



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

Ref. PR No. 1000052227

Rfx. No. 6100002684

Item Description: Digital Microscope VHX-X1F

Sr. No.	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1.	Digital Microscope VHX-X1F	<ul style="list-style-type: none">➤ <u>Lens Magnification Range</u> -<ul style="list-style-type: none">• 20x-2000x(Future upgradation options available upto 6000X)• Resolution - 2048 (H) × 1536 (V)• Light Source type - High Intensity LED source➤ <u>Measurement modes</u><ul style="list-style-type: none">• Manual, 2D & 3D, Automatic measurement• 3D profile Measurement• Roughness measurement• Particle size analysis• Metallurgical Analysis• Auto area measurement➤ <u>Lighting options</u><ul style="list-style-type: none">• Polarization lighting• Transmitted Lighting• Coaxial lighting• Ring light illumination• Image Optimization• Mix- Light illumination➤ <u>Reports</u><ul style="list-style-type: none">• One Click Report output in Excel format➤ <u>Screen & controller</u><ul style="list-style-type: none">• <u>Size</u> - 4K 27-inch color LCD monitor• <u>Screen size</u> - 596.16 (H) × 335.34 (V) mm• <u>Pixel pitch</u> - 0.15525 mm (H) × 0.15525 mm• <u>Number of pixels</u> - 3840 (H) × 2160 (V)• <u>Display colours</u> - Approx. 1.07 billion colors		

- **Brightness** - 350 cd/m² (Centre 1 Point, typical)
- **Contrast ratio** - 1300:1 (typical)
- **Viewing angle** -
 - ±89° (typical, horizontal), ±89° (typical, vertical)
- **Hard disk drive unit** -
 - 1 TB (including 350 GB reserved system space)
 - Approx. 2.16 million images (when 3 megapixel images are compressed) to approx. 71.1 thousand images (when 3 megapixel images are not compressed)
- **Operating system** - Windows 10 or above - Windows 10 IoT Enterprise LTSC
- **Image format** - JPEG (with compression), TIFF (without compression)
- **Observable image size** - 100 thousand (H) × 100 thousand (V) pixels (with stitching)
- **Mouse input** - USB mouse supported
- **Keyboard input** - USB Keyboard supported
- **LAN** - RJ-45 (10BASE-T/100BASE-TX/1000BASE-T)
- **USB** - 6
- **Power voltage** - 100 to 240 VAC ±10%, 50/60 Hz
- **Power consumption** - 250 VA
- **Operating ambient temperature** - +5 to 40°C +41 to 104°F
- **Operating ambient humidity** - 80% RH or less (no condensation)
- **Fully Automatic Stage**
 - **XY stage**: Motorized/Manual - Motorized
 - **XY motorized stage motor** - 2-phase stepping motor
 - **XY motorized stage resolution** - 1 micron
 - **XY motorized stage movement speed** - 40 mm/sec 1.57 in/sec (max.)
 - **XY-stage movement range** - ±50 mm
 - **XY₀ stage size** - 233 mm × 185 mm
 - Transmitted lighting - YES
 - **Z stage**: Motorized/Manual-motorized
 - **Z motorized stage motor** - 5-phase

		<p>stepping motor</p> <ul style="list-style-type: none"> • <u>Z motorized stage resolution</u> - 0.1 micron • <u>Z motorized stage travel speed</u> - 17 mm/sec • <u>Z stage travel range</u> - 49mm • Anti Vibration ➤ <u>Special Features</u> • Camera-shake correcting function • Full-screen display function • <u>Split-screen function</u> - Functions for tiling screens horizontally, vertically, into quarters, into ninths, and interlocking display • Auto-focus function • Manual Focus • Lighting switch function (uneven surface enhancement) • Multi-lighting function • Comment display function • Glare removal function • Fine-Shot function • <u>2D image stitching</u> - 100000 (H) × 100000 (V) pixels (with stitching) • <u>3D image stitching</u> - 100000 (H) × 100000 (V) pixels (with stitching) • Navigation function • Quick composition & 3D function • High-quality depth composition • 3D display function • 3D shape correction function - Slope/Sphere/Cylinder • 3D comparison function - Combination/Comparison/Difference display mode • Report output (Excel) • Capture condition reproduction function • Timer capture function • Video recording/ playback function • Distance, angle, radius, area etc. - Various • Automatic edge detection • <u>Automatic count, area measurement function</u> - length/area can be measured using brightness/colour extraction • Automatic area measurement • Grain size analysis • Auto measurement • Automatic lens/zoom recognition function (Triple 'R) 		
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		<ul style="list-style-type: none"> • CSV storage • 3D profile measurement • Point height measurement • 3D volume measurement • Roughness measurement • Wide image display function • <u>Communication software</u> - Enables easy transmission of image data between VHX system and PC. (LAN) • <u>3D image playback software for the PC</u> - Enables 3D images saved on VHX to be played back in 3D on the PC <p><u>Multi-lighting playback software</u> - Multi-lighting images saved on the VHX can be play</p> <ul style="list-style-type: none"> ➤ <u>Installation and Training</u> - <ul style="list-style-type: none"> • The supplier shall be responsible for the complete installation and commissioning of the system within one week from the arrival of the machine. • <u>Warranty</u> - A comprehensive warranty shall be provided for a period of one (1) year from the date of successful installation and commissioning. • <u>Delivery</u> - Free doorstep delivery to BETIC Lab, IIT Bombay within 2 weeks after receiving purchase order. • <u>Stand by support</u> - Any breakdown situation happens vendor has to provide the free stand by unit during repair phase so that our day-to-day analysis won't be disturbed. 		
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Terms and Conditions -

1. 100% payment upon delivery & satisfactory installation shall be released upon delivery by ICICI Foundation on behalf of IIT Bombay.

