

# MICROSCOPES



**mrc**



**MZ-3, Video Zoom Microscope**

The quality optical system and the specially coated optical components adopted in MZ3 Video Zoom Microscope furnish it to deliver sharp and flat images. With the locking screw, the zoom knob of the zoom body can be operated more precisely. This product can be applied to viewing, inspecting and testing digital images in electronic components, semiconductor, laser, LED, LCD, industrial and biological fields. Digital Camera, CCD Camera, DSLR and SLR can be attached to MZ3 Video Zoom Microscope by using the relevant adapters.

**MZ311101, Micro zoom body**

Based on the best optical system, MZ311101 can deliver clear, bright and flat images. The zoom knob of zoom body with lock-up equipment can reach high precision. It can apply to modern electronic equipment, semiconductor, laser, LED, LCD, industry inspection, digital observation on biology and other fields.

**MZ311102, Micro zoom body**

MZ311102 Monocular Video Zoom microscope equipped with optional LED Coaxial Illuminator delivers much clearer and brighter images. Adjust CTV Adjusting Ring below the C-Mount to get the clear image. Locking the magnification screw can fix the magnification. 1/4" wavelength Polarizer Lens is used to adjust the brightness of video output and get the best contrast.

Options for MZ-3



**MZ3-7001-A Video Zoom Microscope Includes:**

MZ311101 0.7-5X Micro Zoom Body, MZ313104 1.0X Objective Lens, MA237102 Horizontal Big Base Stand, GP020101 1/3" Color CCD Camera, GP070101 12V Power Supply and GP080101 BNC-BNC Video Cable.

**Specifications for MZ311101:**

- Zoom Range: 0.7X-5X.
- Zoom Ratio: 1: 7.
- Magnification: 16X-160X.
- Field of View: 2.14mm-21.4mm.
- Working Distance: 100mm-105mm.

**Specifications for MZ311102:**

- Zoom Range: 1X-7X.
- Zoom Ratio: 1: 7.
- Magnification: 23.7X-232.3X.
- Field of View: 1.53mm-15mm.
- Working Distance: 100mm-105mm.
- LED Coaxial Illuminator.

**Application:**

Adjusting CTV Adjusting Ring below the C-Mount will obtain a clear image. Locking the magnification screw can fix the magnification. 1/4" wavelength polarizer lens is used to adjust the brightness of video output and get the best contrast.

	Model	Name	Description
	MZ311101	Micro zoom body	Zoom body with 0.7X-5X zoom range; The outside dia. of body: 48mm
	MZ311102	Micro zoom body	Zoom range of zoom body 1 X-7X with LED coaxial illuminator; The outside dia. of body: 48mm
	MZ313104	1X Objective Lens	1X Objective, working distance: 105mm, for MZ3 Series microscope
	MZ313107	1.4X Objective Lens	1.4X Objective, working distance: 100mm, for MZ3 Series microscope
	MZ314101	1/4 Wavelength Polarizer Lens	For MZ313107, 1.4X objective lens

**Optical Specifications:** Based on 14" Monitor & 1/3" CCD Camera

Model		MZ3110101		MZ3110102	
Objective Lens	Working Distance (mm)	Coupler			
		0.4X			
		Mag.	FOV (mm)	Mag.	FOV (mm)
1X	105	16X-114.3X	21.4-3	23.7X-166X	15-2.14
1.4X	100	22.4X-160X	15.3-2.14	33.2X-232.3X	10.7-1.53



**D-EL1, Handheld 1.3MP Digital Microscope**

This handheld camera should seem familiar to some people. It is that kind of camera that you can see on popular Television shows and also purchase in hobby stores. Teachers have approached us to see whether this kind of technology can be put to good use as an educational tool.

To convert the idea from a hobby or toy product to a true Educational Solution that can wear a MRC brand, we had to start from scratch.

In the hands of students, the product needs to be well-designed and built, the unique D-EL1 design is large and robust enough to withstand use in schools while still being small enough to be able to be used by younger students.

As an educational tool, the D-EL1 also needs to be serviceable & repairable as far as possible. To make it as versatile as possible, the D-EL1 has more than one magnification.

Apart from the 10X-50X variable magnification, the D-EL1 also has a micro magnification of 200X allowing you to even use this camera with a prepared slide. Observing a specimen with the D-EL1's 1.3 MP of live resolution is just one of the features. But how do you turn your image into knowledge? The Eco-Line by MRC Toolbox is application software that is included free of charge and allows the user to capture still and time lapse images as well as videos. Students can measure, annotate and edit their captured images. The D-EL1 package is a dedicated Educational Solution.

Model	D-EL1
<b>Description</b>	Handheld 1.3MP digital microscope with 8 Two-Step Brightness LED bulbs and USB2 connection to MRC application software.
<b>Sensor</b>	1/3", 1.3MP CMOS
<b>Illumination</b>	8-LED in ring formation with 2-step brightness control
<b>Power</b>	Direct from computer through USB connection
<b>Focus</b>	Soft-grip focus wheel
<b>Magnification</b>	10x-50x, 200x screen size dependent
<b>Accessories</b>	EcoLine Tool application software, Metal Stand



**MZ-CHG, Cross Hair Generator**

Easy operation-Button control, knob control and mouse control. High work efficiency-Real-time data updated, without waiting, work stability.

The Cross-hair generator with built-in video conversion can show analog signal with folding cross-hair and coordinate outputted from CCD on screen.

It can provide adjustable cross-hair observation when observing. For VGA MZ-CHG LCD, it can convert analog signal into VGA signal, output

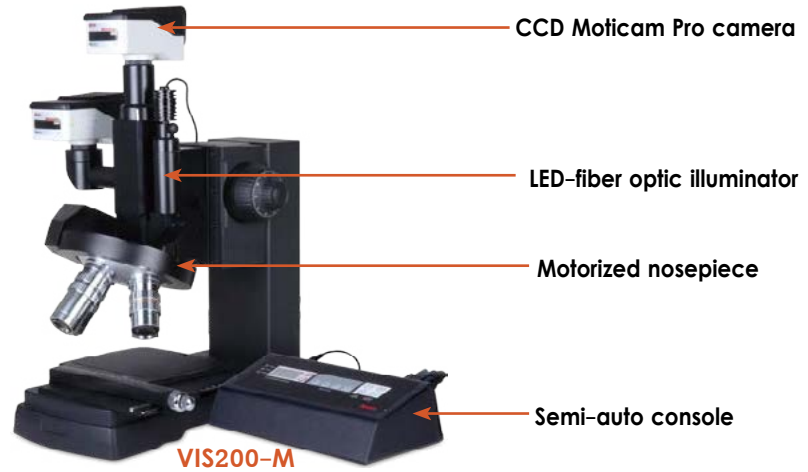
resolution ofVGA: 1024X768 & 1280X1024, power supply: 5V 1A. Can be used for measurement of high-precision, realizing data processing of video signal, measurement of distance and angle. When installed in microscope, observation, inspection & measurement functions can be realized. This product can be widely used in biology, medical treatment and chemistry.

**Optical Data Sheet: (Based on 14" Monitor and 1/3" CCD Camera).**

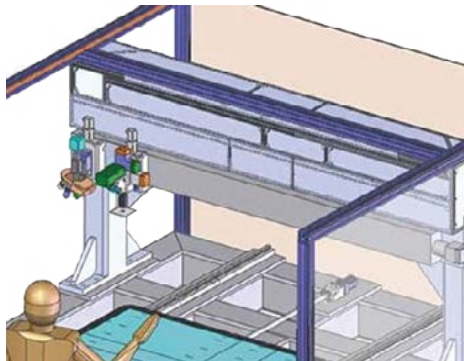
Model	MZ3110101		
Objective Lens	Working Distance (mm)	Coupler	
		0.4X	
		Mag.	FOV (mm)
1X	105	16X-114.3X	21.4-3
1.4X	100	22.4X-160X	15.3-2.14

## VIS100/200, Video Inspection Scope

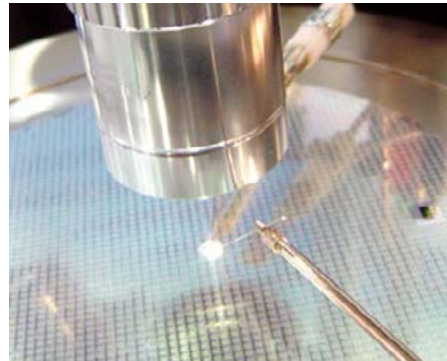
The all new VIS100/VIS200 series, a product by MRC for the industrial field, performs an online or offline probe application, visualization, inspection, observation, measurement, and documentation via monitor or LCD display. Available in manual & semi-automation operation, the VIS100/VIS200 series is compact in size, easy to install and has long working distance.



**Note:** Please be aware the accessories are presented in above photos or following application example or recommendation, such as: Objectives, CCD Moticams, laser head etc., just for demonstration purpose of applications, please contact your local vendor or seller for more details.



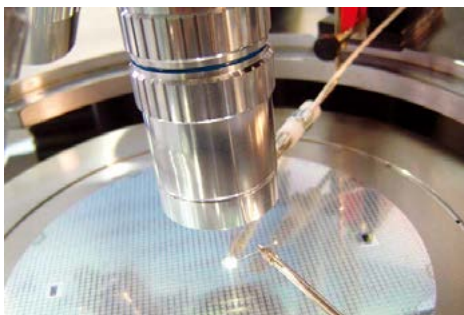
Max transmission distance is 25ft, VIS100/ VIS200 in Customer Inspection System of Flat Panel Display via RS232 serial port connection.



Working distance of 5x APO objective is 34mm, Wafer inspection and fine-film laser-cutting in Probe station.



Dimension measurement, contour inspection, positioning as demands etc..



The video observation or probe inspection covers the economic metallurgic application, material research under stereoscopic, high-resolving power and extra/ultra-long working distance. The new VIS100/VIS200 series adopt.

### Laser rework:

In order to meet the diversified probe application under video condition, the infinity optical system of VIS100/VIS200 series adopts the "All-in-one" specialized lens design that supports the full popular spectrum wavelength of Probe application: 355nm (NUV), 532nm (Green), 1064nm (NIR). It can also perform laser rework under live video condition via both monitor & display simultaneously.



### Caution:

However, MRC assumes no responsibility for the performance and safety of the laser system used with MRC microscopes. The laser emission may cause unknown harm to health, and therefore, a serious of examination and safety instructions pertaining to the laser usage legislation is strongly recommended while selecting a laser emission unit.

**APO objective:**

The extra/ultra-long work distance plan APO objectives & the plan NIR objective are both suitable for high tech or precise probe observation, inspection &/or laser rework, such as: micron circuit failure analysis, and sub-micron viewing and quality control of PCBA, Wafer, LCD,LED etc..



Model	Type	Magnification	N.A.	W.D. (mm)	Resolution (µm)
1101001700052	ELWD	2x	0.055	34.0	5.0
1101001700072		5x	0.140	34.0	2.0
1101001700032		10x	0.280	33.5	1.0
1101001700042		20x	0.420	20.0	0.7
1101001700062		50x	0.550	13.0	0.5
1101001700021		100x	0.800	3.0	0.34
1101001700141	ELWD PA	2x	0.055	34.0	5.0
1101001700181		5x	0.140	34.0	2.0
1101001700112		10x	0.280	33.5	1.0
1101001700122		20x	0.420	20.0	0.7
1101001700092	ULWD	50x	0.420	20.5	0.7
1101001700082		100x	0.550	13	0.5
1101001703531	NIR	20x	0.400	20.5	0.7
1101001703541		50x	0.420	19	0.7

**Infinity corrected plan objective:**

Infinity corrected plan objective-suitable for economic metallurgic observation or inspection. It can be applied on quality control, engineering analysis etc..



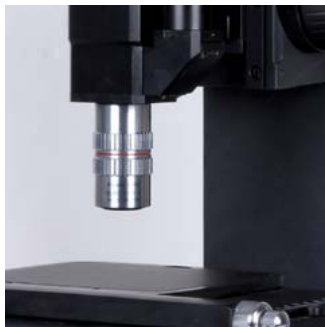
Model	Type	Magnification	N.A.	W.D. (mm)
1101001401681	Infinity corrected objectives	5x	0.13	11.5
1101001401691		10x	0.30	6.8
1101001401701		20x	0.40	11.1
1101001401711		50x	0.55	8.2
1101001702781		100x	0.80	2

In case of emergency, the wide field eyepiece and monocular head can switch the VIS series back to eye observation from the monitor or LCD display.



Variety of accessories with combinations of multipurpose nosepiece, illuminator, video C-mount. VIS series can be built on a budget to suit your needs.

Model	Type	Magnification	F.N.
1101006000731	Monocular head	-	-
1101001402351	Eyepiece	10x	20
1101001402051		12.5x	18
1101001402061		15x	16



Single nosepiece



Linear nosepiece



Manual nosepiece



Motorized nosepiece

**Excellent LED-fiber optic illuminator with adjustable Aperture Diaphragm**



Coaxial LED illuminator for VIS100, VIS200 series is a green, compact and ideal lighting solution for diversified observation.



The 3W LED fiber-optic coaxial illumination with Aperture Diaphragm can achieve an adjustable concentrated light as needed.



Low power consumption keeps the work-piece and workshop free from thermal and heat influence.

**VIS100**

Only 1 Objective & 1 CCD Moticam Camera



The convenience to realize online/offline single magnification and rapid inspection through monitor or display in high volume production environment can be achieved.

**VIS200**

Application recommendation 1:



To realize online or offline laser reworking, observation judgment simultaneously via beam split lens, like: probe application on Wafer, FPD and laser reworking simultaneously for superb high efficiency.

Model	Beam Split		Purchasing part Code
	CCD	Laser Port	
<b>VIS200</b>	20, 50	50, 80	1100101700122
<b>VIS200-M</b>	20, 50	50, 80	1100101700171

Application recommendation 2:



To realize online or offline rapid 2 items observation or inspection through monitor or display at same time via Beam split lens, such as: online or offline sort failure, outline contour and feature at same time.

**VIS100-S**

Linear sliding nosepiece, only carry 2 objectives



To realize only 2 selected magnification objectives or 2 different type objective need for online or offline variety engineering analysis, quality control, failure analysis via monitor or display, or weigh-less or cost efficiency as needs.

**VIS100-M/VIS200-M**

Nosepiece location is precisely positioned (8µm) by built-in infrared photoelectric sensor RS232 serial port(max transmission distance 25 ft) for semi-auto control and be integrated into Customer system.



VIS100-M, VIS200-M with motorized nosepiece, is designed to improve the efficiency of high precise repeatable positioned (8µm) observation/inspection requirement in fast speed production for online or offline inspection, laser rework, capturing failure & engineering analysis via monitor or display for complex and multiple task demands at same time, or can be embedded into customized automation system for complex and diversified tasks etc..

**VIS100-E**

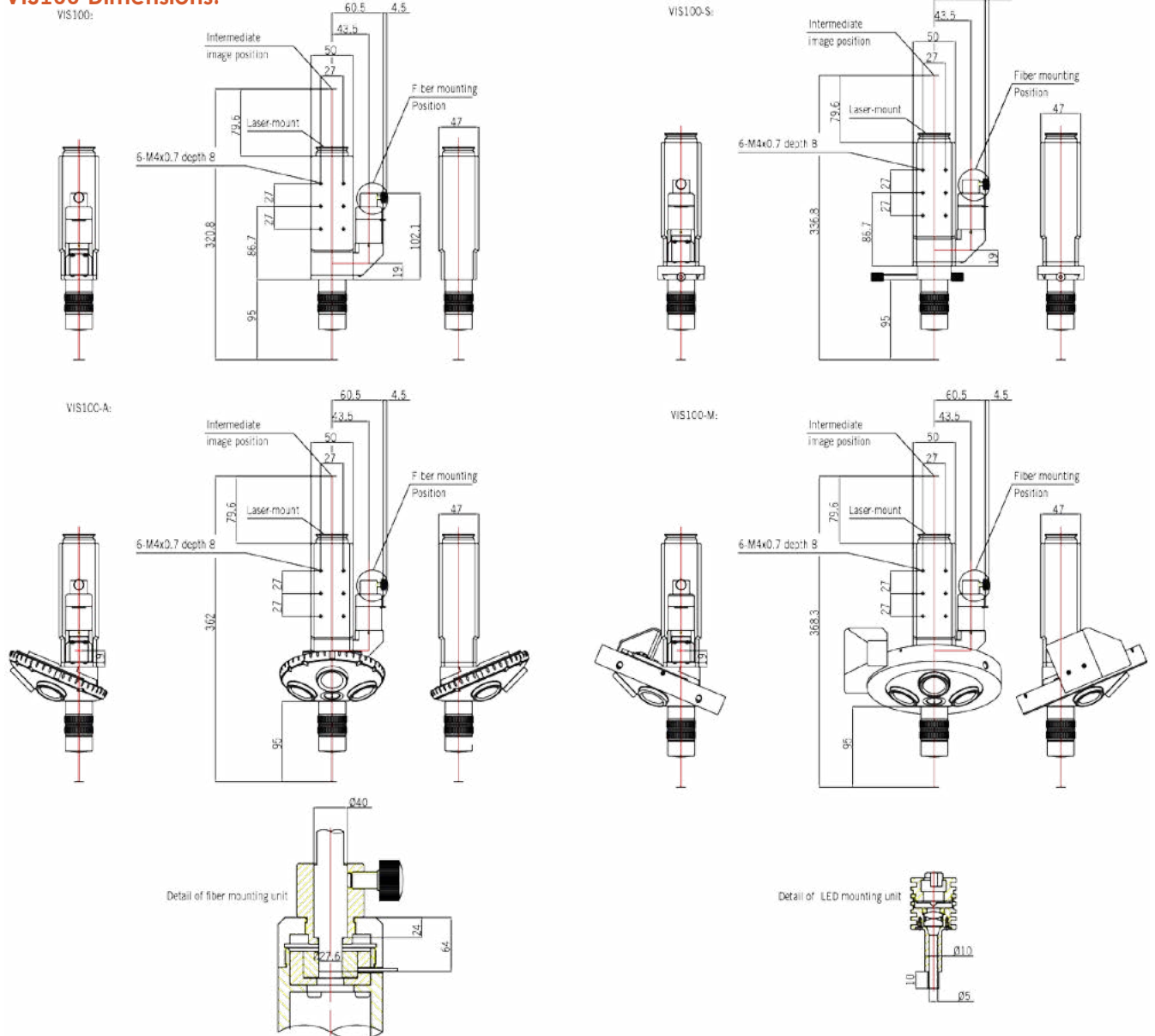
A small-size, low-price metallurgical microscope combined with high-resolving power metallurgical objectives, stand, X-Y stage, etc.



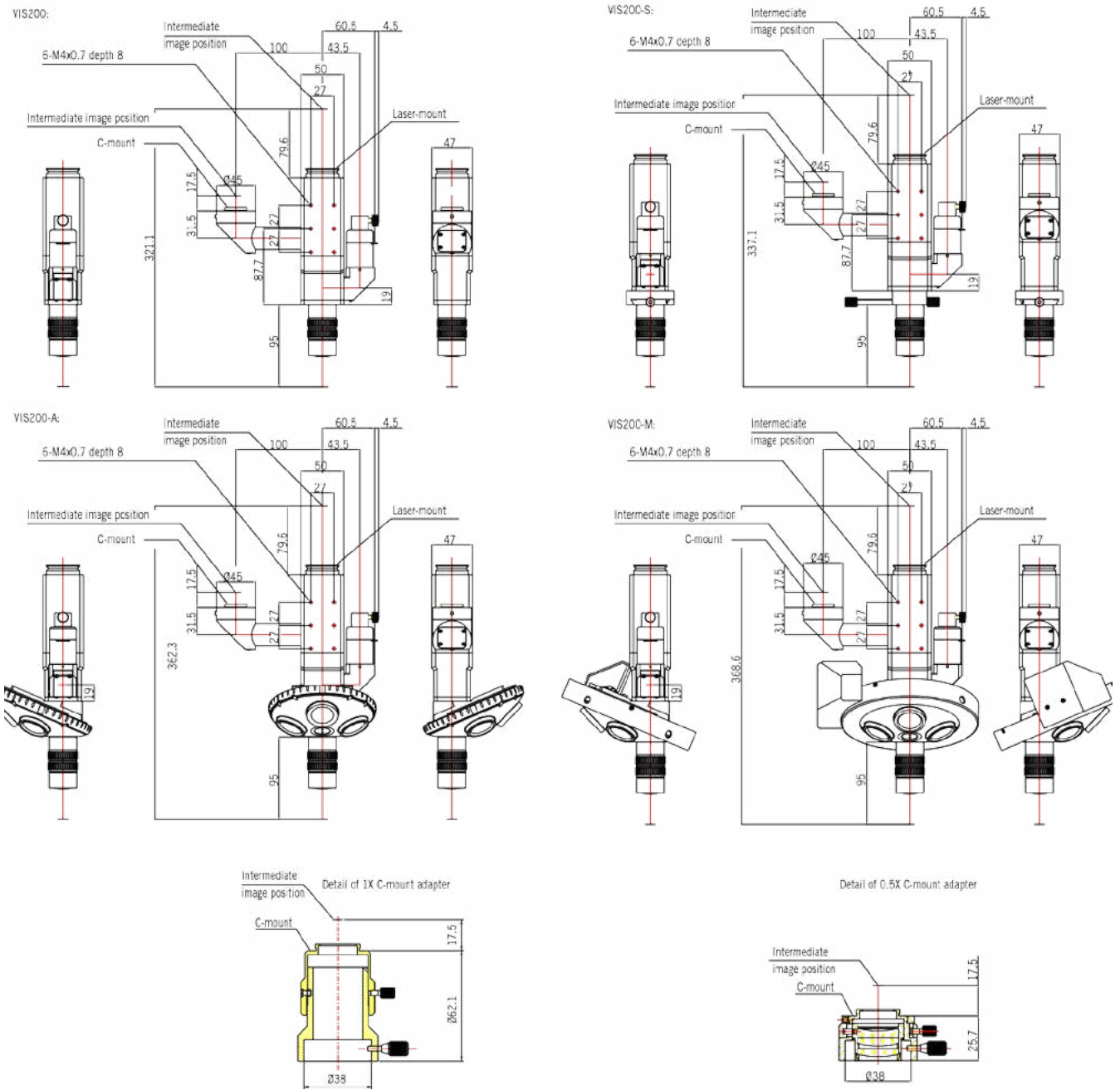
To meet online or offline observation or inspection, variety quality control and engineering analysis, failure analysis etc..

Model	VIS100	VIS100-S	VIS100-A	VIS100-M	VIS100-E	VIS200	VIS200-S	VIS200-A	VIS200-M
<b>Description</b>	With single objective	With sliding nosepiece	With nosepiece (centering adjustable)	With motorized nosepiece	economical use, Nosepiece with RMS mounting	With single objective	With sliding nosepiece	With nosepiece (centering adjustable)	With motorized nosepiece
<b>Maginification of tube</b>	1X								
<b>Camera mount</b>	Vertical								
<b>Observation image</b>	BF/erect image								
<b>Light distribution</b>	-					20:80 (C-mount: laser mount)			
<b>Tube lens (correction)</b>	1X Applicable wavelength (near-infrared-visible-near-ultraviolet radiation)				1X	1X Applicable wavelength (near-infrared - visible- near-ultraviolet radiation) *mounted on the upright port			
<b>Applicable laser</b>	1064 / 532 / 355mm laser				-	1064 / 532 / 355mm laser			
<b>C-mount adapter</b>	0.5X optional / 1X included					0.5X optional /1X (Adjustable Parfocality) included *mounted on the side port of the body			
<b>Objectives (optional)</b>	<b>For observation</b>	Plan APO ELWD PA 2X / 5X / 10X / 20X, Plan APO ELWD 2X/ 5X/ 10X/ 20X/ 50X/ 100 HNA, Plan APO ULWD 50X/100X			-	Plan APO ELWD PA 2X / 5X / 10X / 20X, Plan APO ELWD 2X/ 5X/ 10X/ 20X/ 50X/ 100 HNA, Plan APO ULWD 50X/100X			
	<b>laser cutting</b>	NIR 20X, 50X			-	NIR 20X, 50X			
	<b>For metallurgical application</b>				Plan 5X/ 10X/ 20X/ 50X/ 100X				
<b>Applicable camera</b>	1/2 inch or 2/3 CCD camera (C-mount type)								
<b>Illumination system</b>	The 3W LED fiber-optic coaxial illumination with aperture diaphragm								
<b>Light source</b>	Halogen bulb (21V, 150W) (optional)								

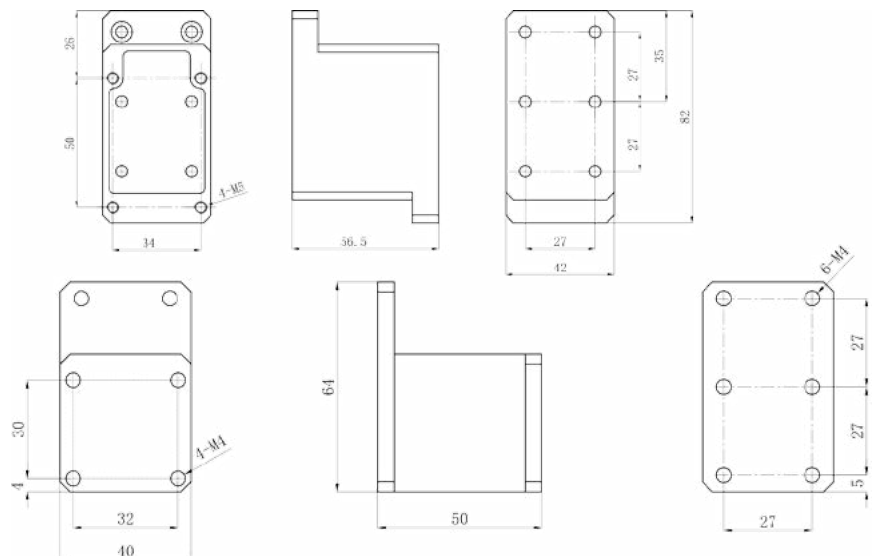
### VIS100 Dimensions:



## VIS200 Dimensions:

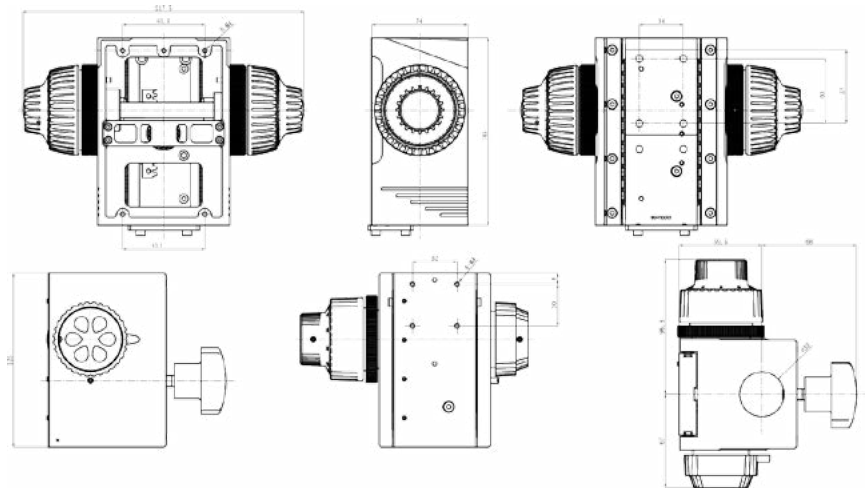


## Connecting mounter:

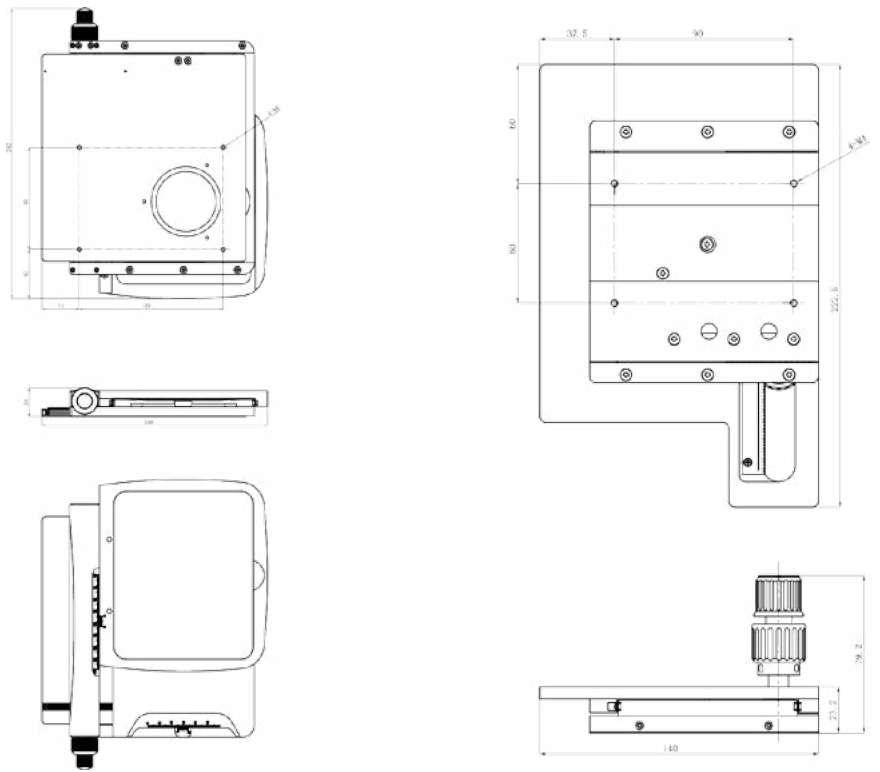




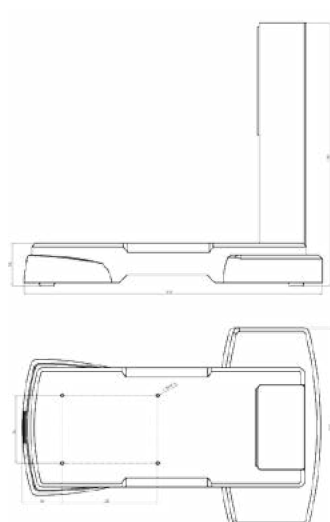
**Focusing block:**



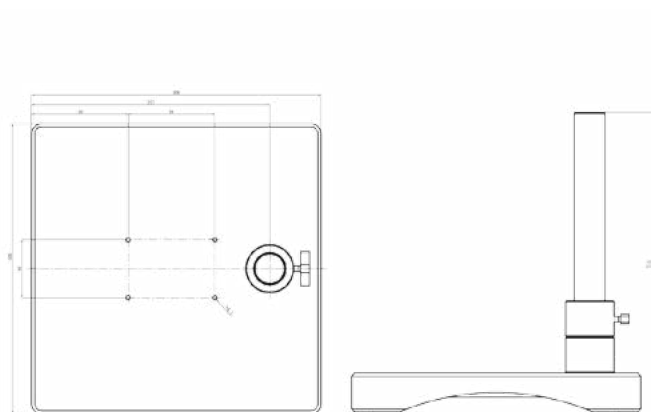
**Mechanical Stage:**



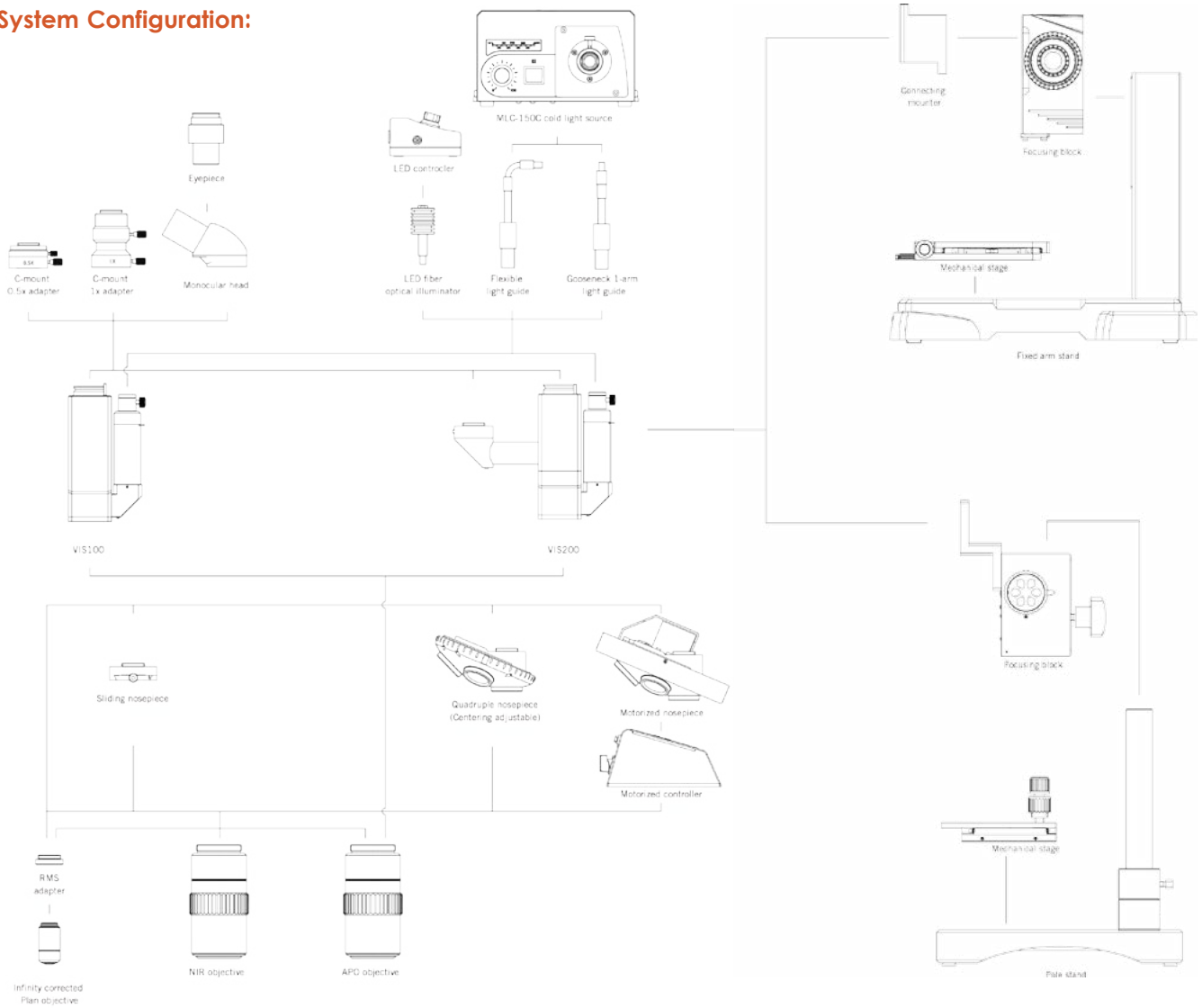
**Fixed arm stand:**



**Pole stand:**



## System Configuration:



## Precautions for use of the laser:

### Difference in beam system:

The laser increases its energy density as the laser beam converges. The energy density increases approximately proportionally to the area ratio of a beam system. While configuring an optical system please do exercise seriously to avoid to converging the laser inside the optical system.

### Difference in wavelength:

The upper limit value of the input laser in the optical system differs depending on the laser wavelength. The laser photon energy increases as the wavelength shortens. Note that the laser photon energy is reversible proportional to the wavelength.

For example: refer to the case, such as the laser is entered into the objective directly. If the wavelength decreases to 1/2, the photon energy increases by 2 times. Therefore, the upper limit value of the energy density of the laser to be entered in the optical system must be reduced to 1/2.

### Difference in pulse width:

If the pulse width is narrowed, the electric field increases by the square root of the reciprocal of the pulse width ratio. For example, if the pulse width becomes 1/4, the electric field will be twice as large. Note that this is identical to the case where the threshold decreases by that ratio.

Example: If a laser with a pulse width of 2.5ns and a wavelength of 1064nm is entered into the objective, the upper limit value of the laser energy density must be 0.1 (J/cm<sup>2</sup>).

### Dirt on the lens surface:

If optical elements in the laser path, such as the lens surface, are stained with dust and dirt, the lens and other elements maybe damaged by the laser beam. Care should be exercised.

**Precautions on use:**

If the reflected beam of the laser emitted from the objective is returned to the optical system, the laser beam will be converged in the system, causing damage to the lens and optical elements (including mirrors prisms). Do exercise seriously so as not to return the reflected laser beam to the optical system.

Example: To measure the emission energy of the laser-beam machining optical system or to measure the emission factor, a power meter placed behind the laser converging position of the laser beam. In this case the laser beam reflected from the power meter will return and converge into the optical system. This way may cause laser damage to the optical system. Here is a option for kindly reference, which might avoid the damage happened, for example:

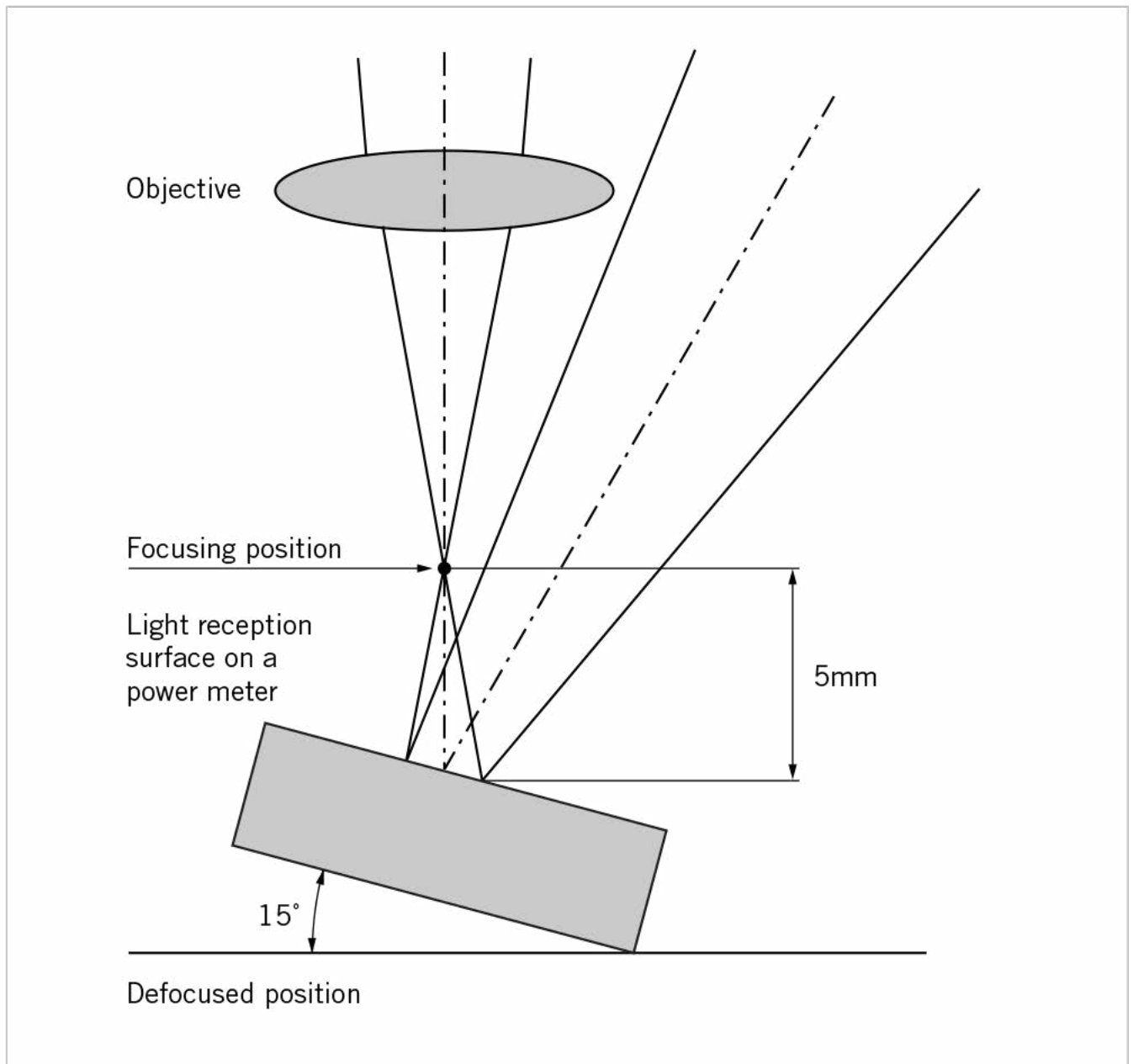
- put power meter location at defocused position, 5mm below the beam focused position, as showed in right-side figure.
- make Power meter tilted angle  $15^\circ$  from its orientation perpendicular to the laser beam as showed in right-side figure.

If the power meter is fixed as way showed in the figure at the right, the reflected beam will not returns into the optical system directly.

This way prevents the system from being damaged by the returned laser beam.

If the power meter is oriented as in the figure at the right, the reflected beam will not return directly into the optical system. This prevents the system from being damaged by the returned laser beam.

Notes: Please be aware above information just for kindly reference, please do contact with the laser provider or supplier for safety consideration before exercising laser application.





### SMZ-171 The Next Generation Stereo Microscope

- ESD and non ESD version
- Greenough optic system
- Compact and rugged
- Light weight
- Anti fungus
- Interlock eyepieces tube
- 3W LED Transmitted/Incident Illumination
- Power supply (100-240V)
- Long lasting bulb, life up to 25,000 hrs.



SMZ-171TL

Model	SMZ-171BL	SMZ-171TL
<b>Optical system</b>	Greenough	
<b>Observation angle</b>	45°/ 60°	45°
<b>Magnification range (standard)</b>	0.75X--5X	
<b>Zoom ratio</b>	1:6.7	
<b>Eyepiece</b>	N-WF, high eye-point 10X(Ø23), Diopter adjustable N-WF 12.5X(Ø18), 15X(Ø16), 20X(Ø13) optional	
<b>Interpupillary adjustment</b>	48mm-75mm	
<b>Height of eye point</b>	405mm	
<b>Working distance (standard)</b>	110mm	
<b>Weight</b>	6.2 kg (head 1.4kg)	
<b>C-Mount adapter</b>	/	Trinocular head only
<b>Photo adapter</b>	/	0.5X, 0.65X, 1X adapters available
<b>Photo adapter</b>	/	SY10 photo adapter 2.5X, 4X photo eyepiece available
<b>Auxiliary ESD objectives</b>	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]	
<b>Max. working distance</b>	301mm	
<b>Stand option</b>	Stable pole stand & arm base stand available 3W LED incident & transmitted light with reflector design	

### Light Sources

#### IL-RF, Fluorescent Ring Light

- The bright 7W fluorescent lighting system provides cool white illumination.
- Long life bulb, spare bulb included.
- Ring design eliminates shadows.
- Fits cones between 4.5-6.5cm (1.8"-2.4" dia.)



#### AC-LED, LED Ring Light

- Power Supply: AC 90-265V,50/60Hz
- Output 24V 6W
- Color Temperature:6400K
- Lamp Life: Minimum 10,000 hours
- Humidity Range: 0-80%
- Max. Opening: 62mm



#### MA314108, Fiber Optical

- Power Supply: AC 110-220V,50/60Hz
- Power consumption: 150W
- Spectrum range: 450-700nm
- Dimensions: L280xW100xH170mm
- Lamp: 24V 150W halogen reflector bulb
- Weight: 3kg



### CL-150, Fiber Optical

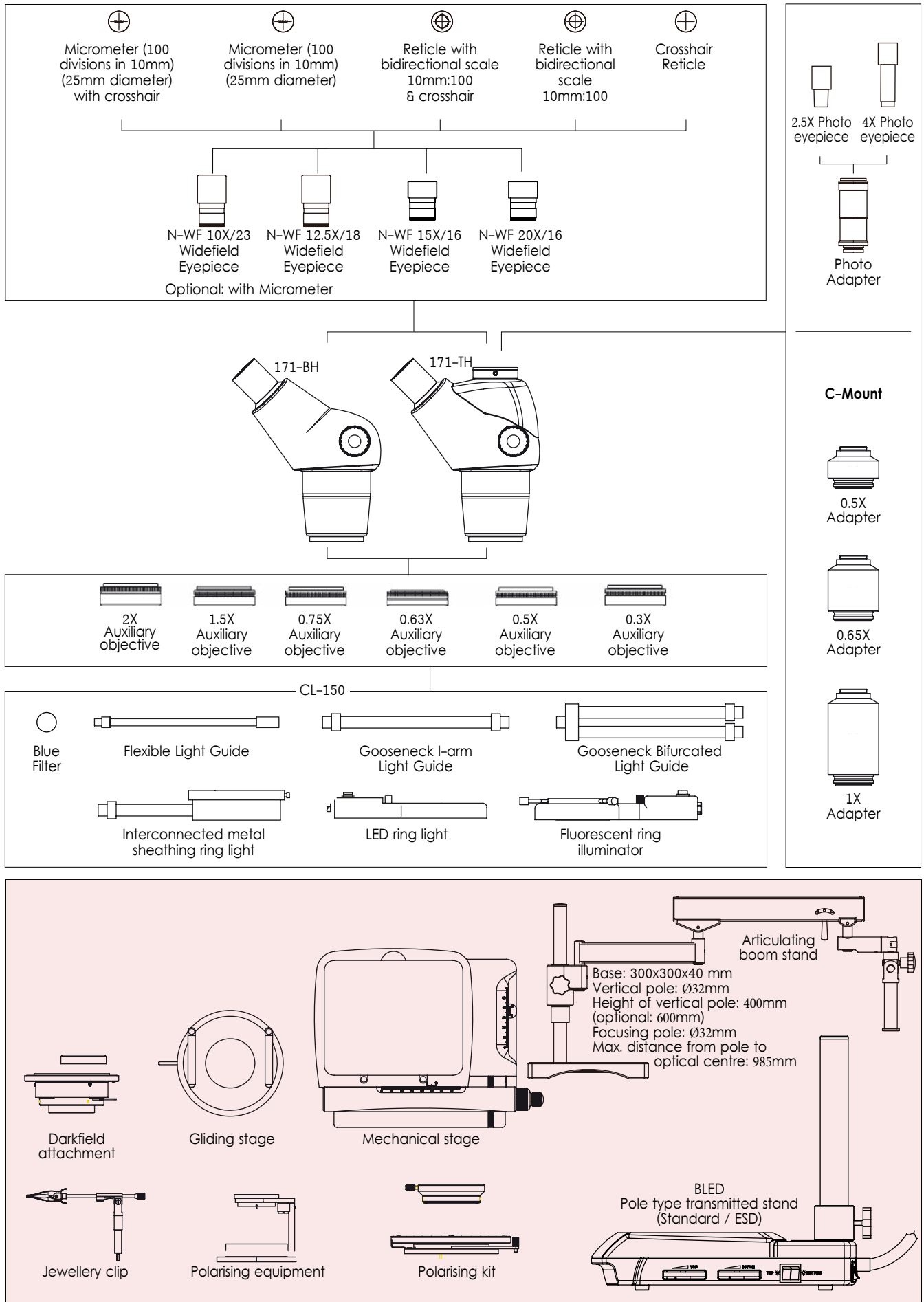
The newest addition to our line of illumination equipment is the CL-150. It features "cold" illumination through filtration and a Series of user defined colored filters. The cold light source has high intensity fiber optic illumination & accessories that allow you to position your light for best possible viewing. The original design shown. above features a sturdy small footprint through integrated solid state. circuitry. The 150 watt lamp is equipped with a variable control.



- New Design for easy replacing lamp
- Brightness > 23000LU

<b>Power Input</b>	90V-265V	
<b>Dimensions(mm)</b>	210×170×130	
<b>Filter</b>	Filter Red/Blue/Green/Yellow	
<b>Reflector Lamp</b>	21V/150W	
<b>Fiber Adapter</b>	F20	
<b>Option Specification</b>	Twin-Arm Fibre 2-F5X500mm	Ring Fibre F55XF10X1000mm

System Diagram



# MICROSCOPES Stereo

## SMZ-430, Stereo Magnifier

SMZ-430 Improves operators' working efficiency and makes operators no longer suffer the strain of eye, neck or back due to the humanistic design. It can be applicable to the field of electronic industry, precision mold, plastic shop, medical diagnosis, public security system, and so on.

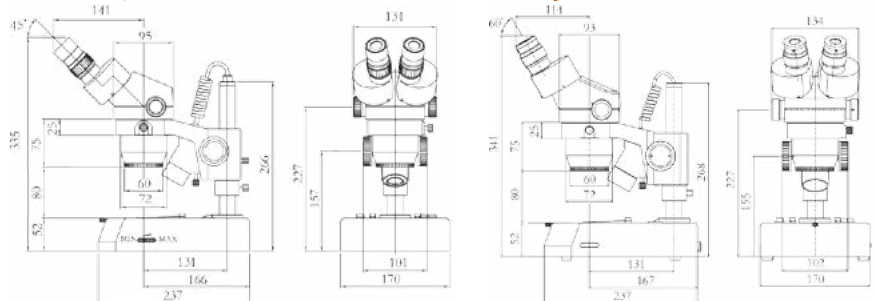
SMZ-430 with magnification 4-30x and stereo image; rotary turret can together fix three pieces of Objective to work, wide-field view and long working distance make the observation more ease and joyful.



Outfit	Objective Magnification	Total Magnification	Working Distance	Visual Field
Standard	SMZ430-2X	4X	208mm	68mm
Standard	SMZ430-4X	8X	98mm	34mm
Standard	SMZ430-6X	12X	80mm	22.7mm
Optional	SMZ430-8X	16X	58mm	17mm
Optional	SMZ430-10X	20X	46mm	13.6mm
Optional	SMZ430-15X	30X	50mm	9.1mm



## SMZ-140, 1:4 Zoom Ratio Stereo microscope



**SMZ-140-N2GG**  
Binocular Stereo microscope

**SMZ-140(60)-N2GG**  
Binocular 60° Observation Stereo microscope

Model	SMZ-140
<b>Microscope Body – Standard</b>	
Optical System	Greenough Stereoscopic
Head Observations	Binocular 45o – [SMZ-140] Binocular 60o – [SMZ-140-60°]
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

**Arms:****FS01 – N2GG Arm [without illumination]:**

- Rack & pinion focusing mechanism
- Focus adjustment: 45mm
- Pole mount diameter: Ø25mm
- Head mount diameter: Ø74mm.

**FS02 – N2GG Arm [with illumination]:**

- Rack and pinion focusing mechanism
- Reflected halogen 12V/15W illumination
- Focus adjustment: 45mm
- Pole mount diameter: Ø25mm
- Head mount diameter: Ø74mm.

**FS03 – FBGG [2111/2112] Arm [without illumination]:**

- V-Frame, ball bearing focusing mechanism
- Focus adjustment: 50mm
- Pole mount diameter: Ø32mm
- Head mount diameter: Ø74mm.

**FS04 – FBGG [2111/2112] Arm [with illumination]:**

- V-Frame, ball bearing focusing mechanism
- Reflected halogen 12V/10W illumination
- Focus adjustment: 50mm
- Pole mount diameter: Ø32mm
- Head mount diameter: Ø74mm.

**FI01 – Industrial Arm:**

- V-Frame, ball bearing focusing mechanism
- Illuminator port
- Focus adjustment: 50mm
- Head mount diameter: Ø74mm
- Nipple diameter: Ø15.8mm
- Adjustment range: ±90°.



SMZ-168XY



SMZ-XY

**SMZ-168XY/SMZ-XY, Microscope Stage**

- Measuring Travel: 50x50mm
- Glass Stage Size: 96x96mm
- Measuring Heads & Resolution: 0.001mm.

**Options:****Lower cost micrometer: MT-212002**

- Measuring Range: 0–50mm
- Resolution: 0.001mm
- Limit Error: ±0.005mm.
- Option: With Stereo Microscope.



MT-212002

## Stands:



### 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.



### Fixed Mount Stand:

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



### FBGG Stand:

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



### 1104S Incident Illumination:

- Length of base: 280mm
- Width of base: 220mm
- Height of pole: 245mm
- Mounting Diameter: Ø25mm.



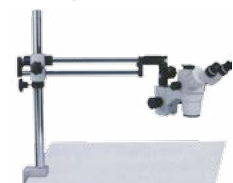
### 2107K Articulating Arm Boom Stand:

- Diameter of vertical pole 36mm
- Diam. of pole for focusing mount 32mm



### 2108K Ball Bearing Boom Stand:

- Diameter of vertical pole 36mm
- Diam. of pole for focusing mount 32mm



### 2109K Articulating Arm Boom Stand:

- Diameter of vertical pole 36mm
- Diam. of pole for focusing mount 32mm



**Auxiliary Illumination:**



**K2401 Fluorescent ring illuminator:**

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

**Light guide options:**

Flexible ring light guide

- Length: 1,000mm
- Distal End Diameter: Ø61mm.



1-arm gooseneck light guide

- Length: 500mm
- Distal End Diameter: Ø13mm.



Bifurcated gooseneck light guide

- Length: 500mm [each arm]
- Distal End Diameter: Ø9mm.



**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)x193(W)x112(D)mm.



**Accessories:**

Auxiliary Eyepieces	Mag.	F.N.
	WF 5X	22
	WF 15X	13
	WF 20X	10
	WF 30X	8

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]

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>

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>

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)x170(L)x29.5(H).</li> </ul>

Mechanical Stage	
	<ul style="list-style-type: none"> <li>• Easily attachable for jewellery or mineral observation</li> <li>• Movable upon attachment.</li> </ul>



**STM-505 Series, Measuring Microscopes**



**Applied fields:**

It is an excellent measuring instrument for non-contact inspection and 2D precision measurement, it is applicable to measure the small parts in the metrology department and product line.

It can be installed with digimatic measure heads, CCD adapter, CCD camera, digital crossline generator, monitor to be a 2D vision system.

Model	STM-505	STM-505D
Measuring travel	50x50mm	
Working distance	67mm	
Glass stage size	96x96mm	
Maximum work piece height	115mm	
Maximum work piece weight	5kg	
Optical system	Magnification: 30x (15x eyepiece; 2 objective)	
	The eyepiece protractor is graduated in 1°	
	Minimum angel reading: 6'	
	Sighting device: cross-reticel	
Measuring heads&resolution	Mechanic & 0.002mm	Digital (164-162) & 0.001mm
Optional accessories	Rotary table with diameter: φ66mm	
	5x, 10x objective	
	CCD adapter	
	CCD camera	
	Digital cross line generator	
	monitor	
Power supply	AC110V/60Hz; 220V/50Hz	
Dimension	210x333x391mm	
Weight	13.5kg	

**GEM-250, Stereo Gemological Microscope**

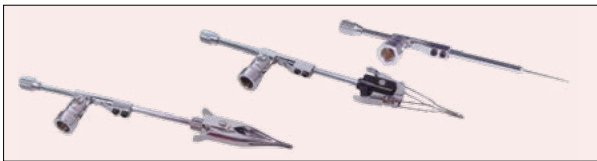
The GEM-250 utilizes the optical performance of MRC's GEM-250 stereo microscope to enhance distinct three-dimensional details with a zoom function. Rugged and precise, the optics of the GEM-250 performs analyses and measurements more accurately & efficiently thus reducing your workload. At a working 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 photographic or digital capture of the gem, the GEM-250 provides you with an opportunity for extra revenue. Moreover, **when teamed with MRC's RCam 480, the GEM-250 becomes**

**your instrument of instruction for teaching and training by showcasing the gem in real time via a television, a projector, and computer simultaneously.**



**GEM-250**

**Holders, Plates, & Analyzers:**



**1. 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.

**2. Rounded Edge Stone holder** Perfect for irregular gems and jewelry. Precision Grafted of stainless steel to provide an adequate grip without corrupting irregular shaped gem samples.

**3. Inclusion pointer** For rapid location of inclusions and fractures on the surface of gem.

**Large gem stags plate**

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



**Diamond Proportion Analyzer Kit**

Complete kit for effective 8, accurate identification 5 measurement of proportions 4 pavilions. Includes the magnetized diamond mount, diamond proportion reticule, & micrometer eye-piece(10x)



**Immersion cell**

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



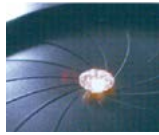
- Magnification range: 0.75x-5x
- Zoom Ratio: 1: 6.7
- Observation angle: 35"
- Working distance: 113mm

**Eyepieces:**

- Magnification: 10x
- Field of View range: 30.7mm-4.6mm
- Mount Diameter: 030mm
- Reticules: 025mm

**Illumination: Bright Field Illumination**

Integrating a consistent & powerful SOW Quartz Halogen Bright field illumination with a precise, adjustable aperture diaphragm [041mm - 02mm], you are able to measure with a table gauge the proportions and pavilions of a diamond.



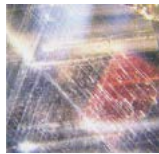
**Dark Field Illumination**

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



**Incident fluorescent illumination, Diamond Light**

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



**Accessories:**

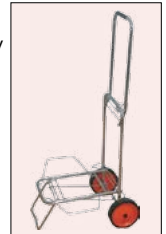
**Case**

When moving the microscope from place to place use our rigid case. Model: SC-70: with lock & key. Dimensions: 295x535x400mm (high)



**Trolley**

Our trolley Model TR-70



**Stand Features & 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 GEM-250'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 & inclusion pointer simultaneously in addition to different contrast methods.



## GM-171, Gemological Microscope



GM-171T

Model	GM-171B	GM-171T
<b>Optical system</b>	Greenough	
<b>Observation angle</b>	45°/ 60°	45°
<b>Magnification range (standard)</b>	0.75X--5X	
<b>Zoom ratio</b>	1:6.7	
<b>Eyepiece</b>	N-WF, high eye-point 10X(Φ23), Diopter adjustable interchangeable with biological eyepieces N-WF 12.5X(Φ18), 15X(Φ16), 20X(Φ13) optional	
<b>Interpupillary adjustment</b>	48mm-75mm	
<b>Working distance (standard)</b>	110mm	
<b>C-Mount adapter</b>	-	0.5X, 0.65X, 1X adapters available
<b>Photo adapter</b>	-	SY10 photo adapter 2.5X, 4X photo eyepiece available
<b>Auxiliary ESD objectives</b>	1.5X [WD = 56.3mm], 2.0X [WD = 38.6mm]	
<b>Stand option</b>	<b>Incident illumination</b>	7W fluorescent light, colour temperature of 6000K to reduce any yellowing effects on the gem, angle adjustable
	<b>Transmitted illumination</b>	6V/30W Halogen
	<b>Focusing adjustment</b>	125mm
	<b>Stage</b>	Mounting hole for gem holder on both sides. Users can choose the position freely
	<b>Tilting base</b>	With a tilting range of 0°(upright) to 45°, accessible to users of various heights



GEM-MINI

## GEM-MINI, Fable Jewellery Microscope

- Upright minitype base 2: long-life LED light source.
- Supply 3 illumination system: bright field, dark field and top light.
- Convenient to controlled the bright field and dark field by electronic switch.
- Humanized design, both sides with gem clamp mounting hole
- Double power supply system, built-in 3x AA batteries or external DC power source.
- World-wide voltage: 100V--240V.
- Equip F19 microscope head: wide field of view, imaging clearly.
- 180° rotate objective lens, 10-30X magnifying.
- Working distance: 56mm.
- Adjustable diopter WF10/16mm eyepiece.

Battery Store



JMZ-168

## JMZ-168, Stereo Zoom Binocular Microscope for jewellery

- Greenough Zoom Optical System
- 35° Binocular stereomicroscope head
- Widefield eyepieces 10X / F.N. 23
- 6.7 : 1 Zoom Ratio, WD = 113mm
- Magnification Range: 0.75X - 5X
- SMZ-168 Incident/Transmitted Large Working Area Stand
- 12V/10W Intensity controlled halo.



BAM102

**BAM100 Series, Biological Microscope**

Equipped with UCIS universal infinity independent-achromatic optical system, chromatic aberrations and curvature of field are both ideally corrected over the field of view. And the UCIS objectives own higher NA's producing crisp, clear images with minimal flare. Benefit from UCIS infinity optics, BAM100 Series provide a flexible upgrade path to accommodate various accessories to meet your applications for observations of light field, phase contrast, dark field and polarization. And the BAM100 Series optics are perfect for both observations through the eyepiece as well as capturing images with a digital camera or a computer. Gency heat-sink-device of BAM 100 Series keeps the microscopes surface at lower temperature even after long time work.

**Features:** High eye-point eyepiece • Ergonomic and Flexible observation tub • Trinocular Tub • Abbe condenser with color-coded diaphragm scale markings • Revolving nosepiece • Ergonomic co-axial coarse and find, adjustment knob • Grasping part • Dark condenser • Bright and even illumination.

Parts	Specifications	BAM102	BAM103	Order Number
BAM 100 Frame	One-piece construction from arm to base	☉	☉	UB100
Optics	UCIS Infinity Independent Achromatic Optical Design	☉		
Seidentopf Observation Tube	Binocular Tube, Interpupillary distance 52-75mm,30°inclined,360° rotatable	☉		MS3
	Trinocular tube, Iterpupillary distance 52-75mm,30°inclined, trinocular light is split 20/80 by a high quality prism		☉	MT3
Plan Eyepiece	WF10X/18, Hight eye-point up to 21mm, diopter adjustable	☉ ☉	☉ ☉	E1018PB
	WF10X/20, Hight eye-point up to 21mm, diopter adjustable	◆◆	◆◆	E1020PB
	WF16X/14	◆◆	◆◆	E1614WA
	WF10X/18(Pointer), Hight eye-point up to 21mm,diopter adjustable	◆	◆	E1018GB
	WF10X/20(Pointer), Hight eye-point up to 21mm, diopter adjustable	◆	◆	E1020GB
	Reticule Eyepiece: CROSSWF10X/18	◆	◆	E1018RA
	Reticule Eyepiece: CROSSWF10X/20	◆	◆	E1020RB
Centering Telescope	CTE	◆	◆	WY2
Infinity Achromatic Objectives	4X/0.13 ∞/0.17, WD12.31	☉	☉	WB-X4A
	10X/0.30 ∞/0.17, WD6.75	☉	☉	WB-X10A
	40X/0.70 ∞/0.17, WD0.76 (Spring)	☉	☉	WB-X40A
	100X/1.25 ∞/0.17, WD0.12 (Spring,Oil)	☉	☉	WB-X100A
Infinity Achromatic Phase-Contrast Objectives (positive Or negative)	PH 10X/0.30 ∞/0.17,WD6.75	◆	◆	WB-XPHp10A/WB-XPHn10A
	PH 40X/0.70 ∞/0.17, WD0.76 (Spring)	◆	◆	WB-XPHp40A/WB-XPHn40A
	PH 100X/1.25 ∞/0.17, WD0.12 (Spring,Oil)	◆	◆	WB-XPHp100A/WB-XPHn100A
Infinity Plan Objectives	Plan 4X/0.13 ∞/0.17, WD12.31	◆	◆	WB-P4A
	Plan 10X/0.30 ∞/0.17, WD4.00	◆	◆	WB-P10A
	Plan 20X/0.45 ∞/0.17, WD1.24	◆	◆	WB-P20A
	Plan 40X/0.70 ∞/0.17, WD0.29 (Spring)	◆	◆	WB-P40A
	Plan 60X/0.80 ∞/0.17, WD0.40 (Spring)	◆	◆	WB-P60A
	Plan 100X/1.25 ∞/0.17,WD0.09 (Spring,Oil)	◆	◆	WB-P100A
Infinity Plan Phase-Contrast Objectives	PH Plan 10X/0.30 ∞/0.17, WD4.00	◆	◆	WB-PPHp10A/WB-PPHn10A
	PH Plan 20X/0.45 ∞/0.17, WD1.24	◆	◆	WB-PPHp20A/WB-PPHn20A
	PH Plan 40X/0.70 ∞/0.17, WD0.29 (Spring)	◆	◆	WB-PPHp40A/WB-PPHn40A
	PH Plan 60X/0.80 ∞/0.17, WD0.40 (Spring)	◆	◆	WB-PPHp60A/WB-PPHn60A
	PH Plan 100X/1.25 ∞/0.17, WD0.09 (Spring,Oil)	◆	◆	WB-PPHp100A/WB-PPHn100A
Phase-Contrast Slide	10X PH	◆	◆	PCB-XPH10A
	40X PH	◆	◆	PCB-XPH40A
	100X PH	◆	◆	PCB-XPH100A
Condenser	Abbe condenser: NA 1.25, with iris diaphragm	☉	☉	JG3
	Dark Condenser	◆	◆	JG10
Stage	Mechanical Stage: 142x135mm platform, with X/Y travel of 76x52mm by low-positioned X/Y coaxial control knob, with scale mark and specimen-slide clip,enough space to hold 2 specimen-slide	☉	☉	ZT3
Revolving Nosepiece	quadruple, inward facing	☉	☉	ZQ470
Illumination Kohler	No field diaphragm	☉	☉	KL2
	With field diaphragm	◆	◆	KL3
C-Mount	SX2: 0.5X	◆	◆	SX2
	SX3: 1X		☉	SX3
Filter	Blue	☉	☉	LA2-0011
	Green	◆	◆	LU2-0011
	Yellow	◆	◆	LH2-0011
	Grass Glass	◆	◆	LB2-0011
Filter Holder	Filter Holder: (Attached to the Kohler) for more than one filter	◆	◆	LA1-0071
Polarization kits	Analyzer	◆	◆	PQ1
	Polarizer	◆	◆	PY1
Illumination Bulb	6V20W Osram Halogen Bulb	☉	☉	BZ-0022A
	3W LED Bulb	◆	◆	DQL1-1000
Immerse Oil	8ml	☉	☉	BZ-0027
Allen Screw Driver	Φ2mm	☉	☉	BZ-0018
Power Line	1.8m, CE certified	☉	☉	BZ-0021
Package	Inner package: foam, plastic bag;Out Package: Paper box	☉	☉	BZ3-0011A

Symbol Meaning: ☉ means standard ◆ means optional



**BAM200 Series, System Microscope**

BAM200 is our contribution to you for your application in medicine, clinical laboratories, pathology, and biology, from routine task to research. Equipped with advanced USIC infinity optics and ergonomic, flexible, stable, high efficiency mechanism, BAM200 can satisfy your observation of brightfield, darkfield, polarization, and phase-contrast.

**Features:**

- High eye-point up to 21mm • Abbe condenser • Dry dark-field condenser • Simple polarizing observation • Phase-contrast condenser • Mechanical stage • Rackless stage with enhanced operability • Nward-facing revolving nosepiece • Observation tub • Comfortable ergolift • Grasping part.

Symbol Meaning: ☺ means standard ♦ means optional

Parts	Sepcifications	BAM202	BAM203	Order Number
UB200i Frame	One-piece construction from arm to base	☺	☺	UB200
Optics	UCIS Infinity Independent Achromatic Optical Design			
Seidentopf Observation Tube	Binocular Tube, Interpupillary distance 52-74mm,30°in- clined,360° rotatable	☺		MS2
	Trinocular tube, lterpupillary distance 52-74mm, 30°inclined, trinocular light is split 20/80 by a high quality prism		☺	MT2
Eyepiece	WF10X/20, Hight eye-point up to 21mm, diopter adjustable	☺ ☺	☺ ☺	E1020PA
	WF10X/22, Hight eye-point up to 21mm, diopter adjustable	♦ ♦	♦ ♦	E1022PC
	WF16X/14	♦ ♦	♦ ♦	E1614WB
	WF10X/20(Pointer), Hight eye-point up to 21mm, diopter adjustable	♦	♦	E1020GA
	WF10X/22(Pointer), Hight eye-point up to 21mm, diopter adjustable	♦	♦	E1022GC
	Reticule Eyepiece: CROSSWF10X/20	♦	♦	E1020RA
Reticule Eyepiece: CROSSWF10X/22	♦	♦	E1022RC	
Centering Telescope	CTE	♦	♦	WY2
Infinity Semi Plan Objectives	4X/0.13 ∞/0.17, WD12.31	☺	☺	WB-X4A
	10X/0.30 ∞/0.17, WD6.75	☺	☺	WB-X10A
	40X/0.70 ∞/0.17, WD0.76 (Spring)	☺	☺	WB-X40A
	100X/1.25 ∞/0.17, WD0.12 (Spring,Oil)	☺	☺	WB-X100A
Infinity Semi Plan Phase-Contrast Objectives (positive or negative)	PH 10X/0.30 ∞/0.17,WD6.75	♦	♦	WB-EPHp10A /WB-EPHn10A
	PH 40X/0.70 ∞/0.17, WD0.76 (Spring)	♦	♦	WB-EPHp40A /WB-EPHn40A
	PH 100X/1.25 ∞/0.17, WD0.12 (Spring,Oil)	♦	♦	WB-EPHp100A/WB-EPHn100A
Infinity Plan Objectives	Plan 4X/0.13 ∞/0.17, WD12.31	♦	♦	WB-P4A
	Plan 10X/0.30 ∞/0.17, WD4.00	♦	♦	WB-P10A
	Plan 20X/0.45 ∞/0.17, WD1.24	♦	♦	WB-P20A
	Plan 40X/0.70 ∞/0.17, WD0.29 (Spring)	♦	♦	WB-P40A
	Plan 60X/0.80 ∞/0.17, WD0.40 (Spring)	♦	♦	WB-P60A
	Plan 100X/1.25 ∞/0.17,WD0.09 (Spring,Oil)	♦	♦	WB-P100A
Infinity Plan Phase-Contrast Objectives	PH Plan 10X/0.30 ∞/0.17, WD4.00	♦	♦	WB-PPHp10A / WB-PPHn10A
	PH Plan 20X/0.45 ∞/0.17, WD1.24	♦	♦	WB-PPHp20A / WB-PPHn20A
	PH Plan 40X/0.70 ∞/0.17, WD0.29 (Spring)	♦	♦	WB-PPHp40A/WB-PPHn40A
	PH Plan 60X/0.80 ∞/0.17, WD0.40 (Spring)	♦	♦	WB-PPHp60A / WB-PPHn60A
	PH Plan 100X/1.25 ∞/0.17, WD0.09 (Spring,Oil)	♦	♦	WB-PPHp100A/WB-PPHn100A
Phase-Contrast Slide	10X PH	♦	♦	PCB-XPH10A
	40X PH	♦	♦	PCB-XPH40A
	100X PH	♦	♦	PCB-XPH100A
Condenser	Multi-purpose phase-contrast Condenser: NA:1.25, Phase-contrast observation from 10X to 100X and Dark- field observation from 10X to 40X is allowed	♦	♦	JG20
	Abbe condenser: NA 1.25, with iris diaphragm	☺	☺	JG2
	Dark Condenser	♦	♦	JG10
Stage	Mechanical Stage: 156x138mm platform, with X/Y travel of 76X54mm	☺	☺	ZT2
Revolving Nosepiece	quadruple, inward facing	☺	☺	ZQ480
Illumination Kohler	With field diaphragm	☺	☺	KL3
C-Mount	SX2: 0.5X		☺	SX2
Filter	Blue	☺	☺	LA1-0011
	Green	♦	♦	LU1-0011
	Yellow	♦	♦	LH1-0011
	Grass Glass	♦	♦	LB1-0011
Filter Holder	Filter Holder: (Attached to the Kohler) for more than one filter	♦	♦	LA1-0071
Polarization kits	Analyzer	♦	♦	PQ1
	Polarizer	♦	♦	PY1
Illumination Bulb	6V20W Osram Halogen Bulb	☺	☺	BZ-0022A
	6V30W Osram Halogen Bulb	♦	♦	BZ-0022B
	3W LED Bulb	♦	♦	DQL1-1000
Immerse Oil	8ml	☺	☺	BZ-0027
Allen Screw Driver	Φ2mm	☺	☺	BZ-0018
Power Line	1.8m, CE certified	☺	☺	BZ-0021
Package	Inner package: foam, plastic bag;Out Package: Paper box	☺	☺	BZ3-0011A



**B1-220ASC**

**B1-220ASC, Biological Microscope**

The MRC B1 Biological Microscopes with its standard features are designed for school applications. This system is for use in laboratories/ clinics, research facilities and medical schools. The modern and ergonomic design distinguish itself from the others. Its affordable price and excellent quality give you the best value for your money.

**Head**

There are five kinds of head for your choice, which are 360° rotating around its vertical axis. Two binocular heads are available, with standard 45° inclined and optional 30° inclined, providing adequate choices for your best viewing comfort. Also, diopter rings on both tubes are a standard feature to facilitate compensation for eye acuity. Graduated interpupillary distance adjustment is from 54mm to 76mm. Also, there are monocular, dual teaching and trinocular head available for selection.

**Mechanical Stage**

Built-in ball bearings mechanical stage provides a travel range of 76mm X 50mm in the X and Y direction respectively with graduations reading up to 0.1 mm for accurate positioning of specimen.

**Coaxial Coarse and Fine Focusing Knobs**

The precision Focusing mechanism is designed for frequent use and also provides a smooth adjustment of focus. The coarse focus is with adjustable tension device.

**Condenser**

The extremely efficient, removable N.A. 1.25 abbe condenser for brighter illumination level, and an iris diaphragm for resolution and contrast control.

**Illuminator**

A standard halogen lamp 1 2V/20W with the intensity control system is used, providing an even and bright illumination for all magnifications. Kohler illumination can be ordered as option which is centerable for advanced and special applications.

**Objectives:**

A full range of achromatic(A-10X, A-40XR and A-100XR oil) & plan achromatic super contrast (Plan ASC4X, Plan ASC10X, Plan ASC40XR, and Plan ASC100XR oil) objectives in the B1 provide you with superior optical quality. A new device for anti-fungus is available, this effect can last for more than three years.



	Magnification	Model	N.A.
High performance Achromatic	PL4X	SG01.S01211	0.1
	A10X	SG01.S02211	0.25
	A20X	SG01.S03211	0.45
	A40X	SG01.S04211	0.65
	A60X	SG01.S05211	0.85
	A100X	SG01.S06211	1.25
Ultra high performance Plan Achromatic Super Contrast	Plan ASC4X	SG01.S01217	0.1
	Plan ASC10X	SG01.S02217	0.25
	Plan ASC40X	SG01.S04217	0.65
	Plan ASC100X	SG01.S06217	1.25



**BA210, Binocular Microscope**



**BA210**

MRC's new BA210 is designed for both educational and teaching environments from basic life sciences to medical applications. The BA210's standard configuration best meets the needs of the high school, College-University, and Medical school markets. Through newly formulated MRC Infinity Optics (CCIS®), the BA210 delivers a new higher level of performance in education and training.

With the BA210 MRC is setting a new standard in microscope performance through improvements both in optical and mechanical features for the student level.

Designed to be used in Educational life science, Medical and a variety of Biological applications, the BA210 is designed for ease of use and longevity due to MRC's complete understanding of the daily demands placed on the standard educational microscope.

Student proof features, working together with a new generation of EF-N Plan Achromatic objectives provide a fully corrected intermediate image for crisp and clear visual and digital results.

Whether using the new powerful 6V/30W Halogen stand or the 3W LED version, light consuming contrast methods like Phase contrast, Polarization or Darkfield are easily performed.

MRC BA210 is a robust student instrument that brings professional, repeatable image quality results to all of its intended applications.

**Objectives:**

To improve the overall optical performance of the BA210, MRC introduces a new generation of Plan Achromatic Objectives made of high quality optical glass; CCIS® EF-N Plan. These new lenses are now multi-layer coated for improved contrast to enhance images even with weak slide stainings.

Together with a new tube lens, the result is a fully corrected, perfected intermediate image without colored fringes. The Trinocular BA210 gives digital access for even sharper imaging and improved digital output quality for professional results at student level.

Magnification	N.A.	W.D. (mm)
EF-N Plan 4X	0.10	6.3
EF-N Plan 10X	0.25	4.4
EF-N Plan 20X	0.40	4.66
EF-N Plan 40X, Spring	0.65	0.35
EF-N Plan 60X, Spring	0.85	0.13
EF-N Plan 100X, Spring, Oil	1.25	0.13
EF-N Plan Phase 10X	0.25	4.4
EF-N Plan Phase 40X, Spring	0.65	0.35



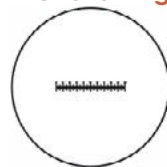
**Eyepieces:**

The new standard eyepieces, also made of high quality optical glass, N-WF 10X/20 with high-eyepoint for eyeglass wearers, provide consistent diopter adjustment for both eyes.

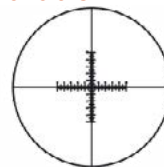
This enables perfect usage of reticles for measuring, counting, etc. Standard lockable eyepieces prevent inadmissible removal and confirms MRC's dedication to student proof quality.

Description	F.N.
Widefield N-WF 10X	20
Widefield N-WF 12.5X	18
Widefield N-WF 15X	16

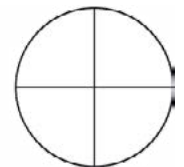
**The following reticles are available:**



**Graduated linear hair point= 0.1mm/10mm**



**Graduated cross hair point= 0.1mm/10mm**



**Plain cross hair**

**Eyepiece Tubes:**

Designed with an ergonomic viewing angle of 30° & incorporating an interpupillary distance of 55-75mm, the BA210 observation tubes guarantee fatigue-free viewing for hours. A large field of view (20mm) enables fast & comfortable screening. The trinocular tubes allow digital documentation and integration of each BA210 by using a wide variety of digital cameras, with a 20/80 light split for the trinocular exit. On special request, an eyepiece tube with 48-75mm interpupillary distance is available.



**Condenser**

To ensure the perfect height adjustment of the condenser, a condenser lock is integrated. While using phase/ darkfield sliders, the teacher can pre-set the condenser position to prevent potential student mis-adjustments.

**Stage**

The BA210 comes with a right hand control stage and a new slide holder which enables consistent sample movement across a 76x50mm range. The model also offers a hard coated surface, resistant against routine usage abrasion.

**Illumination**

The BA210 introduces a new collector lens assembly with a secure, screw-on holder for the frequently used Blue daylight filter, which is an integral part of the illumination package. The fixed cap prevents the filter from dropping when the instrument is stored. The BA210 offers multiple illumination options such as 6V/30W Halogen, 3W LED or a mirror.



# MICROSCOPES Biological

## Phase Contrast and Darkfield

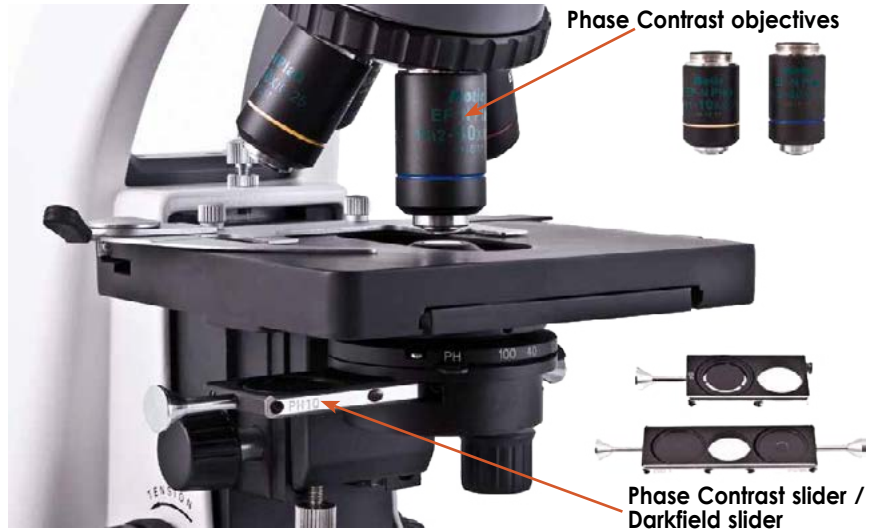
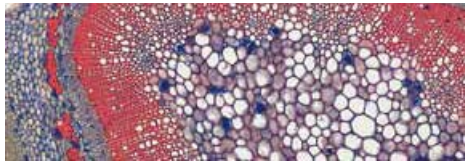
Offered as an option, phase contrast is available for magnifications 10X and 40X, with the use of a Phase Contrast slider. Darkfield is possible with a separate DF slider (10X - 40X).

## Polarization

Convenient and easy, the BA210 polarization system consists of a polarizer, placed on top of the collector lens, and the analyzer placed between the head and body.

## Anti-Fungus Design

To protect the system from fungus growth in high-humidity environments, an anti-fungus treatment is applied to prolong the life of both microscope and objectives.



## Documentation

The importance of documentation has expanded into every aspect of micro-copy, as has the method of documentation. The BA210 is available with both a traditional method (photomicrography) and a digital method.

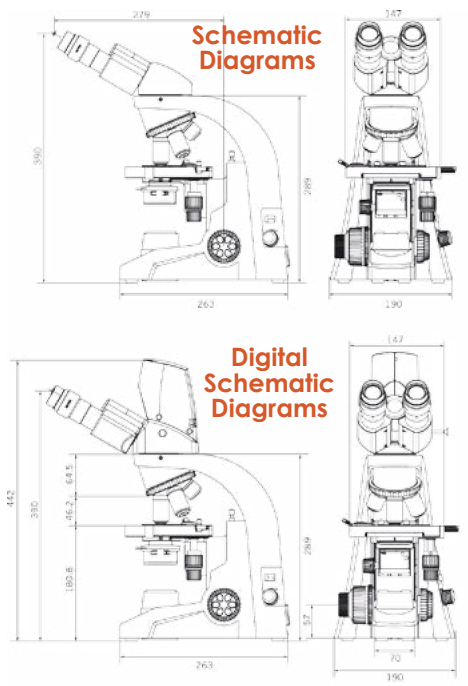
## Standard Photomicrography

The traditional use of a single lens reflex camera (analogue or digital) requires the trinocular version of the BA210. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X). The necessary T2 adapter referring to the camera model is supplied by the camera manufacturer. This setup delivers high resolution images of small fields.

## Digital Documentation

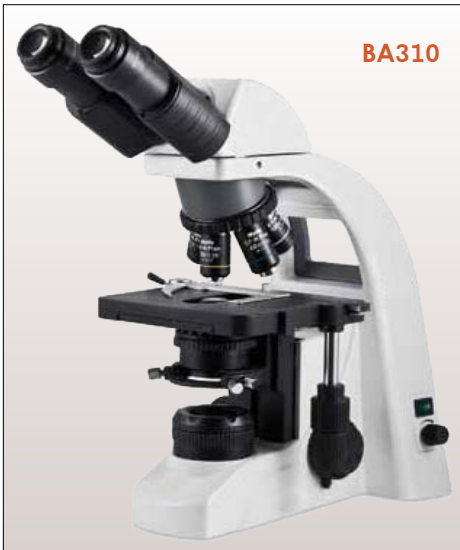
Digitalization of microscopic results is MRC's philosophy & the BA210 provides two methods. The combination of the BA210 trinocular microscope with the Moticom Series of digital cameras delivers crisp live images easy to be saved. All MRC cameras come equipped with software to convert the BA210 into an analysis and documentation station. Should you select a third-party camera, MRC provides a range of CCD-adapters covering all demands for field vs. resolution.

Another digitalization option is the BA210 digital head. Replacing the conventional head with the Digital head transforms the BA210 into a teaching, training, & analysis station without the hassle of adapters and focus corrections. With a USB2.0 output to the computer, the system provides high resolution imaging in both real time and capture modes.



Model	BA210
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Observation Tube</b>	Widefield binocular 30° [F.N. 20] Widefield trinocular 30° [F.N. 20]- light distribution 100:0/20:80
<b>Nosepiece</b>	Reversed quadruple
<b>Stage</b>	140x135mm surface; 76x50mm movement; coaxial controls
<b>Condenser</b>	N.A. 1.25 Abbe condenser with slider slot; Focusable & Lockable
<b>Focus</b>	Brass gears Z-Axis movement 25mm stroke Fine focus with 2µm minimum increment, Coarse focus with torque adjustment
<b>Photo adapter</b>	Built-in transmitted 6V/30W halogen critical illumination Built-in transmitted 3W LED critical illumination; >10,000 hrs bulb life span Attachable Mirror set

Model	BA210 Digital
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Observation Tube</b>	Widefield binocular 30° [F.N. 20] with built-in 3 megapixel digital camera-light distribution 100:0/20:80
<b>Camera Specifications</b>	Effective Pixels: 3.0 Megapixels Live Image Resolution: 2048 x 1536 Data Transfer: 480 Mb / Second USB 2.0 White Balance: Manual adjustment by using the software Recommended System: Windows: XP, Vista or 7; P4 1.0GHz 256MB RAM, USB 2.0 Requirements: Mac: OSX, 1.0GHz 256MB RAM, USB 2.0 Software: Images Plus 2.0



**BA310**

**BA310, Advanced Upright Microscope**

The new BA310 from MRC is designed specifically for the rigors of daily routine work in the demanding applications of Universities, Clinics, Laboratories, and any other life science or medical application requiring quality optical performance. Using MRC's Color Corrected Infinity Optics (CCIS®) with newly designed EF-N Plan Achromats, this model's full Koehler configuration provides maximum illumination quality for even the most demanding samples. Also, the BA310's upgradeability to include additional contrast methods and discussion devices, ensure this model will offer long term functionality to all user levels in a variety of applications.

**The new BA310 Series:**

The demands placed on any routine microscope for daily work needs careful focus on every microscope detail. In this new design, MRC has paid careful attention to optimize the new BA310 features in all respects. The 30W illumination provides the user with a powerful and adjustable light source to meet both delicate and detailed lighting requirements for all sample types, while the fully featured Koehler illumination of the BA310 helps to evaluate even the weakest stained specimens.

MRC's new EF-N Plan Achromat objectives provide optimal image contrast through newly designed multi-layer lens coatings. The new fully corrected tube lens and subsequent intermediate image without color fringes is now fully accessible through both eyepiece and trinocular port, making digital images as crisp and clear as those seen through the eyepieces. The new BA310 design also includes a standardized ISO photo exit. The BA310's large, hard coated and chemical resistant stage, with an expansive 76x50mm travel range, includes a new slide holder with improved tighter grip. This ensures easy and repeatable scanning of numerous slides in all daily routines.



**Objectives:**

To improve the overall optical performance of the BA310, MRC introduces a newly designed generation of Plan Achromatic Objectives made of high quality optical glass; CCIS® EF-N Plan. These new lenses are now multi-layer coated for improved contrast to enhance images even with weak slide stainings. Together with a new calculated tube lens, the result is a fully corrected, perfected intermediate image without colored fringes. The Trinocular BA310 gives digital access for even sharper imaging and improved digital output quality for professional results at student level.

Magnification	N.A.	W.D. (mm)
EF-N Plan 4X	0.10	6.3
EF-N Plan 10X	0.25	4.4
EF-N Plan 20X	0.40	4.66
EF-N Plan 40X, Spring	0.65	0.35
EF-N Plan 60X, Spring	0.85	0.13
EF-N Plan 100X, Spring, Oil	1.25	0.13
EF-N Plan Phase 10X	0.25	4.4
EF-N Plan Phase 40X, Spring	0.65	0.35

**Condenser:**

To ensure the best possible illumination quality, BA310 has a full Koehler feature giving complete freedom to set the height of the condenser.

**Illumination:**

The BA310 introduces a new collector lens assembly with a secure, screw-on holder for the frequently used Blue daylight filter which is an integral part of the illumination package. The fixed cap prevents the filter from dropping when the instrument is stored. The BA310 offers multiple illumination options, such as the Koehler 6V/30W halogen or 3W LED.



**Eyepiece Tubes:**

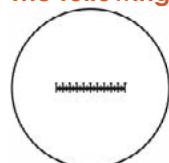
Designed with an ergonomic viewing angle of 30° and incorporating an interpupillary distance of 48-75mm, the BA310 observation tubes guarantee fatigue-free viewing for hours. A large field of view (20mm) enables fast and comfortable screening. All standard eyepiece tubes now offer an extended "butterfly" swivel adjustment to increase the viewing height to accommodate individual user's positioning. The trinocular tubes allow digital documentation by using a wide variety of digital cameras, with 20/80 or optional 0/100 light splits for the trinocular exit.

**Eyepieces:**

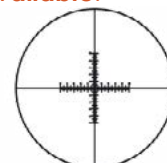
The new standard eyepieces, N-WF 10X/20 with high eyepoint for eyeglass wearers, also made of high quality optical glass, provide consistent diopter adjustment for both eyes. This enables perfect usage of reticles for measuring, counting, etc. Lockable eyepieces prevent inadmissible removal and confirms MRC's dedication to student proof quality.

Description	F.N.
Widefield N-WF 10X	20
Widefield N-WF 12.5X	18
Widefield N-WF 15X	16

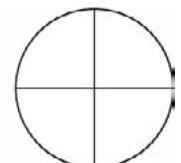
**The following reticles are available:**



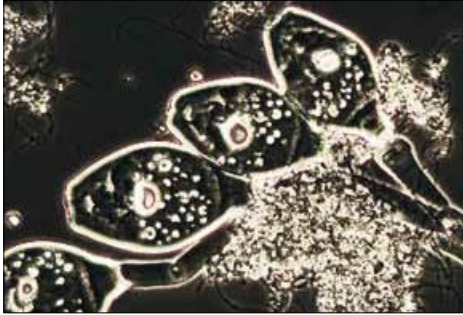
**Graduated linear hair point= 0.1mm/10mm**



**Graduated cross hair point= 0.1mm/10mm**



**Plain cross hair**



**Polarization:**

Convenient and easy, the BA310 polarization system consists of a polarizer, placed on top of the collector lens, and the analyzer placed between the head and body.

**Anti-Fungus Design:**

To protect the system from fungus growth in high-humidity environments, an anti-fungus treatment is applied to prolong the life of both microscope and objectives.

**Phase Contrast and Darkfield:**

**Phase Contrast – Slider solution**

Offered as an option, phase contrast is available for objectives EF-N Plan Phase 10X/0.25 and EF-N Plan Phase 40X/0.65.

**Darkfield – Slider solution**

Darkfield is possible with a separate DF slider (up to 40X, max. N.A. 0.65).

**Phase Contrast – Turret condenser**

As an accessory the 5-position phase contrast turret condenser is available in 2 different versions.

The corresponding objectives for these turrets are the high-quality CCIS® Plan Phase Objectives:

2 Options for 5 position turret condenser	CCIS® Plan Phase Objectives	W.D. (mm)
BF, 10X, 20X, 40X, 100X	PL Ph 10X	4.3
BF, DF, 10X, 40X, 100X	PL Ph 20X	1.3
	PL Ph 40X	0.4
	PL Ph 100X	0.13

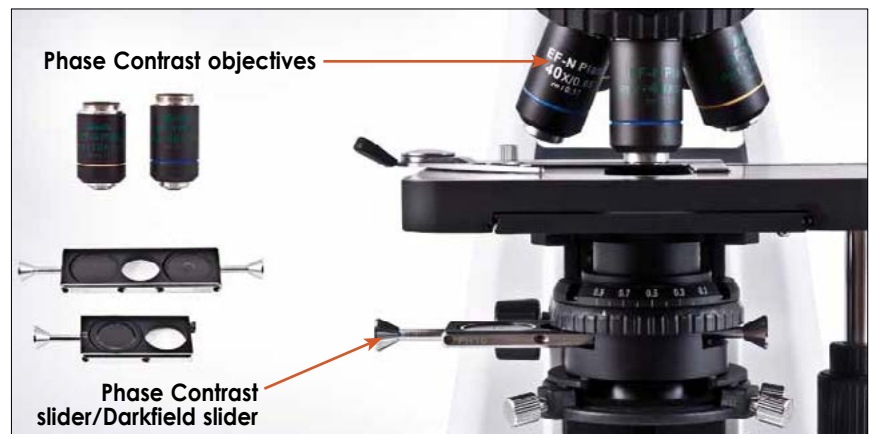
**Stage:**

The BA310 surprisingly offers an optional left/right hand control and the new slide holder enables consistent sample movement across a 76 X 50mm range with a stage area of 175mm x 140mm. The model also offers a hard coated surface, resistant against routine usage abrasion.

**Multi Viewing Devices:**

The BA310 Series offers multi-viewing teaching devices. There are 2 options available, depending on the teaching situation in your laboratory; face to face or side by side.

The standard field of view of 20mm ensures that maximum information will be given to the student. Depending on the sample, the user can activate the built-in LED pointer in red or green color.



**Standard Photomicrography:**

The traditional use of a single lens reflex camera (analogue or digital) requires the trinocular version of the BA310. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X). The necessary T2 adapter referring to the camera model is supplied by the camera manufacturer. This setup delivers high resolution images of small fields.

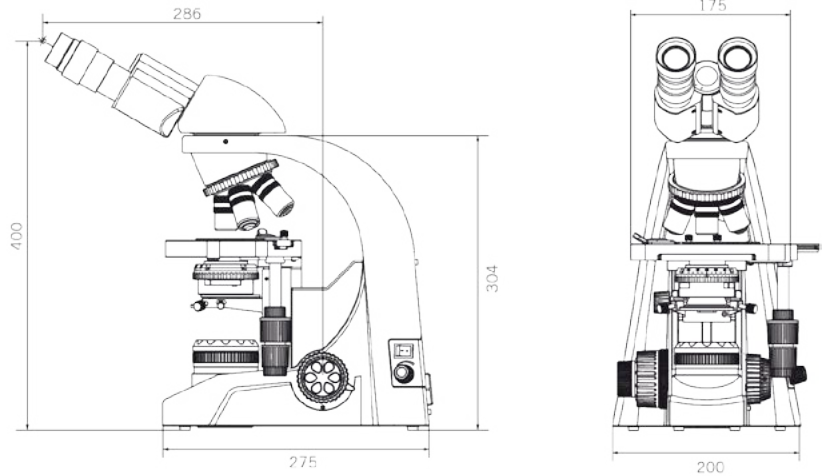
**Digital Documentation:**

Digitalization of microscopic results is MRC's philosophy and the BA310 provides two methods.

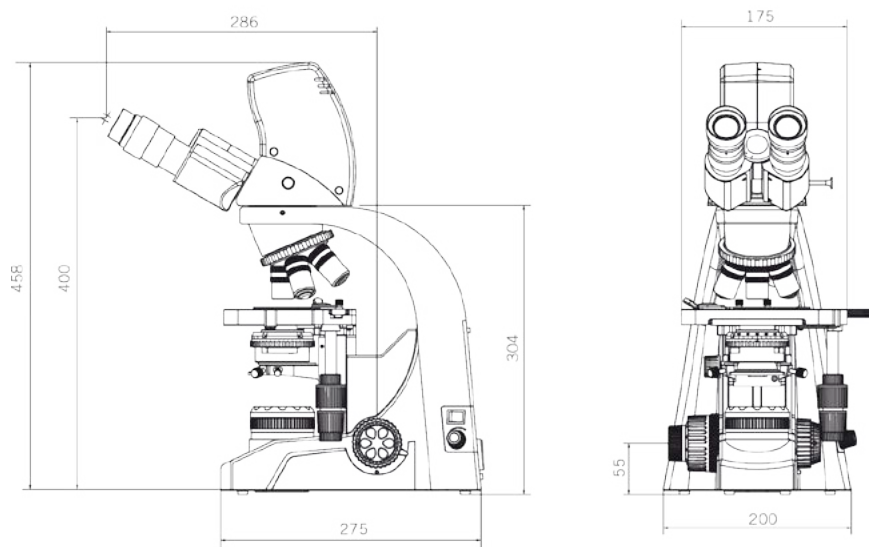
The combination of the BA310 trinocular microscope with the Moticam Series of digital cameras delivers crisp live images easy to be saved. All MRC cameras come equipped with software to convert the BA310 into an analysis and documentation station. Should you select a third-party camera, MRC provides a range of CCD-adapters covering all demands for field vs. resolution.

Another digitalization option is the BA310 digital head. Replacing the conventional head with the Digital head transforms the BA310 into a teaching, training, and analysis station without the hassle of adapters and focus corrections. With a USB2.0 output to the computer, the system provides high resolution imaging in both real time and capture modes.

**BA310 Schematic Diagrams (mm):**



**BA310 Digital Schematic Diagrams (mm):**



**BA310 Standard Specifications:**

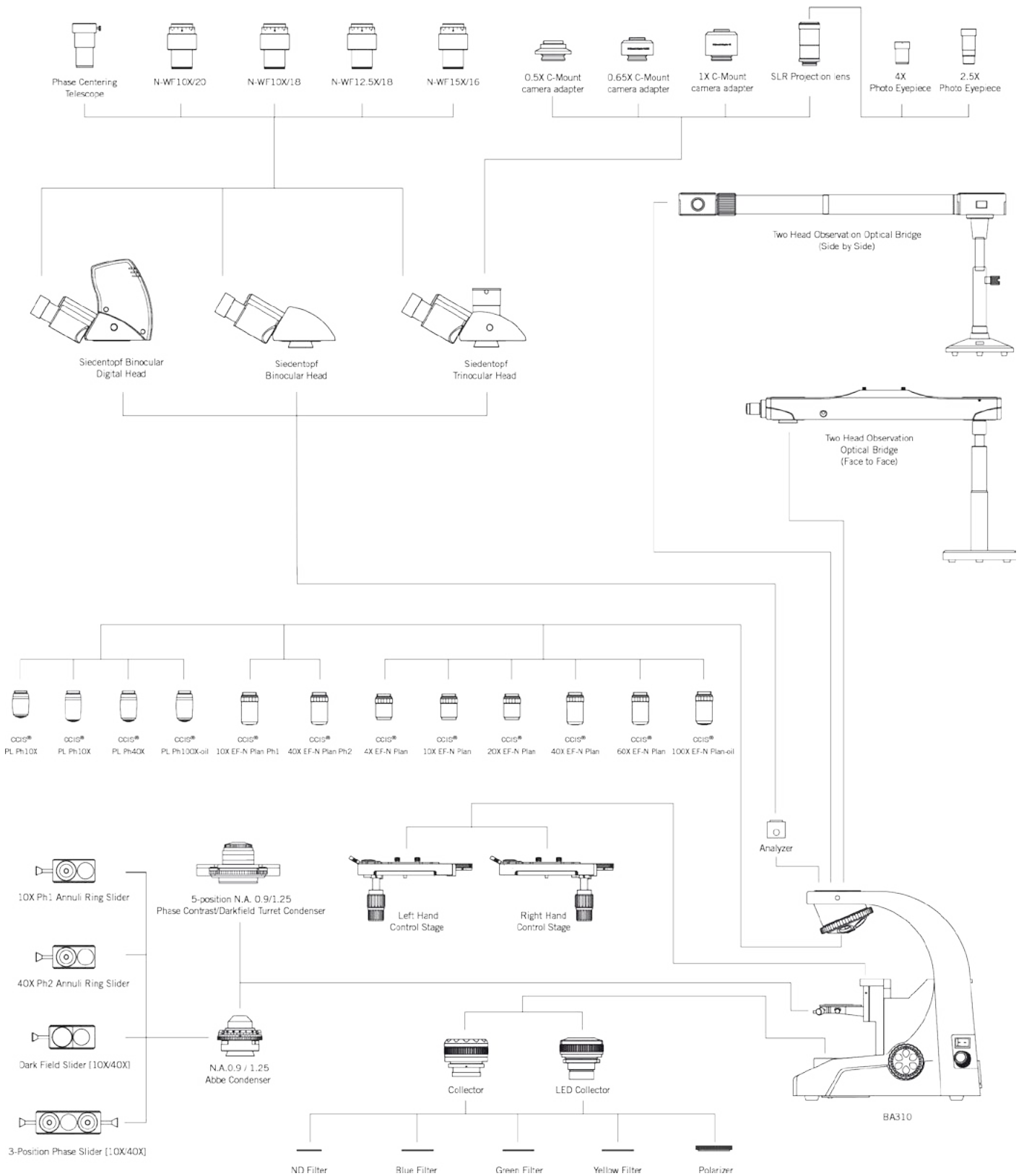
Model	BA310
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Observation Tube</b>	Widefield binocular 30° [F.N. 20] Widefield trinocular 30° [F.N. 20]-light distribution 100:0/20:80 Widefield trinocular 30° [F.N. 20]-light distribution 100:0/0:100
<b>Nosepiece</b>	Reversed quintuple
<b>Stage</b>	175x140mm surface; 76x50mm movement; coaxial controls
<b>Condenser</b>	N.A. 0.9 / 1.25 Abbe condenser with slider slot; Focusable and Centerable
<b>Focus</b>	Brass gears Z-Axis movement 20 mm. Fine focus with 2µm minimum increment, Coarse focus with torque adjustment Stage lock for high samples, freely definable
<b>Illumination</b>	Built-in transmitted 6V/30W halogen Koehler illumination Built-in transmitted 3W LED Koehler illumination; >10,000 hrs bulb life span

**BA310 Digital Standard Specifications:**

Model	BA310 Digital	
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]	
<b>Observation Tube</b>	Widefield binocular 30° [F.N. 20] with built-in 3 megapixel digital camera-light distribution 100:0/20:80	
<b>Camera Specifications</b>	Effective Pixels	3.0 Megapixels
	Live Image Resolution	2048 x 1536
	Data Transfer	480 Mb / Second USB 2.0
	White Balance	Manual adjustment by using software
	Recommended System	Windows: XP, Vista or 7; P4 1.0GHz 256MB RAM, USB 2.0
	Requirements	Mac: OSX, 1.0GHz 256MB RAM, USB 2.0
	Software	Images Plus 2.0

# MICROSCOPES Biological

## BA310 System Diagram:





**DMBA210, Basic Digital Biological Microscope**

The DMBA210 Digital is designed for both educational and teaching environments delivering a new higher level of optical performance.

**Description:**

The new DMBA210 Series is setting a new standard in microscope performance through improvements both in optical and mechanical features. Designed to be used in Educational Life Science, Medical as well as a variety of biological applications, this new microscope is built around Mrc's complete understanding of the daily demands placed on the standard educational microscope. Student proof features together with a new generation of EF-N Plan Achromatic objectives provide a fully corrected intermediate image for crisp and clear visual and digital results. The DMBA210 is a robust student instrument that brings professional, repeatable image quality results to all of its intended applications. The DMBA210 Digital is a Digital version of the DMBA210 that features a built-in imaging head with 3.0MP streaming live output through USB2.0 connections.

Model	DMBA210		
<b>Observation Tubes</b>	Ergonomic 30 degree viewing angle		
	55-75mm interpupillary distance		
	Large field of view with 18mm or 20mm options		
	Built-in Digital with 20/80 split and 3.0MP imaging sensor delivering high-resolution streaming images through a USB2.0 connection		
<b>Eyepieces</b>	N-WF 10x/18mm		
	N-WF 10x/20mm		
	N-WF 15x/13.3mm		
	N-WF 12.5x/16mm		
	<b>Magnification</b>	<b>N.A.</b>	<b>W.D (mm)</b>
	EF-N Plan 4x	0.1	6.3
	EF-N Plan 10x	0.25	4.4
	EF-N Plan 20x	0.4	4.66
	EF-N Plan 40x	0.65	0.35
	EF-N Plan 60x	0.85	0.13
	EF-N Plan 100x	1.25	0.13
	EF-N Plan Phase 10x	0.25	4.4
EF-N Plan Phase 40x	0.65	0.35	
<b>Illumination Options</b>	6V/30W Halogen		
	3W LED		
	Mirror		
<b>Condenser</b>	Abbe 1.25NA with slot for accessories and condenser lock available		
<b>Stage</b>	Hard Coated Mechanical Stage with 76x30mm travel range		
	Left or Right Stage drive available		
<b>Other Options</b>	Simple Phase Contrast 10x and 40x sliders for condenser		
	Darkfield slider for condenser		
	Simple Polarization with analyzer and polarizer		

**Features:**

Requires a USB2.0 connection • Windows XP,win7, or OSX • Intel Centrino Recommended • Mrc Images Plus 2.0 software for PC and Mac (OSX).



**BA410**

**Eyepieces:**

MRC's Infinity Corrected CCIS® Optical system with a field flatness up to 22mm and the high eye point principle of the BA410's eyepieces ensure true colour and sharp images, while minimizing eye fatigue and strain. As a standard, diopter adjustment is integrated to assist spectacle wearers and for reticule usage. Beside the standard 10X eyepiece magnification, the BA410 series also offers higher magnification eyepieces.

Description	F.N.
Widefield N-WF 10X	20
Widefield N-WF 10X	22
Widefield N-WF 12.5X	18
Widefield N-WF 15X	16

**Eyepiece Reticules:**

The MRC BA410 offers a variety of reticles for measuring purposes. These include: Special reticules are also available on request

**BA410, Clinical & Laboratory Microscope**

Through continuous professional usage, ergonomic functionality is increasing in importance in the design of a quality micro-scope stand. With this in mind, MRC's BA410 design was formulated around actual user parameters in order to maximize comfort during prolonged usage times. The inverted "Y" shape of the stand gives extra lateral stability to the BA410. Low position focus controls and stage move-ment mechanisms were designed to minimize user fatigue. The easy-to-reach illumination intensity control as well as the free-locking stage position option guarantee extended comfort and effortless operation. All of the above, when combined with the individual's choice of an eyepiece tube and accessories, makes the setup of a personal microscope possible: suitable for all types of user configurations and applications.

**Eyepiece Tubes:**

Designed with a comfortable viewing angle of 30°, the standard BA410 eyepiece tubes (binocular and trinocular) offer a 22 mm Field of View (FOV 22) for fast & comfortable observations and screening. The interpupillary distance can be adjusted in the range of 48-75mm; while a new rubber grip ensures precise and safe adjustment. All standard eyepiece tubes now offer an extended "butterfly" swivel adjustment to increase the viewing height to accommodate individual user's positioning. The BA410 also offers an optional eye-level riser of 20mm for further microscope customization.

Aside from the regular Binocular tube, Trinocular photo tubes can be obtained with 3 optical beam splitter options:



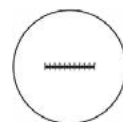
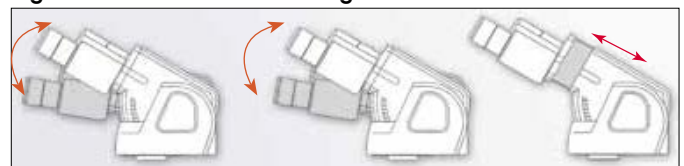
- 100:0/20:80 Standard configuration
- 100:0/0:100 Recommended for Fluorescence
- 100:0/0:100/20:80 Maximum flexibility

**Ergonomic Tubes:**

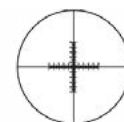
For prolonged viewing demands, the BA410 offers a comple-ment of ergonomic viewing head options, with a FOV 22 and an interpupillary distance of 55-75mm. Two different ergonomic tubes are available: The Binocular Ergo tube has a variable viewing angle of 4°-30°. The Binocular Ergo-Plus tube also offers an additional extension movement of 35mm.

**Ergo tube**

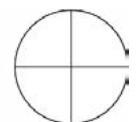
**Ergo-Plus tube**



**Graduated linear hair point= 0.1mm/10mm**



**Graduated cross hair point= 0.1mm/10mm**



**Plain cross hair**



**Nosepiece:**

The BA410's ball bearing driven nosepiece with internal clickstops at each objective stop, ensures parcentration and repeatability with every magnification change. Reversed nosepiece orientation accommodates both rapid slide changes without objective contamination, & eased reading the objective information. Quintuple or Sextuple nosepiece configured models are available.

**Stage:**

Now with a hard anodized coating, scratch and chemical resistant, the ball-bearing driven mechanical stage offers a travel range of 80x53mm. The new improved double slide holder offers better stability and durability for multiple sample viewing. Available with either left or right-handed coaxial mechanical stage controls, the BA410's stage has a Vernier scale readability of 1mm. Torque adjustment is also available for both X and Y axes controls to suit individual user preferences. A newly developed stage lock mechanism is located at the coarse focusing knob on the right side of the microscope. This new feature allows the user to determine a maximum stage height in order to prevent unnecessary damage.

**Condenser:**

The standard condenser is a swing-out Achromatic type with N.A. 0.90, providing homogeneous illumination for observation and photomicrography from 2X to 100X objective magnification. Condenser height is adjustable through a rack & pinion mechanism; while centering is done with a pair of adjust-ment screws on the condenser carrier. For Phase contrast, a slider solution as well as a turret solution is available. For raised samples e.g. sited in coun-ting chambers, a long working distance condenser with W.D. 10.7mm and N.A. 0.65 is recommended for optimum Koehler illumination.

**Illumination:**

The BA410 introduces a new collector lens assembly with a secure, screw-on holder for frequently used daylight or other image enhancement filters - an integral part of any illumination package. The new fixed cap prevents the filter from dropping when the instrument is moved or stored. The complete inner light path of the microscope has been enlarged to minimize diffraction effects at high illumination apertures. The illumination is a 6V/30W Halogen Koehler system. A LED version is in preparation.



**Phase Contrast & Darkfield:**

For Phase Contrast and Darkfield, the BA410 offers a slider solution of easy handling for single Phase contrast lenses, using an optional slot condenser for each magnification of 10X, 20X, 40X and 100X in combination with phase slider PH1, PH2 and PH3. The new EC-H Phase lenses give a phase image with improved contrast and flatness. A respective Darkfield slider can be used from 4X to 40X lens magnification (N.A. up to 0.65). As a standard, positive phase contrast lenses are supplied. Negative phase contrast is available on request. Adjustment of the phase rings is possible with two centering screws which are supplied with the phase sliders. For more advanced Phase contrast demands, a turret condenser with phase rings for all objectives, including a DF stop, is also available. Like the slider solution, the turret carries the light rings matching both positive and negative phase lenses.

**Objectives:**

The MRC BA410 offers a new class of EC-H optics that sets the standard in price-performance in optical quality. Multi-layer coated glass for enhanced contrast & lead-free manufacturing according to RoHS standards are signifi-cant features of this new class of MRC CCIS® objectives.

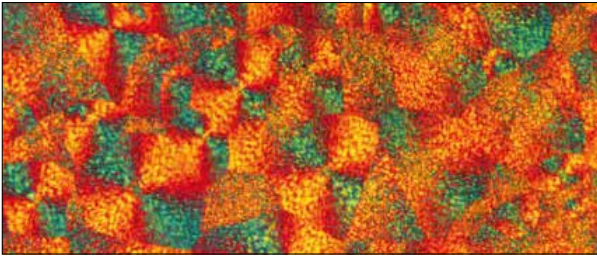
With excellent spherical aberration correction to significantly improve each lens' field flatness and better resolution, the EC-H optics offer superior colour reproduction and fidelity. In addition to bright field, the same quality and craftsmanship is also available within the new EC-H Phase objective set.

Also common now to all new EC-H lenses is a remarkably improved working distance. This allows safe usage with less contamination when changing from oil to dry lenses. Combined with the new tube lens compensation concept, the result is a fully corrected intermediate image without unnecessary colour correction and infringement. New EC-H optics also offer superior Digital imaging access to the photo port of a trinocular tube for improved documentation results.



Magnification	N.A.	W.D. (mm)
EC-H Plan 2X	0.05	7.2
EC-H Plan 4X	0.10	15.9
EC-H Plan 10X	0.25	17.4
EC-H Plan 20X	0.45	0.9
EC-H Plan 40X	0.65	0.5
EC-H Plan 60X	0.80	0.35
EC-H Plan 100X-Oil	1.25	0.15
EC-H PL Ph 10X	0.25	17.4
EC-H PL Ph 20X	0.45	0.9
EC-H PL Ph 40X	0.65	0.5
EC-H PL Ph 100X-oil	1.25	0.15
PL Fluor 4X	0.13	20.5
PL Fluor 10X	0.30	10.5
PL Fluor 20X	0.50	1.9
PL Fluor 40X	0.75	0.58
PL Fluor 50X-oil	1.0	0.17
PL Fluor 100X-oil	1.30	0.20





### CCD Adapter:

Newly designed CCD adapters, following the ISO standard with 38mm diameter, have improved optical characteristic to greatly enhance image reproduction quality.

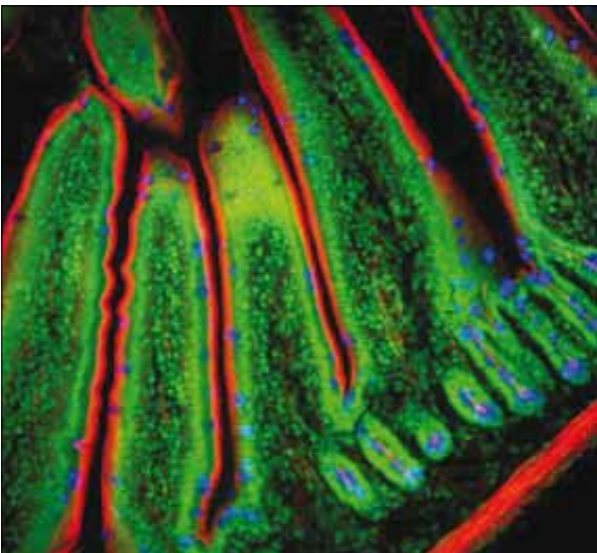
The appropriate adapter has to be chosen in relation to the chip size of the used digital camera. The following "magnifications" are available: 1X, 0.65X, 0.5X.



### Standard Photomicrography:

The traditional use of a single lens reflex camera (analogue or digital) requires the trinocular version of the BA410. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X)

The necessary T2 adapter referring to the camera model is supplied by the cameramanufacturer. This setup delivers high resolution images of small fields.



### Fluorescence Microscopy:

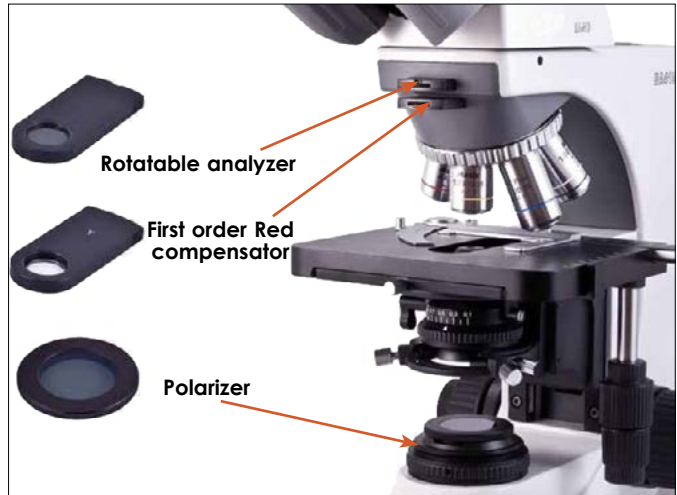
The modular concept of the BA410 allows an easy upgrade to an EPI-Fluorescence microscope by using the fluorescence attachment. This device may carry up to 4 filter cubes.

A complete range of filter cubes is available, covering all routine applications from UV up to NIR excitation. Supplied with band pass barrier filters, multi colour applications can also be performed. The newly designed XBE-HBO lamp house with improved light management offers more powerful excitation, resulting in brighter signals. In combination with a MRC Pro digital camera, excellent images are ensured.

### Polarization:

The BA410 is also equipped with 2 slots in the upper part of the stand. This is for placement of a rotatable analyzer and retardation plate (First order Red Compensator). Together with the polarizer placed on top of the collector, polarization can be achieved.

Transition between bright field and polarized light is as easy as removing the analyzer slider. Using this normal polarisation setup enables the BA410 to be used as a rapid Gout Screening Analysis station.



### Digital Documentation:

A more convenient setup is provided through MRC's philosophy of easy image digitization. The combination of the BA410 with a member of the Moticam series of digital cameras delivers excellent live images, which can easily be stored for future usage.

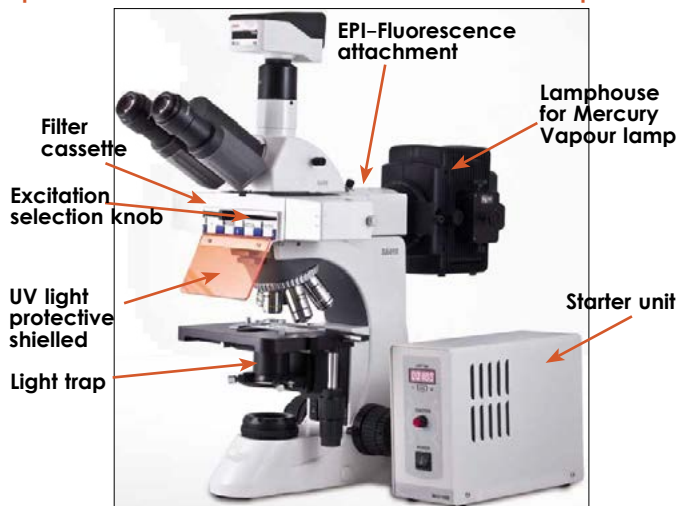
All MRC cameras come equipped with software to transform the BA410 into an analysis and documentation station.

MRC offers a complete range of digital cameras starting with a basic resolution of 1.3MP (CMOS), up to the Research grade MRC Pro line (CCD), with a maximum of 5MP, including Monochrome and cooled versions. These MRC cameras deliver sharp live images with easy post-capture handling.

The new MRC Pro Line offers a research-grade solution for demanding applications like EPI-Fluorescence or Darkfield. CCD technology with high chip sensitivity is the basis for high-resolution images and colour-true results.

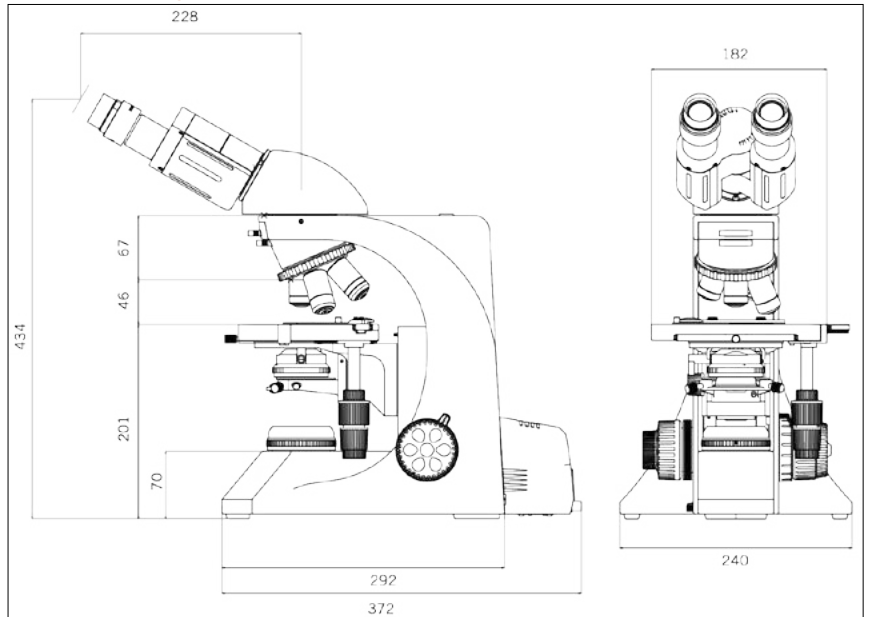
Monochrome versions are available for maximum sensitivity as well as Peltier-cooled models for noise reduction. For further details on our range of cameras, as well as the different CCD adapters, please contact your nearest MRC office or your local authorized MRC reseller.

### Specialized filter combinations are available on request:

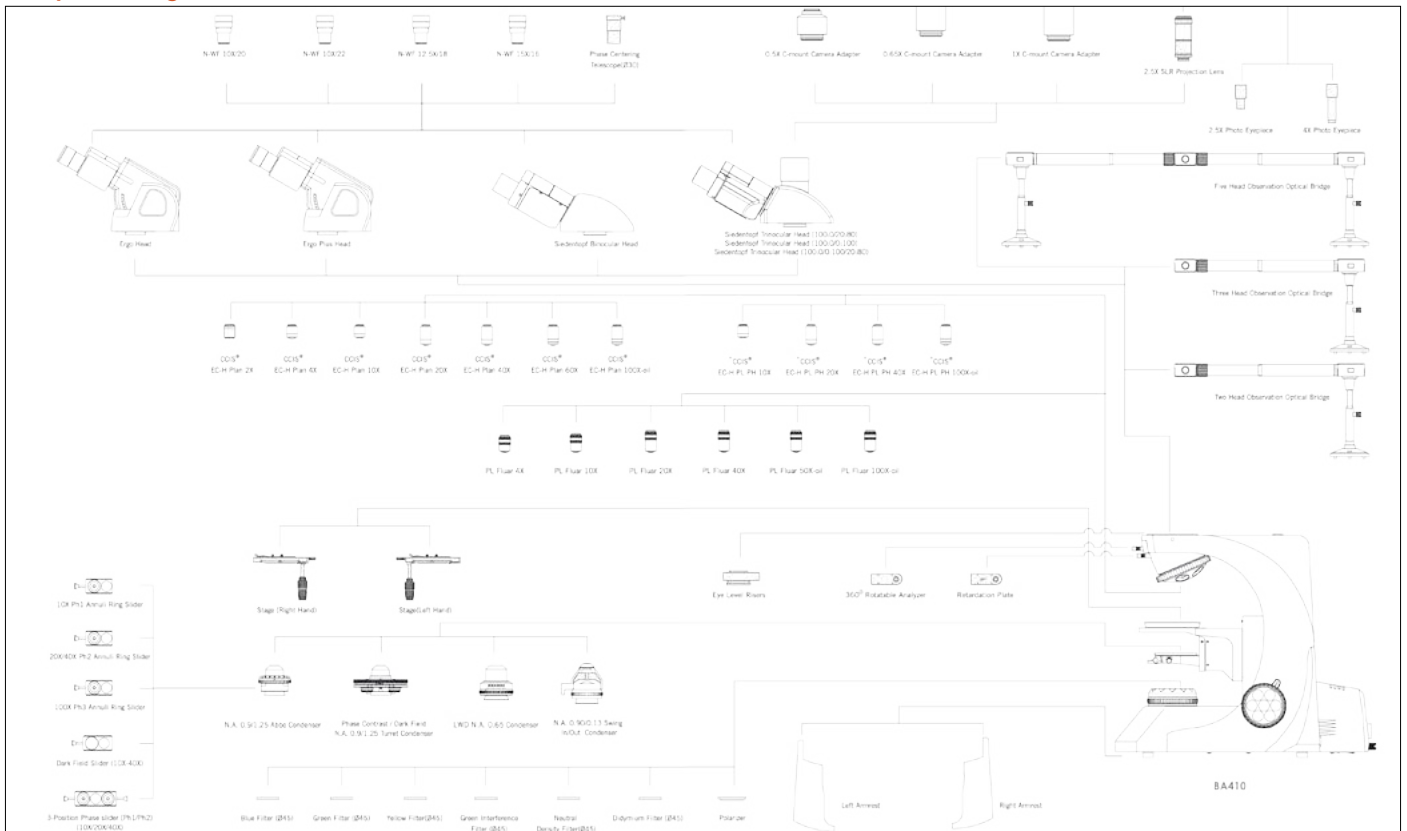


Model	BA410
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Observation Tube</b>	Widefield binocular 30° [F.N. 22] Widefield trinocular 30° [F.N. 22]-light distribution 100:0/20:80 Widefield binocular 30° [F.N. 22]-light distribution 100:0/0:100 Widefield trinocular 30° [F.N. 22]-light distribution 100:0/20:80 . 0:100
<b>Nosepiece</b>	Reversed quintuple or sextuple
<b>Stage</b>	175x145mm surface; 80x53mm movement; Hard anodized coated stage; coaxial movement X and Y with adjustable control knobs, stage with left or right hand control available
<b>Condenser</b>	Swing-out Abbe condenser N.A. 0.9/0.13
<b>Focus</b>	Z-axis movement 27mm with fixed upper limit stop for lens protection Coarse focus with torque adjustment      Stage lock for high samples, freely definable Fine focus with 1µm minimum increment      Silicon covered focus controls
<b>Illumination</b>	Externally mounted lamphouse, 6V/30W Quartz Halogen Koehler illumination

**Schematic Diagrams:**



**System Diagram:**





1100104600084

**Features:**

- N-WF10X/20 Eye Pieces
- Bino/Trino/180° Head
- Infinity Corrected Plan Achromat 4X to 100X Objectives
- Quadruple Nosepiece
- N.A. 0.90/1.25 Abbe Condenser
- LED Transmitted Illumination
- Fixed Kohler Illumination
- USB for External Camera
- LED Nosepiece Light Intensity Indicator
- Able to Perform BF PH DF Contrast Techniques.

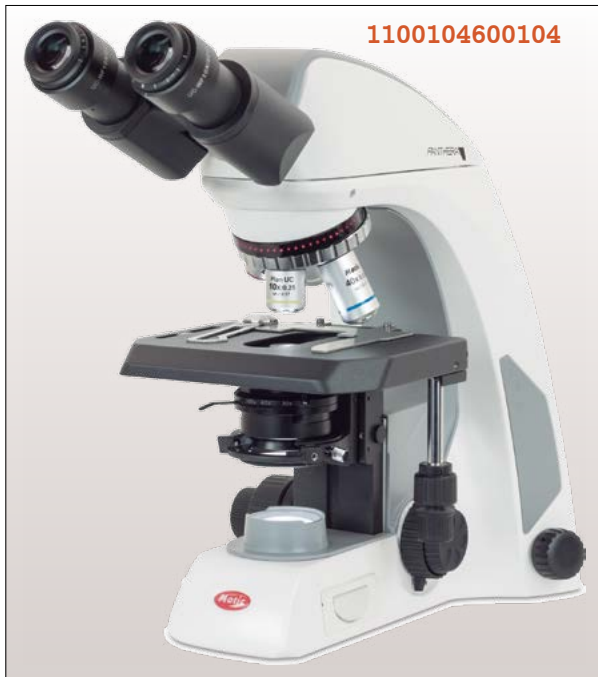
**PANTHERA S, Binocular/Trinocular Microscope**

Designed for usage in schools, the Panthera S includes several features to make this model ideal for school use. A 180° rotatable head and an integrated power cord compartment help to save space for mass storage. Also included are ASC optics, and an extreme efficient low power led illumination. This enables the Panthera S to run on a mobile battery pack for several hours, while offering vivid, high quality images. Other premium features include Infinity Corrected Plan Achromat objectives for images free of aberration or blur, a .90/1.25 Abbe condenser to yield better images at high magnification, and an LED coded nosepiece to indicate light intensity.



1100104600094

Model	PANTHERA S (1100104600084/1100104600094)
<b>Optical System</b>	Colour Corrected Infinity Optical System (CCIS®)
<b>Observation Tube</b>	Binocular/Trinocular head, Siedentopf type Trino light split: 50/50 fixed
<b>Interpupillary distance (mm)</b>	48-75
<b>Inclination</b>	25° inclined, 360° rotatable (storage saving), 360° swivelling
<b>Eyepieces</b>	N-WF10X/20
<b>Eyepieces diopter adjustment</b>	±5 dpt
<b>Nosepiece</b>	Reversed quadruple
<b>Objective classification</b>	Plan SC
<b>Objectives</b>	4X/0.1 (WD 15.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.14mm)
<b>Objective mounting thread</b>	W 4/5" x 1/36" (RMS standard)
<b>Stage</b>	Mechanical stage
<b>Stage size (mm)</b>	140x135
<b>Travel range X&amp;Y (mm)</b>	75x50
<b>Upper limit stop</b>	Preset; adjustable
<b>Condenser</b>	N.A. 0.90 / 1.25 Abbe condenser with slider slot
<b>Focus mechanism</b>	Coaxial; tension adjustment
<b>Minimum fine focus precision (µm)</b>	2
<b>Z-axis movement (mm)</b>	25
<b>Illumination type</b>	0.5W LED, fixed Koehler
<b>Illumination features</b>	Nosepiece LED light intensity indicator
<b>Connectivity</b>	USB for external camera power
<b>Power supply</b>	110-240V (CE)
<b>Accessories included</b>	Immersion oil 5ml, power cord, dust cover, allen key
<b>Dimensions L x W x H (mm)</b>	Binocular: 282x210x395/Trinocular: 282x210x396
<b>Weight (Kg)</b>	7.7



1100104600104

**PANTHERA U, Binocular/Trinocular Microscope**

The Panthera U is designed for use in a university setting with an emphasis on flexibility and ease-of-use. It includes MRC LightTracer technology, which enables users to set custom light intensity presets and its 3W full Kohler LED illumination is easily interchangeable with other color temperature bulbs and is perfect for all specimens, from the delicate to the weakly stained.

In addition, it has many different accessories available to enable a wide range of different contrast methods, making it useful in studying a wide variety of subjects. Other leading edge features include a new 2-slide rackless mechanical stage, Infinity Corrected Plan UC achromat objectives, and a quintuple coded nosepiece, which is fashioned with an LED light intensity indicator.



1100104600114

**Features:**

- UC-WF10X/22 Eye Pieces • Bino/Trino Head • Infinity Corrected Plan Achromat 4X to 100X Objectives • Quintuple/Coded Nosepiece • N.A. 0.90/1.25 Abbe Condenser • Rackless Mechanical Stage • 3W LED Transmitted Illumination • Fixed Kohler Illumination • USB for External Camera • LED Nosepiece Light Intensity Indicator • Able to Perform BF PH POL EpiLED DF FL MMC Contrast Techniques • Digital Intensity Knob • MRC LightTracer.

Model	PANTHERA U (1100104600104/1100104600114)
<b>Optical System</b>	Colour Corrected Infinity Optical System (CCIS®)
<b>Observation Tube</b>	Binocular/Trinocular head, Siedentopf type Trino light split: 50/50 fixed
<b>Interpupillary distance (mm)</b>	48-75
<b>Inclination</b>	25° inclined, 360° swivelling
<b>Eyepieces</b>	UC-WF10X/20
<b>Eyepieces diopter adjustment</b>	±5 dpt
<b>Nosepiece</b>	Reversed quadruple, coded
<b>Objective classification</b>	Plan UC Achromat objectives (Pb free)
<b>Objectives</b>	4X/0.1 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.16mm)
<b>Objective mounting thread</b>	W 4/5" x 1/36" (RMS standard)
<b>Stage</b>	Compact and rackless stage
<b>Stage size (mm)</b>	185x145
<b>Travel range X&amp;Y (mm)</b>	75x50
<b>Upper limit stop</b>	Preset; adjustable
<b>Condenser</b>	N.A. 0.90 / 1.25 Abbe condenser with slider slot
<b>Focus mechanism</b>	Coaxial; tension adjustment
<b>Minimum fine focus precision (µm)</b>	2
<b>Z-axis movement (mm)</b>	25
<b>Illumination type</b>	3W LED, fixed Koehler
<b>Illumination interchangeability</b>	LED color temperature interchangeability
<b>Illumination features</b>	LightTracer: Light memory, sleep mode (auto on-off), nosepiece LED light intensity and mode indicator
<b>Connectivity</b>	USB for external camera power
<b>Power supply</b>	110-240V (CE)
<b>Accessories included</b>	Immersion oil 5ml, power cord, dust cover, allen key
<b>Dimensions L x W x H (mm)</b>	Binocular: 282x210x394/Trinocular: 282x210x396
<b>Weight (Kg)</b>	8.3



**PANTHERA C, Binocular/Trinocular Microscope**

The Panthera Classic is the ultimate all-around microscope for the traditional microscope user. It offers modern Full Kohler LED illumination as well as classic halogen illumination, enabling users to choose the best illumination medium based on their immediate needs. Adding to the versatility of the Panthera C, is the availability of a wide variety of contrast techniques and a quintuple nosepiece, to give the user the power to produce their precisely desired image.

Other leading edge features include a rackless mechanical stage, infinity corrected plan achromatic objectives and an LED light intensity indicator on the nosepiece. All of these features, combined with microscope components of the highest quality, result in the perfect microscope for general routine use.



**Features:**

- UC-WF10X/22 Eye Pieces • Bino/Trino Head • Infinity Corrected Plan UC Achromatic 4X to 100X Objectives
- Quintuple Nosepiece • N.A. 0.90/1.25 Abbe Condenser
- Rackless Mechanical Stage • 3W LED/30W Hal Transmitted Illumination • Kohler Illumination
- USB for External Camera • LED Nosepiece Light Intensity Indicator • Able to Perform BF, PH, POL, DF, FL (With LED Mouse), MMC Contrast Techniques.

Model	PANTHERA C (1100104600124/1100104600134)
<b>Optical System</b>	Colour Corrected Infinity Optical System (CCIS®)
<b>Observation Tube</b>	Binocular/Trinocular head, Siedentopf type Trino light split: 50/50 fixed
<b>Interpupillary distance (mm)</b>	48-75
<b>Inclination</b>	25° inclined, 360° swivelling
<b>Eyepieces</b>	UC-WF10X/20
<b>Eyepieces diopter adjustment</b>	±5 dpt
<b>Nosepiece</b>	Reversed quadruple
<b>Objective classification</b>	Plan UC Achromat objectives (Pb free)
<b>Objectives</b>	4X/0.1 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.16mm)
<b>Objective mounting thread</b>	W 4/5" x 1/36" (RMS standard)
<b>Stage</b>	Compact and rackless stage
<b>Stage size (mm)</b>	185x145
<b>Travel range X&amp;Y (mm)</b>	75x50
<b>Upper limit stop</b>	Preset; adjustable
<b>Condenser</b>	N.A. 0.90 / 1.25 Abbe condenser with slider slot
<b>Focus mechanism</b>	Coaxial; tension adjustment
<b>Minimum fine focus precision (µm)</b>	2
<b>Z-axis movement (mm)</b>	25
<b>Filter holder</b>	On top of the illuminator with fixing cap
<b>Illumination type</b>	3W LED module / 30W Halogen module, Koehler illumination
<b>Illumination interchangeability</b>	Halogen / LED and LED color temperature interchangeability
<b>Illumination features</b>	Nosepiece LED light intensity indicator
<b>Connectivity</b>	USB for external camera power
<b>Power supply</b>	110-240V (CE)
<b>Accessories included</b>	Blue filter, immersion oil 5ml, power cord, dust cover, allen key, spare HAL bulb and LED module
<b>Dimensions L x W x H (mm)</b>	Binocular: 282x210x394/Trinocular: 282x210x396
<b>Weight (Kg)</b>	8.4



**PANTHERA L, Binocular Microscope**

The Panthera L is a true 'smart' microscope, distinguished by its remarkable variety of built-in digital capabilities. Its Smart CAM digital head and the ImagingOnDevice System simplifies daily work by allowing the user to directly connect their microscope to an HDMI screen and interact with it using a mouse. Panthera L users can also connect the microscope to a tablet running the Panthera App and the LAN port offers the option of running a DigiClass, or remote image sharing. Beyond its digital capabilities, the Panthera L has an astonishing list of premium features. These include a rackless mechanical stage, interchangeable LED/Halogen illumination sources, and a wide variety of available contrast techniques. In addition, The Panthera L features MRC LightTracer technology, enabling the user to make customized lighting presets for each objective. Other premium components include Infinity Corrected Plan UC Achromat objectives, a .90/1.25 Abbe condenser, and an LED coded nosepiece to indicate light intensity. What this amounts to is a microscope which can yield images of astounding quality. All this and more puts the Panthera L among the most fully featured and advanced upright compound microscopes offered by MRC.

**Features:**

- UC-WF10X/22 Eye Pieces ● Digital Smart Cam Head ● Infinity Corrected Plan UC Achromatic 4X to 100X Objectives
- Quintuple/Coded Nosepiece ● HDMI Touch Screen ● N.A. 0.90/1.25 Abbe Condenser ● Rackless Mechanical Stage
- 3W LED/30W Hal Transmitted Illumination ● Kohler Illumination ● Smart Cam Imaging On Device ● Optional USB for External Wifi ● LED Nosepiece Light Intensity Indicator ● Able to Perform BF PH POL DF FL MMC Contrast Techniques
- Digital Intensity Knob ● MRC LightTracer.

Model	PANTHERA L (1100104600144)
<b>Optical System</b>	Colour Corrected Infinity Optical System (CCIS®)
<b>Observation Tube</b>	Binocular head, Siedentopf type
<b>Interpupillary distance (mm)</b>	48-75
<b>Inclination</b>	25° inclined, 360° swivelling
<b>Eyepieces</b>	UC-WF10X/20
<b>Eyepieces diopter adjustment</b>	±5 dpt
<b>Nosepiece</b>	Reversed quadruple, coded
<b>Objective classification</b>	Plan UC Achromat objectives (Pb free)
<b>Objectives</b>	4X/0.1 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.16mm)
<b>Objective mounting thread</b>	W 4/5" x 1/36" (RMS standard)
<b>Stage</b>	Compact and rackless stage
<b>Stage size (mm)</b>	185x145
<b>Travel range X&amp;Y (mm)</b>	75x50
<b>Upper limit stop</b>	Preset; adjustable
<b>Condenser</b>	N.A. 0.90 / 1.25 Abbe condenser with slider slot
<b>Focus mechanism</b>	Coaxial; tension adjustment
<b>Minimum fine focus precision (µm)</b>	2
<b>Z-axis movement (mm)</b>	25
<b>Filter holder</b>	On top of the illuminator with fixing cap
<b>Illumination type</b>	3W LED module / 30W Halogen module, Koehler illumination
<b>Illumination interchangeability</b>	Halogen / LED and LED color temperature interchangeability
<b>Illumination features</b>	MRC LightTracer: Light memory, sleep mode (auto on-off), nosepiece LED light intensity and mode indicator
<b>Digital features</b>	Built-in Smart CAM & ImagingOnDevice System (Panthera App embedded). 5 GB internal memory
<b>Connectivity</b>	HDMI, USB 2.0 for external Devices (x2), Wi-Fi, RJ-45
<b>Power supply</b>	110-240V (CE)
<b>Accessories included</b>	Blue filter, immersion oil 5ml, power cord, dust cover, allen key, spare HAL bulb and LED module
<b>Dimensions L x W x H (mm)</b>	Binocular: 282x210x394
<b>Weight (Kg)</b>	8.8



DMBA310

**DMBA310, Russia Microscope**

The new DMBA310 from MRC is designed specifically for the rigors of daily routine work in the demanding applications of Universities, Clinics, Laboratories, and any other life science or medical application requiring quality optical performance.

Using MRC's Color Corrected Infinity Optics (CCIS®) with newly designed EF-N Plan Achromats, this model's full Koehler configuration provides maximum illumination quality for even the most demanding samples. Also, the DMBA310's upgradeability to include additional contrast methods and discussion devices, ensure this model will offer long term functionality to all user levels in a variety of applications.

The demands placed on any routine microscope for daily work needs careful focus on every microscope detail. In this new design, MRC has paid careful attention to optimize the new DMBA310 features in all respects. The 30W illumination



provides the user with a powerful and adjustable lightsource to meet both delicate and detailed lighting requirements for all sample types, while the fully featured Koehler illumination of the DMBA310 helps to evaluate even the weakest stained specimens. MRC's new EF-N Plan Achromat objectives provide optimal image contrast through newly designed multi-layer lens coatings. The new fully corrected tube lens and subsequent intermediate image without color fringes is now fully accessible through both eyepiece and trinocular port, making digital images as crisp and clear as those seen through the eyepieces.

The new DMBA310 design also includes a standardized ISO photo exit. The DMBA310's large, hard coated and chemical resistant stage, with an expansive 76x50mm travel range, includes a new slide holder with improved tighter grip. This ensures easy & repeatable scanning of numerous slides in all daily routines.



**Objectives:**

To improve the overall optical performance of the DMBA310, MRC introduces a newly designed generation of Plan Achromatic Objectives made of high quality optical glass; CCIS® EF-N Plan. These new lenses are now multi-layer coated for improved contrast to enhance images even with weak slide stainings. Together with a new calculated tube lens, the result is a fully corrected, perfected intermediate image without colored fringes. The Trinocular DMBA310 gives digital access for even sharper imaging and improved digital output quality for professional results at student level.

Magnification	N.A.	W.D. (mm)
EF-N Plan 4X	0.10	6.3
EF-N Plan 10X	0.25	4.4
EF-N Plan 20X	0.40	4.66
EF-N Plan 40X, Spring	0.65	0.35
EF-N Plan 60X, Spring	0.85	0.13
EF-N Plan 100X, Spring, Oil	1.25	0.13
EF-N Plan Phase 10X	0.25	4.4
EF-N Plan Phase 40X, Spring	0.65	0.35



EF-N Plan Achromats

**Illumination:**

The DMBA310 introduces a new collector lens assembly with a secure, screw-on holder for the frequently used Blue daylight filter which is an integral part of the illumination package. The fixed cap prevents the filter from dropping when the instrument is stored. The DMBA310 offers multiple illumination options, such as the Koehler 6V/30W halogen or 3W LED.





**Eyepiece Tubes:**

Designed with an ergonomic viewing angle of 30° and incorporating an interpupillary distance of 48–75mm, the DMBA310 observation tubes guarantee fatigue-free viewing for hours. A large field of view (20mm) enables fast and comfortable screening. All standard eyepiece tubes now offer an extended “butterfly” swivel adjustment to increase the viewing height to accommodate individual user’s positioning.

The trinocular tubes allow digital documentation by using a wide variety of digital cameras, with 20/80 or optional 0/100 light splits for the trinocular exit.

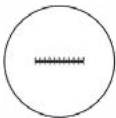
**Eyepieces:**

The new standard eyepieces, N-WF 10X/20 with high eyepoint for eyeglass wearers, also made of high quality optical glass, provide consistent diopter adjustment for both eyes. This enables perfect usage of reticles for measuring, counting, etc.

Lockable eyepieces prevent inadmissible removal and confirms MRC’s dedication to student proof quality.

Description	F.N.
Widefield N-WF 10X	20
Widefield N-WF 12.5X	18
Widefield N-WF 15X	16

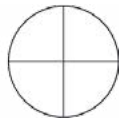
The following reticles are available:



Graduated linear hair point= 0.1mm/10mm



Graduated cross hair point= 0.1mm/10mm



Plain cross hair



**Condenser:**

To ensure the best possible illumination quality, DMBA310 has a full Koehler feature giving complete freedom to set the height of the condenser.

**Stage:**

The DMBA310 surprisingly offers an optional left/right hand control and the new slide holder enables consistent sample movement across a 76 X 50mm range with a stage area of 175mm x 140mm. The model also offers a hard coated surface, resistant against routine usage abrasion.

**Multi Viewing Devices:**

The DMBA310 Series offers multi-viewing teaching devices. There are 2 options available, depending on the teaching situation in your laboratory; face to face or side by side. The standard field of view of 20mm ensures that maximum information will be given to the student. Depending on the sample, the user can activate the built-in LED pointer in red or green color.

**Polarization:**

Convenient and easy, the DMBA310 polarization system consists of a polarizer, placed on top of the collector lens, and the analyzer placed between the head and body.

**Anti-Fungus Design:**

To protect the system from fungus growth in high-humidity environments, an anti-fungus treatment is applied to prolong the life of both microscope and objectives.

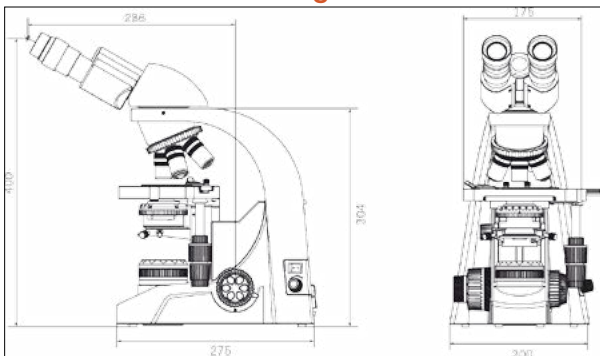


**Standard Photomicrography:**

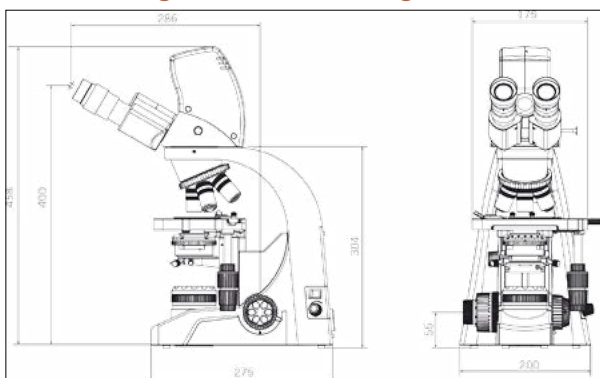
The traditional use of a single lens reflex camera (analogue or digital) requires the trinocular version of the BA310. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X)  
The necessary T2 adapter referring to the camera model is supplied by the camera manufacturer. This setup delivers high resolution images of small fields.



**DMBA310 Schematic Diagrams:**



**DMBA310 Digital Schematic Diagrams:**



**Phase Contrast and Darkfield:**

**Phase Contrast – Slider solution**

Offered as an option, phase contrast is available for objectives EF-N Plan Phase 10X/0.25 and EF-N Plan Phase 40X/0.65.

**Darkfield – Slider solution**

Darkfield is possible with a separate DF slider (up to 40X, max. N.A. 0.65).

**Phase Contrast – Turret condenser**

As an accessory the 5-position phase contrast turret condenser is available in 2 different versions.

The corresponding objectives for these turrets are the high-quality CCIS® Plan Phase Objectives:

2 Options for 5-position turret condenser	CCIS® Plan Phase Objectives	W.D. (mm)
BF, 10X, 20X, 40X, 100X	PL Ph 10X	4.3
	PL Ph 20X	1.3
BF, DF, 10X, 40X, 100X	PL Ph 40X	0.4
	PL Ph 100X	0.13

**Digital Documentation:**

Digitalization of microscopic results is MRC's philosophy and the DMBA310 provides two methods.

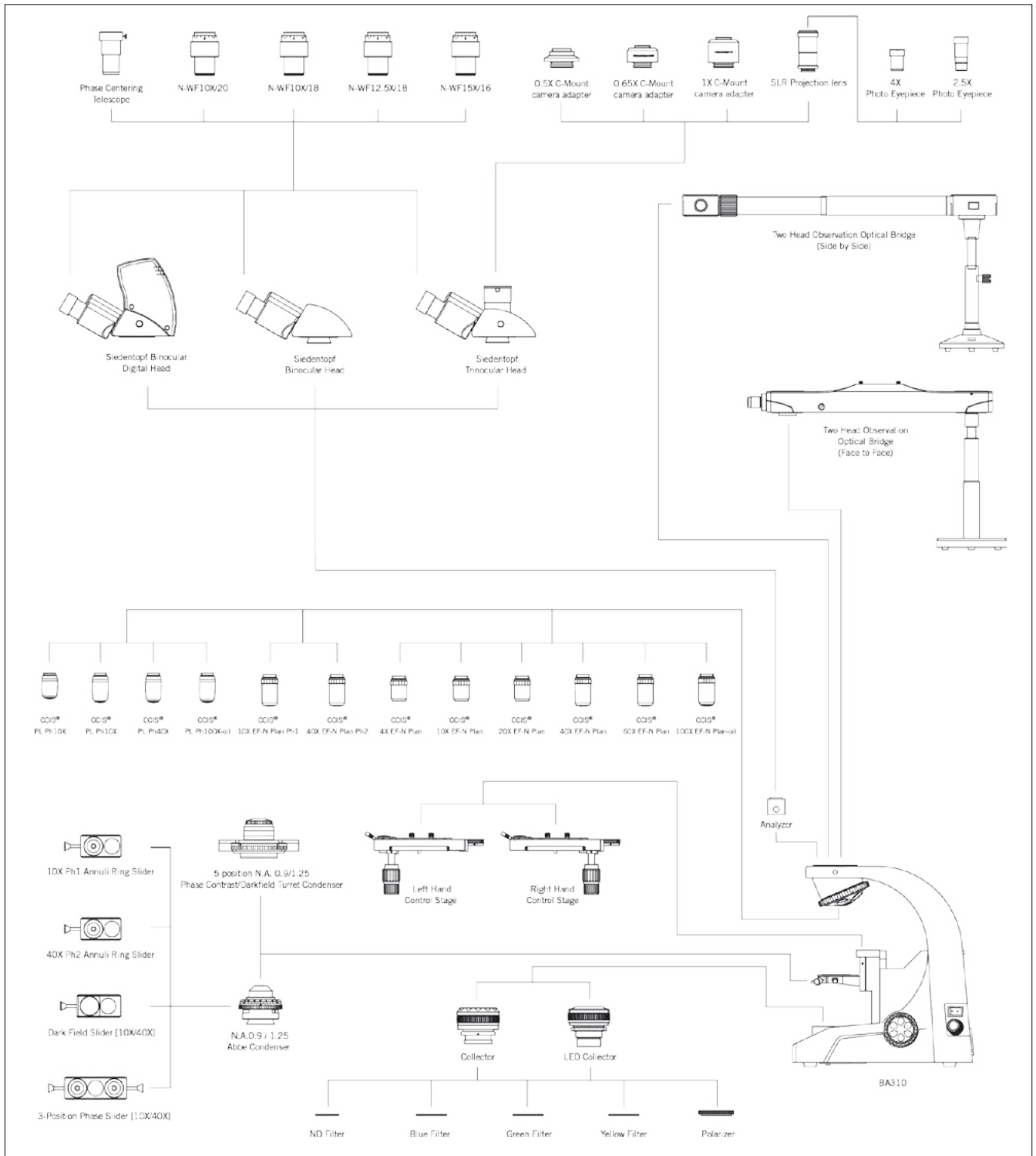
The combination of the DMBA310 trinocular microscope with the Moticam Series of digital cameras delivers crisp live images easy to be saved. All MRC cameras come equipped with software to convert the DMBA310 into an analysis and documentation station. Should you select a third-party camera, MRC provides a range of CCD-adapters covering all demands for field vs. resolution. Another digitalization option is the DMBA310 digital head. Replacing the conventional head with the Digital head transforms the DMBA310 into a teaching, training, and analysis station without the hassle of adapters and focus corrections. With a USB2.0 output to the computer, the system provides high resolution imaging in both real time and capture modes.

**DMBA310 Standard Specifications:**

Model	DMBA310
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Observation Tube</b>	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 100:0/0:100
<b>Nosepiece</b>	Reversed quintuple
<b>Stage</b>	175 x 140mm surface; 76 x 50mm movement; coaxial controls
<b>Condenser</b>	N.A. 0.9 / 1.25 Abbe condenser with slider slot; Focussable and Centerable
<b>Focus</b>	Brass gears Z-Axis movement 20 mm. Fine focus with 2µm minimum increment, Coarse focus with torque adjustment Stage lock for high samples, freely definable
<b>Illumination</b>	Built-in transmitted 6V/30W halogen Koehler illumination Built-in transmitted 3W LED Koehler illumination; >10,000 hrs bulb life span

Model	BA310 Digital
<b>Optical system</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Observation Tube</b>	Widefield binocular 30° [F.N. 20] with built-in 3 megapixel digital camera-light distribution 100:0/20:80
<b>Camera Specifications</b>	Effective Pixels: 3.0 Megapixels Live Image Resolution: 2048 x 1536 Data Transfer: 480 Mb / Second USB 2.0 White Balance: Manual adjustment by using the software Recommended System: Windows: XP, Vista or 7; P4 1.0GHz 256MB RAM, USB 2.0 Requirements: Mac: OSX, 1.0GHz 256MB RAM, USB 2.0 Software: Images Plus 2.0

DMBA310 System Diagram:



DMW-143-FBGG

**DMW-143-FBGG, Digital Stereo Microscope**

- Greenough zoom optical system
- Binocular head, 45° inclined with Built-in analogue/digital camera CCD 1/3" chip
- Digital resolution: 720x576 pixels with USB2.0 output
- Analogue resolution: Max. 550 TV lines resolution S-Video & RCA
- Widefield eyepiece WF10X/20mm
- 4:1 Zoom ratio, WD=80mm
- Magnification range: 1X-4X
- FBGG: Pole type stand with large working base
- Coarse focusing system with tension adjustment
- Incident and transmitted halogen illumination with intensity control
- Images Plus 2.0 for PC & Mac.



PANTHERA HD

**PANTHERA HD, Digital Microscope**

The Panthera HD has all of the leading edge digital features of the Panthera Life Science model, with one key difference; it's designed to be used on an exclusively digital basis. Thanks to Panthera HD's Imaging On Device technology, which enables seamless connectivity with a wide variety of devices, working via screen has never been easier.

By simply connecting the Panthera HD with an HDMI screen or tablet running the Panthera App, users can interact with the microscope via mouse. The Panthera HD also features MRC LightTracer technology, which allows the user to make custom lighting presets for each objective, thereby saving time when adjusting between objectives.

Premium features of the Panthera HD include a rackless mechanical stage, infinity corrected plan UC achromatic objectives, and 3W LED/30W Halogen interchangeable light sources. All of these work together to produce precise images with maximum clarity and detail, making the Panthera HD a versatile and convenient digital microscopy device.

**Features:**

- Digital Smart Cam Head
- Infinity Corrected Plan UC Achromatic 4X to 100X Objectives
- Quintuple/Coded Nosepiece
- HDMI Touch Screen
- N.A. 0.90/1.25 Abbe Condenser
- Rackless Mechanical Stage

- 3W LED/30W Hal Transmitted Illumination
- Kohler Illumination
- Smart Cam ImagingOnDevice
- Optional USB for External Wifi
- LED Nosepiece Light Intensity Indicator
- Able to Perform BF FL Contrast Techniques
- Digital Intensity Knob
- MRC LightTracer.

Model	PANTHERA HD (1100104600182)
Optical System	Colour Corrected Infinity Optical System (CCIS®)
Nosepiece	Reversed quintuple, coded
Objective classification	Plan UC Achromat objectives (Pb free)
Objectives	4X/0.1 (WD 30.5mm), 10X/0.25 (WD 17.4mm), 40X/0.65/S (WD 0.6mm), 100X/1.25/S-Oil (WD 0.16mm)
Objective mounting thread	W 4/5" x 1/36" (RMS standard)
Stage	Compact and rackless stage
Stage size (mm)	185x145
Travel range X&Y (mm)	75x50
Upper limit stop	Preset; adjustable
Condenser	N.A. 0.90 / 1.25 Abbe condenser with slider slot
Focus mechanism	Coaxial; tension adjustment
Minimum fine focus precision (µm)	2
Z-axis movement (mm)	25
Filter holder	On top of the illuminator with fixing cap
Illumination type	3W LED module / 30W Halogen module, Koehler illumination
Illumination interchangeability	Halogen / LED and LED color temperature interchangeability
Illumination features	MRC LightTracer: Light memory, sleep mode (auto on-off), nosepiece LED light intensity and mode indicator
Digital Features	Built-in Smart CAM & ImagingOnDevice System (Panthera App embedded). 5 GB internal memory
Connectivity	HDMI, USB 2.0 for external Devices (x2), Wi-Fi, RJ-45
Power supply	110-240V (CE)
Accessories included	Blue filter, immersion oil 5ml, power cord, dust cover, allen key, spare HAL bulb and LED module
Dimensions L x W x H (mm)	282x210x370
Weight (Kg)	8





EasyScan

**Improve your daily workflow. make it easy:**

Maximum image quality is given by especially designed High NA Achromatic objectives. Color fidelity and resolution are driven to the maximum employing custom made High NA Achromatic objectives. A progressive scan mode ensures high mechanical stability by minimizing moving parts. Thanks to a "High Speed Autofocus" in real time, pre-mapping is no longer necessary - a good precondition for a fast digital database. The automatic definition of sample area (ROIs) within the complete glass slide may be overwritten interactively for time-saving purposes. The built-in 10Watt LED with ≥ 25.000 hours life time supplies a bright and neutral image background with optimized color temperature. A 6-position slide tray accepts a wide slide dimension tolerance - no high-priced glass slides are needed. Slide labeling through a barcode enables the implementation of the scanning process into the daily workflow.



**Image processing:**

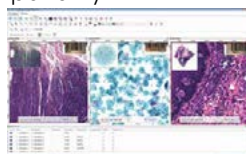
Once the glass slide information is transferred into a digital format, various handling procedures can be processed:

- Zoom-in and out
- Free annotating
- Measurements
- Application of grids, masks
- Side-by-side image comparison
- Image processing, adjustment and enhancement.



A multiplication of data users is enabled by:

- Cloud and APP support
- Data export for 3rd party compatibility
- Network browsing
- MRC's Digital Slide Management software for internet slide library, also for iPad.



**EasyScan, Digital Slides Scanner Medicine:**

Digitization of "classical" glass slide information is an essential approach for more reliable, fast and efficient work in medical environments of cytology, histology and cytopathology.

**Main advantages of a digital slide version are:**

- Safe storage of confidential patient information
- Database for long-term scientific work
- Networking worldwide
- Sharing clinical expertise
- Easy day to day routine operation accessibility.

In clinical consultation of an additional expert, digitized patient information can be sent around the world for a "second opinion" from an international specialist: confidential specimens remain protected, proprietary patient data are kept safe. EasyScan is an efficient instrument for producing and sharing high-quality images from different sources. Simple and easy, the implemented software also allows inexperienced users a quick & reliable data acquisition.

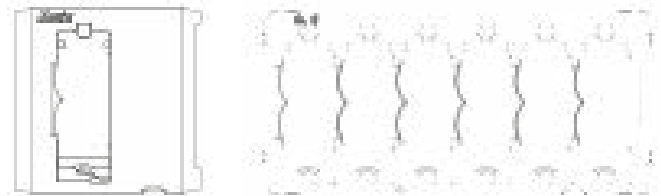
**Teaching:**

Moreover, digitized slides are a fast and easily accessible tool for a modern style of university teaching. Hundreds of sample slides, some of them delicate and with rare cases can be delivered in an identical quality to every student.

Typical characteristics, single anomalies: thanks to internet access students can work from home in an efficient educational experience:

- No risk of broken slides
- Identical information for every student
- Database accessible 24/7.

**Main difference:**



**EasyScan:** 1 slide Tray (for 76 x 26mm slides)

**EasyScan Pro:** 6 slides Tray (for 76 x 26mm slides)

Model	EasyScan
<b>Objective</b>	Plan APOCHROMAT 20X/0.75
<b>Scanning time</b>	15x15mm 3 minutes (40X magnification)
<b>Focus</b>	Real time autofocus
<b>Camera sensor</b>	2/3" CCD Sensor
<b>Resolution</b>	20X: 0.52µm/pixel; 40X: 0.26µm/pixel
<b>Light source</b>	10W LED (Lifetime: 25,000 Hours)
<b>One-click scanning mode</b>	Normal (Real time autofocus) EDOF (Extension depth of field) Z-Stack (Three dimensional stack) High precision (High precision autofocus)
<b>Computer</b>	Intel Quad Core Processor (3.6GHZ, 8MB) / 8GB Memory /HD 2TB SATA (7200rpm) Disk / Intel Q87 express Chipset /DVD Recorder / Windows 7 Professional 64bit
<b>Monitor</b>	HD LED Monitor 24"
<b>Software included</b>	DS Assistant and EasyScanner software
<b>Optional software</b>	DS Store Network System & MRC Tele V3
<b>Optional trays</b>	2 slides tray (for 76 x 26mm slides); VET tray (for 76 x 52mm slides)

SEM-20/30, TableTop



Navigation to Nanoworld With SEM

How do you keep the forefront from competition in researching nanometer small world. MRC provides convenient Table-top SEM to industry and school which makes it possible having high resolution image precisely and quickly. By adopting SEM, it is possible to observe nano-world and obtain high quality images without paying excessive expenses.

High Quality Images with Economical Price

SEM help customer to obtain urn and nm quality images within a few minutes. The size of SEM enhances space efficiency in the laboratory. SEM is the be reasonable instrument which help science teacher to give visual



explanation to the students. SEM is also more affordable to small and medium industry company. MRC promises precise nano-world measurement using SEM.

The Wise SEM for Your Application

Material Analysis

SEM helps to grasp material characteristiathrough providing precise images. SEM makes it possible to analyze deep submicron or nanometer structure. Alteration of material caused by pressure, heat can be detectable using SEM. High depth of field and dear image from SEM would be the best solution to find defects and changes of various materials.

Pharmaceutical Chemistry

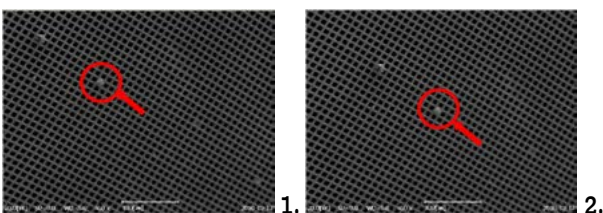
The structure and size of material in pharmaceutical chemistry keep diminishing to reach nanometer in researching area. SEM can be utilized to view nanometer samples precisely and eventually help researcher to get exact output what is needed.

Automatic Stage

1. Automation of X,Y,T axis Stage.



2. Click & Move function.



3. Free magnification zooming function by mouse wheel.  
4. Image focusing by mouse wheel.

Quality Control

Tiny defects can be found exactly through having high quality Images with SEM. Deep submicron cracks that is hard to find using optical microscope can be detectable using SEM. Inspection with SEM may find out problems in manufacturing process and hence quality of product can be upgraded into higher level.

Educational Purpose

SEM leads students into the nano-world of science that has not been viewed practically in school. Now, numeral application such as cells, insect, pollen, metal texture, forensic evidence would be applicable with SEM. This instrument may derive students' curiosity of nano-world which help to discover a talent of students.

Compare time-saving by Auto Stage

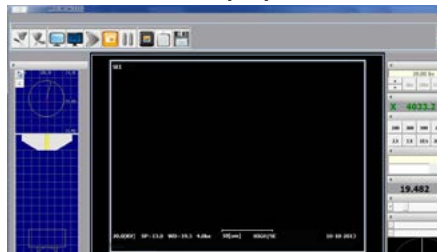
Items	Time for Sample Analysis (10 point basis)
Manual Stage	<ul style="list-style-type: none"> <li>• Time of 1 Point Analysis : 10 minutes</li> <li>- Vacuum : 3 minutes</li> <li>- Finding Sample : 3 minutes</li> <li>- Alignment &amp; setting : 1 minute</li> <li>- Focusing : 30 seconds</li> <li>- Brightness and Contrast settings : 20 seconds</li> <li>- Image data acquisition : 30 seconds</li> <li>• Time of 10 Points Analysis : about 48 minutes</li> </ul>
Auto Stage (SEM-30, SEM-20)	<ul style="list-style-type: none"> <li>• Time of 1 Point Analysis : 8 minutes</li> <li>- Vacuum : 5 minutes</li> <li>- Finding Sample : 30 seconds</li> <li>- Alignment &amp; setting : 1 minute</li> <li>- Focusing : 30 seconds</li> <li>- Brightness and Contrast settings : 20 seconds</li> <li>- Image data acquisition : 30 seconds</li> <li>• Time of 10 Points Analysis : about 25 minutes</li> </ul>

### Specifications:

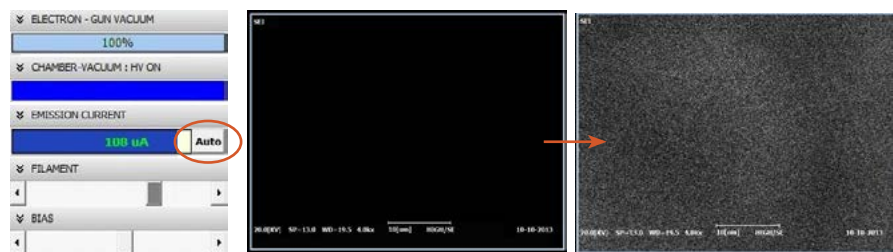
Model	SEM-20
Magnification Range	x 20 ~ x 80.000
Effective Magnification	x 40.000
Resolution	7nm (at 20kv SE Image)
Accelerating Voltage	1KV ~ 20KV (1/3/5/10/15/20KV)
Electron Gun	Tungsten Filament (W)
Detector	SE Detector default, BSE/EDS optional
Stage	X: 35mm (Motorized), Y: 35mm (Motorized), R: 360°, Z: 0 ~ 60mm
Sample Size	45mm (H), 70mm (Diameter)
Image Mode (Mod)	RED(320x240), TV(640x480), Slow(800x600), Photo(1280x960, 2560x1920, 5120x3840)
Frame Rate	RED (Max. 30 frames/sec), TV (Max. 10 frames/sec), Slow(Max. 2 frames/sec)
Vacuum System	Turbo Molecular Pump
Auto Functions	Start,Focus,Filament,Brightness/contrast
OS	Windows 7
Operation	Key Board/Mouse
Dimension	400(W) x 600(L)x 550(H)mm, 90kg

Model	SEM-30
Magnification Range	x 20 ~ x 100.000
Effective Magnification	x 50.000
Resolution	5nm (at 30kv SE Image)
Accelerating Voltage	1KV ~ 30KV (1/3/5/10/15/20/30KV)
Electron Gun	Tungsten Filament (W)
Detector	SE Detector (optional: BSE/EDS)
Stage	X: 35mm (Motorized), Y: 35mm (Motorized), T: 0 ~ 45° (Motorized) R: 360°, Z: 0 ~ 60mm
Sample Size	45mm (H), 70mm (Diameter)
Image Mode (Mod)	RED(320x240), TV(640x480), Slow(800x600), Photo(1280x960, 2560x1920, 5120x3840)
Frame Rate	RED (Max. 30 frames/sec), TV (Max. 10 frames/sec), Slow(Max. 2 frames/sec)
Vacuum System	Turbo Molecular Pump
Auto Functions	Start,Focus,Filament,Brightness/contrast
OS	Windows 7
Operation	Key Board/Mouse
Dimension	400(W) x 600(L)x 550(H)mm, 90kg

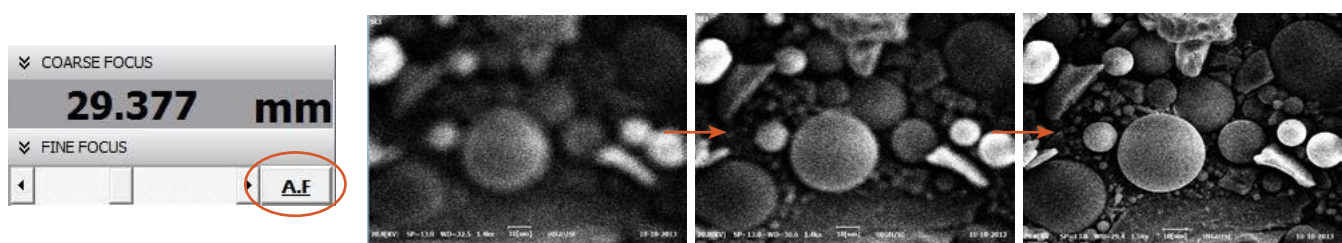
### Nanostation GUI Display



### Automatic Function: Auto Filament



### Automatic Function: Auto Focus







**SEM-30AX:**

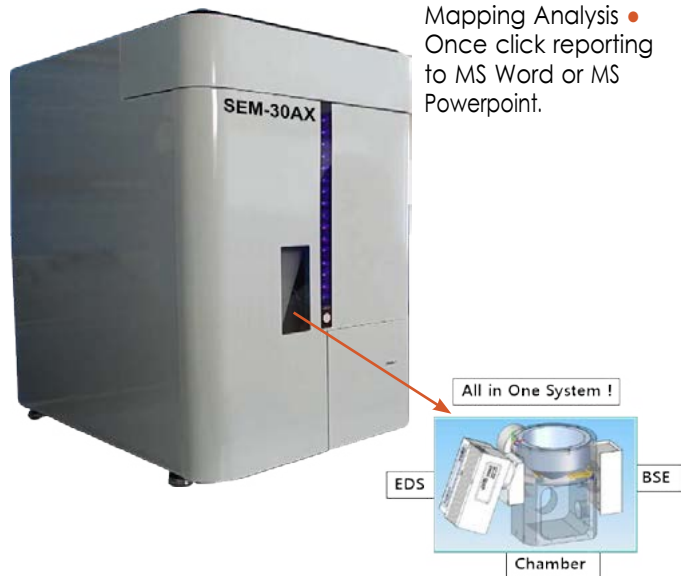
SEM-30AX is easy to use and reasonable price, and designed to be an image and component analysis. Co-developed with Thermo-Fisher Scientific. Exact ingredient analysis is possible in this Tabletop SEM. Provides quantitative and qualitative analysis. A variety of analysis capabilities for Spectrum, Line Scans, Point & Shoot can be achieved.

**With processing rates of up to 1 Million X-ray counts/seconds:**

- Mapping occurs in minutes, not hours.
- Chemical identification takes seconds, not minutes.

**Covers the full range of applications, including:**

- Failure analysis • Forensics • Mineralogy • Semiconductor / electronics • Steels and metals analysis...
- Spectral Imaging: Complete spectrum stored for every pixel • P&S, Extracted Line scans, x-ray element mapping
- No Liquid Nitrogen for hassle free operation • Smaller, compact and light-weight design • Energy resolution < 133 eV guaranteed • Light element capability with detection down to B • Multiple Analysis of Point, Line & Mapping Analysis • Once click reporting to MS Word or MS Powerpoint.

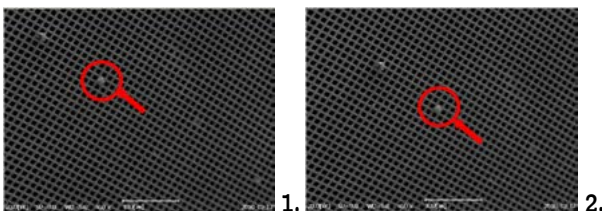


**Automatic Stage**

1. Automation of X,Y,T axis Stage.



2. Click & Move function.



3. Free magnification zooming function by mouse wheel.

4. Image focusing by mouse wheel.

**Thermo Scientific UltraDry Compact EDS system:**

**What it is:**

- A stream-lined, small & cost-effective EDS detector
- Fixed length, standardized design that bolts easily to the WDS port.

**Target audience:**

- Those who want to perform high-quality, chemical analysis in an electron microscope but don't have the budget to pay for a high-end spectroscopic instrument.

**How does it impact our partners:**

- Provides a highly effective, budget-sized EDS system in order to maintain margins in a competitive selling situation.



**Compare time-saving by Auto Stage**

Items	Time for Sample Analysis (10 point basis)
<b>Manual Stage</b>	<ul style="list-style-type: none"> <li>• <b>Time of 1 Point Analysis : 10 minutes</b></li> <li>- Vacuum : 3 minutes</li> <li>- Finding Sample : 3 minutes</li> <li>- Alignment &amp; setting : 1 minute</li> <li>- Focusing : 30 seconds</li> <li>- Brightness and Contrast settings : 20 seconds</li> <li>- Image data acquisition : 30 seconds</li> <li>• <b>Time of 10 Points Analysis : about 48 minutes</b></li> </ul>
<b>Auto Stage (SEM-30, SEM-20)</b>	<ul style="list-style-type: none"> <li>• <b>Time of 1 Point Analysis : 8 minutes</b></li> <li>- Vacuum : 5 minutes</li> <li>- Finding Sample : 30 seconds</li> <li>- Alignment &amp; setting : 1 minute</li> <li>- Focusing : 30 seconds</li> <li>- Brightness and Contrast settings : 20 seconds</li> <li>- Image data acquisition : 30 seconds</li> <li>• <b>Time of 10 Points Analysis : about 25 minutes</b></li> </ul>

## Powerful Spectroscopy in a compact package

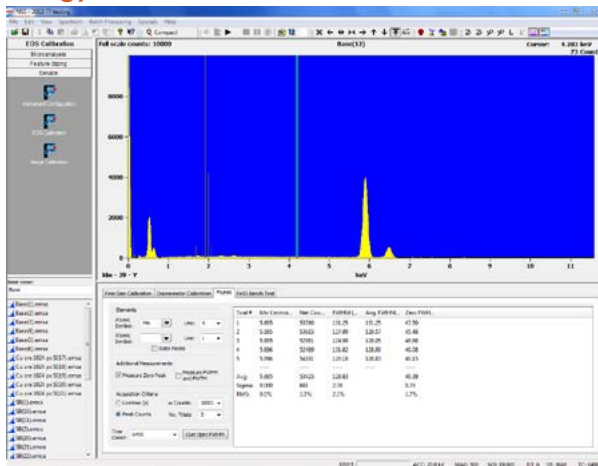
With processing rates of up to 1 Million X-ray counts / second:

- Mapping occurs in minutes, not hours.
- Chemical identification takes seconds, not minutes.

Covers the full range of applications, including:

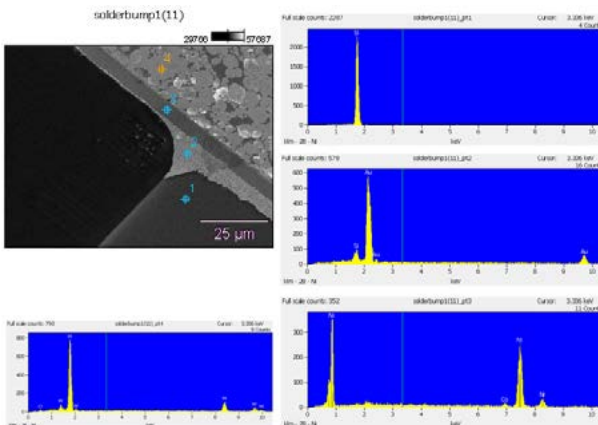
- Failure analysis
- Forensics
- Mineralogy
- Semiconductor / electronics
- Steels and metals analysis
- and much more.
- Spectral Imaging: Complete spectrum stored for every pixel.
- P&S, Extracted Line scans, x-ray element mapping
- No Liquid Nitrogen for hassle free operation
- Smaller, compact and light-weight design
- Energy resolution < 133 eV guaranteed
- Light element capability with detection down to B
- Multiple Analysis of Point, Line and Mapping Analysis
- Once click reporting to MS Word or MS Powerpoint
- Export to standard \*.emsa, \*.csv or \*.bmp files.

## Energy resolution: 5 runs

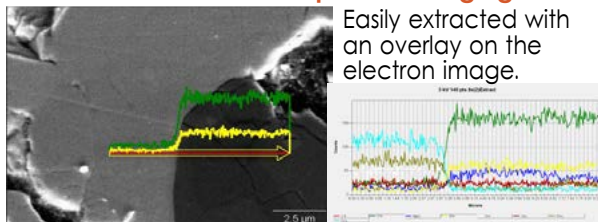


Compact UltraDry EDS Detector

## Point and Shoot

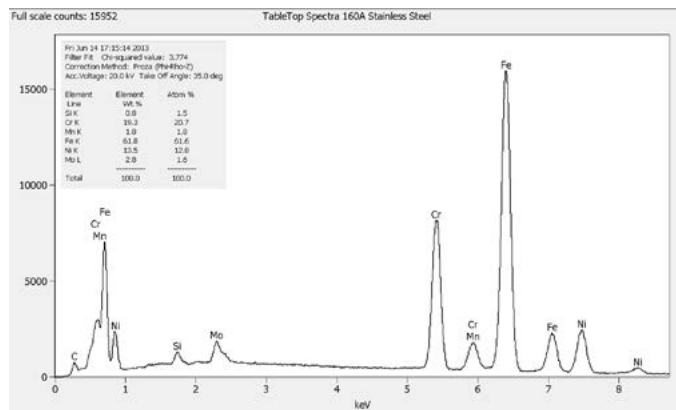


## Limitless line scans with Spectral Imaging

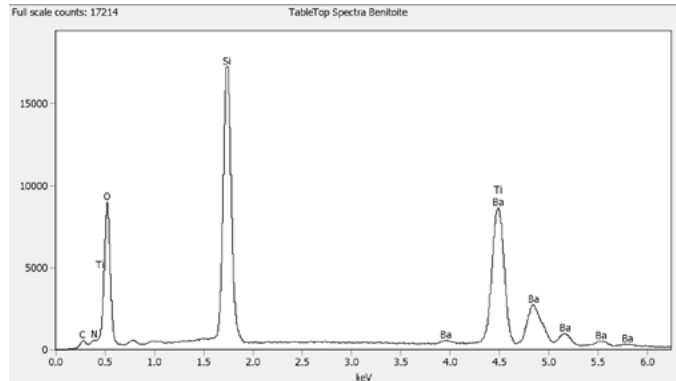


Easily extracted with an overlay on the electron image.

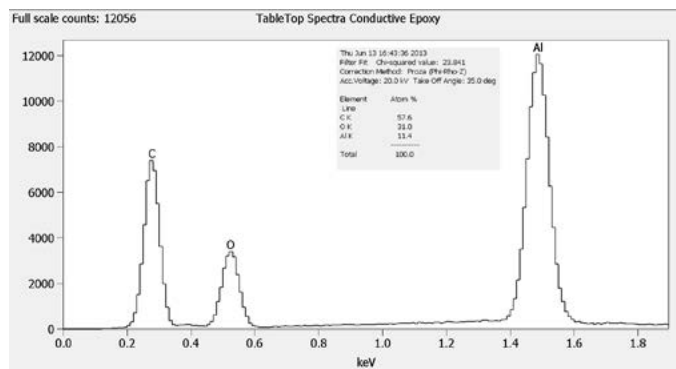
## Outstanding spectral quality!



- 300 series stainless steel
- Outstanding quantitative accuracy even at low concentrations.
- No standards required!

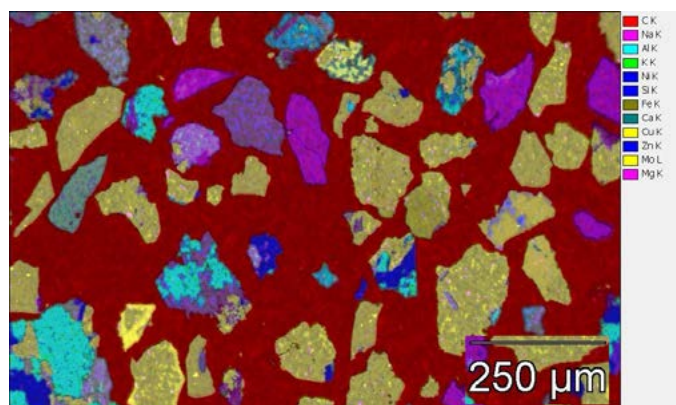


## Outstanding spectral quality for light element!



Incredible low energy performance.

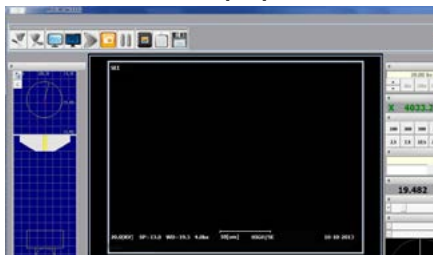
## Detailed mapping of complex structures with full Spectral Imaging



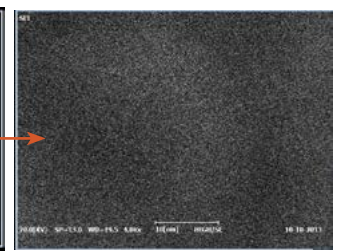
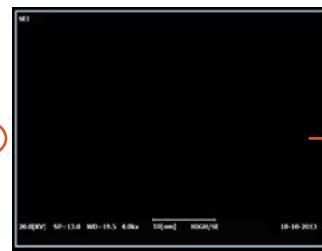
Specifications:

Model	SEM-30AX
Magnification Range	x 20 ~ x 100,000
Effective Magnification	x 50,000
Resolution	7nm (at 20kv SE Image)
Accelerating Voltage	1KV ~ 30KV (1/3/5/10/15/20/30KV)
Electron Gun	Tungsten Flament (W)
Detector	SE Detector default, BSE/EDS optional
Stage	X: 35mm (Motorized), Y: 35mm (Motorized), T: 0~45° (Motorized), R: 360°, Z: 0 ~ 60mm
Sample Size	45mm (H), 70mm (Diameter)
Image Mode (Mod)	RED(320x240), TV(640x480), Slow (800x600), Phto (1280x960, 2560x1920, 5120x3840)
Frame Rate	RED (Max. 30 frames/sec), TV (Max. 10 frames/sec), Slow(Max. 2 frames/sec)
Vacuum System	Turbo Molecular Pump
Auto Functions	Start, Focus, Filament, Brightness/contrast
OS	Windows 7
Operation	Key Board/Mouse
Dimension	400(W) x 600(L)x 550(H)mm, 90kg
Detector	SE Detector, 8 EDS Detector, BSE (optional)
EDS Functions	<ul style="list-style-type: none"> <li>- C(6) to U(92) element</li> <li>- 133eV resolution at 5.89keV Mn, 80eV fluorine</li> <li>- Up to 1,000,000 X-ray input counts per second and up to 300,000 stored X-ray counts per second</li> <li>- Automatic peak identification</li> <li>- Automatic and standardless quantitative analysis using filtered least squares fit</li> <li>- Project based data storage</li> <li>- One click reports to printer, MS Word, and MS PowerPoint if available</li> <li>- Point and Shoot X-ray acquisition with single point or rectangle analysis</li> <li>- Spectral Imaging termination criteria based on time or statistics</li> <li>- Dynamic display of elemental maps</li> <li>- Qualitative map extraction with unlimited image overlap</li> <li>- Qualitative Linescan Extractions with elemental image</li> <li>- Spectral Extractions using point, rectangle, circle, Magic Wand, and polygonal shapes</li> <li>- Linescan plot overlays on electron image.</li> </ul>

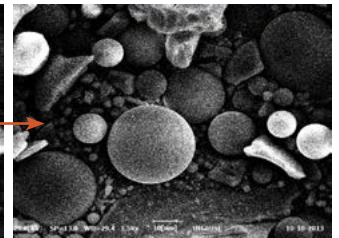
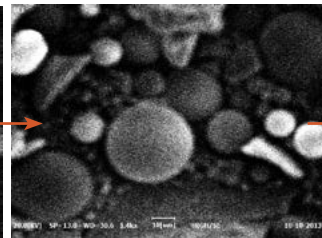
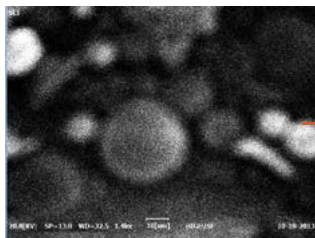
Nanostation GUI Display



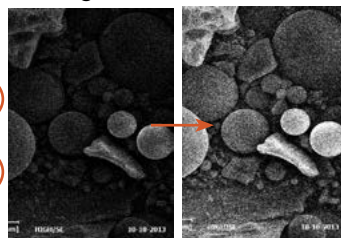
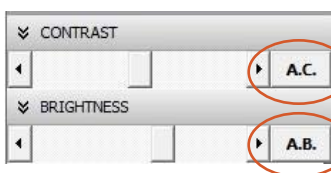
Automatic Function: Auto Filament



Automatic Function: Auto Focus



Automatic Function: Auto Contrast/Brightness



Clean Images:

- Maximum magnification x300,000 (Effective x100,000)
- Accurate focus by the fast frame on RED mode.
- Secure a large amount of beam with a short distance.
- The high brightness image is obtained by digital FPGA.



SEM-230

**SEM-230/250, Scanning Electron Microscope**

**• Quick & Easy Operation**

SEM offers you a very easy software to handle. You can have most of information and control most of buttons just through the monitor. And also you will experience a fast vacuum time. It takes only 3 minutes to reach high-vacuum after changing samples.

**• High Performance & Reasonable Price**

SEM series have high-performance, low-cost and cover the advantages from Table-top to Normal SEM categories. It provides a sample stage with X.Y.Z.R.T. S-axis, enabling users to observe samples more precise and accurate with magnifications up to 300,000x. Moreover, turbo pump system is implemented for high-vacuum, therefore additional cooling system is not needed.

**• User Friendly Graphical Interface**

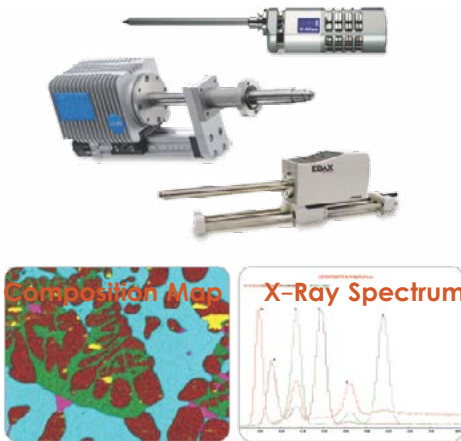
A user friendly interface enables users to operate quick and easy with Easy Mode option.

- Recipe saving Users can recall the setup data of same or similar sample, reducing setup time and measurement time.
- Image Manager The acquired images can be saved and edited by using Image Manager and also documented for the report purpose.
- Automated Functions Convenient automated image process functions such as Auto Focus, Auto Contrast/Brightness, Auto Stigmation help users to save setup time.

**• Metal Coater**

Ion Sputter Coater

- Sputtering system Top Electrode discharge system
- Target S7mm dia Au disk (standard) Pt & Carbon Available
- Vacuum Chamber 120mm dia x 110mm H (Glass chamber).



**• EDS (Energy Dispersive Spectrometer)**

EDAX Apollo X  
BRUCKER Quantax  
OXFORD X-Max

- Excellent energy resolution down to Beryllium
- High resolution
- High speed acquisition
- Reliable LN2 free with integrated Thermo electric cooling system.

**• BSED (Back Scattered Electron Detector)**

Robinson Detector

- Wide angle scintillator, catching large number of BSEs
- Short working distance, high resolution
- Good image acquisition at below 2kV beam voltage.

**Applications:**

- Life science
- Cosmetics
- Pharmaceutical
- Textiles
- Semiconductor
- Chemical Industry
- Food Industry
- Healthcare.



Model	SEM-230		SEM-250	
	Motorize 5 axis	Manual	Motorize 5 axis	Manual
<b>Resolution</b>	3nm			
<b>Magnification</b>	x10 to x 300,000			
<b>Detector</b>	SE Detector BSE Detector* LN2 free EDS*			
<b>Electron Optic System</b>				
<b>Acceleration Voltage</b>	0.5kV ~ 30kV			
<b>Electron Gun Type</b>	W Hairpin Filament			
<b>Lens System</b>	3 Lenses De-magnifying System			
<b>Objective Aperture</b>	30/50/100/200um (Variable Aperture)			
<b>Automation Function</b>	Auto Start, Auto Focus, Auto Contrast/Brightness, Auto Stigmation			
<b>Display System</b>				
<b>Reduced-Focus Mode</b>	320 x 240pixel			
<b>Video Mode I</b>	800 x 600pixel			
<b>Video Mode II</b>	800 x 600pixel			
<b>Photo Mode 1</b>	800 x 600pixel			
<b>Photo Mode 2</b>	1280 x 960pixel			
<b>Photo Mode 3</b>	1600 x 1200pixel			
<b>Photo Mode 4</b>	3200 x 2400pixel			
<b>Specimen Position Handling System</b>				
<b>X!Y Travel Distance</b>	50 x 40mm		70 x 60mm	
<b>Z Travel Distance</b>	30mm		40mm	
<b>Rotation</b>	<b>360°</b>			
<b>Tilt</b>	-10° ~ +90°			
<b>Max. Specimen Size</b>	100mm		120mm	
<b>Vacuum System</b>				
<b>Vacuum Control</b>	Full Automation			
<b>Pump</b>	Oil rotary pump + Turbo molecular pump			
<b>Option</b>	Low Vacuum mode			
<b>Control System</b>				
<b>Control PC &amp; Monitor</b>	Desktop PC / DualCore / Windows 7 / 22" Monitor			
<b>SoftWare Functions</b>	System Control / Recipe / Image Manager / Documentation			
<b>Utility Requirements</b>				
<b>Power</b>	187V ~ 253V (50/60Hz)			
<b>Power Consumption</b>	Max 3.5kW			
<b>Room Temperature</b>	15° ~ 30°			
<b>Relative Humidity</b>	70% or less			

\* Above specifications are subject to change without notice due to product upgrades

Normal SEM-200 Series



Easy to use the Best SEM, SEM-200

Have you ever thought Scanning Electron Microscope should be easy enough to operate & be shared commonly among numeral users. SEM-200 offers high resolution and convenient usage so that anyone could obtain high magnification without difficulty. Do your company have equipment operator because of the handling hardness of Scanning Electron Microscope? Experience MRC SEM-200 and you will feel everyone could get high magnification image with small effort.

Beginner Recognize at Short Notice how to get Best Quality Image with SEM-200

Nanostation operation system of SEM-200 makes it possible the auto stage navigate just in accordance with mouse click. It looks like the same as navigating google map. Zoom in and out operation from the screen image could be accomplished simply by using just mouse wheel rolling. Like this way, the ultimate simplicity makes even beginner obtain high quality image in 10 minutes tutoring at the site.

Easier than Ever, SEM-200 with Nanostation

5-axis Auto Stage System

SEM-200 support 5-axis (X, Y, Z, T, R) motorized auto stage which makes specimen move as you wish. Feel the convenience!

Click & Move System

The sophisticated motorized auto stage of SEM-200 enables users to move specimen by just doing mouse click on the screen image.

Zoom in & Out System

Zoom in and out operation from the screen image could be accomplished simply by using mouse wheel rolling. Magnification control is extremely simple with this functionality.

Support Multi Display Modes

SEM-200 support 5 display modes and Average functionality in addition. Users can enjoy various shape what they want.

Support High Quality Image

SEM-200 support images up to 5,120 X 3,840 pixels that is adequate in developing huge picture.

Support Histogram

SEM-200 support histogram functionality which helps users can get more precious picture.

Support User Defined Hot Key

User defined hot key functionality is provided so that the function used frequently can be implemented shortly.

Compare time-saving by Auto Stage

Items	Time for Sample Analysis (10 point basis)
Manual Stage	<ul style="list-style-type: none"> <li>• Time of 1 Point Analysis : 10 minutes</li> <li>- Vacuum : 3 minutes</li> <li>- Finding Sample : 3 minutes</li> <li>- Alignment &amp; setting : 1 minute</li> <li>- Focusing : 30 seconds</li> <li>- Brightness and Contrast settings : 20 seconds</li> <li>- Image data acquisition : 30 seconds</li> <li>• Time of 10 Points Analysis : about 48 minutes</li> </ul>
Auto Stage (SEM-200TA)	<ul style="list-style-type: none"> <li>• Time of 1 Point Analysis : 6 minutes</li> <li>- Vacuum : 3 minutes</li> <li>- Finding Sample : 30 seconds</li> <li>- Alignment &amp; setting : 1 minute</li> <li>- Focusing : 30 seconds</li> <li>- Brightness and Contrast settings : 20 seconds</li> <li>- Image data acquisition : 30 seconds</li> <li>• Time of 10 Points Analysis : about 23 minutes</li> </ul>

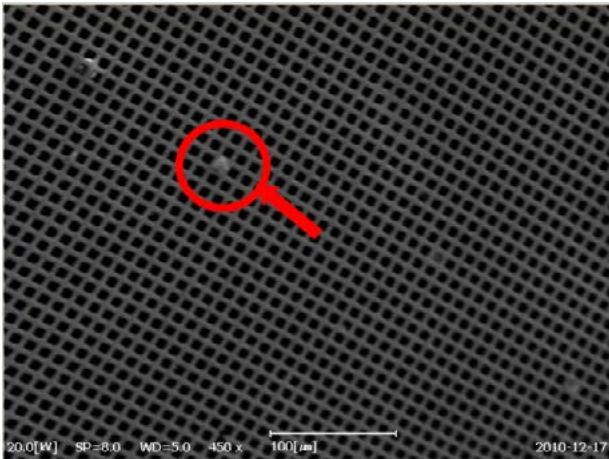
## Specifications:

Model	SEM-200TA
Magnification	x 15 ~ x 300,000 (Effective Magnification: x100,000 )
Resolution	3nm (at 30kv SE Image)
Accelerating Voltage	1KV ~ 30KV
Electron Gun	Tungsten Flarment (W)
Detector	SE Detector (optional: BSE/EDS)
Stage	5 Axis Full Auto Stage, X: 40mm, Y: 60mm, T: -20° ~ 90° R: 360°, Z: 0 ~ 60mm
Sample Size	65mm (H), 130mm (Diameter)
Image Mode (Mod)	RED(320x240), TV(640x480), Slow(800x600)
	Phto(1280x960, 2560x1920, 5120x3840)
Frame Rate	RED (Max. 30 frarres/sec), TV (Max. 10 frames/sec), Slow(Max. 2 frams/sec)
Vacuum System	Turbo Molecular Pump
Auto Functions	Start,Focus,Filament,Brightness/contrast
OS	Windows 7
Operation	Key Board/Mouse
Dimension	770(W) x 880(L)x 1500(H)mm, 400kg

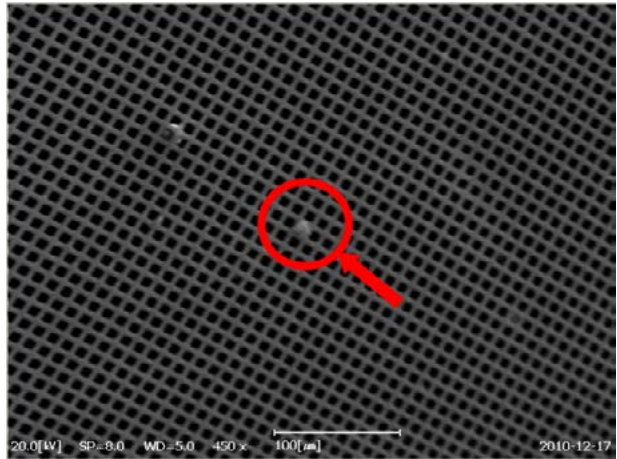
Model	SEM-200TM
Magnification	x 15 ~ x 300,000 (Effective Magnification: x100,000)
Resolution	3nm (at 30kv SE Image)
Accelerating Voltage	1KV ~ 30KV
Electron Gun	Tungsten Flarment (W)
Detector	SE Detector (optional: BSE/EDS)
Stage	Only Z Axis Auto Stage, X: 40mm, Y: 65mm, T: -20° ~ 90° R: 360°, Z: 0 ~ 60mm
Sample Size	65mm (H), 130mm (Diameter)
Image Mode (Mod)	RED(320x240), TV(640x480), Slow(800x600)
	Phto(1280x960, 2560x1920, 5120x3840)
Frame Rate	RED (Max. 30 frarres/sec), TV (Max. 10 frames/sec), Slow(Max. 2 frams/sec)
Vacuum System	Turbo Molecular Pump
Auto Functions	Start,Focus,Filament,Brightness/contrast
OS	Windows 7
Operation	Key Board/Mouse
Dimension	770(W) x 880(L)x 1500(H)mm, 400kg

Only for SEM-200TA

1. Click & Move function.



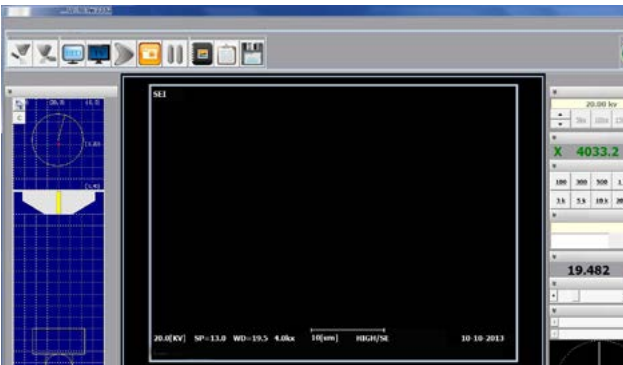
1.



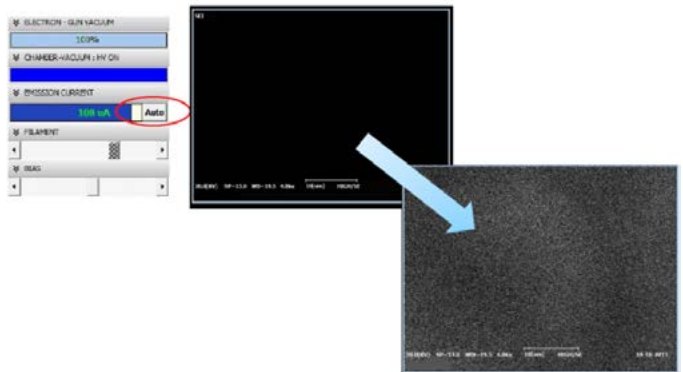
2.

- 2. Free magnification zooming function by mouse wheel.
- 3. Image focusing by mouse wheel.

Nanostation GUI Display



Automatic Function: Auto Filament

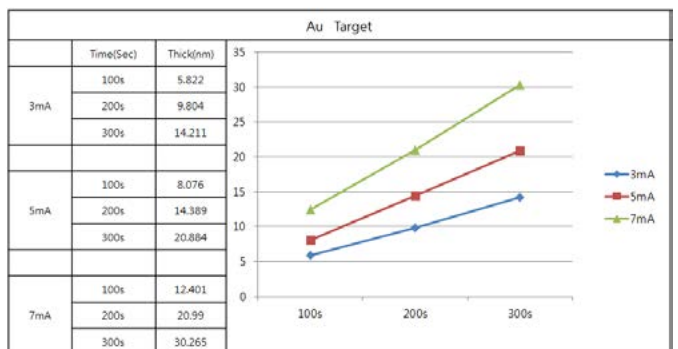


SPT-20: Ion Coater

To use Scanning Electron Microscope, Ion Coater is almost necessary to preprocess specimen with Au or Pt. MRC offers economical Ion Coater having precise coating accuracy and simple operation method at proper cost. MRC's Ion Coater might be sufficient to meet users' needs.



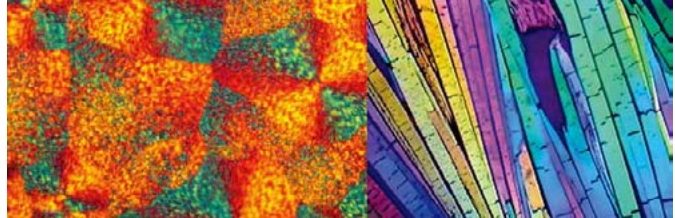
Model	SPT-20
Target	Au & PT possible
Target size	50mm
Power	220V/60Hz, 500W
Ionization Current	1 ~ 7 mA
Chamber size	100mm (Dia.)
Dimension	380mm(W) x 250mm(L) x 330mm(H)





**BA310POL, Upgradable Polarizing Microscope Platform**

BA310Pol microscope offers superb optical performance and flexibility in system expansion that can be applied to thin section petrography, mineralogy, industrial and medical applications.



Model	BA310POL					
Optical System	Color Corrected Infinity Optical System [CCIS®]					
Observation Tube	Widefield binocular 30° Widefield binocular 30° - light distribution 100:0/20:80 Widefield binocular 30° - light distribution 100:0/0:100					
Eyepieces	Widefield high eyepoint, N-WF10X/20mm, diopter adjustment on both eyepieces, rubber eyecup (paired), cross hair on one eyepiece					
Intermediate tube	360° rotatable analyzer with focusable Bertrand lens					
Nosepiece	Reversed quadruple revolving nosepiece, single position centrable					
Objectives	Strain-free EC Plan N.A. W. D. (mm)	4X 0.1 15.9	10X 0.25 17.4	20X (Optional) 0.45 0.9	40X 0.65 0.5	60X 0.8 0.35
Stage	360° rotatable stage					
Condenser	Achromat swing-out condenser N.A. 0.90/0.13 (strain-free) with iris diaphragm					
Polarizer	Rotatable polarizer, fixed on condenser carrier					
Focusing Block	Coarse focus with torque adjustment Fine focus with 2µm minimum increments					
Illumination	Koehler illumination quartz halogen 6V/30W with intensity control					
Accessories	Quartz wedge, λ and 1/4λ retardation plates Polarizing mechanical stage C-mount camera adapters: 0.5X, 0.65X, 1X Photo adapter, 2.5X photo eyepiece, 4X photo eyepiece					





### MIP101, Metallurgical Microscope

MIP101, the reflected light microscope is suitable to observe the microscopical surfaces of non-transparent object. It is equipped with large move range stage, vertical illumination, plan achromatic objectives and wide-field eyepieces. It provides clear and high-contrast picture, and with polarizer device. It is the ideal instrument in research work in metallography, mineralogy, precision engineering, electronics etc. It's suitable for scientific research, teaching demonstration in the colleges and factory.

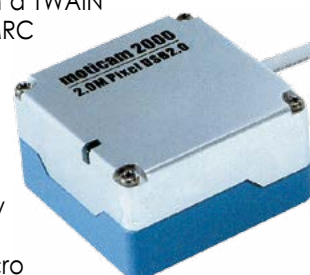
Module & Spec.				
Eyepieces	Wide field	WF10X(Ø18mm)		☺
		WF16X(Ø11mm)		◆
	Plan dividing	10X (0.10mm/div)		◆
Objectives	Plan achromatic (No cover glass)	Magnification/N.A.	Work distance	
		PL5X/0.12	18.3	☺
		PL10X/0.25	8.9	☺
		PL25X/0.40	8.7	☺
		PL40X/0.60	3.7	☺
		PL50X/0.70	2.02	◆
		PL80X/0.80	0.96	☺
Eyepieces tube	Trinocular	Compensation (inclination of 30°) Including analyzer		☺
Stage	Size: 250x250mm can be move quickly. Move Range: 153x153mm			☺
	Size: 274x274mm can be move quickly. Move Range: 203x203mm			
Nosepiece	Backward inner locating on ball bearing	Quintuple		☺
CCD Camera Accessories	0.4X CCD Camera adapter			◆
	CCD Camera adapter			◆
	0.5X CCD Camera adapter with dividing			◆
	CCD Camera			◆
Illumination unit	Vertical illuminator 6V 20W halogen lamp, adjustable brightness, with polarizer			☺
Digital Camera Adapter	CCD camera and accessories			◆

Imaging Device	2.0 Mega pixels 1/2"
Effective Pixels	1600 x 1200
Max. Still Image Resolution	2.0 Mega pixels
Scanning System	Progressive Scan
Max. Frame Rate	10fps@Max. Res, 40 fps@Binning
Max. Data Transfer	480MB/Sec through USB2.0
Min. Illumination	3 Lux
Camera Power Supply	5V self-power through USB connection
Min. System Requirements	P3; 1GHz, 256MB RAM, 32MB Display, Win XP/2000, USB2.0 G4; 1GHz, 256MB RAM, OSX, USB2.0
Included Software	MRC Images Plus 2.0 for Windows & Macintosh (2 CD)
Calibration Slide	MRC Certified printed calibration slide

### Live High Resolution Digital Camera

Moticam is compact and lightweight camera that attach to virtually any microscope through the eyepiece, eyetube or onto a trinocular mount • Easy plug & play USB2.0 Hi-Speed connection ensures that crisp and clear real-time images are displayed on the computer monitor turning any microscope into a Digital Microscope • Use this camera with your own software through a TWAIN interface or use the included MRC Images Plus 2.0 application software on both Windows and Macintosh systems

• The complete set of included accessories gives these hi-resolution cameras the ability to be used in many different applications from Macro to Micro viewing.



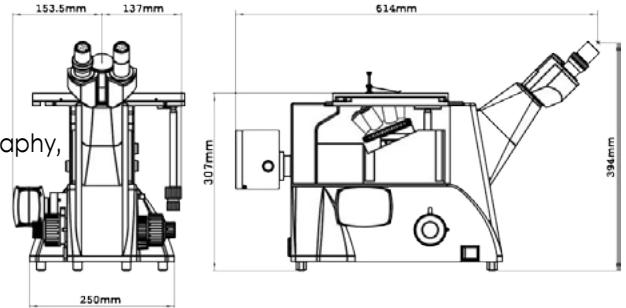
**MOTICAM 2000**



**MIP6A**

**MIP6A, Inverted metallurgical microscope**

MIP6A Inverted metallurgical microscope is equipped excellent UIS optical system and modularization function design so that update system expediently and achieved polarization, dark field observation. Compact and steady main frame body is embodiment for the shock resistance. The ideal ergonomic design is adopted in this unit and has easier operation and wider space. This is ideal optical instrument for micro observation in metallographic structure and surface morphology. It is suitable for research in metallography, mineralogy, precision engineering, etc.



**Standard Configuration:**

<b>Eyepiece</b>	<b>Wide field WF10X (field number: <math>\mu</math>22mm)</b>	
<b>Objective</b>	Equipped with bright field objectives version	PL L10X/0.25 (Work distance): 20.2 mm PL L20X/0.40 (Work distance): 8.80 mm PL L50X/0.70 (Work distance): 3.68 mm PL L100X/0.85 Dry (Work distance): 0.40 mm
	Equipped with bright & dark field objectives version	PL L5X/0.12 BD (Work distance): 26.1 mm PL L10X/0.25 BD (Work distance): 9.30 mm PL L20X/0.40 BD (Work distance): 7.23 mm PL L50X/0.70 BD (Work distance): 2.50 mm
<b>Eyepiece tube</b>	<b>Inclination angle is 45° and interpupillary distance is 53~75mm</b>	
<b>Focus system</b>	Coaxial coarse/fine focus, with tension adjustable minimum division of fine focusing is 2 $\mu$ m	
<b>Nosepiece</b>	<b>Quintuple (Backward ball bearing inner locating)</b>	
<b>Stage</b>	Mechanical stage overall size: 242mmX200mm and moving range: 30mmX30mm.	
	Rotundity and rotatable stage size: maximal measurement is $\Phi$ 130mm and minimal clear aperture is less than $\Phi$ 12mm.	
<b>Illumination system</b>	<b>6V30W halogen and brightness enable control., use in bright version</b>	
	<b>12V50W halogen and brightness enable control., use in dark version</b>	
	<b>Integrated field diaphragm , aperture diaphragm and puller type polarizer</b>	
	<b>Equipped with frosted glass and yellow ,green and blue filters</b>	

**Optional Accessories:**

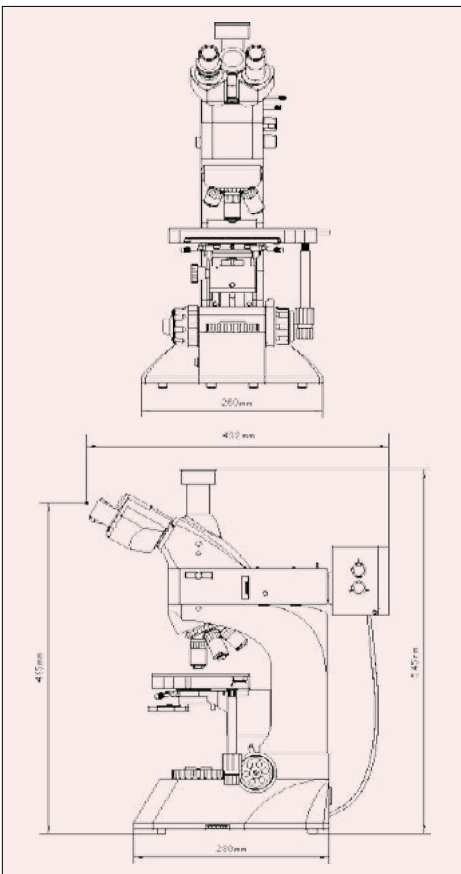
<b>Name</b>	<b>Sort/Technique parameter</b>	<b>Model</b>
<b>Eyepiece</b>	<b>Dividing eyepiece(<math>\mu</math>22mm)</b>	<b>1122010</b>
<b>Objective</b>	PL L5X/0.10 (Work distance): 26.12 mm	Equipped with bright field objectives
	PL L40X/0.60 (Work distance): 3.68 mm	
	PL L60X/0.70 (Work distance): 3.18 mm	
	PL L80X/0.80 (Work distance): 1.28 mm	
	PL L40X/0.60 BD (Work distance): 3.00 mm	Equipped with bright & dark field objectives
	PL L60X/0.70 BD (Work distance): 1.90 mm	
	PL L80X/0.80 BD (Work distance): 0.80mm	
	PL L100X/0.85 BD (Work distance): 0.22 mm	2120100
<b>CCD Adapter</b>	<b>0.5X</b>	<b>812004</b>
	<b>1X</b>	<b>812002</b>
	<b>0.5X with dividing 0.1mm/Div</b>	<b>812003</b>
<b>Camera</b>	DV1- Video output 520/380 TV line USB output 0.42 M pixel	800001
	DV2- With USB output 1.3M, 2.0M, 3.0M pixel	800003
	DV3- With video output 520/380 TV line	800005
<b>Digital camera adapter</b>	CANON(EF) NIKON( F)	820001



L3230

**Features:**

- With infinity plan achromatic objectives with long working distance (no cover glass) and wide-field eyepieces, can get clear pictures and wide view field.
- Coaxial coarse/fine focus system, with tension adjustable and up stop, minimum division affine focusing: 2~1m.
- Movement of stage: 30mm
- With vertical illuminator and transmitted illuminator, can observe surfaces of non-transparent object or transparent object.
- Trinocular, can switch to observe normally or to observe the Polarize, can send 100% or light to the binocular eyepieces or to the top port.



**L3230, Reflected Light & Transmitted Light Microscope**

L3230 reflected and transmitted microscope is suitable to observe surfaces of non-transparent object or transparent object. It is equipped with vertical illuminator, infinity plan achromatic objectives with long working distance (no cover glass), wide-field eyepieces and set polarizer device in trinocular. It provides clear and high-contrast image, beautiful sculpt, convenient control, etc. It is the ideal instruments in research work in biology, metallography, mineralogy, precision engineering, electronics, etc. It is suitable for scientific research, teaching demonstration in the colleges and factory.

Model	L3230
Eyepiece & Objectives	Wide field WF10X (Φ20mm)
	PL L5X/0.12 Infinity plan achromatic objectives with long working distance (no cover glass)
	PL L10X/0.25 Infinity plan achromatic objectives with long working distance (no cover glass)
	PL L40X/0.60 (spring) Infinity plan achromatic objectives with long working distance (no cover glass)
	PL L60X/0.75 (spring) Infinity plan achromatic objectives with long working distance (no cover glass)
Eyepieces tube	Trinocular, Inclination of 30°, (Analyzer with field diaphragm to switch)
Vertical illumination unit	6V 30W, halogen lamp, adjustable brightness
	Vertical illumination with field diaphragm, aperture diaphragm and polarizer,(Y,B,G)filter and Ground glass
Focus system	Coaxial coarse/fine focus system, with tension adjustable and limit stopper, minimum division of fine focusing: 2μm.
Nosepiece	Quadruple (Backward ball bearing inner locating)
Stage	Double layer mechanical (Size:210mmX140mm,movingrange: 75mmX50mm)
Vertical illumination unit	Abbe condenser NA.1.25 Rack & pinion adjustable
	Blue filter and Ground glass
	Collector for illumination with halogen lamp (With field diaphragm)
	6V 20W, halogen lamp, adjustable brightness

Name	Sort/Technique parameter	NO.
Eyepiece	Wide field eyepiece WF10X(Φ18mm)	1041010
	Wide field eyepiece WF16X(Φ11mm)	1051016
	Dividing eyepiece 10X(Φ18mm) 0.10mm/Div	1121010
Objective	PL L 20X/0.40 Infinity plan achromatic objectives with long working distance (no cover glass)	2830120
Nosepiece	Quintuple Backward ball bearing inner locating	032002
Filter	Green filter	115002
	Yellow filter	115003
CCD adapter	0.4X	810001
	0.5X	810004
	1X	810002
	0.5X with dividing 0.1mm/Div	810003
Photo unit	2.5X/4X Change over photograph attachment with 10X viewing eyepiece	840001
	4X Focusing photograph attachment	840002



**BA310MET**

Daily industrial work environments need a reliable microscope which focuses on ease-of-use as well as on work efficiency. MRC has paid careful attention to these market requirements in order to optimize the BA310MET's features. The Epi-Illuminator with a 12V/50W Halogen illumination offers a powerful and adjustable light source ideal for all reflective samples. For increased illumination options, an easy replacement of the Halogen bulb is possible by an LED module of different color temperatures (4500K, 6000K). A built-in field diaphragm and aperture diaphragm help to optimize image quality by reducing stray light and increasing contrast.

Also MRC's new Long-Working Distance Plan Achromatic objectives for Incident light provide optimal image contrast through a multi-layer lens coating. Together with a fully corrected tube lens an intermediate image without color fringes is created, accessible through the Trinocular port and making digital images as clean and crisp as those seen through the eyepieces. The BA310MET design also includes a standardized ISO photo exit. Depending on the chosen model, a hard coated and chemical resistant stage with a minimum of 75x50mm travel range is offered. Depending on the application, larger stages with extended travel are available, as well as stage options for Transmitted light usage. For maximum sized samples, the BA310MET-H model is recommended.



**BA310MET, Advanced Metallurgical Microscope**

MRC is expanding the success of its popular BA Series microscope line into the Industrial market, and is pleased to introduce the new BA310MET series, an affordable and powerful Metallurgical microscope line of robust Incident light microscopes.

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

Two other additions are also available. The BA310MET-T model has a Transmitted light option that allows easy handling & viewing also of transparent samples and greatly increases the number of industrial applications. The BA310MET-H setup contains a more flexible focusing device, dedicated to the examination of large samples with only little limitation in size.



**BA310MET-H**

**Objectives:**

For improved optical performance of the BA310MET series, MRC introduces a new generation of Metallurgical LWD objectives. These Plan Achromatic Objectives are made of high quality glass and follow the successful MRC CCIS® Optical concept. Multi-layer coating ensures improved contrast and image quality. The tube lens provides a completely corrected intermediate image, accessible by the photo port exit of the Trinocular head option. Documentation therefore is based on maximum image quality. The ball bearing 5-fold nosepiece shows a reversed orientation of the lenses and ensures parcentration and repeatability with every magnification change.



Description	N.A.	W.D.(mm)
Plan 5X	0.13	11.5
Plan 10X	0.30	6.80
Plan 20X	0.40	11.10
Plan 50X	0.55	8.20
Plan 100X	0.80	2.00

**Illumination:**

The Epi-Illuminator of the BA310MET models is based on a 12V/50W Halogen light source. The unit's power supply is separated from the stand to avoid unnecessary heat surrounding the microscope.

Like in other MRC models, the Halogen bulb can be replaced by an LED module (4500K or 6000K), simply plugged into the Halogen lamp socket. With an adjustable field diaphragm and aperture diaphragm, homogenous illumination is guaranteed. Careful use of both diaphragms creates a maximum image quality in terms of contrast. The simple polarization set (polarizer & analyzer) enables a useful "POL contrast" and helps to improve image contrast especially in low power objectives.



**LED Module**

**Halogen Bulb**

The BA310MET-T stand offers an additional Transmitted light option. Equipped with a standard Koehler 6V/30W Halogen setup including the Field diaphragm, a replacement of the Halogen bulb by LED modules of different color temperatures (4500K, 6000K) is also possible. To ensure the best possible illumination quality, a new Achromatic N.A 0.85 condenser is an integral part of this new microscope. With these components, imaging of transparent samples with Full Koehler quality is ensured. Also, the collector lens assembly offers a secure, screw-on filter holder for any kind of desired filter - while the fixed cap prevents the filter from dropping when the instrument is stored.

### Eyepiece Tubes:

Designed with an ergonomic viewing angle of 30° and incorporating an interpupillary distance of 55-75mm, the BA310MET observation tubes guarantee hours of fatigue free viewing. A large Field of View (20mm) enables fast and comfortable screening. The Trinocular tube allows digital documentation by using a wide variety of digital cameras, with a 20/80 light split through the photo/video port. On special demand, a Trinocular tube with an erect image and a fixed 50/50 light split can be supplied. As a standard, an anti-fungus treatment has been applied to the eyepiece tubes to ensure a long lifetime of the microscope in humid environments.

### Eyepieces:

The standard eyepieces, N-WF 10X/20 with high eyepoint for eyeglass wearers, made of high quality optical glass, provide consistent diopter adjustments for both eyes. This enables perfect usage of reticles for measuring purposes. Lockable countersunk screws to fix the eyepieces prevent inadmissible removal and confirm MRC's dedication to a student proof quality. For BA310MET and BA310MET-T, eyepieces with FOV 22mm are optional.

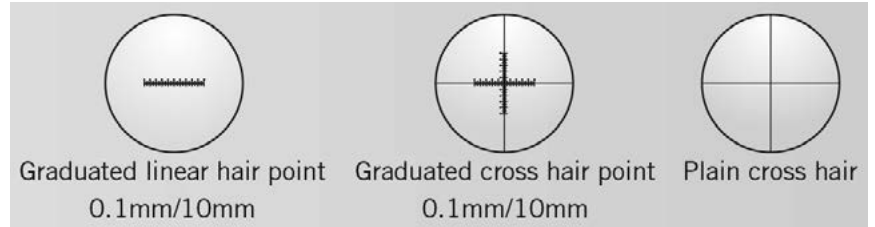
Description	F.N.(mm)
Widefield N-WF 10X	20
Widefield N-WF 10X	22
Widefield N-WF 15X	16



**EPI Illuminator Module**



For measuring purposes, the following reticles are available:



### Stages:

Depending on the application, four different stages for BA310MET series are available. All stages provide a convenient sample movement with their triple-plate design.

The standard stage for BA310MET comes with an area of 180x140mm and 75x50mm travel range.

A larger area is offered with the 3"x2" stage for the BA310MET-T. 240x140mm can carry larger samples, while the movement is 75x50mm.

For Transmitted light inspections, a glass stage insert is provided, while a slide holder is optional.

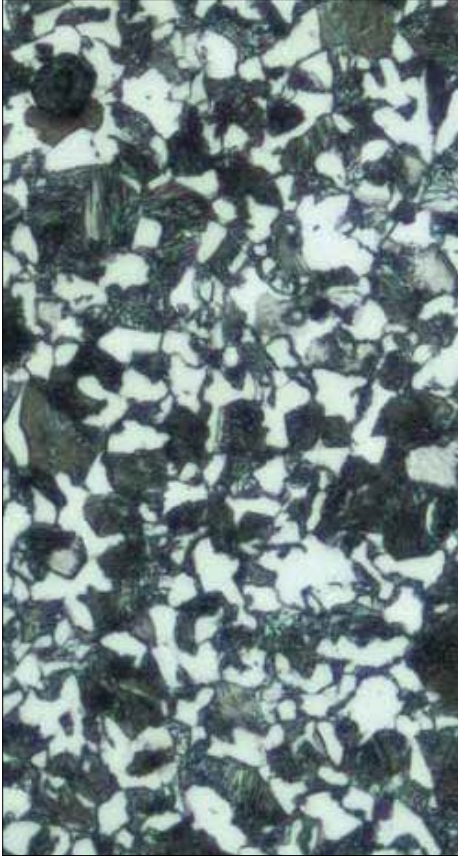
For extended demands, a 6"x4" (300x180mm) stage with a movement of 150x100mm can be supplied with the BA310MET-T.

The BA310MET-H setup for extremely large samples and maximum handling freedom carries a 180x140mm stage with a travel range of 100x80mm. This model is dedicated to bulky samples. The Epi-Illuminator here is combined with a focusing block of 30mm focusing range and 2 microns minimum increment.

### Documentation:

Today, accurate documentation has been established as an important part in natural sciences and industrial quality control. The new BA310MET system offers the choice between several imaging options.





**Standard Photomicrography:**

The traditional use of a single lens reflex camera (analogue or digital) requires the Trinocular version of the BA310MET. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X)

The necessary T2 adapter referring to the camera model is supplied by the camera manufacturer. This setup delivers high resolution images of small fields.

**Digital Documentation:**

A more convenient setup is provided through MRC's philosophy of easy image digitization. The combination of the BA310MET with a member of the Moticam series of digital cameras delivers excellent live images, which can easily be stored for future usage. All MRC cameras come equipped with software to transform the BA310MET into an analysis and documentation station.

MRC offers a complete range of digital cameras starting with a basic resolution of 1.0MP up to 10MP (CMOS chips). The Research grade Moticam Pro Line (CCD), with a maximum of 5MP, including Monochrome and Cooled versions, are dedicated to professional demands in sensitivity and color fidelity. These Moticam cameras deliver sharp live images with easy post-capture handling.

For further details on our range of cameras, as well as the different CCD adapters, please contact your nearest MRC office or your local authorized MRC reseller.

**CCD Adapter:**

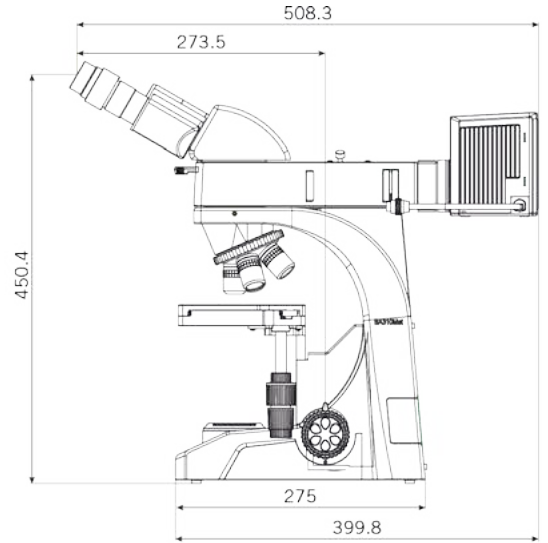
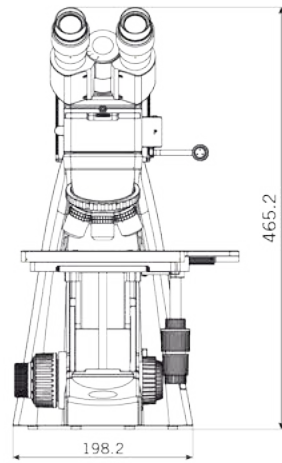
A set of CCD adapters, following the ISO standard with 38mm diameter, display improved optical performance to greatly enhance image reproduction quality. The appropriate adapter has to be chosen in relation to the chip size of the used digital camera. The following "magnifications" are available: 1X, 0.65X, 0.5X.

**Standard Specifications:**

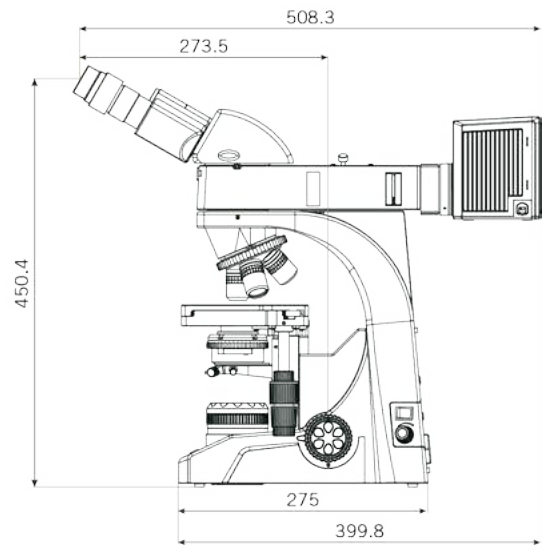
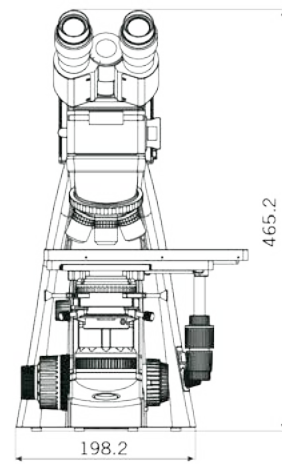
Model	BA310MET / MET-T
<b>Optical System</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Eyepieces</b>	N-WF 10X/20mm, with diopter adjustment
<b>Observation Tubes</b>	Widefield binocular 30° [F.N. 20] Widefield trinocular 30° [F.N. 20] - light distribution 100:0/20:80 Widefield trinocular 30° [F.N. 20] - light distribution 50:50 fixed, erect image
<b>Nosepiece</b>	Reversed quintuple
<b>Stage</b>	BA310MET: 180x140mm surface; 75x50mm movement; coaxial controls BA310MET-T: 240x140mm surface; 75x50mm movement; coaxial controls (3"x2") BA310MET-T: 300x180mm surface; 150x100mm movement; coaxial controls (6"x4")
<b>Focus</b>	Brass gears; Z-Axis movement 30mm
<b>Fine focus</b>	2µm minimum increment
<b>Incident light</b>	50W Halogen illuminator with external power supply Halogen bulb/12V hrs life span 20,000< , (6000K,4500K) 3W LED exchangeable with
<b>Transmitted light</b>	BA310MET-T: Built-in 6V/30W Halogen Koehler illumination Halogen bulb exchangeable with 3W LED (4500K,6000K), >20,000 hrs life span
<b>Condenser</b>	BA310MET-T: N.A. 0.85; focusable and centrable
<b>Specimen thickness</b>	Max. 30mm

Model	BA310MET-H
<b>Optical System</b>	Color Corrected Infinity Optical System [CCIS®]
<b>Eyepieces</b>	N-WF 10X/20mm, with diopter adjustment
<b>Observation Tubes</b>	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
<b>Nosepiece</b>	Reversed quintuple
<b>Stage</b>	180x140mm surface; 100x80mm movement; coaxial controls
<b>Focus</b>	Brass gears; Z-Axis movement 30mm
<b>Fine focus</b>	2µm minimum increment
<b>Incident light</b>	12V/50W Halogen illuminator with external power supply Halogen bulb exchangeable with 3W LED (4500K,6000K), >20,000 hrs life span
<b>Specimen thickness</b>	Max. 120mm

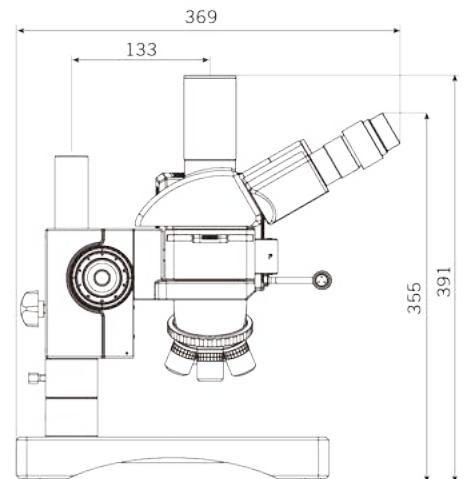
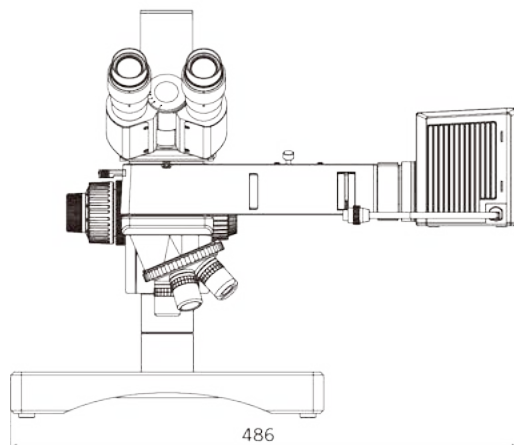
**BA310MET Schematic Diagram (unit:mm):**



**BA310MET-T Schematic Diagram (unit:mm):**

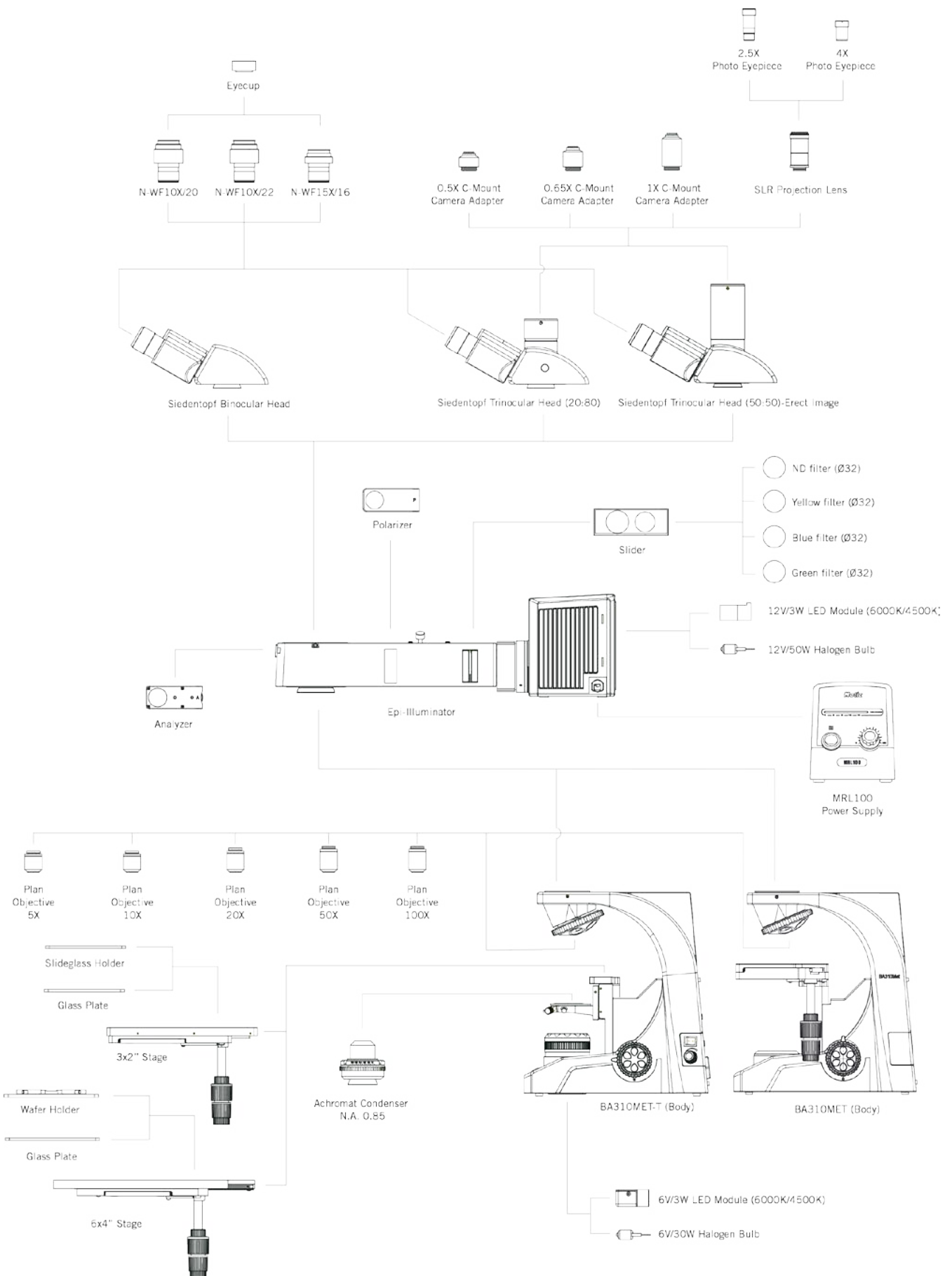


**BA310MET-H Schematic Diagram (unit:mm):**



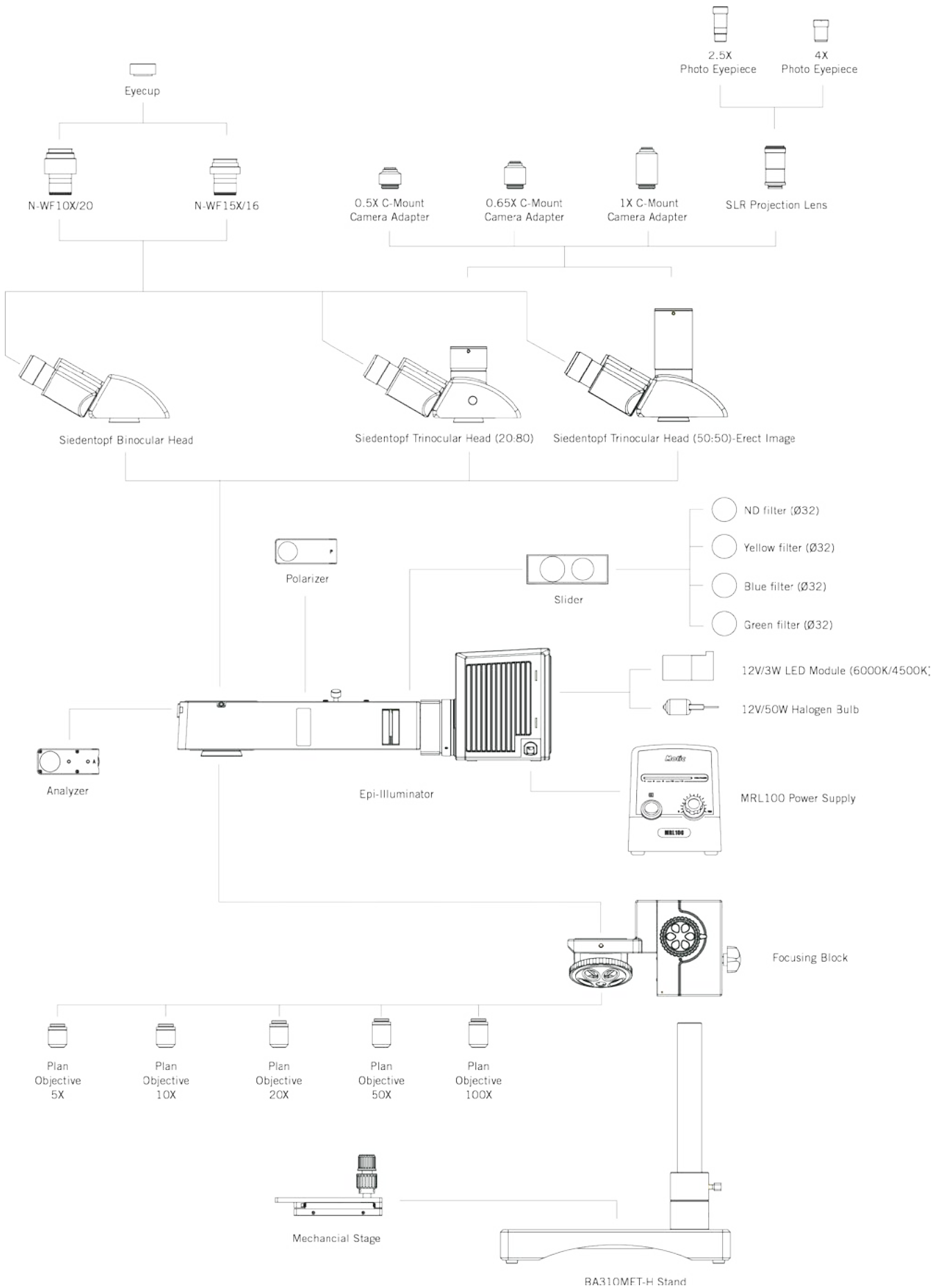
# MICROSCOPES Metallurgical

## BA310MET / MET-T System Diagram:





## BA310MET-H System Diagram:





## AE30 Series, Upgradeable Live Cell Microscope Platform

With the introduction of its premium AE30 Series of Inverted Microscopes, MRC joined the group of manufacturers capable of providing High-End optics, ergonomic design and craftsmanship as well as durable product quality. MRC doing so, however, all at an affordable price point. The AE30 Series quickly became the perfect solution for all kind of routine microbiological work in clinical and pharmaceutical laboratories as well as in demanding University teaching and research environments. Designed for Routine as well as Research applications, the AE30 Series meets most of the requirements of an Inverted microscope. MRC's proven CCIS® Infinity Optics guarantees superb image quality and maximum reliability. The model's long-working distance objectives ensure an efficient work through a wide variety of laboratory applications. Standard Contrast techniques such as Bright field and Phase contrast are supported by the AE30's optimal light management system, featuring easy-to-use standard Koehler illumination. Upgradeability to EPI- Fluorescence is also offered for the entry level of Research applications.

### Stands:

Designed as an Inverted microscope series with multiple applications in mind, the AE30 is available in 3 stand variations: a Binocular and (2) different Trinocular versions – each coming with a small footprint to meet limited space conditions in modern laboratories. Also, the instrument's "Y" shaped base provides extra lateral stability. Effective ergonomic design has been implemented in the AE30 Series to allow easy and quick access to all important functions. The focussing knobs and the controls of the attachable mechanical stage are placed conveniently at the user's fingertips. Die-cast aluminium frame alongside a reliable optical design of MRC's well established CCIS® Optical System guarantees a long life-time with repeatable results, even under rough working conditions.



### Eyepiece tubes:

For all stand types, a viewing angle of 45° is realized for comfort and posture management. The interpupillary distance can be adjusted between 55–75mm, ensuring fatigue-free observation.

Besides the standard Binocular stand, the Trinocular versions come with 2 different beam-split options. For light-sensitive methods like Fluorescence, MRC recommends the 100:0/0:100 beam split, allowing 100% of the light to pass through to the photo exit and thus simplifying imaging work especially with living samples.

For standard applications like Bright field and Phase contrast, the 100:0/20:80 split may be more appropriate, allowing simultaneous observation through the eyepieces as well as the image displayed on screen by using a camera. A complete range of MRC digital cameras, in both affordable CMOS and scientific CCD options, are available.

All eyepiece tubes come with a 22mm Field of View (FOV 22) that allows a fast screening and easy sample detection for improved daily workflow.

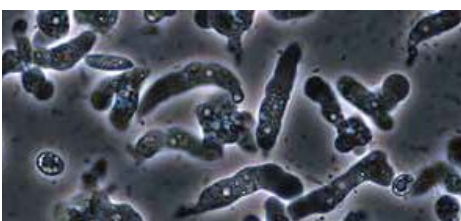
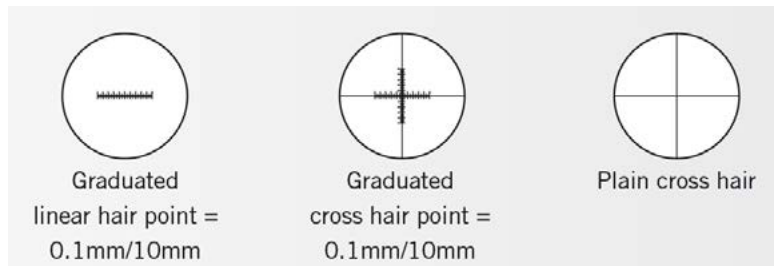
Description	F.N.(mm)
Widefield WFPL 10X	22
Widefield WFPL 12.5X	17.5
Widefield WFPL 15X	14.5

### Eyepieces:

In the AE30 Series, MRC's Infinity Corrected CCIS® Optical System displays field flatness across its entire 22mm intermediate image plane. The high eye point principle of the AE30's eyepieces ensures true colour and sharp resolution, while minimizing eye fatigue and strain. Each eyepiece contains a diopter adjustment, an integral part to help spectacle wearers, in addition to optimized reticule usage. Besides the standard eyepieces 10X/22, the AE30 Series also offers higher magnification eyepieces.

### Eyepiece reticules:

The MRC AE30 Series offers a number of reticules for measuring purposes.



### Nosepiece:

With its ball-bearing mechanism, the AE30's quintuple nosepiece ensures maximum parcentration and repeatability with every magnification change. The side-facing orientation allows a quick view on the objective when changing manually the magnification. When dealing with liquids, the sealed nosepiece on the AE30 Series prevents fluid spills from getting into the inner instrument's mechanics, guaranteeing trouble-free usage over many years.

Magnification	N.A.	W.D.(mm)
Plan Achromat 4X	0.10	23.5
Plan Achromat 10X	0.25	7.5
Plan Achromat LWD 20X	0.40	7
Plan Achromat LWD 40X	0.60	2.8
Plan Achromat LWD 60X	0.80	1.4
Plan Achromat Phase 10X	0.25	7.5
Plan Achromat Phase LWD 20X	0.40	7
Plan Achromat Phase LWD 40X	0.60	2.8

**Objectives:**

Long working distance (LWD) objectives are essential for use with all Inverted Microscopes. This lens design allows easy focussing through the bottom of various culture media into the nutrition media, especially in cases of non-adherent cells. Further, optical compensation is designed for thick vessel bottoms of Petri dishes or well plates to ensure max. image quality. MRC's AE30 CCIS® objectives fulfil two criteria critical for optimal sample viewing: these Plan Achromats are designed for improved contrast as well as field flatness over the entire 22mm Field of View. For higher magnifications, especially when using Fluorescence, a 60X/0.80 bright field lens is available.

**Stage:**

The AE30's convenient low positioned fixed stage plate, optimized for viewer posture and easy access, has a hard coated surface resistant against abrasion and corrosion. All standard microscope packages come with both a glass and metal stage insert. The glass insert gives an easy view of the objective used.

The standard stage plate of 200x260mm can be enlarged by adding a pair of auxiliary extension plates.

The optional attachable x/y stage comes with a well plate holder of 128x86mm included. Inserts for all common Petri dish sizes, cell culture vessels, standard glass slides and haemocytometer are available on request.



**Condenser:**

The standard condenser of MRC's AE30 Series has a working distance of 72mm, giving sufficient working space for most vessels. It can be adjusted in height by a brass rack and pinion system. This material ensures a long life time and precise movement. Together with the field diaphragm located in the illumination arm, Koehler illumination is easily set up.

The phase ring slider carries 2 phase rings (Ph1 for 10X/20X; Ph3 for 40X) as well as a bright field position. All Phase lenses are therefore covered with one Phase ring set. Adjustment of the phase rings is performed by 2 Allen keys and a Centering Telescope.

A higher illumination aperture for demanding samples can be achieved by an optional condenser of NA 0.5 (WD=28mm, requiring a separate Phase ring set). Without condenser body, the free working distance can be increased up to 231mm.

**Illumination:**

The AE30's 6V/30W Halogen light source provides a bright and even illuminated image at any magnification. Its centerable lamp house can be adjusted by external knobs without any special tool.

The illuminated field can be varied by a built-in field diaphragm; while a filter holder may carry different glass filters for colour temperature adjustments or other imaging requirements.

Together with the condenser system, perfect Koehler illumination setup can be performed.

**Fluorescence:**

The modular concept of the AE30 Series allows an easy upgrade to an EPI-Fluorescence microscope by using the fluorescence attachment.

This slider-device may carry up to 3 filter cubes. The optional Fluorescence package consists of: Fluorescence attachment with 3 filter positions XBE-HBO 100W lamp house with mirror for improved brightness Starter unit A complete range of filter cubes is available, covering all routine applications from UV to NIR excitation. Supplied with band pass barrier filters, multi colour applications can also be performed. Specialized filter combinations are available upon request.



# MICROSCOPES Inverted

## Standard filters:

### DAPI and Hoechst set

Exciter D350/50X  
Dichroic 400DCLP  
Emitter D460/50m

### FITC/RSGFP/Fluo 3/DIO Acradine orange (+RNA) set:

Exciter D480/30X  
Dichroic 505DCLP  
Emitter D535/40m

### FITC (Long Pass) set

Exciter D470/40X  
Dichroic 505DCLP  
Emitter E515LPv2

### TRITC (Rhodamine)/Dil/Cy3 set Exciter

D540/25X  
Dichroic 565DCLP  
Emitter D605/55m

### Texas Red/Cy3.5 set

Exciter D560/40X  
Dichroic 595DCLP  
Emitter D630/60

### Cy5, Alexa Fluor 633, Alexa Fluor 647 set

Exciter HQ620/60X  
Dichroic Q660LP  
Emitter HQ700/75m

### Cyan GFP set

Exciter D436/20X  
Dichroic 455DCLP  
Emitter D480/40m

### Endow GFP Bandpass Emission set Exciter

HQ470/40X  
Dichroic Q495LP  
Emitter HQ525/50m

### Yellow GFP BP (10C/Topaz) set Exciter

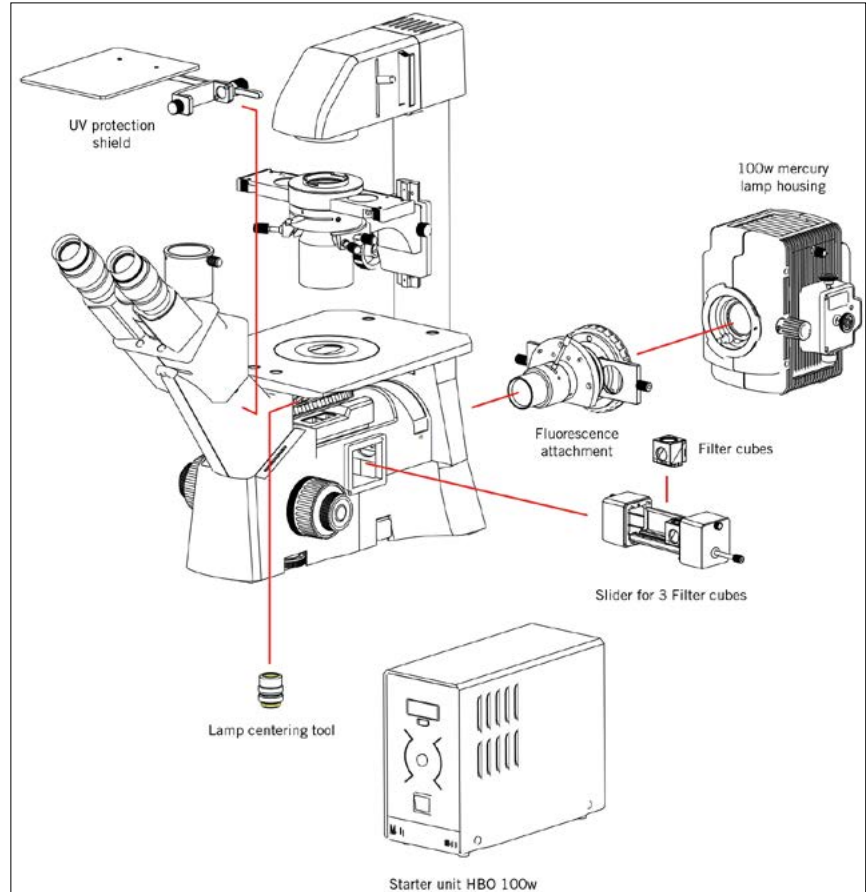
HQ500/20X  
Dichroic Q515LP  
Emitter HQ535/30m

Specialized filter combinations are available on request.

The newly designed XBE-HBO lamp house with improved light management offers a more powerful excitation, resulting in brighter signals. In combination with a Moticam Pro Digital camera, excellent images are ensured.

Designed for improved contrast and high resolution, MRC recommends also the Plan Fluorite objective series for weaker fluorescence signals. Higher Numerical apertures lead to brighter fluorescence signals and easier documentation, but working distances are shorter than conventional LWD objective types.

Petri dishes with 0.17mm glass bottoms or slides turned upside-down are the appropriate samples.



## Documentation:

Today accurate image documentation is becoming an increasingly important part in most, if not all, natural science applications. With the AE30 Series the end-user may choose between several different imaging options.

## CCD Adapter:

Based on the chip size of the C (CS)-mount camera in use, and the desired field of screen display, MRC has developed a series of video adapters for the AE30 Series. From 0,5X to 1X: the customer may follow his preference for Field of Display or Resolution. The smaller the adapter's factor ( $0,5X < 0,65X < 1X$ ), the larger the displayed field. At the same time the shown resolution on the screen is minimized.

## Standard Photomicrography:

The traditional use of a single lens reflex camera, today mostly digital, requires one of the Trinocular versions of the AE30 Series. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X). The necessary T2 adapter referring to the camera model is supplied by the respective camera manufacturer. This setup delivers high resolution images of small fields.

## Digital Documentation:

A more convenient setup is provided through MRC's philosophy of easy image digitalization. The combination of an AE30 with a member of the Moticam series of digital cameras delivers excellent live images, which can easily be stored for future usage. All MRC cameras come equipped with

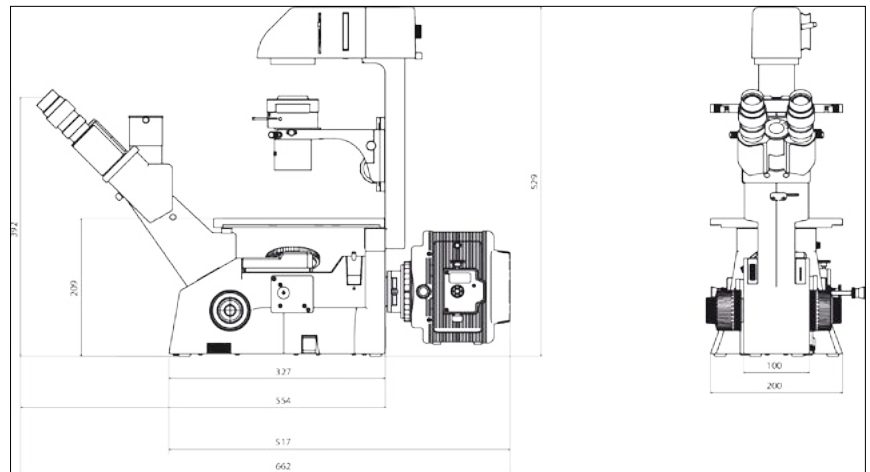
software to transform the AE30 into an analysis and documentation workstation. For the Binocular AE30, eyepiece adapters for MRC cameras are available.

MRC offers a complete range of digital cameras, starting with a basic resolution of 1.3MP (CMOS) up to the research grade Moticam Pro Line (CCD) with a maximum of (at the moment) 5MP, including Monochrome and Cooled versions. These Moticam cameras deliver sharp live images with an easy post-capture handling. For further details on our range of cameras, as well as on adaptation questions, please contact your nearest MRC office or your local authorized MRC Professional reseller.

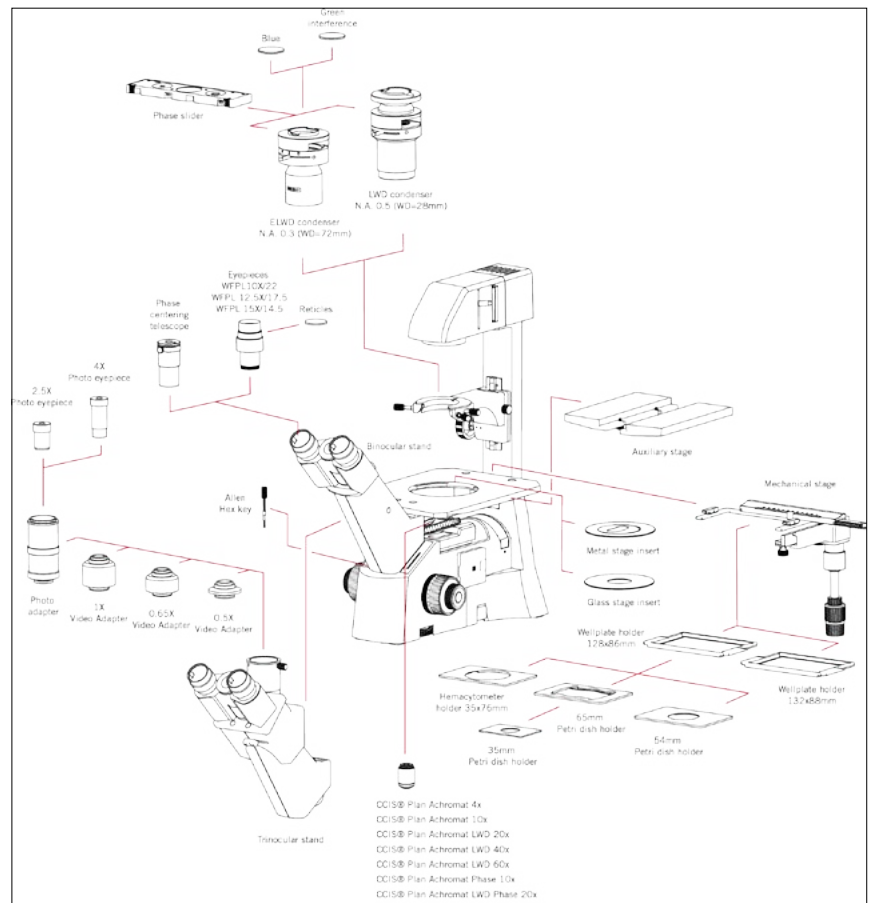
### AE30 Standard Specifications:

Model	AE30
Optical System	Color Corrected Infinity Optical System [CCIS®]
Eyepieces	Widefield High Eyepoint, WFPL10X/22mm, with diopter adjustment
Observation Tubes	Widefield Binocular, 45° viewing angle Widefield Trinocular, 45° viewing angle, light distribution 100:0/20:80
Nosepiece	Left side orientated, quintuple
Stage	200X260mm surface
Condenser	ELWD N.A. 0.3, working distance 72mm Without condenser: working distance 231 mm
Focus	By nosepiece movement, 10 mm Coaxial focusing knobs Coarse focus with torque adjustment Fine focus with 2µm minimum increment
Illumination	6V/30W Quartz Halogen with intensity control, Koehler Illumination

### AE30/31 Schematic Diagrams:



### AE30/31 System Diagram



# MICROSCOPES Inverted



## AE2000 Series, Routine and Live Cell Microscope Solution

MRC's new AE2000 Inverted Microscope is the ideal instrument for routine live cell inspection in both educational and high grade professional applications.

Uniquely integrated features like the Ergo tube and Auto cut-off mode ("sleep mode") are focused on enhancing its performance during the rigors of daily use.

Designed for routine-lab or clinical work, as well as research requirements in Pharmaceutical Laboratories or Universities, the AE2000 is more than capable of fulfilling the expectations of its users. Superb optical quality can be expected from a brand new optical series of both bright field and phase contrast lenses, following MRC's proven successful CCIS® Infinity Optical System.



Located at the back of the stand, a built-in carry handle offers easy transportation when needed.

### Stands:

Designed as a basic instrument for any life-science laboratory, the AE2000 comes in three different stand types. Besides the standard Binocular and Trinocular versions, MRC is proud to present an astonishing ergonomic solution not before offered within this class of microscope: a Binocular Ergo model. The Ergo stand allows an adaptation of the viewing angle to the personal demands of the individual user, especially useful over prolonged hours of viewing.

With a surprisingly small footprint, MRC's AE2000 fits easily into every laboratory even when space is limited. A robust design and solid manufacturing ensure a long working life time even under rough usage conditions. Easy reach of both focusing and illumination controls guarantee comfortable operation for many hours.



### Eyepiece tubes:

Depending on the working environment and its demands, the AE2000 Series has a solution. Each eyepiece tube allows a 360° swiveling movement as well as a flexible adjustment of the interpupillary distance between 48 and 75mm. The "Butterfly mode" increases the viewing height by 40mm.

The reasonable beam split of 20:80 in the trinocular tube allows the adaptation of any modern documentation device. For the most demanding imaging applications, MRC offers a complete range of Moticam cameras, in both affordable CMOS and scientific grade CCD options.

Designed with a comfortable viewing angle of 45°, all AE2000 eyepiece tubes (Binocular and Trinocular) offer a 20mm Field of View (FOV 20).

Butterfly movement

360° Swiveling movement

### Eyepieces:

In the AE2000, MRC's Infinity Corrected CCIS Optical system displays a field flatness of 20mm. The high eye point principle of the AE2000's eyepieces ensure true colour and sharp images, while minimizing eye fatigue and strain. The diopter adjustment of each eyepiece is an integral part to help spectacle wearers, in addition optimizing reticule usage.

Besides the standard 10X eyepieces, the AE2000 series also offers higher magnification eyepieces.

Description	F.N.(mm)
Widefield N-WF 10X	20
Widefield N-WF 12.5X	18
Widefield N-WF 15X	16

### Eyepiece reticules:

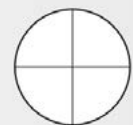
In the MRC AE2000 a variety of reticules for measuring purposes are available. These include: Special reticules are also available on request.



Graduated linear hair point = 0.1mm/10mm



Graduated cross hair point = 0.1mm/10mm



Plain cross hair



### Nosepiece:

The AE2000's ball bearing nosepiece ensures parcentration & repeatability with every objective change. A side faced orientation of the quadruple nosepiece allows an easy view on the lenses used and a simple manual change of magnification. When dealing with liquids the sealed nosepiece prevents any fluid spills from getting into the inner instrument mechanics.



Phase ring set



Halogen bulb



LED module

### Objectives:

With the release of the new AE2000, MRC has achieved a new standard in optical design and development. The AE2000 offers a completely upgraded class of Plan Achromatic lenses within the CCIS Infinity Optical concept. This upgrade covers a complete range of the following magnifications for bright field and phase contrast: 4X, 10X, 20X & 40X. New in this level of microscopy is the special designed 4X Phase objective for fast overview and screening examinations. An optimized multi-layer coating for improved contrast as well as carefully selected glass quality for better transmission lead to significantly brighter and sharper images. MRC is pleased to offer these newly developed optics with the RoHS standard for lead-free manufacturing, ensuring all of its new products meets the highest standards possible for both environment and user safety.

Magnification	N.A.	W.D.(mm)
Plan Achromat PL 4X	0.10	12.6
Plan Achromat PL 10X	0.25	16.8
Plan Achromat LWD PL 20X	0.30	4.7
Plan Achromat LWD PL 40X	0.50	3.0
Plan Achromat Phase PL Ph0 4X	0.10	12.6
Plan Achromat Phase PL Ph1 10X	0.25	4.1
Plan Achromat Phase LWD PL Ph2 20X	0.30	4.7
Plan Achromat Phase LWD PL Ph2 40X	0.50	3.0
Plan Achromat Phase LWD PL Ph1 20X*	0.30	4.7
Plan Achromat Phase LWD PL Ph1 40X*	0.50	3.0

\* Will be released in 2011

### Stage:

The convenient low positioned stage for optimized viewer posture and easy access has a new hard-coated surface for easy cleaning. All standard packages contain a glass stage insert as well as a new metal insert. Due to an orientation pin in the metal stage insert the movement of the objectives when changed follow exactly the shape of the semi-circular hole, preventing damage of the front lens.

To enlarge the standard size of the stage (200 X 239mm), auxiliary extension plates are available. This allows the width of the working plate to be extended up to 333mm. The optional mechanical stage can be supplied with inserts for the more common cell culture vessels, and standard glass slides.

### Condenser:

The resolution power of a microscope is deeply depending on an optimized condenser system. MRC's AE2000 offers a clever concept to find the best compromise between working distance and illumination quality.

The dovetail mounting of the condenser allows a quick change between the two condensers. Surprisingly MRC's concept has one phase ring set, covering both condensers and thus ensuring maximum flexibility. When the condenser is removed, the maximum free working distance is 184mm.

### CCD Adapter:

Newly designed CCD adapters, following the ISO standard of 38mm diameter, have improved optical characteristics to enhance image reproduction quality.

The appropriate adapter has to be chosen in relation to the chip size of the used digital camera. The following "magnifications" are available: 1X, 0.65X and 0.5X.



GOINGgreen



# MICROSCOPES Inverted



## Standard Specifications:

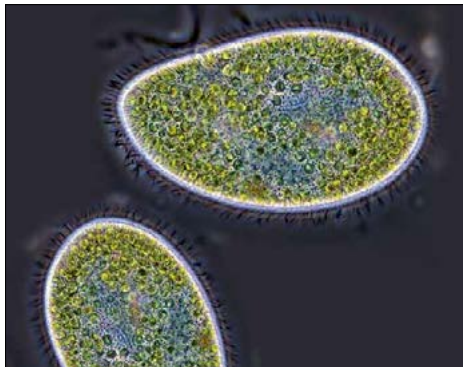
Model	AE2000
<b>Optical System</b>	Colour Corrected Infinity Optical System [CCIS®]
<b>Eyepieces</b>	Widefield high eyepoint, N-WF10X/20mm, with diopter adjustment
<b>Observation Tubes</b>	Widefield binocular 45°, 360° Swiveling Widefield trinocular 45°, 360° Swiveling, light distribution 100:0/20:80
<b>Nosepiece</b>	Left side orientated, quadruple
<b>Stage</b>	200X239mm surface
<b>Condenser</b>	ELWD N.A. 0.3, working distance 72mm. Without condenser: working distance 184mm
<b>Focus</b>	By nosepiece movement, 8mm Coaxial focusing knobs Coarse focus with torque adjustment Fine focus with 2µm minimum increment
<b>Illumination</b>	6V/30W Quartz Halogen illumination with intensity control, or 3W LED

### Documentation:

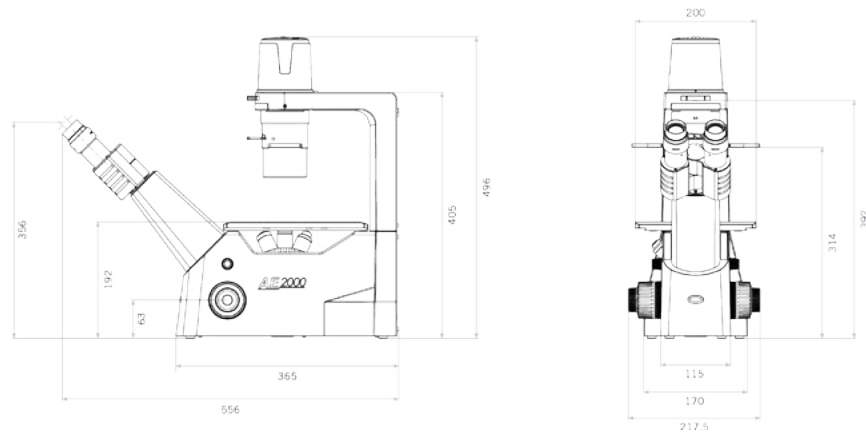
Today accurate documentation is becoming an increasingly important part in most if not all natural science applications. In the new AE2000 system the end-user may choose between several different imaging options.

### Standard Photomicrography:

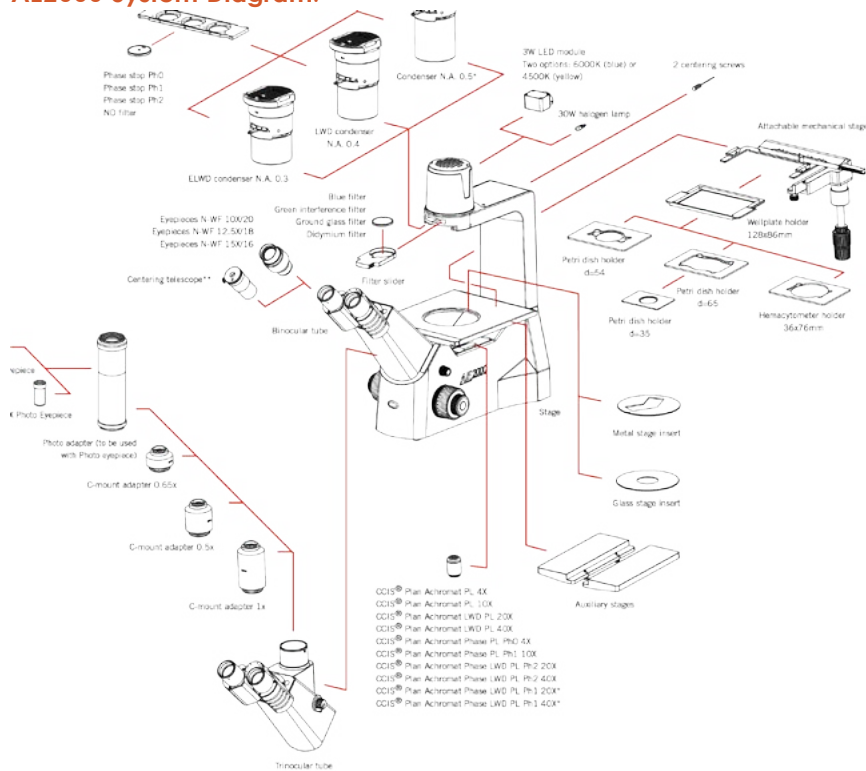
The traditional use of a single lens reflex camera, today mostly digital, requires the trinocular version of the AE2000. The adaptation of the camera consists of a mechanical adapter combined with a photo eyepiece (2.5X or 4X). The necessary T2 adapter referring to the camera model is supplied by the camera manufacturer. This setup delivers high resolution images of small fields.



## AE2000 Schematic Diagrams:



## AE2000 System Diagram:



### Digital Documentation:

A more convenient setup is provided through MRC's philosophy of easy image digitalization. The combination of the AE2000 with a member of the Moticam series of digital cameras delivers excellent live images, which can easily be stored for future usage. All MRC cameras come equipped with software to transform the AE2000 into an analysis and documentation workstation. MRC offer a complete range of digital cameras, starting with a basic resolution of 1.3MP (CMOS) up to the research grade Moticam Pro Line (CCD) with a maximum of 5MP, including Monochrome and Cooled versions. These Moticam cameras deliver sharp live images with easy post-capture handling. For further details on our range of cameras, as well as on adaptation questions, please contact your nearest MRC office or your local authorized MRC Professional reseller.

\* Will be released in 2013  
\*\* For acquisition of Phase Contrast



**XDS-2, Inverted Microscope**



XDS - 2 Inverted Microscope is furnished with long working distance condenser, long working distance objective and phase contrast attachment. It is advanced instrument suitable for culture of living specimen structure and research of liquid deposits. It also can be used in research institutes, universities, medical treatment, agriculture and animal husbandry etc.



**Specifications:**

Model	XDS-2
<b>Magnification</b>	100X - 400X
<b>Trinocular</b>	Can be select photo attachment
<b>Eyepieces</b>	Wide field eyepieces: 10X (Ø20mm)
<b>Objectives</b>	Long working distance plan achromatic objectives (cover glass thick: 1.2mm): PLL10X/0.25, PLL25X/0.4, PL40X/0.6 Long working distance plan achromatic phase contrast objectives: PLL10X/0.25 (include 10X annular diaphragm plate)
<b>Condenser</b>	Long working distance condenser: NA=0.4 , working distance 30mm
<b>Mechanical Stage</b>	Size: 200mm X 140mm ; Movement range: 30mm X 75mm
<b>Focusing Mechanism</b>	Coaxial coarse and fine focusing mechanism with tension adjustable and focus stop, minimum increment is 0.002mm
<b>Illumination</b>	6V20W halogen lamp, adjustable brightness
<b>Optional</b>	
Eyepieces: Wide field eyepieces: 16X (Ø11mm), 20X (Ø11mm) Objectives: Long working distance plan achromatic phase-contrast (cover glass thick: 1.2mm): PLL25X/0.4PHP2 (include 25X annular diaphragm plate). PLL40X/0.6PHP2 (include 40X annular diaphragm plate).	
Ultra-long working distance condenser: Working distance 70mm. Long working distance phase contrast condenser: Working distance 30mm; Configure the Long working distance plan achromatic phase-contrast objectives (cover glass thick: 1.2mm): PLL10X/0.25 PHP1, PLL25X/0.4 PHP1, PLL40X/0.6 PHP1.	
Binocular: compensation (inclination of 30°)	
CCD Camera adapter: 0.4X, 1X	



**BAM-E-2, Inverted Fluorescence Microscope**

BAM-E-2 Inverted fluorescent microscope is composed with Epi-fluorescent microscope and inverted microscope, equipped excellent UIS optical system and adopted long working distance plan achromatic objectives and wide field eyepieces. Compact and steady main frame body is embodiment for the shock resistance. The enable turning out or into condenser system is suited for observation in a high culture dish. The Epi-fluorescence microscope system is adopted modularization function design idea, so that adjust the fluorescence illuminating system and switching-over fluorescence filters safely and quickly. This is a sort of ideal optical instrument for micro observation in cell tissue and transmitted liquid tissue, even in dynamic observation in the culture dish tissue, can be applied in the fluorescence microscopy, such as biological pharmacy, medicine checking and measure, disease prevent and etc.

**Specifications:**

Model		BAM-E-2			
Eyepiece		Wide field WF10X (field number: Φ22mm) Centering telescope			
Infinity plan achromatic objective	Objective	PLL 10X0.25 (Work distance): 4.3 mm, (Cover glass thickness): 1.2mm PLL 20X0.40 (Work distance): 8.0 mm, (Cover glass thickness): 1.2mm PLL 40X0.60 (Work distance): 3.5 mm, (Cover glass thickness): 1.2mm			
	Phase Contrast Objective	PLL 10X0.25 PHP2 (Work distance): 4.3 mm, (Cover glass thickness): 1.2mm PLL 20X0.40 PHP2 (Work distance): 8.0 mm, (Cover glass thickness): 1.2mm PLL 40X0.60 PHP2 (Work distance): 3.5 mm, (Cover glass thickness): 1.2mm			
Eyepieces tube		Inclination angle is 45° and interpupillary distance is 53~75mm			
Epi-fluorescent illumination system		Power supply unit, 110V or 230V can be selected			
		Mercury lamp is 100W/DC			
		Fluorescent filters			
		Group	Type	Wavelength of excitation light	Wavelength of emitted light
		UV+V	Ultraviolet light (UV)	330nm~400nm	425nm
Violet light (V)	395nm~415nm		455nm		
B+G	Blue light (B)	420nm~485nm	515nm		
	Green light (G)	460nm~550nm	590nm		
Focus system		Coaxial coarse/fine focus, with tension adjustable and up stop, minimum division of fine focusing is 2μm			
Nosepiece		Quintuple nosepiece			
Stage		Fixed stage overall size is 227mmX208mm Glass rotundity stage overall size is Φ118mm Mechanical moving device, moving range is 77mm (longitudinal)X114mm (transverse)			
		Culture dish holder 1	Inside locating slot size: 86mm (W)X129.5mm (L), optional with a circular culture dish Φ87.5mm		
		Culture dish holder 2	Inside locating slot size: 34mm (W)X77.5mm (L), optional with a circular culture dish Φ68.5mm		
		Culture dish holder 3	Inside locating slot size: 57mm (W)X82mm (L)		
Transmitted illumination system		Turnplate phase contrast condenser, working distance is 55mm 6V30W halogen, brightness enable control Frosted glass and blue, green filter			
Optional Accessory		Eyepiece		Dividing eyepiece 10X (Φ22mm)	
		CCD adapter		0.5X, 1X, (with dividing)	
		Camera		USB: 130/200/300 USB output: 1.3M/2.0M/3.0M pixel VIDEO output: 380/520 TV Line	
		Digital camera adapter		CANON (EF) NIKON (F)	



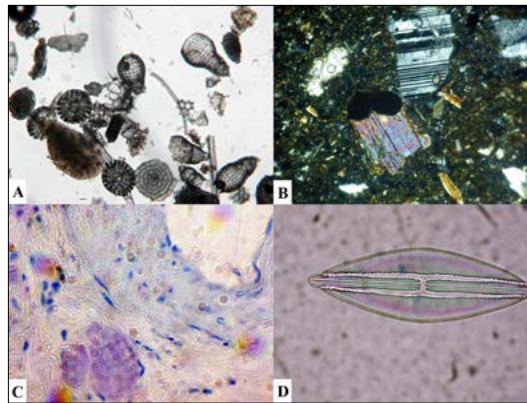
**Goren Microscope**

A portable, yet versatile and capable, microscope for extra-laboratory research to solve the demand of traveling scientists for rugged and capable instruments. High versatility, multi-functionality, compact design, good ergonomics, and affordable production costs.

- Portable binocular microscope with laboratory grade capabilities, yet with affordable price.
- Versatile design with two major configurations: biological and petrographic (polarizing). Both can be readily modified to perform as a brightfield, dark-field, phase-contrast, or polarizing.
- Multi functionality in one unit: the illumination element, the focusing mechanism, the sub-stage optical system, and the stage.
- Self-sustained, operated either by batteries or 110v/240v mains.

**Applications**

Geology, Archeology , Biology, Education, Forensic, Earth Science, Palaeontology, Botany, Medicine and Tropical Diseases, Pathology, Art studies, Mineralogy.



Photomicrographs taken under the Goren microscope of: (A) an array ("smear section") of radiolaria from a Middle Eocene deposit near Maresha, Israel (microscope magnification: 40x); (B) Field-impregnated and polished thin section of soil from Tsaghkasar, Armenia (100x,crossed polarizers); (C) Tuberculosis bacilli (600x, oil immersion); and (D) Diatom (Navicula Sp., 200x).

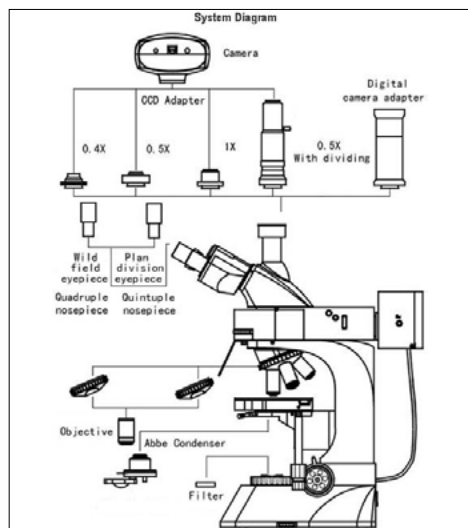
Model	GOREN-POL	GOREN-BIO
<b>Eyepiece</b>	X10 WF 20	
<b>Eyepiece grid</b>	Crosshair standand configuration, Optinal Micrometer eyepiece	
<b>Objectives – standard</b>	4x, NA0.08,working distance[w.d.] 16 mm; 10x, NA0.25, w.d. 3.6 mm; 40x, NA0.60, w.d. 0.6 mm	4x, NA0.08,working distance[w.d.] 16 mm; 10x, NA0.25, w.d. 3.6 mm; 40x, NA0.60, w.d. 0.6 mm X100 oil
<b>Optional objectives</b>	X20, X60, X100 Oil	X60
<b>Condenser</b>	Original patented condenser	
<b>Polarizer+Analyzer</b>	Standard configuration	Optional
<b>Optional Compensators</b>	1/4λ, λ	
<b>Mechanical Stage</b>	Round rotating stage with slide clips	X-Y mechanical stage
<b>Illumination</b>	LED 3W	
<b>Power supply</b>	3 x AAA Batteries, Optional: USB power supply or 110v/240v mains	
<b>Dimensions</b>	WxDxH 140x170x300 mm	
<b>Weight</b>	~1.5 Kg	
<b>Carrying Case</b>	Optional	



**L3201LED**

**Features:**

- Adopt infinity optical system and modular function design.
- Equipped with infinity plan achromatic fluorescent objectives, enable obtain more clearer and brighter image.
- Wide-field plan eyepieces: field number  $\Phi$ 22mm.
- Coaxial coarse/fine focus system, with tension adjustable and limit stopper, minimum division of fine focusing:  $2\mu\text{m}$
- Transmitted illumination: 3W high brightness white LED, brightness adjustable.
- Epi-illumination: 3W high brightness monochromatic LED, enable changing for different wave length LED, but the brightness can't be adjustable.
- Trinocular can be observation for eyepieces and micro photography in 100% light flux, suits for low illuminance micro photography.
- Wide voltage range power supply (85–265V 50/60Hz).



**L3201LED EPI-Fluorescent Microscope**

L3201LED Epi-fluorescent microscope is used for fluorescence microscopy and transmitted field observation. It is equipped with no magnification sphero chromatic aberration infinity plan achromatic fluorescent objectives & wide field eyepieces, has clear picture & wide view field. The transmitted and epi-fluorescent illumination light source are high power & brightness LED, but power consumption is lower and use life longer, very good radiating heat effect. Safely and comfortably using the instrument, the cost of use and maintenance are more lower. It is the ideal instrument in biology, cytology, oncology, genetics, immunology etc. It also can be used in scientific research, universities, medical treatment, epidemic prevention etc.

**Standard Configuration:**

Model	L3201LED
Objectives	Infinity plan achromatic objectives
	PL 4X/0.10 (Work distance) : 19.8mm
	PL 10X/0.25 (Work distance) : 5.0 mm
	PL FL20X/0.65 (spring) Work distance : 0.70 mm
	PLF L40X/0.85 (spring) Work distance : 0.42 mm
	PL 100X/1.25 (Spring, oil) Work distance : 0.36mm
Eyepieces tube	Trinocular (Inclination of 30°)
Epi-fluorescent illumination system	3W high brightness LED. Enable selecting monochromatic or bichromatic LED for light source, every monochromatic LED wave band: Green (520nm - 530nm) Blue( 460nm - 470nm)
	Fluorescence filters: B(Blue) and G(Green)
Focus system	Coaxial coarse/fine focus system, with tension adjustable and limit stopper, minimum division of fine focusing: $2\mu\text{m}$
Nosepiece	Quadruple(Backward ball bearing inner locating)
Stage	Double layer mechanical (Size: 210mmX140mm, movingrange: 75mmX50mm)
	Abbe condenser NA.1.25 Rack & pinion adjustable
Transmitted illumination system	Blue filter and Ground glass
	Collector for LED illumination and integrated field diaphragm
	3W high brightness white LED, brightness adjustable

**Optional accessories:**

Name	Sort/Technique parameter	NO.
Eyepiece	Dividing eyepiece(field number:22mm) 0.10mm/Div	1122010
	Infinity plan achromatic objective	
Objective	PL 60X/0.80 Work distance : 0.46 mm	2060160
Nosepiece	Quintuple (Backward ball bearing inner locating)	032002
Filter	Green filter	115002
	Yellow filter	115003
LED	390nm~400nm Violet (390nm~400nm)	-
	360nm~370nm Ultraviolet (360nm~370nm)	-
Fluorescent filters	V(Violet)	-
	UV (Ultraviolet)	-
CCD adapter	0.4X	810001
	0.5X	810004
	1X	810002
	0.5X with dividing 0.1mm/Div	810003
Camera	2DV-1 (With USB & video output)	800001
	DV-2 (With USB output)	800003
	DV-3 (With video output)	800005
Digital cam adapter	CANON(EF) NIKON( F)	820001



**COL-3500**

**COL-3500, Colposcope X5**

- Smooth five-step turret magnification changer.
- 300mm working distance objective lens offering 2.7x, 4.2x, 6.7x, 10.7x, and 16.7x magnifications.
- Optional magnifications/objective lens combinations are available.
- Widefield 12.5x eyepieces with diopter locks and fold-down rubber eyecups for eyeglass wearers.
- Straight binocular head F=160.
- Light Intensity on object plane: 38,000.00 Lux Min.
- Fan cooled, \*\*dual-port variable fiber optic coaxial illumination with 15V/150W lamp.
- Maximum height from floor to objective lens: 1200mm.
- Minimum height from floor to objective lens: 800mm

**STM-1050, Digital Toolmaker Microscope**

- Large travel: 100x50mm
- High accuracy: 0.5um linear scale
- High efficiency: DP400 Readout
- Adjustable Illumination: LED ring Illumination.

**Angle Measurement Ring Illumination**



**STM-1050**

Model	STM-1050
<b>Metal Stage Dimension</b>	252x152mm
<b>Glass Stage Dimension</b>	196x96mm
<b>Resolution</b>	0.5um
<b>Measuring Accuracy</b>	≤5um
<b>Measuring Device</b>	5kg
<b>Max. Magnification</b>	150X (Ø0.13mm) 15X Eyepiece + 10X Objective
<b>Min. Magnification</b>	20X (Ø6.5mm) 10X Eyepiece + 2X Objective
<b>Standard Magnification</b>	30X (Ø0.13mm) 15X Eyepiece + 2X Objective
<b>Standard Working Distance</b>	67mm
<b>Optical Tube</b>	Monocular with 30° depression angle, 15X Eyepiece with Crossline Reticle
<b>Eyepiece</b>	WF15/13
<b>Objective</b>	Magnification 2X ,Working Distance 2.638" (67mm)
<b>Eyepiece Protractor Range</b>	360°
<b>Eyepiece Protractor Graduation</b>	1°
<b>Vernier Angle Reading</b>	6°
<b>Contour Illumination</b>	Light source: Tungsten bulb (24V;2W)
<b>Surface Illumination</b>	Ring LED illumination brightness adjustable
<b>Power Supply</b>	AC110V/60Hz; 220Hz/50Hz
<b>Dimension</b>	210x333x391mm
<b>Packing Dimension</b>	415x315x420mm
<b>Gross/Net Weight</b>	30/25Kg



### MOTICAM-1/2

Our range starts with the Moticam 1 series, which are great for Schools or Small Laboratories. With a live resolution of 800x600 or 2.0MP use these cameras with Interactive White Boards for exceptional integrated teaching. The live resolution along with great color-balance make these cameras an ideal and affordable introduction to Digital Microscopy across the board.

#### MOTICAM-1 Specifications:

- Live Resolution: 800x600 pixels
- Sensor Type: CMOS
- Optical Calculation: 1/4"
- Focusable Lens: 12mm
- Software Included: MRC Images Plus for PC and Mac
- Others: Driver installs automatically in Windows Vista and higher.

#### MOTICAM-2 Specifications:

- Live Resolution: 2.0MP
- Sensor Type: CMOS
- Optical Calculation: 1/3"
- Focusable Lens: 12mm
- Software Included: MRC Images Plus for PC and Mac
- Others: Direct Show, TWAIN and Media Cybernetics Image Pro Plus 7 Driver compatibility.

### MOTICAM-10+

Do you require the ability for documentation? The Moticam 10+ offers up to 10MP live and capture resolution. With such a high resolution range at your disposal, you can easily and professionally convert captured images into 300dpi documentation files. As with all Moticams, the Moticam 10+ contains our Rapid View algorithm allowing the user to display a faster frame rate at full screen while still being able to capture an image at maximum resolution. The flexibility of this USB3 camera makes the Moticam 10+ a sound investment.

#### MOTICAM-10+ Specifications:

- Live Resolution: 10.0MP
- Sensor Type: CMOS
- Optical Calculation: 1/2.5"
- Focusable Lens: 12mm
- Software Included: MRC Images Plus for PC, OSX and Linux
- Others: Direct Show, TWAIN and Media Cybernetics compatibility.

### MOTICAM-SERIES, Microscope Cameras

#### All in One Box

- An attachable camera containing a sensitive professional imaging chip housed inside a C-Mount case including a removable IR cut-off filter.
  - A focusable coated glass lens matched to the size of the imaging chip.
  - 2 adjustable size Eyepiece Adapters that allow you to attach the camera onto almost any microscope without having to remove the Eyepiece.
  - A 4-dot calibration slide with micrometer cross-hairs that ensure accurate calibration for accurate measurements.
  - The Macro Viewing Tube together with the focusable lens is great for using the camera without a microscope.
  - All cables and power supplies as needed are of course inside the box.
  - A full version of MRC Images Plus application software provides all tools you need to quantify, measure, annotate, teach, learn and much more. This software comes with unlimited updates and does not require any license fees
- Each camera has a standard tripod mount so that you can secure your camera inside your own installation.

#### MOTICAM-3+/5+

The USB3 speed Moticam 3+ and 5+ offer a great package combining both high resolution (up to 5MP live) as well as fast frame rates through the high speed USB3 connection while still remaining affordable. Idea for use not only in Colleges and Universities but also in Clinics and Veterinary Centres. These cameras offer something for everyone.

#### MOTICAM-3+ Specifications:

- Live Resolution: 3.0MP
- Sensor Type: CMOS
- Optical Calculation: 1/2"
- Focusable Lens: 16mm
- Software Included: MRC Images Plus for PC, OSX and Linux
- Others: Direct Show, TWAIN and Media Cybernetics compatibility.

#### MOTICAM-5+ Specifications:

- Live Resolution: 5.0MP
- Sensor Type: CMOS
- Optical Calculation: 1/3"
- Focusable Lens: 12mm
- Software Included: MRC Images Plus for PC, OSX and Linux
- Others: Direct Show, TWAIN and Media Cybernetics compatibility.

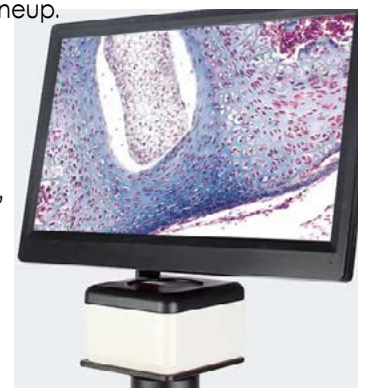
#### MOTICAM1080/1080BMH

As an affordable multi-tasking microscopy camera, the Moticam 1080 is in a class of its own. This camera does not require a computer for standard operation as the user can make image adjustments and capture straight through the camera's on-board software. Capture up to 8MP images directly onto an SD card or connect an external monitor through the true HDMI output and this Moticam 1080 allows you to view details as you have not seen before. Should you wish to use a computer at the same time, simply connect the camera through the USB port and enjoy simultaneous image transmission.

If you are looking for an all-in-one solution, the 1080BMH comes with an attached high-resolution screen boasting native 1920x1080 pixel resolution on just a 10" space allowing for crisp, clear and true colour images. Whether used in an Education, Industrial or Clinical area, the Moticam 1080 line is the Jack of all Trades in our Moticam lineup.

#### MOTICAM-3+ Specifications:

- Sensor Type: Dedicated HDMI CMOS
- Capture Resolution: Max. 8MP
- Optical Calculation: 1/2.5"
- Focusable Lens: 12mm (Moticam1080 only)
- Output Possibilities: Simultaneous HDMI, USB, SD Card
- Software Included: On-board computer-free image processing software; MRC Images Plus for PC, OSX and Linux
- Screen: 10" 1920x1080 high resolution monitor (Moticam1080BMH only).



**MOTICAM-BTU8/BTU10**

The BTU8 and BTU10 offers the user the opportunity to upgrade a trinocular microscope into a fully independent digital micro-copy workstation. These solutions come in two parts. The 8" or 10" android tablet can easily be separated and use on its own. The camera contains a 5MP CMOS chip dedicated for micro-copy use and can be directly connected to the provided tablet. Once connected to the high-resolution tablet, the user can view, capture, edit and measure the live microscope image through Moti's free App MotiConnect. Should you wish to connect the BTU to a computer, you can easily do so using the USB adapter. Having an interactive device on your microscope not only allows many people to view the live microscope image at the same time, but also enables easy and immediate sharing of ideas and experiences.

If you want to share your microscope image, why not switch on the tablet's WiFi and immediately transmit a live image stream to other WiFi devices.

**MOTICAM-BTU8/10 Specifications:**

- Sensor Type: Dedicated Microscopy CMOS
- Sensor Resolution: 5.0MP
- Optical Calculation: 1/2.5"
- Output Possibilities:
  - From Tablet: WiFi, HDMI, SD Card
  - From Camera: USB
- Software Included:
  - MRC Connect App for Android preloaded
  - MRC Images Plus for PC, OSX
- Tablet:
  - Android 8" high resolution IPS tablet (BTU8)
  - Android 10" high resolution IPS tablet (BTU10)

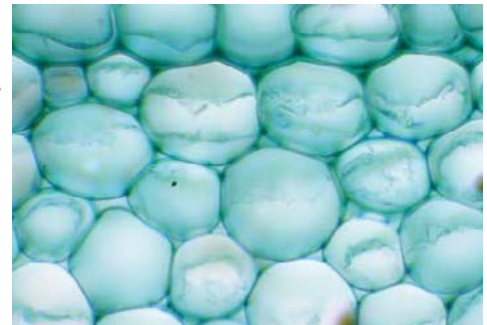
**MOTICAM-X/X<sup>2</sup>**

Welcome to the future of Wireless Digital Microscopy. The Moticam X is a next generation microscope camera that will transform almost any old conventional microscope into a wireless device capable of sending live high resolution images to your WiFi Laptop or tablet devices. This revolutionary device sends streaming images to up to 6 WiFi enabled devices without the need for a router. The WiFi enabled devices include Tablets, Phones or computers running on iOS, Android or Windows. The Moticam X generates its own WiFi signal, this camera can be used separate from your existing network. No additional routers are required. Unlock and unplug the power of your microscope with our new Moticam X. The possibilities are endless.

The Moticam X2 adds an additional level of flexibility by including a removable rechargeable battery as well as an RJ-45 LAN port allowing truly wireless digital microscopy.

**MOTICAM-X/X<sup>2</sup> Specifications:**

- Sensor Type: CMOS
- Capture Resolution: 2.0MP
- WiFi Resolution: 1280x1024
- Optical Calculation: 1/3"
- Focusable Lens: 12mm
- Calibration Slide
- Macro Tube
- Power Supply: Through provided switching power adapter (Moticam X)
- Power Supply: Rechargeable Battery; switching power charger (Moticam X2)
- Software: MRC Images Plus for PC, OSX, Linux
- Other viewing options: View the WiFi signal through other devices with our MRC Connect app for iOS and Android or through almost any HTML5 supported browser.



Model	MOTICAM-1	MOTICAM-2	MOTICAM-3+	MOTICAM-5+	MOTICAM-10+
<b>Optical Format</b>	1/4"	1/3"	1/2"	1/2.5"	1/2.3"
<b>Capture format (on SD-card)</b>	-				
<b>Active Resolution (through USB)</b>	800 x 600	1600 x 1200	2048 x 1536	2592 x 1944	3664 x 2748
<b>Active Resolution (through HDMI)</b>	-				
<b>Interface connection</b>	USB2.0		USB3.0		
<b>Pixel Size</b>	5.6µm x 5.6µm	3.2µm x 3.2µm		2.2µm x 2.2µm	1.67µm x 1.67µm
<b>Imaging Area</b>	3.58mm x 2.69mm	5.12mm x 3.84mm	6.55mm x 4.92mm	5.70mm x 4.28mm	6.44mm x 4.62mm
<b>Scan Mode</b>	Progressive				
<b>Operating Temp</b>	-10°C to +60°C non condensing				
<b>Max.Signal to Noise Ratio</b>	45dB	43dB		38.1dB	34dB
<b>Dynamic Range</b>	60dB	61dB		70.1dB	66.5dB
<b>Slot</b>	-				
<b>Supported OS</b>	Microsoft Windows XP / Vista / 10 / 8 / 7; Apple Mac OSX; Linux				
<b>Support Device</b>	TWAIN, SDK and Direct Show Driver				

Model	MOTICAM 1080/1080BMH	MOTICAM BTU8/BTU10	MOTICAM-X	MOTICAM-X <sup>2</sup>
<b>Optical Format</b>	1/2.8"	1/2.5"	1/4"	
<b>Capture format (on SD-card)</b>	Still Image: JPEG Movie Clip: AVI	-		
<b>Active Resolution (through USB)</b>	1920 x 1080	2592x1944 (Camera)	1280 x 960	
<b>Active Resolution (through HDMI)</b>	1920 x 1080	1920x1080 (Tablet)	-	
<b>Interface connection</b>	USB2.0 & HDMI	USB2.0 (Camera) USB2.0 & HDMI (Tablet)	Wi-Fi	Wi-Fi and RJ45
<b>Pixel Size</b>	2.8µm x 2.8µm	2.2µm x 2.2µm	2.8µm x 2.8µm	
<b>Imaging Area</b>	5.46mm x 3.46mm	5.70mm x 4.28mm	3.83mm x 2.84mm	
<b>Scan Mode</b>	Progressive			
<b>Operating Temp</b>	-10°C to +60°C non condensing			
<b>Max.Signal to Noise Ratio</b>	41dB	38.1dB	42.3dB	
<b>Dynamic Range</b>	69dB	70.1dB	-	
<b>Slot</b>	SD Card	TF Card	-	
<b>Supported OS</b>	Microsoft Windows XP / Vista / 7 / 8 / 10; Apple Mac OSX; Linux			
<b>Support Device</b>	TWAIN, SDK and Direct Show Driver			

**MRC Images Plus:**

MRC Images Plus for PC is a software suite that has evolved through more than a decade of close cooperation with end-users and professionals around the world. At MRC, we believe that actions speak louder than words, and this is why a full version of MRC Images Plus is included in every Moticam box. Once installed, you will not be asked to pay license fees or upgrade fees, simply register your Moticam online and get access to free updates when they become available. MRC Images Plus consists of two main components, the Image Capture Interface (MI Devices) and the actual captured image application program.

The Image Capture Interface is a separate program through which the live image can not only be perfected with the multitude of adjustment features, but it can also be used as a teaching device thanks to its calibrated scale bars, grid and cross bars. Capturing the perfect image is vital for all applications. For this reason, the MI Devices interface is also available whether the Moticam is used as a Direct Show or a TWAIN device. Whether you are using the Moticam in its easy-to-use Automatic mode or you are controlling each aspect of your image stream, this interface will satisfy all



users. Once the image has been captured it is automatically transferred to the Images Plus application program where Measurement, Annotation and Reporting Tools can be used to turn images into knowledge. With the proliferation of touch-screen monitors and interactive whiteboards, we have also optimized our interface to make it easier to use these technologies with our Moticams.

**MOTICAM-PRO**

Feature a 4 frame buffer as well as on-board image processing with the built-in Schott BG 40 bandpass filter further ensuring high-quality imaging. The Moticam Pro also features an external hardware trigger port (TTL) which can be used to trigger the camera or have the camera trigger an external device.

Model	252A	205A	205C	285A	285C
<b>Color/Monochrome</b>	Color	Color	Monochrome	Color	Monochrome
<b>Resolution</b>	2080x1542	1360x1024	1360x1024	1360x1024	1360x1024
<b>Max. Frame Rate of full Resolution</b>	4.28fps	7.5fps	7.5fps	15fps	15fps
<b>Image Sensor</b>	ICX2520AQ	ICX2050AK	ICX205AL	ICX285AQ	ICX285AL
<b>Sensor Size</b>	1/1.8	1/2	1/2	2/3	2/3
<b>Pixel Size</b>	3.45µ x 3.45µ	4.65µ x 4.65µ	4.65µ x 4.65µ	6.45µ x 6.45µ	6.45µ x 6.45µ
<b>ADC Converter</b>	12 bit				
<b>Image Memory</b>	4 frame buffer				
<b>Shutter Settings</b>	125ms-60sec				

<b>Moticam 580</b>	Sensor Resolution: 5.0 Mega pixels
	Optical Calculation 1/2.5"

**MOTICAM-T2, Microscope Camera with Android tablet**

Moticam-T2 is equipped with 10.1" Android 4.X tablet with 5 MP CMOS sensor mount device. Moticam-T2 is powered by 1.6GHz (Quad Core) CPU with 1GB built-in DDR3 memory; so it offers faster processing performance than our previous generation product. Moticam-T2 is also equipped with Wi-Fi (802.11b/g/n), Bluetooth 3.1, mini-HDMI output (1080P), Built-in MIC and Speaker, Micro SD Card slot and Earphone jack to further enhance the user experience.

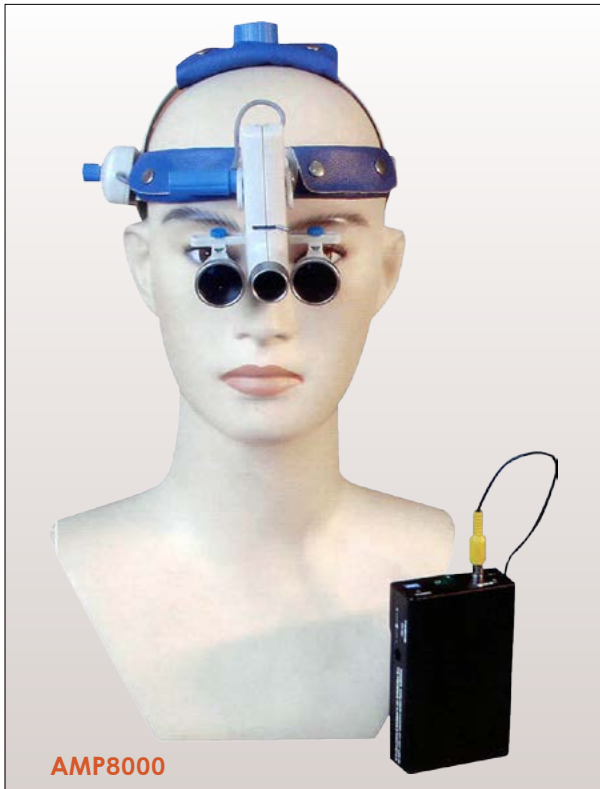


**Key feature:**

- 10.1" LCD screen with 1280x800 (16:9) pixels resolutions.
- 1/2.5" 5.0MP CMOS sensor
- Micro SD card slot (up to 32GB)
- Image Captures Resolution: 5MP
- Video Captures Quality: 720P
- HDMI output (1080P Concurrent output)
- Android 4.X Operating System
- 1.6GHz (Quad Core) CPU
- 16GB internal storage
- 1 GB built-in DDR3 memory
- Built-in Li-ion battery (7000mAh)
- Bluetooth 3.1
- Built-in MIC & Speaker and Earphone Jack
- Wi-Fi output (802.11b/g/n, supporting both Hot-Spot mode or using existing Wi-Fi network)
- Preloaded optimized MotiConnectT App
- Build in MoticHub function, allow wirelessly sharing Moticam-T2 real time images to multiple mobile devices and computers
- Come with MRC Image Plus 2.0ML CD for PC/MAC platform
- Fully compatible with the other Wi-Fi enabled Moticam devices.







**AMP8000, LED Heading**

AMP8000 brings you the most advanced lighting technology.

Our new LED headlight provides cool, bright, white light for procedures and examinations

The LED headlight is more than twice as bright as other standard LED and conventional headlights.

When you need well-defined illumination – without the heat of traditional halogen headlight – look at our new LED headlights providing superior quality and reliability.

**Features:**

- Light source: our LED lamp without the heat of traditional halogen headlight. with a color temperature of 6000 kelvin, this light supplies bright, white, shadow-free light allowing the doctor to see tissue characteristics without distortion.
- Enjoy the flexibility of operating the headlight by the use of the rechargeable lithium battery, without the use of direct power source.  
It is one of the most comfortable lightweight headlight and suitable for all kinds of surgery.
- The headlight could be used when it is charging.
- With low-battery indicator light.
- Smart design, convenient for mobile diagnosis.

Optical specifications		
Illumination light spot at 420mm distance (with iris diaphragm)	20–100mm	
Illumination in 250mm working distance	≥25000lx	
Adjustable range		
Fluctuation distance	12.5mm	
Angle	Range vertical ±25°	
Weight		
Head lamp (excluding head band)	70g	
Electrical Specifications		
Illumination source	Extremely bright light, 3W LED, life 20000 hours, continuous burn, does not need to change the LED lamp	
Battery	7.2V Lithium battery	
Battery run time	Not less than 2.5 hours continuous run time on a fully charged battery	
Voltage	220V AC/110V AC	
Maximum input power	15W	
Electrical safety standard	GB9706. 1, Class II type BF equipment	
Environment requirements		
Use condition	Environment temperature	+10°C~+40°C
	Relative humidity	30%~75%
	Atmospheric pressure	700hPa~1060hPa
Shipping and stock	Environment temperature	-40°C~+55°C
	Age relative humidity	10%~90%
	Atmospheric pressure	500hPa~1060hPa