

MOTORIZED UPRIGHT MICROSCOPE

CODE: MMI-25

- **Fully Motorized Microscope:**
 - Designed for unattended sperm detection using brightfield contrast techniques suitable for staining methods like H&E and Christmas Tree staining.
 - Upgradable to fluorescence attachment with a fully apochromatically corrected beam path for fluorescence applications.
- **Motorized Stand:**
 - Equipped with a Z drive step resolution of 10 nm or better.
 - Adjustable height stop and torque of focusing.
 - Objective-specific focusing speed adjustment for scanning and capture.
- **Binocular Phototube:**
 - 15° inclination with a field of view of a minimum of 23 mm.
 - Supplied with 10x focusable eyepieces or better.
- **Objectives:**
 - For brightfield applications (sperm detection):
 - 10x (N.A: 0.25)
 - 20x (N.A: 0.50) for samples with coverslip
 - 20x Epi-Plan (N.A: 0.50) for samples without coverslip
 - 40x (N.A: 0.75)
 - 63x (N.A: 0.95)
- **Display and Control:**
 - Built-in TFT/LCD monitor to display microscope parameters and control all motorized functions.



Integrated Light and Contrast Management:

- Motorized microscope with integrated light and contrast manager for efficient operation.
- **Revolving Motorized Septuple Nosepiece:**
 - Accommodates up to 7 objectives or more.
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- **Illumination:**
 - RGB tunable and pure white tunable LED illumination for transmitted light applications.
- **Motorized Scanning Stage:**
 - Allows fast and convenient sperm cell detection with a scanning speed of at least 10 or more fields per second.
- **High Throughput Scanning System:**
 - Enables unattended scanning and detection of sperm cells for at least 8 slides per run.
 - Option to upgrade to accommodate up to 80 slides or more with an automated slide feeder module at the customer site in the future.

Imaging Workstation

- **Camera:**
 - Ultra high-resolution camera with the following specifications:
 - Resolution: 4000 x 3000 pixels
 - Frame rate: 31 fps
 - 12 Megapixel or better
 - 12-bit depth
 - Minimum 1-inch color sensor
 - Pixel size: 3.45 μm x 3.45 μm or better
 - Exposure time: Between 80 μs and 270 s
 - Global shutter or better
- **Workstation Specifications:**
 - Processor: Intel Core i9-10900X (10-Core, 3.7 GHz, 4.7 GHz Turbo, 19.25MB Cache, 165W) or better.
 - RAM: 16 GB (2x8) DDR4 or better.
 - Graphics Card: 10 GB NVIDIA Quadro RTX 3080 or better.
 - Monitor: 30" TFT or higher with 1920x1080 resolution or better.



- Storage:
 - 256 GB SSD
 - 4 TB HDD or higher
- Expansion Slots:
 - 3 x PCIe slots
 - 1 x PCI slot or better
- Ports:
 - 4 USB 3.0 ports
 - 4 USB 2.0 ports or better
- Chassis: 950W power supply.
- Operating System: Original Windows 11 Pro 64-bit.
- **Automated Sperm Detection Software:**
 - Capable of unattended sperm scanning for up to 8 slides or more.
 - Uses Artificial Intelligence/Deep Neural Network for precise identification of sperms and sperm regions of interest.
 - **Features:**
 - Identification of sperms with or without intact sperm heads.
 - Identification and counting of spots/sperms with position recording.
 - Graphical presentation of processes.
 - User-trainable and customizable classifiers.
 - Results stored with images and displayed in galleries, histograms, or scatter plots.
 - Centered relocation of sperm at different magnifications for visual observation.
 - Scanning capacity upgradeable to up to 75 slides or more.

