

Technical specifications for “Inverted motorized research microscope with phase contrast for high resolution imaging combined with optical tweezers”

Sl. No.	Technical Specifications
1	<p>Microscope frame</p> <p>Fully motorized active/built-in multi-port multi-deck inverted fluorescence microscope with Bright Field (BF), Differential Interference Contrast (DIC), Phase Contrast, and Fluorescence imaging capabilities</p> <p>Motorized frame and motorized extra-fine/fine/coarse focus with minimum 10 nm z-step size</p> <p>Side port adapters, side port caps, covers for blocking the stray light</p> <p>Tool set necessary for manual adjustments and replacement of accessories</p> <p>Water-proof and static-proof microscope cover</p> <p>Water-proof body with drainage facility to avoid any leakage into microscope body (preferable)</p> <p>Digital controller for microscope system</p> <p>All motorised function of the microscope including XY stage and drift compensation controlled by remote touch panel or tab or equivalent hardware for vibration free imaging</p>
2	<p>Eye Piece Unit</p> <p>Eye piece tube with base unit</p> <p>Focusable 10X eye piece with eye piece guard with minimum field of view 22 mm (2 nos.)</p>

3	Motorized Stage
	Motorized XY stage (preferably linear encoded) with frictionless, wear-free motor drives controlled by both touch panel & software
	X-direction stroke: minimum 115 mm or higher; Y-direction stroke: minimum 75 mm or higher (sufficient travelling range available for well plates)
	Speed: 20-25 mm/s
	Magnetic sample holder (preferable/optional)
	Controllable joystick for motorized stage with coarse, and fine movement. (Additional extra-fine movement is preferable)
	Stage inserts for 35 mm/60 mm dish, glass slide, well plate, T25 tissue culture flask
4	Transmitted Light Illumination System
	Tiltable pillar with condenser holder
	Condenser focusing mechanism
	Minimum 2 filter holders
	ND filter
	Pre-centered LED white light for phase contrast, BF and DIC
Adjustable field iris diaphragm	
5	Nosepiece
	Motorized DIC-compatible sextuple revolving nosepiece
	Nosepiece cap (2 nos.) Long-term live cell imaging with LED/laser-based automated focus drift compensation till 30 minutes or more. The laser wavelength used here should not interfere with the 1064 nm laser used in optical tweezers operation.
6	Condenser
	Motorized condenser turret with lens unit
	Neutral Density (ND) filter
	Long working distance lens
	Motorized aperture
	Motorized/intelligent polarizer
	Provision for shutter
	Phase contrast module for 4X, 10X, 20X, 40X objective
	DIC cube and slider
	Interference green contrast filter
	DIC prism set for 40X, 60X and 100X objectives
7	Objectives for Fluorescence, DIC
	10X objective with N.A. 0.30 or above
	40X objective with N.A. 0.60 or above,
	60X/63X/100X TIRF objective with N.A. 1.4 or above, with cover-glass correction. Optionally quote for 100X Plan Achromatic 1.5 TIRF Objective with correction collar
	Immersion oil and objective cleaning tissue paper set
8	Filter Turret Assembly
	Motorized Epi Filter Turret with fast, smooth switching with six positions and built-in shutter
	Field Stop
	ND filter
9	Image Analysis Software
	Standard research imaging software for fully automated acquisition, device control and experimental manager
	Full four-dimensional image acquisition and analysis (XYZ, Time)
	Capable of multi-channel, multi-well & multi-point imaging
	Online & offline 2D deconvolution, online ratio measurement, co-localisation analysis, interactive measurement, 3D view, slice view, intensity measurement over time and over depth, kymograph, dynamic Region of interest (ROI), background

	subtraction, Z-projection over time and Z-intensity measurement.
	Advanced modules to perform complicated workflow of different permutations and combinations
	Software autofocus module for drift-free imaging
10	Image acquisition, processing, and analysis branded PC to support the microscope and high speed imaging
	Windows 10 64-bit
	Intel i7 Processor 10 th generation
	16GB or more RAM
	2X 1TB HDD
	4GB Graphics Card
	32" or higher LED Monitor
	UPS for the workstation with minimum 1 hour backup power
11	Warranty
	3 Year warranty and 2 years AMC included on all the above components
12	Optional
	3D blind deconvolution modules for wide-field, bright field, and confocal images
	System should be upgradable to live cell imaging applications and TIRF in future
	Nosepiece should be for long-term live cell imaging with IR LED/laser -based automated focus drift compensation, should not interfere with 1064 nm wavelength operation of the optical tweezers
13	External/built-in Phase contrast
	The eye piece could have components to perform external phase contrast microscopy without requiring the usage of phase contrast type objectives. Either normal objectives of high Numerical Aperture should be able to yield phase contrast images with added components at the eye piece or the main high magnification 100X High NA (1.45 or better) objectives chromatically (Axially and Laterally corrected to 400-1000nm) with good transmission at 1064nm without compromising the intensity during trapping should facilitate phase contrast imaging while simultaneously allowing for passing of the optical tweezers beam. .

A) The bidder must be a registered company. Necessary certificate shall be attached. The authorized business partner must submit a letter of endorsement form the OEM, if applicable.

B) The local vendor of OEM must have supplied at least 5 similar microscopes and cameras to IITs, NITs, IISERs, CSIR Labs and other Govt. of India R&D organizations (attach proof of purchase order copies, preferably in the last 3 years).