

WAFER INSPECTION MACHINE MWL200



Wafer Inspection Machine + Semiconductor Inspection Microscope



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Wafer Inspection Machine

+

Semiconductor Inspection Microscope

WAFER INSPECTION MACHINE Designed for the efficient and safe inspection of 6-inch (150mm) and 8-inch (200mm) wafers. This equipment adopts non-contact optical centering technology, which greatly reduces contact with wafers during handling and ensures the cleanliness and integrity of wafers. Integrated with a 360° rotating macro inspection function, it enables dead-angle-free observation of both the front and back sides of wafers, allowing for easy identification of surface defects and micro-dust. The system supports formula-based program management and can pre-set up to 10 sets of process parameters, realizing one-click quick switching between different products and significantly improving inspection throughput and operational convenience. The overall design complies with international safety and ergonomic standards such as SEMI S2/S8, making it a reliable wafer processing solution for front-end and back-end semiconductor processes.

Advantages:

1. **High-resolution imaging:** Advanced optical imaging technology is adopted to detect micro defects and structures.
2. **High-speed inspection:** Automated transmission and rapid imaging technology greatly improve production efficiency.
3. **Intelligent data analysis:** Equipped with AI and 3D intelligent algorithms, it can automatically identify and classify defects, analyze the 3D topography of samples, and generate detailed inspection reports to provide data support for process optimization.
4. **Stability and reliability:** Undergoing rigorous quality testing and reliability verification, the equipment can maintain stable performance during long-term operation.
5. **Compatibility:** It is compatible with conventional microscopes available on the market.
6. **Scalability:** The LIBS module can be expanded for element identification; the laser module can be expanded for sample marking and repair.



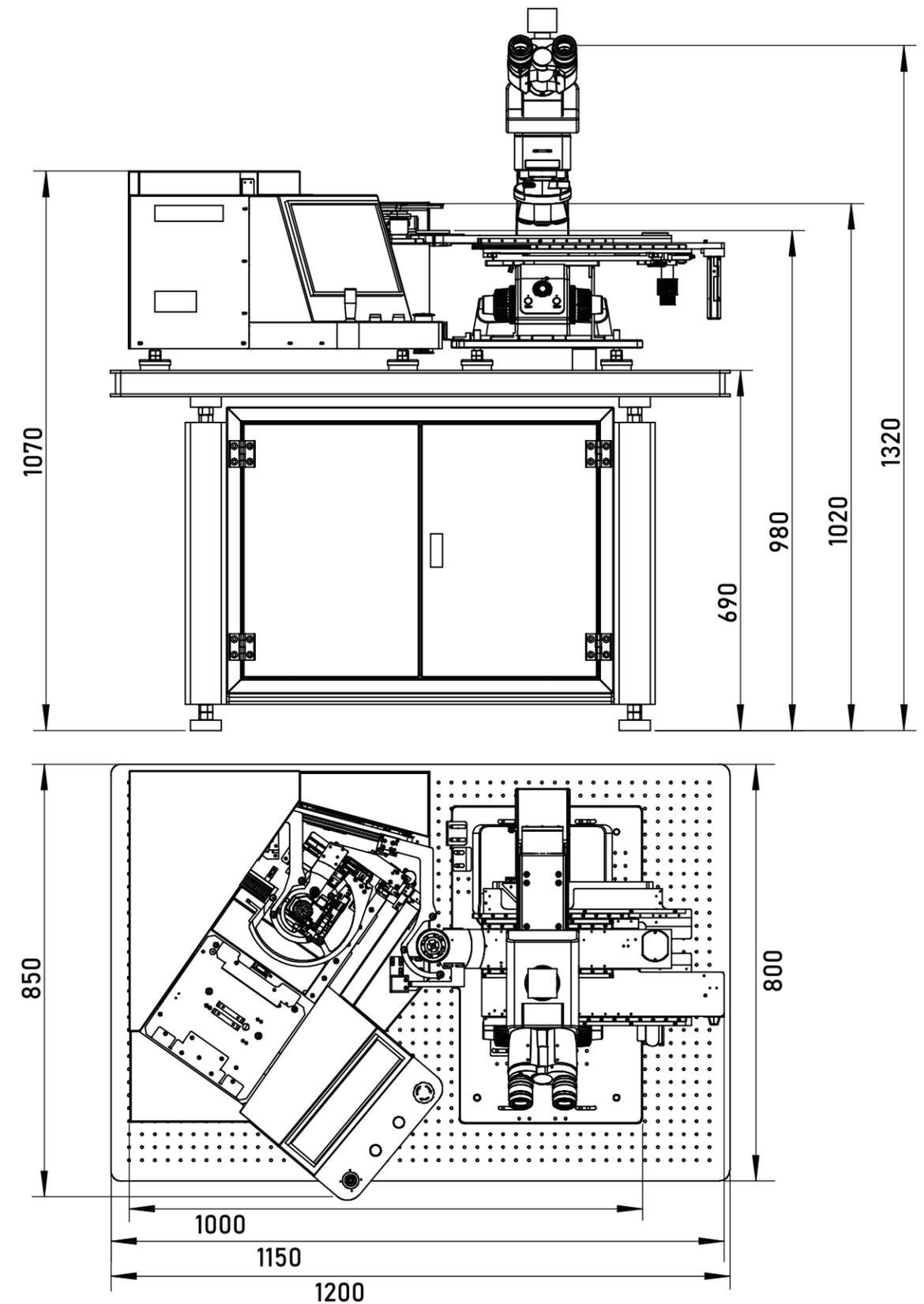
Wafer Inspection Machine + Semiconductor Inspection Microscope

■ Main Features

- Applicable for optical inspection of wafers before dicing
- Compatible with 150mm and 200mm wafers
- Supported wafer thickness: 80-1700 μ m
- Compatible with transparent, translucent and non-transparent materials
- Macro inspection:
 - Wafer front inspection: 360° rotation at all angles
 - Wafer back inspection: Wafer back center/edge
- Micro inspection:
 - Objective lens: 5X, 10X, 20X, 50X, 100X
 - Objective lens switching: Motorized
 - Stage: Manual/Motorized (Motorized required for AOI inspection)
 - Supports AOI automatic defect inspection (Optional)
 - Supports 3D profile analysis and measurement (Optional)
 - Supports LIBS elemental analysis (Optional)
 - Supports laser repair (Optional)



■ Equipment Dimension Drawing (mm)



Specifications (Wafer Inspection Machine)

Equipment Model	MWL200	
Applicable Process	Optical Inspection Machine (Before Dicing)	
Operation Mode	Fully Automatic Loading & Unloading	
Main Technical Parameters	Equipment Application	Automatic Loading & Unloading for Wafer Optical Inspection Before Dicing
	Overall Dimensions	Approx. L:1560mm * W:820mm * H:1200mm
	Wafer Size	" 6 & 8 " wafer
	Wafer Thickness	80-1700μm
	Wafer Warpage	≤0.5mm
	Operating Environment	Temperature: 17°C-27°C, Humidity: 35%-75%, Class 1000
	Cleanliness Class	ISO Class 5
	Material	Steel Frame / Aluminum / PEEK
	Anti-Rust Treatment	Painting / Electroplating
	Input Power	AC 220V / 20A
	Input Air Supply	Positive Pressure: 4-8kg/cm ² , Negative Pressure: -60 to -100kPa
	Working Mode	Automatic Mode / Manual Mode



Specifications (Semiconductor Inspection Microscope)

Equipment Model	MX63
Optical System	Infinity Color-Corrected Optical System
Optical Magnification	50x-500x (1000x optional)
Digital Magnification	150x-1500x (with 21.5-inch display), up to 3000x when paired with a 100x objective lens
Observation Mode	Bright Field, Dark Field, Polarization (standard); Differential Interference Contrast (DIC), Infrared, Fluorescence (optional)
Observation Tube	Angle-adjustable, erect image, infinity hinge trinocular observation tube; interpupillary distance adjustment: 50mm-76mm; two-stage beam splitting ratio: Binocular: Trinocular = 100:0
Eyepiece	High-eye-point wide-field eyepiece PL10×23mm, diopter adjustable
Objective Lens	Infinity long working distance bright/dark field semi-apochromatic metallographic objective 5× NA0.15 WD15
	Infinity long working distance bright/dark field semi-apochromatic metallographic objective 10× NA0.30 WD8.4
	Infinity long working distance bright/dark field semi-apochromatic metallographic objective 20× NA0.40 WD11.9
	Infinity long working distance bright/dark field semi-apochromatic metallographic objective 50× NA0.75 WD3.0
	Infinity long working distance bright/dark field semi-apochromatic metallographic objective 100× NA0.90 WD1.0 (optional)
	Infinity long working distance bright/dark field apochromatic metallographic objective 50× NA0.55 WD8.0 (optional)
Objective Revolver	Motorized 5-position bright/dark field revolver (with DIC slot), controlled by both physical buttons and software
Stand	Transmission/reflection stand with low-position coarse/fine coaxial focusing mechanism. Coarse adjustment stroke: 35mm, fine adjustment accuracy: 0.001mm. Equipped with anti-slip tension adjustment device and random upper limit position device. Built-in 100-240V wide voltage system, with digital dimming, featuring light intensity setting and reset functions.
Stage	8-inch stage, stage area: 525×330mm, travel range: 210mm×210mm mechanical stage, coaxial adjustment in X and Y directions
	8-inch manual moving stage with vacuum chuck, travel range: 210mm×210mm (Motorized stage is required when AOI module is selected)
Condenser	Swing-out achromatic condenser (N.A.0.9)
Illuminator	5W adjustable LED illuminator, universal for transmission/reflection, pre-centered
Camera Interface	Photography/video attachment: 0.65×, C-mount, focus adjustable (0.5×/1× optional)
Polarization Kit	Polarizer insert, 360° rotating analyzer insert
Computer	Brand computer and monitor
Software Testing	Measurement software MAG-SHOT, supporting software-controlled motorized objective turret, photo capture, video recording, measurement, real-time image stitching, and depth fusion
Scale	High-precision micrometer scale, division value: 0.01mm
Standard Configuration	Photo Capture
	Video Recording
	Measurement
	Auto Edge Detection
	Automatic Light Source Brightness Adjustment
	Motorized Objective Turret Control
AOI Module(Optional)	One-click Report Export
	Automatic Defect Recognition and Classification Statistics
3D Extended Depth of Field Module (Optional)	Mapping Function
	Auto Focus
	Image Navigation
	Image Stitching
	Depth Fusion
	3D Profile Measurement
	Line Roughness Measurement
	Surface Roughness Measurement
LIBS Module (Optional)	Motorized Stage Control
	Z-axis Focus Control
Laser Repair Module (Optional)	Elemental Analysis
	Laser Energy Control
	Frequency Setting
	Excitation Count Setting
	Processing Area Setting