

**Motic®**

MORE THAN MICROSCOPY



# INDUSTRIAL CATALOGUE



Canada  
China  
Germany  
Spain  
USA



Motic was founded in 1988 as a hi-tech industrial enterprise specialized in manufacturing conventional compound microscopes. Owned by Speed Fair Co. Ltd, the company has grown into a worldwide organisation with sales offices in Canada, Germany, Hong Kong, Spain and the United States.

Our manufacturing base in China consists of four fully-owned subsidiaries, manufacturing components for the company. Motic Xiamen is acting as the production headquarter of the company. It plays an important role, not only as the manufacturing centre, but also as an ideal location for our research and development department. Our R&D centre in Xiamen has over 100 professional engineers and technicians covering optical, mechanical, industrial, electronics and software design.

In early 1998's, the company started to explore and develop digital microscopy solutions, digital imaging products and application software. Today Motic also incorporates a software developing centre in Canada. This successful transition marked a milestone for the company, turning Motic into one of the first and leading brand names in digital microscopy.

The main success of Motic worldwide is, besides the excellent price-performance ratio of the microscopes, based on a close cooperation with our dealers:

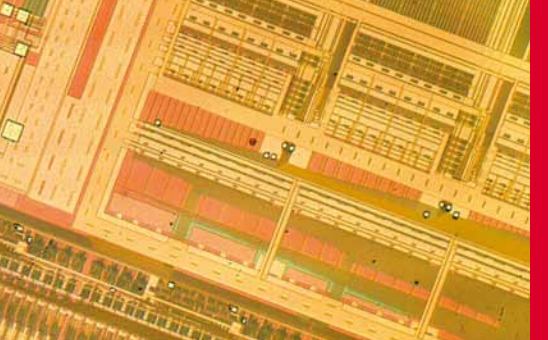
#### **Mutual benefit / Mutual goals / Long-term partnership**

We are making continuous efforts to provide our customers with the latest technologies, excellent quality and, of course, the best possible service wherever you need it.



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# Semiconductor Microscope

## PSM-1000/PSM-1000E



PSM-1000



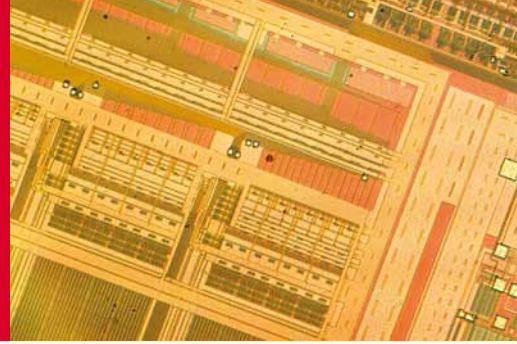
PSM-1000E

“All – In One” laser ready microscope for inspection, testing and corrections in the semiconductor industry.

Semiconductor

		PSM-1000	PSM-1000E
Trinocular tube	Image	Erect Image	
	Interpupillary distance	Siedentopf type, adjustment range: 55mm-75 mm	
	Field Number	24mm	
	Optical pass ratio	Switchable [eyepiece/laser = 100/0 or 0/100]; Simultaneous observation [50:50]	
	Observation angle adjustment	/	3° to 30°
Main unit	Tube lens [correction]	1x [ultraviolet and infrared] and 2x [visible]	
	Laser work	Pull out beam splitter for laser work	
	Applicable laser	1064/532/355nm NWR laser	
Magnification range	20X – 2000X		
Focus Adjustment	With coaxial coarse and fine focusing wheels [right/left] [50mm travel range, 0.1mm/rev. for fine adjustment, 4mm/rev. for coarse adjustment]		
Loading weight on optical tube	20.5kg		
Camera mount	C-mount adapter		
Light source [optional]	150W cold light source, light guide length 2m.		
Objective nosepiece	Parcenterable, outward, rotary type for bright field lens [with 4 mounts], detachable		
Objectives [optional]	ELWD Plan Apo	2x, 5x, 10x, 20x, 50x	
	ULWD Plan Apo	50x, 100x	
	ELWD Plan Apo [Parfocality Adjustable]	2x, 5x, 10x, 20x, 50x	
	ULWD Plan Apo [Parfocality Adjustable]	50x, 100x	
	NIR Apo	20x, 50x	
Mass [main unit/light source]	6.8kg/2.5kg		

# Semiconductor Microscope

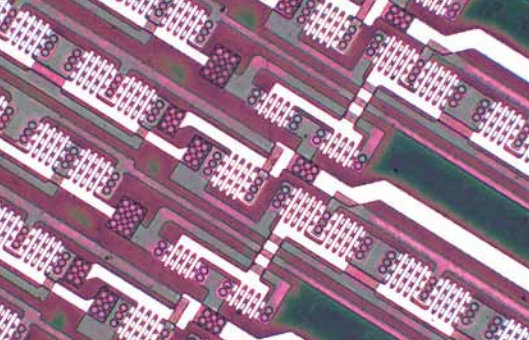


## APO Objective



Superb optics with long working distances for crisp, detailed, aberration-free images.

Lens optical character	Magnification	N.A.	W.D. (mm)	Resolution (um)
<b>ELWD Standard</b>	2x	0.055	34	5
	5x	0.14	34	2
	10x	0.28	33.5	1
	20x	0.42	20	0.7
	50x	0.55	13	0.5
	100x(HNA)	0.8	3	0.34
<b>ELWD Parfocality Adjustable</b>	2x	0.055	34	5
	5x	0.14	34	2
	10x	0.28	33.5	1
	20x	0.42	20	0.7
<b>ULWD Standard</b>	50x	0.42	20.5	0.7
	100x	0.55	13	0.5
<b>Plan NIR</b>	20x	0.4	20.5	0.7
	50x	0.42	19	0.7



# Metallurgical Microscope

## BA310MET



Now industrial quality control can be performed for all opaque materials like minerals and metal samples with ease and efficiency. The BA310MET also performs well in educational environments for engineering and material professions, where affordability and ease-of-use are key demands.

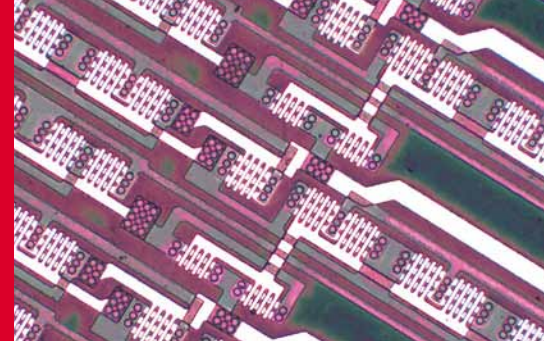
### BA310MET

Optical System	Color Corrected Infinity Optical System [CCIS®]
Eyepieces	N-WF 10X/20mm, with diopter adjustment
Observation Tube	Widefield binocular 30° [F.N. 20] Widefield trinocular 30° [F.N. 20] - light distribution 100:0/20:80
Interpupillary Distance	Widefield trinocular 30° [F.N. 20] - light distribution 50:50 fixed, Erect image
Nosepiece	Reversed quintuple
Focus	Coaxial movement; 30mm stroke; Fine focus with 2µm minimum increment
Stage	180 x 140mm surface; 75 x 50mm movement; coaxial movement
Incident light	12V/50W Halogen illuminator with external power supply; Halogen bulb exchangeable with 3W LED (4500K,6000K)
Accessory (optional)	Polarizer, Analyzer, Camera adapter (0.5X, 0.65X, 1X)
Specimen Thickness	Max. 30mm

### Objective Specification:

Type	Magnification	N.A.	W.D.(mm)
Plan	5x	0.13	11.5
	10x	0.30	6.8
	20x	0.40	11.1
	50x	0.55	8.2
	100x	0.80	2

# Metallurgical Microscope



## BA310MET-T

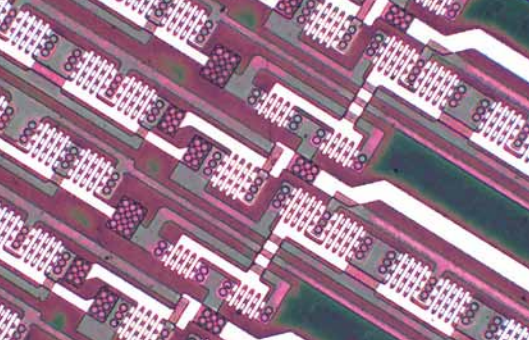


Now industrial quality control can be performed for all opaque materials like minerals and metal samples with ease and efficiency. The BA310MET also performs well in educational environments for engineering and material professions, where affordability and ease-of-use are key demands. The BA310MET-T model has a transmitted light option that allows easy handling and viewing of transparent samples and greatly increases the number of industrial applications.

BA310MET-T	
Optical System	Color Corrected Infinity Optical System [CCIS®]
Eyepieces	N-WF 10X/20mm, with diopter adjustment
Observation Tube	Widefield binocular 30° [F.N. 20] Widefield trinocular 30° [F.N. 20] - light distribution 100:0/20:80
Interpupillary Distance	Widefield trinocular 30° [F.N. 20] - light distribution 50:50 fixed, Erect image
Nosepiece	Reversed quintuple
Focus	Coaxial movement; 30mm stroke; Fine focus with 2µm minimum increment
Condenser	N.A. 0.85; focusable and centrable
Stage	240x140mm surface; 75x50mm movement; coaxial movement 300x180mm surface; 150x100mm movement; coaxial movement
Incident light	12V/50W Halogen illuminator with external power supply; Halogen bulb exchangeable with 3W LED (4500K,6000K)
Transmitted Illumination	Built-in 6V/30W Halogen Koehler illumination; Halogen bulb exchangeable with 3W LED (4500K,6000K)
Accessory (optional)	Polarizer, Analyzer, Camera adapter (0.5X, 0.65X, 1X)
Specimen Thickness	Max. 30mm

### Objective Specification:

Type	Magnification	N.A.	W.D.(mm)
Plan	5x	0.13	11.5
	10x	0.30	6.8
	20x	0.40	11.1
	50x	0.55	8.2
	100x	0.80	2



# Metallurgical Microscope

## BA310MET-H



A modular inspection and analysis system for electronic components attachable to user machine or can be used independently. For wider application, polarizing observation is available. Superb image quality and erect images provide easy and quick detection of faults on the observed specimen. The system supports all imaging systems from CCD cameras to digital SLR.

### BA310MET-H

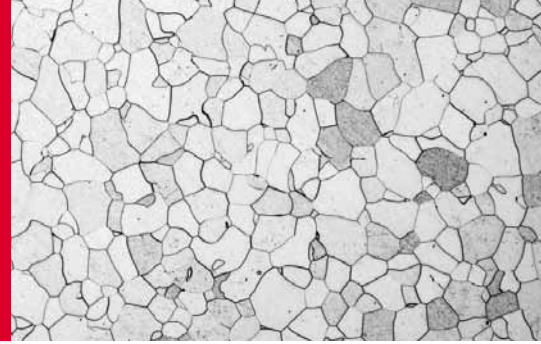
Optical System	Color Corrected Infinity Optical System [CCIS®]
Eyepiece	N-WF 10X/20mm, with diopter adjustment
Observation Tube	Widefield binocular 30° [F.N. 20] Widefield trinocular 30° [F.N. 20] - light distribution 100:0/20:80 Widefield trinocular 30° [F.N. 20] - light distribution 50:50 fixed, Erect image
Interpupillary Distance	55-75mm
Nosepiece	Reversed quintuple
Focus	Coaxial movement; 30mm stroke; Fine focus with 2µm minimum increments
Stage	180x140 mm surface; 100x80 mm movement; coaxial controls (optional)
Stand	Dimension:300 x 300mm
Incident light	12V/50W Halogen illuminator with external power supply; Halogen bulb exchangeable with 3W LED (4500K,6000K)
Specimen Thickness	Max. 120mm

### Objective Specification:

Type	Magnification	N.A.	W.D.(mm)
Plan	5x	0.13	11.5
	10x	0.30	6.8
	20x	0.40	11.1
	50x	0.55	8.2
	100x	0.80	2



# Metallurgical Microscope



## BA210MET



To meet the demands of the Basic Metallurgical Microscope, Motic introduces its entry level model, the BA210MET, for the observation of opaque materials.

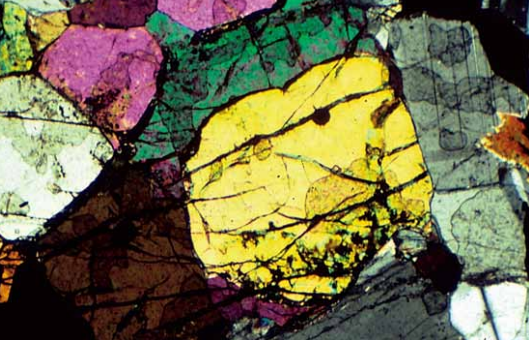
Designed with educational purposes in mind and aimed at engineering and material professions.

### BA210MET

Optical System	Color Corrected Infinity Optical System [CCIS®]
Eyepieces	N-WF 10X/20mm, with diopter adjustment
Observation Tube	Widefield binocular 30°[F.N. 20] Widefield trinocular 30°[F.N. 20] - light distribution 100:0/20:80
Interpupillary Distance	55 ~ 75mm
Nosepiece	Reversed quadruple
Focus	Coaxial movement; 30mm stroke; Fine focus with 2µm minimum increment
Stage	159 x 135mm surface; 75 x 50mm movement; coaxial movement
Incident light	6V/30W halogen Epi-Illumination
Accessory (optional)	Polarizer, Analyzer, Camera adapter (0.5X, 0.65X, 1X)
Specimen Thickness	Max.30mm

### Objective Specification

Type	Magnification	N.A.	W.D.(mm)
M Plan	5x	0.15	14.5
	10x	0.25	16.0
	20x	0.40	10.5
	50x	0.55	5.1



# Polarizing Microscope

## BA310POL



With acclaimed Motic CCIS Infinity Optics for improved performance and system flexibility, Motic BA310POL microscope offers superb optical performance and flexibility system that can be extended for petrography, mineralogy, industrial and medical applications.

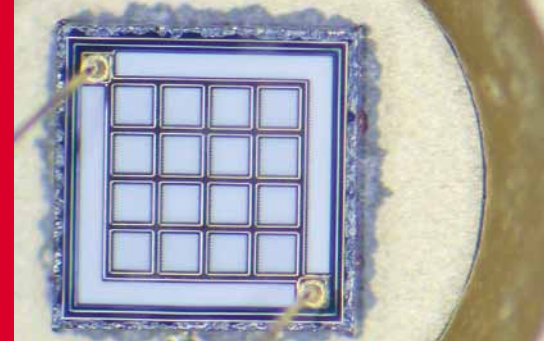
### BA310POL

Model	BA310 Polarizing Microscope
Optical System	Color Corrected Infinity Optical System [CCIS®]
Eyepieces	Widefield high eyepoint, N-WF10X/20mm, diopter adjustment rubber eyecup (paired), cross hair on one eyepiece
Observation Tube	Widefield binocular 30° Widefield Trinocular 30° - light distribution 100:0/20:80
Eyepieces	Widefield high eyepoint, N-WF10X/20mm, diopter adjustment on both eyepieces, rubber eyecup (paired), cross hair on one eyepiece
Interpupillary Distance	55 - 75mm
Intermediate tube	360° rotatable analyzer with focusable Bertrand lens
Nosepiece	Reversed quadruple revolving nosepiece, 3 centerable position
Stage	360° rotatable stage
Condenser	Achromat swing-out condenser N.A. 0.90/0.13 (strain-free) with iris diaphragm
Polarizer & Analyzer	Rotatable polarizer, fixed on condenser carrier and rotatable dial analyzer
Focus	Coaxial movement; 30mm stroke; Fine focus with 2µm minimum increment
Transmitted light	Koehler illumination quartz halogen 6V/30W with intensity control

### Objective Specification

Type	Magnification	N.A.	W.D.(mm)
EC Plan strain free	4x	0.10	15.9
	10x	0.25	17.4
	20x	0.45	0.9
	40x	0.65	0.5
	60x	0.80	0.35

# Stereo Microscope



## K-Series



K-400L



K-500L



K-700P

Infinity optics, versatile, common main objective [CMO], this series is ideal for most inspection applications.

		K400L	K500L	K700P
Body	Optical System	Infinity, common main objective [CMO]		
	Convergent Angle	14°		
	Magnification	4 Step Changer [6,12,25,50 ratio]	[6.4, 10, 16, 25, 40 ratio] 5 Step Changer	Zoom range: 5.2:1
	Working Distance	89mm		
	Observation tube inclination	45°		
	Interpupillary distance adjustment	54mm - 76mm		
	Diopter adjustment	±5 diopter		
	Auxiliary objectives	0.3X, 0.5X, 0.625X, 1.5X, 2X		
	Eyepiece	Super Widefield 10X/ 23		
Stand		Illumination stand		Plain stand
	Focusing adjustment	50mm		
	Stage Plate	Black & white plate, Frosted glass plate		Black & white plate
	Light Source	Incident light: 12V/10W Halogen Transmitted light: 12V/10W Halogen		Cold light illumination (optional) Fluorescent ring Illuminator(optional) LED ring Illuminator(optional)

Stereo

# Stereo Microscope

## SMZ-171



SMZ-171BLED  
(Pole Type)



SMZ-171TLED  
(Fixed Arm)



SMZ-171TP  
(Fixed Arm)

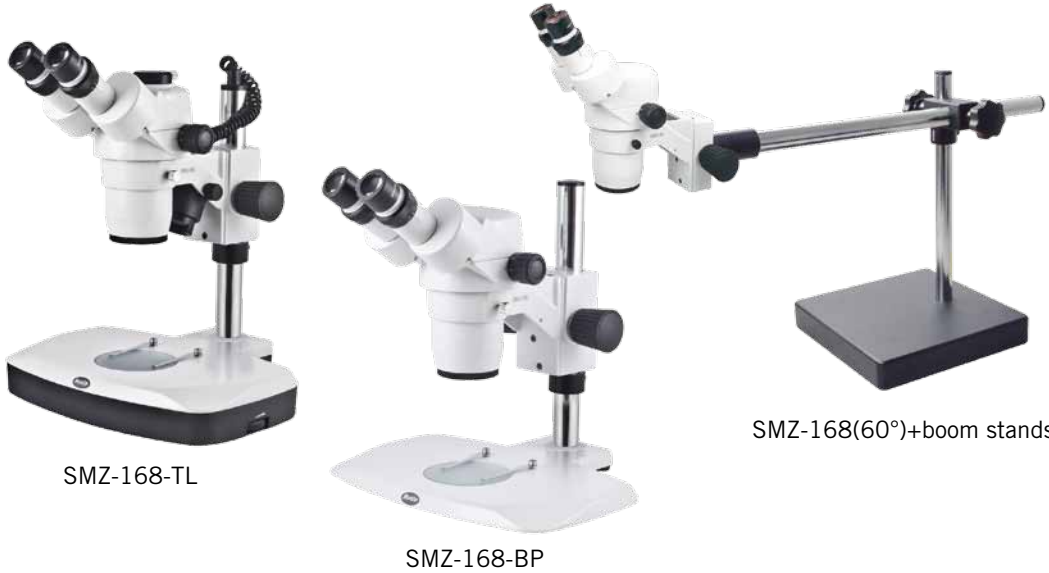
Greenough stereoscopic optical system and multi-coated lens with relax view observation. Optional ESD feature for head and stand is available. Designed for a wide range of biological and material science applications, especially for industrial quality control.

	SMZ-171BL	SMZ-171TL
Optical system	Greenough	
Observation angle	45°/ 60°	45°
Magnification range (standard)	0.75X--5X	
Zoom ratio	1:6.7	
Eyepiece	N-WF, high eye-point 10X (Ø23), Diopter adjustable	
	N-WF 12.5X (Ø18), 15X (Ø16), 20X (Ø13) optional	
Interpupillary adjustment	48mm-75mm	
Height of eye point	405mm	
Working distance (standard)	110mm	
Weight	6.2 kg (head 1.4kg)	
C-Mount adapter	/	Trinocular head only
	/	0.5X, 0.65X, 1X adapters available
Photo adapter	/	Photo adapter, 2.5X, 4X photo eyepiece available
Auxiliary ESD objectives	0.3X [WD = 301mm], 0.5X [WD = 191.8mm], 0.63X [WD = 142.7mm], 0.75X [WD = 128.6mm], 1.5X [WD = 56.3mm ], 2.0X [WD = 38.6mm]	
Max. working distance	301mm	
Stand option	Stable pole stand and arm base stand available 3W LED incident and transmitted light with reflector design Improved design for various boom stands for industrial use ESD stand optional	

# Stereo Microscope



## SMZ-168



SMZ-168-TL

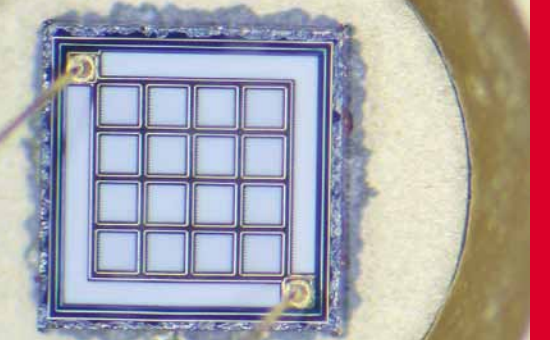
SMZ-168-BP

SMZ-168(60°)+boom stands

Zoom ratio of 6.7:1 and excellent optical performance combined with outstanding price-performance ratio. Designed to satisfy the most demanding user applications.

	SMZ-168 B	SMZ-168 (60°) + boom stands	SMZ-168 T	
<b>Body</b>	Optical system	Greenough		
	Tube inclination angle	35°	60°	35°
	Magnification range	0.75X – 5X		
	Zoom ratio	1:6.7		
	Eyepiece	High eyepoint, widefield WF10X/23 Widefield WF5X/23, WF6.25X/23, WF15X/17, WF20X/13, WF30X/8, WF32X/8 optional		
	Interpupillary distance adjustment	±5 diopter, 52mm - 75mm		
	Working distance	113mm		
	C-mount adapter	/	/	0.3X, 0.65X available
	Photo adapter	/	/	Photo adapter, 2X photo eyepiece available
Auxiliary objectives	0.3X [WD =324mm], 0.5X [WD =192mm], 0.63X [WD =156mm] 0.75X [WD =127mm], 1.5X [WD =50mm ], 2X [WD = 34.5mm]			
<b>Stand</b>		Plain stand – 168P	Illumination stand – 168L	
	Focusing adjustment	50mm		
	Stage Plate	Black & white plate	Black & white plate, Frosted glass plate	
	Light Source	Cold light source (optional) / Fluorescent ring illuminator (optional) / LED ring light illuminator (optional)	Transmitted illumination : Halogen 12V/10W Incident illumination : Halogen 12V/10W Or both 3W LED incident and transmitted light	

Stereo



# Stereo Microscope

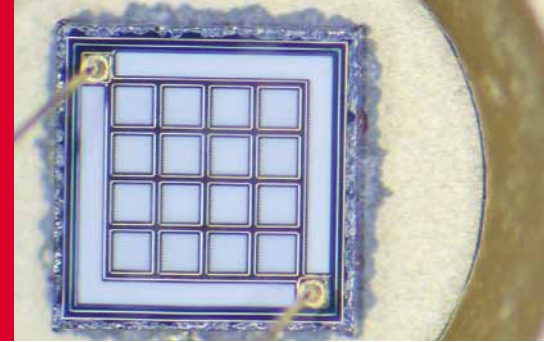
## SMZ-161



Greenough stereoscopic optical system, offers the best performance of a zoom ratio of 1:6, with high resolution and a long working distance.

	SMZ-161B	SMZ-161T
Optical system	Greenough	
Observation angle	45°/ 60°	45°
Magnification range (standard)	0.75X - 4.5X	
Zoom ratio	1:6	
Eyepiece	WF10X (Ø20) / eyepiece tube adjustable / WF 10X (Ø23) / optional N-WF 15X (Ø16), 20X (Ø13) optional with RoSH lens	
Interpupillary adjustment	50mm-75mm	
Height of eye point	367mm	
Working distance (standard)	110mm	
C-Mount adapter	/	0.5X, 0.65X, 1X adapters available
Photo adapter	/	Photo adapter, 2.5X, 4X photo eyepiece available
Auxiliary ESD objectives	0.3X [WD = 301mm], 0.5X [WD = 191.8mm], 0.63X [WD = 142.7mm], 0.75X [WD = 128.6mm], 1.5X [WD = 56.3mm ], 2.0X [WD = 38.6mm]	
Max. working distance	301mm	
Weight	3.7kg (Head 1.2kg)	
Optional illuminator	Ring LED light / fluorescent ring illuminator / cold light source	
Stand option	<ul style="list-style-type: none"> <li>• Reflector design provides a more homogeneous illumination at a lower temperature</li> <li>• Compact R2LED stand with 3W LED</li> <li>• Compact R2GG stand with 12V/10W halogen incident and 12V/20W halogen transmitted light</li> <li>• Improved design for various boom stands for industrial use</li> </ul>	

# Stereo Microscope



## Industrial boom stands



**Articulating arm boom stand**  
 ( with square base and focusing connector)  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm  
 Length of vertical pole: 400mm, 600mm (optional)



**Special universal stand**  
 (with round base and focusing connector)  
 Diameter of base: Ø300mm  
 Length of vertical pole: 400mm, 600mm (optional)  
 Horizontal movement: 260mm  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm



**Ball bearing boom stand**  
 ( with square base and focusing connector)  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm  
 Length of vertical pole: 400mm, 600mm (optional)



**Special universal stand**  
 (with square base and focusing connector)  
 Length of base: 300mm  
 Width of base: 300mm  
 Horizontal movement: 400mm  
 Length of vertical pole: 400mm, 600mm (optional)  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm



**Articulating arm boom stand**  
 (with table clamp type and focusing connector)  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm  
 Maximum thickness of clamping the table: 75mm  
 Length of vertical pole: 400mm, 600mm (optional)



**Industrial arm boom stand**  
 (with square base)  
 Length of base: 300mm  
 Width of base: 300mm  
 Horizontal movement: 400mm  
 Length of vertical pole: 400mm, 600mm (optional)  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm  
 Connects with the industrial arm directly without focusing connector

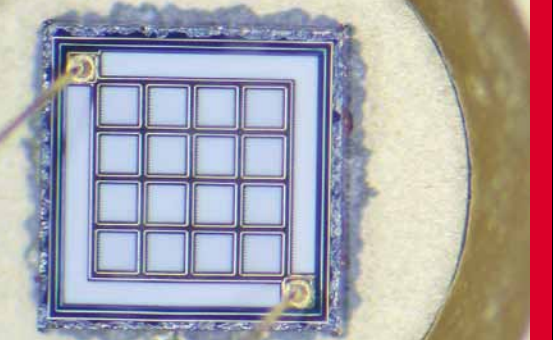


**Ball bearing boom stand**  
 (with table clamp type and focusing connector)  
 Vertical pole mounting diameter: Ø32mm  
 Focusing pole mounting diameter: Ø25mm / Ø32mm  
 Maximum thickness of clamping the table: 75mm  
 Length of vertical pole: 400mm, 600mm (optional)



**Manual movement stand**  
 Area of surface: 450mm x 350mm  
 X movement: 410mm  
 Y movement: 220mm  
 Supporting holder can swing around forward and backward to satisfy the requirements to observe objects from different sides.

Stereo



# Stereo Microscope

## Illumination Accessories



Motic VI-LED / VI-HAL Vertical Illuminator utilizes a groundbreaking optical and illumination system to enable on-axis observation and documentation, specially designed for Motic SMZ-161 and SMZ-171.

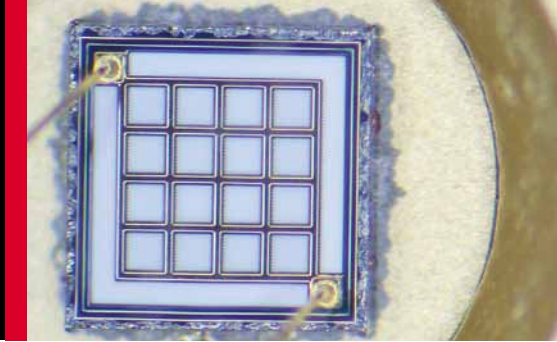
True on-axis observation of high-resolution, high-contrast, Shadow-free images capture are possible due to the VI-LED / VI-HAL Vertical Illuminator's elimination of the traditional stereoscope's angular view of the specimen. This is ideal for the observation of particularly smooth, specular surfaces and highly reflective specimens such as integrated circuits, semiconductor wafers, polished metal parts, solder balls, or magnetic recording heads.

The VI-LED / VI-HAL vertical Illuminator will be your perfect stereo microscope illumination solution.

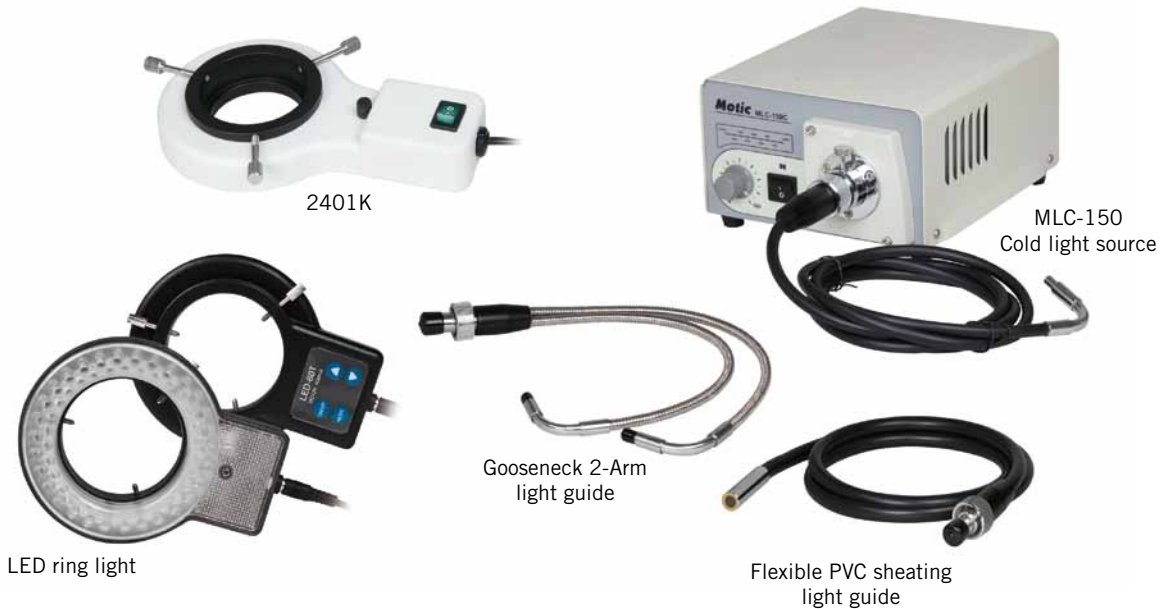
	VI-LED	VI-HAL
Mounting on microscope body	Screw onto the head directly by 3 Knurled screws	
Input Voltage	12V, 2A	12V, 4A
Lamp output power	LED 3W*2	Halogen bulb, 6V/30W
Color Temperature	3,000~3,500 K, 6,000~7,000 K available	3,000~3,200 K
Lamp Life	20,000 hours	100 hours
switching power supply	AV100-240V, 50/60HZ	AV100-240V, 47-63Hz



# Stereo Microscope



## Illumination Accessories

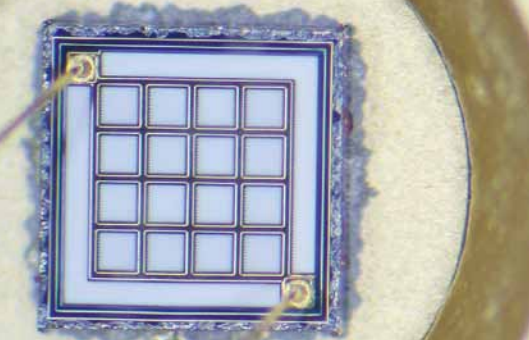


2401K: Economic, sturdy, shadow-free, pure-white fluorescent ring illumination for stereo microscopes  
 MLC-150: An industrial designed illumination

2401K		LED ring light
Mounting on microscope body	Clamp with mounting ring [special screw on adapter for SMZ168]; mounting ring causes a decrease in working distance of approximately 10mm, SMZ168 adapter decreases working distance by 5 mm	For SMZ-161/171/ K series. Screw onto the head directly by 3 special screws
Input Voltage	115V, 220V	100 – 240V
Input frequency	50/60HZ	50/60HZ
Lamp output power	12W	4.5W, DC,24V(MAX)
Color Temperature	6400K	9,000~10,000 K
Lux	510Lm	35,000Lux
Lamp Life	500hours	Above 10,000 hours
Weight	252g	250g

MLC150						
Light Guide	Type	Flexible	Flexible	Ring Light	Bifurcated	1-arm
Fiber	Length	1500mm	2000mm	1000mm	500mm	500mm
	Type			Glass		
	Fiber Bundle Diameter	Ø7mm	Ø5mm	Ø5mm	Ø8mm	Ø5.6mm
Proximal Diameter		Ø15mm				
Distal End Diameter		Ø15mm	Ø7mm	Ø61mm	Ø13mm	Ø9mm
Distal End Type		Std. straight tip	Right angle line	Ring	Std. straight tip	Std. straight tip
Colour Temperature		500K - 3700K, Using blue filter can increase colour temperature above 5600K.				
Lamp Output Power		150W				
Bending Radius		Ø18mm	Ø18mm	Ø225mm	Ø200mm	Ø200mm
Emitter Dimensions		220(H) x 193(W) x 112(D)mm				

Stereo



# Stereo Microscope

## SFC-11 / SFC-12



Compact, effective lightweight stereo microscopes with high-quality optical performance.

	SFC-11 A	SFC-11 B	SFC-11 C	SFC-12 A	SFC-12 B	SFC-12 C
Optical System	Greenough					
Convergent Angle	12°					
Magnification	1X, 2X	1X, 3X	2X, 4X	1X, 2X	1X, 3X	2X, 4X
Eyepieces	Widefield 10x, Field Number [F.N.] = 20mm					
Working Distance	95mm					
Observation angle	45°					
Interpupillary adjustment	54mm-76mm					
Diopter adjustment	Provided on left tube only. Adjustment range : ±5 diopter					
C-mount	/			CCD adapter mountable [0.4x included]		
Optional illuminator	Fluorescent ring light illuminator / Cold light source					
Stand option	> Compact N2GG stand with 12V/15W halogen incident light and 12V/10W halogen transmitted light > Universal power input 110V-220V					

# Gemology Microscope



## GM-171 / GM-161



The GM-161 / 171 utilizes the optical performance of Motic's SMZ-171 stereomicroscope to enhance distinct three-dimensional details with a zoom function. Rugged and precise, the optics of the GM-171 performs indentifications, analyses, and measurements more accurately and efficiently, thus reducing your workload. Available in a trinocular version for photographic or digital capture of the gem, the GM-161 / 171 provides you with an opportunity for extra revenue.

	GM-171B	GM-171T	GM-161B	GM-161T
Optical system	Greenough			
Observation angle	45°/ 60°	45°	45°/ 60°	45°
Magnification range (standard)	0.75X--5X		0.75X - 4.5X	
Zoom ratio	1:6.7		1:6	
Eyepiece	N-WF, high eye-point 10X(Ø23), Diopter adjustable N-WF 12.5X(Ø18), 15X(Ø16), 20X(Ø13) optional		WF10X (Ø20) / eyepiece tube adjustable N-WF 10X (Ø23), N-WF 15X (Ø16), 20X (Ø13) optional	
Interpupillary adjustment	48mm-75mm		50mm-75mm	
Working distance (standard)	110mm			
C-Mount adapter	/	0.5X, 0.65X, 1X adapters available	/	0.5X, 0.65X, 1X adapters available
Photo adapter	/	Photo adapter, 2.5X, 4X photo eyepiece available	/	Photo adapter, 2.5X, 4X photo eyepiece available
Auxiliary ESD objectives	1.5X [WD = 56.3mm ], 2.0X [WD = 38.6mm]			
Stand option	Incident illumination	7W fluorescent light, colour temperature of 6000K to reduce any yellowing effects on the gem, angle adjustable		
	Transmitted illumination	6V/30W Halogen		
	Focusing adjustment	125mm		
	Stage	Mounting hole for gem holder on both sides. Users can choose the position freely		
	Tilting base	With a tilting range of 0°(upright) to 45°, accessible to users of various heights		

## Moticam Pro



The Moticam Pro range consists of 12 feature-rich options providing a large platform for high-quality digital microscopy.

A Moticam Pro is a sensitive piece of equipment designed to deliver high-quality CCD based images and yet still be affordable and flexible enough for a large variety of applications. Choose from Colored / Monochrome and Standard / Peltier Cooled options. The Moticam Pro marks an extension of Motic's Camera solutions from the affordable high-resolution CMOS market to the scientific grade CCD range while still offering many choices.

Whether your application calls for a Full Color 5.0MP camera for documentation or a Cooled Monochrome camera with 6.45 x 6.45 micron pixels for low light microscopy, there is a Moticam Pro available for you.

Moticam Pro	Sony Sensor	Sensor Size	Pixel Size (Micron)	Resolution (Pixel)	Features
252A	ICX252AQ	1/1.8"	3.45 X 3.45	2080 X 1542	Color
252B	ICX252AQ				Color with Peltier cooling
282A	ICX282AQ	2/3"	3.40 X 3.40	2580 X 1944	Color
282B	ICX282AQ				Color with Peltier cooling
205A	ICX205AK	1/2"	4.65 X 4.65	1360 X 1024	Color
205B	ICX205AK				Color with Peltier cooling
205C	ICX205AL				Monochrome
205D	ICX205AL				Monochrome with Peltier cooling
285A	ICX285AQ	2/3"	6.45 X 6.45	1360 X 1024	Color
285B	ICX285AQ				Color with Peltier cooling
285C	ICX285AL				Monochrome
285D	ICX285AL				Monochrome with Peltier cooling



## Moticam1SP / 2 / 3 / 5 / 10 / 580

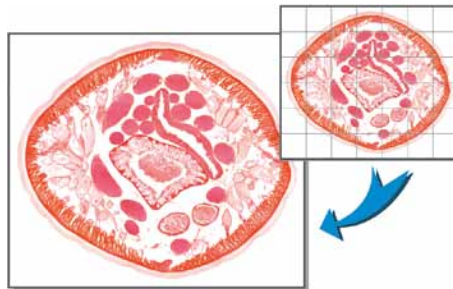


The Moticams are known around the globe for their ease-of-use and their adaptability to a number of applications. Whether for educational, industrial or clinical use,, the Moticam’s unique “All-in-One Box” design assures each user that this camera can fit almost any microscope.

	Moticam1SP	Moticam2	Moticam3	Moticam5	Moticam10	Moticam580
<b>Resolution</b>	1.3 Mega pixels	2.0 Mega pixels	3.0 Mega pixels	5.0 Mega pixels	10.0 Mega pixels	5.0 Mega pixels
<b>Sensor Type</b>	CMOS	CMOS	CMOS	CMOS	CMOS	CMOS
<b>Optical Calculation</b>	1/3"	1/3"	1/2"	1/2.5"	1/2.3"	1/2.5"
<b>Focusable Lens</b>	12mm	12mm	16mm	12mm	12mm	12mm
<b>Output Possibilities</b>	USB2.0	USB2.0	USB2.0	USB2.0	USB2.0	HDMI(1080P), SD Card (5.0MP), USB2.0, Analog Video
<b>Software Included</b>	Motic Images Plus for PC and Mac	Motic Images Plus for PC and Mac	Motic Images Plus for PC and Mac	Motic Images Plus for PC and Mac	Motic Images Plus for PC and Mac	Motic Images Plus for PC and Mac
<b>Others</b>	Direct Show, TWAIN and Media Cybernetics Image Pro Plus 7 Driver compatibility	Direct Show, TWAIN and Media Cybernetics Image Pro Plus 7 Driver compatibility	Direct Show, TWAIN and Media Cybernetics Image Pro Plus 7 Driver compatibility	Direct Show, TWAIN and Media Cybernetics Image Pro Plus 7 Driver compatibility	Direct Show, TWAIN and Media Cybernetics Image Pro Plus 7 Driver compatibility	

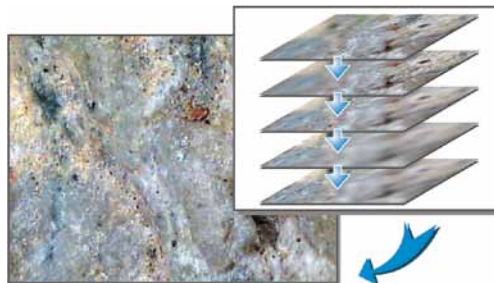
## Motic Images Advanced 3.2

As a step into the more demanding realms of digital microscopy, this software package includes Motic's IMAGES Assembly as well as Multi Focus as standard. This advanced software contains many more professional image analysis tools. Some of the most powerful tools are highlighted below :



### Motic Images Assembly

When looking at objects with high magnification, the field of view decreases. The feature will allow users to capture images at high field of view as well as high magnification. All overlaps are recognized and individual images are automatically shifted into the right place.



### Motic Images Multi Focus

This feature allows the user to capture images at different focal depths. The software will scan each layer and assemble a new image with all maximum value pixels thereby creating a single image where all layers are in focus. The program even automatically adjusts and compensates for any image shift when using stereo microscopy.

## Motic Images Plus 2.0 ML

This software provides a complete platform for digital microscopy. Packed with the latest and most powerful applications, Motic Images Plus 2.0 ML makes image quantification easy, accurate and efficient.

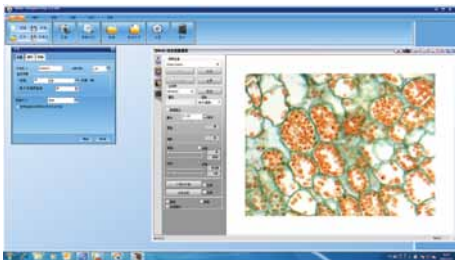
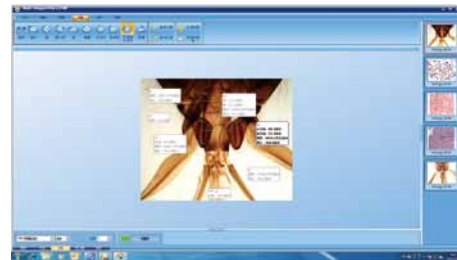


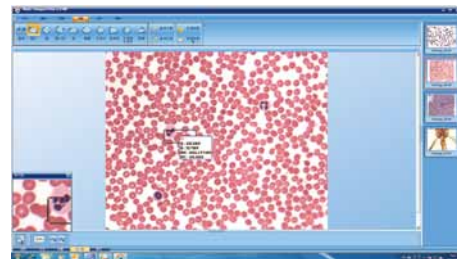
Image Capture



Accurate Measuring



Motic Report



Magnifier



Automated Segmentation

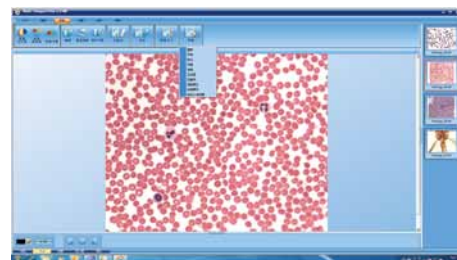


Image Manipulation



Canada | China | Germany | Spain | USA

# Motic®

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**Design Change :**

The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.



Code:1300901304361  
Updated: Oct., 2012





**Motic®**

MORE THAN MICROSCOPY

# Professional **MICROSCOPY**

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S O L U T I O N S



VOLVER

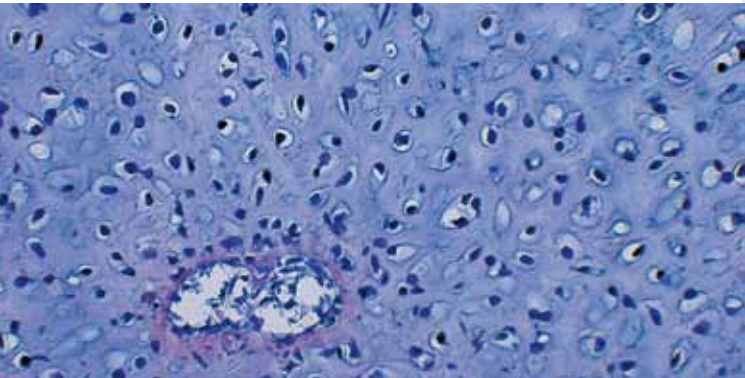
# Professional MICROSCOPY

S O L U T I O N S

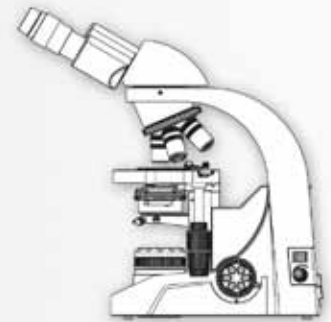
The **Motic Professional Microscopy Solutions** is an overview of high quality upright microscopes (BA- Series), inverted microscopes (AE-Series), stereo zoom microscopes (SMZ-Series) and digital cameras (Moticam).

Whether you are a teacher at a University, a Lab Technician, a Researcher, working in the Industrial sector or a devoted microscopist, **in this catalogue you will find the suitable microscope for your application and within your budget.**

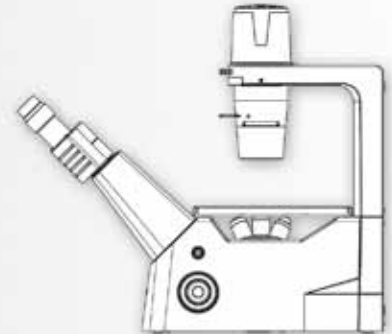
It is Motic's goal to provide you with **the latest technologies, excellent quality and the best possible service wherever you need it.**



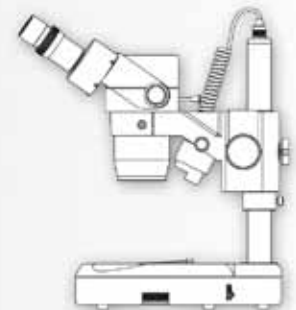
BA  
SERIES



AE  
SERIES



SMZ  
SERIES



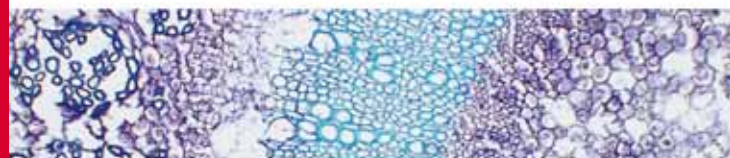
MOTICAM  
SERIES





# MOTICAMPRO SERIES OF CAMERAS

High quality CCD cameras



Motic offer several different CCD cameras with the **Sony ICX** range of chips. The following options are available: Colour, Monochrome, Peltier Cooled Colour or Peltier Cooled Monochrome cameras.

The Peltier cooled camera sensor can be cooled down to 10°C below ambient temperature and therefore ideal for **Fluorescence microscopy**.

- A** Colour
- B** Colour Peltier Cooled
- C** Monochrome
- D** Monochrome Peltier Cooled

**Moticam Pro 205 A/B/C/D**  
Budget High speed camera

**Moticam Pro 252 A/B**  
Intermediate resolution camera

**Moticam Pro 282 A/B**  
High resolution camera

**Moticam Pro 285 A/B/C/D**  
High speed and high quality camera

Moticam Pro 205A Cat. No. 89130-160  
Moticam Pro 205B Cat. No. 89130-162  
Moticam Pro 205C Cat. No. 89130-164  
Moticam Pro 205D Cat. No. 89130-166

Moticam Pro 252A Cat. No. 89130-152  
Moticam Pro 252B Cat. No. 89130-154

Moticam Pro 282A Cat. No. 89130-156  
Moticam Pro 282B Cat. No. 89130-158

Moticam Pro 285A Cat. No. 89130-168  
Moticam Pro 285B Cat. No. 89130-170  
Moticam Pro 285C Cat. No. 89130-172  
Moticam Pro 285D Cat. No. 89130-174

# BA 210



BA210 Binocular  
BA210 Trinocular  
BA210 Digital

Cat. No. 89130-128  
Cat. No. 89130-130  
Cat. No. 89130-136

## Routine University and Laboratory microscope

- Binocular or Trinocular [20/80] head Siedentopf type, 30° inclined, 360° rotating
- Widefield eyepieces N-WF10X/20mm with diopter adjustment on both eyepieces
- Reversed quadruple revolving nosepiece
- CCIS® EF-N Plan Achromatic objectives 4X, 10X, 40X S, 100X S-Oil
- Coaxial coarse and fine focusing system with tension adjustment
- Built in low position coaxial mechanical stage (Right-hand control)
- Size 140 X 135mm, 76 X 50 cross movement
- Focusable Abbe condenser N.A. 1.25 with iris diaphragm and slot
- Quartz halogen 6V/30W or 3W LED illumination with intensity control

**Available accessories** (Please contact your VWR or Motic Representative for Available accessories)

- Phase contrast and darkfield sliders (10X & 40X)
- Polarizing and Analyzing filter



# BA 310



BA310 Binocular  
BA310 Trinocular  
BA310 Digital

Cat. No. 89130-138  
Cat. No. 89130-140  
Cat. No. 89130-146

## High performance microscope for Laboratories, Clinics and Hospitals

- Binocular or Trinocular [20/80] head Siedentopf type, 30° inclined, 360° rotating
- Widefield eyepieces N-WF10X/20mm with diopter adjustment on both eyepieces
- Reversed quintuple revolving nosepiece
- CCIS® EF-N Plan Achromatic objectives 4X, 10X, 40X S, 100X S-Oil
- Coaxial coarse and fine focusing system with tension adjustment
- Built in low position coaxial mechanical stage (Right-hand control)
- Size 175 X 140mm, 76 X 50 cross movement
- Focusable and centrable Abbe condenser N.A. 0.90/1.25 with iris diaphragm and slot
- Koehler illumination halogen 6V/30W or 3W LED with intensity control
- *The BA310 is also available as a teaching/discussion system, side-by-side or face-to-face.*

**Available accessories** (Please contact your VWR or Motic Representative for Available accessories)

- Phase contrast and darkfield sliders (10X & 40X)
- Phase contrast (10X, 20X, 40X and 100X) and darkfield turret (10X-40X) condenser
- Polarizing and Analyzing filter



# BA410

BA410 Binocular      Cat. No. 89168-432  
BA410 Trinocular      Cat. No. 89168-434  
BA410 XBE-EPI-Fluorescence      Cat. No. 97021-900

## High quality multi-task microscope for research usage

- Widefield eyepieces N-WF10X/22mm with diopter adjustment on both eyepieces
- Reversed sextuple\* revolving nosepiece (*\*Quintuple nosepiece available on request*)
- CCIS® EC-H Plan Achromatic objectives 4X, 10X, 40X S, 100X S-Oil
- Coaxial coarse and fine focusing system with tension adjustment
- Built in low position coaxial mechanical stage (Right-hand control)
- Achromat swing-out condenser N.A. 0.90 with iris diaphragm, focusable and centrable
- Koehler illumination halogen 6V/30W with external lamp house and intensity control
- The BA410 is also available as a teaching/discussion system up to 5-heads.
- Additionally the BA410 can be equipped with the Ergo (tilting) or Ergo plus (tilting and telescopic) head.

**Available accessories** (Please contact your VWR or Motic Representative for Available accessories)

- Phase contrast and darkfield sliders (10X & 40X)
- Phase contrast (10X, 20X, 40X and 100X) and darkfield turret (10X-40X) condenser
- Polarizing and Analyzing filter
- Epi-Fluorescence attachment and fluorescence filter cubes



# AE2000

AE2000 Binocular      Cat. No. 89168-388  
AE2000 Trinocular      Cat. No. 89168-390

## Routine live cell applications

- Binocular / Binocular tilting 30°-60° / Trinocular [20/80] and 360° swiveling
- Widefield eyepieces N-WF10X/20mm with diopter adjustment on both eyepieces
- Side facing quadruple nosepiece
- CCIS® Plan Achromat objectives PL4X, LWD PL40X
- CCIS® Plan Achromat Phase objectives PL Ph10X, LWD PL Ph20X
- ELWD condenser N.A. 0.30
- Phase slider with PH1, BF and PH2, phase centering telescope
- Plain stage with metal & glass stage inserts
- Halogen illumination 6V/30W with intensity control and sleeping mode

**Available accessories** (Please contact your VWR or Motic Representative for Available accessories)

- CCIS® Plan Achromat objectives PL10X, LWD PL20X
- CCIS® Plan Achromat Phase objectives PL Ph4X, LWD PL Ph40X
- Phase ring PH0, to be used with Ph4x objective
- LED module for LED illumination instead of Halogen
- Attachable mechanical stage
- 35, 54 and 65mm Petri dish holders



# AE30/31

AE30 Binocular Inverted **Cat. No.** 97021-914  
AE31 Trinocular Inverted **Cat. No.** 97021-916  
AE30 XBE-EPI Fluorescence **Cat. No.** 97021-918

## Research live cell applications

- Binocular / Trinocular [20/80]
- Widefield eyepieces WFPL10X/22mm with diopter adjustment on both eyepieces
- Side facing quintuple nosepiece
- CCIS® Plan Achromat objectives PL4X
- CCIS® Plan Achromat Phase objectives PL Ph10X, LWD PL Ph20X, LWD PL Ph40X
- ELWD condenser N.A. 0.30
- Phase slider with PH1, BF and PH3, phase centering telescope
- Plain stage with metal & glass stage inserts
- Koehler Halogen illumination 6V/30W with intensity control

**Available accessories** (Please contact your VWR or Motic Representative for Available accessories)

- CCIS® Plan Achromat objectives PL10X, LWD PL20X, LWD PL60X
- Epi-Fluorescence attachment and fluorescence filter cubes
- Attachable mechanical stage
- 35, 54 and 65mm Petri dish holders



# SMZ140/143

## Routine inspection and assembly applications

- Greenough zoom optical system
  - Binocular / Trinocular head, 45° inclined, 360° rotating
  - Widefield eyepieces WF10X/20mm
  - 4:1 Zoom ratio, WD=80mm
  - Magnification range: 1X-4X
  - Compact base stand with pole and head holder
  - Coarse focusing system with tension adjustment
  - Intensity controlled halogen illumination incident 12V/15W and transmitted 12V/10W
- All SMZ-140/143-N2GG come with black, white and frosted glass stage plates.

SMZ-140 N2GG Binocular **Cat. No.** 19000-862  
SMZ-140 FBGG Wide Stand **Cat. No.** 19000-404



# SMZ168 B/T

## Quality control and research applications

- Greenough zoom optical system
  - Binocular / Trinocular head, 35° inclined, 360° rotating
  - Widefield eyepieces WF10X/23mm
  - 6.7:1 Zoom ratio, WD=113mm
  - Magnification range: 0.75X-5X
  - Large working area stand with head holder
  - Coarse focusing system with tension adjustment
  - 12V/10W incident and transmitted halogen or LED illumination with intensity control
- All SMZ-168-BL/TL come with black, white and frosted glass stage plates.

SMZ-168 Bino/Trino Plain Stand  
SMZ-168 Bino/Trino Light Stand

Cat. No. 19000-692/696  
Cat. No. 19000-694/698



# MOTICAM

## MOTICDIGITALIMAGINGSOLUTIONS

### CMOS cameras

MOTICAM1000 | 1.3MP

MOTICAM2000 | 2.0MP

MOTICAM2300 | 3.0MP

MOTICAM2500 | 5.0MP

- USB 2.0 output
- Focusable macro lens
- 28, 30, 34 and 35mm microscope eyepiece couplers
- B & S adapter (not with Moticom 1000)
- Macro tube for macro observations
- Motic Images Plus 2.0 software for PC and Mac

Moticom 1000 Cat. No. 19000-832  
Moticom 2000 Cat. No. 19000-834  
Moticom 2300 Cat. No. 19000-680  
Moticom 2500 Cat. No. 19000-682



VOLVER



Canada | China | Germany | Spain | USA



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**Motic®**

# GM-168

1 : 6.7 Zoom Ratio Gemmology Microscope



# GM-168 Optics and Illumination

## Optics



### GM-168

- ◆ Magnification range: 0.75x - 5x
- ◆ Zoom Ratio: 1 : 6.7
- ◆ Observation angle: 35°
- ◆ Working distance: 113mm

### Eyepieces

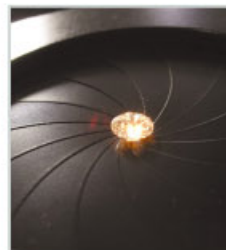
- ◆ Magnification: 10x
- ◆ Field of View range: 30.7mm - 4.6mm
- ◆ Mount Diameter: Ø30mm
- ◆ Reticules: Ø26mm

## Overview

The GM-168 utilizes the optical performance of Motic's SMZ-168 stereomicroscope to enhance distinct three-dimensional details with a zoom function. Rugged and precise, the optics of the GM-168 performs indentifications, analyses, and measurements more accurately and efficiently, thus reducing your workload. At a working distance of 113mm, manipulation of the inspected gem or the addition of a further apparatus is permitted without obstruction.

Available in a trinocular version for photographical or digital capture of the gem, the GM-168 provides you with an opportunity for extra revenue. Moreover, when teamed with Motic's Moticam 480, the GM-168 becomes your instrument of instruction for teaching and training by showcasing the gem in real time via a television, a projector, and computer simultaneously.

## Illumination



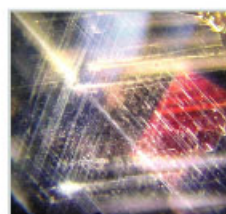
Integrating a consistent and powerful 30W Quartz Halogen Bright field illumination with a precise, adjustable aperture diaphragm [Ø41mm - Ø2mm], you are able to measure with a table gauge the proportions and pavilions of a diamond.

Bright field Illumination



Dark field is the ideal illumination for observation of inclusions. With Motic's versatile aperture diaphragm [pictured above], you can control the depth of field and contrast while using the dark field illumination for better identification.

Dark field Illumination



Designed for use with diamonds, the incident light can be adjusted for a thorough examination of the clarity, colour, and finishing. The bulb has a colour temperature of 6000K to reduce any yellowing effects on the gem.

Incident fluorescent illumination - Diamond Light

## Holders, Plates, and Analysers



### Wire Stone holder

The ideal holder for diamonds, rubies and sapphires. Comprised of stainless steel for a long working life, the wire stone holder permits the maximum amount of observation.

### Rounded Edge Stone holder

Perfect for irregular gems and jewellery. Precision crafted of stainless steel to provide an adequate grip without corrupting irregular shaped gem samples.

### Inclusion pointer

For rapid location of inclusions and fractures on the surface of gem.

### Large gem stage plate

Magnetically attachable and covering the stage area of the GM168 base to provide a large surface for rough stones and large gems [i.e. Jade] inspection in conjunction with the incident fluorescent illumination.



### Diamond Proportion Analyser Kit

Complete kit for effective and accurate identification and measurement of proportions and pavilions. Includes the magnetised diamond mount, diamond proportion reticule, and micrometer eyepiece [10x].



### Immersion cell

Capable of rapid and easy detection of treated gems characteristics; such as clarity enhancement, HPHT annealing, irradiation, and surface colouration, the immersion cell is especially useful for rubies.



# Contrasts, Eyepieces, and Objectives

## Contrast

### Polariser Kit

Perfect for observing the bireference of crystals and the quality of the finish on certain stones. Mounts conveniently on the zoom body and stage.



### Diffuser Plate

Eliminates excessive bright spots for true inclusion identification. Magnetically mountable on the stage.



## Additional Magnification

In certain cases, the use of auxiliary magnification is necessary to locate and to identify specific types of inclusions in a gem for grading purposes. The GM168 offers two choices of auxiliary magnification in the form of eyepiece or objective to satisfy your requirements.

### Auxiliary Objectives

Additional magnification with the truest optical clarity and large field of view.

	
<b>1.5x auxiliary objective</b>	<b>2.0x auxiliary objective</b>
54mm working distance	34.5mm working distance
75x maximum magnification *	100x maximum magnification *

\*With standard WF10x eyepieces.

### Auxiliary Eyepieces

Convenient additional magnification without the loss of working distance.

	
<b>15x eyepieces</b>	<b>20x eyepieces</b>
75x maximum magnification *	100x maximum magnification *
3.4mm minimum field of view *	2.6mm minimum field of view *

\*With standard 1.0x objective.

# STAND AND SCHEMATIC

## Stand Features and Benefits

### Rotary Base

360° rotary base allows you to showcase the gem to a customer or to confer with a colleague on proper identification.



### Tilting base

With a tilting range of 0° [upright] to 45°, the GM-168's base is accessible to users of various heights.



### Focus Adjustment

Allowing for a total travel of 125mm for adaptation to different sizes of gems and stones, no sample is too small or too large.



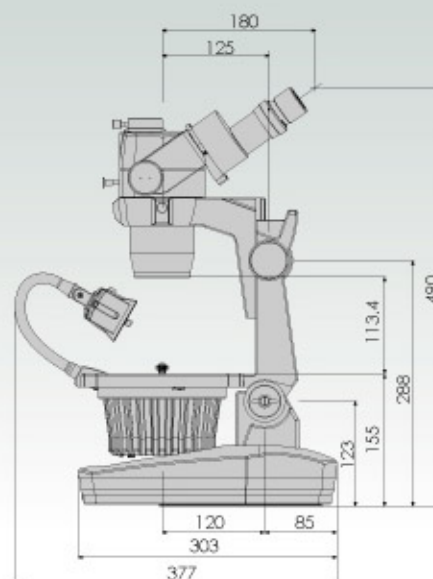
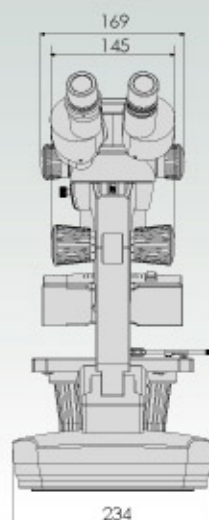
### Stage

Able to accommodate both a gem holder and inclusion pointer simultaneously in addition to different contrast methods.



## SCHEMATIC DIAGRAM

Unit : mm



**Motic®**

# PSM-1000

Laser Ready Modular Microscope



# PSM-1000 Features

## Ergonomic Design

The design of the PSM-1000 encourages the optimal amount of usability without sacrificing comfort.

Ergonomically constructed for all major forms of image adjustment to be accessible within the span of your hand.

- 1 Diopter
- 2 Aperture Diaphragm
- 3 Beam Splitter
- 4 Changeover Turret
- 5 Analyser/Polariser



## Laser Work<sup>1</sup>

The PSM-1000 is standard equipped for laser work covering the spectrums ranging from 355nm [UV] to 532nm [Green] to 1064nm [IR]. Conveniently positioned, the beam splitter switches the PSM-1000 from a visual unit [50:50 split between binocular eyetubes and trinocular port] to a laser work unit. Through the specially coated optical system, the PSM-1000 produces an infrared [1064nm] efficiency of 82%<sup>2</sup>.

Central to the PSM-1000's high laser efficiency and functionality is the changeover turret, which consists of three specialised lenses. 1XUV/VIS for the spectrum of 355nm - 532nm; 1XIR/VIS for the 532nm - 1064nm spectrum; and a 2XVIS magnifier to achieve optimal magnification of 2000X [with 100X objective]. The turret base design provides the convenience of rapid switching between spectrums to complete the task.

With safety in mind, the PSM-1000 includes a laser safety pin to shut down the laser to avoid accidents, as well as shims to securely mount and hold the laser provider's safety filter.



## Focusing Block

Rated for load weights up to 45lbs., image focal planes can be adjusted at 1mm resolutions within the total 50mm stroke. Reversible for space conscious applications in addition to extra mounting slots for placement on other manufacturers' microscopes, adaptability is the key with the PSM-1000 focusing block.



## Adjustable Nosepiece

Forward facing and equipped for four M26 x 1/36" (0.706) type objectives, the PSM-1000's nosepiece is dovetail mounted for moulding to different types of research and usage. Complementing the versatility of the nosepiece is Motic's hassle-free parcentration. With the standard centering keys [pictured on the right], parcentration of individual ports can be achieved while remaining focused on the sample.



1. Motic assumes no responsibility whatsoever for the performance and/or safety of the laser system used with the Motic PSM-1000 microscope.

See laser manufacturer for proper operation.

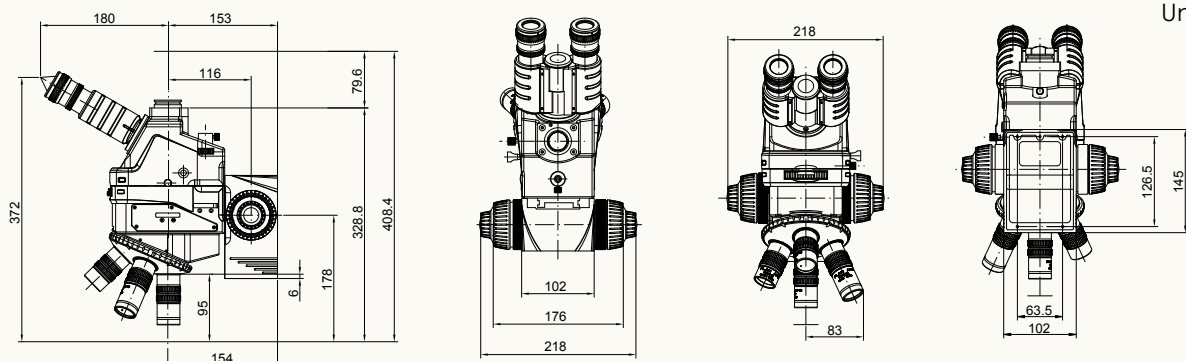
2. Tested by New Wave Research [Fremont, California, USA]. For detailed information, contact your local Motic supplier.

## SPECIFICATION OF LASER READY MODULAR MICROSCOPE PSM-1000

Purpose	Quick and Surface Inspection, Quality Control, Laser Repairs and Device Research
Observation Tube	Widefield trinocular tube, 50 : 50 and 0 : 100 optical observation angle Siedentopf infinity, 55 - 70mm Interpupillary distance
Eyepiece	Widefield High-eyepoint, Infinity Corrected 10x/24mm Accepts Ø25mm reticules
Turret	3-lens changeover turret 1x IR tube lens, 1x UV tube lens, 2x Visible magnifier
Laser Work	Pull out beam splitter, Laser Safety Pin, Shims
Wavelengths Coverage*	355nm [UV] to 532nm [Green] to 1064nm [IR]
Nosepiece	Quadruple, outward-facing Spring-loaded, Adjustable parcentration Dovetail mounted for easy removal
Objectives (Optional)	Extra and Ultra Long Working Distance Plan Apochromat objectives Range of magnifications from 2x to 100x, M26 x 1/36" (0.706) thread size Adjustable parfocality available
Microscope Magnification Range	20x - 2000x
Aperture Diaphragm	Adjustable field of depth and contrast, Adjustment range : Ø0.8 - Ø6mm
Focusing Block	50mm Stroke Coaxial operation system Coarse 4mm per rotation Fine 0.1mm per rotation 1 mm resolution 45 lbs. Mountable weight
Illumination	Reflective illumination for brightfield
Optional Contrast	Polarisation Spectrum range: 400nm - 700nm Adjustable Polariser available
Fiber Optic Illumination (Optional)	Switchable power input [115V - 220V] 150W / 21V output 1,600,000 lux Colour Temperature Range: 500K - 3700K Flexible light guide with Ø15mm distal end
Weight [Head only]	16lbs.
Dimensions	372mm (h) x 218mm (w) x 333mm (d) - with focusing block

\* Designed around the New Wave Research line of lasers

## PSM-1000 DIMENSIONS

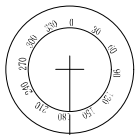




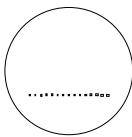
# PSM-1000 Accessories

## Eyepieces

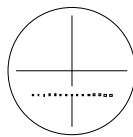
Employing adjustable, high-eyepoint, Widefield 10x/24mm eyepieces, the PSM-1000 ensures the optimal amount of visual inspection. Each eyepiece can have diopter adjustments of  $\pm 5^\circ$ . An additional versatility is the acceptance of reticules [Ø25mm].



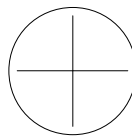
Reticule  
360° : 10°  
SG060314



Reticule  
14mm : 0.2mm  
SG060320



Reticule  
14mm : 0.1mm  
SG060315



Plain Cross  
Hair Reticule  
SG060342



WF15x and 20x eyepieces

## Plan Apochromat Objectives

Motic's Plan Apochromat objectives provide the working distances at the numerical aperture values needed. Covering magnification ranges from 2x to 100x, the Plan Apochromat objectives are also available with the unique option of parfocality adjustment. Furthermore, Motic also provides you Plan Apo NIR 20X and 50X to fit a wide range of laser applications, such as laser-cutting fine-films of semiconductors and of liquid crystal substrates and much more. Designed to focus within the depth of focus, even when the laser wavelength used changes from the visible radiation (wavelength 532nm) to the near-infrared radiation range (wavelength 1064nm). The mounting thread is M26 x 1/36" (0.706) for integration to existing systems. Please refer to Motic's Plan Apochromat catalogue for further information.



## Digitalisation

Utilising a Moticam digital application camera with the corresponding optional camera adapters, the PSM-1000 becomes an analysing, documentation, teaching, and training system.



0.3x  
Camera Adapter  
[1/3" chip sensors]



0.4x  
Camera Adapter  
[1/2" chip sensors]



0.5x  
Camera Adapter  
[2/3" chip sensors]



1x  
Camera Adapter  
[1" and 2/3" chip sensors]



PSM-1000 with Moticam 3000 attached

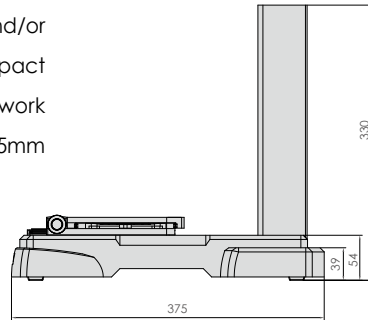
## Tilting Head

With 300mm wafer fabrications coming online in addition to ergonomic requests, the PSM-1000 is offered with an optional tilting head format. The tilting head has an observation angle adjustment of 3° to 30° as well as being laser ready. A further beneficial option is the ability to retrofit existing PSM-1000s with a tilting head without the requirement of a factory return. Schematic diagram is located below.



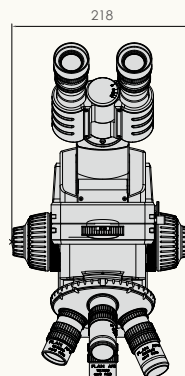
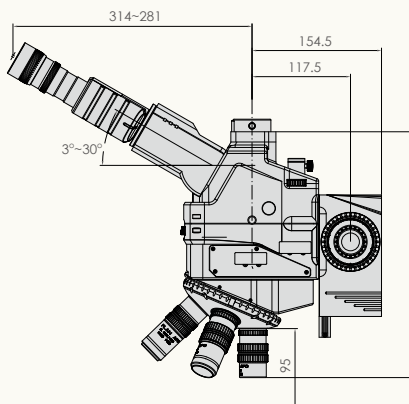
## Stand/Stage

Equipping the PSM-1000 for simple and quick inspection, and/or laser work is achieved by opting for the stand/stage. The compact footprint allows for installation into space conscious work environments. The mechanical stage has a travel range of 75mm [X-axis] and 50mm [Y-axis].

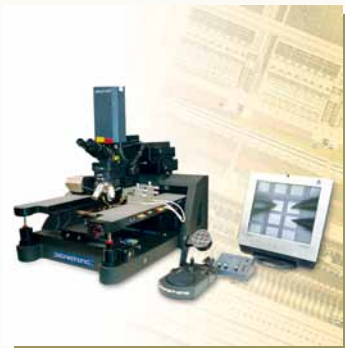


## PSM-1000 Tilting Head Dimensions

Unit : mm



# PSM-1000 Applications



Failure analysis of wafers

Measuring microscope applications with addition of reticules



Digital documentation, analysis, and/or device testing

Modular Surface Inspection utilising parcentering nosepiece and parfocality adjustable objectives



Beam Splitter allows for Emission microscopy setup

Medical Research Applications with long working distance Plan Achromat objectives

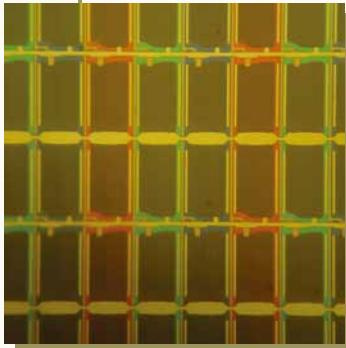
Polarisation with universal adaptable cassette sliders for device research



Engineer station for quick inspection

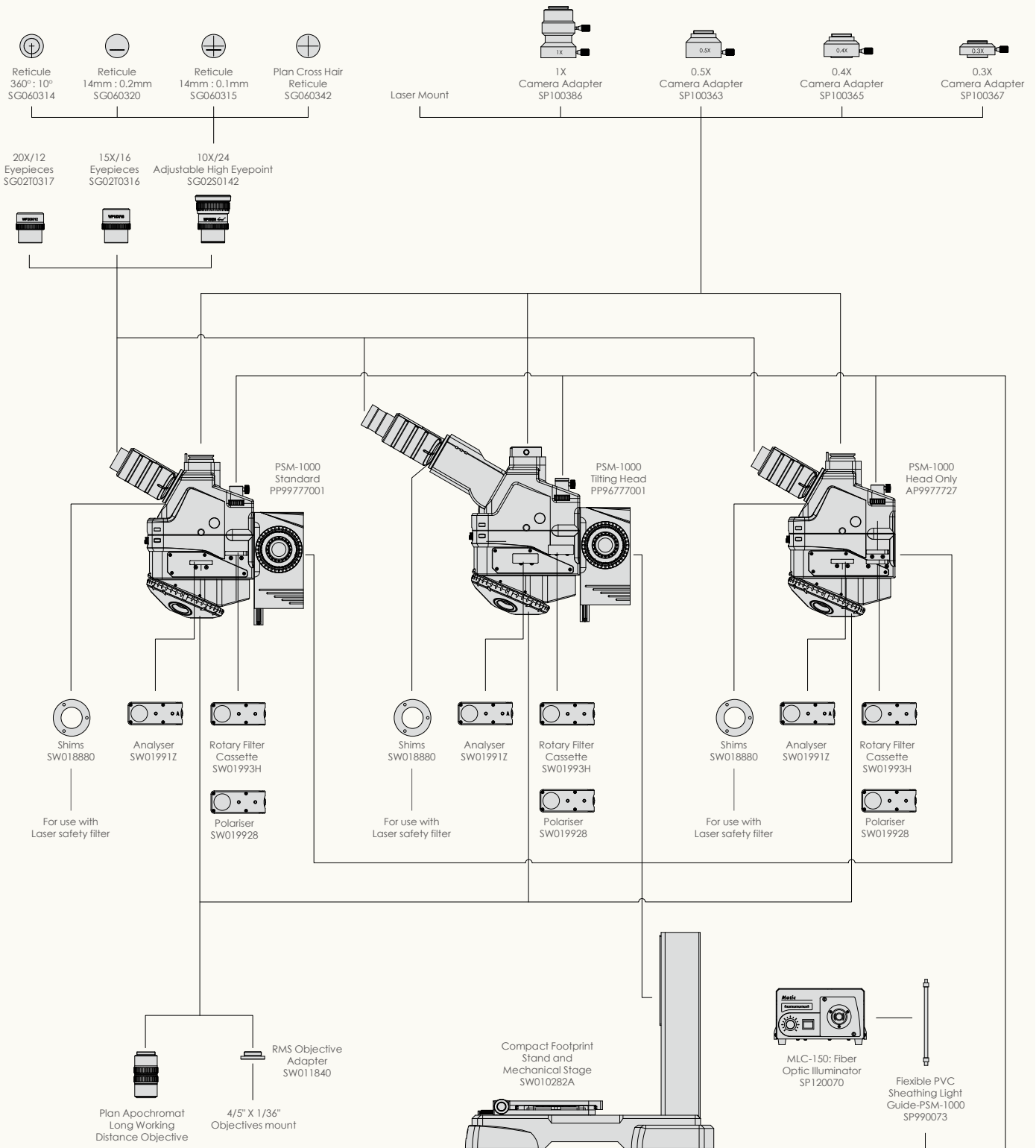


FPD laser repairs and laser machining



High magnification inspection

# System Diagram



# **Motic**<sup>®</sup> Microscopes

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**Motic**<sup>®</sup>

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[www.motic.com](http://www.motic.com)

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**Design Change:** The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.

CE



Code: 1300901301671

Updated: 2011.01

# SMZ-140 Series

1:4 Zoom Ratio Stereomicroscope



# SMZ-140 SCHEMATIC DIAGRAMS/SPECIFICATIONS

## SMZ-140/143 SCHEMATIC DIAGRAMS

SMZ-140-N2GG Binocular Stereomicroscope	SMZ-143-N2GG Trinocular Stereomicroscope
<p style="text-align: right;">Unit: mm</p>	<p style="text-align: right;">Unit: mm</p>
SMZ-140(60)-N2GG Binocular 60° Observation Stereomicroscope	
<p style="text-align: right;">Unit: mm</p>	

## SMZ-140/143 SPECIFICATIONS

<b>Microscope Body - Standard</b>	
Optical System	Greenough Stereoscopic
Head Observations	Binocular 45° - [SMZ-140] Binocular 60° - [SMZ-140-60°] Trinocular 45° - [SMZ-143] - light distribution 50/50 via right eye tube/trinocular port
Interpupillary Adjustment	54mm - 76mm
Diopter Adjustment [on eye tubes]	± 5°
Zoom Ratio	4 : 1
Magnification Range	10X - 40X
Objective	1X
Working Distance	80mm
Eyepieces	WF 10X/F.N.20
Field of View Range	20.0mm - 5.0mm
<b>Microscope Body - Optional</b>	
Magnification Range	1.75X - 180X
Objectives	0.3%X, 0.5X, 0.63X, 0.75X, 1.5X
Working Distance	33.0mm - 200mm
Eyepieces	WF 5X/F.N.22, WF 15X/F.N.13, WF 20X/F.N.10, WF 30X/F.N.8
Field of View Range	62.9mm - 1.3mm
<b>Documentation [SMZ-143 only]</b>	
SLR Camera Adapter	2.0X SLR Projection Lens
C-mount camera adapters	0.4X, 0.5X

FS01 - N2GG Arm [without illumination]



- Rack and pinion focusing mechanism
- Focus adjustment: 45mm
- Pole mount diameter: Ø 25mm
- Head mount diameter: Ø 74mm

FS02 - N2GG Arm [with illumination]



- Rack and pinion focusing mechanism
- Reflected halogen 12V / 15W illumination
- Focus adjustment: 45mm
- Pole mount diameter: Ø 25mm
- Head mount diameter: Ø 74mm

FS03 - FBGG [2111/2112] Arm [without illumination]



- V-frame, ball bearing focusing mechanism
- Focus adjustment: 50mm
- Pole mount diameter: Ø 32mm
- Head mount diameter: Ø 74mm

FS04 - FBGG [2111/2112] Arm [with illumination]

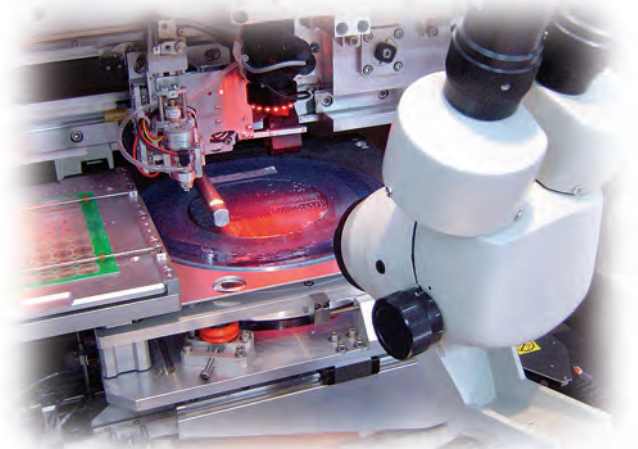


- V-frame, ball bearing focusing mechanism
- Reflected halogen 12V / 10W illumination
- Focus adjustment: 50mm
- Pole mount diameter: Ø 32mm
- Head mount diameter: Ø 74mm

FI01 - Industrial Arm



- V-frame, ball bearing focusing mechanism
- Illuminator port
- Focus Adjustment: 50mm
- Head mount diameter: Ø 74mm
- Nipple diameter: Ø 15.8mm
- Adjustment range: ± 90°



■ SMZ-140 and FS01: N2GG Arm on Die Bonder. Image courtesy of Lexus Automation.



2112 Large Working Area Incident Illumination Stand



- Width of surface: 330mm
- Length of surface: 280mm
- Height of pole: 291mm
- Mounting Diameter: Ø32mm

Manual Movement Stand



- Width of surface: 450mm
- Length of surface: 350mm
- X movement: 400mm
- Y movement: 210mm
- Lockable Movements

1105 Universal Stand



- Diameter of base: 200mm
- Height of pole: 350mm
- Horizontal movement: 260mm
- Mounting Diameter: Ø25mm

1105S Special Universal Stand



- Width of base: 250mm
- Length of base: 250mm
- Height of pole: 350mm
- Horizontal movement: 410mm
- Mounting Diameter: Ø25mm

1107 Articulating Arm Boom Stand



- Width of base: 300mm
- Length of base: 300mm
- Height of pole: 600mm
- Optical Centre Max: 780mm
- Mounting Diameter: Ø25mm

1108 Ball Bearing Boom Stand



- Width of base: 300mm
- Length of base: 300mm
- Height of pole: 600mm
- Optical Centre Max: 638mm
- Mounting Diameter: Ø25mm

1109 Articulating Arm Boom Stand



- Table Clamp Type
- Height of pole: 600mm
- Optical Centre Max: 780mm
- Mounting Diameter: Ø25mm

1110 Ball Bearing Boom Stand



- Table Clamp Type
- Height of pole: 600mm
- Optical Centre Max: 638mm
- Mounting Diameter: Ø25mm

2105I Industrial Arm Boom Stand



- Width of base: 250mm
- Length of base: 250mm
- Height of pole: 330mm
- Horizontal movement: 400mm
- Nipple Mount Diameter: Ø15.8mm

□ Some stands may not be available in your area. Please check with your local sales office.

# SMZ-140/143 STANDS / ILLUMINATIONS

## 1104S Incident Illumination



- Length of base: 280mm
- Width of base: 220mm
- Height of pole: 245mm
- Mounting Diameter: Ø 25mm

## FBGG Stand



- Large working area
- Mounting Diameter: Ø 32mm
- □ 12V / 10W halogen transmitted light [intensity control]
- Universal power input 110V - 220V

## Fixed Mount Stand



- V-frame, ball bearing focusing mechanism
- Precentred optical center
- Length of base: 280mm
- Width of base: 330mm
- Head mount diameter: Ø 74mm
- Focus adjustment: 137mm

# SMZ-140/143 AUXILIARY ILLUMINATION

## K2401 FLUORESCENT RING ILLUMINATOR

- Colour Temperature: 6400K
- Even white light
- 12W power consumption
- 3 screw ring mount



## MLC-150 COLD LIGHT SOURCE

- Colour Temperature Indication
- Colour Temperature Range: 2500K - 3200K
  - Above 5600K with blue filter
- Remote or local intensity control
- 21V / 150W switching power
- Filter holder
- 220(H) x 193(W) x 112(D) mm

## LIGHT GUIDE OPTIONS

### FLEXIBLE RING LIGHT GUIDE

- Length: 1,000mm
- Distal End Diameter: Ø 61mm



### 1-ARM GOOSENECK LIGHT GUIDE

- Length: 500mm
- Distal End Diameter: Ø 13mm



### BIFURCATED GOOSENECK LIGHT GUIDE

- Length: 500mm [each arm]
- Distal End Diameter: Ø 9mm



□ Some illuminators and stands may not be available in your area. Please check with your local sales office.





# SMZ-140/143 ACCESSORIES

## AUXILIARY EYEPIECES

				<b>Mag.</b>	<b>F.N.</b>
				WF 5X	22
				WF 15X	13
				WF 20X	10
				WF 30X	8

Mag. - Magnification, F.N. - Field Number

## MICROMETER EYEPIECES

	Description	Mag.	F.N.
	Graduated linear line and plain cross hair, point = 0.1mm/14mm	WF 10X	20
	Graduated linear line, Point=0.2mm/14mm	WF 10X	20
	360° Protractor, 30° Increments	WF 10X	20
	Graduated linear line and double cross hair, point = 0.1mm/10mm	WF 20X	10

Mag. - Magnification, F.N. - Field Number

## AUXILIARY OBJECTIVES

	Mag.	W.D.(mm)
	0.35X	200
	0.5X	133
	0.63X	110
	0.75X	89
	1.5X	33

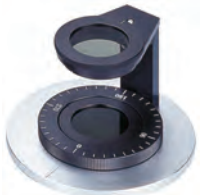
Mag. - Magnification, W.D.- Working Distance

## CAMERA ADAPTERS


		
2X SLR Projection Lens [for 35mm SLR cameras]	0.4X C-mount camera adapter [for 1/3" chip sensors]	0.5X C-mount camera adapter [for 1/2" chip sensors]

□ Some accessories may not be available in your area. Please check with your local sales office.

## POLARISING EQUIPMENT

<ul style="list-style-type: none"> <li>■ Base stand mountable 1-piece set</li> <li>■ 360° independently rotary polariser [top]</li> <li>■ 360° independently rotary analyser [bottom]</li> </ul>	
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## POLARISING SET

<ul style="list-style-type: none"> <li>■ Zoom body screw mount polariser</li> <li>■ Base stand mountable 360° rotary analyser</li> </ul>	
--	---

## DARKFIELD ATTACHMENT

<ul style="list-style-type: none"> <li>■ Conical glossy central stop for diffracted light observation</li> <li>■ Iris diaphragm for controlling the shape of light</li> <li>■ Base stand mountable</li> </ul>	
---	--

## GLIDING STAGE

<ul style="list-style-type: none"> <li>■ Base stand mountable</li> <li>■ Manual manipulation</li> <li>■ 360° rotary for various observations</li> </ul>	
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## MECHANICAL STAGE

<ul style="list-style-type: none"> <li>■ Base stand mountable</li> <li>■ Max. X distance: 75mm</li> <li>■ Max. Y distance: 50mm</li> <li>■ Dimension in mm: 222.8(W) x 170(L) x 29.5(H)</li> </ul>	
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## JEWELLERY CLIP

<ul style="list-style-type: none"> <li>■ Easily attachable for jewellery or mineral observation</li> <li>■ Movable upon attachment</li> </ul>	
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# SMZ-140/143 OPTICAL DATA

Eyepiece	Mag. (X)	Standard Objectives		Auxiliary Objectives									
				0.35X		0.5X		0.63X		0.75X		1.5X	
		WD 80mm		WD 200mm		WD 133mm		WD 110mm		WD 89mm		WD 33mm	
		Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)	Mag.	FD (mm)
5X/22	1	5.0	22.0	1.8	62.9	2.5	44.0	3.2	34.9	3.8	29.3	7.5	14.7
	2	10.0	11.0	3.5	31.4	5.0	22.0	6.3	17.5	7.5	14.7	15.0	7.3
	3	15.0	7.3	5.3	21.0	7.5	14.7	9.5	11.6	11.3	9.8	22.5	4.9
	4	20.0	5.5	7.0	15.7	10.0	11.0	12.6	8.7	15.0	7.3	30.0	3.7
10X/20	1	10.0	20.0	3.5	57.1	5.0	40.0	6.3	31.7	7.5	26.7	15.0	13.3
	2	20.0	12.0	7.0	28.6	10.0	20.0	12.6	15.9	15.0	13.3	30.0	6.7
	3	30.0	6.7	10.5	19.0	15.0	13.3	18.9	10.6	22.5	8.9	45.0	4.4
	4	40.0	5.0	14.0	14.3	20.0	10.0	25.2	7.9	30.0	6.7	60.0	3.3
15X/13	1	15.0	13.0	5.3	37.1	7.5	26.0	9.5	20.6	11.3	17.3	22.5	8.7
	2	30.0	6.5	10.5	18.6	15.0	13.0	18.9	10.3	22.5	8.7	45.0	4.3
	3	45.0	4.3	15.8	12.4	22.5	8.7	28.4	6.9	33.8	5.8	67.5	2.9
	4	60.0	3.3	21.0	9.3	30.0	6.5	37.8	5.2	45.0	4.3	90.0	2.2
20X/10	1	20.0	10.0	7.0	28.6	10.0	20.0	12.6	15.9	15.0	13.3	30.0	6.7
	2	40.0	5.0	14.0	14.3	20.0	10.0	25.2	7.9	30.0	6.7	60.0	3.3
	3	60.0	3.3	21.0	9.5	30.0	6.7	37.8	5.3	45.0	4.4	90.0	2.2
	4	80.0	2.5	28.0	7.1	40.0	5.0	50.4	4.0	60.0	3.3	120.0	1.7
30X/8	1	30.0	8.0	10.5	22.9	15.0	16.0	18.9	12.7	22.5	10.7	45.0	5.3
	2	60.0	4.0	21.0	11.4	30.0	8.0	37.8	6.3	45.0	5.3	90.0	2.7
	3	90.0	2.7	31.5	7.6	45.0	5.3	56.7	4.2	67.5	3.6	135.0	1.8
	4	120.0	2.0	42.0	5.7	60.0	4.0	75.6	3.2	90.0	2.7	180.0	1.3

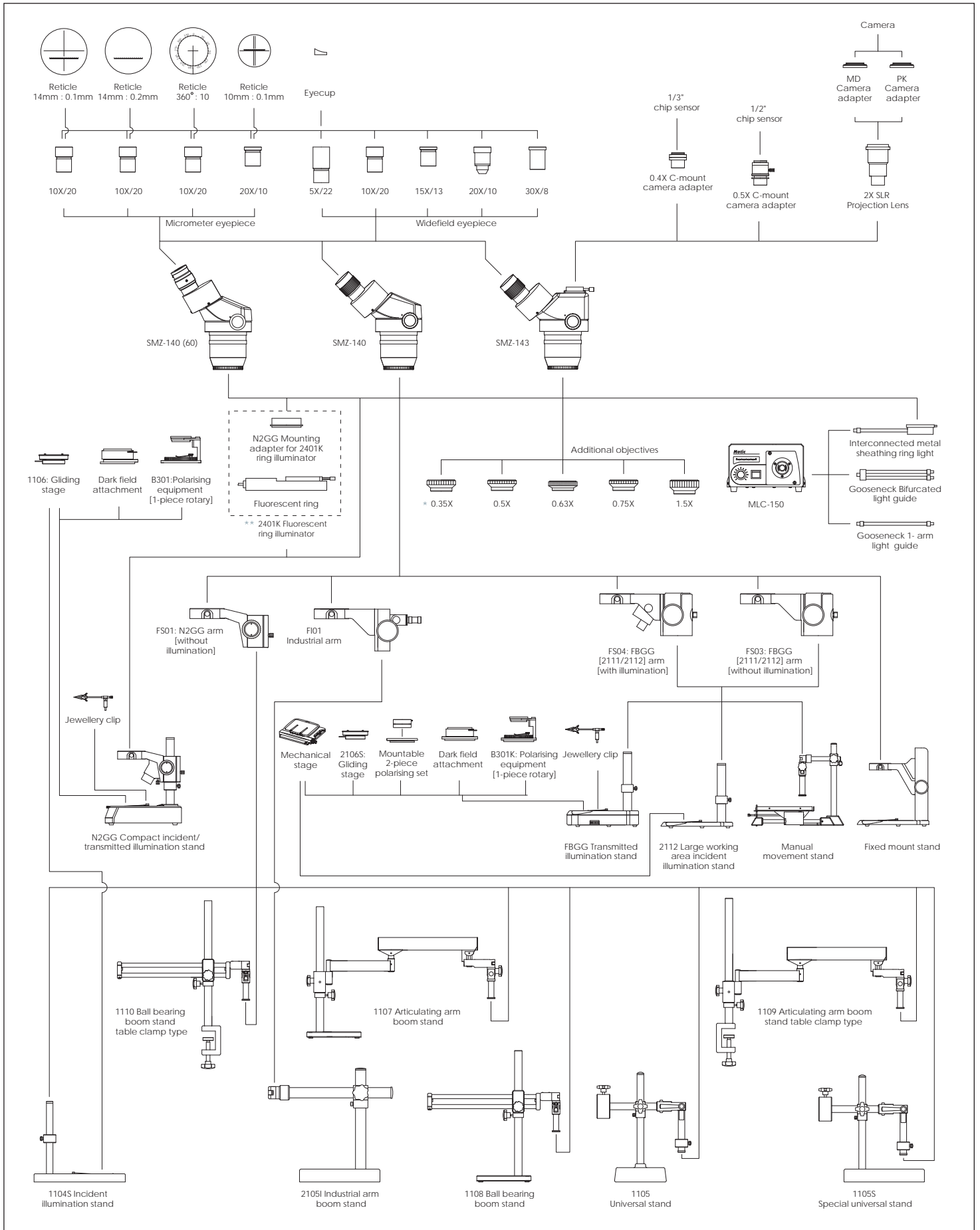
Note : "WD" represents Working Distance, "Mag." represents Magnification, "FD" represents Field Diameter.



## □ SMZ-140/143 Digital Option

Available in two digital options for either simultaneous three visual outputs [DMW-143] or two megapixel USB 2.0 output [DM-143-B]. Please refer to our DMW-143 and DM-143-B brochures for further information.

# SMZ-140/143 SYSTEM DIAGRAM



\* Usage of 0.35X auxiliary objective requires a pole exceeding 250mm in height.  
 \*\* When selecting the fluorescent ring illuminator, please note the country plug and voltage required.

# **Motic<sup>®</sup>** Microscopes

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**Motic<sup>®</sup>**

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**Design Change:** The manufacturer reserves the right to make changes in instrument design in accordance with scientific and mechanical progress, without notice and without obligation.



Code No: SP010219B

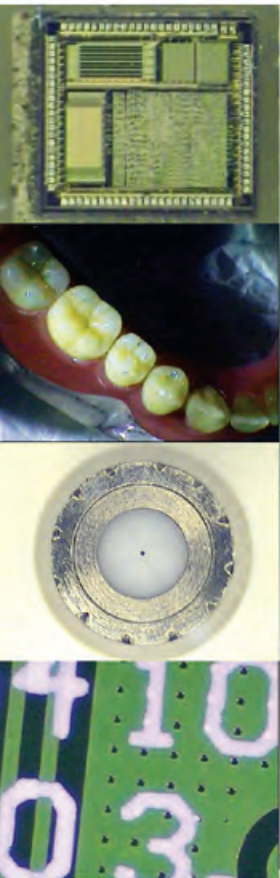
# Z-14

1:14 CONTINUOUS ZOOM VIDEO SYSTEM



# Motic Z-14 Video Zoom Microscope

The Motic Z-14 combines the best of an optical stereomicroscope 1 : 14 optical zoom with the best of a video based system auto focus in one system for video inspection and observation, simple measurement, and specimen cataloguing. Whether integrated with the numerous accessories or simply used by itself, the Z-14 is a user-friendly solution to unfriendly environments.



## Standard System

The standard system consists of six parts: (1) Zoom Assembly, (2) Objective, (3) Stand, (4) Control box, (5) Hand Remote, and (6) Motic Images Plus 2.0 ML software, which are combined to complement each other to produce a user-friendly instrument. Equipped standard with a 172mm (0.5X objective) working distance and an optical zoom ratio of 1 : 14, the Z-14 can be used in numerous tasks ranging from large sample inspection to micro welding small parts assembly or routine inspection.

The Zoom Assembly outputs >480 lines of resolution to lessen the strain on the user's eyes when viewing small or complicated samples. To avoid the troublesome task of aligning the camera sensor to the method of viewing, the Zoom Assembly has an alignment sticker that when aligned properly with a similar sticker on the head holder the sensor will be in the correct position for the user's viewing. This alignment further guarantees the perpendicular viewing of the camera sensor.

Since the standard system is similar to a regular stereomicroscope setup, space consumption is kept to a minimum. Moreover, keeping the same principle of a stereomicroscope, the Z-14's standard system is easily expandable with numerous accessories to meet any requirement of the task.



### Hand Remote

When the Z-14 is used in the standard package, the hand remote controls the magnification of the system. In addition to controlling the magnification, the hand remote manipulates the focus, brightness, and operation of the overall system. The hand remote derives its power from the control box via its 1.5m cable connection.

#### ● A. DISPLAY SCREEN

When the hand remote is switched on, the display screen will show the user the magnification the system is operating at along with focus and brightness control.

#### ● B. ZOOM

The ZOOM controls the whole number magnification change of the Zoom Assembly from 1X to 14X similar to a step magnification system. When using the ZOOM control, the magnification appears in the upper right hand corner of the display screen.

#### ● C. FINE ZOOM

Unlike the ZOOM control, the FINE ZOOM controls a continuous zoom through the 1X - 14X magnification range of the system similar to a zoom stereomicroscope. The image output is continuously in focus throughout the zoom. The value is displayed in two parts by the whole number value on the lower left hand side and the scale bar approximation of the decimal value.

#### ● D. FOCUS

The FOCUS control is activated by pressing the FOCUS AUTO/M to switch the system from its factory default of AUTO (A) to MANUAL (M). Once switched to MANUAL, the FOCUS control adjusts the focal plane of the system, which is helpful for samples with numerous layers. The images below demonstrate the different focal planes. The image on the left is the system's default auto focus image, whereas the image on the right is the manually adjusted focus.

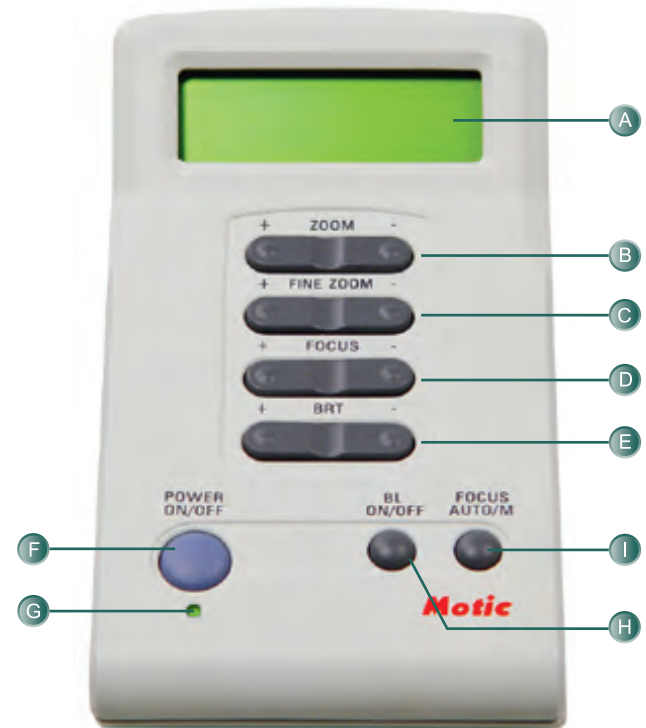


Default focus

Manual focus

#### ● E. BRT

BRT is short for Brightness. The BRT controls the system's brightness control to correct the absorption of illumination by the Zoom Assembly to produce the best image.



Button Functions

#### ● F. POWER ON/OFF

Turns the overall Z-14 system ON or OFF. ON is indicated by an illuminated Green LED.

#### ● G. LED

Indicates whether the system is ON or OFF.

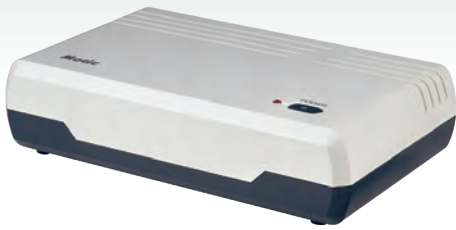
#### ● H. BL ON/OFF

BL is the abbreviation for BACKLIGHT. By pressing this button, the Zoom Assembly adds a back light effect to the image output for smoothing out the overall image. When activated, a "B" appears in the upper right hand corner of the hand remote.

#### ● I. FOCUS AUTO/M

Pressing this button switches off the Z-14's Auto Focus system and activates the FOCUS Control.

## Control Box



The control box of the Z-14 system is the actual brains of the operation; converting and directing the zoom assembly while outputting the visual information to 3-simultaneous outputs (S-Video, RCA, and USB 2.0). The control box is conveniently equipped standard with a universal power supply input.

## Motic Images Plus 2.0 ML



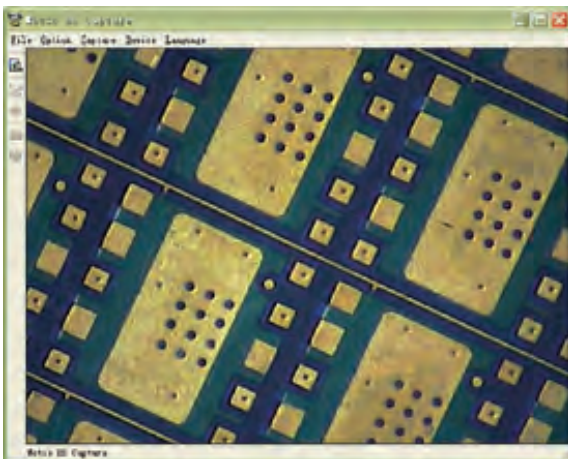
The Motic Images Plus 2.0 ML software is the capture and analysis interface for the Z-14 system. A simple, yet powerful software providing a majority of the functions found in sophisticated softwares, Images Plus is the ideal complement to the Z-14 system. The user of the Z-14 system with the Images Plus software has the ability to document, catalogue, and conduct manual measurements.

### Capture Window

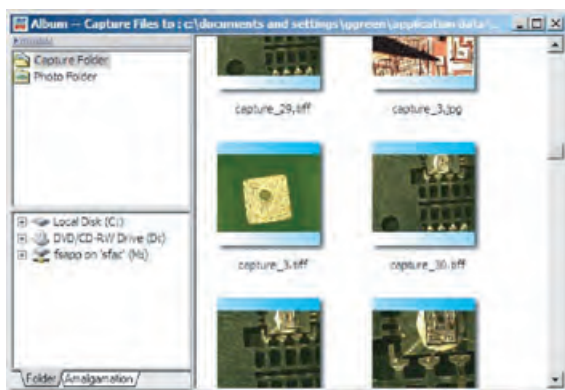
The observation and capture interface of the Images Plus software when used with the Z-14 offers the opportunity to adjust the image's contrast, brightness, and hue to present the optimum image to capture or to make an instant decision of the quality status of the sample. Thinking of convenience, the capture window has the icons for Capture, Time delayed capture, and video recording located on the left side of the window for easy selection. Therefore, the Z-14 can easily capture one frame or multiple frames or a video of the sample to match the requirements of the applications.

### Cataloguing

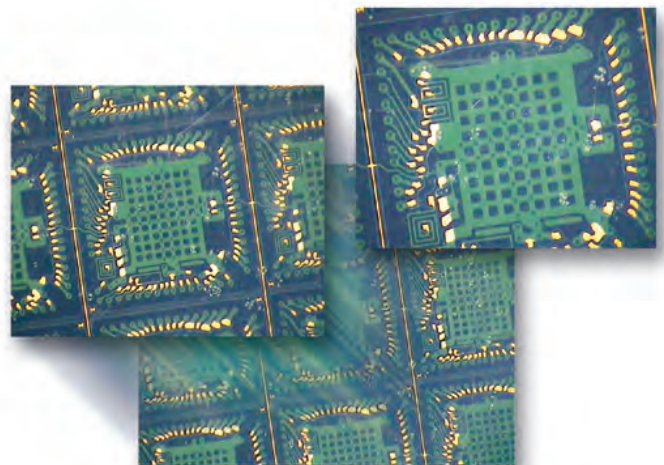
The Z-14 system is an instant cataloguing system once the system is operated with the Motic Images Plus 2.0 ML software. The software automatically saves all capture images to a file marked with the date of operation to assist with any accidental deletions and/or forgotten savings. The user is able to designate specific files locations with the software's Album function to organize the cataloguing of images. Images Plus also allows the capture image to be export to other designated files in a specified file format (i.e. tiff or jpg).



Capture Window

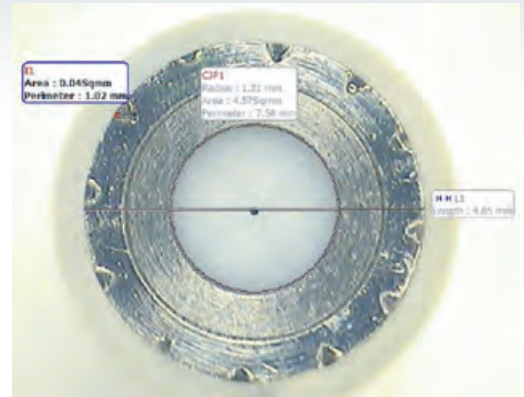


Catalogue folder options



## Manual Measurement

Inside the Images Plus software, the user has nine manual measurement options to select from. Ranging from the simple line to 3 point circles to irregular shape formats, there is a measurement type for each application. When a measurement is conducted, the software displays an instant result on the image showing the findings in the measurement units requested. These instant displays can be saved into the image for rapid sharing or quick reference. Furthermore, all measurements are displayed in a Measurement Table, which is exportable to an EXCEL format for further convenience when sharing with others.

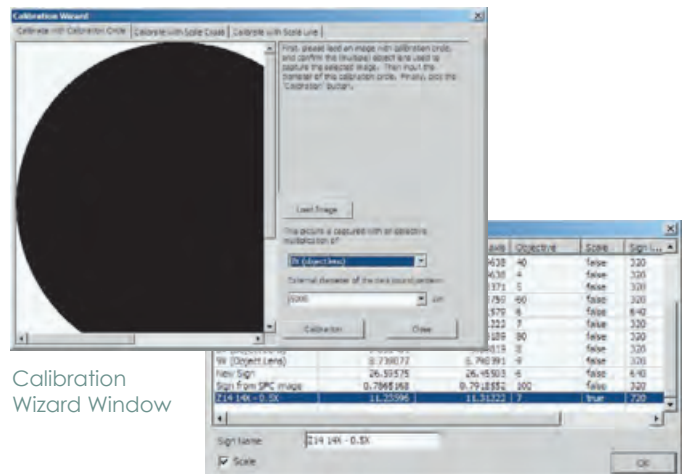


Manual Measurement  
(line, 3-point circle, and irregular)

## Calibration

As the Images Plus software permits a user to conduct manual measurements of the captured image, the system's proper calibration is highly important. All Z-14 systems come with a standard calibration dot designed specifically for Z-14 to ensure the highest accuracy of measurements.

Calibrating the system is a simple and easy process helped along by the software calibration wizard's simple steps. Capture the calibration dot. Open the calibration wizard. Load the image. Input the magnification value and size of the calibration dot. Click calibrate. The software will display a calibration table and permit the user to name the calibration in order to return to it [repeatability].



Calibration  
Wizard Window

Calibration Table

## Basic Auto Segmentation

In addition to manual measurement, Images Plus permits the user to perform some basic auto segmentation. Using one of the six specialised ROIs options, the user can define the section of the sample for the software to perform the auto segmentation before continuing onto the auto calculation.

Once the auto calculation is completed, the data gathered by the software is presented in a separate window. All the information is capable of being export into a text (.txt) or EXCEL (.xls) format for documentation.



Auto Segmentation

## Image Comparison

The image comparison function inside the Image Plus software brings the element of side by side comparison to the Z-14. Instantly see if that sample is acceptable. Find out what is the difference between two different illumination sources (see image on the left) being used on a product. Observe how fast a sample is contaminated. All are possible with the Z-14 with the Motic Images Plus 2.0 ML software.

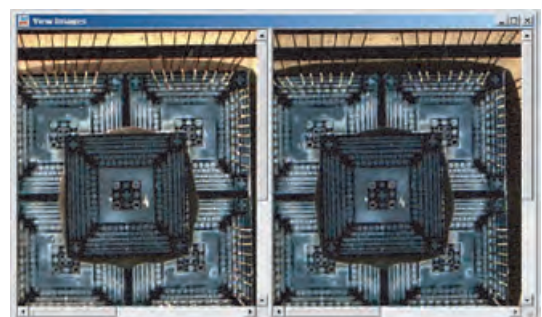
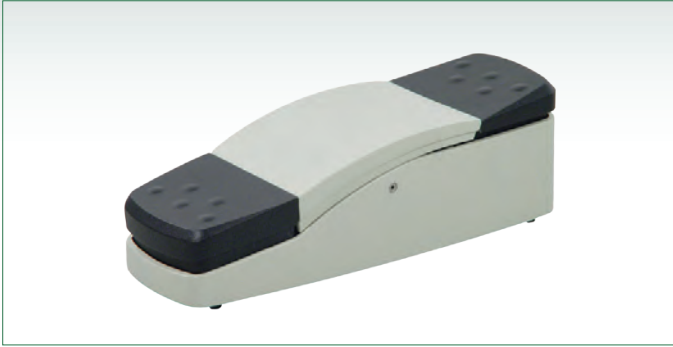


Image Comparison -  
Same sample, different illumination sources

# ACCESSORIES

## Z-14

### System Accessories



Z-14 Foot Pedal



1.0X objective

#### Foot Pedal

Available as an option is the foot pedal zoom control for the Z-14. With the foot pedal, the operator is able to utilise both hands for manipulating the sample while controlling the FINE continuous zoom function with the feet. The foot pedal is equipped with a 2m length cable, which attaches to the control box, for adequate length for most application set ups.

#### Auxiliary Objective

For some applications, extra magnification is needed to bring that last bit of information to the forefront. The available 1.0X objective permits the Z-14 to produce up to a 60X magnification (1024 x 768 display ratio, 19" monitor) with a working distance of 75mm.

### Illumination

Not all environments are going to provide sufficient lux output nor will all applications be completed with the 1 lux sensitivity of the Z-14. Therefore, Motic provides two illumination options to assist the Z-14 without compromising its ability to focus and perform the necessary task.

#### 2401K Fluorescent ring light

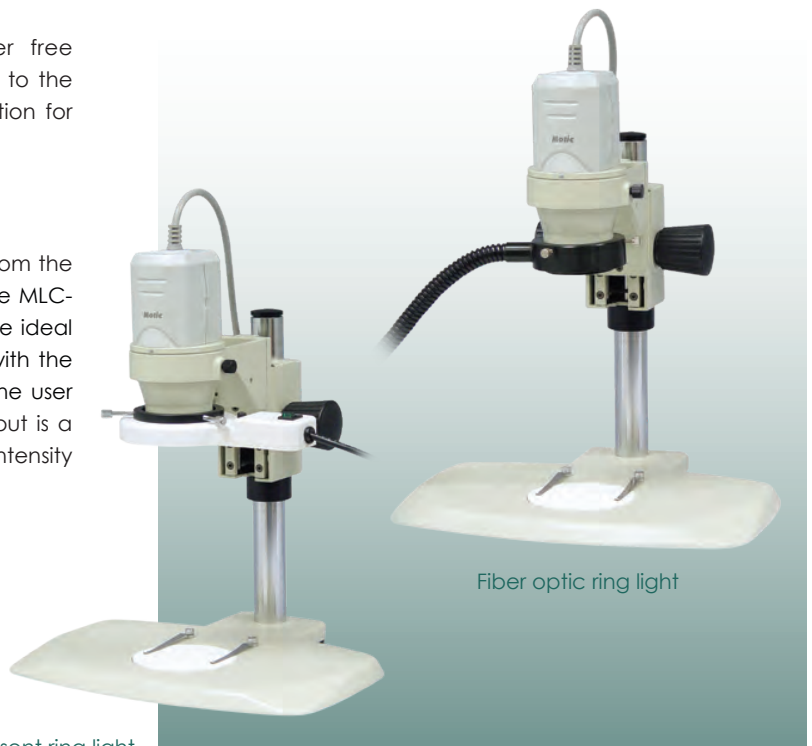
The 2401K provides a 6400K of shadow and flicker free illumination uniformly over the sample. Easily attachable to the objective bottom, the 2401K is the ideal economic solution for additional illumination.

#### Fiber optic ring light

Should the application require the power source away from the sample to prevent heat contamination of the sample, the MLC-150 fiber optic illuminator and fiber optic ring light are the ideal option. The 1.5m length of the fiber optic cable along with the 2m long remote control for intensity adjustment permit the user to place the illuminator away from the sample. The output is a cool, even, 3200K colour temperature illumination with intensity control to prevent over saturation.



Z-14 with 2401K fluorescent ring light



Fiber optic ring light

## Stands and stages

Similar to illumination, the size of the sample will not always be uniform with the basic package. The Z-14 can be adapted to different stands and stages for better overall working distance, working area, and/or focus control to continuously expand to meet the challenge of the inspection and/or observation.

### Manual movement stand

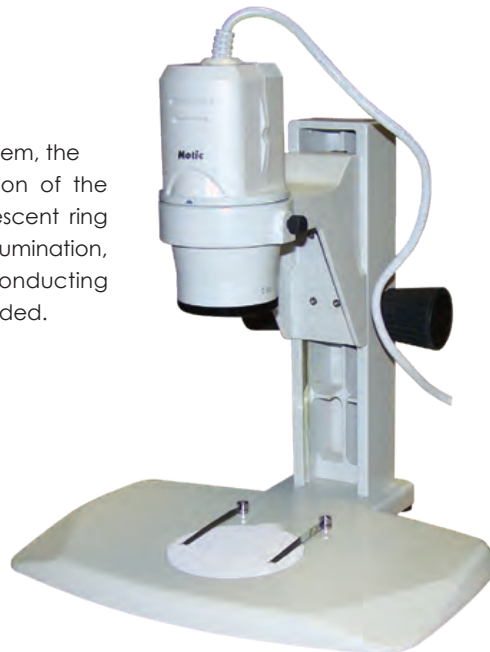
Certain applications require a larger working area with the ability to move the sample. The manual movement stand provides a 400mm x 350mm working surface with individual lockable X- and Y-axis movements. An ideal choice for large samples or the observation of multiple samples without constantly removing the samples.



Manual movement stand system

### Fixed mount stand

With the focus mechanism and stand built into one system, the Z-14 is guaranteed perfect perpendicular observation of the sample. Easily integrated with either the 2401K fluorescent ring light or the MLC-150 with fiber optic ring light guide illumination, the fixed mount stand is the perfect stand for conducting observations where the highest amount of detail is needed.



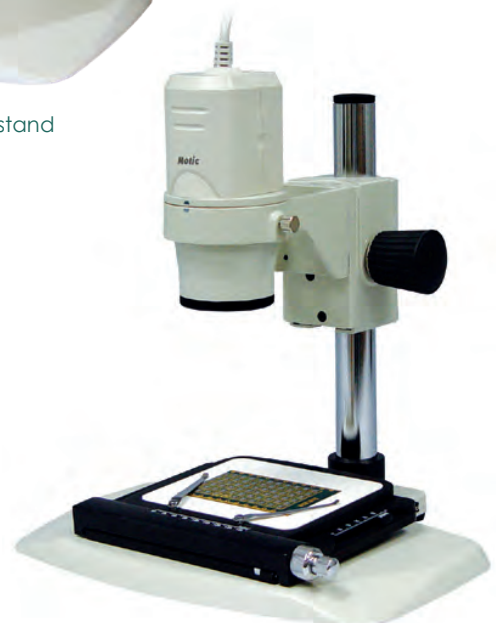
Z-14 with fixed mount stand

### Mechanical stage

Attachable to the basic stand of the Z-14 along with the fixed mount stand, the mechanical stage is a convenient attachment for easy movements. The stage has a 75mm (X) x 50mm (Y) movement that one's hand cannot provide.



Mechanical Stage



# OPTICAL DATA

## Z-14

### Z-14 System Magnification Ratio

#### 800 x 600 Display Format

Monitor	10.4" Monitor		15" Monitor		17" Monitor		19" Monitor	
	0.5X	1.0X	0.5X	1.0X	0.5X	1.0X	0.5X	1.0X
1X	1.9	3.8	2.7	5.4	3.1	6.1	3.4	6.9
2X	3.8	7.5	5.4	10.8	6.1	12.3	6.9	13.7
3X	5.6	11.3	8.1	16.2	9.2	18.4	10.3	20.6
4X	7.5	15.0	10.8	21.6	12.3	24.5	13.7	27.4
5X	9.4	18.8	13.5	27.1	15.3	30.7	17.1	34.3
6X	11.3	22.5	16.2	32.5	18.4	36.8	20.6	41.1
7X	13.1	26.3	18.9	37.9	21.5	42.9	24.0	48.0
8X	15.0	30.0	21.6	43.3	24.5	49.1	27.4	54.8
9X	16.9	33.8	24.4	48.7	27.6	55.2	30.8	61.7
10X	18.8	37.5	27.1	54.1	30.7	61.3	34.3	68.5
11X	20.6	41.3	29.8	59.5	33.7	67.5	37.7	75.4
12X	22.5	45.0	32.5	64.9	36.8	73.6	41.1	82.3
13X	24.4	48.8	35.2	70.4	39.9	79.7	44.6	89.1
14X	26.3	52.5	37.9	75.8	42.9	85.9	48.0	96.0

#### 1024 x 768 Display Format

Monitor	10.4" Monitor		15" Monitor		17" Monitor		19" Monitor	
	0.5X	1.0X	0.5X	1.0X	0.5X	1.0X	0.5X	1.0X
1X	1.2	2.3	1.7	3.4	1.9	3.8	2.1	4.3
2X	2.3	4.7	3.4	6.8	3.8	7.7	4.3	8.6
3X	3.5	7.0	5.1	10.1	5.8	11.5	6.4	12.9
4X	4.7	9.4	6.8	13.5	7.7	15.3	8.6	17.1
5X	5.9	11.7	8.5	16.9	9.6	19.2	10.7	21.4
6X	7.0	14.1	10.1	20.3	11.5	23.0	12.9	25.7
7X	8.2	16.4	11.8	23.7	13.4	26.8	15.0	30.0
8X	9.4	18.8	13.5	27.1	15.3	30.7	17.1	34.3
9X	10.6	21.1	15.2	30.4	17.3	34.5	19.3	38.6
10X	11.7	23.5	16.9	33.8	19.2	38.3	21.4	42.8
11X	12.9	25.8	18.6	37.2	21.1	42.2	23.6	47.1
12X	14.1	28.1	20.3	40.6	23.0	46.0	25.7	51.4
13X	15.2	30.5	22.0	44.0	24.9	49.8	27.8	55.7
14X	16.4	32.8	23.7	47.4	26.8	53.7	30.0	60.0

### Z14 System Object Field

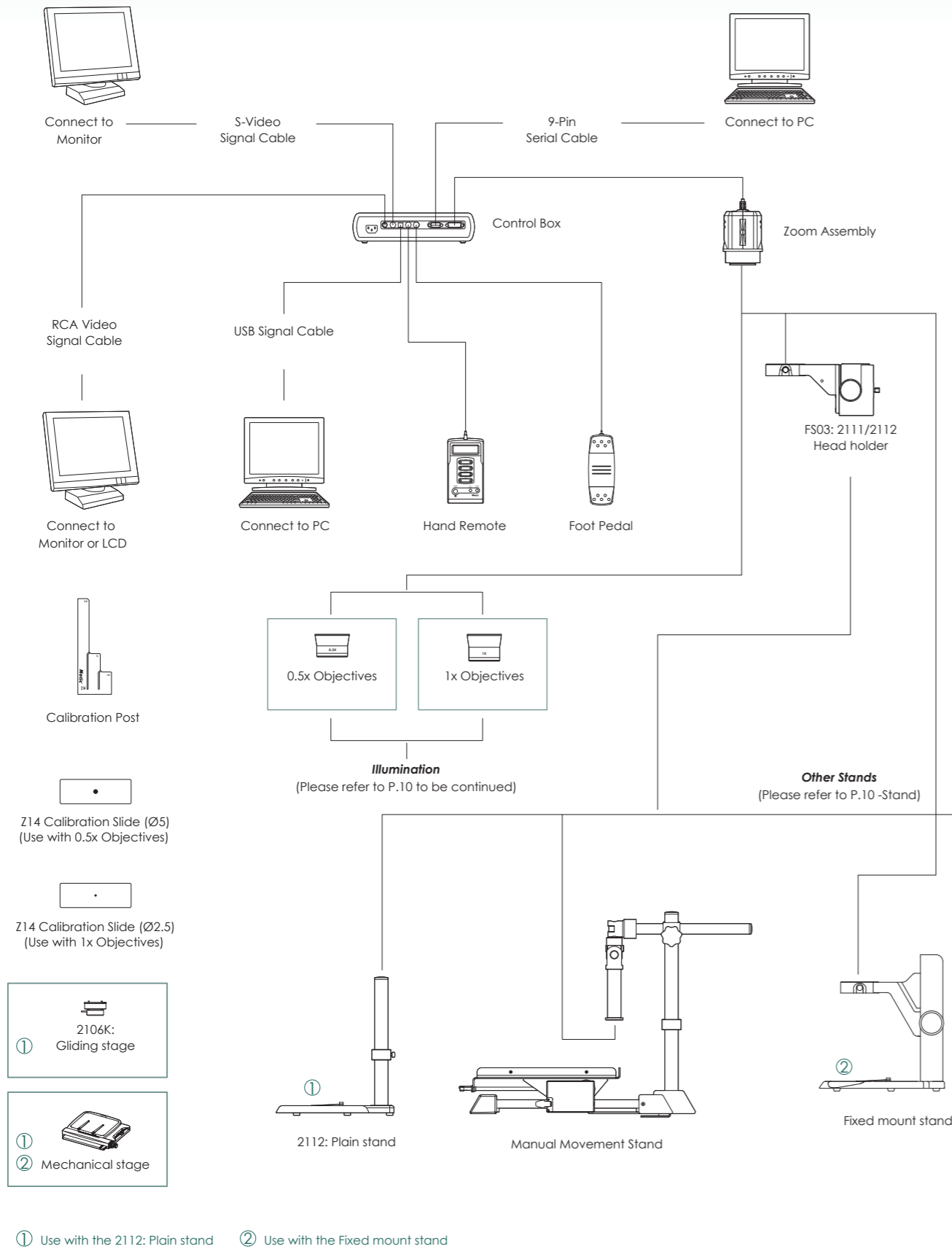
Magn.	0.5X Obj	1X Obj
	l x w (mm)	l x w (mm)
1X	110.0 x 80.3	55.0 x 40.2
2X	55.0 x 40.2	27.5 x 20.1
3X	36.7 x 26.8	18.3 x 13.4
4X	27.5 x 20.1	13.8 x 10.0
5X	22.0 x 16.1	11.0 x 8.0
6X	18.3 x 13.4	9.2 x 6.7
7X	15.7 x 11.5	7.9 x 5.7
8X	13.8 x 10.0	6.9 x 5.0
9X	12.2 x 8.9	6.1 x 4.5
10X	11.0 x 8.0	5.5 x 4.0
11X	10.0 x 7.3	5.0 x 3.7
12X	9.2 x 6.7	4.6 x 3.3
13X	8.5 x 6.2	4.2 x 3.1
14X	7.9 x 5.7	3.9 x 2.9

### Z14 System Depth of Focus

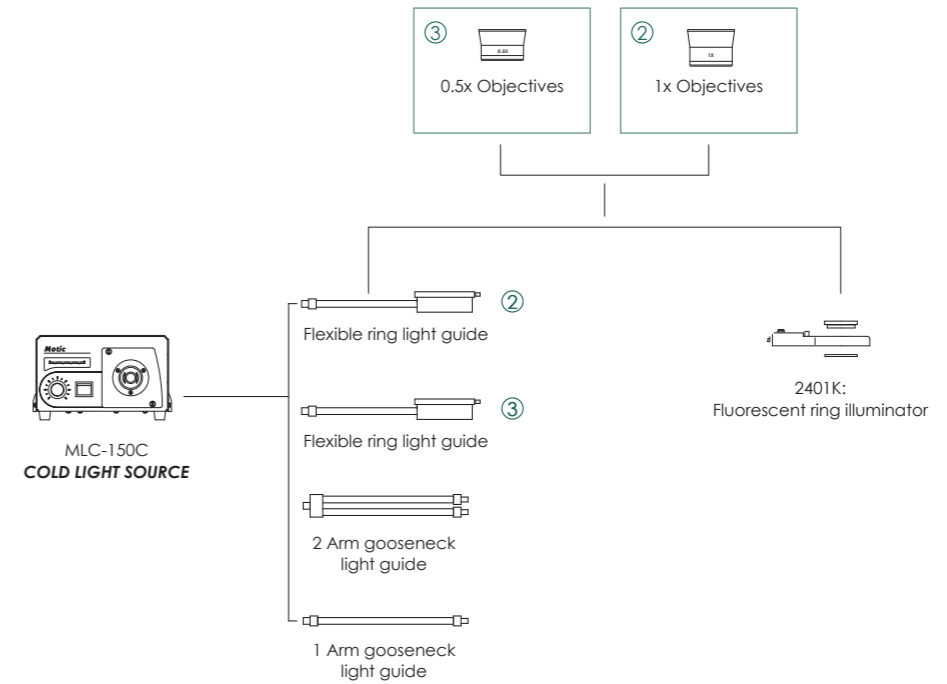
<b>Standard Objective</b>	0.5X with magnification range 1X-14X (0.5X-7X)
1X	16 grid / 8mm
7X	4 grid/2mm
14X	1.25 grid/0.625mm
<b>Auxiliary Objective</b>	1.0X with magnification range: 1X-14X (1X-14X)
1X	16 grid/8mm
7X	1 grid/0.5mm
14X	0.6 grid/0.3mm

### Specifications

<b>Purpose</b> □	Video inspection and observation, Simple measurement, Specimen cataloging	
<b>Zoom Body</b> □ □ □ □ □ □ □ □ □	<b>Standard Magnification</b> □	1.7X - 23.7X (0.5X Objective, 15" monitor, 1024 x 768 Display Format)
	<b>Zoom Ratio</b> □	1:14
	<b>Standard Object Field</b> □	110.0mm x 80.3mm - 7.9mm x 5.7mm
	<b>Standard Working Distance</b> □	172mm (0.5X Objective)
	<b>Magnification Controls</b> □	Step and fine zoom via hand remote
	<b>Optional Magnification</b> □	3.4X - 47.7X (1.0X Objective, 15" monitor, 1024 x 768 Display Format)
	<b>Optional Object Field</b> □	55.0mm x 40.2mm - 3.9mm x 2.9mm
	<b>Optional Working Distance</b> □	75mm (1.0X Objective)
	<b>Optional Magnification Controls</b> □	□ Fine zoom via foot pedal □ Fine and step zoom via computer
<b>Camera</b> □ □ □ □ □ □ □ □ □	<b>Sensor</b> □	1/4" Built-in
	<b>Maximum Pixels</b> □	795 x 596 [470K]
	<b>Effective Pixels</b> □	752 x 582 [440K]
	<b>Recognition</b> □	>480 lines
	<b>Output</b> □	USB2.0, Composite, S-Video [simultaneous]
	<b>System</b> □	PAL/NTSC
	<b>Scanning Frequency</b> □	15.625 Khz [horizontal], 50Khz [vertical]
	<b>White Balance</b> □	Auto
	<b>Sensitivity</b> □	1 lux
<b>Hand Remote</b> □ □ □	<b>Zoom Movements</b> □	Step and fine
	<b>Focus Control</b> □	Switch between Auto and Manual; control manual focus
	<b>Brightness Control</b> □	Manual controls brightness positive and negative
<b>Capture Card</b> □ □ □ □ □ □	<b>Function</b> □	Capture and measure
	<b>Supports RGB</b> □	32, 24, 12
	<b>Input Signal</b> □	S-Video and RCA
	<b>Output Signal</b> □	S-Video
	<b>Maximum Capture Window</b> □	640 x 480
	<b>Supported Systems</b> □	NTSC/PAL
<b>Software</b> □ □	<b>Standard Software</b> □	Motic Images Plus 2.0 ML (Multi-language)
	<b>Functions</b> □ □	Manual measurements; Image filters; Auto Segmentation; Cataloging
<b>Stand</b> □ □	<b>Standard Stand</b> □	2112: Incident large working area stand
	<b>Focus Travel</b> □	48mm
	<b>Head Mount</b> □	74mm
<b>Power</b> □	<b>Input Voltage</b> □	90V-240V Universal Power Supply
<b>Dimensions</b> □ □	<b>System Only</b> □	363mm(h) x 330mm(w) x 280mm(d)
	<b>Shipping Dimensions</b> □	460mm(h) x 400mm(w) x 400mm(d)

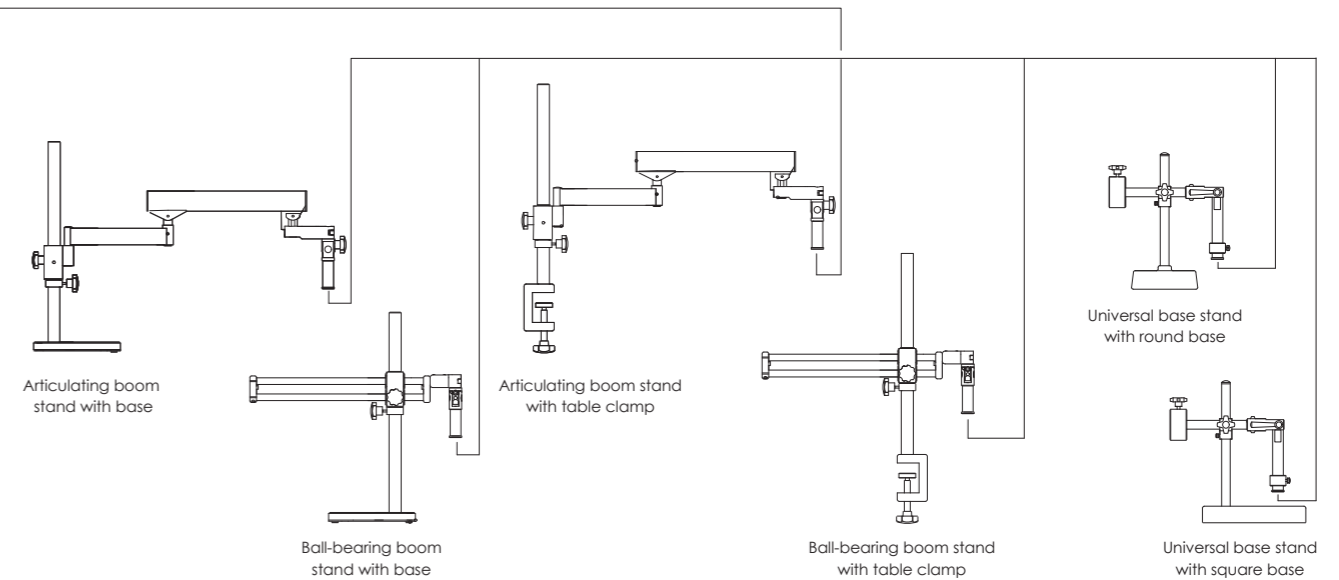


### Illumination



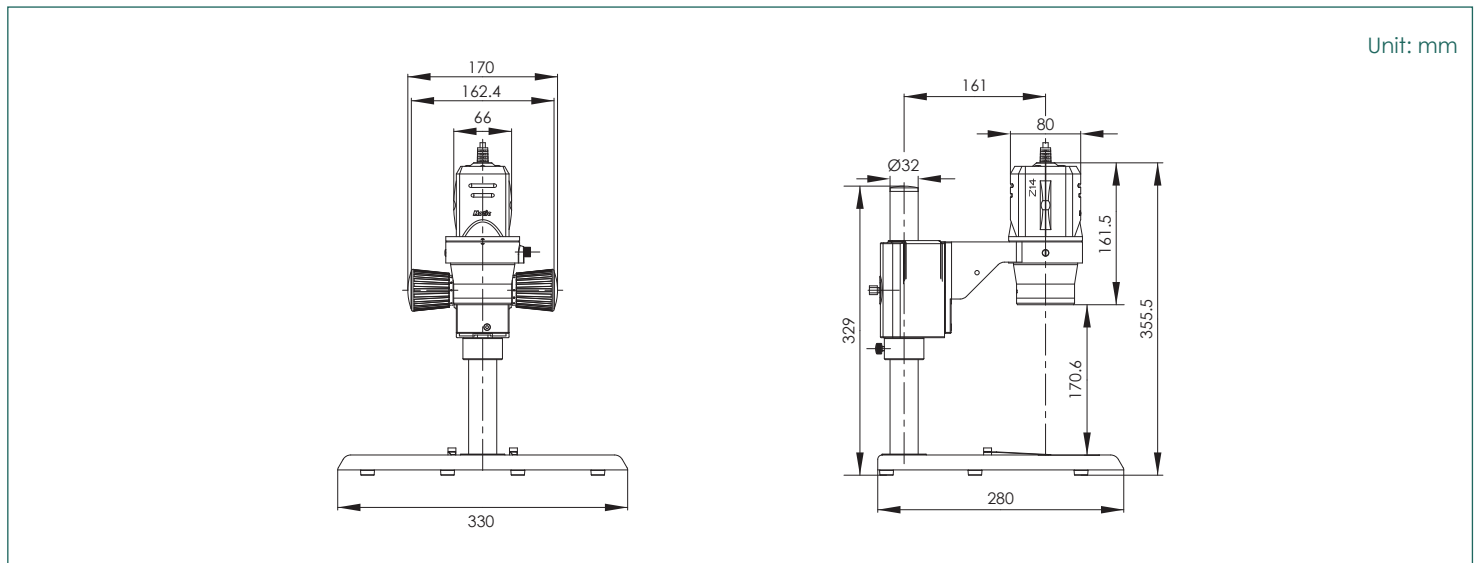
- ② Not suitable for 1X Objective
- ③ Not suitable for 0.5X Objective

### Stand

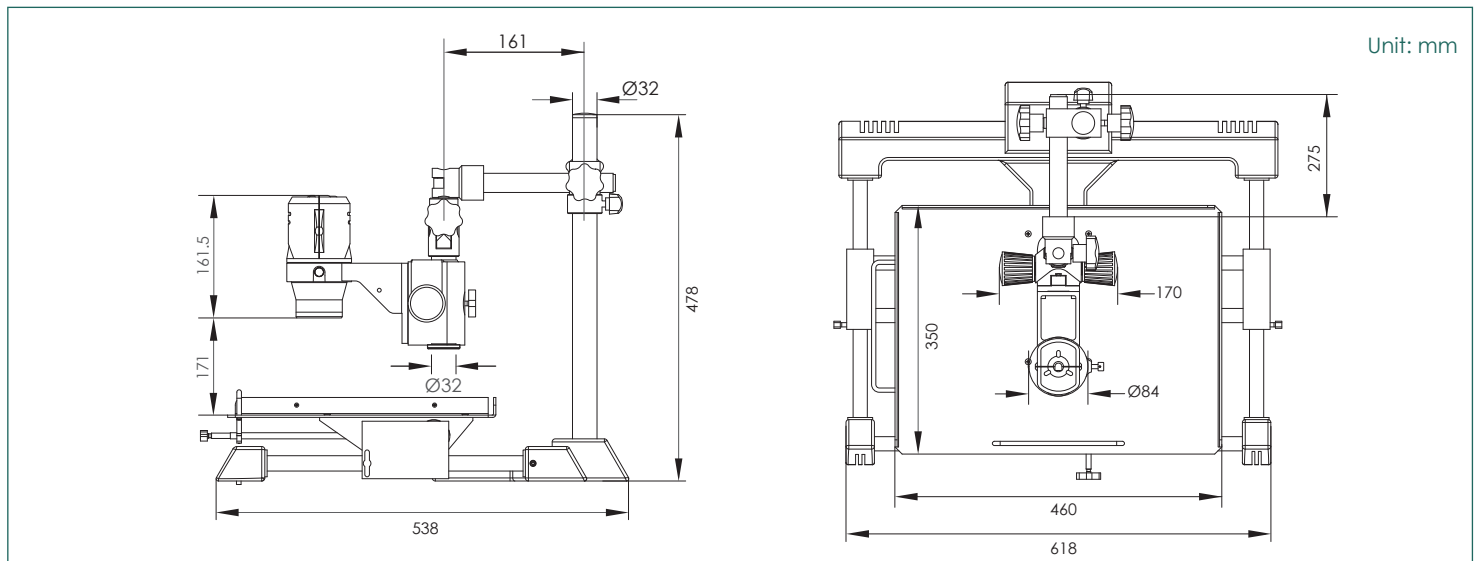




## Z14 Schematic Diagram [Plain Stand]



## Z14 Schematic Diagram [Manual Movement Stand]



# Motic®

More Than Microscopy

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Design Change : The manufacturer reserves the right to make changes in instrument design in accordance  
□ with scientific and mechanical progress, without notice and without obligation.



Code: 1300901301922

# Plan Apochromat Objectives

Extra And Ultra Long Working Distance



# Extra Long Working Distance Objectives

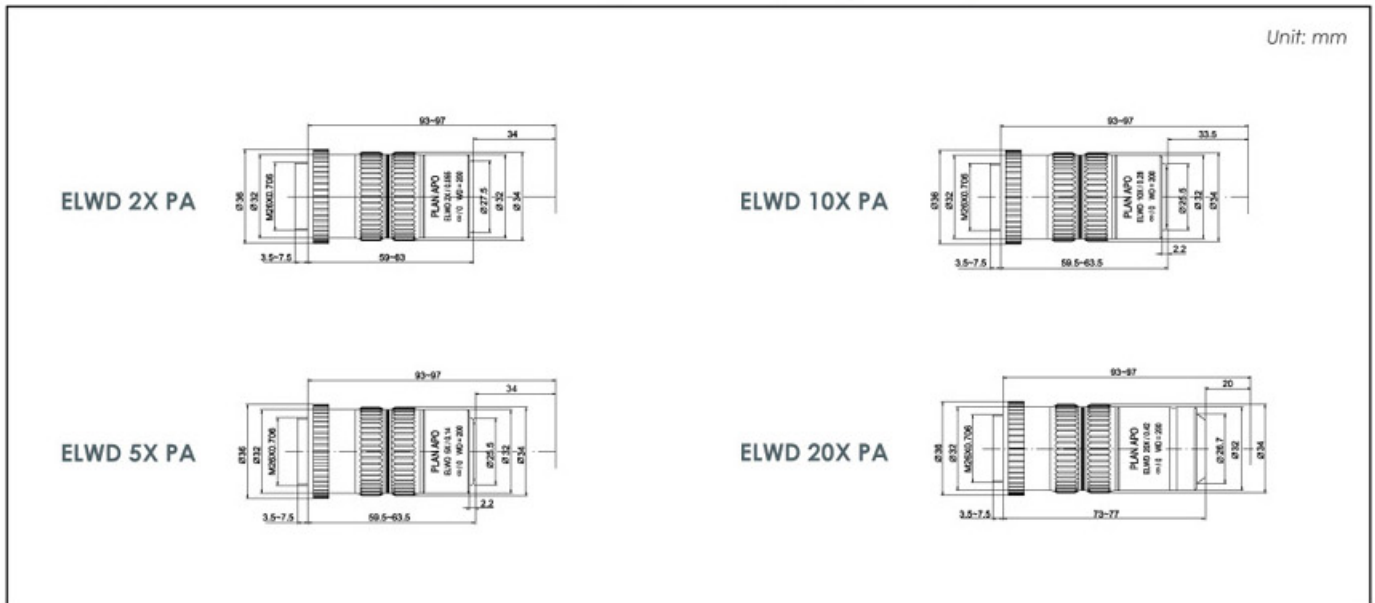
## PARFOCALITY ADJUSTABLE PLAN APO ELWD PA

- The unique Motic feature of parfocality adjustability assures smooth transitions between magnifications as a convenient time saving function.
- The infinity corrected and strain-free optical system provides crisp and high contrast images at the numerical apertures and working distance demanded.



**ELWD 20X PA**  
Parfocality Adjustable Objective

### Schematic Diagrams of Plan Apochromat ELWD Objectives PA [Parfocality Adjustable]



### Specifications Chart Plan Apochromat ELWD Objectives PA [Parfocality Adjustable]

Mag.	N.A	W.D (mm)	F (mm)	R (µm)	D.F (µm)	FOV (mm) (Ø24 eyepiece)	FOV (VxH,mm) (1/2" chip sensor)	FOV (VxH,mm) (2/3" chip sensor)	Weight (g)
ELWD 2X PA	0.055	34.0	100	5.0	91	Ø 12	2.4x3.2	3.3x4.4	270
ELWD 5X PA	0.140	34.0	40	2.0	14	Ø 4.8	0.96x1.28	1.32x1.76	260
ELWD 10X PA	0.280	33.5	20	1.0	3.5	Ø 2.4	0.48x0.64	0.66x0.88	270
ELWD 20X PA	0.420	20.0	10	0.7	1.6	Ø 1.2	0.24x0.32	0.33x0.44	320

# Extra Long Working Distance Objectives

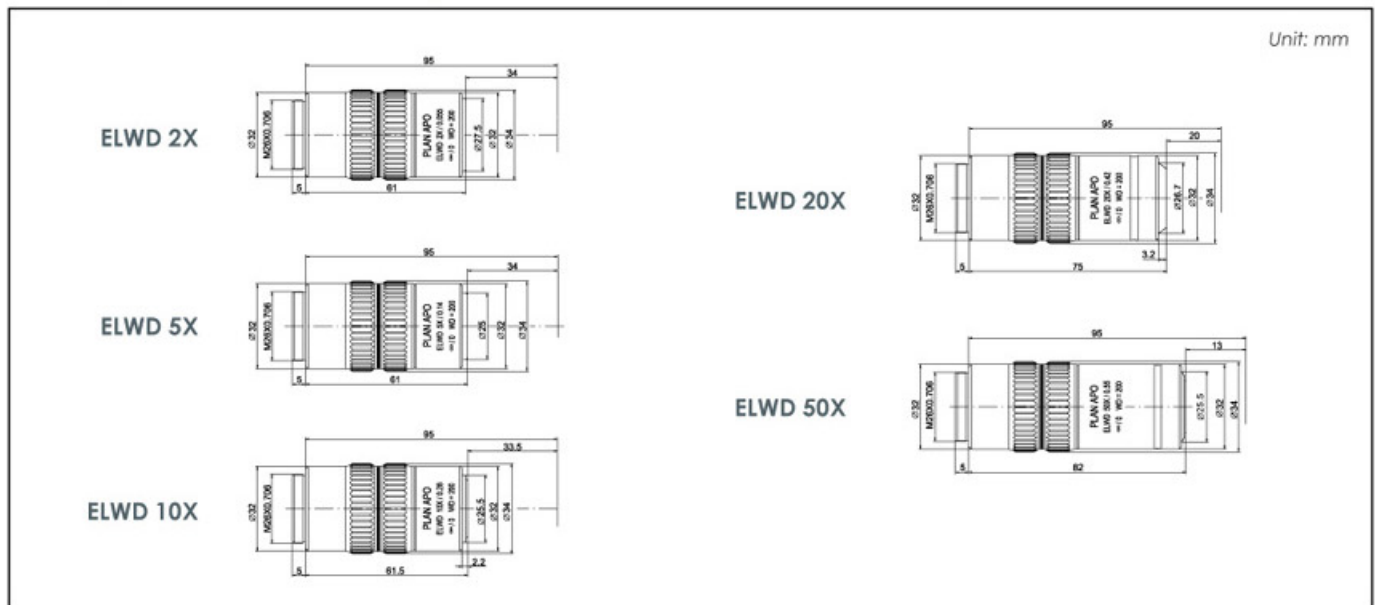
## PLAN APO ELWD

- The infinity corrected and strain-free optical system provides crisp and high contrast images at the numerical apertures and working distance demanded.



ELWD 50X  
Standard Objective

### Schematic Diagrams of Plan Apochromat ELWD Objectives



### Specifications Chart Plan Apochromat ELWD Objectives

Mag.	N.A	W.D (mm)	F (mm)	R (μm)	D.F (μm)	FOV (mm) (Ø24 eyepiece)	FOV (VxH,mm) (1/2" chip sensor)	FOV (VxH,mm) (2/3" chip sensor)	Weight (g)
ELWD 2X	0.055	34.0	100	5.0	91	Ø12	2.4x3.2	3.3x4.4	250
ELWD 5X	0.140	34.0	40	2.0	14	Ø 4.8	0.96x1.28	1.32x1.76	240
ELWD 10X	0.280	33.5	20	1.0	3.5	Ø 2.4	0.48x0.64	0.66x0.88	250
ELWD 20X	0.420	20.0	10	0.7	1.6	Ø 1.2	0.24x0.32	0.33x0.44	300
ELWD 50X	0.550	13.0	4	0.5	0.9	Ø 0.48	0.192x0.256	0.264x0.352	320

# Extra Long Working Distance Objectives

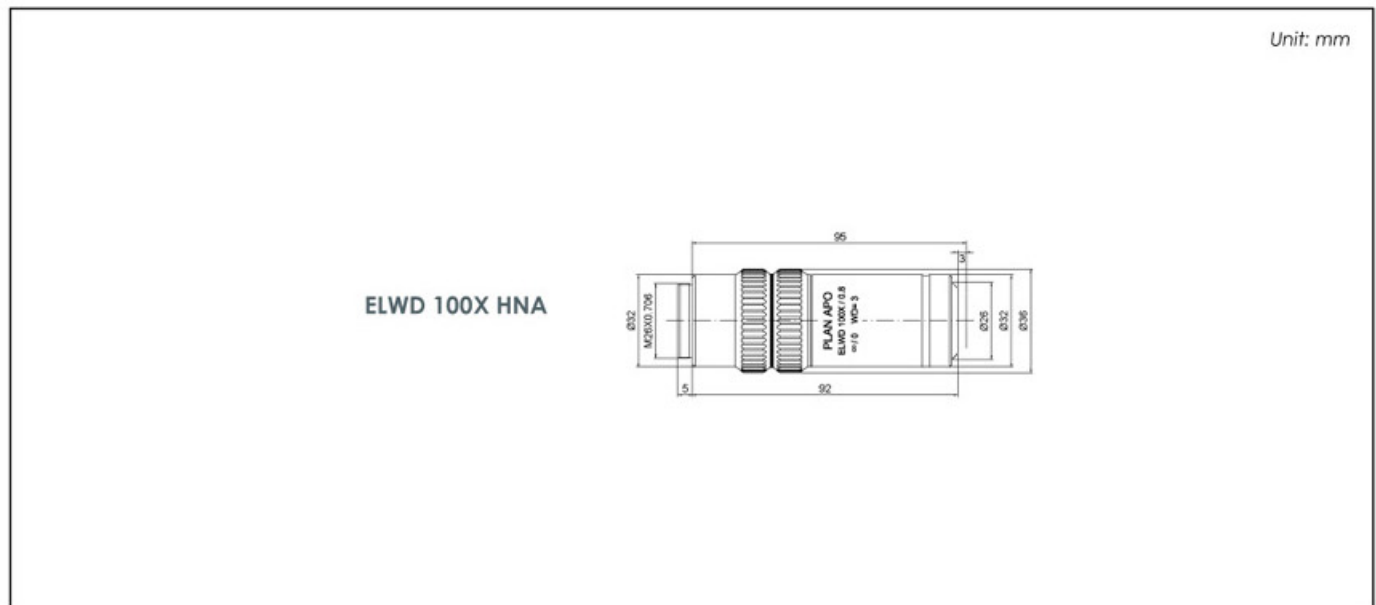
## HIGH NUMERICAL APERTURE PLAN APO ELWD HNA

- Constructed for optimum resolution and image clarity, the high numerical aperture extra long Plan Apochromat objective is ideal for applications requiring both working distance and a high numerical aperture.
- The infinity corrected and strain-free optical system provides crisp and high contrast images at the working distance demanded.



**ELWD 100X HNA**  
High Numerical Aperture Objective

### Schematic Diagrams of Plan Apochromat ELWD Objective HNA [High Numerical Aperture]



### Specifications Chart

#### Plan Apochromat ELWD Objective HNA [High Numerical Aperture]

Mag.	N.A	W.D (mm)	F (mm)	R (μm)	D.F (μm)	FOV (mm) (Ø24 eyepiece)	FOV (VxH,mm) (1/2" chip sensor)	FOV (VxH,mm) (2/3" chip sensor)	Weight (g)
ELWD 100X HNA	0.800	3.0	2.0	0.34	0.43	Ø 0.24	0.048x0.064	0.066x0.088	450

# Ultra Long Working Distance Objectives

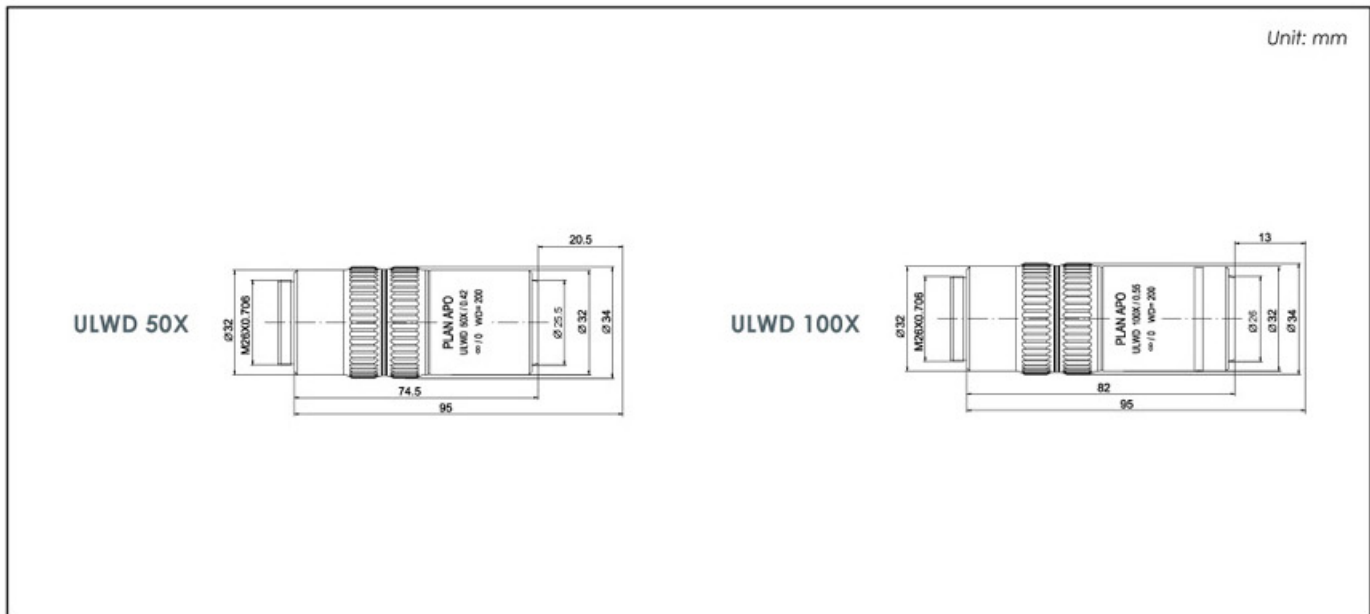
## PLAN APO ULWD

- Corrected within the 24mm field of view for all optical aberrations throughout the visible spectrum, the ultra long Plan Apochromat objectives produce flat and true colour images with the extra amount of working distance demanded.



**ULWD 100X**  
Ultra Long Objective

### Schematic Diagrams of Plan Apochromat ULWD Objectives



### Specifications Chart Plan Apochromat ULWD Objectives

Mag.	N.A	W.D (mm)	F (mm)	R (μm)	D.F (μm)	FOV (mm) (∅24 eyepiece)	FOV (VxH,mm) (1/2" chip sensor)	FOV (VxH,mm) (2/3" chip sensor)	Weight (g)
ULWD 50X	0.420	20.5	4	0.7	1.6	∅ 0.48	0.10x0.13	0.132x0.176	300
ULWD 100X	0.550	13.0	2	0.5	0.9	∅ 0.24	0.05x0.06	0.066x0.088	340