, 100% documentation port for Two cameras.
15. **Lamp:** Lamp housing with lamp mount for halogen lamp 12V 100W – for Reflected and Transmitted light Light
16. **Objective set:** High N.A, Epiplan – (NEOFLUAR / FLUOTAR / Semi Apochromat) Objective set – 5x/0.15 BD, 10x/0.30 BD, 20x/0.50 BD, 50x/0.80 BD, 100x/ BD

17. **Harmonic Corrected** Paired wide field Eyepiece 10x/25 (min 25 mm. field of view), adjustable
18. Spare 12V/ 100W halogen lamp – 5 no.s to be included in the quotation.
19. **DIC:** DIC accessories for both high contrast and high resolution for full range of objective lenses i.e, 5x, 10x, 20x, 50x, and 100x.
20. **High-resolution digital camera system** with 7.0 Mega-pixels resolution, Pixels size – 3.2µm x 3.2µm or better, Colour Depth : 30 bits, Exposure time – 107µsec – 2.0 sec or better, Frame rate – 30 frames per sec or better
21. **Image Processing & Analysis Software** for Automatic measurement of multiple parameters. Measurements should include shape, size, position, orientation, intensity,Colour, Grey level and Densitometric measurements, Field and feature measurements, User defined feature expressions, Histograms and statistics, Interactive line dimensions, Colour and grey level profiles, Frames and Calibration. Image Annotation facility. Pseudo colouring of monochrome images. Software should have capabilities to Save and recall settings and configurations to exactly recreate the same conditions at a later date, System should be able to capture an image of large sample than microscope field of view while maintaining high resolution in x-y-z direction.
22. **Optional - Metallurgical Micro-structural** Characterization Software for Grain Sizing compatible with ASTM E112, E 930,E1181, E1382, DIN 50601 ,ISO 643, BS ENISO 2624, SAE J 418, JIS G 0552, BS 4490, Phase Percentage compatible with ASTM E562 and BS 7590/7590A, Coating Thickness compatible with ASTM B487, ASTM B 748-90, BS 5411 Part 5 :1984, ISO1463: 1982, BS 5411 part 16:1989, ISO 9220: 1988, Nodularity compatible with ASTM A247,JIS G 5501,JIS G 5502,JIS G 5503,JIS G 5504,ISO 945,ISO 1083.
    Decarburization Depth compatible with ASTM E1077, ISO3887, DIN 50192 and JIS G0558. Particle Sizing compatible with as per ASTM.
23. **Microscope, Camera and software should preferably be from same manufacturer for better compatibility. Microscope and camera setting should be completely reproducible**
24. **Installation, Commissioning and Training:** (a) The delivery of the Microscope should be considered complete only after successful commissioning of the instrument (b) The pre-installation requirements should be communicated to IIT Kanpur well in advance of the installation (c) The Installation, commissioning and training should be done only by well trained factory engineers (d) The supplier should provide training to at least two candidates at the installation site to make them familiar with smooth operation of the instrument
25. **Guarantee/ Warranty**: Preferably 3 years
26. **After-sales Service:** (a) The supplier should provide a prompt after-sales service such as regular instrument maintenance, troubleshooting and fixing (b) The list of service centers in India should be included.
27. **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

***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.**