BestScope Industrial Microscopes

1. BM Series Inspection Microscope

BM-310,320,330,340 Inspection Microscope

BM

Introduction

Combining high magnification of metallurgical microscope with 3-axis measurement of image measuring instrument, BM measuring microscope is available for bright & dark field, DIC, polarizing observation, and is widely applied for industrial inspection, such as semiconductor, PCB, LCD, hand phone, optical communication, basic electronics, mold hardware, automobile and so on.

Features

1. **Tilting viewing head, relieves fatigue from long-time working.**

With tilting viewing head from 5 to 35 degree, it is available to be comfortably operated by different users with different posture.

2. Stage with big movement range.

Different sizes of the stage are available for selection:

200 (X) mm*100 (Y) mm
300 (X) mm*200 (Y) mm
200 (X) mm*300 (Y) mm
400 (X) mm*300 (Y) mm

Regardless of sample size, BM can meet the measurement needs of users.

3. Coarse and fine adjustment for X/Y movement, two speed regulation for option.

With stage reducer, the stage lead of BM system can be controlled to 2mm or 4mm, more accurate and easier to operate.

4. Highly integrated design.

Users can choose whether to configure an integrated work desk according to their needs.

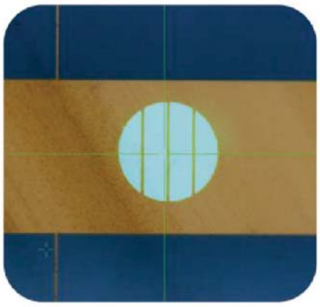
The integrated work desk not only reserves space for a computer host, but also comes with a foldable keyboard drawer. The overall appearance is clean and comfortable. Various operable parts are within reach, making operation easy and convenient. It is ergonomic. Users can easily perform operations without standing.

5. Long working distance metallurgical objectives.

With high transmittance and sharpness lenses, the professional objectives is able to present the real color of samples, support for dark field, polarizing and DIC application

6. Independent focus assist of split image.

The light controller of split image is independent. Light intensity is able to be adjusted according to different samples. Two patterns of split image for option, support for free switch.



Bright Contrast

Under Focus

Dark Contrast

Between Focus

Above Focus

7. Precision measurement ensures data accuracy.

Measurement is aimed at restore the real data of samples. Good measuring tool represents a brand value. With the development of manufacturing technology for miniaturization and precision, high accurate measurement is more and more important.

High precision grating scale

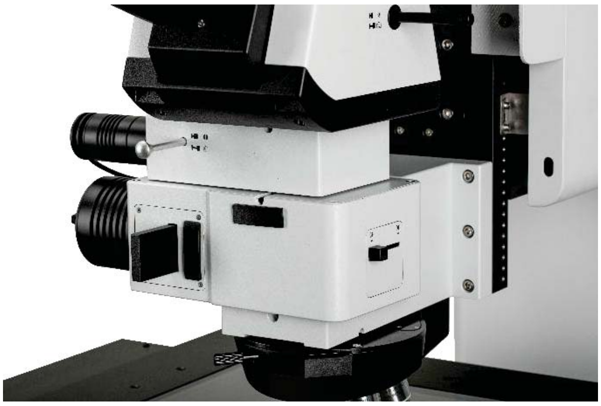
Precision measurement BM series adopts 3-axis measuring system with 0.1um precision. X/Y axis manual operation and Z axis electric focusing with high accurate grating scales, is easy for operate without fatigue.

Electric focusing controller

The separated controller for X/Y/Z focusing and grating scale reset in MS measuring system, avoids the deviation by manual operation, realizes the accurate focus and measurement.

Counter with real-time display

Counter with real-time display can be disassembled accordingly, precision 0.1um, with buttons for reset, linear compensation and count unit switch.

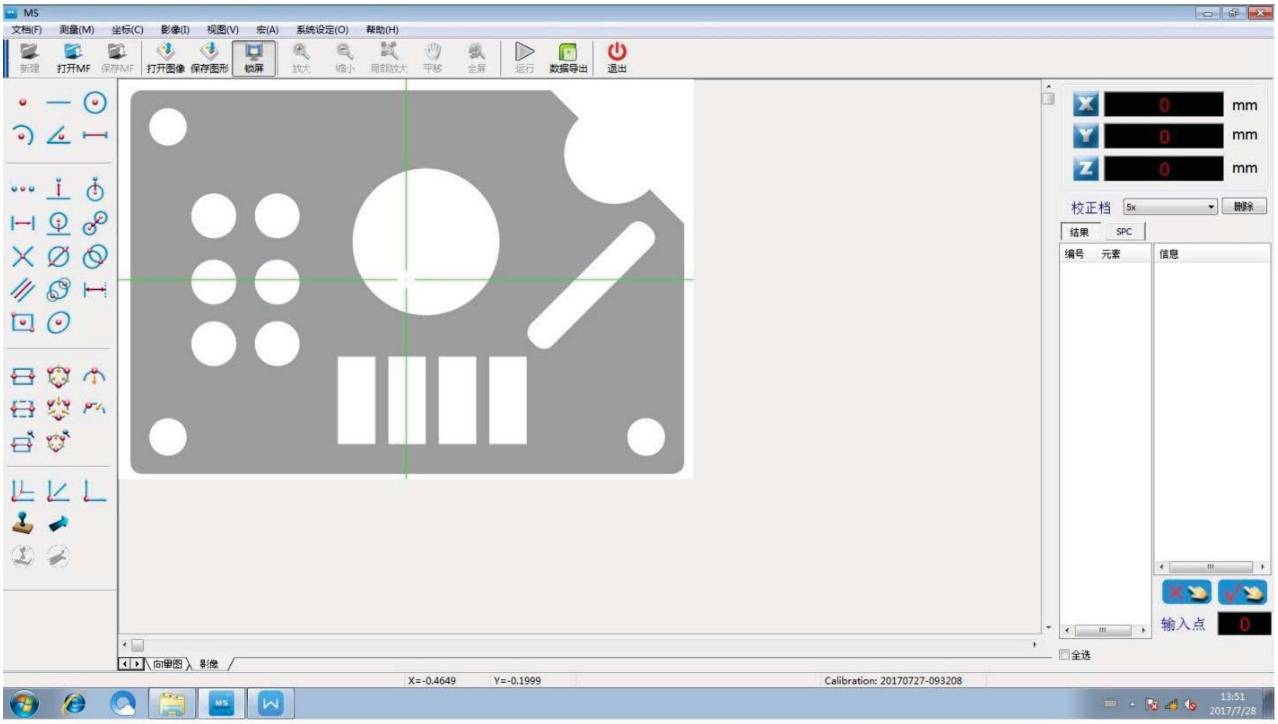


Multi-functional reflected illuminator

With 5W LED, the reflected illuminator is effective and durable. Different color temperature for option, meet all demands. Polarizing kit, filters are attachable

8. Self-designed measuring software

It is available to set up the customer preference by the powerful software. High-precision measurement is achievable for the complicated shapes.



X 0 mm
Y 0 mm
Z 0 mm
校正档 5x
输入点 0

X=-0.4649 Y=-0.1999 Calibration: 20170727-093208

13:51
2017/7/28

喜好设定

单位设定 ● mm ○ um ○ inch ○ mil

文字设定 12 字体 小数位数 4

角度格式 ● 度 ○ 度分秒

样本点上限 ☑ 点 1 ☑ 线 2 ☑ 圆 4 ☑ 弧 3

显示尺寸

点 ☑ X ☑ Y ☑ Z ☑ R ☑ A ☑ Phi

线 ☑ X ☑ Y ☑ Z ☑ 角度 ☑ 长度 ☑ T+ ☑ T- ☑ 直直度

圆 ☑ X ☑ Y ☑ Z ☑ 半径 ☑ 直径 ☑ T+ ☑ T- ☑ 真圆度 ☑ 面积

弧 ☑ X ☑ Y ☑ Z ☑ 角度 ☑ 半径 ☑ T+ ☑ T- ☑ 真圆度

距离 ☑ X ☑ Y ☑ Z ☑ 角度 ☑ 2D距离 ☑ T+ ☑ T- ☑ 平行度 ☑ 垂直度 ☑ 3D距离

角度 ☑ X ☑ Y ☑ Z ☑ 角度

曲线 ☑ X ☑ Y ☑ Z ☑ 长度

不规则曲线 ☑ X ☑ Y ☑ Z ☑ 角度 ☑ 长度

矩形 ☑ X ☑ Y ☑ Z ☑ 面积 ☑ 宽度 ☑ 高度

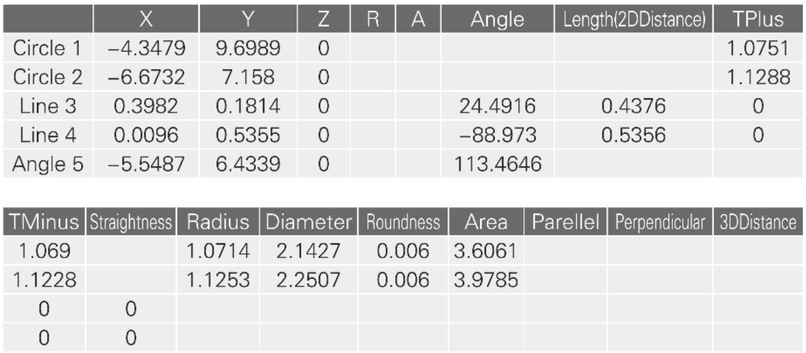
椭圆 ☑ X ☑ Y ☑ Z ☑ 长轴 ☑ 短轴 ☑ 轴比率

One button for test report, high efficiency and reliability.

Support for report output, to avoid the artificial mistakes during data record.

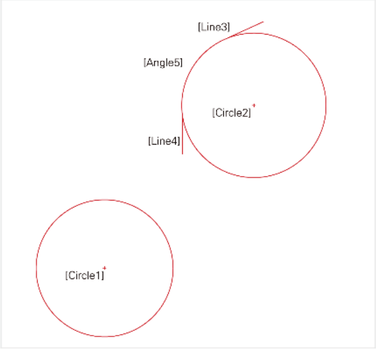
Personalization

Freely select the measuring position, delete the output data accordingly.

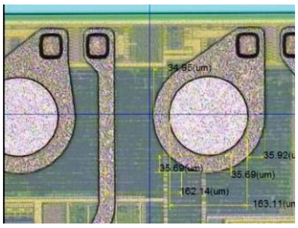


	X	Y	Z	R	A	Angle	Length(2DDistance)	TPlus
Circle 1	−4.3479	9.6989	0					1.0751
Circle 2	−6.6732	7.158	0					1.1288
Line 3	0.3982	0.1814	0			24.4916	0.4376	0
Line 4	0.0096	0.5355	0			−88.973	0.5356	0
Angle 5	−5.5487	6.4339	0			113.4646		

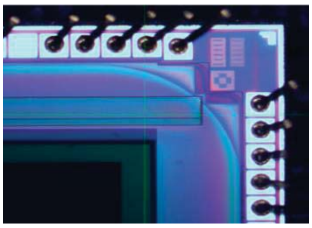
TMinus	Straightness	Radius	Diameter	Roundness	Area	Parellel	Perpendicular	3DDistance
1.069		1.0714	2.1427	0.006	3.6061			
1.1228		1.1253	2.2507	0.006	3.9785			
0	0							
0	0							



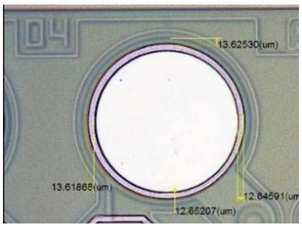
Application



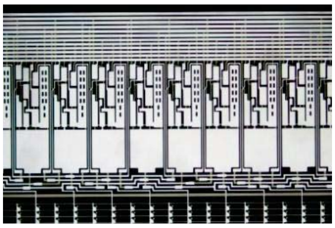
Bumping size measuring in IC advanced package



Bumping registration accuracy measuring in IC advanced package



Welding leg measuring in PCB



TFT measuring in LCD

Specification

Item	Specification		BM-310	BM-320	BM-330	BM-340
Optical System	Infinite Optical System		●	●	●	●
Viewing Head	5~35 degree tilting trinocular head (erect image); unilateral visual acuity adjustment: ±5 diopter; interpupillary distance: 50-76mm; splitting ratio: 100:0 or 0:100		●	●	●	●
Eyepiece	High eye point wide field plan eyepiece PL10X/22mm		●	●	●	●
	High eye point wide field plan eyepiece PL10X/22mm, with micrometer		○	○	○	○
	High eye point wide field plan eyepiece PL10X/22mm, with adjustable diopter		○	○	○	○
	High eye point wide field plan eyepiece PL10X/22mm, with adjustable diopter and micrometer		○	○	○	○
Nosepiece	Motorized Sextuple Nosepiece (with DIC slot)		●	●	●	●
	Motorized BD Sextuple Nosepiece (with DIC slot)		○	○	○	○
Objective	Infinity Long Working Distance Plan Achromatic Metallurgical Objectives	5X/NA=0.15, WD=10.8mm	●	●	●	●
		10X/NA=0.30, WD=12.2mm	●	●	●	●
		20X/NA=0.40, WD=8.8mm	●	●	●	●

		50X/NA=0.55, WD=7.9mm	●	●	●	●
		100X/NA=0.8, WD=2.1mm	○	○	○	○
	Infinity Long Working Distance BD Plan Achromatic Metallurgical Objectives	5X/NA=0.15, WD=9.0mm	○	○	○	○
		10X/NA=0.3, WD=9.0mm	○	○	○	○
		20X/NA=0.45, WD=3.4mm	○	○	○	○
	Infinity Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	50X/NA=0.55, WD=7.5mm	○	○	○	○
		100X/NA=0.8, WD=2.1mm	○	○	○	○
Microscope Body	Marble base with Z-axis electric focusing, electric controller, Z-axis travel 150mm, Z-axis repeated positioning accuracy ±2um; equipped with 5W LED projection lighting, intensity adjustable. Size: 500mm*700mm*960mm, weight 155 kg.		●	●		
	Marble base with Z-axis electric focusing, electric controller, Z-axis travel 150mm, Z-axis repeated positioning accuracy ±2um; equipped with 5W LED projection lighting, intensity adjustable. Size: 670mm*940mm*960mm, weight 200 kg.				●	●
Stage	Manual stage, moving range: 200mm(X) x 100mm(Y), measuring precision: X/Y (2+L/100)um; including a quick moving device and a fine-tuning device, with a maximum load-bearing weight of 10kg. The size of the stage is 258mm * 358mm, and the weight is 25kg.		●			
	Manual stage, moving range: 300mm(X) x 200mm(Y), measuring precision: X/Y (3+L/100)um; including a quick moving device and a fine-tuning device, with a maximum load-bearing weight of 15kg. The size of the stage is 350mm * 500mm, and the weight is 45kg.			●		
	Manual stage, moving range: 300mm(X) x 300mm(Y), measuring precision: X/Y (3+L/100)um; including a quick moving device and a fine-tuning device, with a maximum load-bearing weight of 20kg. The size of the stage is 500mm * 500mm, and the weight is 60kg.				●	
	Manual stage, moving range: 400mm(X) x 300mm(Y), measuring precision: X/Y (3+L/100)um; including a quick moving device and a fine-tuning device, with a maximum load-bearing weight of 20kg. The size of the stage is 458mm * 620mm, and the weight is 70kg.					●

Illumination	Reflected illuminator with shifter for bright and dark field; with slots for filters and polarizing kit; 5W LED, intensity adjustable	●	●	●	●
	Focus assist, with double reticle; 5W LED (green), 100V-240V, intensity adjustable	●	●	●	●
Focusing	Electric controller with automatic/manual Z-axis focusing; independent control of up/down/auxiliary focusing three types of light sources, supporting adjustable brightness; including XYZ individual zeroing and one key zeroing; electric control converter, equipped with Z-axis movement emergency stop button	●	●	●	●
Camera	Target Surface Size: 1/1.8 inch; Resolution Ratio: 1600 × 1200 (1.9MP); Frame Rate: 20fps, 2 mega-pixel	●	●	●	●
Adapter	0.5X C-mount adapter	○	○	○	○
	0.65X C-mount adapter	●	●	●	●
PC	LENOVO T4900k I5-10400/8G/1T/21.5 inch	●	●	●	●
Software	Measuring software MSU3D-PRO	●	●	●	●
Other Accessories	Counter with real-time display	●	●	●	●
	Spanner	●	●	●	●
	Interference Filters (Blue, Green, Red)	○	○	○	○
	High precision micrometer	○	○	○	○
	DIC kit	○	○	○	○
	Calibration slide	●	●	●	●
	Desk (1075mm*995mm*685mm,120kg)	○	○	○	○

Note: ● Standard Outfit, ○ Optional

Accessories

1. Fixed trinocular viewing head

2. High eye point wide field plan eyepieces

3. 3 mega-pixels digital camera

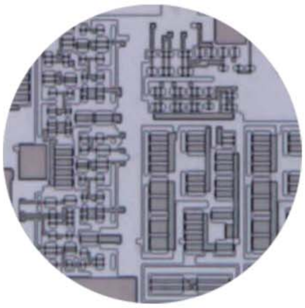
4. Electric nosepiece

5. Reflected illuminator

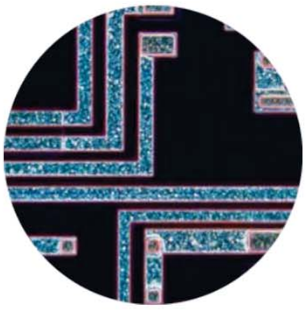
6. Reflected interference filters

7. Focus Assist

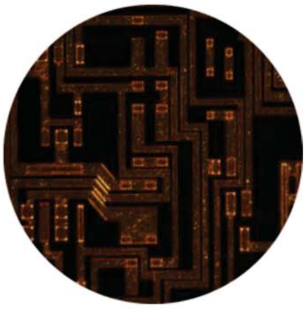
Sample Image



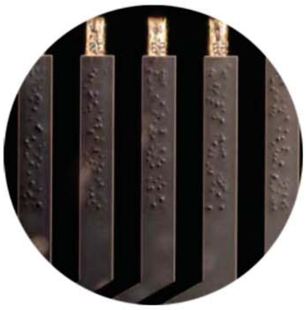
IC 100X / Bright Field



IC 50X / Dark Field

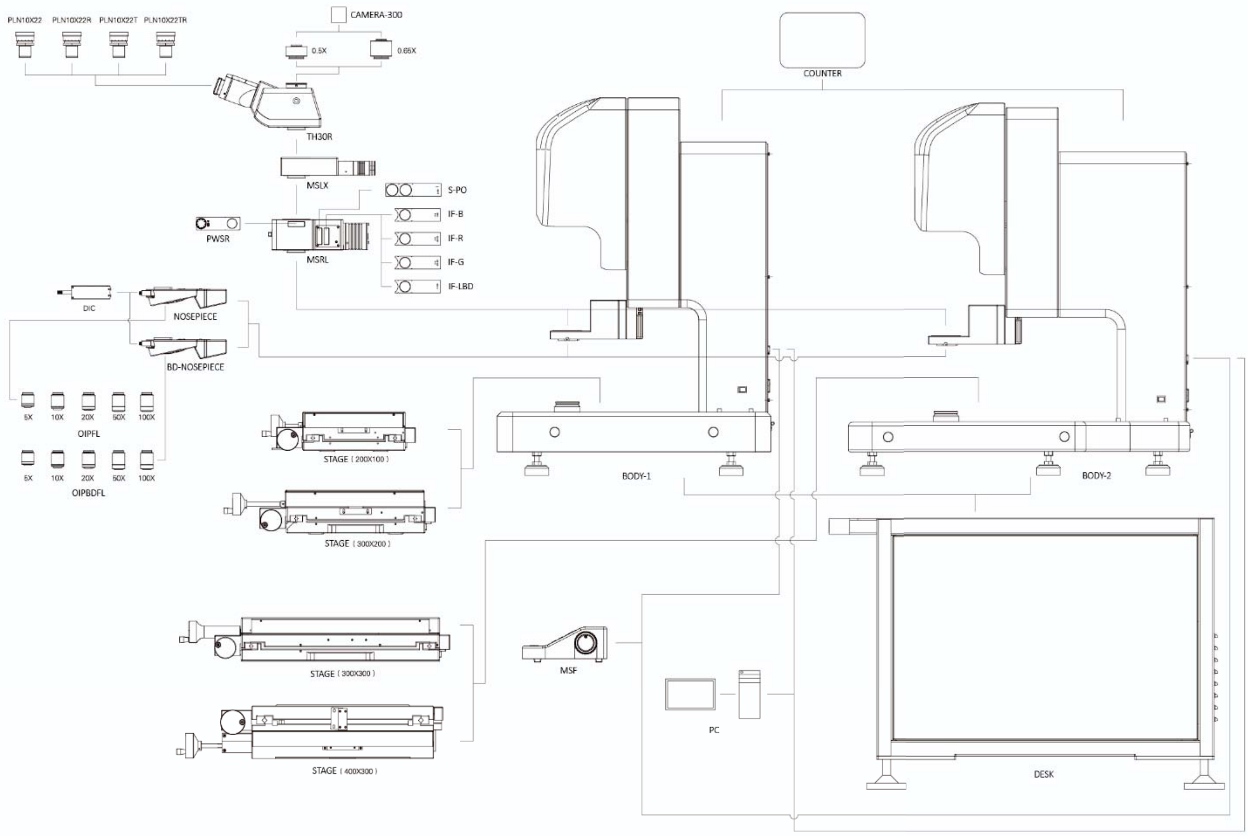


IC 20X / Polarizing

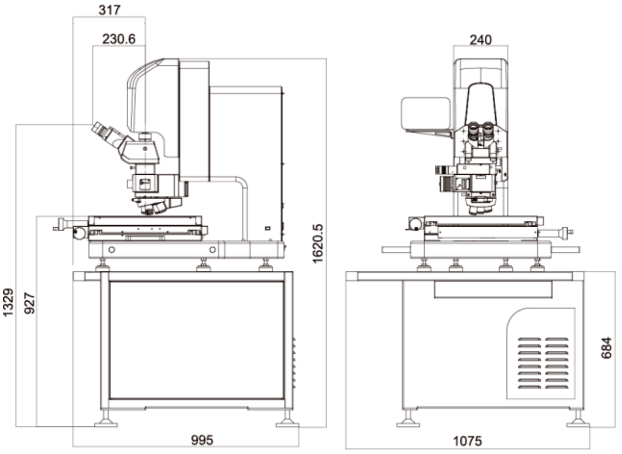


FPD 10X / DIC

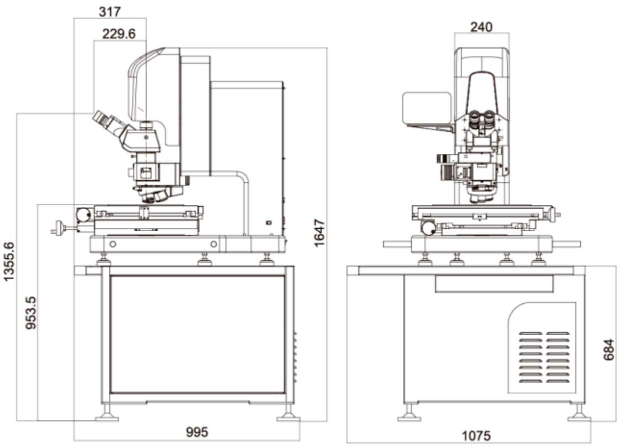
System Diagram



Dimension



BMS-310/BMS-320



BMS-330/BMS-340

Unit: mm

2. BS-6062 Modular Microscope

BS-6062

BS-6062BD

Introduction

BS-6062 is flexible and practical tool for metallographic detection. With high quality component design, simple and flexible combination and strong metallographic detecting function, BS-6062 is the best choice for large size sample observation. Compact and flexible structure adapt to various surroundings. Clear and sharp image can be got under various kinds of observations. Optical components are all specially processed and coated with special film. New design of long working distance professional metallurgical objectives which is high power adopted semi-apochromatic technology.

Feature

1. Independent metallographic detecting system

Different from traditional metallographic microscope, BS-6062 has a compact structure. The appearance is small and exquisite. The operation is easier and quicker. Large flat base and coaxial focusing bracket, conquer the limit of large or thick sample observation with common metallographic microscope. With integrated several observing functions such as bright field, dark field, polarizing and DIC, the users could choose freely according to practical application.

2. Visual system for large-scale equipment

Integration of several observations, professional metallographic microscopy technology and flexible contraption, BS-6062 becomes the first professional metallographic microscope that can be mounted in large mechanical equipment as visual system, for production or testing equipment of large LCD or PCD panels. With photo and video mount, the image can be output to monitor or computer, making the rapid detection more convenient.

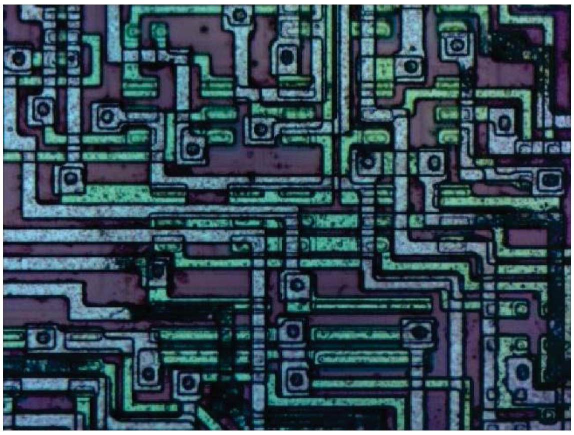
3. Long working distance metallurgical objectives

New design of long working distance professional metallurgical objectives, with semi-apochromatic and multilayer broadband coating technology, the image is clear and sharp and the color is natural and bright in the whole field. Long working distance design makes DIC differential interference observation perfectly.

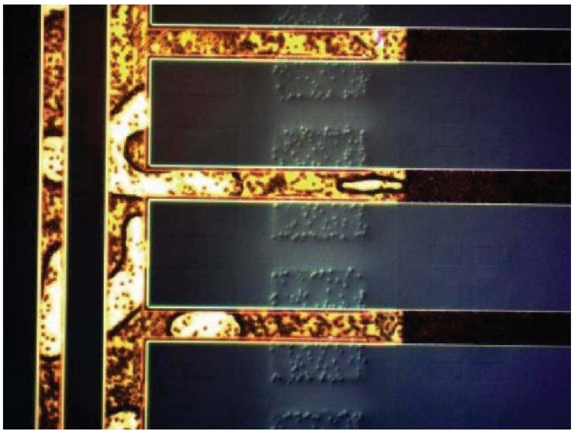
Complete set of bright/dark field objectives, luminance of new dark field illumination is double than the traditional objectives.

Application

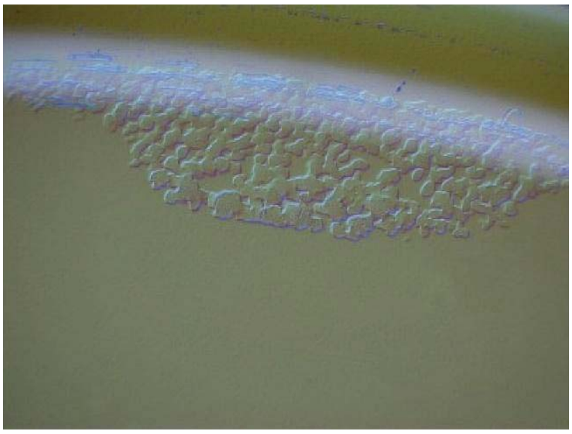
FPC 10X/Dark Field



IC 50X/Bright Field



Conducting Particles 20X/DIC



CD 20X/DIC

Specification

Item	Specification	BS-6062	BS-6062BD
Optical System	Infinite Color Corrected Optical System	●	●
Viewing Head	30° inclined gemel trinocular head, 360° rotatable, interpupillary distance 54-75mm, visual adjustment: ±5 diopter, splitting ratio binocular: trinocular =100:0 or 50:50	●	●
Eyepiece	High eye point wide field plan eyepiece PL10X/22mm	●	●
	High eye point wide field plan eyepiece PL10X/22mm, with micrometer	○	○
	High eye point wide field plan eyepiece PL10X/22mm, with adjustable diopter	○	○
	High eye point wide field plan eyepiece PL10X/22mm, with micrometer and adjustable diopter	○	○
	High eye point wide field plan eyepiece PL10X/23mm, with adjustable diopter	○	○
	High eye point wide field plan eyepiece PL15X/16mm	○	○
Objective	5X/NA=0.15, WD=10.8mm	●	○
	10X/NA=0.3, WD=12.2mm	●	○

	Infinity Long Working Distance Bright Field Plan Achromatic Metallurgical Objectives	20X/NA=0.45, WD=4.0mm	●	○
		50X/NA=0.55, WD=7.9mm	●	○
		100X/NA=0.8, WD=2.1mm	○	○
	Infinity Long Working Distance Bright & Dark Field Plan Achromatic Metallurgical Objectives	5X/NA=0.15, WD=9.0mm	○	●
		10X/NA=0.3, WD=9.0mm	○	●
		20X/NA=0.45, WD=3.4mm	○	●
	Infinity Long Working Distance Bright & Dark Field Semi-Apochromatic Metallurgical Objective	50X/NA=0.55, WD=7.5mm	○	●
		100X/NA=0.8, WD=2.1mm	○	○
Nosepiece	Inward quintuple nosepiece, with DIC slot		●	
	Inward quintuple bright & dark field nosepiece, with DIC slot			●
Microscope Body	Coaxial focusing mechanism with a column hole diameter of 32mm, coarse range: 45mm, fine precision: 0.002mm, with upper limited and tension adjustment.		●	●
	Large flat base		○	○
	Column type large flat base, base size: 320*260*16mm (excluding feet), equipped with seismic resistant feet. Installation holes on the base for movable stage.		●	●
Illumination	With variable aperture and field diaphragm, both center adjustable. For single fiber optic lighting		●	
	With variable aperture and field diaphragm, both center adjustable. With switch device between bright field and dark field. For single fiber optic lighting			●
	Fiber optic adapter kit		●	●
	Power box (black) of high brightness LED cold color lamp, input 85-265V/AC, output 20W. LED color temperature 6000K.		●	●
	Single fiber tube (length: 0.55m)		●	●
	Single fiber tube (length: 1m)		○	○
	Single fiber tube (length: 1.5m)		○	○
Polarizer and Analyzer	Polarizer and fixed analyzer		○	○
	Polarizer and 360-degree rotatable analyzer		●	●
Filters	Blue interference filter for reflected use: <480nm		○	○
	Green interference filter for reflected use: 520nm-570nm		○	○
	Red interference filter for reflected use: 630nm-750nm		○	○
	Interference filter for reflected use, color balance plate (white light)		○	○
C-mount Adapter	0.35× C-mount adapter, focus adjustable		○	○
	0.5× C-mount adapter, focus adjustable		○	○
	0.65× C-mount adapter, focus adjustable		○	○
	1× C-mount adapter, focus adjustable		○	○
Other Accessories	DIC Kit, for infinity LWD BD plan achromatic metallurgical objectives and infinity LWD BD semi-apochromatic metallurgical objectives		○	○
	High precision micrometer, 0.01mm increment		○	○
	Ordinary micrometer, 0.01mm increment		○	○
	Internal hexagonal Spanner M3		●	●

	Internal hexagonal Spanner M4	●	●

Note: ● Standard Outfit, ○ Optional

Accessories

1. Different illuminator for option

Bright field reflecting illuminator: with iris field diaphragm and aperture diaphragm, center adjustable, with oblique illumination.

Bright/dark field reflecting illuminator: with iris field diaphragm and aperture diaphragm, center adjustable, with switch device between bright field and dark field.

2. Wide field of view gemel trinocular head

Gemel trinocular head, inverted image, compact structure design, assemble easily and lighten the weight of the whole body.

3. Photo and video accessories

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

4. Various interference filters for option

You can 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.

5. Polarizing and DIC accessories

Insert polarizer and analyzer into the exact slot of illuminator, you would achieve simple polarizing observation. On the base of orthogonality polarizing, insert Nomarski DIC prism to match DIC observation. DIC technology can indicate significant relief effects on small surface height differences, greatly improving image contrast.

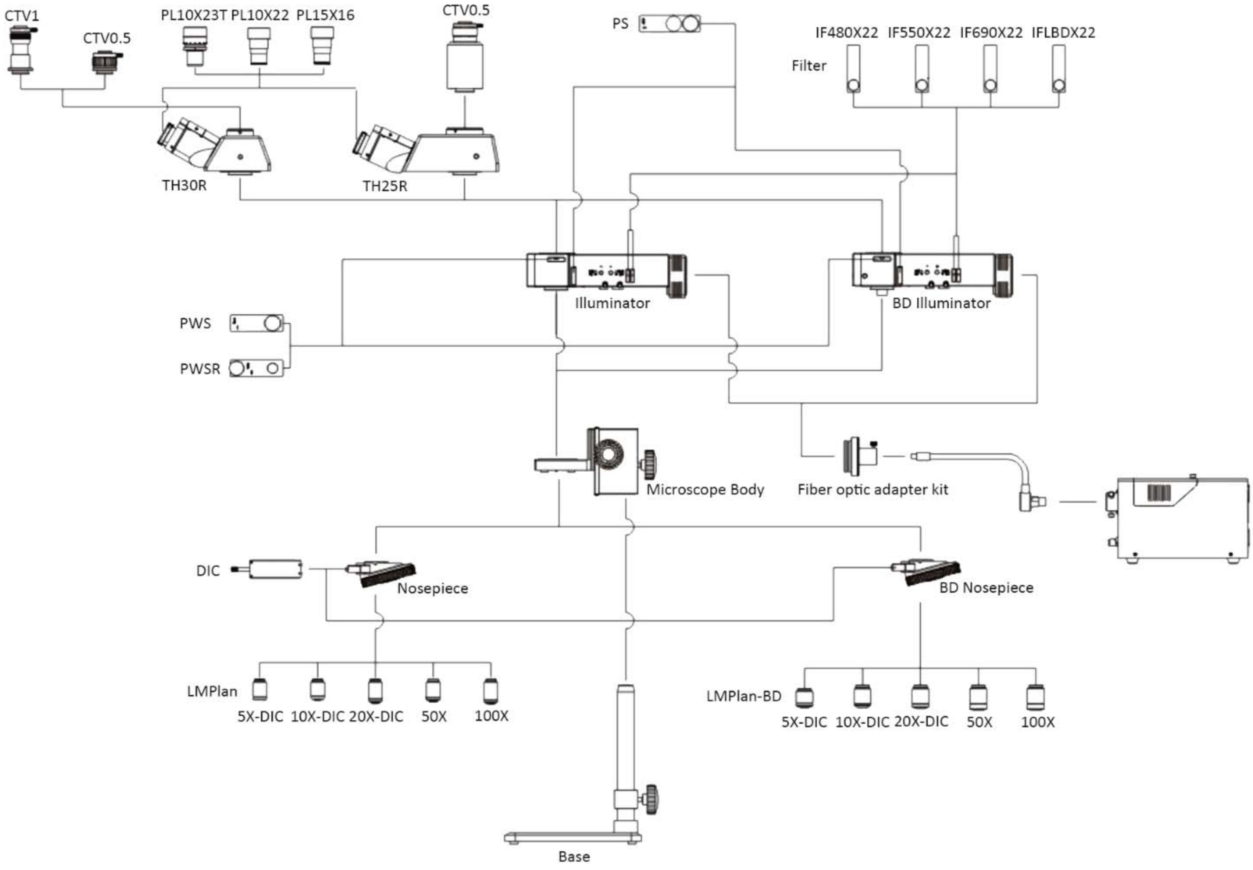
6. Objectives

Infinity long working distance metallurgical objective

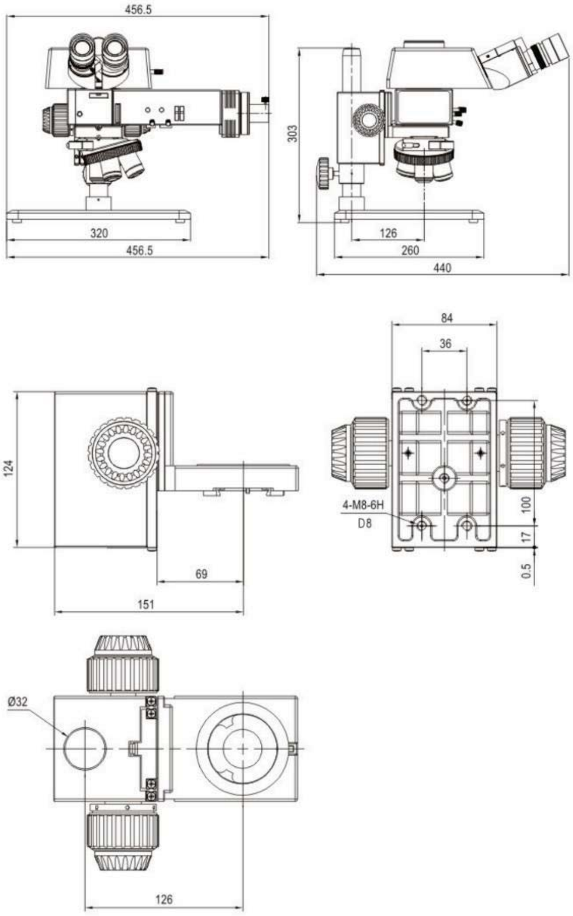
Infinity long working distance bright/dark field metallurgical objective

7. Eyepieces

System Diagram



Dimension



Unit: mm

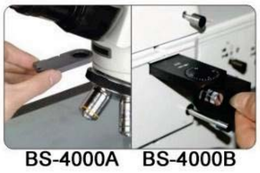
3. BS-4000A/B Industrial Inspection microscope

Introduction

BS-4000 series microscopes are specially designed for precise industrial inspection. They adopt infinite optical system and long working distance high-power objective lens. They provide an outstanding optical performance and available to IT industry, large-scale integrated circuits, chips observation and testing.

Feature

1. Big stage with extra large moving range 250×250mm.
2. Well designed structure, easy to operate.
3. Excellent optical quality with Infinite Optical System and LWD high magnification objective.
4. Stage speedy movement by hand to get observation point immediately.
5. Easy, Safe and Reliable Lamp Replacement.
6. Comfortable and enjoyable operation with low and pre position control knob.

	Suitable for different Specimen Observation with Polarization Set.
	Big stage with extra large moving range, both movement by hand and precise adjustment by knob are available.

Application

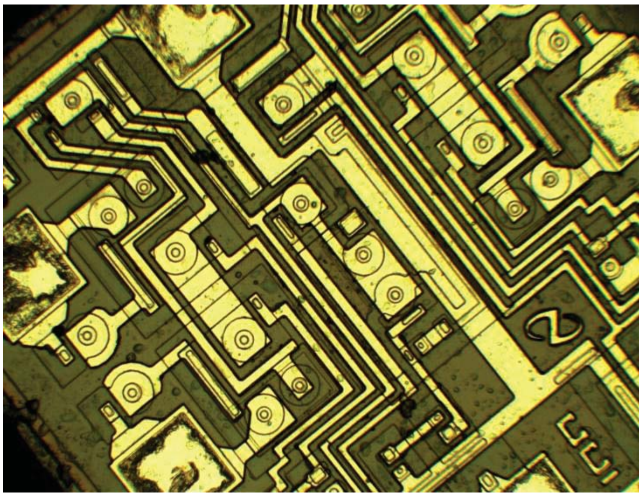
It is specially used in IT Industry for Large Area Integrate Circuit board, Wafer Observation and other industrial Inspection.

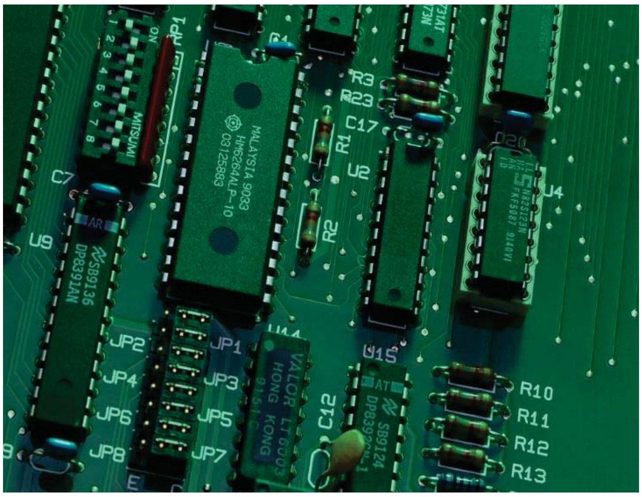
Specification

Item	Specification		BS-4000A	BS-4000B
Viewing Head	Seidentopf type trinocular head, Inclined at 30°, 360° Rotatable, Interpupillary 48-75mm		●	●
Eyepiece	Extra Wide Field Eyepiece EW10×/ 22		●	●
Objective	Infinite Plan Achromatic Objectives	4×/0.1/∞/- WD 17.8mm	●	
		5×/0.12/∞/- WD 15.5mm	○	●
		10×/0.25/∞/- WD 10.0mm	●	
		10×/0.25/∞/- (BF/DF) WD 10.0mm		●
		20×/0.40/∞/0 WD 5.8mm	●	
		20×/0.40/∞/0 (BF/DF) WD 4.3mm		●
		40×/0.6/∞/0 WD 2.9mm	●	
		50×/0.75/∞/0 WD 0.32mm	○	●
		100×/0.8/∞/0 WD 2.0mm	○	●
Nosepiece	Quadruple Nosepiece		●	
	Quintuple Nosepiece			●
Stage	Stage size 300×268mm, Moving range 250×250mm		●	●
Focusing	Coaxial coarse & fine Adjustment, Moving Range 24mm		●	●
Illumination	6V/ 20W Halogen Lamp, Brightness Adjustable		●	
	24V/ 100W Halogen Lamp, Brightness Adjustable			●
Polarization Set	Analyzer and Polarizer		○	○
Filter	Blue, Green, Yellow and Frosted glass filters		●	●
Photo Adapter	Used to connect DSLR cameras(Nikon & Canon)		○	○
Video Adapter	1× or 0.5× C-Mount		○	○

Note: ● Standard Outfit, ○ Optional

Sample Image





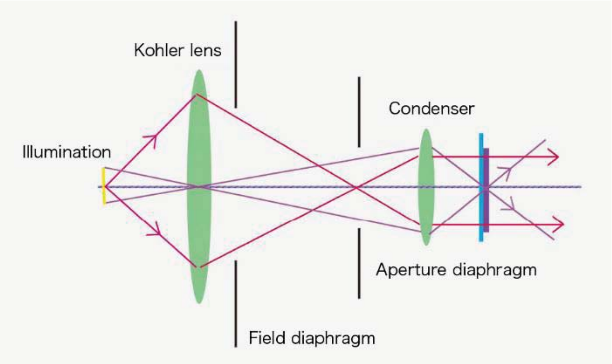
4. BS-4020 Industrial Inspection microscope

Introduction

BS-4020 industrial inspection microscope has been specially designed for inspections of various size wafers and large PCB. This microscope can provide a reliable, comfortable and precise observation experience. With perfectly performed structure, high-definition optical system and ergonomical operating system, BS-4020 realizes professional analysis and meets various needs of research and inspection of wafers, FPD, circuit package, PCB, material science, precision casting, metalloceramics, precision mould, semiconductor and electronics etc.

Features

1. Perfect microscopic illumination system.

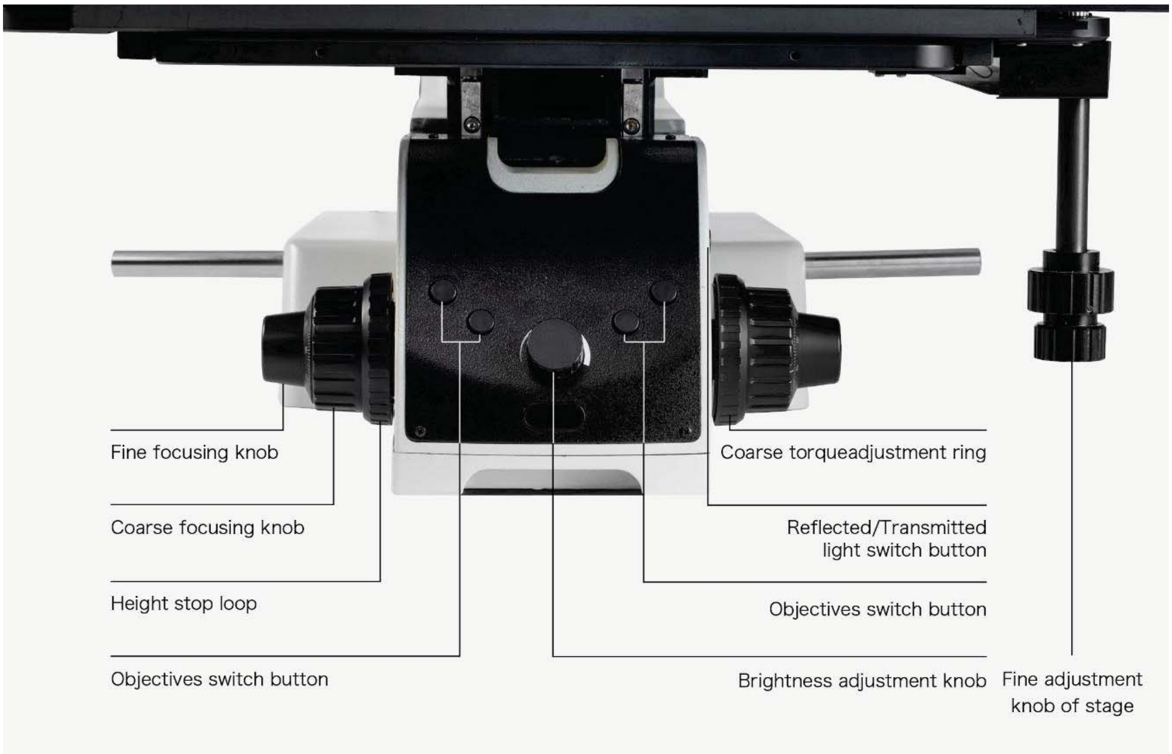


The microscope comes with Kohler illumination, provides bright and uniform illumination throughout the viewing field. Coordinated with infinity optical system NIS45, high NA and LWD objective, perfect microscopic imaging can be provided.

2. High quality Semi-APO and APO Bright field &Dark field objectives.

By adopting multilayer coating technology, NIS45 series Semi-APO and APO objective lens can compensate spherical aberration and the chromatic aberration from ultraviolet to near infrared. The sharpness, resolution and color rendition of the images can be guaranteed. The image with high-resolution and flat image for various magnifications can be got.

3. The operating panel is in the front of the microscope, convenient to operate.



The mechanism control panel is located in the front of the microscope (near the operator), which makes the operation more quickly and conveniently when observing the sample. And it can reduce the fatigue caused by long time observation and the floating dust brought by a big range of movement.

4. Ergo tilting trinocular viewing head.

The Ergo tilting viewing head can make the observation more comfortable, so as to minimize the muscle tension and discomfort caused by long hours of working.

5. Focusing mechanism and fine adjustment handle of stage with low hand position.

The focusing mechanism and fine adjustment handle of stage adopt the low hand position design, which conforms to the ergonomic design. Users no need to raise hands when operating, which gives the greatest degree of comfortable feeling.

6. The stage has a built-in clutching handle.

The clutching handle can realize the fast and slow movement mode of the stage and can quickly locate large-area samples. It will no longer be difficult to locate the samples quickly and accurately when co-using with the fine adjustment handle of stage.

7. Oversized stage (14”x 12”) can be used for large wafers and PCB.

The areas of microelectronics and semiconductor samples, especially wafer, tend to be large, so ordinary metallographic microscope stage cannot meet their observation needs. BS-4020 has an oversized stage with a large movement range, and it is convenient and easy to move. So it is an ideal instrument for microscopic observation of large area industrial samples.

8. 12” wafers holder comes with the microscope.

12” wafer and smaller size wafer can be observed with this microscope, with fast and fine movement stage handle, it can greatly improve the working efficiency.

9. Anti-static protective cover can reduce dust.

Industrial samples should be far away from floating dust, and a bit of dust can affect product quality and test results.
BS-4020 has a large area of anti-static protective cover, which can prevent from the floating dust and fall dust so as to protect the samples and make the test result more accurate.

10. Longer working distance and high NA objective.

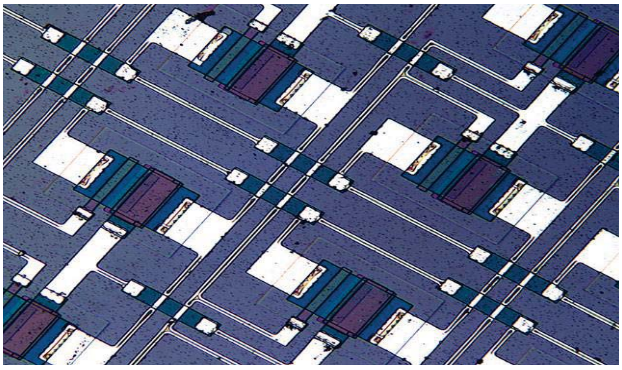
The electronic components and semiconductors on circuit board samples have difference in height. Therefore, long working distance objectives have been adopted on this microscope. Meanwhile, in order to satisfy the industrial samples' high requirements on color reproduction, the multilayer coating technology has been developed and improved over the years and BF&DF semi-APO and APO objective with high NA are adopted, which can restore the real color of samples.

11. Various observation methods can meet diverse testing requirements.

Illumination	Bright Field	Dark Field	DIC	Fluorescent Light	Polarized Light
Reflected Illumination	○	○	○	○	○
Transmitted Illumination	○	-	-	-	○

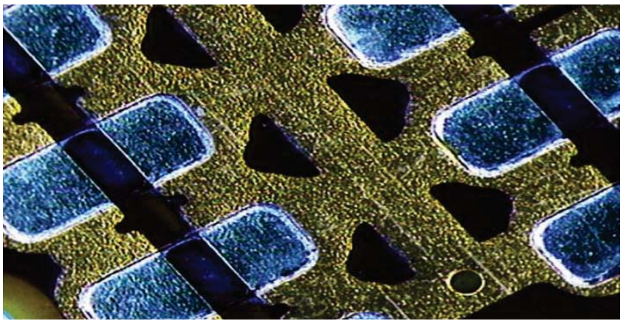
Bright field of Reflected illumination

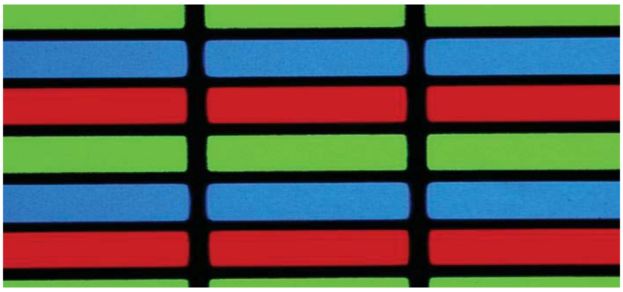
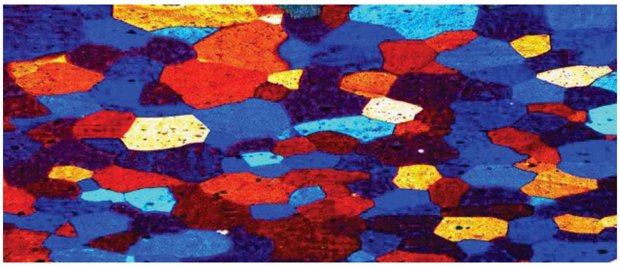
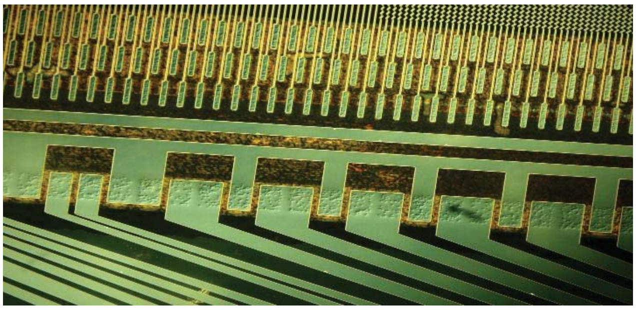
BS-4020 adopts an excellent infinity optical system. The viewing field is uniform, bright and with high color reproduction degree. It is suitable to observe opaque semiconductors samples.



Dark field

It can realize high-definition images at dark field observation and carry-on high sensitivity inspection to the flaws such as fine scratches. It is suitable for surface inspection of samples with high demands.



Bright field of transmitted illumination For transparent samples, such as FPD and optical elements, the bright field observation can be realized by condenser of transmitted light. It can also be used with DIC, simple polarization and other accessories.	
Simple polarization This observation method is suitable for birefringence specimens such as metallurgical tissues, minerals, LCD and semiconductor materials.	
Reflected illumination DIC This method is used to observe small differences in precision molds. The observation technique can show the tiny height difference which cannot be seen in an ordinary observation way in the form of embossment and three-dimensional images.	

Application

BS-4020 industrial inspection microscope is an ideal instrument for inspections of various size wafers and large PCB. This microscope can be used in universities, electronics and chips factories for research and inspection of wafers, FPD, circuit package, PCB, material science, precision casting, metalloceramics, precision mould, semiconductor and electronics etc.

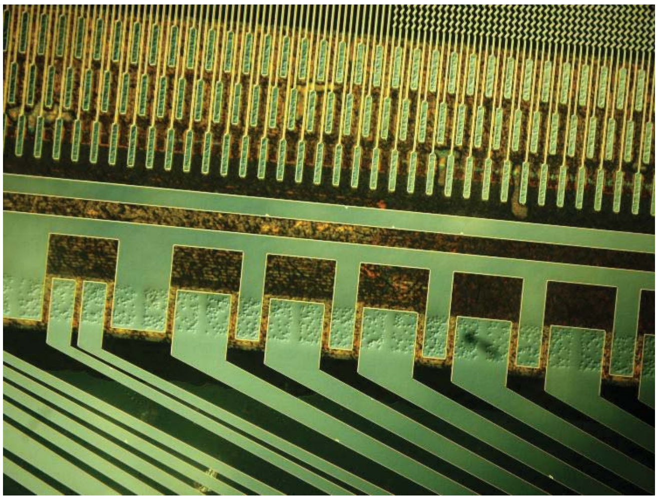
Specification

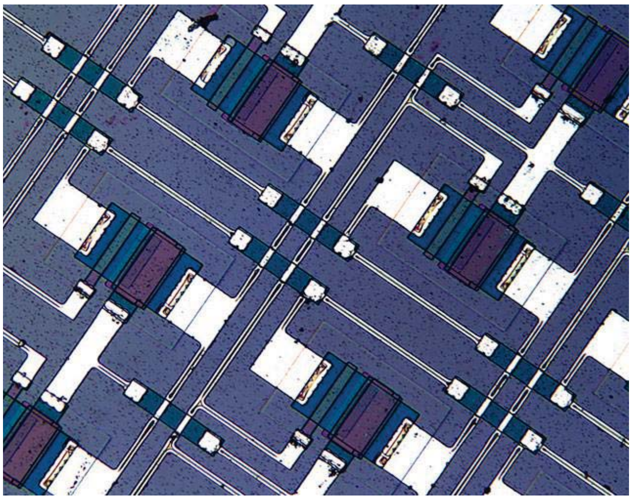
Item	Specification	BS-4020A	BS-4020B
Optical System	NIS45 Infinite Color Corrected Optical System (Tube length: 200mm)	●	●
Viewing Head	Ergo Tilting Trinocular Head, adjustable 0-35° inclined, interpupillary distance 47mm-78mm; splitting ratio Eyepiece:Trinocular=100:0 or 20:80 or 0:100	●	●
	Seidentopf Trinocular Head, 30° inclined, interpupillary distance: 47mm-78mm; splitting ratio Eyepiece:Trinocular=100:0 or 20:80 or 0:100	○	○
	Seidentopf Binocular Head, 30° inclined, interpupillary distance: 47mm-78mm	○	○
Eyepiece	Super wide field plan eyepiece SW10X/25mm, diopter adjustable	●	●
	Super wide field plan eyepiece SW10X/22mm, diopter adjustable	○	○
	Extra wide field plan eyepiece EW12.5X/17.5mm, diopter adjustable	○	○
	Wide field plan eyepiece WF15X/16mm, diopter adjustable	○	○
	Wide field plan eyepiece WF20X/12mm, diopter adjustable	○	○

Objective	NIS45 Infinite LWD Plan Semi-APO Objective (BF & DF), M26	5X/NA=0.15, WD=20mm	●	●
		10X/NA=0.3, WD=11mm	●	●
		20X/NA=0.45, WD=3.0mm	●	●
	NIS45 Infinite LWD Plan APO Objective (BF & DF), M26	50X/NA=0.8, WD=1.0mm	●	●
		100X/NA=0.9, WD=1.0mm	●	●
	NIS60 Infinite LWD Plan Semi-APO Objective (BF), M25	5X/NA=0.15, WD=20mm	○	○
		10X/NA=0.3, WD=11mm	○	○
		20X/NA=0.45, WD=3.0mm	○	○
	NIS60 Infinite LWD Plan APO Objective (BF), M25	50X/NA=0.8, WD=1.0mm	○	○
		100X/NA=0.9, WD=1.0mm	○	○
Nosepiece	Backward Sextuple Nosepiece (with DIC slot)		●	●
Condenser	LWD condenser N.A.0.65		○	●
Transmitted Illumination	40W LED power supply with optical fiber light guide, intensity adjustable		○	●
Reflected Illumination	Reflected light 24V/100W halogen lamp, Koehler illumination, with 6 position turret		●	●
	100W halogen lamp house		●	●
	Reflected light with 5W LED lamp, Koehler illumination, with 6 position turrets		○	○
	BF1 bright field module		●	●
	BF2 bright field module		●	●
	DF dark field module		●	●
	Built-in ND6, ND25 filter and color correction filter		○	○
ECO Function	ECO function with ECO button		●	●
Focusing	Low-position coaxial coarse and fine focusing, fine division 1μm, Moving range 35mm		●	●
Stage	3 layers mechanical stage with clutching handle, size 14”x12” (356mmx305mm); moving range 356mmX305mm; Lighting area for transmitted light: 356x284mm.		●	●
	Wafer holder: could be used to hold 12” wafer		●	●
DIC Kit	DIC Kit for reflected illumination (can be used for 10X, 20X, 50X, 100X objectives)		○	○
Polarizing Kit	Polarizer for reflected illumination		○	○
	Analyzer for reflected illumination, 0-360° rotatable		○	○
	Polarizer for transmitted illumination		○	○
	Analyzer for transmitted illumination		○	○
Other Accessories	0.5X C-mount Adapter		○	○
	1X C-mount Adapter		○	○
	Dust Cover		●	●
	Power Cord		●	●
	Calibration slide 0.01mm		○	○
	Specimen Presser		○	○

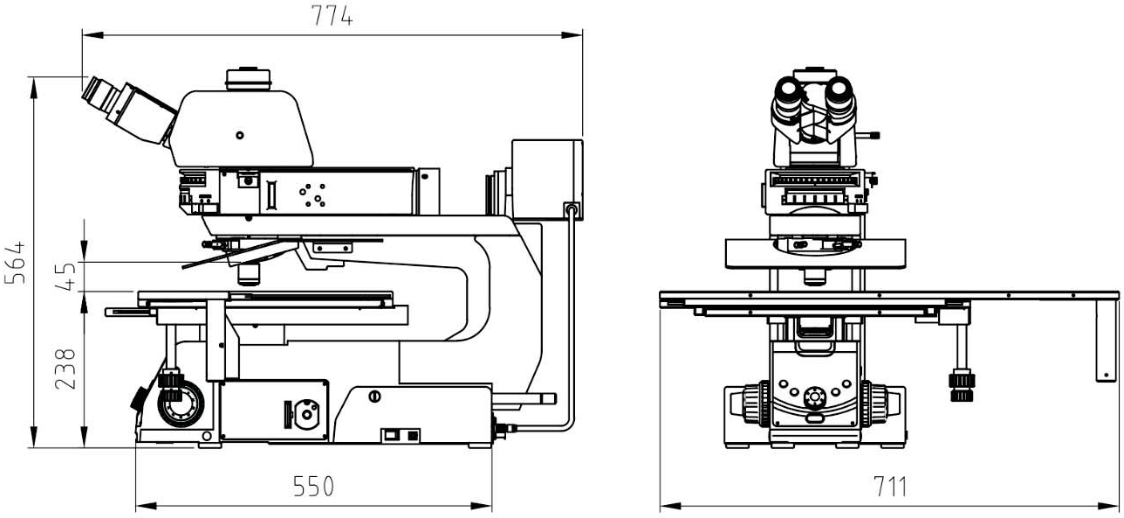
Note: ● Standard Outfit, ○ Optional

Sample Images



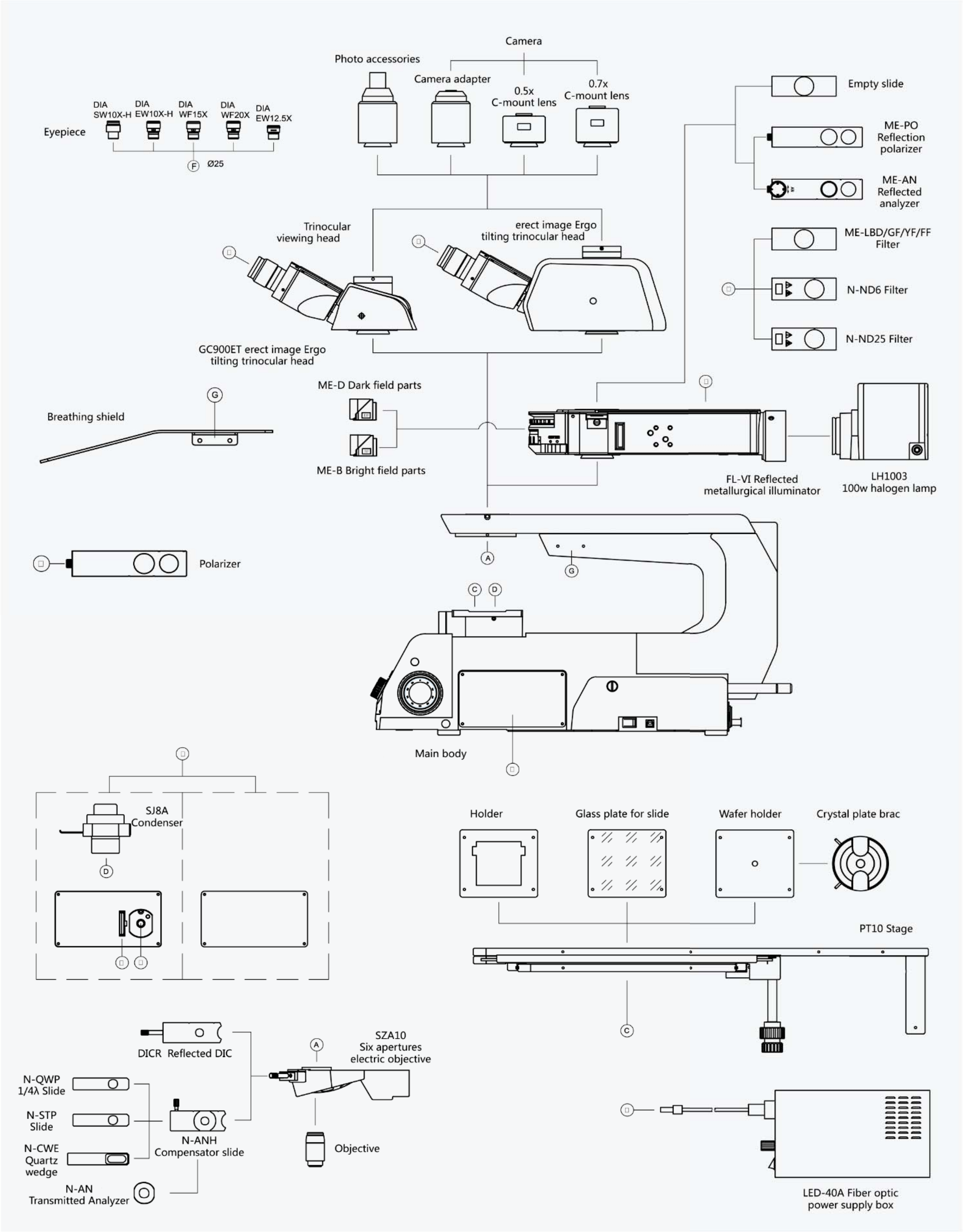


Dimension



Unit: mm

System Diagram



5. BS-4050 Semiconductor FPD Inspection Microscope

BS-4050RF

Introduction

Equipped with varisized wafer holders (including 6/8 inches), BS-4050 is professionally applied for wafer and flat panel display detection. More comfortable, flexible and quicker operation is available with upgraded ergonomics design.

Feature

1. **Multi optional splitting ratio**

   With broad beam image system, maximum field of view of BS-4050 reaches to 26.5mm. Trinocular head with two optional splitting ratios of 100:0 or 0:100, 100% image outputs from eyepieces or camera. Trinocular head with three optional splitting ratios of 100:0 or 20:80 or 0:100, double-way image output of 20% from eyepieces and 80% from camera is achievable. The erect gemel trinocular head, same direction and same moving direction for objective and image, easy to view and operate.

2. **Stable frame**

All metal frame with the characteristics of low center, high rigidity and stability for professional industrial inspection, ensures to present a stable and clear image.

3. High-performance nosepiece

High-performance nosepiece with precision bearing, is available for light and handy operation, precision resetting, controllable concentricity.

4. Large travel mechanical stage

8 inches three-layer mechanical stage, size: 525mm*330mm, moving range: 210mm*210mm, is professionally applied for industrial inspection of wafer, FPD, circuit package, PCB, materials, casting metal ceramic part, abrasive tools and so on.

6 inches stage for option, size: 445mm*240mm, moving range: 158mm×158mm.

Specification

Item	Specification		BS-4050RF	BS-4050RF (LED)
Optical System	Infinity Color Corrected Optical System		●	●
Viewing Head	30° inclined infinity trinocular head, erect image, interpupillary distance: 50-76mm, splitting ratio:100:0 or 0:100		●	●
	30° inclined infinity trinocular head, inverted image, interpupillary distance: 50-76mm, splitting ratio:100:0, 20:80 or 0:100		○	○
	5-35° adjustable, inverted image, tilting trinocular head, interpupillary distance: 50-76mm, splitting ratio:50:50, 100:0 or 0:100		○	○
Eyepiece	High eye point wide field plan eyepiece PL10X/25mm, with adjustable diopter		●	●
	High eye point wide field plan eyepiece PL10X/25mm, with reticle and adjustable diopter		○	○
Objectives	BD Semi-Apochromatic Metallurgical Objectives	5X/NA=0.15, WD=13.5mm	●	●
		10X/NA=0.3, WD=9mm	●	●
		20X/NA=0.5, WD=2.5mm	○	○
		50X/NA=0.8, WD=1mm	○	○
		100X/NA=0.9, WD=1mm	○	○
	Ultra-Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	20X/NA=0.4, WD=8.5mm	●	●

	Infinity Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	50X/NA=0.55, WD=7.5mm	●	●
		100X/NA=0.8, WD=2.1mm	○	○
		100X/NA=0.8, WD=3.5mm	○	○
	Bright Field Semi-Apochromatic Metallurgical Objectives	5X/NA=0.15, WD=19.5mm	○	○
		10X/NA=0.3, WD=10.9mm	○	○
		20X/NA=0.5, WD=3.2mm	○	○
		50X/NA=0.8, WD=1.2mm	○	○
		100X/NA=0.9, WD=1mm	○	○
Nosepiece	Sextuple BD nosepiece, with DIC slot		●	●
	Quintuple BD nosepiece, with DIC slot		○	○
	Sextuple bright field nosepiece, with DIC slot		○	○
	Septuple bright field nosepiece, with DIC slot		○	○
Frame	Reflected frame, for halogen lamp as reflected illumination, with low position coaxial focusing mechanism, coarse range: 33mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system, with brightness setting button and reset button.		●	
	Transmitted & reflected frame, for halogen lamp as reflected illumination, with low position coaxial focusing mechanism, coarse range: 33mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system, 5W cool color LED transmission illumination system (warm color for option), the upper and lower light can be independently controlled.		○	
	Reflected frame, for LED lamp as reflected illumination, with low position coaxial focusing mechanism, coarse range: 33mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system, with brightness setting button and reset button.			●
	Transmitted & reflected frame, for LED lamp as reflected illumination, with low position coaxial focusing mechanism, coarse range: 33mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system, 5W cool color LED transmission illumination system (warm color for option), the upper and lower light can be independently controlled.			○
Height Increasing Pad	4 cross arm pads (increased by 20mm), equipped with M5*20 hexagon socket head screws		○	○
	4 cross arm pads (increased by 60mm), equipped with M5*20 hexagon socket head screws		○	○
	4 cross arm pads (increased by 80mm), equipped with M5*20 hexagon socket head screws		○	○
Stage	8 inches three-layer mechanical stage with low position coaxial adjustment, size: 525mm*330mm, moving range: 210mm*210mm, with clutch handle for quick movement. Glass plate for reflected use.		●	●
	6 inches three-layer mechanical stage with low position coaxial adjustment, size: 445mm*240mm, moving range for reflected: 158mm*158mm, moving range for transmitted: 100*100mm, with clutch handle for quick movement. Glass plate for transmitted and reflected use.		○	○

Illumination	Bright field/ dark field reflected illuminator, with variable aperture and field diaphragm, center adjustable; with switch device for bright field and dark field; with filter slot and polarizing slot.	●	●
	Halogen light box, 12V/100W, with center set, for transmitted and reflected use	●	●
	Halogen light, 12V/100W	●	
	LED lamp box, 12V/10W, cool color (color temperature 4750-5500K)		●
Polarizer and Analyzer	Polarizer and fixed analyzer	○	○
	Polarizer and 360° rotatable analyzer	●	●
Rotating Workbench	Rotating workbench. 8-inch wafer plate, for 6, 8 inches wafer	○	○
Interference Filter	Blue interference filter for reflected use: <=480nm	○	○
	Green interference filter for reflected use: 520nm-570nm	○	○
	Red interference filter for reflected use: 630nm-750nm	○	○
	Interference filter for reflected use, color balance plate (white light), suitable for halogen lamps	●	●
DIC	DIC kit	○	○
Adapter	0.35X C-mount adapter, focus adjustable	○	○
	0.5X C-mount adapter, focus adjustable	○	○
	0.65X C-mount adapter, focus adjustable	○	○
	1X C-mount adapter	○	○
Others	High precision micrometer	○	○
	Internal hexagonal Spanner M4	●	●
	Internal hexagonal Spanner M5	●	●

Note: ● Standard Outfit, ○ Optional

Accessories

1. Internationally advanced eyepiece with large field of view

10X/25mm eyepiece is plan and clear even at the edge of FOV, helpful to present more complete image of the sample.

2. Long working distance objectives

A whole set of professional semi-APO metallurgical objectives, adopt the lenses with high transmission and advanced coating technology.
Long working distance objectives for option, is efficient to prevent sample damage.

3. Nomarski differential interference contrast system

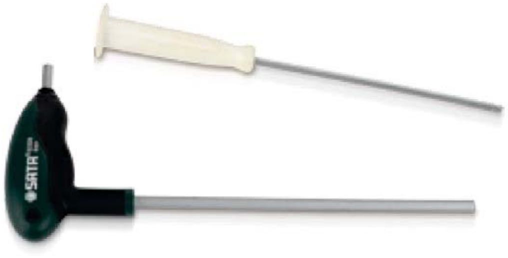
Using high-performance DIC attachment, the impalpable height difference under bright field can be transformed to high contrast light difference as 3D relief. It is widely applied for detection of LCD conducting particle and surface scratch of precision disk.

4. C-mount adapter

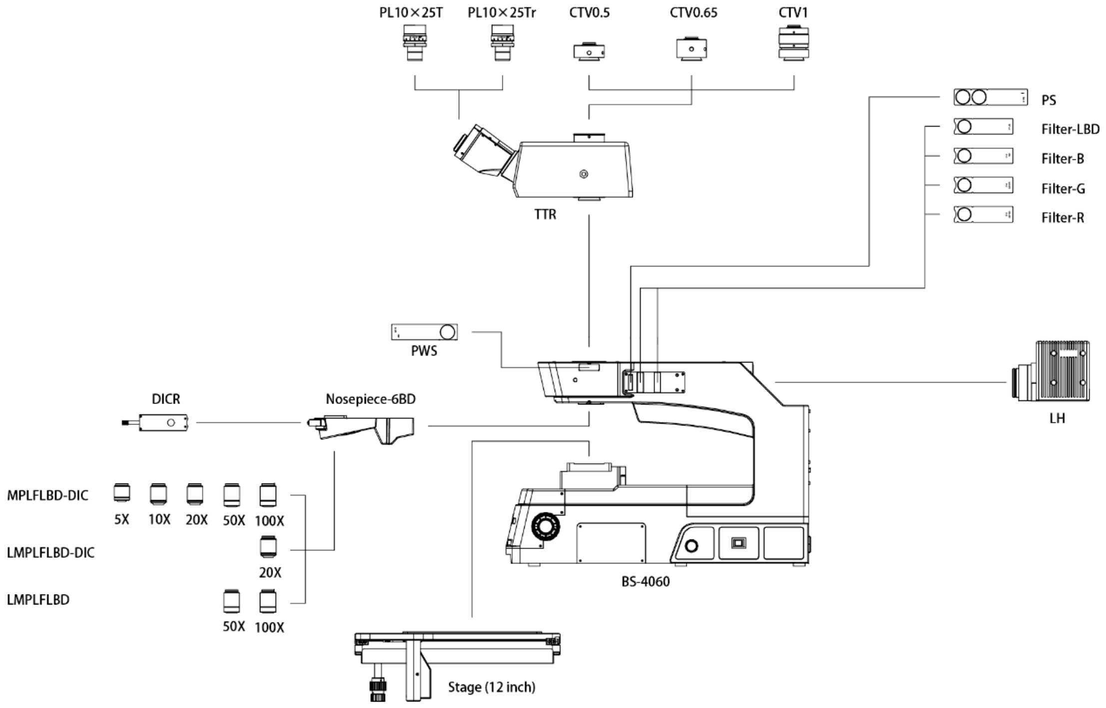
5. Interference filters

6. Polarizer and analyzer

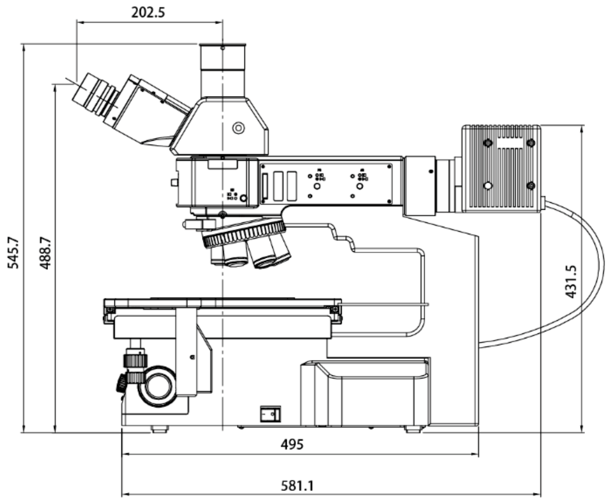
7. Other Accessories

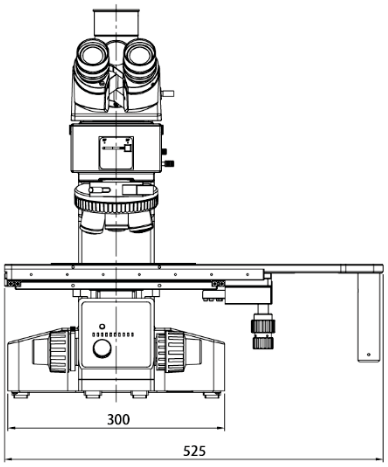


System Diagram



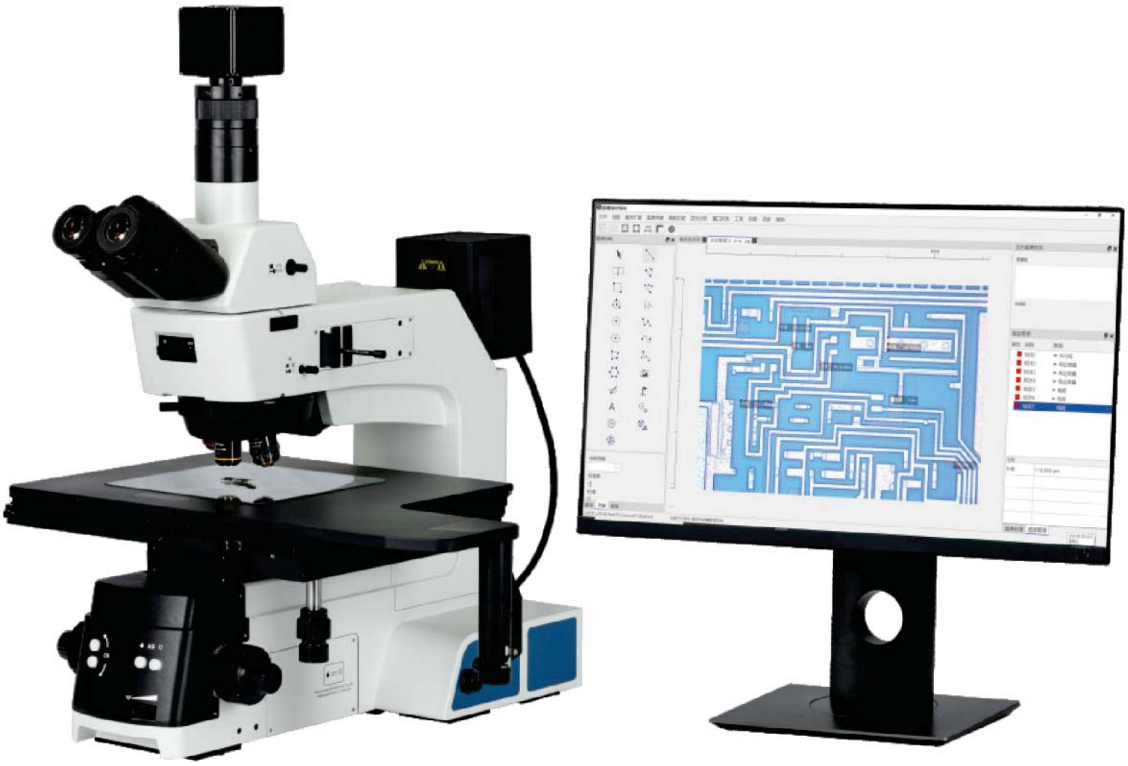
Dimension





Unit:mm

6. BS-4050NIR Near-Infrared Inspection Microscope



BS-4050NIR

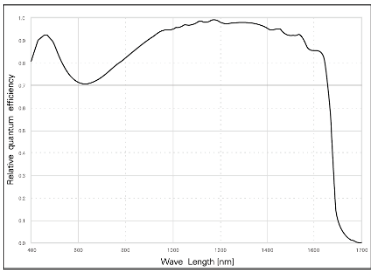
Introduction

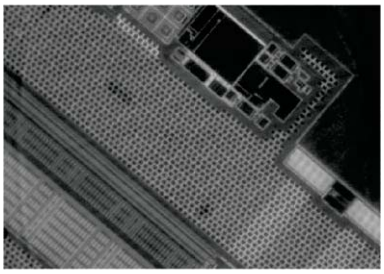
BS-4050NIR near-infrared industrial microscope imaging system is leading industrial infrared inspection equipment, providing efficient industrial testing solutions for customers. BS-4050NIR has wide-field illumination, area array detection to achieve wide spectrum, large field of view and high-resolution imaging. Real-time imaging and observation of packaged chips and the interior of wafers provide users with clearer ultra-wide spectrum imaging. The infrared band (900-1700nm) has a wide spectral range, small scattering and strong penetration into silicon wafers (Germanium wafers). The large numerical aperture objective lens (with correction ring) can eliminate aberrations caused by difference in overlay thickness, achieving effective and accurate infrared detection. Ergonomics design provide users with the highest working efficiency.

Feature

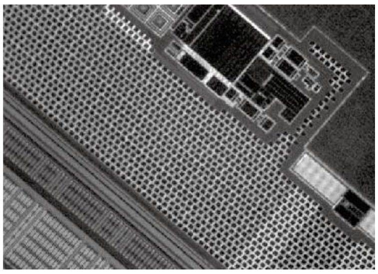
1. Wide spectrum dedicated infrared camera

BS-4050NIR uses a wide spectrum dedicated infrared camera, covering bright field and infrared observation, for field illumination, wide imaging field and infrared observation. Field illumination, wide imaging field of view and high resolution. 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.





3.2 mega pixel

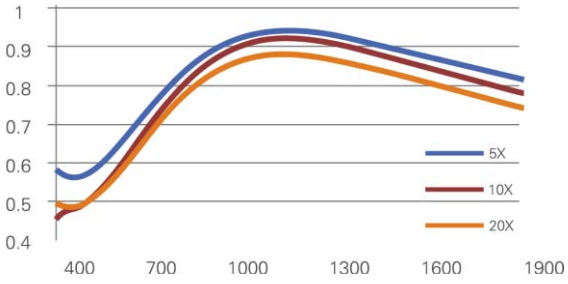


1.3mega pixel

2. Epi-illuminator

The optical elements in illuminators are enhanced transparency in the 400-1700nm band. There are bright field and infrared field for selection. Wide spectral range, small scattering and strong penetrability to silicon wafers (Germanium sheet). Automatic matching of aperture diaphragm and objective magnification, no need for manual adjustment, it is faster and more efficient for different users to have the same observation effect.

3. Special infrared objective lens



Infrared objective lens transmittance curve

BS-4050NIR industrial infrared microscope imaging system is equipped with 5X-50X professional infrared objectives that provide aberration correction from visible to near-infrared wavelengths, suitable for conventional bright field and dedicated infrared observation.

For high magnification objectives with larger numerical apertures, a correction ring is added to correct aberrations caused by difference in overlay thickness, to enable high-definition and accurate detection in the near-infrared band.

4. Multi-hole filter slider

Multi-hole filter sliders, there are 1100nm, 1200nm, 1300nm bandpass near-infrared color filters for option. Users can quickly switch bands. By narrow-bandwidth secondary filtering to achieve responses of different structures, high-definition images can be obtained.

5. Large mechanical stage

BS-4050NIR industrial infrared microscope imaging system uses a clutch button. The users can flexibly move the stage by pressing the clutch button, without the need for prolonged gripping of the handle, and press the clutch button to cancel the quick move. Free the hands of 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 more stable and reliable.

6. Safe, high speed motorized nosepiece

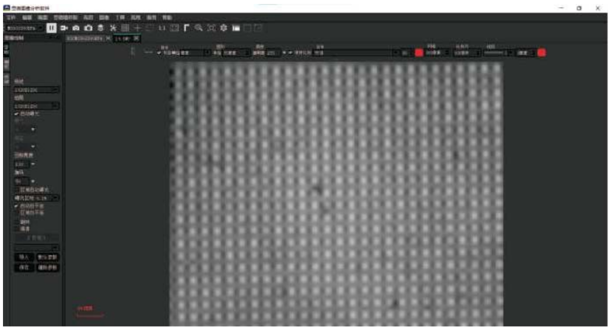
Equipped with forward and backward moving modes to quickly and accurately locate the required magnification objective with high precision in repeated positioning. Mechanical switching mode effectively improves the working life of the nosepiece.

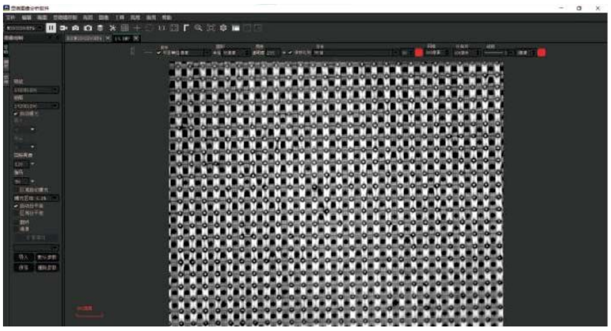
7. Software with more operating functions

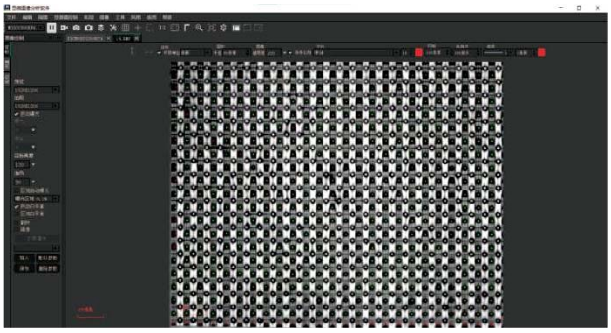
In addition to functional modules such as management, measurement, image collection, and layer management, additional with the unique infrared image enhancement function, automatic detection functions can also be specified according to customer needs.

Image enhancement

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



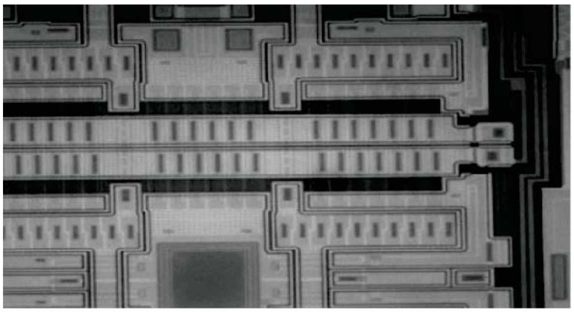




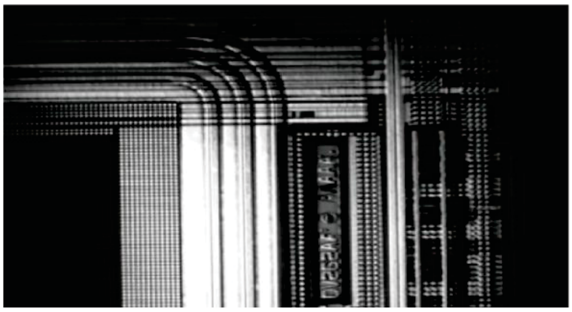
AI software empowerment

AI Self-learning function can be performed based on the defects of the samples, automatic defect identification, capture, counting statistics and other functions. Also, customization can be made according to the needs of different customers.

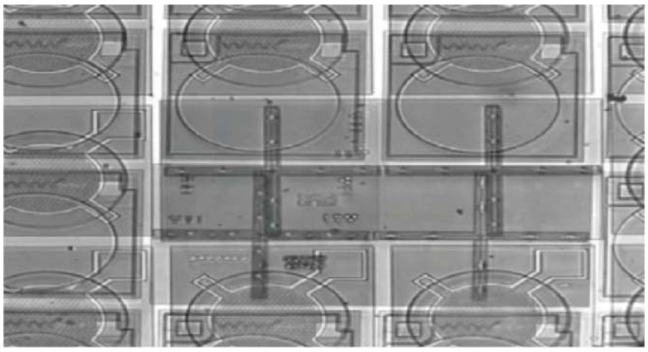
Application



Non-destructive inspection for CSP/SIP



Non-destructive analysis of bad chip packaging



Near infrared detection of MEMS devices

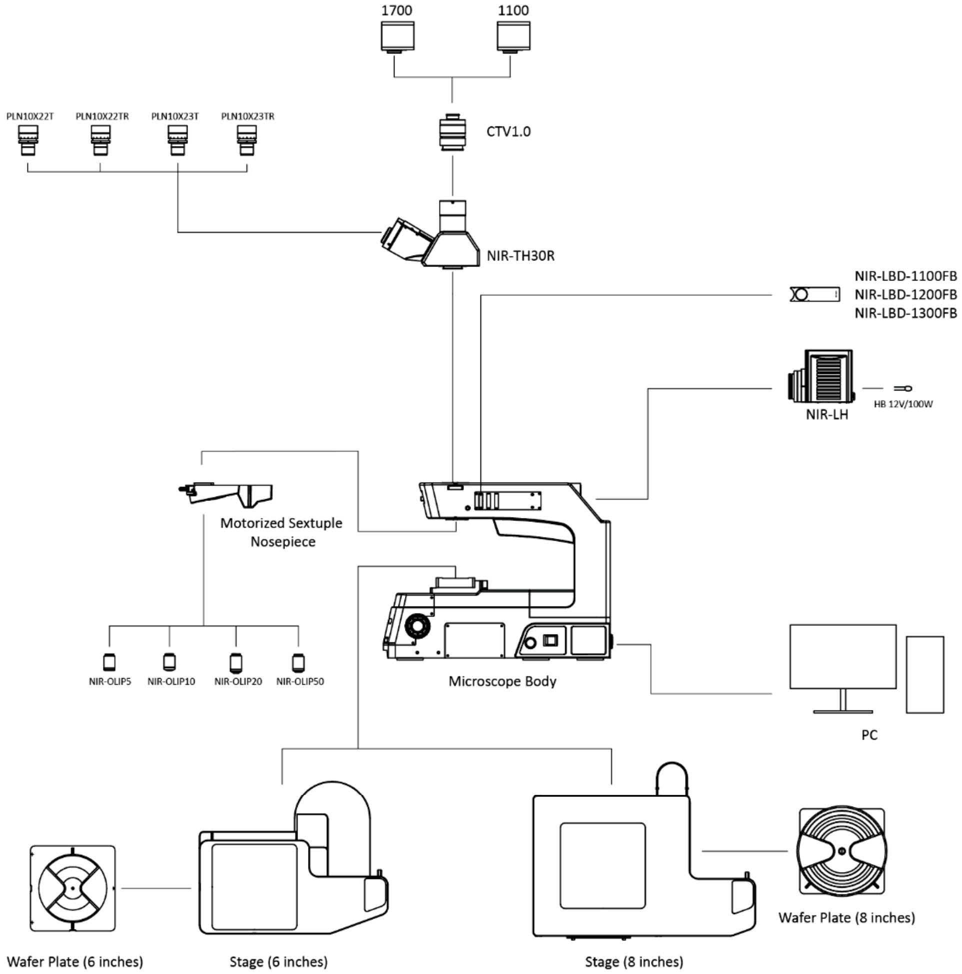
Specification

Item	Specification		BS-4050NIR
Optical System	Infinite Color Corrected Optical System		●
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/23mm, with adjustable diopter		●
	High eye point wide field plan eyepiece PL10X/23mm, with micrometer and adjustable diopter		○
	10X/22mm, with adjustable diopter		○
	10X/22mm, with micrometer and adjustable diopter		○
Objective		5X/NA=0.15, WD=19.5mm, 450-1700nm	●

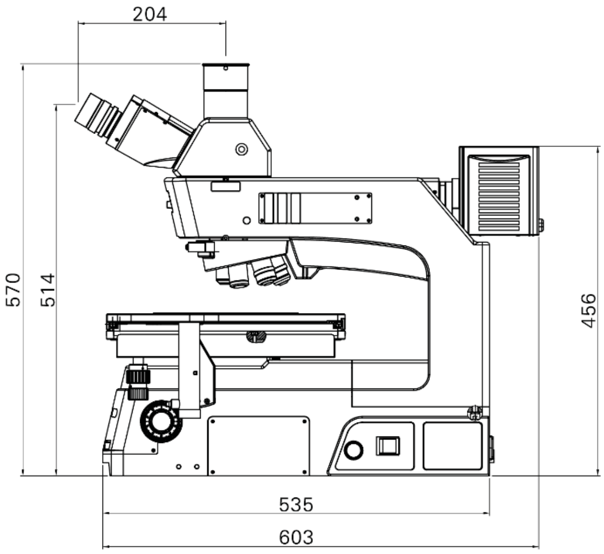
	Plan Semi-Apochromatic NIR Objectives	10X/NA=0.3, WD=12.2mm, 450-1700nm	●
		20X/NA=0.45, WD=7.31-7.57mm, correction collars: 0-1.2mm, 450-1700nm	●
		50X/NA=0.7, WD=2.68-2.93mm, correction collars: 0-1.2mm, 450-1700nm	●
Nosepiece	Sextuple bright field nosepiece, with DIC slot		●
Stage	8 inches three-layer mechanical stage with low position coaxial adjustment, size: 525mm*330mm, moving range: 210mm*210mm, with clutch handle for quick movement. Glass plate for reflected use.		●
	6 inches double-layer mechanical stage with low position coaxial adjustment, size: 525mm*240mm, moving range: 445mm*240mm, with clutch handle for quick movement. Glass plate for and reflected use.		○
Frame	Reflected frame with low position coaxial focusing mechanism, coarse range: 35mm, fine precision: 0.001mm. Built-in 100-240V wide voltage system, with brightness setting button and reset button.		●
Illumination	Bright field NIR reflected illuminator, with electric variable aperture diaphragm, center adjustable; with switch device for bright field and NIR; with filter slot; with MvImage-Industry software and Dongle.		●
	NIR Halogen light box, 12V/100W, with center set, for transmitted and reflected use		●
	Halogen light, 12V/100W		●
Camera	1.3 mega-pixel NIR camera (400-1700nm), monochrome camera, InGaAs, frame rate 125fps@1280*1024, Camera Link, pixel size 5μm		○
	3.2 mega-pixel NIR camera (400-1100nm), monochrome camera, Sony IMX 252, frame rate 120fps@2064*1544, USB 3.0, pixel size 3.45μm		●
Filter	1100nm band-pass near-infrared filter		●
	1200nm band-pass near-infrared filter		○
	1300nm band-pass near-infrared filter		○
PC	LENOVO M90T (i5-9500 16G 1T + 256G 2G discrete graphics card) + 23-inch monitor		●
Software	MvImage-Industry: Real-time image collection, image photography, and video recording, with dynamic and static resolutions that can be dynamically switched. Automatic exposure, automatic white balance, brightness adjustment, gain adjustment, gamma adjustment, mirroring and inversion. Z-stack and delayed collection. Morphological measurement and scale annotation, the measurement data can export. Automatic edge finding measurement, real-time enhancement of preview images. PC software can control the electric functions of the microscope (nosepiece, light shutter and light brightness)		●
Adapter	1X C-mount adapter, focus adjustable		●
Other Accessories	Microscope objective micrometer, reticle, metallographic correction film, stage micrometer 0.01mm		●
	Internal hexagonal Spanner M4		●
	Internal hexagonal Spanner M4 (seven shaped)		●

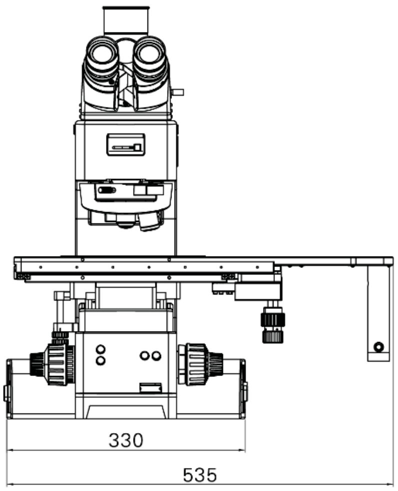
Note: ● Standard Outfit, ○ Optional

System Diagram



Dimension





Unit:mm

7. BS-4060 Semiconductor FPD Inspection Microscope

BS-4060RF

Introduction

Equipped with 12-inch wafer holders, BS-4060 is professionally applied for wafer and flat panel display detection, maximally supports for dia. 300mm of wafer and 17 inches of FPD. More comfortable, flexible and quicker operation is available with upgraded ergonomics design.

Feature

1. Tilting viewing head

0-35° tilting viewing head for adjusting the height of eye point, provides the best viewing angle to different users, relieving the fatigue from long-time operation and significantly improving the work efficiency.

2. Built-in handy and practical tool

All metal frame is steady but heavy. With a view to easy carry, BS-4060 is designed with two steel rods in the sides of the frame. Screwing them out and screwing them in in reverse, a lever for load bearing is formed.

Special warning, please lock the stage on carrying.

3. Convenient and stable stage

The stage clutches driven system, button up for quick movement and press down to cancel, is available to allay fatigue from long-time operation. Stage with linear guide rail, is realizable to be lightly and smoothly moved.

4. Front operating buttons

BS-4060 adopts electric control for nosepiece and aperture diaphragm, with control buttons in the front. It is easy and convenient for operation, improving the working efficiency.

5. Shockproof frame

With six leveling feet, the metal frame of BS-4060 is low-centered, high-steady and anti-knock to ensure image stabilization.

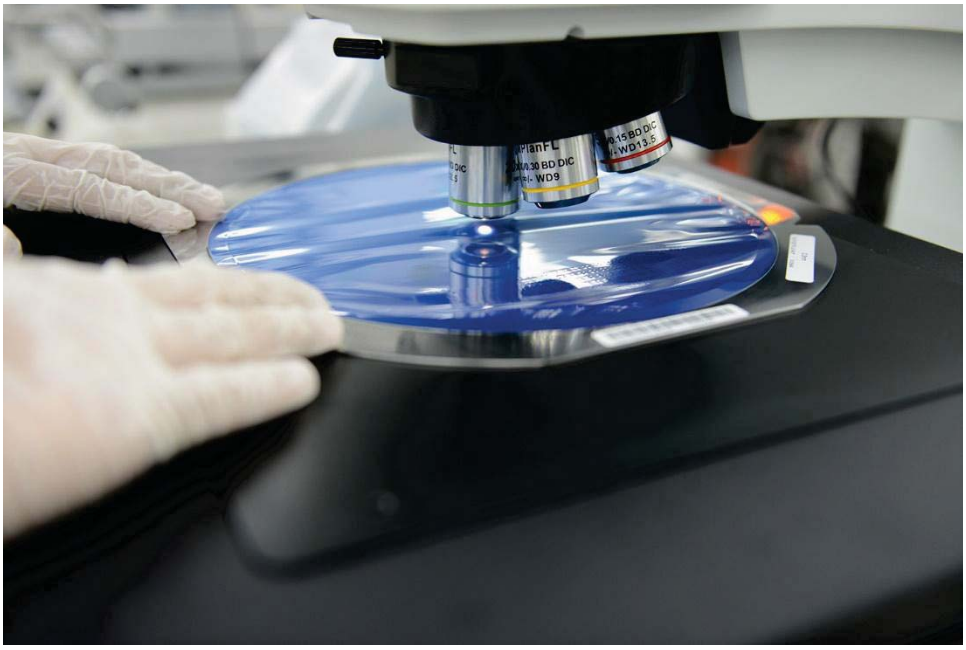
6. Safe and high-speed electric nosepiece

With forward and backward two buttons for switch, it is quick to convert magnification and accurate to repeat position. Mechanical switch mode, effectively prolongs the service life of nosepiece.

7. Reflected illumination

Aperture diaphragm auto-matches different objectives. It is more convenient and efficient, providing the best imaging effect. Aperture diaphragm is auto-on under dark field, to simplify the operation.

Application



Specification

Item	Specification		BS-4060RF	BS-4060TRF
Optical System	Infinity Color Corrected Optical System		●	●
Viewing Head	0-35° adjustable, erect image, tilting trinocular head, interpupillary distance: 50-76mm, splitting ratio: 100:0 or 0:100		●	●
Eyepiece	High eye point wide field plan eyepiece PL10X/25mm, with adjustable diopter		●	●
	High eye point wide field plan eyepiece PL10X/25mm, with reticle and adjustable diopter		○	○
Objectives	BD Semi-Apochromatic Metallurgical Objectives	5X/NA=0.15, WD=13.5mm	●	●
		10X/NA=0.3, WD=9mm	●	●
		20X/NA=0.5, WD=2.5mm	○	○
		50X/NA=0.8, WD=1mm	○	○
		100X/NA=0.9, WD=1mm	○	○
	Ultra-Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	20X/NA=0.4, WD=8.5mm	●	●
	Infinity Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	50X/NA=0.55, WD=7.5mm	●	●
		100X/NA=0.8, WD=2.1mm	○	○
		100X/NA=0.8, WD=3.5mm	○	○
	Bright Field Semi-Apochromatic Metallurgical Objectives	5X/NA=0.15, WD=19.5mm	○	○
		10X/NA=0.3, WD=10.9mm	○	○
		20X/NA=0.5, WD=3.2mm	○	○
		50X/NA=0.8, WD=1.2mm	○	○
		100X/NA=0.9, WD=1mm	○	○

	Ultra-Long Working Distance Bright Field Semi-Apochromatic Metallurgical Objectives	20X/NA=0.4, WD=8.8mm	○	○
Nosepiece	Electric sextuple BD nosepiece, with DIC slot		●	●
Frame & Illumination	Reflected frame with low position coaxial focusing mechanism, coarse range: 35mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system. Bright field/ dark field reflected illuminator, with electric variable aperture diaphragm, center adjustable; with switch device for bright field and dark field; with filter slot and polarizing slot; equipped with MvImage-Industry software and Dongle.		●	
	Transmitted & reflected frame with low position coaxial focusing mechanism, coarse range: 35mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system, 5W cool color LED transmission illumination system (warm color available), the upper and lower light can be independently controlled. Bright field/ dark field reflected illuminator, with electric variable aperture diaphragm, center adjustable; with switch device for bright field and dark field; with filter slot and polarizing slot; equipped with MvImage-Industry software and Dongle.			●
	Reflected frame with low position coaxial focusing mechanism, coarse range: 35mm, fine precision: 0.001mm, with upper limit and tension adjustment. Built-in 100-240V wide voltage system. Bright field/ dark field reflected illuminator, with electric variable aperture diaphragm, center adjustable; with switch device for bright field and dark field; with filter slot and polarizing slot; with 12V/10W LED light box, cool color (color temperature 4750-5500K); equipped with MvImage-Industry software and Dongle.		○	
	Halogen light box, 12V/100W, with center set, for transmitted and reflected use		●	●
	Halogen light, 12V/100W		●	●
Stage	12*14 inches three-layer mechanical stage with low position coaxial adjustment, size: 420mm*710mm, moving range: 305mm*356mm, with clutch handle for quick movement. Metal plate for reflected use.		●	
	12*14 inches three-layer mechanical stage with low position coaxial adjustment, size: 420mm*710mm, moving range: 305mm*356mm, with clutch handle for quick movement. Glass plate for transmitted and reflected use.			●
Polarizer and Analyzer	Polarizer and fixed analyzer		○	○
	Polarizer and 360 degree rotatable analyzer		●	●
Rotating Workbench	Rotating workbench. 12-inch wafer plate, for 6, 8, 12inch wafer		○	○
Interference Filter	Blue interference filter for reflected use: <=480nm		○	○
	Green interference filter for reflected use: 520nm-570nm		○	○
	Red interference filter for reflected use: 630nm-750nm		○	○

	Interference filter for reflected use, color balance plate (white light), suitable for halogen lamps	●	●
DIC	DIC kit, suitable for the objectives other than Infinity Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	○	○
	DIC kit, suitable for Infinity Long Working Distance BD Semi-Apochromatic Metallurgical Objectives	○	○
Adapter	0.35X C-mount adapter, focus adjustable	○	○
	0.5X C-mount adapter, focus adjustable	○	○
	0.65X C-mount adapter, focus adjustable	●	●
	1X C-mount adapter, focus adjustable	○	○
Other Accessories	Internal hexagonal Spanner M4	●	●
	Internal hexagonal Spanner M6	●	●

Note: ● Standard Outfit, ○ Optional

Accessories

1. Internationally advanced eyepiece with large field of view

10X/25mm eyepiece is plan and clear even at the edge of FOV, helpful to present more complete image of the sample.

2. Long working distance objectives

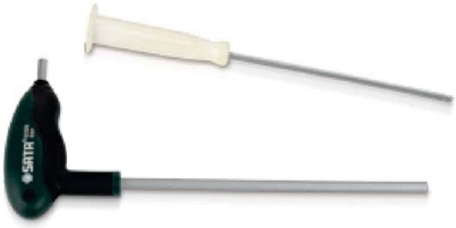
A whole set of professional semi-APO metallurgical objectives, adopt the lenses with high transmission and advanced coating technology.
Long working distance objectives for option, is efficient to prevent sample damage.

3. C-mount adapter

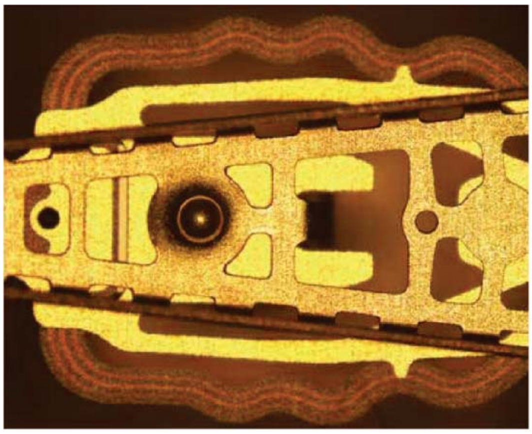
4. Interference filters

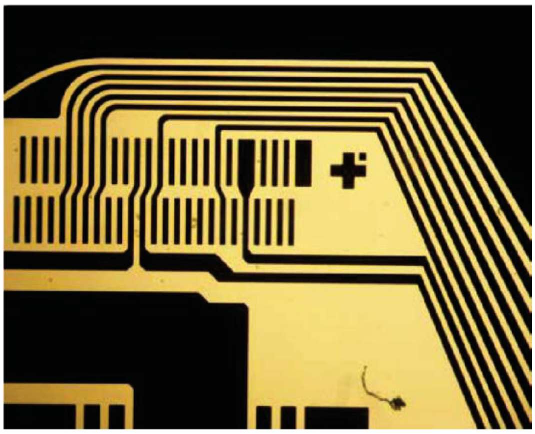
5. Polarizer and analyzer

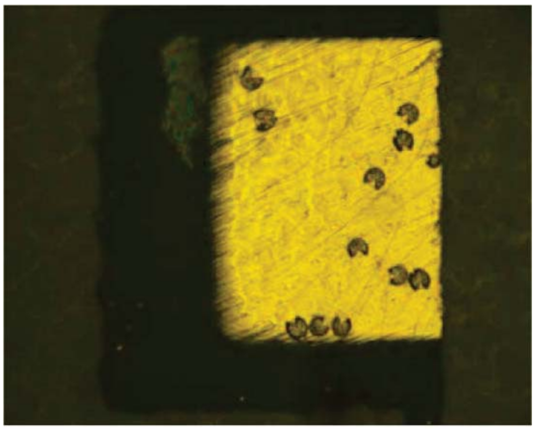
6. Other Accessories

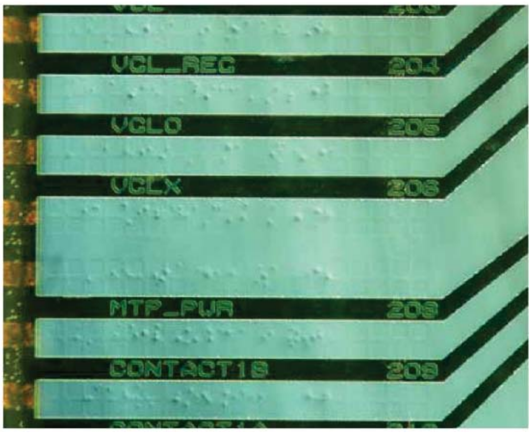


Sample Image

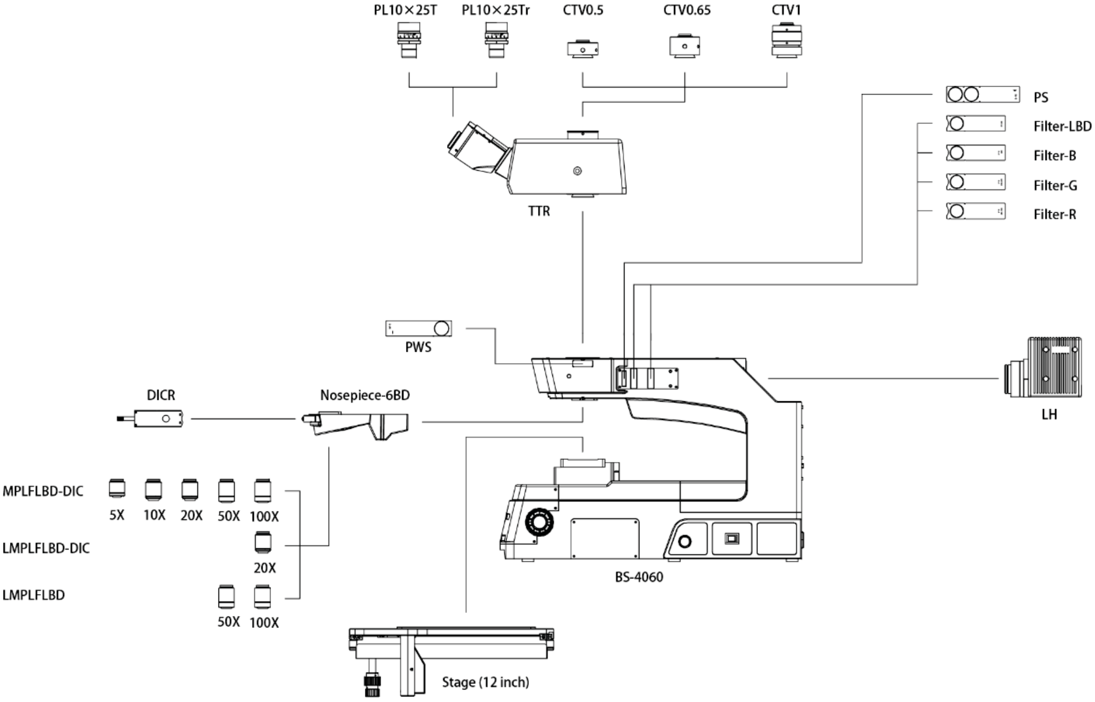






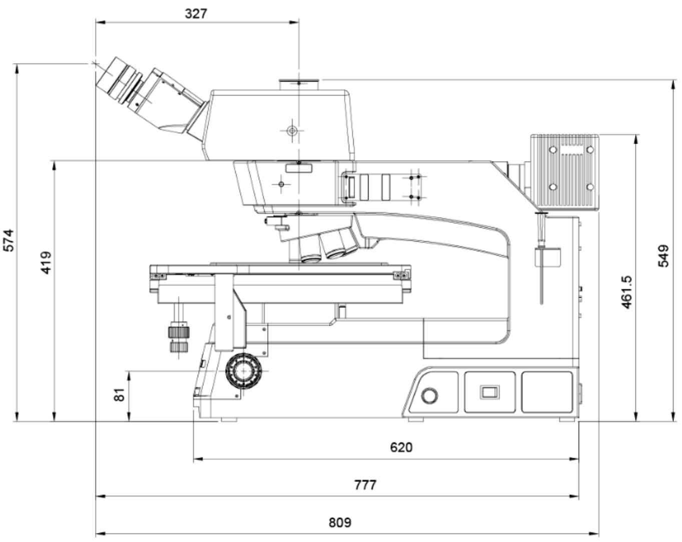


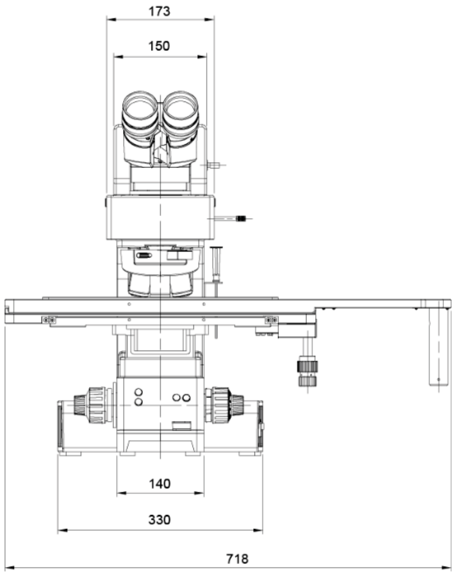
System Diagram



Dimension

The tilting head positioned at 35 degree





Unit: mm