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

Ref. PR No. 1000044631 RFx. No. 6100002082

Item Description: optical microscope capable of inspecting various materials, including metals, alloys, and semiconductor materials, including silicon, PCB, etc.

S.No	Specification	Features/Description	Compliance (Yes/No)	Remark (If any)
1	Optical system & Magnification	(a) Conventional/Telecentric based light optical system with integrated 10X motorized zoom ratio & motorized magnification method (b) Capable of achieving optical magnification up to 6000 X or better (c) The above-mentioned optical magnification range shall be achieved through an appropriate Plan Semi-Apochromatic type objective lens compatible with all contrasting conditions. (d) Coded lens attachments should automatically update & display magnification in use & visual field information. (e) The required magnification shall be achieved by a minimum of 3 objectives to cover the entire magnification range, and the same shall be indicated by the firm.		

2	Contrast Methods	The system should have the following contrasting techniques (a) Bright field illumination (BF) (b) Dark field Illumination (DF) (c) MIX (Bright field & Dark field) (d) Polarized contrast illumination (POL) (e) Differential Interference Contrast (DIC) (f) Oblique (g) Shaded Relief (SR) Mode		
3	Image Focus System	(a) Motorized Z drive with Coarse and Fine drives. (b) Total Z stroke of 75 mm or higher. (c) The minimum graduation in Fine focus shall be 1 µm or better (d) The image focus shall be encompassed with required controls for coarse & fine Z focus, auto focus and on monitor		
4	Light Illumination	(a) LED lamp should have sufficient wattage / power /lumens (along with required accessories, cables, controls, connectors, holders etc) to ensure contrast colour temperature in all contrasting modes. (b) Shall be equipped with Intensity/Contrast manager to ensure consistent illumination when changing magnification or contrasting modes.		
5	Nosepiece	(a) Equipped with a Motorized revolving nosepiece coded for all contrasting conditions. (b) The revolving nosepiece shall be equipped with appropriate slots compatible with accommodating the objective lens (c) Software should have the capability of automatic recognition of objectives, and contrast method when changed		

6	Mechanical Sample stage	(a) Operation mode: Manual or Motorized (b) The sample stage shall be capable of handling samples having weight upto 1 kg. (c) Maximum stage height of 100 mm or higher. (d) The sample stage shall be a mechanical manual scanning stage, with a travel range of 100 mm x 100 mm or better.		
7	System Stand	(a) Rigid metallic stand consisting of stand base and column for stable operation. (b) Equipped with reflected light illumination by LED lamp, motorized focus drive and automatic illumination contrast management		
8	Image Capturing & Viewing	(a) Image capture shall be equipped with single or multipleCCD / CMOS-based image sensor arrangement (b) Image resolution of 12 Megapixels or better (c) Camera speed shall be 50 fps or better (d) Support all standard image formats like BMP, TIFF, JPEG, PNG etc., (e) Interfacing to PC and system through USB 3.0 or better (f) The image capturing setup shall support Microsoft OS Windows 11 or higher . (g) All the required adapters and PCI cards for smooth compatible interfacing to be supplied		
9	Power supply	Standard power suply 230-250V / 50Hz		

10	Image Capturing Capabilities	(a) The image capturing shall be interfaced through a graphical user interface (GUI) software that should have control for coarse, fine Z movement, changing contrasting conditions, illumination controls, motorized auto focus. (b) Shall be capable of saving (and recalling) the images in the user defined formats with all camera settings including resolution, contrast method, magnification, exposure time and so on. (c) System shall be equipped with features so that user can select best imaging technique for the subject sample from the various preview displayed by system in supported observation techniques. (d) Provision to place micron marker		
		(scale) at user defined location and user defined ranges in the captured images with adjustment for font, line size of micron marker (e) Capable of scan patterns and automated image acquisition of wide field of view (Panoramic image) at high resolution followed by seamless image stitching to obtain a single image. (f) Shall be equipped to accommodate height-wise focal shift for height variation samples and create focus stacked images. Extension to create 3D topographic image for measuring step height.		
11	Workstation	An appropriate Workstation compatible to the system and capable of carrying out the above-mentioned actions shall be provided. 2 KVA UPS with a back-up time of 30 minutes or higher may be provided		
12	Software Upgrade	Provision for future upgradation for material applications solutions is essential criteria.		
13	Warranty	One years from the date of installation for the complete systems and associated sub-systems		

14	Annual Maintainance Contract	3 years after completion of Warranty		
15	Documentation	The vendor should provide both hard and soft copy of the technical documentation of the item which includes the schematic diagram, electrical/electronic circuit diagrams, mechanical assembly drawings, operation, maintenance, and troubleshooting instructions		
16	Installation & Training	(a) The system shall be installed at IITB premises by the vendor. (b) Training shall be given to identified IITB personnel for a minimum of 2 working days, which includes operation and troubleshooting. (c) Training shall be provided by the OEM authorised/ certified skilled personnel.		
17	Vendor Qualification Criteria	(a) The vendor should be an OEM or OEM authorised vendor. The OEM authorized vendor shall submit the OEM authorization letter along with the technical bid, without which the technical bid will not be considered. (b) The vendor should have supplied at least 2 nos of such systems to reputed Govt. institutes like DRDO, DAE, ISRO, CSIR Labs or IITs, NITs in the past 3 years. (c) The contact details of the users shall be furnished along with the technical bid.		