

TOOL MEASURING MICROSCOPE

Principle: Use the optical principle to project the image of the workpiece to the eyepiece or image microscope through the objective lens. That is to say, collect the enlarged image of the workpiece through the optical system, which can be used for measurement of size, angle and shape, and inspection of the surface of the workpiece.



A new type of digital measuring microscope, combining the high magnification observation capabilities of a metallurgical microscope, and the X, Y, and Z axis surface size measurement functions of an image measuring instrument, with various observation functions such as bright and dark fields, differential interference contrast, and polarization. It can be widely used in the detection of semiconductor, PCB, LCD, mobile phone industry chain, optical communication, basic electronics, mold hardware, medical equipment, automobile industry, measurement industry and other fields.

MEASUREMENT OBJECT

1. Measure the position tolerance of the circuit board, the jig drill or the hole on the orifice plate, the symmetry of keyway and other shape and position errors.
2. Measure the shape of various molded parts such as prototypes, prototype turning tools, prototype milling cutters, dies and cams.
3. Measure the pitch diameter, major diameter, minor diameter, thread pitch, half of thread angle of external threads (thread plug gauges, lead screws and worms, etc.).
4. Measure the lead, tooth profile and thread angle of the gear hob. The microscope head is equipped with a CCD image sampling system module, which can process images and data through software, which can facilitate the user to respond to various complex measurement tasks.

PRODUCT ADVANTAGES

- ★ The measurement accuracy of the instrument is $2+L/200$, and the grating accuracy is $0.1\mu\text{m}$.
- ★ With bright/dark field/DIC and other field of view to do observation, clear image and wide field of view showing.
- ★ Using imported precision screw drive, positioning is more accurate.
- ★ With Fast electric mobile workbench especially advantageous for large size measurement.
- ★ Z-axis automatic lifting and match one-key switch electric converter.
- ★ Both X-axis and Y-axis use built-in zero-setting switch.
- ★ The Z-axis adopts IKO linear guide to ensure the high precision of the Z-axis.

Models Optional

Model	Specification
VTM-3020M-ZM15	X, Y axis manual adjustment, Z axis manual adjustment, stroke 300*200*150
VTM-3020M-ZA15	X, Y axis manual adjustment, Z-axis automatic operation, the stroke 300 * 200 * 150
VTM-3020A-ZM15	X, Y-axis automatic operation, Z axis manual adjustment, the stroke 300 * 200 * 150
VTM-3020A-ZA15	X, Y axis automatic operation, Z axis automatic operation, the stroke 300*200*150

Remark: More models, stay tuned

TOOL MEASURING MICROSCOPE

Professional infinite long working distance metallographic objective

The lens can achieve high transmittance and high definition, and truly restore the natural color of the sample. In addition to bright field observation, but it is also qualified for dark field, polarized light and differential interference observation.



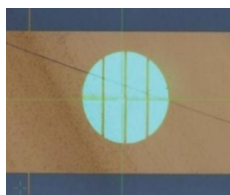
Model	Magnification	Numerical Aperture (N.A.)	Working Distance (mm)	Cover-glass Thickness (mm)	Parfocal Distance (mm)	Conjugate Distance (mm)
Infinite Long Working Distance Flat Field Achromatic Metallographic Objective Lens	5X	0.15	10.8	0	45	∞
	10X	0.3	12.2			
	50X	0.55	7.9			
	100X	0.8	2.1			

Model	Magnification	Numerical Aperture (N.A.)	Working Distance (mm)	Cover-glass Thickness (mm)	Parfocal Distance (mm)	Conjugate Distance (mm)
Infinite Long Working Distance Flat Field Bright And Dark Field Achromatic Metallographic Objective Lens	5X	0.15	9.0	0	45	∞
	10X	0.3	9.0			
	50X	0.55	7.5			
	100X	0.8	2.1			

Model	Magnification	Numerical Aperture (N.A.)	Working Distance (mm)	Cover-glass Thickness (mm)	Parfocal Distance (mm)	Conjugate Distance (mm)
Infinity And Ultra Long Working Distance Semi-Apochromatic Metallographic Objective Lens	20X bright field	0.4	8.8	0	45	∞
	20X bright and dark field	0.4	8.5			

Independent Split-image Light Source to Assist Focusing

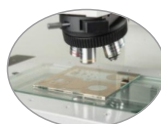
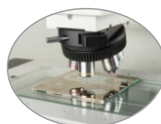
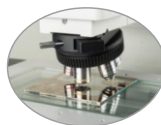
The independent split-image light source controller can adjust the brightness of the light source according to the different backgrounds of the sample, and display the best focal plane clearly and accurately. There are two patterns to choose the split image, and freely switch.



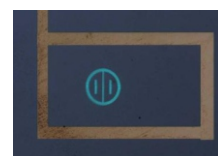
Bright contrast



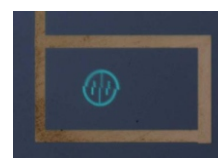
Dark contrast



Above focus



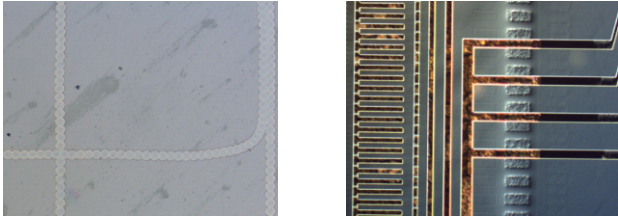
In the middle of focus



Below focus

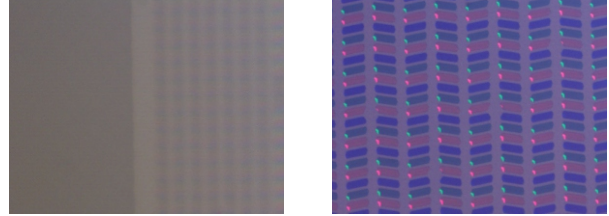
01 Application Examples In The Semiconductor Industry

ITO film has high electrical conductivity, high mechanical hardness and good chemical stability. However, due to its complicated preparation process and small area, it cannot be distinguished by the naked eye. Using the tool microscope + polarizing device can easily find the ITO location and because of the high magnification of the tool microscope, the detail defects of ITO can be directly observed.



02 Application Examples In The Mobile Phone Industry

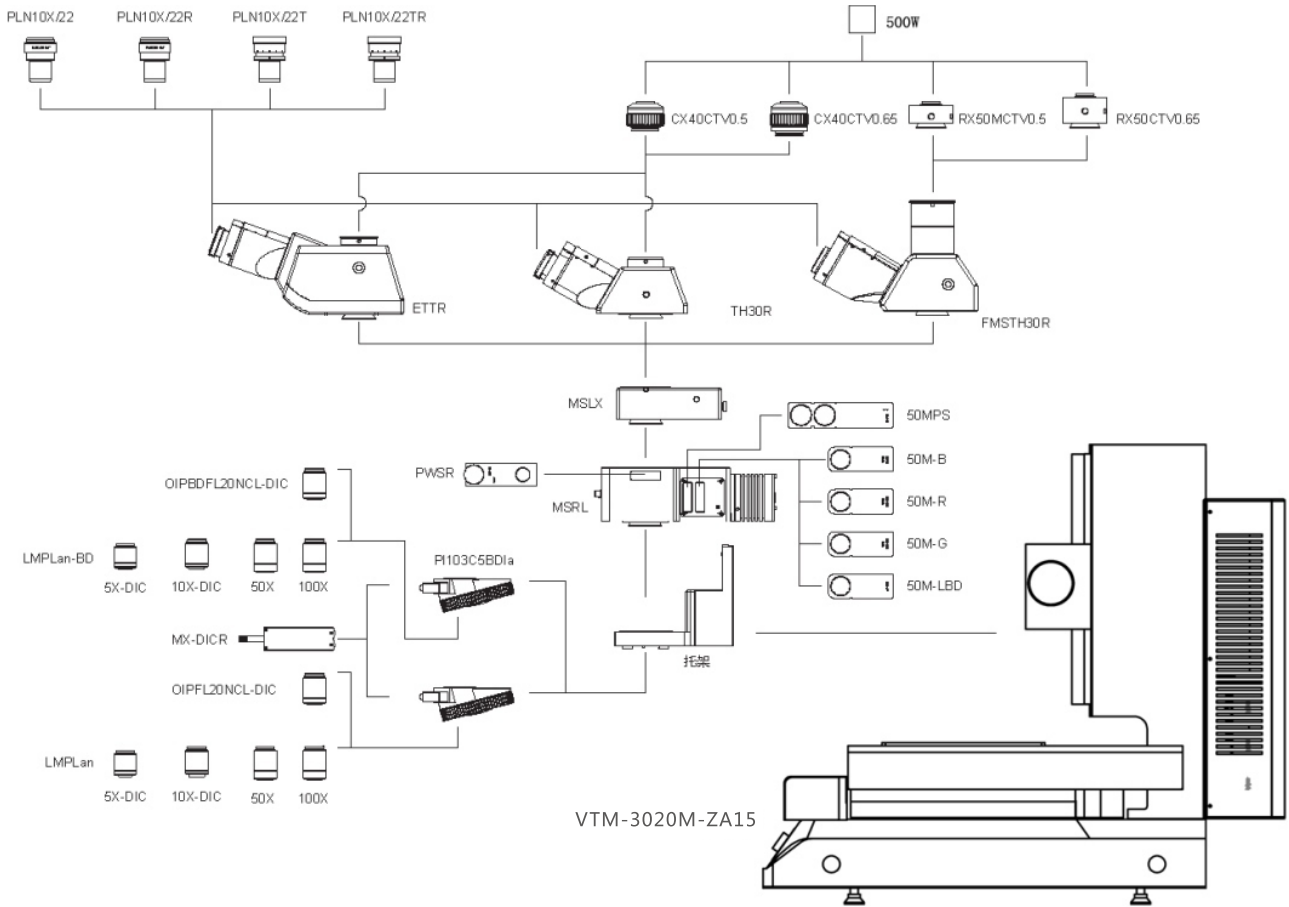
Mobile phone screen needs to measure the distance between its RGB and the edge of its glass ink during the production process to confirm whether the positioning between the components is accurate; it is easy to measure the distance between RGB and the edge of the glass ink with an industrial microscope, and quickly locate it.



Tool Microscope Technical Specification Table

Optical System	Infinity Optical System
Observation Tube	30° tilt, positive image, three-way observation tube with infinity hinged, pupil distance adjustment: 50mm~76mm, two-level split ratio 100/0 or 0/100
	5° ~35° tilt, positive image, three-way observation tube with infinity hinged, pupil distance adjustment: 50mm~76mm, two-level split ratio 100/0 or 0/100
	30° tilt, inverted image, three-way observation tube with infinity hinge, interpupillary distance adjustment: 50-76mm, two-level splitting ratio: 100/0 or 50/50
Eyepiece	High eye point wide field of view flat field eyepiece PL10X/22mm, can be equipped with micrometer
	High eye point wide field of view flat field eyepiece PL10X/22mm, diopter adjustable, can be equipped with micrometer
Objective Lens Converter	Internal positioning 5-hole converter
	Internally positioned bright and dark field 5-hole converter
	Internally positioned bright and dark field 6-hole automatic converter
Objective Lens	Infinite long working distance flat field achromatic metallographic DIC objective lens (5X, 10X)
	Infinite and ultra-long working distance flat field semi-apochromat metallographic DIC objective lens (20X)
	Infinite long working distance flat field achromatic metallographic objective lens (50X, 100X)
	Infinite long working distance flat field bright and dark field achromatic metallographic objective lens (5X, 10X)
	Infinite and ultra-long working distance flat field bright and dark field semi-apochromat metallographic DIC objective lens (20X)
	Infinite long working distance bright and dark field semi-apochromat metallographic objective lens (50X, 100X)
Magnification Range	Optical magnification range: 50X-1000X
	System magnification range: 135X-2700X
Platform Accuracy	Electric measuring platform (stroke 300mm(X)×200(Y)mm, with digital display, with electric focusing control box; sample height 150mm; measuring accuracy, X and Y: $(2+L/200)$ μm, L is the measuring length (in mm) Z (optional): $(5+L/200)$ μm
Lighting System	Bright and dark field reflection illuminator, with light and dark field lighting switching device; with filter slot and polarizing device slot, with 5WLED light source, adjustable brightness (including bracket adapter)
	Auxiliary focus module with focusing reticle two steps, with a green light source group 5WLED (including wide voltage 100V-240V, the controller 5WLED)
Focus Mode	Electric hand wheel control adjustment, focusing distance 175mm
Camera	5MP or 1.3MP are optional; 2592(H)×1944(V) or 1280(H)×960(H); frame rate: 30fps; interface: USB2.0; image
	Sensor: CMOS (Color)
Interface	1XCTV, C type interface, adjustable focus
	0.65XCTV, C type interface, adjustable focus
	0.5XCTV, C type interface, adjustable focus
PC	DELL Optiplex3050MT +DELL LCD + genuine Win10 system
Software	Precision measurement software
Other Accessories	Polarizer insert plate, 360°rotating analyzer insert plate; interference color filter set for reflection; high-precision micrometer; DIC component; calibration film

System Configuration Diagram



Dimensional Drawing: mm

