prism optical

Large Penetration Depth
Wide Imaging Spectral Range
High Imaging Resolution

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NIR MX Series
Near-infrared Industrial
Microscopic Imaging System

NIR-MX Series

- Industrial infrared microscopy imaging systems can observe the interior of packaged chips and wafers in real time.
- The infrared band (900–1700nm) has a wide spectral range, small scattering, and strong penetration into silicon wafers (germanium wafers).
- It adopts wide–field illumination and area array detection to achieve wide spectrum, large field of view and high–resolution imaging.
- The large numerical aperture objective lens (with adjusting ring) can eliminate aberrations caused by coverage of the object to be measured, achieving effective and accurate infrared detection.
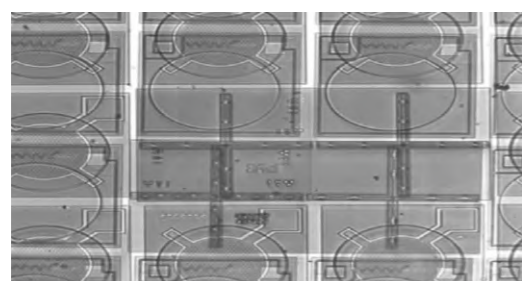
Leading Industrial Infrared Inspection Equipment Provide Efficient Industrial Testing Solutions
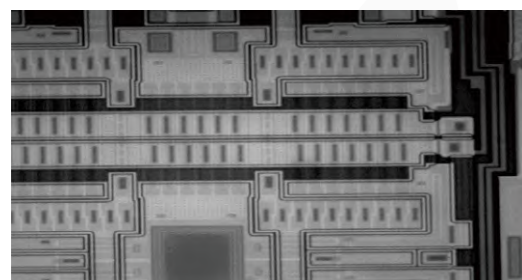
non–destructive inspection for CSP/SIP

Non–destructive analysis of bad chip packaging

Near infrared detection of MEMS devices

NIR-MX68R

NIR-MX12R

wide-field illumination, area array detection toachieve wide spectrum, large field of view and high-resolution imaging

Wide spectrum dedicated infrared camera

NIR-MX series uses a wide spectrum dedicated infrared camera, covering bright field and infrared observation.Field illumination, wide imaging field of view and high resolution. Used with bandpass color filter for area array detection.It can respond to different parts of the chip inside the silicon wafer to meet the needs of different customers.
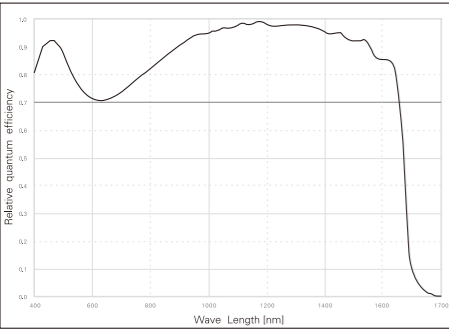
| Pixel	band	Frame rate	Pixel size
320万	400~1100nm	120fps@2064×1544	3.45μm
130万	400~1700nm	125fps@1280×1024	5μm
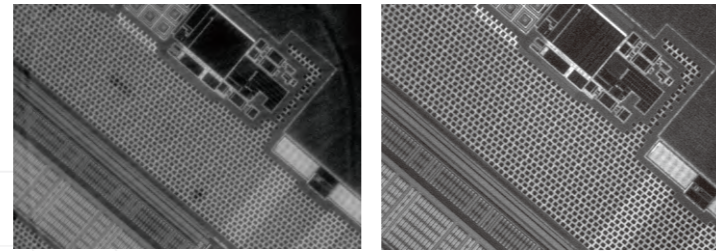
320万   130万

Epi- illuminator

■ For optical elements in illuminators The device increases in the 400-1700nm band Transparent,you can choose between bright field and infrared field selection, wide spectral range, small scattering, suitable for silicon wafers(Germanium sheet) has strong penetrating performance.

■ The aperture diaphragm and objective lens magnification vary from Automatic matching, no need for manual adjustment, more Fast and efficient, suitable for different users same view Observe the effect.
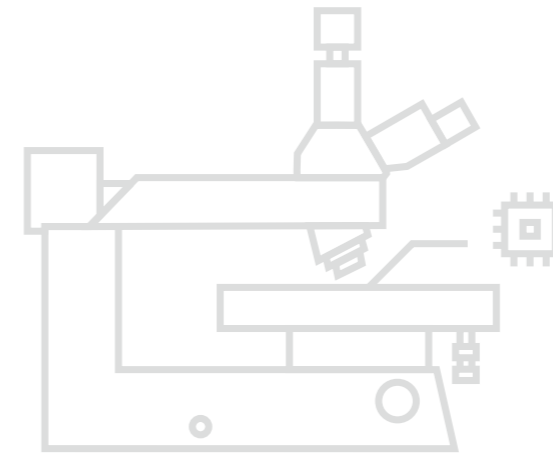
Observe the interior of packaged chips and wafers in real time.Show you clearer ultra-wide spectrum imaging

Special infrared objective lens

■ NIR-MX series industrial infrared microscope imaging system is equipped with 5X-50X professional infrared objectsMirror that provides aberration correction from visible to near-infrared wavelengths, suitable for conventional brightfield and dedicated infrared observation.

■ For high-magnification objectives with larger numerical apertures, a correction ring is added to correct the overlay.Aberrations caused by different cover sheet thicknesses enable high-definition and accurate detection in the near-infrared band.

SOPTOP infrared objective lens transmittance curve

5X
10X
20X
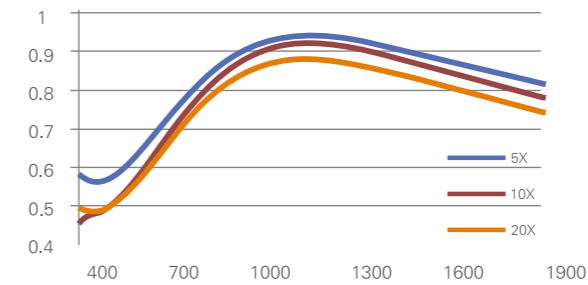
Name	magnification	(N.A.)	working distance (mm)	correction collars (mm)
Plan semi apochromat Infrared objective	5X	0.15	19.58	—
	10X	0.30	12.2	—
	20X	0.45	7.31~7.57	0~1.2
	50X	0.70	2.68~2.93	0~1.2

multi-hole filter slider

We designed multi-hole filter sliders , 1100nm, 1200nm, 1300nm bandpass near-infrared color filters for option, Users can quickly switch bands, realize responses of different structures in the same area through narrow-bandwidth secondary filtering, and obtain sharp images.
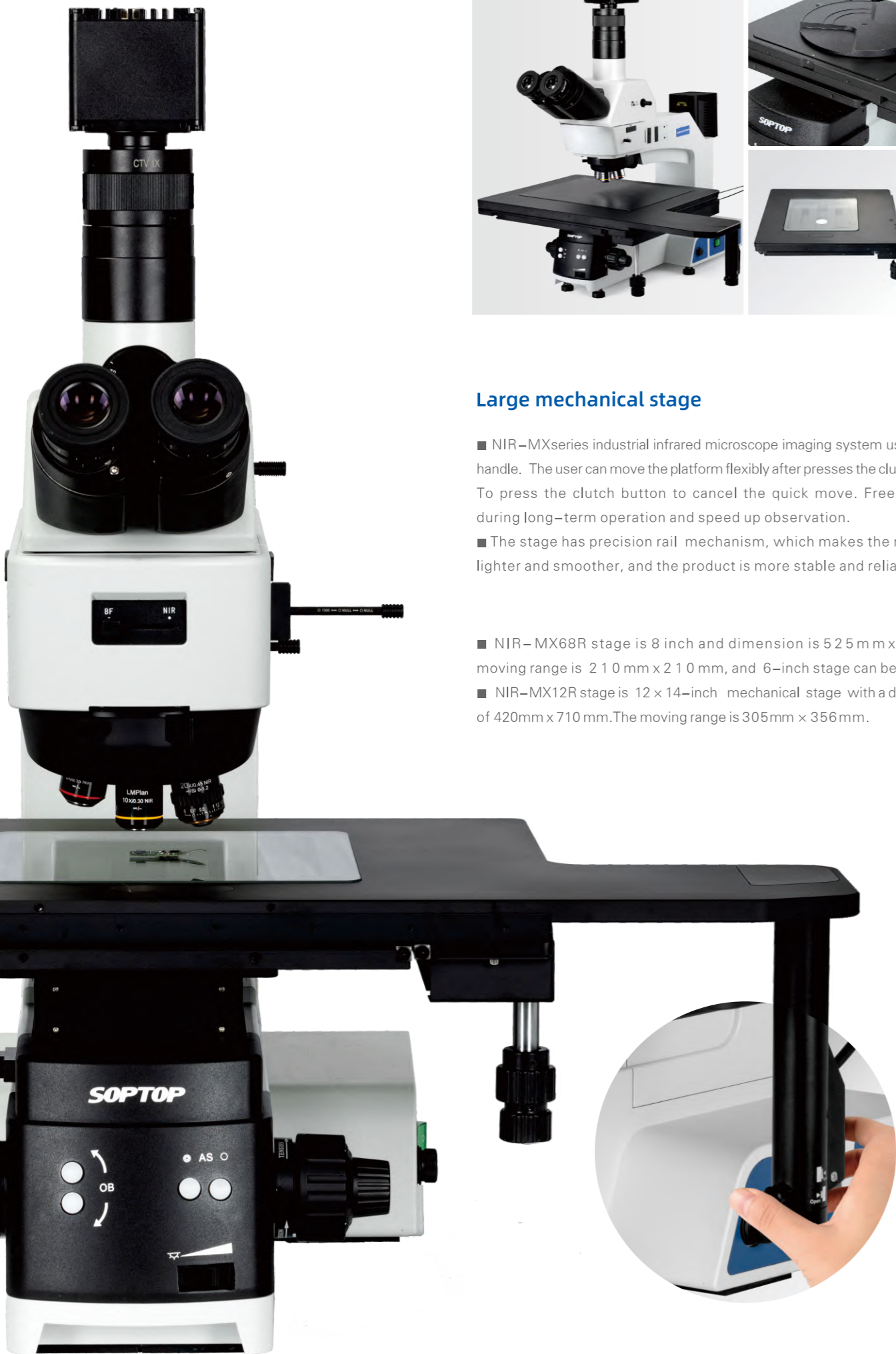
Large mechanical stage

■ NIR-MXseries industrial infrared microscope imaging system uses a clutch handle. The user can move the platform flexibly after presses the clutch button. To press the clutch button to cancel the quick move. Free the users during long-term operation and speed up observation.
■ The stage has precision rail mechanism, which makes the movement lighter and smoother, and the product is more stable and reliable.

■ NIR-MX68R stage is 8 inch and dimension is 5 2 5 m m x 3 3 0 m m, moving range is 2 1 0 mm x 2 1 0 mm, and 6-inch stage can be optional.
■ NIR-MX12R stage is 1 2 × 1 4-inch mechanical stage with a dimension of 420mm x 710 mm.The moving range is 305mm × 356mm.

NIR-MX Series Ergonomics design
Provide users with the highest working efficiency

Safe, High speed Motorized nosepiece

■ Equipped with forward and backward moving modes to quickly and accurately locate the required obective with high repeatable positioning accuracy.
■ Mechanical switching mode effectively improves extend the working life of the nosepiece.

Independently developed software with more operating functions

NIR−MXseries adopts MV image software.On functional modules such as management, measurement, image collection, and layer management, additional With the unique infrared image enhancement function, it can also be customized according to customer needs.
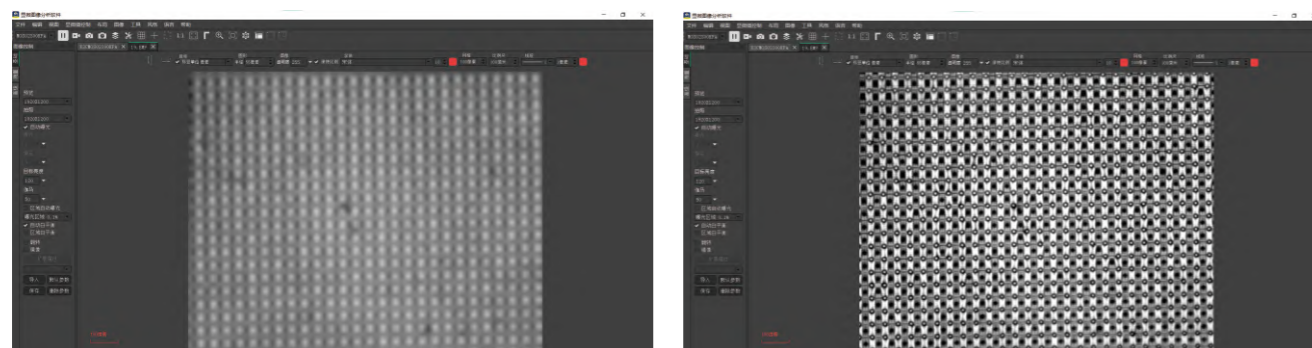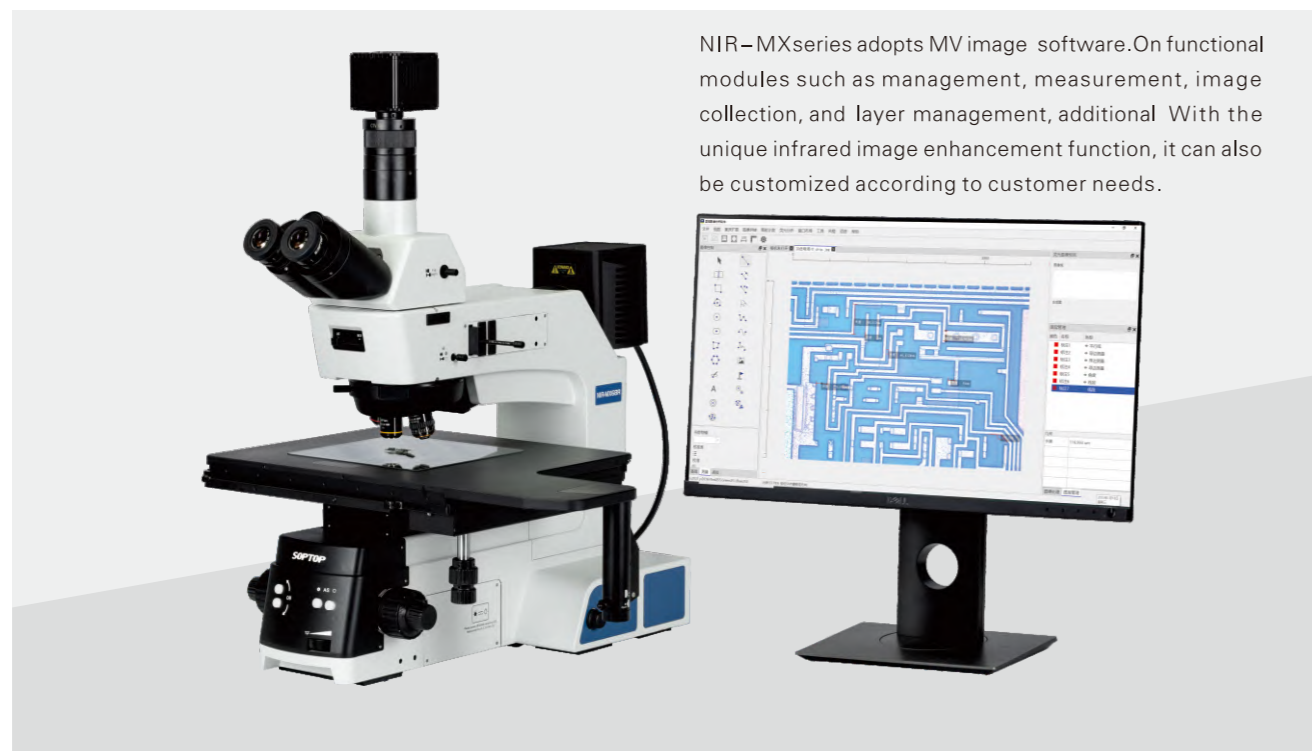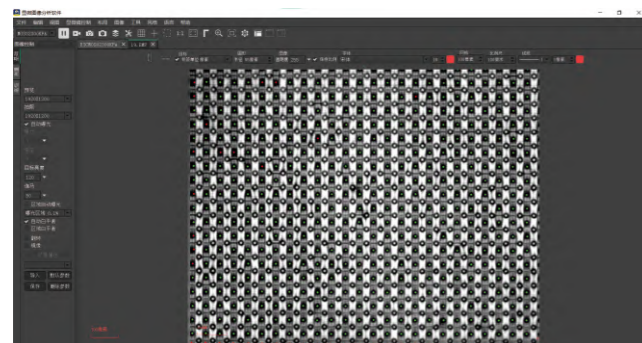
Image enhancement

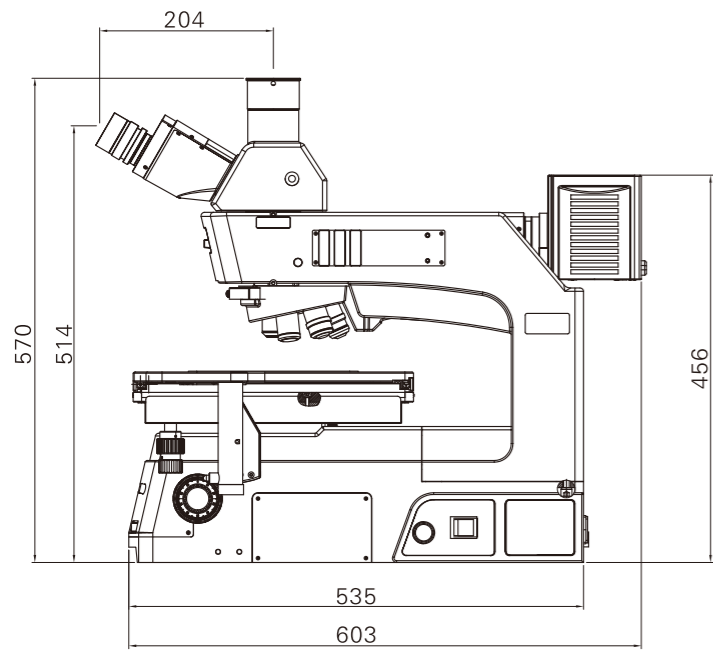Improve the image clarity of infrared penetration, making local details more obvious.

AI software empowerment

Self−developed AI can automatically detect defects in samples Main learning function, automatic defect identification, capture,Counting statistics and other functions. At the same time, according to different customers Customized on demand.
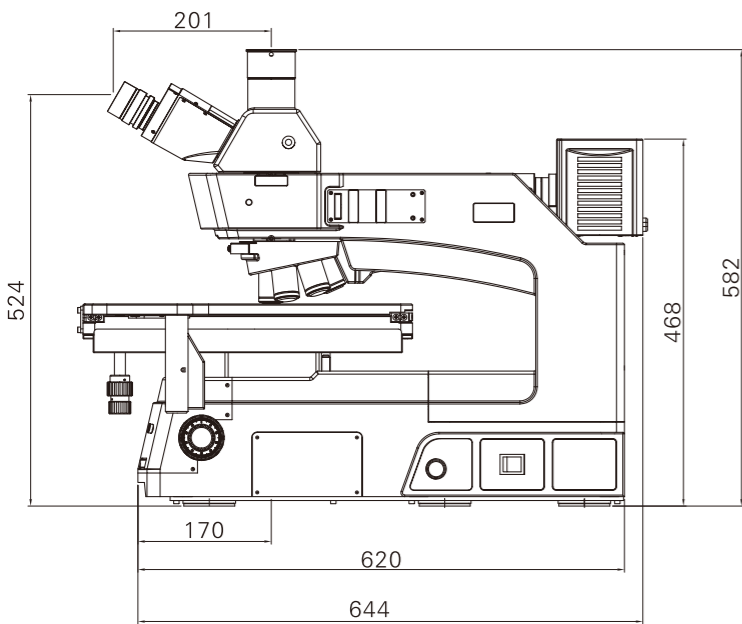
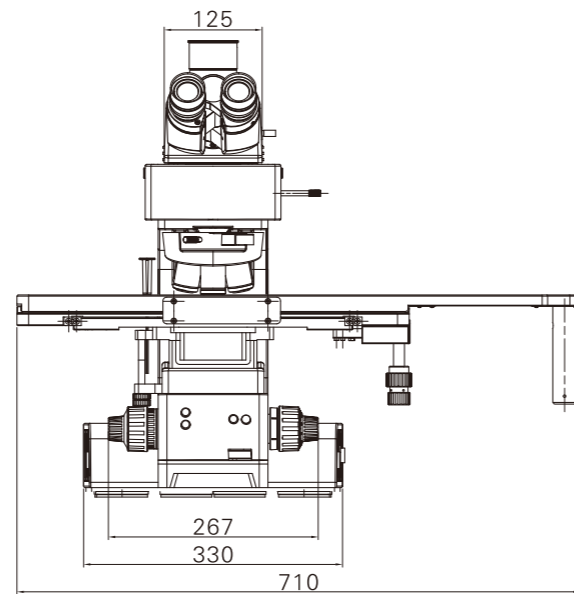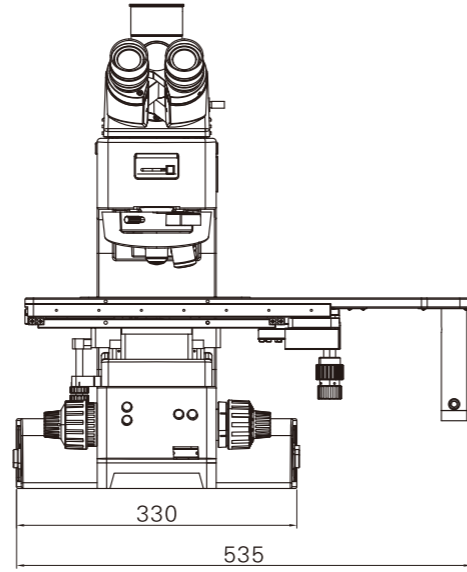| Mode	NIR−MX68R Near−infrared Industrial Microscopic Imaging System	NIR−MX12R Near−infrared Industrial Microscopic Imaging System
Optical System	Infinity color corrected optical system	
Observation	Bright filed / Near−infrared	
Viewing Head	Near−infrared 30° tilting trinocular head (Erect image), interpupillary distance: 50−76mm, splitting ratio: 100:0 or 0:100	
Eyepiece	High eye point wide field plan eyepiece PL10X/22mm, diopter adjustable,can be equipped with micrometer	
	High eye point wide field plan eyepiece PL10X/23mm, diopter adjustable,can be equipped with micrometer	
Objective	Plan semi−APO NIR objective 5X/10X/20X/50X	
Nosepiece	Motorized sextuple nosepiece with DIC slot	
Frame	Reflected frame with low position coaxial focus mechanism, coarse range: 35mm, fine precision: 0.001mm.With upper limit and tension adjustment. Built−in 100−240V wide voltage system	
Stage	8 inches three−layer mechanical stage with low position coaxial adjustment, size: 525mmX330mm, movingrange:210mmX210mm; with clutch handle for quick movement; metal plate for reflected use; rotary stage /8 inch wafer disc, suitable for 6, 8 inch wafers	12x14 inch three layers mechanical stage with glass plate, size: 420X718mm.moving range: 305X356mm; move quickly.With clutch handle, can be used for rapid movement within the full range of travel; metal stage plate (for reflection), glass stage plate (for transmission /reflection), rotating stage for 1 2−inch wafer tray, suitable for 6, 8, 1 2−inch wafers
	6 inches three−layer mechanical stage with low position coaxial adjustment; size: 445mm × 240mm, movingrange for reflected:158mm × 158mm; moving range for transmitted: 100 × 100mm; with clutch handle for quick movement; metal plate for reflected use; rotary stage /6 inch wafer disc, suitable for 4, 5,6 inch wafers	
Illumination	NIR reflective illuminator, with a switch for changing bright field and NIR; with variable electric aperture diaphragm , center is adjustable; With color filter slot; 12V 100W halogen light	
Filter	Band−pass filter (1100nm, 1200nm, 1300nm)	
Camera	1.3 megapixel NIR camera (400−1700nm),monochrome camera, frame rate 125fps@1280 × 1024, pixel size 5μm	
	3.2 megapixel NIR camera (400−1100nm) monochrome camera, frame rate 120fps@2064 × 1544, pixel size 3.45μm	
Camera Adapter	0.35X /0.5X / 0.65X/ 1X C−mount adapter	
Others	High precision micrometer; PC; software with image processing, image acquisition, image management, measurement functions	

204

570
514
456

535
603

NIR-MX68R

330
535

201

524
468
582

170
620
644

125

267
330
710

NIR-MX12R

NIR-MX Diagram

NIR-LBD-1100FB
NIR-LBD-1200FB
NIR-LBD-1300FB
HB12-100
NIR-MX68RLH
PC-MX20T

NIR-MX12RF/NIR-MX12RTF

MXSGMX12-R/RT

1100
1700
RX56CTV1
NIRTH30R
NIR-MX68RF

MXSGMK6R

MXSGMK8

PIHSGMX0Ta

PLN06x23TR
PLN06x23T
PLN06x23T1R
PLN06x22TR
PLN06x22T

OLP5-NIR
OLP10-NIR
OLP20-NIR
OLP50-NIR

MXRTSGMK6

MXSGR