

Microscopes

MeasurLink[®] ENABLED
Data Management Software by Mitutoyo

MF-U SERIES 176 — Universal Measuring Microscopes

- Integration of metallurgical and measurement microscope functions provides high-resolution observation and a high-accuracy measurement solution.
- Measuring accuracy is the highest in its class (and conforms to JIS B 7153).
- Illumination can be selected from an LED unit, which has a longer life, or a powerful halogen unit for high-magnification applications.
- Excellent usability, a high-NA and long working distance objectives enable effective observation.



MF-UB2017D

Note: The turret, objectives and illumination unit are optional accessories.

Manual type

- Stages range in size from 100×100 mm to 400×200 mm.
- The XY stage is equipped with a quick-release mechanism that enables switching between coarse and fine feed to provide swift and precise stage movement, even over a large distance.



Refer to the **MF/MF-U Series Brochure (E14003)** for more details.

SPECIFICATIONS

BF (Bright-field)	Without Z-axis scale	Model No.	MF-UA1010D	MF-UA2010D	MF-UA2017D	MF-UA3017D	MF-UA4020D
	With Z-axis scale	Order No.	176-871*¹	176-872*¹	176-873*¹	176-874*¹	176-875*¹
BD (Bright-field/ Dark-field)	Without Z-axis scale	Model No.	MF-UB1010D	MF-UB2010D	MF-UB2017D	MF-UB3017D	MF-UB4020D
	With Z-axis scale	Order No.	176-876*¹	176-877*¹	176-878*¹	176-879*¹	176-880*¹
	Without Z-axis scale	Model No.	MF-UC1010D	MF-UC2010D	MF-UC2017D	MF-UC3017D	MF-UC4020D
	With Z-axis scale	Order No.	176-881*¹	176-882*¹	176-883*¹	176-884*¹	176-885*¹
	Without Z-axis scale	Model No.	MF-UD1010D	MF-UD2010D	MF-UD2017D	MF-UD3017D	MF-UD4020D
	With Z-axis scale	Order No.	176-886*¹	176-887*¹	176-888*¹	176-889*¹	176-890*¹
Observation image		BF (Bright-field), DF (Dark-field) (MF-UC and MF-UD models only), Polarization, Differential Interference Contrast (DIC)/Erect image					
Eyepiece (optional) with diopter adjustment		10X (eyepiece field number: 24, two eyepieces provided as standard), 15X, 20X					
Turret (required)	Bright-field (BF)	Manual/Motor (select either one)					
	Bright-field/dark-field (BD)						
Objective (optional)	Bright-field (BF)	M Plan Apo, M Plan Apo HR, M Plan Apo SL, G Plan Apo					
	Bright-field/dark-field (BD)	BD Plan Apo					
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), AC100 to 240 V power input connector					
	Halogen illumination unit	Transmitted illumination: Telecentric system, Built-in aperture diaphragm, Halogen bulb (50 W), stepless light intensity control, With cooling fan Reflected illumination: Koehler illumination, Variable aperture diaphragm mechanism, 100 W or 150 W halogen bulb (selectable), external fiber-optic illumination, stepless light intensity control Control unit: Power ON/OFF switch (main switch), AC100 to 240 V power input connector					
Stage	Measuring range	100×100 mm	200×100 mm	200×170 mm	300×170 mm	400×200 mm	
	Quick-release mechanism	Provided as standard for the X and Y axes					
Z axis	Zero-set button	Provided as standard for the X and Y axes (and for the Z axis only for the MF-UB and -UD types)					
	Max. workpiece height	150 mm		220 mm			
Feed mechanism		Coaxial coarse and fine feed, handles on both sides (coarse: 10 mm/rotation, fine: 0.1 mm/rotation)					
Measuring accuracy* ² (X and Y axes, when not loaded)		(2.2 + 0.02L) μm L=measuring length (mm)					
Digital display	Resolution	1/0.5/0.1 μm 0.0001/0.00005/0.00001 in (switchable)					
	Display axes	X and Y (or X, Y, and Z only for the MF-UB and -UD types)					
Functions		Zero-setting, direction switching, RS-232C 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 B 7153.

Motor-Driven Z-axis

- Freedom from burdensome focus adjustment even on a workpiece with many asperities allows the operator to perform stress-free measurement.
- Using Vision Unit (optional) enables the image AF function.



MF-UJ2017D

Note: The turret, objectives and illumination unit are optional accessories.

SPECIFICATIONS for Motor-Driven Z-axis MF-U models

BF (Bright-field)	Model No.	MF-UJ2017D	MF-UJ3017D	MF-UJ4020D
	Order No.	176-894^{*1}	176-895^{*1}	176-896^{*1}
BD (Bright-field/Dark-field)	Model No.	MF-UK2017D	MF-UK3017D	MF-UK4020D
	Order No.	176-897^{*1}	176-898^{*1}	176-899^{*1}
Eyepiece (optional) with diopter adjustment		10X (eyepiece field number: 24, two eyepieces provided as standard), 15X, 20X		
Objective (optional)	Bright-field (BF)	M Plan Apo, M Plan Apo HR, M Plan Apo SL, G Plan Apo		
	Bright-field/dark-field (BD)	BD Plan Apo		
Vision AF ^{*2}		Available		
Stage	Measuring range	200x170 mm	300x170 mm	400x200 mm
	Quick release mechanism	Fitted to X and Y axes		
	Zero set switch	Fitted to X and Y axes		
Z axis	Max. workpiece height	220 mm		
	Feed mechanism	Motor drive (measuring speed: max. 20 mm/s)		
Measuring accuracy ^{*3} (X and Y axes, when not loaded)		(2.2 + 0.02L) μm L=measuring length (mm)		
Digital display	Resolution	1/0.5/0.1 μm 0.0001/0.00005/0.00001 in (switchable)		
	Display axes	X, Y and Z		
	Functions	Zero-setting, direction switching		

^{*1} To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix is required for PSE.

^{*2} Vision Unit and an image AF cable are separately required.

^{*3} Measuring method complies with JIS B 7153.

Note: For all specifications not included above see page J-7.