

# Microscopes

Microscope lineups that systemize observation, measurement and processing

## MF series

### SERIES 176 — Measuring Microscopes

- Observation with a clear and flareless erect image along with a wide field of view.
- Measuring accuracy is the highest in its class (and conforms to JIS B 7153).
- ML series, high-NA objectives that are specially designed for the MF series (long working distance type).
- Illumination unit (reflected/transmitted) can be selected from a high-intensity LED or halogen bulb.
- Variable aperture diaphragm (reflected/transmitted) allows observation measurement while suppressing light diffraction.
- Variety of standardized stages in sizes up to 400×200mm.
- Quick-release mechanism useful for moving the stage quickly when measuring workpieces that are large in size or quantity.
- Coarse/fine feed handles are as standard on both sides allowing precise focus and observation measurement regardless of handedness.
- High-magnification eyepiece observation up to 2000X.
- Standard measuring microscope that has a wide variety of optional accessories including a Vision Unit and various digital CCD cameras.



**MF-B2017D**

• The binocular tube (eyepiece) and illumination unit are optional accessories.



Refer to the MF /MF-U series (Catalog No.E14003) for more details.

## SPECIFICATIONS

Without Z-axis scale	Model No.	MF-A1010D	MF-A2010D	MF-A2017D	MF-A3017D	MF-A4020D
	Order No.	176-861* <sup>1</sup>	176-862* <sup>1</sup>	176-863* <sup>1</sup>	176-864* <sup>1</sup>	176-865* <sup>1</sup>
With Z-axis scale	Model No.	MF-B1010D	MF-B2010D	MF-B2017D	MF-B3017D	MF-B4020D
	Order No.	176-866* <sup>1</sup>	176-867* <sup>1</sup>	176-868* <sup>1</sup>	176-869* <sup>1</sup>	176-870* <sup>1</sup>
Observation image		BF (Bright field)/Erect image				
Eyepiece (optional) Adjustable diopter		10X (eyepiece field number: 24), 15X, 20X Note: Monocular - one 10X eyepiece provided as standard; Binocular - two 10X eyepieces provided as standard				
Objective (optional)		ML objective 3X (provided as standard), 1X, 5X, 10X, 20X, 50X, 100X				
Illumination unit (One of the two options must be selected.)	LED illumination unit	Transmitted illumination: Telecentric system, Built-in aperture diaphragm, White LED light source, stepless light intensity control, With cooling fan Reflected illumination: Koehler illumination, Variable aperture diaphragm mechanism, White LED light source, stepless light intensity control Control unit: Power ON/OFF switch (main switch), 100 - 240V AC power input connector				
	Halogen illumination unit	Transmitted illumination: Telecentric system, Built-in aperture diaphragm, Halogen bulb (12V, 50W), stepless light intensity control, With cooling fan Reflected illumination: Koehler illumination, Variable aperture diaphragm mechanism, Halogen bulb (12V, 50W), stepless light intensity control, With cooling fan Control unit: Power ON/OFF switch (main switch), 100 - 240V AC power input connector				
Stage	Measurement range	100×100mm	200×100mm	200×170mm	300×170mm	400×200mm
	Quick-release mechanism	Provided as standard for the X and Y axes				
	Zero-set button	Provided as standard for the X and Y axes (and for the Z axis only for the MF-B type)				
Z axis	Max. workpiece height	150mm	220mm			
	Feed mechanism	Coaxial coarse and fine feed, handles on both sides (coarse: 30mm/rotation, fine: 0.2mm/rotation)				
Measuring accuracy* <sup>2</sup> (X and Y axes, when not loaded)		(2.2+0.02L)μm L: measuring length(mm)				
Digital display	Minimum reading	1/0.5/0.1μm .0001"/.00005"/.00001" switchable				
	Display axes	X and Y (or X, Y, and Z only for the MF-B type)				
	Functions	Zero-setting, direction switching, RS232C output, USB output (specific to QSPAK)				

\*1: The following suffixes are added to the order No. to specify the User Manual's language: -10 for English; -11 for Simplified Chinese; No suffix for Japanese.

\*2: Measuring method complies with JIS B7153.

Bulb replacement for transmitted/reflected illumination	Standard: Halogen bulb (12V, 50W) (No.513667) Bulb life: 1,100 hours
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