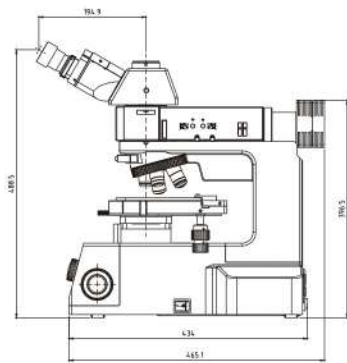
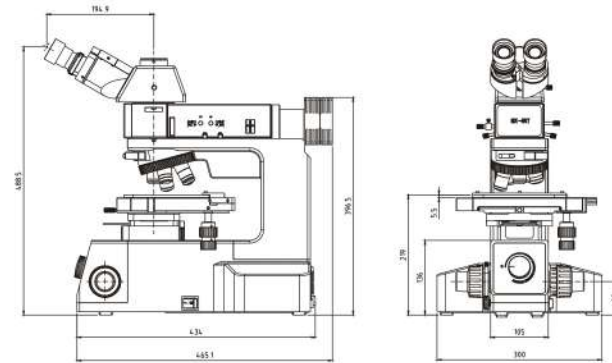


# MX system dimension

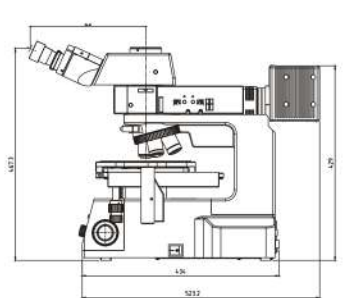
MX-4R system dimension



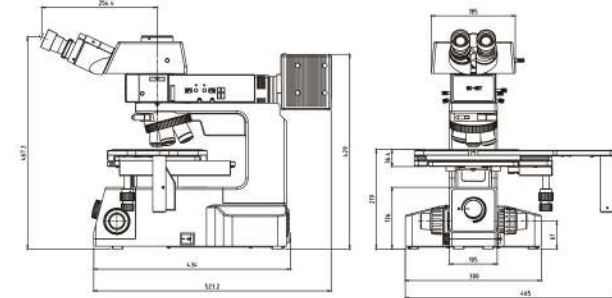
MX-4RT system dimension



MX-6R system dimension



MX-6RT system dimension



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As technical improvement, manufacturer has right  
to make renovation in designing without notice

SUNNY INSTRUMENTS  
have passed the certificate:  
ISO 9001  
ISO 14001  
ISO 13485



## MX-4R/MX-4RT MX-6R/MX-6RT

### Metallurgical microscope

www.vskconsummate.com



# MX Series Metallurgical microscope

MX Series

Flexible system combination, sharp image  
function, precision mechanical structure,  
MX series be wide used in industrial  
inspection and metallurgical analysis

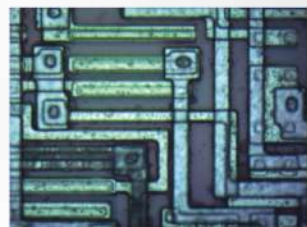
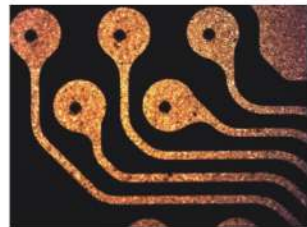
XY moving range 105mm-158mm

New design of long working distance professional metallurgical  
objectives. High power objectives with semi-apochromatic  
technology.

Get clear and sharp image under various kind of observations

Complete accessories, meet different demand of combination

Precision mechanical structure, ergonomic design





Ergonomic design to enable user operate easy and untired.  
Modularized design of the parts, independent assortment different systemic function.



### Big moving range plate

4" /6" stage, suitable for the use of wafer or FPD inspection, as well as small size sample of array inspection  
MX-4R / MX-4RT: 4" stage, moving range: 105mmX105mm  
MX-6R / MX-6RT: 6" stage, reflection illumination moving range: 158mmX158mm, transmission illumination moving range: 100mmX100mm, with clutch handle for fast moving.  
All kind of MX series stages can be replaced each other via using the stage adaptor.

### Long working distance metallurgical objectives

New design of long working distance professional metallurgical objectives. Use semi-apochromatic and multilayer broadband coating technology, image clear and sharp in the whole field, color nature and bright.  
Long working distance design, W.D. 7.8mm for 50X, W.D.2.1mm for 100X  
5X、10X、20X objectives can make DIC differential interference observation perfectly.  
Complete set of bright/darkfield objectives special use for MX-6R, luminance of darkfield illumination reach double more than traditional.

### High-performance nosepiece

Precision bearing design for nosepiece, comfortable and positioning accurate, good concentricity, different kind of nosepiece for option .  
PI103C5I: quintuple bright field nosepiece, with DIC prism slot, for MX-4R / MX-4RT.  
PI103C5BDI: quintuple bright/darkfield nosepiece, with DIC prism slot, for MX-6R / MX-6RT.



## MX Series

Metallurgical microscope

### Wide field of view gemel trinocular head

MXETH25R erect gemel trinocular head, same direction and same moving direction for objective and image, easy to view and operate, match 6" stage .  
MX4RTH30R gemel trinocular head, match 4" stage.  
MXETH25R and MX4RTH30R can be in common use for MX series.



### Safety, steady body construction

Industrial detection level microscope body, low center of gravity, high rigidity, high stability metal body, can improve the shakeproof and image stability.  
Preposed low position coaxial coarse and fine focus system, built-in 90-240V wide voltage. Perfect cooling system for long time use without overheating .



### Different illuminator for option

Brightfield reflect illuminator: single 5W white LED, with oblique illumination, for MX-4R / MX-4RT.  
Bright field reflect illuminator: 12V/100W , for MX-4R / MX-4RT  
Bright/dark field reflect illuminator: 12V/100W halogen illuminator, with intensity of light pre-set, can transfer to pre-set light intensity immediately, with switching mechanism for bright field and dark field. For MX-6R / MX-6RT .  
Transmission illumination: MX series can with both refraction and transmission illumination, transmission bulb is single 5W white LED, with N.A.0.5 condenser.  
Transmission and refraction illumination can operation separately or work together.



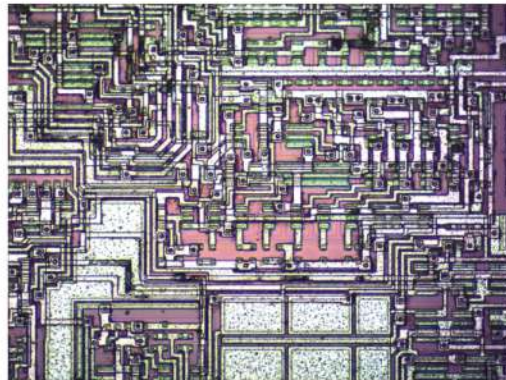


Various function selections for observation, brightfield, darkfield, oblique illumination, polarization, DIC differential interference

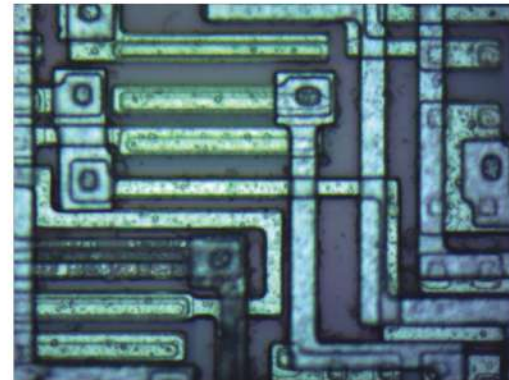
**MX Series**  
Metallurgical microscope

### Brightfield observation (Reflected illumination)

Kohler reflected illumination, infinity plan achromatic long working distance metallurgical objectives ensure image clear, flat and sharp from low to high magnification.



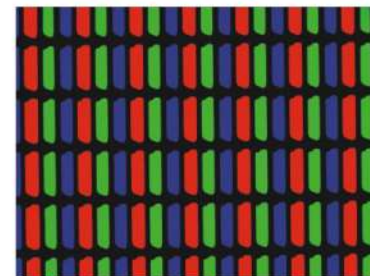
IC 5X Brightfield



IC 100X Brightfield

### Brightfield observation (Transmitted illumination)

5W high-power LED, N.A.0.5 condenser, observe LCD, edge of parts under transmitted illumination. Separate control of transmitted and reflected illumination, can work both or single.



LC 10X Transmitted illumination

### Oblique illumination

Use oblique illumination, different material of the sample surface can show stereoscopic image, it can increase the contrast and visual effect of observation. The oblique illumination only use for MX-4R / MX-4RT.



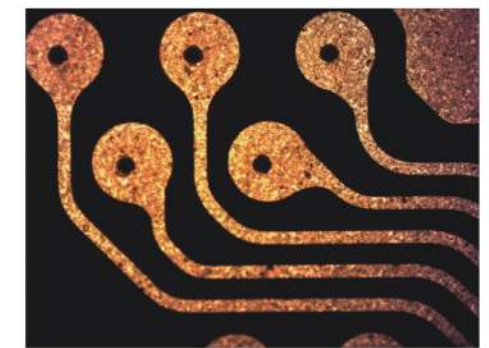
FPC 10X Brightfield



FPC 10X oblique illumination

### Darkfield observation

MX-6R / MX-6RT with darkfield observation function. Pull the transfer stick to darkfield position to observe scratch, impurity dot and other small defect of the sample surface.

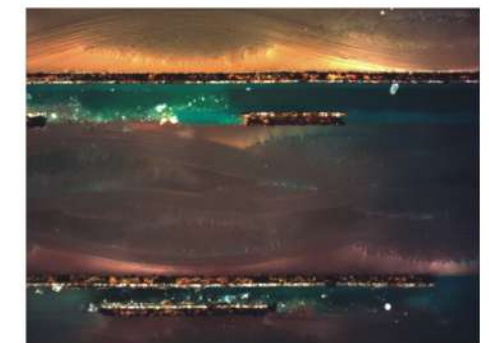


FPC 10X Darkfield

### Simple Polarizing

observation

Insert polarizer and analyzer to suitable position of illuminator for polarizing observation. Fixed type and 360° rotation type analyzer for option.



PCB cross section 20X Polarizing

### DIC observation

Based on orthogonality polarizing, insert Nomarski DIC prism to match DIC observation. Use DIC technology can show obvious emboss for the small high-low difference, increase the image contrast. 5X、10X、20X are specially designed for DIC, insure the interference colours same of the whole field of view, perfect differential interference result. As well as high magnification.



Conducting particles 20X DIC



Wafer 50X DIC





Photo and video accessories

Trinocular head comes with video accessories, user can get the image from monitor or computer, to do image analysis, processing, save or transmitting. Use special C mount and relay lens, connect with digital camera to take photos and catch images.



Various interference filters for option

Use 12V100W halogen illumination, choose LBD sunlight filter, to get soft bright and white background. In industry use, choose other filter to adjust the light spectrum to get the best image result.



Micrometer accessories

- 0.1mm reticle for eyepiece
- 0.01mm micrometer

Objective parameter

LMPL Infinity long working distance metallurgical objective



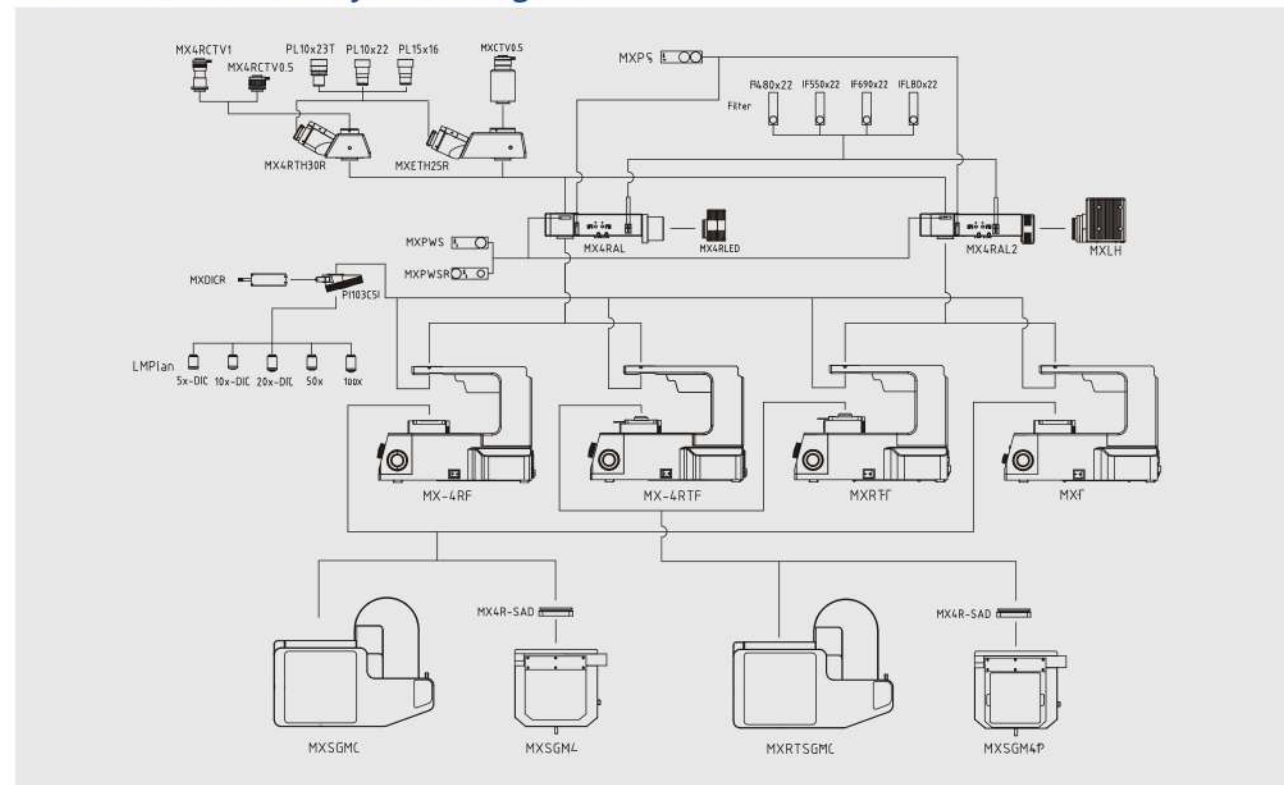
Model	Magnification	N.A.	Working distance (mm)	Cover-glass thickness (mm)	Parfocal distance (mm)	Conjugate distance (mm)
LMPlan Infinity long working distance metallurgical objective	5X	0.15	10.8	0	45	$\infty$
	10X	0.30	10.0			
	20X	0.45	4.0			
	50X	0.55	7.8			
	100X	0.80	2.1			

LMPL-BD Infinity long working distance bright / darkfield metallurgical objective

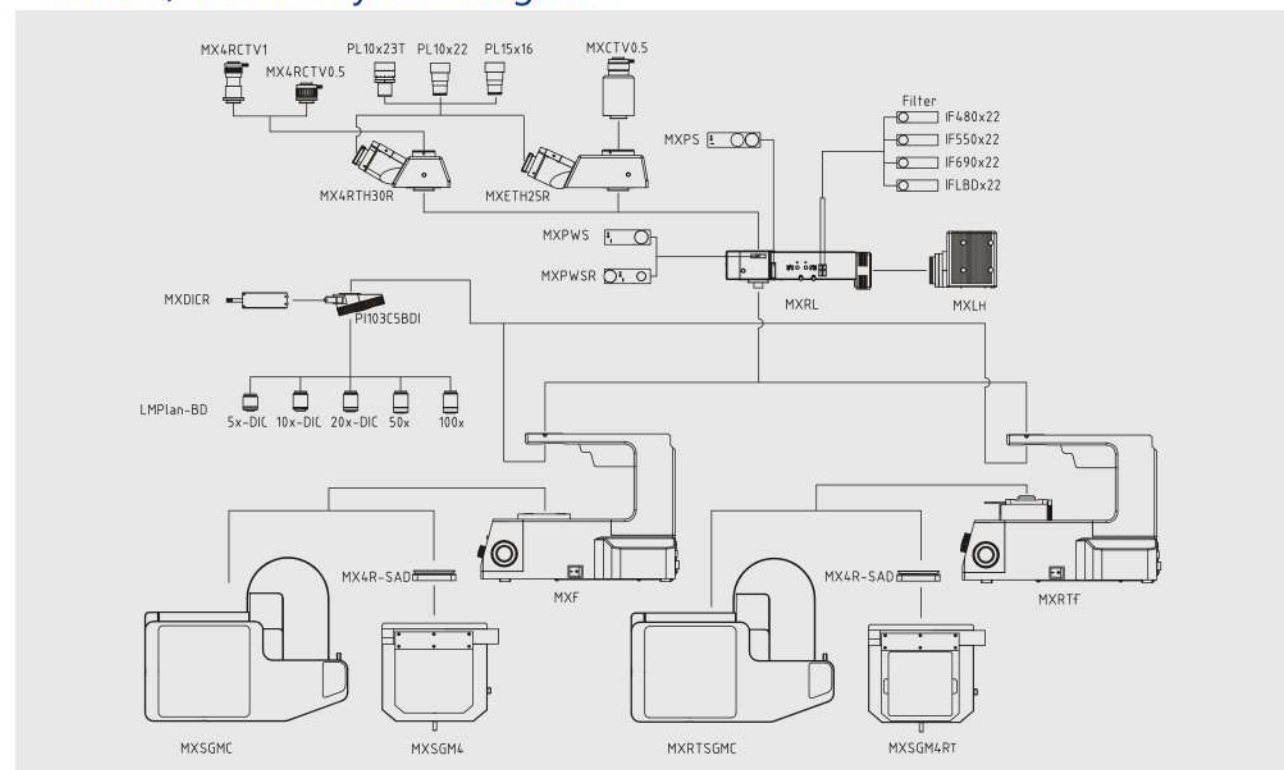


Model	Magnification	N.A.	Working distance (mm)	Cover-glass thickness (mm)	Parfocal distance (mm)	Conjugate distance (mm)
LMPlan-BD Infinity long working distance bright/darkfield metallurgical objective	5X	0.15	11.0	0	45	$\infty$
	10X	0.30	9.5			
	20X	0.45	3.4			
	50X	0.55	7.5			
	100X	0.80	2.1			

## MX-4R / MX-4RT system diagram



MX-6R / MX-6RT system diagram :



## MX-4R / MX-4RT Standard Features

Model	MX-4R	MX-4RT
Observation method for option	Brightfield/ oblique illumination / Polarizing/ DIC	Brightfield/ oblique illumination / Polarizing / DIC / Transmitted light
Optical system	Infinity color corrected optical system	
Eyepiece	High eye-point plan eyepiece, PL10X22mm	
Objective	LMPL Infinity long working distance metallurgical objective	
Head	30° inclined trinocular head, splitting ratio for binocular: trinocular =100: 0 or 50:50	
Nosepiece	Intilted, quintuple nosepiece, with DIC slot.	

Stage	4" double layers mechanical stage, moving range 105x 105mm, with metal flat stage, right hand position X、Y moving hand wheel, with stage adaptor.	4" double layer mechanical stage, moving range 105x 105mm, with glass stage, right hand position X、Y moving hand wheel, with stage adaptor.
Microscope body	Coaxial coarse and fine adjustment, coarse adjustment distance 33mm, precision of fine adjustment: 0.001mm, with coarse adjustment stop and tightness adjustment. Built-in 90-240V wide voltage transformer, one way power output.	Coaxial coarse and fine adjustment, coarse adjustment Distance 33mm, precision of fine adjustment:0.001mm, with coarse adjustment stop and tightness adjustment. Built-in 90-240V wide voltage transformer, double way power output.
Reflected illumination system	With iris field diaphragm and aperture diaphragm, central adjustable, with filter slot and polarizing slot, with oblique illumination switch. Single high-power 5W LED, white, brightness adjustable.	
Transmitted illumination system	/	Single high-power 5W LED, white, brightness adjustable. N.A.0.5 condenser, with iris diaphragm.

## MX-6R / MX-6RT Standard Features

Model	MX-6R	MX-6RT
Observation method for option	Brightfield/ Darkfield/ Polarizing/ DIC	Brightfield/ Darkfield/ Polarizing/ DIC/Transmission light
Optical system	Infinity color corrected optical system	
Eyepiece	High eye-point plan eyepiece, PL10X22mm	
Objective	LMPL-BD Infinity long working distance bright/darkfield metallurgical objective	
Head	Erect image, 25° inclined trinocular head, splitting ratio for binocular: trinocular =100: 0 or 0:100	
Nosepiece	Ntilted, quintuple bright/darkfield nosepiece, with DIC slot.	

Stage	6" three layers mechanical stage, moving range 158 x 158mm, glass stage, X、Y moving hand wheel, with clutch hand, right hand shank, can move quickly.	6" three layers mechanical stage, moving range for reflection: 158x 158mm, for transmission: 100x100mm, glass stage, X、Y moving hand wheel, with clutch hand, right hand shank, can move quickly.
Microscope body	Coaxial coarse and fine adjustment, coarse adjustment distance 33mm, precision of fine adjustment: 0.001mm, with coarse adjustment stop and tightness adjustment. Built-in 90-240V wide voltage transformer, one way power output.	Coaxial coarse and fine adjustment, coarse adjustment Distance 33mm, precision of fine adjustment:0.001mm, with coarse adjustment stop and tightness adjustment. Built-in 90-240V wide voltage transformer, double way power output.
Reflected illumination system	With iris field diaphragm and aperture diaphragm, central adjustable, with filter slot and polarizing slot. With switch device with bright and dark field, 12V/100W halogen bulb, pre-centering, digital dimming can be with bright intensity settings and reset function.	With iris field diaphragm and aperture diaphragm, central adjustable, with filter slot and polarizing slot. With switch device with bright and dark field, 12V/100W halogen bulb, pre-centering, brightness adjustable.
Transmitted illumination system	/	Single high-power 5W LED, white, brightness adjustable. N.A.0.5 condenser, with iris diaphragm.