Motic®

INDUSTRIAL CATALOGUE

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Zoom ratio of 6.7:1 and excellent optical performance combined with cost efficiency.

Model Variations : SMZ-168 T with trinocular tube; SMZ-168-60 with 60° observation tube.

SMZ-168-BL

SMZ-168-60

SMZ-168-TL

		SMZ-168	SMZ-168-60	SMZ-168 T
Microscope body	Optical System	Greenough		
	Magnification	0.75x - 5x	0.75x - 5x	0.75x - 5x
	Zoom ratio	6.7 : 1	6.7 : 1	6.7 : 1
	Working distance	113mm	113mm	113mm
	Tube inclination angle	35°	60°	35°
	Interpupillary distance adjustment	Diopter Adjustment both eyestubes: ±5 Interpupillary adjustment: 52mm to 79mm		
	Video camera adaptability	n/a	n/a	C-mount [CCD 0.3x / CCD 0.65X not included]
	Zoom adjustment knob	Left/right - single shaft horizontal knob Interpupillary distance high/low magnification stopper incorporated		
Auxiliary objectives		0.3x, 0.63x, 0.75x, 1.5x, 2x		
Eyepieces		High Eyepoint Widefield 10x, Field Number [F.N.] = 23mm		

Stand		**168P**	**168L**
		Basic incident illumination stand	Transmitted illumination stand
	Focusing Adjustment	50mm	50mm
	Stage plate	Black & white	Black & white, Frosted glass plate
	Light source	Cold light illumination [optional] Fluorescent ring illuminator attachable [optional]	Transmitted illumination : Halogen 12V/10W Reflected illumination : Halogen 12V/10W

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Infinity optics, versatile, common main objective [CMO], ideal in all inspection applications.

Models : K400 with 4 magnification steps, K500 with 5 magnification steps, K700 with zoom ratio of 5.2 : 1.

K-400L

K-500L

K-700P

Models		K400	K500	K700
Microscope body	Optical System	Infinity, common main objective (CMO)		
	Convergent Angle	14°		
	Magnification	4 Step Changer [6, 12, 25, 50 ratio]	5 Step Changer [6.4, 10, 16, 25, 40 ratio]	6x - 31x Zoom range : 5.2 : 1
	Working Distance	89mm		
	Observation tube inclination	45°		
	Interpupillary distance adjustment	Adjustment range : 54mm to 76mm		
	Diopter adjustment	Diopter adjustment on both eyetubes. Adjustment range : ±5 diopter		
	Auxiliary objectives	0.3x, 0.5x, 0.625x, 1.5x, 2x		
	Eyepieces	Super Widefield 10x, Field Number [F.N.] = 23		
Stand		2112	2111	2111
		Large working area incident illumination stand	Transmitted illumination stand	Transmitted illumination stand
	Focusing adjustment	50mm		
	Stage plate	Black & White	Black & White, Frosted glass plate	
	Light source	Cold light illumination system [optional] Fluorescent ring illuminator attachable [optional]	Transmitted illumination : Halogen 12V/10W Reflected illumination : Halogen 12V/10W	

Infinity optics, versatile, common main objective [CMO], ideal in all inspection applications.

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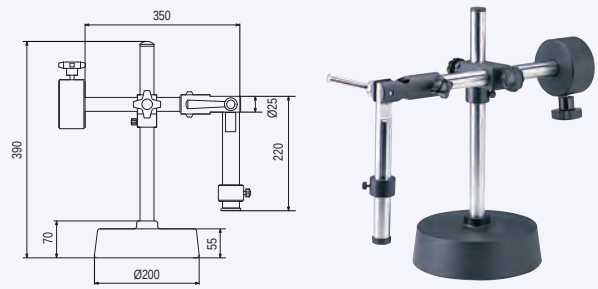
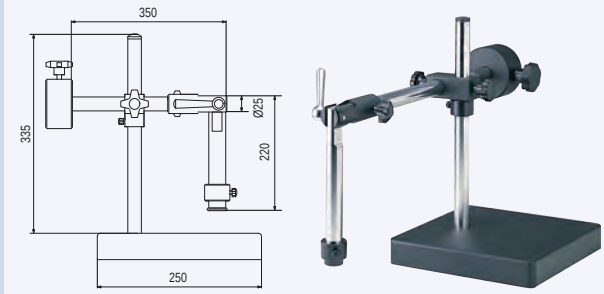
2105: UNIVERSAL STAND



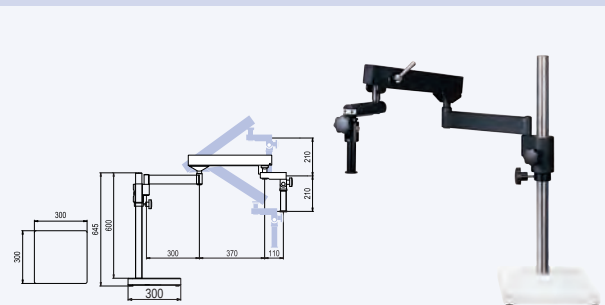
- 25mm - Vertical Pole Diameter
- 32mm - Focusing Pole Mount Diameter
- 200mm - Diameter of base
- 350mm - Height of pole
- 465mm - Max distance from pole to optical centre

2105S: SPECIAL UNIVERSAL STAND



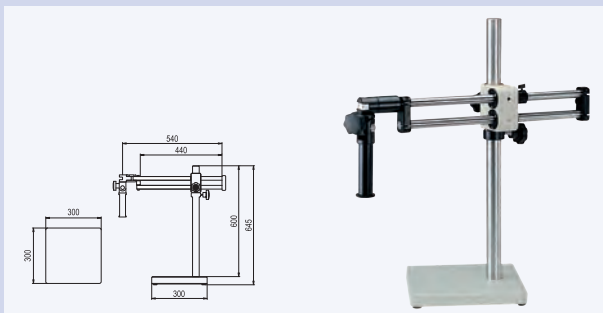
- 25mm - Vertical Pole Diameter
- 32mm - Focusing Pole Mount Diameter
- 250mm - Length of base
- 250mm - Width of base
- 350mm - Height of pole
- 465mm - Max distance from pole to optical centre

2107K: ARTICULATING ARM BOOM STAND



- 36mm - Vertical Pole Diameter
- 32mm - Focusing Pole Mount Diameter
- 300mm - Length of base
- 300mm - Width of base
- 780mm - Max distance from pole to optical centre

2108K: BALL BEARING BOOM STAND



- 36mm - Vertical Pole Diameter
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- Mild Steel

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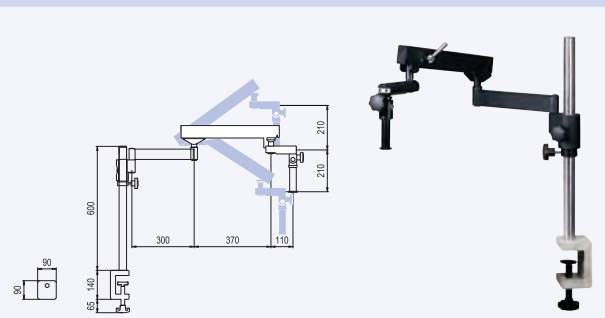

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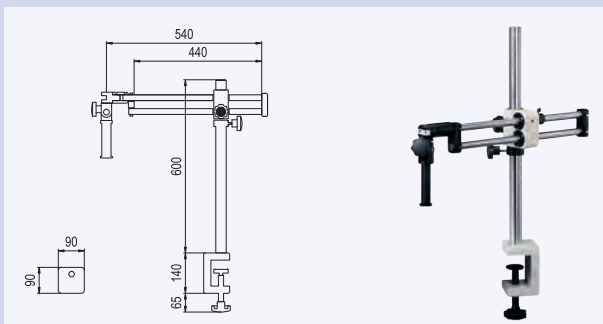
- Table Clamp Type

2110K: BALL BEARING BOOM STAND



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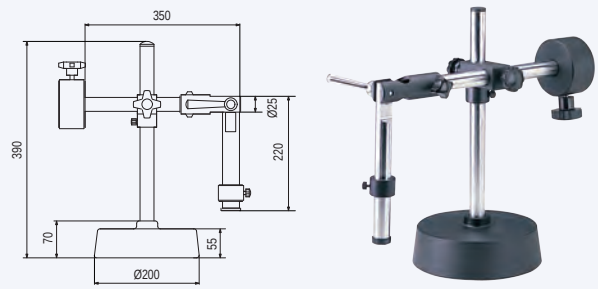

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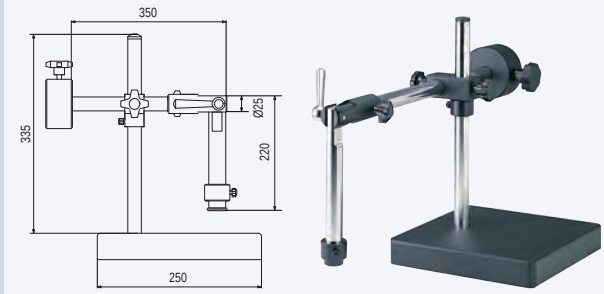

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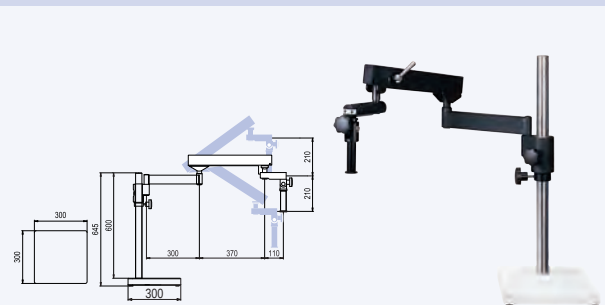

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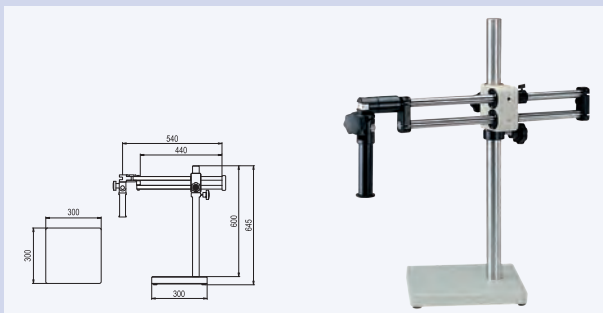

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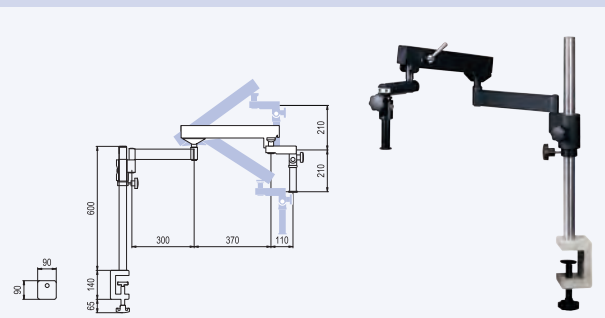

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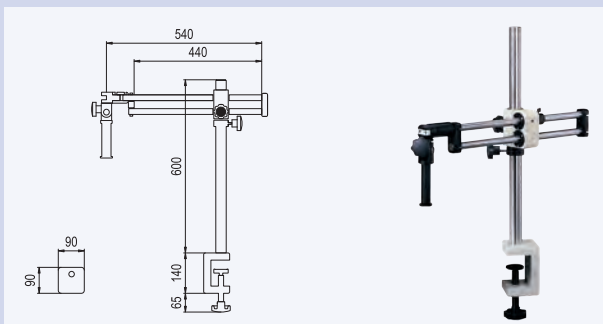

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"All-in one" laser ready microscope for inspection, testing and repair in the semiconductor industry.

PSM-1000 with stand / stage

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

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		ULWD Plan Apo, ULWD Plan Apo [Parfocality Adjustable]
Loading weight on optical tube		20.5kg
Mass [main unit/light source]		6.8kg/2.5kg

K2401: **Economic, sturdy, shadow- free, pure-white fluorescent ring illumination for stereomicroscopes**

MLC150: **An industrial designed illumination**

K2401

SP990075

SP990072

MLC-150

K2401	
Mounting on microscope body	Clamping with mounting ring [special screw on adapter for SMZ168]; mounting ring causes a decrease in working distance of approximately 10mm, SMZ168 adapter decreases working distance by 5 mm
Input Voltage	115 V, 220 V
Input frequency	50/60 Hz
Lamp output power	12W
Colour Temperature	6400K
Light Output	510Lm
Lamp Life	500 hours
Weight	252g

MLC150						
Light Guide	Type	Flexible	Flexible	Ring Light	Bifurcated gooseneck	1-arm gooseneck
Fiber	Length	1,500mm	2,000mm	1,000mm	500mm	500mm
	Type	Glass				
	Fiber Bundle Diameter	Ø7mm	Ø5mm	Ø5mm	Ø8mm	Ø5.6mm
Proximal Diameter		Ø15mm				
Distal End Diameter		Ø15mm	Ø7mm	Ø61mm	Ø9mm	Ø13mm
Distal End Type		Std. straight tip	Right angle line	Ring	Std. straight tip	Std. straight tip
Colour Temperature		500K - 3700K, Using blue filter can increase colour temperature above 5600K.				
Lamp Output Power		150W				
Bending Radius		Ø18mm	Ø18mm	Ø225mm	Ø200mm	Ø200mm
Emitter Dimensions		220(H) x 193(W) x 112(D) mm				

K2401: **Economic, sturdy, shadow- free, pure-white fluorescent ring illumination for stereomicroscopes**

MLC150: **An industrial designed illumination**

K2401

SP990075

SP990072

MLC-150

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2.0 Megapixel resolution and complete image control-digital camera.

Moticam 2000

Image Device	1/2" CMOS
Lens	16mm
Effective Pixels	1600 x 1200
Still Image Resolution	1600 x 1200
Scanning Mode	Progress scan mode
Frame rate	10fps @ 1600 x 1200 , 40fps @ 800 x 600, 40fps @ 400 x 300
Data Transfer	480 MB/ second
Minimum Illumination	3 lux
Lens Mount	C-mount
Shutter	Automatic / Manual
Video Output	Transmission across Motic software direct into memory of PC
White Balance	Automatic / Manual adjust using software
Output and Power Supply	USB2.0, self-powered from computer
Microscope Adapters	4 different sizes included
Recommended system requirements	P4 1GHz or higher, HDD 1GB unused, RAM 256 MB, Display Memory 32 MB, Windows2000 & XP

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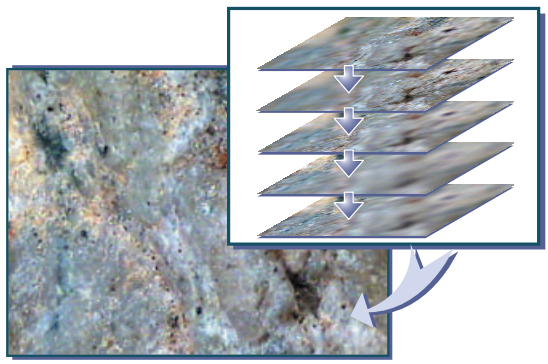
User-friendly application software for the acquisition of images, diagnosis of images, image processing, precise measurement, and information sharing.

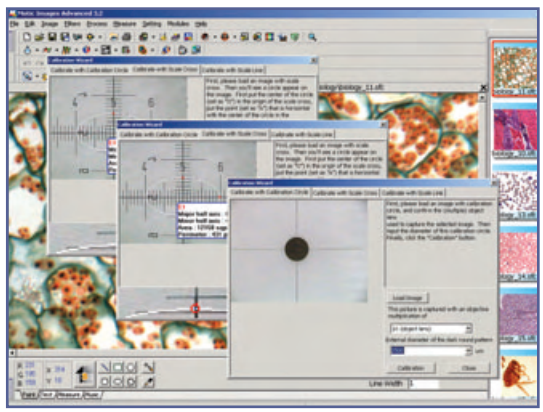
Capture Functions:

- Still, auto-capture and video
- ROI, auto exposure and white balance
- High-resolution ROI preview
- Real-time 3-D imaging
- Background calibration
- Noise reduction
- Prolong Exposure - for insufficient illumination



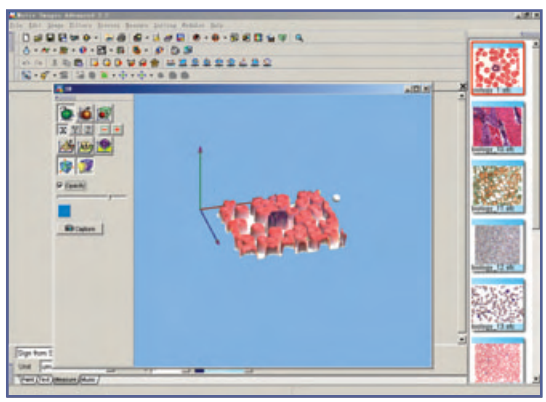
Measurement Functions:

- Calibration of camera with various methods
- Precise measurement of various shapes
- Lock measurements on image for sharing
- Manual segment the image with thresholds for Red, Green, Blue and Grey scale
- Auto-calculate the segment image
- Export data in Excel format



Applications:

- Motic Multi-Focus - combination of images at different depths
- Motic Assembly - combination of up to 100 images to form a complete image of the sample
- Motic Report - instantaneous report generation with image(s) and data information
- Distance Sharing - images transfer in real-time and archive via intranet or internet



Minimum System Requirements	
CPU	Pentium II or equivalent
Hard Disk	Space 300 MB
Display Card	4 MB
RAM	64 MB
Other Equipment	Sound card, loud speakers, microphone

User-friendly application software for the acquisition of images, diagnosis of images, image processing, precise measurement, and information sharing.

Capture Functions:

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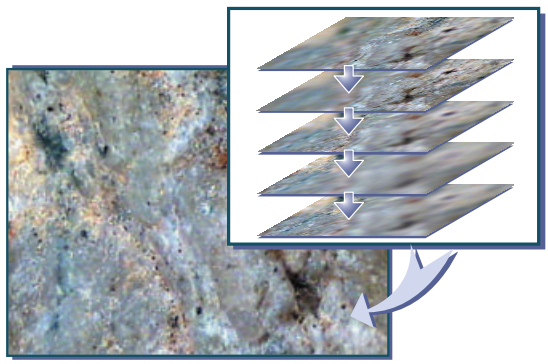

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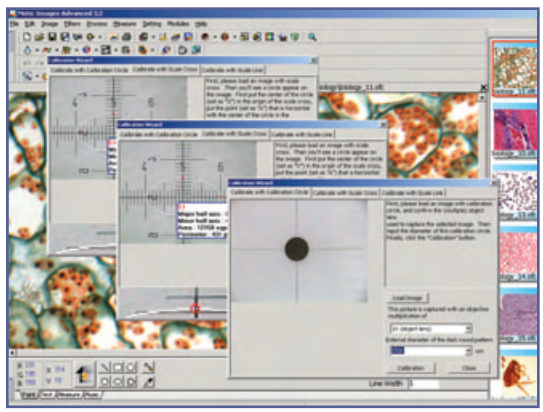

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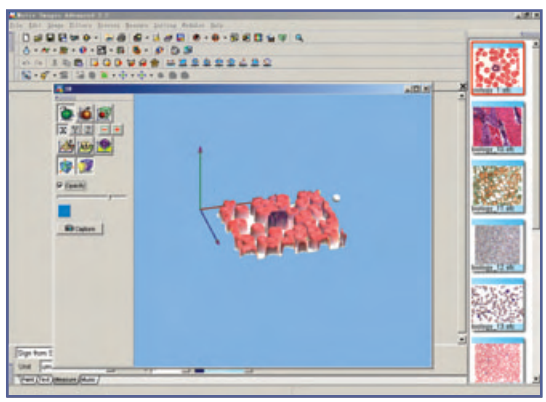

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Hard Disk	Space 300 MB
Display Card	4 MB
RAM	64 MB
Other Equipment	Sound card, loud speakers, microphone

1. N.A. : Numerical Aperture

N.A. determines resolving power, focal depth, and luminosity of the image. The larger N.A. is, the higher resolving power and smaller focal depth are.

$$N.A. = n \cdot Sin\theta$$

n is an index of refraction made by the medium between an objective and a sample. n=1.0 for air. θ is an angle made by the ray of light that goes through one end of an objective and an optical axis.

2. R: Resolving Power

Minimum distinguishable space between points. N.A. and wavelength λ determine resolving power.

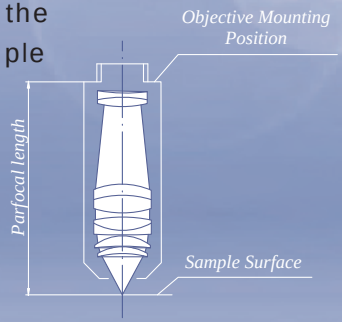
$$R = \frac{0.61\ \lambda}{N.A.}$$

3. W.D. : Working Distance

Distance between the surface of the sample and the surface of the objective when in focus.

4. Parfocal Length

Distance between the surface of the sample and the objective mounting position when in focus.



5. Infinity correction system

An optical system in which the image is formed by an objective at infinity and at an intermediate image plane by the tube lens.

6. Greenough system

An optical system which utilizes twin lens at different angles to produce a stereo effect.

7. Common Main Objective [CMO]

A stereo optical system that utilizes a single large object to depict the image in a stereo effect to infinity.

8. F : Focal Length

Distance between a principal point and a focal point. F1 is a focal length of objective, F2 is a focal length of tube lens. Magnification is determined by the ratio of tube lens focal length and objective focal length.

$$\frac{Focal\ length\ of\ tube\ lens\ F2}{Focal\ length\ of\ objective\ F1}$$

$$(Ex.)\quad 1x = \frac{200mm}{200mm}$$

$$(Ex.)\quad 10x = \frac{200mm}{20mm}$$

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N.A. determines resolving power, focal depth, and luminosity of the image. The larger N.A. is, the higher resolving power and smaller focal depth are.

$$N.A. = n \cdot Sin\theta$$

n is an index of refraction made by the medium between an objective and a sample. n=1.0 for air. θ is an angle made by the ray of light that goes through one end of an objective and an optical axis.

2. R: Resolving Power

Minimum distinguishable space between points. N.A. and wavelength λ determine resolving power.

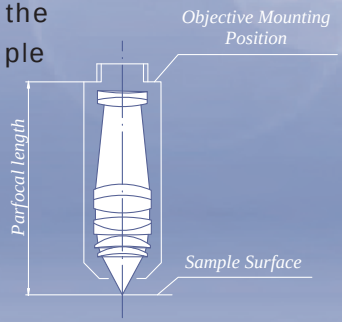
$$R = \frac{0.61\ \lambda}{N.A.}$$

3. W.D. : Working Distance

Distance between the surface of the sample and the surface of the objective when in focus.

4. Parfocal Length

Distance between the surface of the sample and the objective mounting position when in focus.



5. Infinity correction system

An optical system in which the image is formed by an objective at infinity and at an intermediate image plane by the tube lens.

6. Greenough system

An optical system which utilizes twin lens at different angles to produce a stereo effect.

7. Common Main Objective [CMO]

A stereo optical system that utilizes a single large object to depict the image in a stereo effect to infinity.

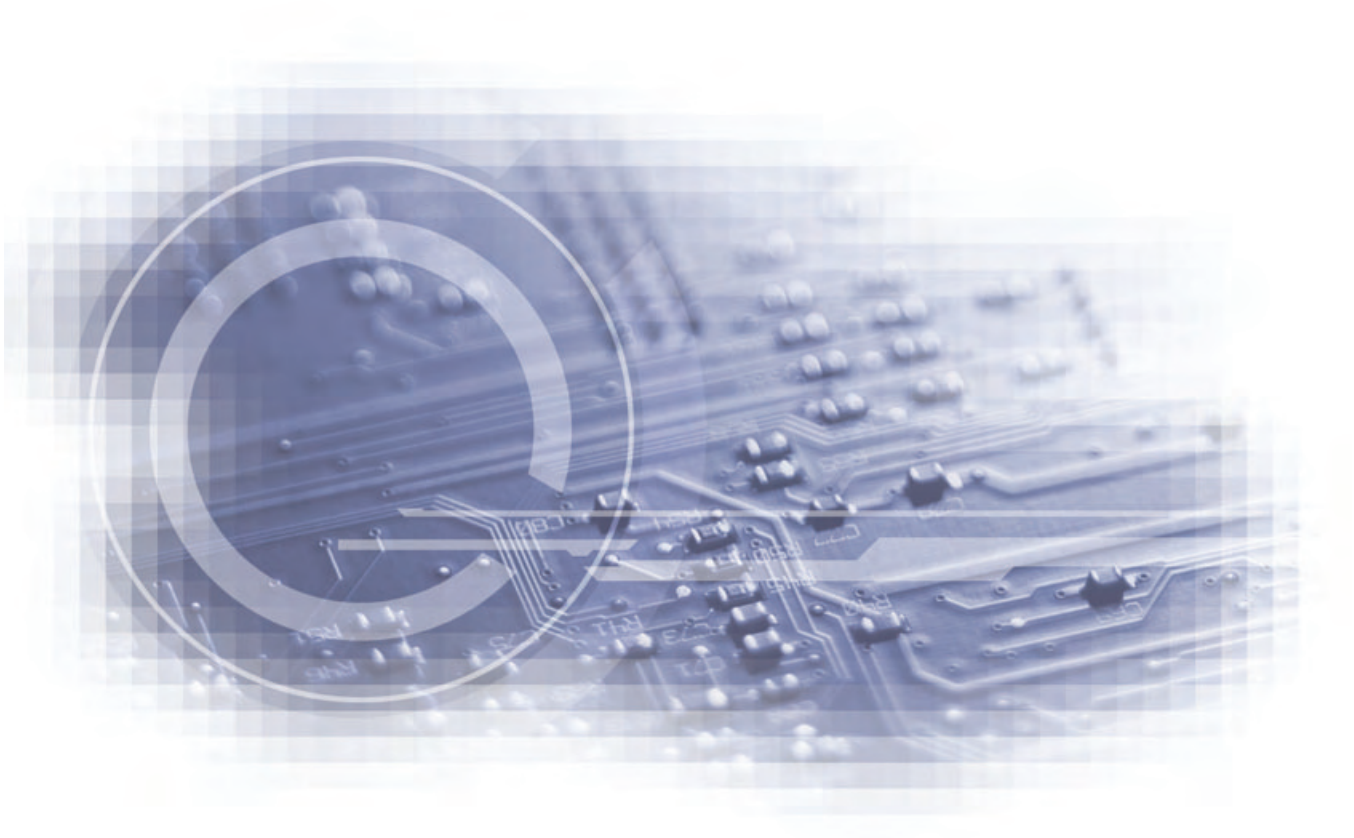
8. F : Focal Length

Distance between a principal point and a focal point. F1 is a focal length of objective, F2 is a focal length of tube lens. Magnification is determined by the ratio of tube lens focal length and objective focal length.

$$\frac{Focal\ length\ of\ tube\ lens\ F2}{Focal\ length\ of\ objective\ F1}$$

$$(Ex.)\quad 1x = \frac{200mm}{200mm}$$

$$(Ex.)\quad 10x = \frac{200mm}{20mm}$$



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