



TORONTECH



METALLURGICAL MICROSCOPE TORONMM™-M2

The ToronMM™-M2 Metallurgical Microscope is a high-performance, professional-grade instrument engineered to meet the demanding requirements of metallurgical analysis, materials science research, quality control, and industrial inspection.

As part of our range of advanced metallurgical microscopes for industry, it offers a dependable solution for accurate microstructure evaluation and surface characterization.

Built on a reinforced, vibration-resistant frame and equipped with an advanced optical system, the ToronMM™-M2 delivers crystal-clear imaging, measurement precision, and long-term durability.

Its ergonomic design supports efficient operation in busy labs and production environments. Whether used as a metal surface inspection microscope or for in-depth metallographic investigations, the ToronMM™-M2 provides the clarity and stability required for consistent, high-resolution results.

APPLICATIONS

Metallurgical & Materials Science Industry - Microstructure evaluation of metals and alloys, including grain size analysis, phase identification, and heat treatment verification.

Automotive & Transportation - Inspection of metal components, weld seams, and surface coatings to ensure durability, performance, and safety in engines and mechanical parts.

Aerospace & Defense - High-resolution examination of advanced alloys, composites, and coatings to validate structural integrity under extreme operating conditions.

Electronics & Semiconductor Industry - Surface and cross-sectional analysis of microelectronic components, thin films, and conductive layers for quality assurance.

Industrial Manufacturing & Metalworking - Quality control of castings, forgings, and machined parts to detect defects, inclusions, or structural inconsistencies.

Research & Academic Institutions - Advanced metallographic investigations, training, and experimental research in materials science, engineering, and applied physics.

Petrochemical & Energy Industry - Evaluation of metal degradation, corrosion, and microstructural changes in pipelines, reactors, and energy systems.

Quality Assurance & Certification Labs - Standardized metallographic inspections and documentation in compliance with ASTM, ISO, and other international testing protocols.

FEATURES

Metallurgical Microscope ToronMM™ -M2 Features

Trinocular Viewing Head

Designed for ergonomic comfort, the trinocular head features a 30° inclined viewing angle and an adjustable interpupillary distance (52–75 mm). The integrated trinocular port supports digital cameras for high-resolution imaging and documentation—ideal for research and industrial analysis.

High-Eyepoint Widefield Eyepieces

1. Dual WF10X/20mm Plan eyepieces with a 21 mm high eye-point ensure comfortable, extended viewing sessions.
2. Includes one WF10X/18mm reticule eyepiece—perfect for precise measurement and calibration tasks.

Infinity Plan Achromatic Objectives

Equipped with long working distance objectives to suit a range of metallurgical applications:

1. 10X
2. 20X (spring-loaded)

3. 50X (spring-loaded)
4. 80X (spring-loaded)

These infinity-corrected, plan achromatic lenses deliver sharp, flat, and distortion-free images across the full field of view.

Precision Mechanical Stage

1. Stage dimensions: 180 mm x 155 mm
2. Travel range: 80 mm (X-axis) x 50 mm (Y-axis)
3. Low-position coaxial X/Y control knobs ensure smooth and accurate specimen movement.

Powerful Halogen Illumination System

1. High-intensity 100W halogen light source with reflected illumination for detailed surface analysis.
2. Built-in polarizer and analyzer enhance contrast for metallurgical and material differentiation.
3. Includes blue, yellow, and green filters to optimize visual performance across various sample types.

Quintuple Nosepiece

Efficient workflow with a five-objective nosepiece—enabling quick and precise magnification changes during analysis.

THEORY & METHOD

Metallurgical Microscope ToronMM-M2

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Included Accessories

- 1. Drop specimen holder (φ110 mm)
- 2. Standard specimen holder
- 3. Osram 12V 50W halogen lamp
- 4. Electrical power unit and fuses
- 5. Polarizing components and optical filters

Optional Accessories (Available Separately)

- 1. Additional eyepieces (WF10X/22mm, reticule variants)
- 2. C-mount adapters (0.25X / 0.5X / 0.65X / 1X)
- 3. 100X oil immersion objective
- 4. Metallurgical micrometer (1/100 mm)

TECHNICAL SPECIFICATIONS

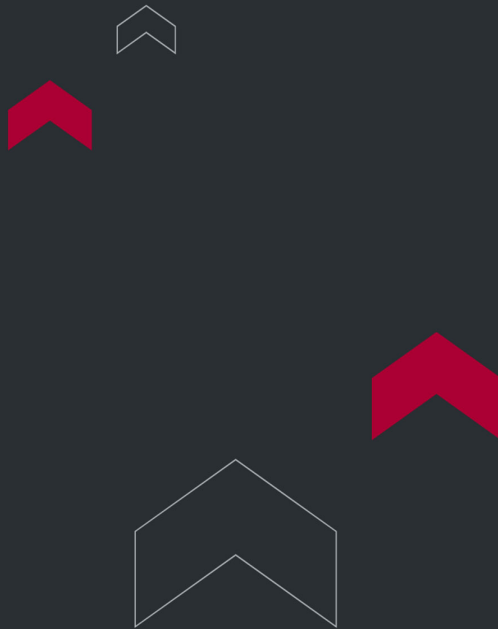
Order No.	Specification	ToronMM-M2
ToronMM-M2	Microscope Frame	●
MS3	Binocular Tube, Interpupillary distance 52-75mm, 30° inclined diopter adjustable	○
MT3	Trinocular Tube, Interpupillary distance 52-75mm, 30° inclined diopter adjustable	●
E1020PB	WF10X/20mm Plan Eyepiece, High eye-point up to 21mm	●●

Order No.	Specification	ToronMM-M2
E1018RA	WF10X/18mm Reticule Eyepiece, High eye-point up to 21mm	●
MS2	Binocular Tube, Interpupillary distance 52-75mm, 30° inclined diopter adjustable (For WF10X/22mm eyepieces)	○
MT2	Trinocular Tube, Interpupillary distance 52-75mm, 30° inclined diopter adjustable (For WF10X/22mm eyepieces)	○
E1020PA	WF10X/20mm Plan Eyepiece, High eye-point up to 21mm	○○
E1022PC	WF10X/22mm Plan Eyepiece, High eye-point up to 21mm	○○
E1020RA	WF10X/20mm Reticule Eyepiece, High eye-point up to 21mm	○
WM-P5A	Infinity Long WD Plan Achromatic Objective 5X	○
WM-L10A	Infinity Long WD Plan Achromatic Objective 10X	●
WM-L20A	Infinity Long WD Plan Achromatic Objective 20X(S)	●
WM-P50A	Infinity Long WD Plan Achromatic Objective 50X(S)	●
WM-P80B	Infinity Long WD Plan Achromatic Objective 80X(S)	●
WM-P100A	Infinity Plan Achromatic Objective 100X(S)/(Oil)	○
ZT5B	Mechanical Stage, 180mmx155mm; movement range: 80mmx50mm; with low-positioned X/Y coaxial control knob	●
ZT5B-1000	Drop specimen holder(ø110)	●
ZT5-2000	Specimen holder	●
ZQ580A	Quintuple Revolving Nosepiece	●
DX10A	100W Halogen Lamp House	●
JX11	Metallurgical Reflected Illuminator	●
JX10	Metallurgical Reflected Illuminator	○

Order No.	Specification	ToronMM-M2
PQ9	Polarizer	●
PY9	Analyzer	●
LA9	Blue Filter(ø32)	●
LH9	Yellow Filter(ø32)	●
LU9	Green Filter(ø32)	●
LB9	White Filter(ø32)	○
SX2	0.5X C Mount	○
SX3	1X C Mount	○
SX4	0.25X C Mount	○
SX5	0.65X C Mount	
OMMM	Metallurgical Micrometer(1/100mm)	○
BZ-0022E	12V50W Osram Halogen	●
BZ-0023A	250V/5A ø5X20 Fuse	●●●
DQ5C	Electrics for 12V50W Halogen	●

Note: “●” indicates a standard attachment, while “○” represents optional accessories.

Design Updates: To stay aligned with advancing technology, we reserve the right to modify designs or make changes without prior notice.



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