IN VITRO DIAGNOSTIC
IVDR
CERTIFICATION
Motic
MEDICAL DEVICES REGULATION

Motic®

MORE THAN MICROSCOPY

PA53 BIO Series

Precision Optics, Smart Automation & Ergonomic Design
for Superior Scientific Insights

PA53 BIO Series

Engineered for Excellence in Biological Applications

The PA53 BIO Microscope Series sets a new standard in optical performance for clinical and life science applications. Engineered for precision, image quality, versatility, and ergonomics, it integrates advanced optics with cutting-edge imaging systems to deliver exceptional results. From brightfield observation of HE-stained tissue to phase contrast, polarization, or advanced fluorescence imaging like FISH/HER2, the PA53 BIO ensures accuracy and reliability across applications.

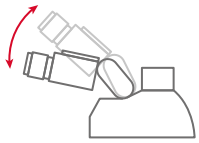
The PA53 BIO stands out for its user-friendly design, making complex observations effortless. It integrates seamlessly with imaging software for efficient data capture and analysis, while its ergonomic features reduce fatigue during extended use. Built from durable materials, it ensures long-term stability and reliability in demanding laboratory environments.

Additionally, the PA53 BIO offers flexible upgrade options through a wide range of accessories, optional modules, and various classes of objectives, each tailored to specific imaging needs. From high-quality UC (Ultra Contrast) objectives with high NA (Numerical Aperture) to Plan Apochromatic or Plan Fluor, the system can be configured to match the demands of any application, ensuring seamless adaptation to diverse workflows. All the while, it consistently delivers high-resolution imaging with exceptional detail. The PA53 BIO Microscope Series is more than just a tool; it's a gateway to precision, unlocking the full potential of every microscopic observation.

SCAN ME
Watch the video

Unleashing unparalleled clarity and precision, the PA53 BIO microscope brings your research into focus like never before.

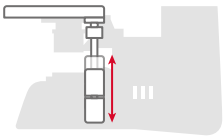
Ergonomy



The ergonomic tilting trinocular head provides comfortable viewing by allowing angle adjustments that minimize eye and neck strain, offering complete flexibility to accommodate different users.

Designed for User Comfort During Extended Microscope Sessions

Microscope users often engage in long observation sessions, making ergonomics essential to reduce strain and fatigue, and supporting overall well-being. The Motic PA53 BIO microscopes feature an ergonomic design that enhances precision and usability during extended observation periods. Adjustable eyepieces and a tilting head allow users to maintain a natural, relaxed posture, minimizing strain on the neck and eyes. The intuitive focusing mechanism provides smooth, precise adjustments without excessive force, helping to prevent hand fatigue. Strategically placed controls ensure easy access, while maintaining full hand support on the table. The microscope's well-lit, high-contrast viewing area further minimizes eye strain. Overall, the PA53 BIO stands out for its thoughtful design, combining functionality with user-centric features that enable long-term use without discomfort, while delivering professional, high-quality results.



The coaxial stage control is adjustable for comfort, allowing easy, accurate operation. Anti-abrasive surface ensures smooth slide movement, while both controls are positioned for one-handed use and full support on the table.

Light intensity preference for each of the objectives can be preset and memorized so that when users switch objectives, the light intensity settings will be remembered and optimal.

Fluorescence

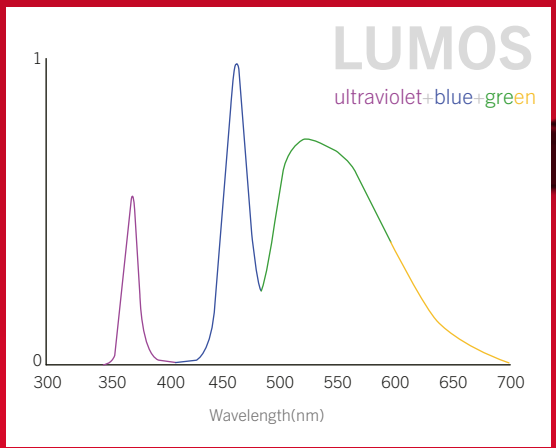
Lumos LED illuminator of 3 channels (UV, Blue and Green), offering versatile, high-quality illumination for fluorescence imaging with optimal performance and clarity.

Extraordinary fluorescence imaging for precise, high-definition analysis.

The PA53 BIO FS6 series offers exceptional fluorescence capabilities, enabling precise imaging of fluorescently labeled samples with outstanding clarity and resolution. Equipped with advanced fluorescence illumination systems and filters, it ensures optimal excitation and emission for various applications, from tissue and cellular imaging to cytogenetics.

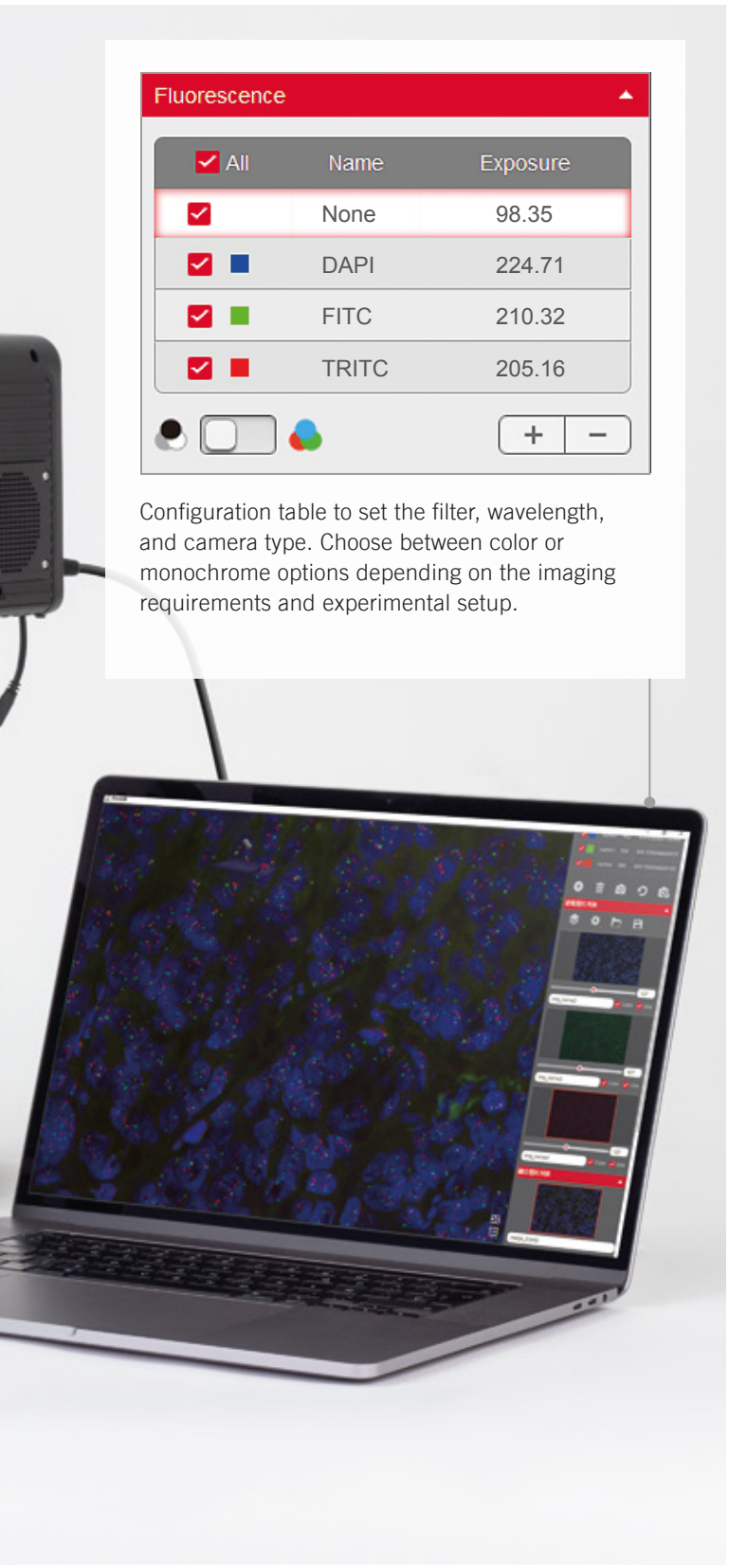
Whether you're studying complex tissues or conducting high-detailed experiments, the fluorescence functionality delivers unparalleled resolution for your most demanding analyses.

The optional configuration of PA53 BIO FS6 with DAPI, FITC, and TRITC filter cubes is open for more filters and more demands. A multiband filter (UV/Green/Orange) is also available for FISH applications.

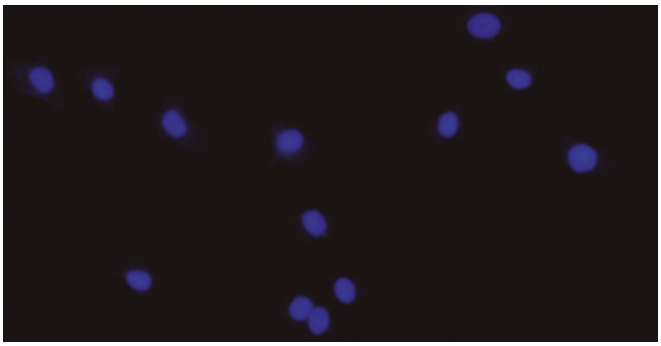


Filter turret with capacity up to 6 filters (5+1), providing flexible, efficient filter switching for enhanced imaging versatility and precision.

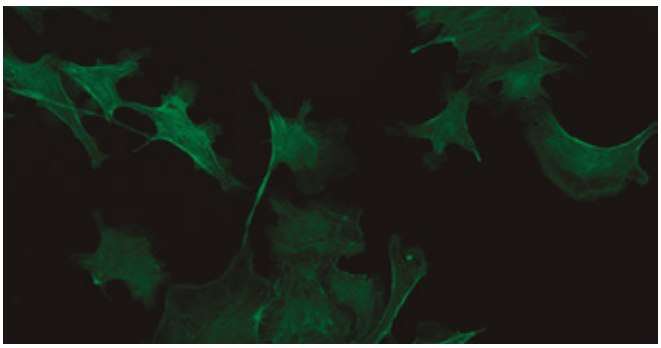
Wireless keyboard to control the LED lighting of the fluorescence channels.



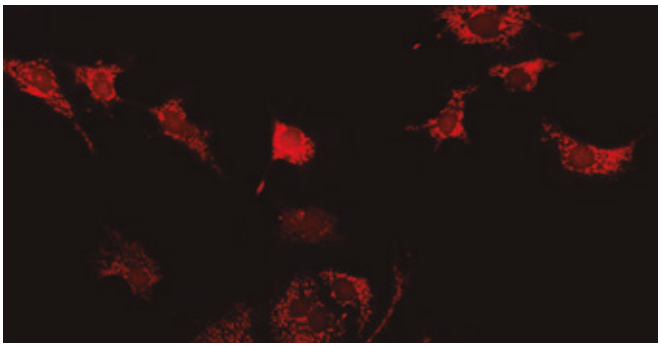
Configuration table to set the filter, wavelength, and camera type. Choose between color or monochrome options depending on the imaging requirements and experimental setup.



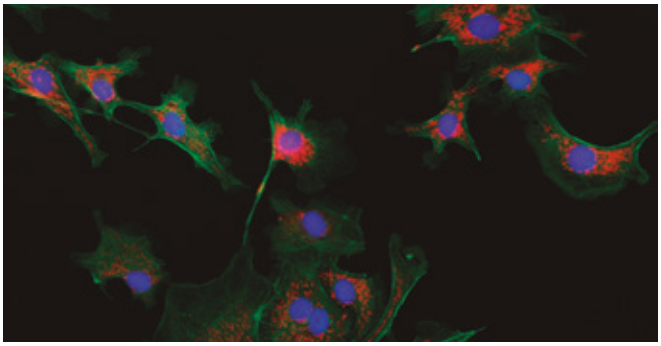
DAPI Exciter filter: D350/50x nm
Beam splitter filter: 400DCLP nm
Emitter filter: D460/50m nm



FITC Exciter filter: D480/30x nm
Beam splitter filter: 505DCLP nm
Emitter filter: D535/40m nm

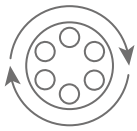


TRITC Exciter filter: D540/25x nm
Beam splitter filter: 565DCLP nm
Emitter filter: D605/55m nm



RGB Three channels Integration

Automation

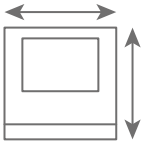


High-precision motorized objective revolver with control unit, ensuring flawless and exact placement of objectives for enhanced accuracy and efficiency.

Driving productivity through precision automation

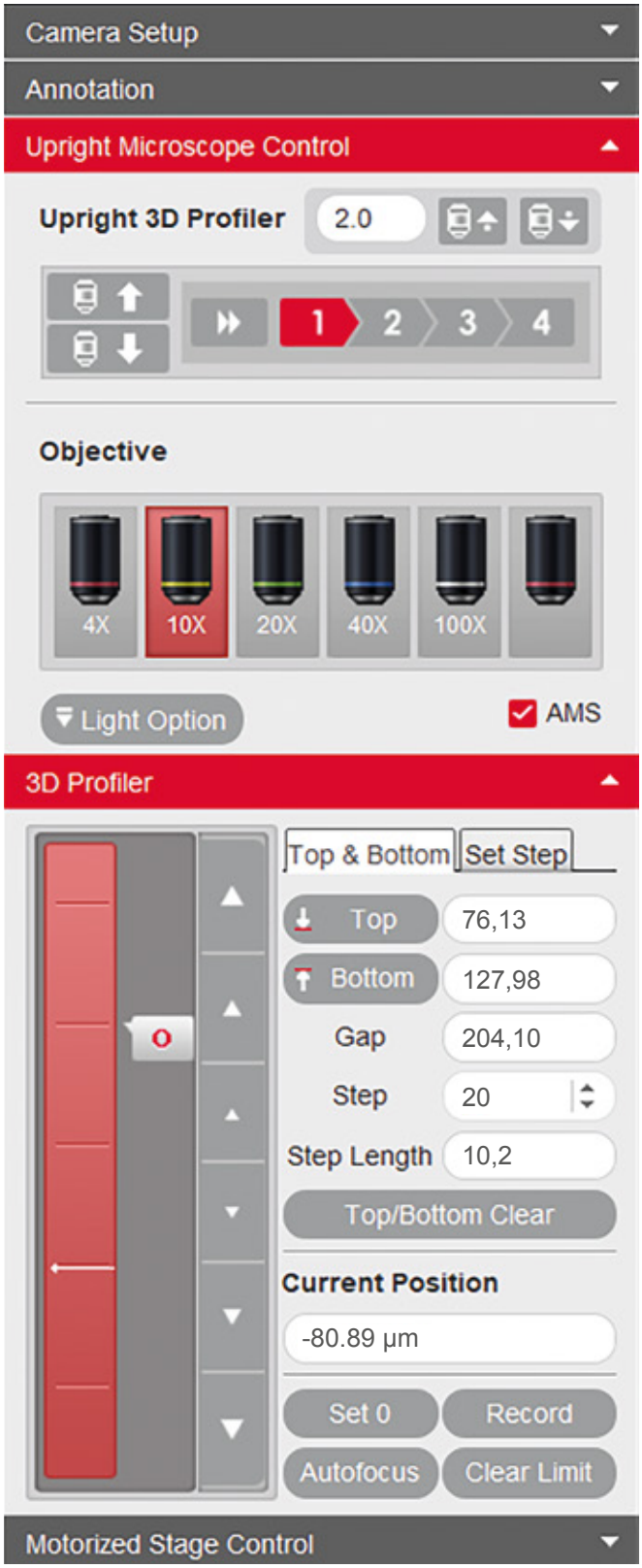
This system stands out for its advanced automation, which optimises control and efficiency, enabling straightforward acquisition of 3D images through precise Z-axis control. The capability to capture 2D images and integrate them with software-based analysis allows for highly accurate 3D measurements, a key advantage for detailed studies. The interface, featuring rapid focus control and a motorised objective turret, facilitates effortless and swift optical changes, enhancing workflow fluidity.

Additionally, the Z-axis autofocus system simplifies the capture of 2D images from specimens with varying focal depths. Topographical analysis and 3D profiling, performed through software, merge multiple 2D images into a single three-dimensional profile, allowing for more comprehensive and precise analysis. With high-precision specifications and a compact design, the system ensures accurate and reliable results, while intuitive controls and integrated safety features further enhance operational efficiency and security.



High-precision motorized mechanical stage with control unit, ensuring smooth and accurate movement for enhanced efficiency and precision in sample positioning.

High-precision motorized Z-axis stand with control unit, ensuring streamlined vertical movement for enhanced precision and ease of use.



Digitization

USB 3.1
Data Transfer

sCMOS Sensor

Scientific-Grade Digital Microscopy

Moticam S-Line

The new Moticam S-Line takes digital microscopy to the next level with sCMOS sensors, proprietary PCB design, and on-board image management, ensuring high-quality imaging for clinical, research, and industrial applications.

Designed and manufactured entirely in-house under strict German quality standards, the Moticam S-Line ensures smooth navigation, high color fidelity, and sharp, detailed images. Its large sensors enable capturing expansive sample areas in a single shot, making it the ideal choice for demanding professional environments.

With Moticam S, high-level digital microscopy is more accessible than ever, combining precision, innovation, and reliability for the best imaging experience.

Analysis BIO Software

Motic's digital microscope cameras, combined with Analysis BIO Software, provide outstanding fluorescence imaging, from intricate tissue analysis to impactful case presentations. With unparalleled signal-to-noise ratio and the advanced Automatic Measurement System (AMS), this powerful combination guarantees precise and reliable results, even in the most demanding applications.

FPS

Fast Frame rates

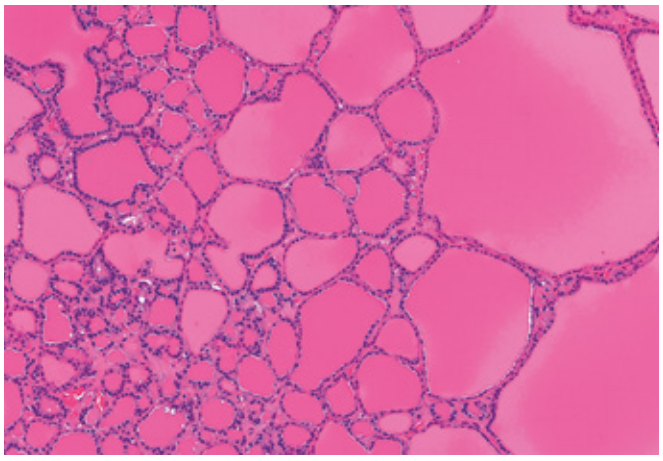
Manual
White balance (pro)

Advanced Sensitivity
& color reproduction

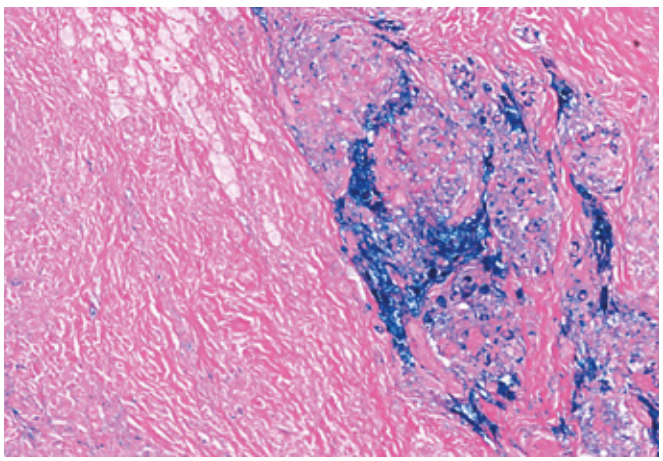
Rolling and Global
shutter models

▶ Analysis BIO Software

Moticam S-Line



H&E stain (Thyroid)



Perls Prussian blue stain (Liver)

Application Fields

Advanced microscopy for accurate diagnosis and cutting-edge clinical and research applications.

Advanced Microscopy in Biomedical Applications

From routine screening to advanced molecular diagnostics, clinical microscopy plays a vital role in delivering fast, accurate, and life-saving insights. The Motic PA53 BIO microscope is a game-changing instrument for a wide range of clinical applications. Whether examining H&E-stained tissue under bright-field or performing advanced fluorescence-based cytogenetic analysis, the PA53 BIO ensures high-performance imaging with exceptional sharpness and resolution, even for the most demanding samples.

Histopathology

Brightfield microscopy of H&E-stained tissue reveals structural abnormalities to diagnose cancer, inflammation, and other diseases.

Cytology

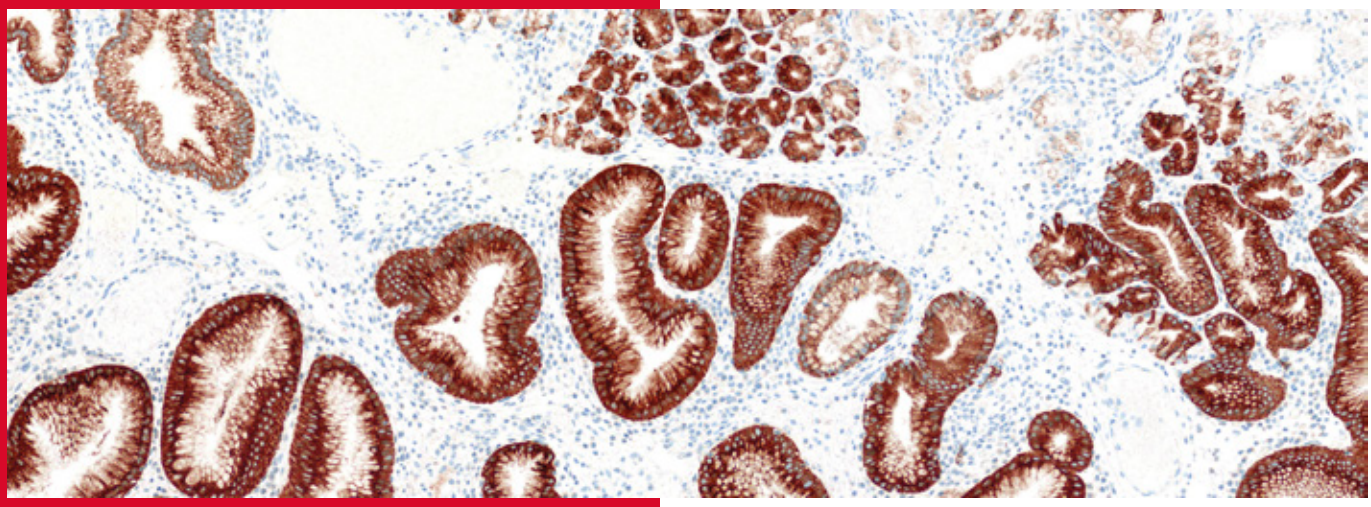
Cell evaluation from Pap smears, fine needle aspirations, or body fluids aids in detecting malignancies and infections.

Special Stains

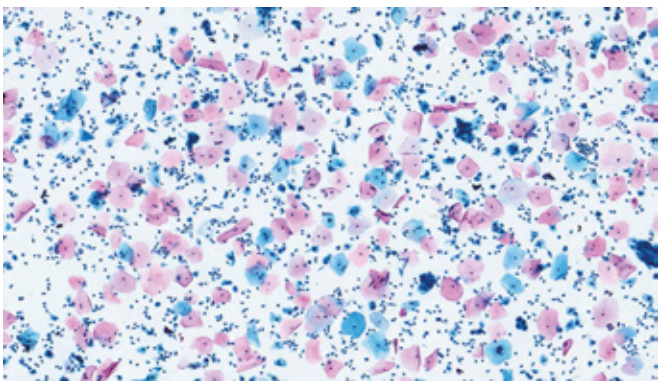
Techniques like PAS, GMS, Ziehl-Neelsen, and Trichrome highlight specific tissue components or pathogens for enhanced diagnostic clarity.

Immunohistochemistry (IHC)

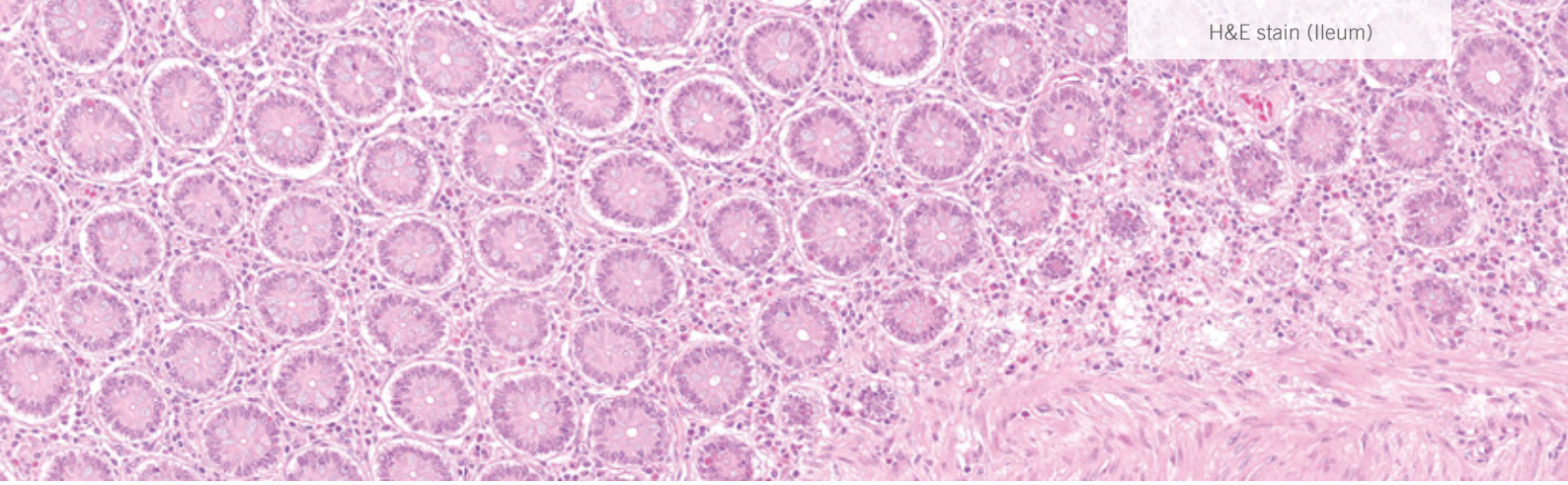
Antibody-based staining identifies cellular markers crucial in oncology, infectious diseases, and autoimmune disorders.



▲ MUC 5 IHC stain (Gastric Polyp)



Cytology - Papanicolaou stain ▶



H&E stain (Ileum)

Fluorescence Microscopy

Methods like FISH detect chromosomal abnormalities, gene amplification (e.g., HER2), and viral infections.

Hematology

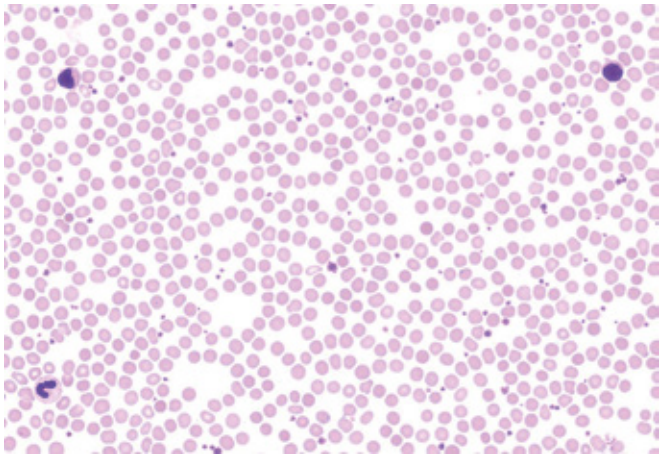
Blood smears help diagnose anemia, leukemia, and other hematologic disorders through cell morphology assessment.

Microbiology

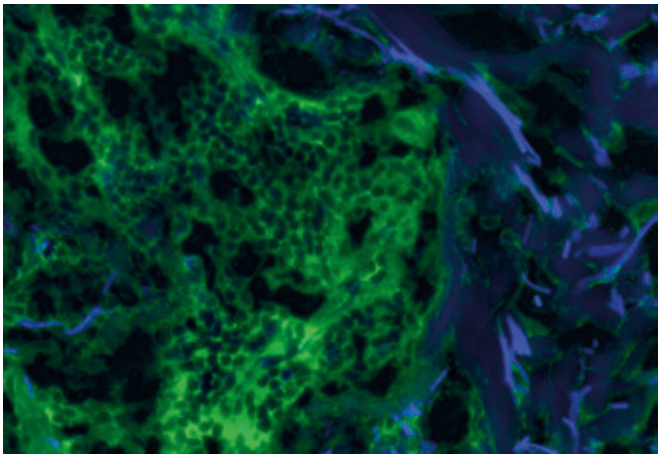
Microscopy aids in identifying bacteria, fungi, and parasites, often using Gram or acid-fast stains.

Urine and Crystal Analysis

Phase contrast and polarized light microscopy detect crystals and sediments related to gout or kidney disorders.

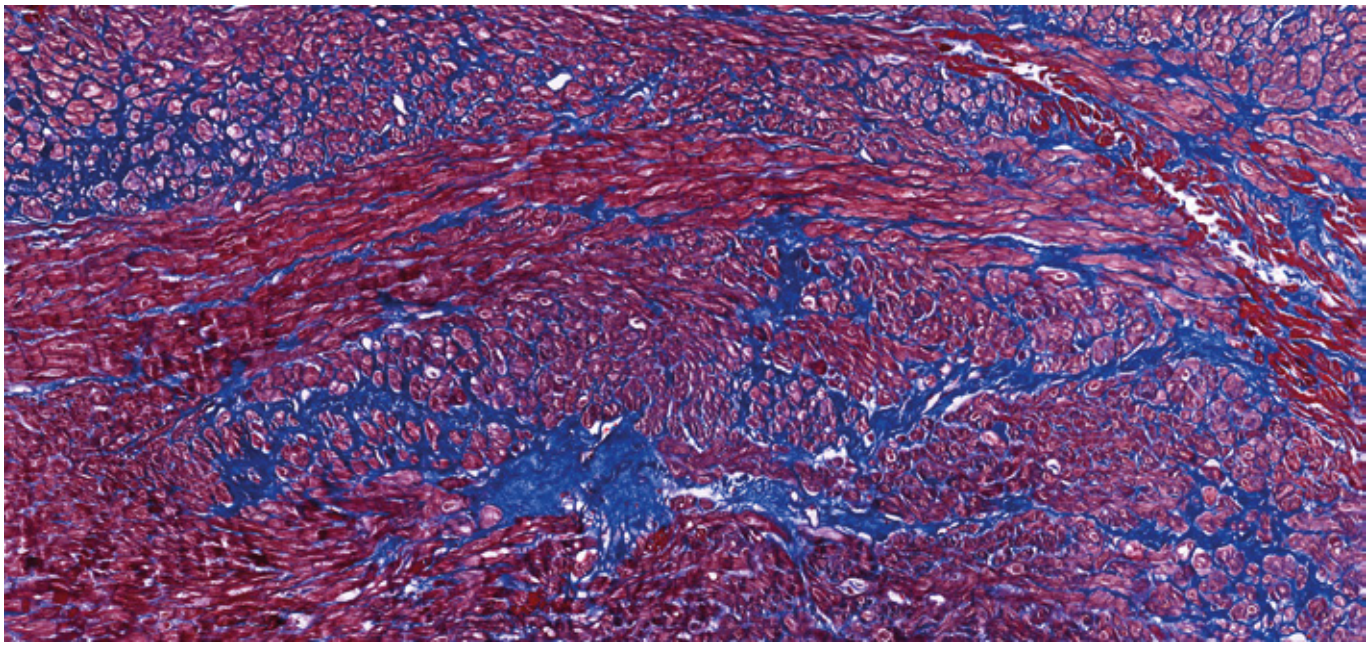


Blood Smear



Immunofluorescent staining of albumin (Skin)

▼ Masson's Trichrome stain (Heart)



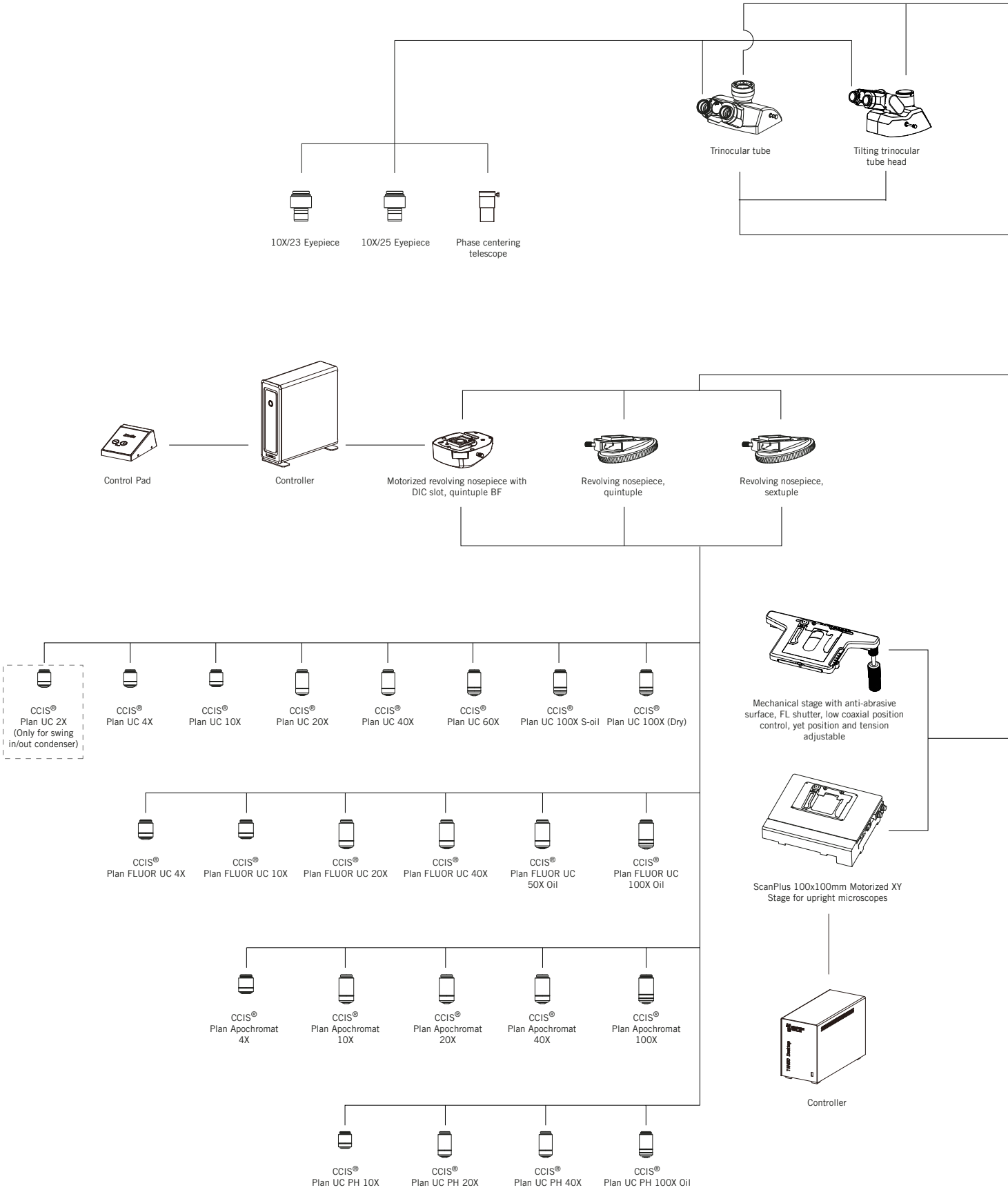
Technical Specifications

Name	PA53 BIO	PA53 BIO Cytology
Optical system	Colour Corrected Infinity Optical System (CCIS®)	
Observation tube	Trinocular head, Siedentopf type	Tilting trinocular head, Siedentopf type
Inclination	30° inclined	15° - 45° inclined
Trinocular light split	100:0/20:80/0:100	100:0/50:50/0:100
Interpupillary distance	55-75mm	
Diopter adjustment	On both eyepieces, +/- 4 diopter	
Eyepieces	Widefield WF10X/23mm with diopter adjustment	
Intermediate body	Simple intermediate arm with head and nosepiece holder, connecting cable for intelligent light function & AMS sensor	
Nosepiece	Reversed sextuple, coded	
Objective classification	CCIS® UC Plan Achromatic (Pb free)	
Objectives	4X/0.10 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.16mm)	4X/0.10 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), Fluor 50X/1.20/S-Oil (WD 0.1mm)
Objective mounting thread	W 4/5"x1/36" (RMS standard)	
Stand type	Upright	
Stage	Stage with anti-abrasive surface, FL shutter, low coaxial telescopic position control, yet position and tension adjustable	
Stage size	320x170mm	
Travel range X&Y	80x52mm	
Condenser	Focusable and centerable Abbe condenser N.A. 0.90 with slot for contrast sliders	
Diaphragm	Iris diaphragm	
Focus mechanism	Coaxial coarse and fine focusing system with tension adjustment	
Fine focus precision	1µm	
Focusing stroke	29.5mm - Coarse:17.7mm/revolution - Fine: 0.1mm revolution (1µm scale)	
Upper limit stop	Upper limit stop preset but adjustable	
Filter	ND6, ND25, LBD	
Filter holder	Integrated filters	
Incident illumination	-	
Transmitted illumination	Köhler LED 10W with intensity control	
Illumination features	Power saving mode ECO function, LED light intensity indicator and Intelligent Light function	
Transformer	Internal	
Power supply	110-240V (CE)	
Accessories included	Dust cover, power cord, Allen key, immersion oil (5ml)	
Dimensions LxWxH	576x247x457	
Net weight	19.2kg	
Notes	-	
CONTRAST TECHNIQUES		
Brightfield	Yes	
Phase contrast	Optional slider/turret	
Polarization	Optional add-on	
Darkfield	Optional slider/turret	
Fluorescence	Optional	

PA53 BIO Pathology	PA53 BIO FS6 EPIFLUO	
Colour Corrected Infinity Optical System (CCIS®)		Optical system
Tilting trinocular head, Siedentopf type	Trinocular head, Siedentopf type	Observation tube
15° - 45° inclined	30° inclined	Inclination
100:0/50:50/0:100	100:0/20:80/0:100	Trinocular light split
55-75mm		Interpupillary distance
On both eyepieces, +/- 4 diopter		Diopter adjustment
Widefield WF10X/23mm with diopter adjustment		Eyepieces
Simple intermediate arm with head and nosepiece holder, connecting cable for intelligent light function & AMS sensor	Epi-Fluorescence 6 position coded fluorescence turret arm with head and nosepiece holder, connecting cable for intelligent light function & AMS sensor	Intermediate body
Reversed sextuple, coded		Nosepiece
CCIS® UC Plan Achromatic (Pb free)		Objective classification
2X/0.05 (WD 7.2mm), 4X/0.10 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 20X/0.45 (WD 0.8mm), 40X/0.65/S (WD 0.6mm)	4X/0.10 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 20X/0.45 (WD 0.8mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.16mm)	Objectives
W 4/5"x1/36" (RMS standard)		Objective mounting thread
Upright		Stand type
Stage with anti-abrasive surface, FL shutter, low coaxial telescopic position control, yet position and tension adjustable		Stage
320x170mm		Stage size
80x52mm		Travel range X&Y
Focusable and centerable achromatic swing-out condenser N.A. 0.90/0.13	Focusable and centerable Abbe condenser N.A. 0.90 with slot for contrast sliders	Condenser
Iris diaphragm		Diaphragm
Coaxial coarse and fine focusing system with tension adjustment		Focus mechanism
1µm		Fine focus precision
29.5mm - Coarse:17.7mm/revolution - Fine: 0.1mm revolution (1µm scale)		Focusing stroke
Upper limit stop preset but adjustable		Upper limit stop
ND6, ND25, LBD		Filter
Integrated filters		Filter holder
-	LUMOS High-power LED FL 3-channels light source	Incident illumination
Köhler LED 10W with intensity control		Transmitted illumination
Power saving mode ECO function, LED light intensity indicator and Intelligent Light function		Illumination features
Internal		Transformer
110-240V (CE)		Power supply
Dust cover, power cord, Allen key	Dust cover, power cord, Allen key, immersion oil (5ml)	Accessories included
576x247x457		Dimensions LxWxH
19.2kg	24.2kg	Net weight
-	Fluorescence filter sets not included	Notes
		CONTRAST TECHNIQUES
Yes		Brightfield
Optional slider/turret		Phase contrast
Optional add-on		Polarization
Optional slider/turret		Darkfield
Optional	Yes, LED	Fluorescence

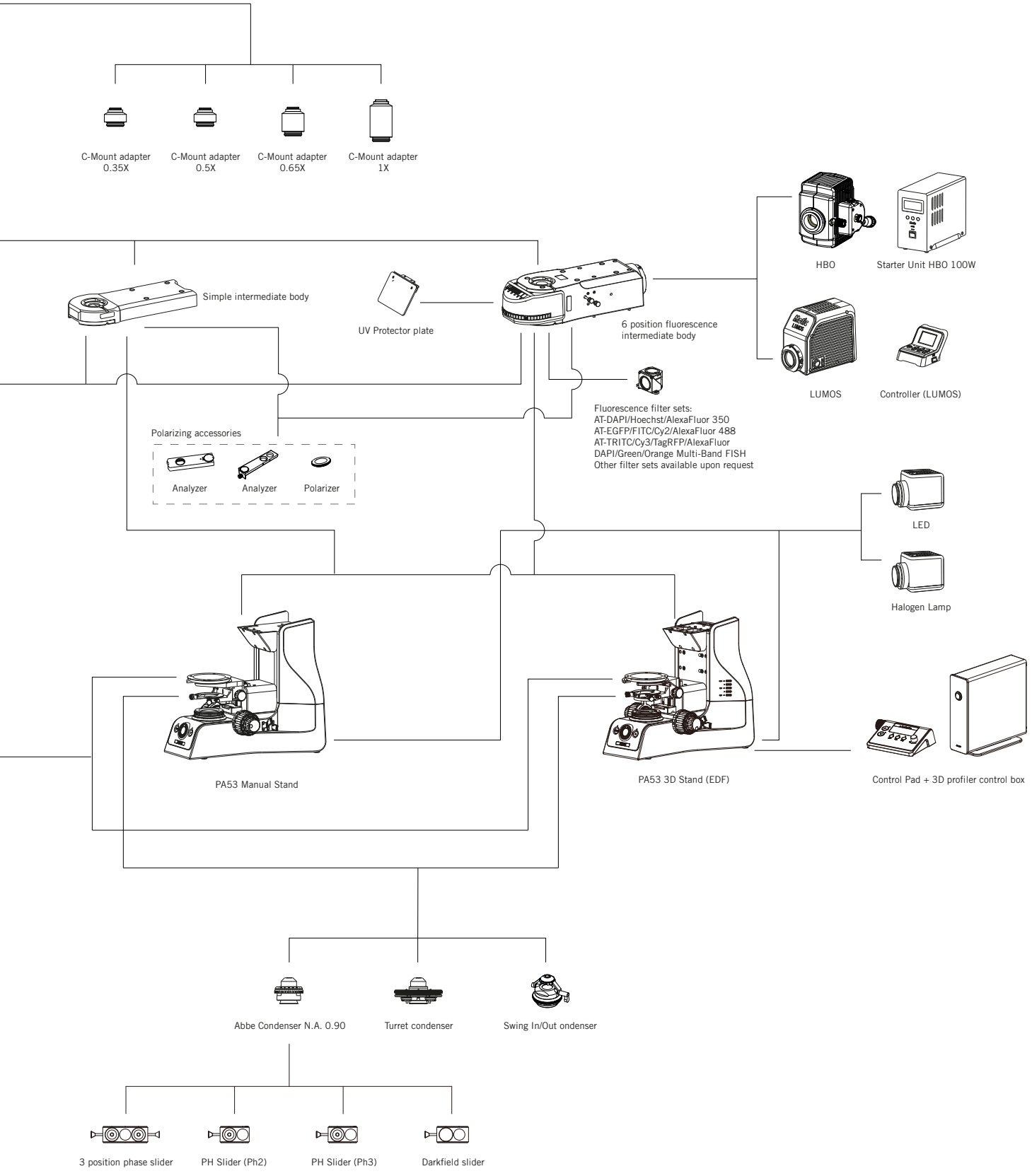
System Overview

Modular Microscopy for Advanced Applications



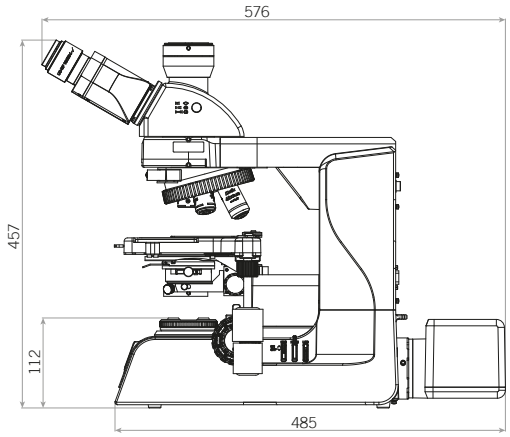
The PA53 BIO microscope series is built with modularity at its core, offering a highly adaptable platform to meet the evolving needs of modern microscopy. Its innovative design allows seamless customization for a range of scientific techniques, from pathology and cytology to general observation.

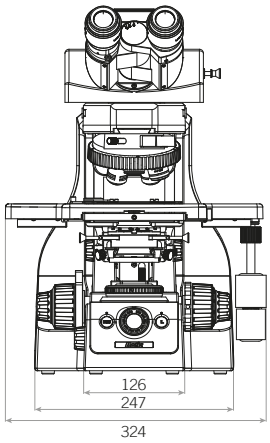
With effortless integration of accessories and upgrade options, the PA53 BIO ensures an optimized configuration for every application, delivering exceptional performance and unmatched versatility across a wide spectrum of microscopic examinations.



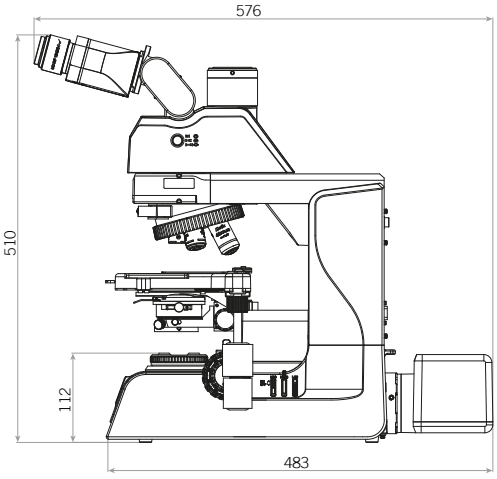
Dimensions

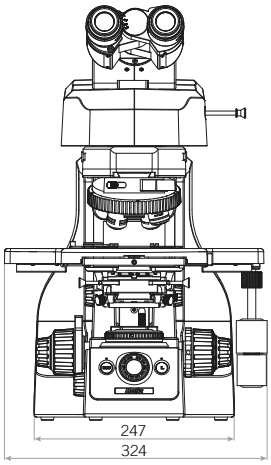
PA53 BIO



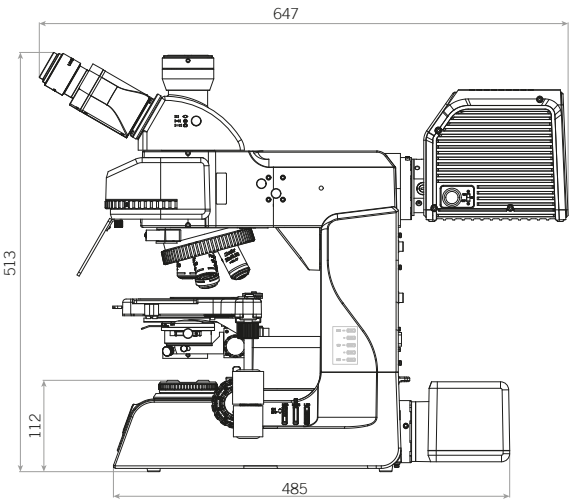


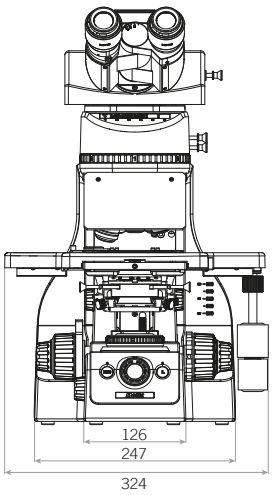
PA53 BIO
CYTOLOGY &
PATHOLOGY
(Tilting Head)





PA53 BIO
FS6 EPIFLUO





Analysis Software

Functions and versions

		Analysis Standard	Analysis Professional
Image Acquisition	Capturing (Snap)	•	•
	Video Recording	•	•
	HDR Basic (automatic)	•	•
	HDR (customized settings)	•	•
	Manual Tiling	•	•
	Manual EDF	•	•
	Live EDF	•	•
	Time Lapse	•	•
	Live Tiling	•	•
	Motorized Tiling		•
	EDF		•
Image analysis & measurements	Basic 2D Measurement Tools (angles, circles, polygons, distance, ellipses, line ruler, angle ruler and rectangles)	•	•
	Report Creation (Excel and CSV)	•	•
	2D Live Measurement	•	•
	2D Combination Measurement	•	•
	Cross hair, scale bar and info stamp display	•	•
	Image Processing Tools (filters, brightness/contrast, hue/saturation, grayscale, etc)	•	•
	Data Collector	•	•
	Annotations	•	•
	Advanced 2D Measurement Tools (freehand polylines and morphology filters)	•	•
	Channel Intensity Line Profiling	•	•
	3D Line Profiling	•	•
	Histogram	•	•
	Digital Reticle(Grid	•	•
	Auto Count		•
	Auto measurement		•
	Auto Segmentation		•
	Fluorescence Module	•	•
	Manual Magnification & Fluo Cube Selection	•	•
Device control (some functions depend on the device and its configuration)	IL	•	•
	ECO	•	•
	AMS (Auto Magnification Sensor)	•	•
	Fluo Cube Encoding	•	•
	Motorized Satge Control		•
	Motorized Nosepiece Control		•
	Z-Axis Control		•

Motic®

MOTIC EUROPE

www.moticeurope.com

BARCELONA, SPAIN
EUROPEAN HEADQUARTERS
T. +34 93 756 62 86

WETZLAR, GERMANY
TRAINING CENTER
T. +49 6441 21001 0

EN | ES | FR | DE | IT | PT

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