



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

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Technical Specification

Advanced Fully Automated Scanning Upright Research Microscope for Earth & Material Science Application under Reflected Light and Transmitted Light with Scientific Digital Camera dedicated for Polarization, and with Digital Imaging software for both 2D and 3D imaging, analysis and measurement.

Description:

Upright metallurgical microscope for reflected light bright field, dark field, polarizing & analyzing, observation along with digital scanning camera. It should have sophisticated operating concept and flexible interfaces for external communication and network connections.

System Should Have:

- Optimized operation controls
- Specialized optics with highest resolution
- Design concept that allows for upgradeability
- Superior automatic drive with good stability
- Integrated digital imaging system able to produce high quality reproducible results
- Dedicated for Earth & Material Science Application

Salient Features

❖ Microscope Stand

- Upright rugged frame for enhanced stability

❖ Stage

- Scanning stage travel range 100mm x 100 mm (and above)
- Imprinted scale

❖ Power supply

- Power Supply unit. Automatic switching power supply voltage with operating hours display, including power cord
- ❖ **Objective turret**
 - Motorized 6 or 7-fold objective turret
 - Lowest switching time between 2 objectives (in automatic operation)
 - Easy and intuitive adjustment of parfocality
 - Fully integrated in the intelligent automation concept
 - Semi-Plan Apochromatic Objectives 1.6x,2.5x,5x,10x,20x,50x,100x (Wet and Dry)
- ❖ **Eyepieces**
 - Focusable 10x Eyepieces
- ❖ **Filter slider**
 - Filter slider for IL axis Filter slider for usage in incident light axis, with 25 mm mount for insertion of different filters.
- ❖ **Display**
 - Touch-Panel with increased resolution to control the microscope and xyz movements with free programmable function-keys.
- ❖ **Operation**
 - Motorized focus drive with two focusing knobs for motorized fine/coarse z movement. Possibility for switching between 5 different electrical coarse/fine drives.
 - Stable and Vibration Free Operation
- ❖ **Illumination is under Reflected Light and Transmitted Light**
 - LED supply unit including integrated power supply for LED illumination and control of the motorized microscope functions. Including USB cable.
 - LED lamp housing with fixed, pre-centered LED, with focusable collector and heat protection filter, w/o ignitor.
 - Illuminating telescope
- ❖ **Contrast Techniques:** Reflected Light Bright field, Polarization and Epi-Fluorescence and Transmitted Light Bright field, Polarization
 - BF, PH, DF, POL
 - DIC (fully automatic)
 - Epi- Fluorescence attachment: 100W Mercury power supply with suitable filters
 - Motorized Fluorescence Turret
 - Filter cubes (Excitation)

- a) UV + Violet
- b) Blue
- c) Green
- d) Daylight filter DLF Daylight filter DLF
- e) Glass yellow filter
- f) Interference green filter
- g) Glass blue filter

- Analyzer 180°, rotatable Analyzer 180°, rotatable, in slide bar

❖ **High Resolution and High speed Scientific Digital Camera dedicated for Polarization,**

- Latest CMOS Sensor
- Resolution highest available
- 30 fps @ 1920 x 1200
- Interface USB 3

❖ **Digital Imaging software for both 2D and 3D imaging, analysis and measurement**

- Software compatible with Windows X desktop
- Live imaging
- Automatic white Balance and exposure control
- Microscope, Camera & Software should be from Same Manufacturer for Optimum Performance & Compatibility.