

BS-4020 Industrial Inspection microscope



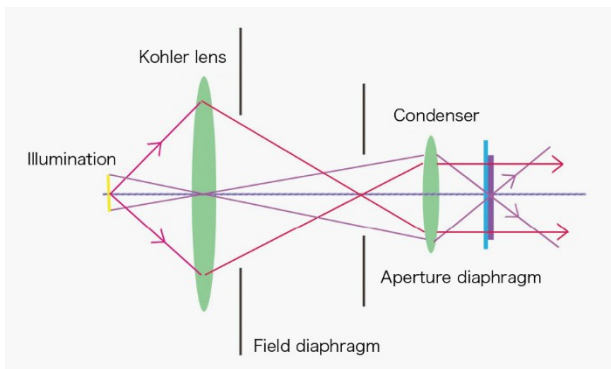
Introduction

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, metaloceramics, 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.

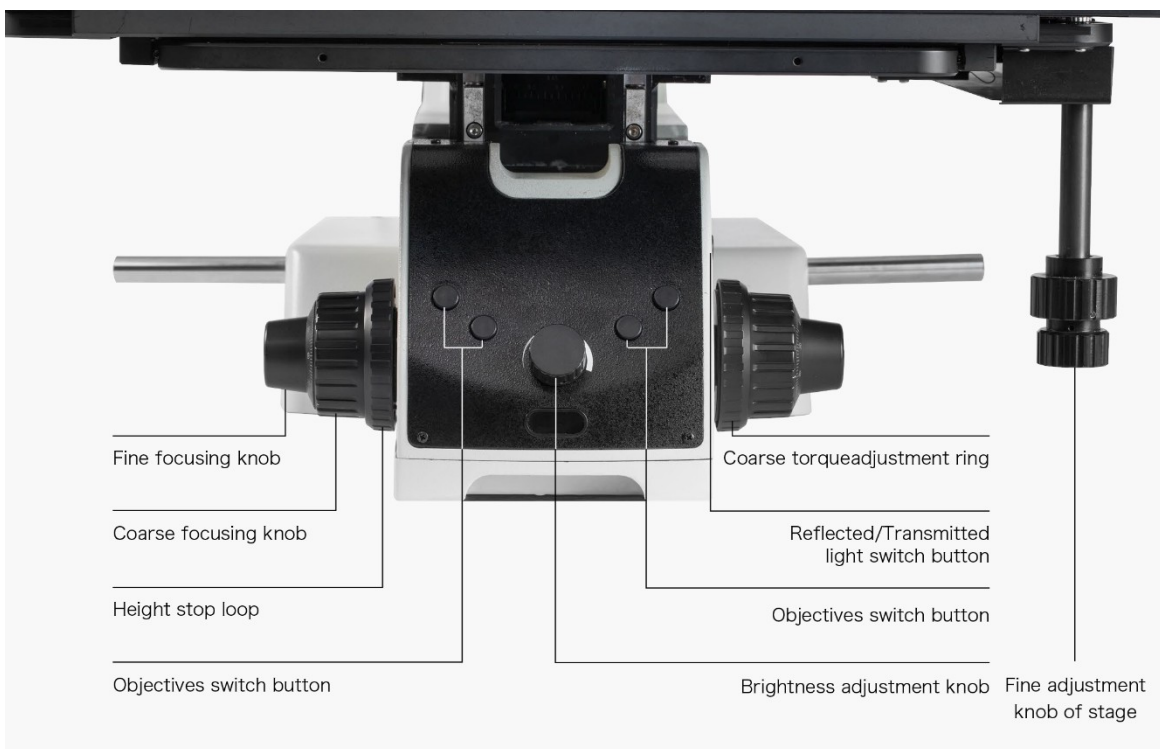


2. High quality Semi-APO and APO Bright field & Dark field objectives.



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.

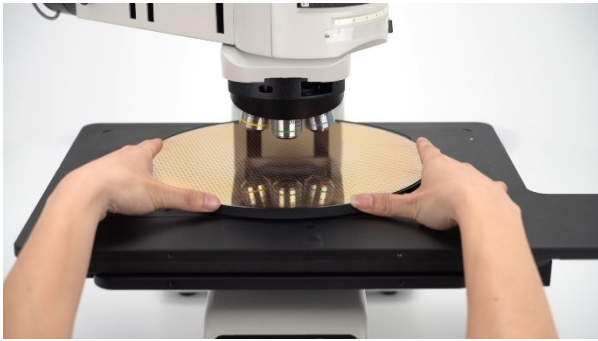
6. The stage has a built-in clutching handle.

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.

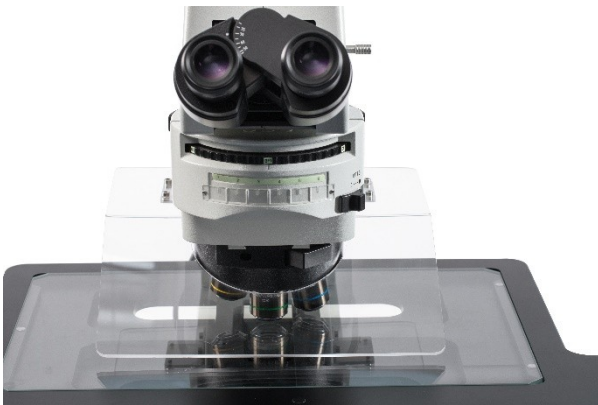
The areas of microelectronics and semiconductor samples, especially wafer, tend to be large, so ordinary metallographic microscope stage cannot meet their observation needs. BS-4020 has an oversized stage with a large movement range, and it is convenient and easy to move. So it is an ideal instrument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

8. 12" wafers holder comes with the microscope.



9. Anti-static protective cover can reduce dust.

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.



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.

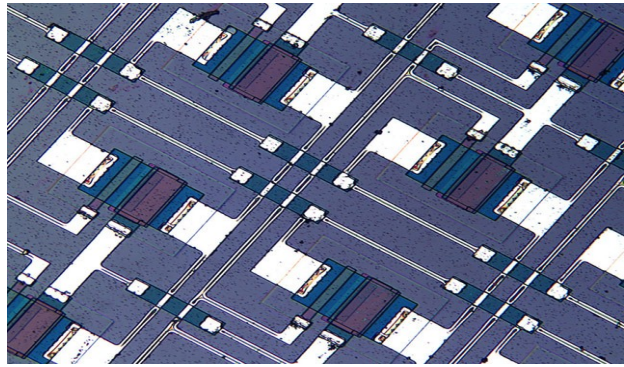
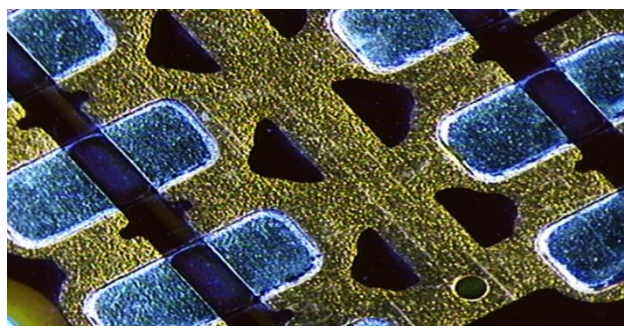
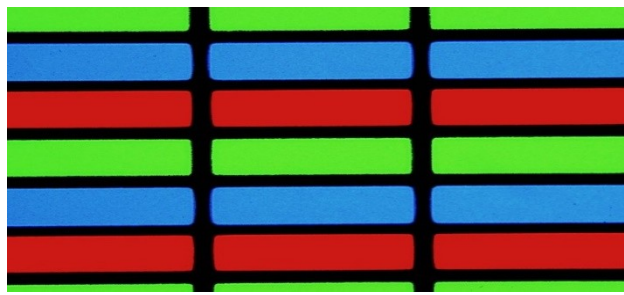
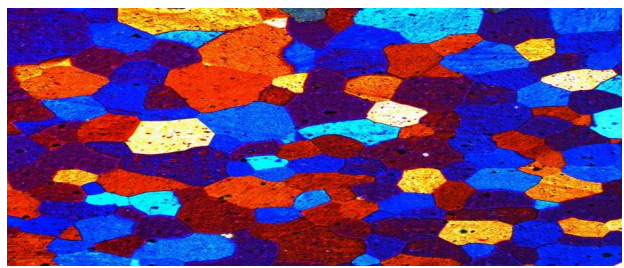
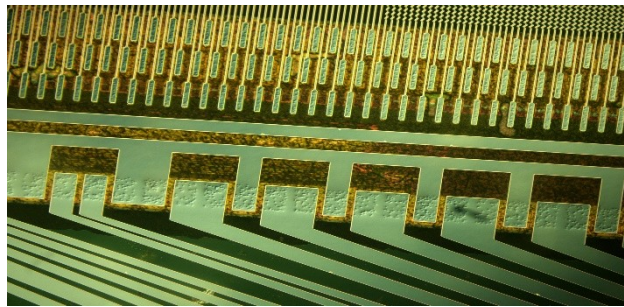
10. Longer working distance and high NA objective.



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	○	-	-	-	○

<p>Bright field of Reflected illumination</p> <p>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 semiconductor samples.</p>	
<p>Dark field</p> <p>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.</p>	
<p>Bright field of transmitted illumination</p> <p>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.</p>	
<p>Simple polarization</p> <p>This observation method is suitable for birefringence specimens such as metallurgical tissues, minerals, LCD and semiconductor materials.</p>	
<p>Reflected illumination DIC</p> <p>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.</p>	

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, metaloceramics, precision mould, semiconductor and electronics etc.

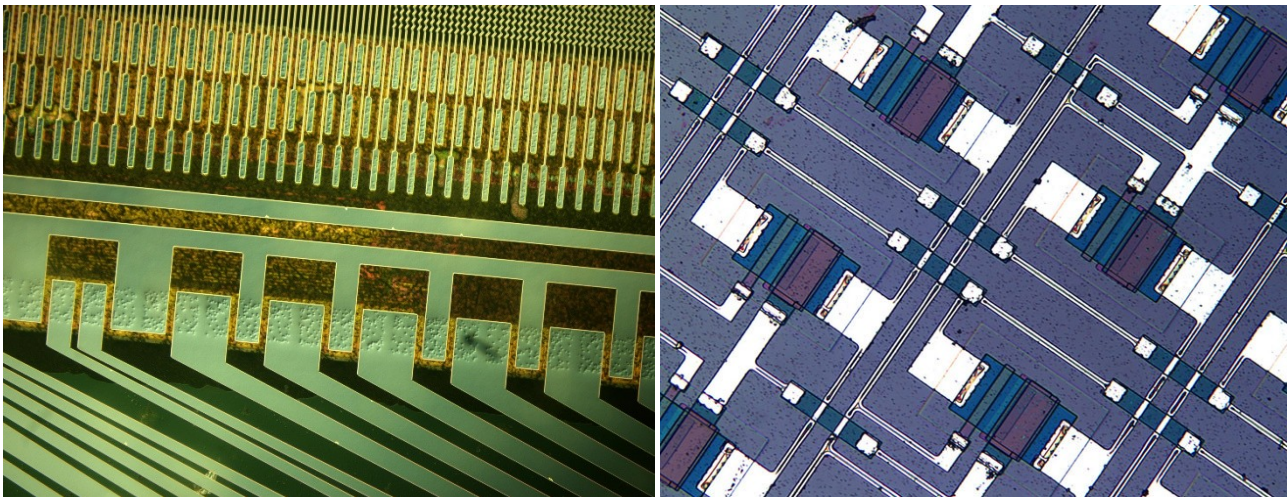
Specification

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	●	●	

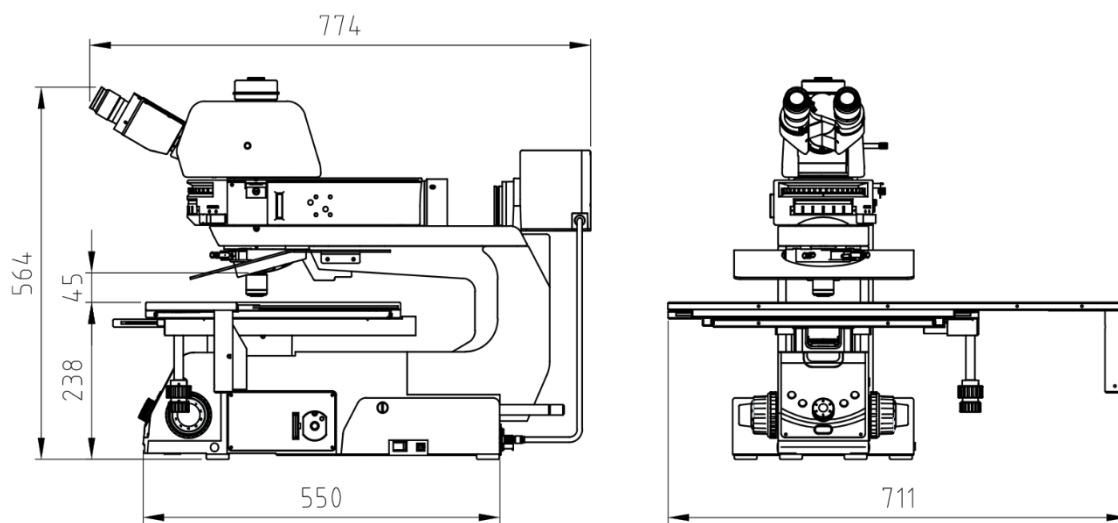
	BF2 bright field module	●	●
	DF dark field module	●	●
	Built-in ND6, ND25 filter and color correction filter	○	○
ECO Function	ECO function with ECO button	●	●
Focusing	Low-position coaxial coarse and fine focusing, fine division 1μm, Moving range 35mm	●	●
Stage	3 layers mechanical stage with clutching 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

