

SINCE 1889



# Oil Bath/Magnetic Stirrer

## MFD800 / MFH800

### MFD800 Magnetic Stirrer

External dimensions | W165×D275×H90mm (Stirring table diameter : φ 135mm)



### MFH800 Magnetic Stirrer with Hot Plate

External dimensions | W165×D275×H90mm (Stirring table diameter : φ 135mm)



### Specification

Model	MFD800	MFH800	
Product code	231326	231389	
Hot plate	---	with Hot plate	
Performance <sup>*1</sup>	Rotation speed range	50 to 1600rpm (set in 10rpm increments)	
	Temp. control range	Room temp. +25°C <sup>**</sup> to 310°C (set in 1°C increments)	
	Temp. control accuracy	±1.5°C, at 100°C (internal temperature sensor) ±1.0°C, at 50 °C (external temperature sensor)	
Configuration	Motor	DC brushless motor (31W)	
	Magnet	Neodymium magnet	
	Temp. control method	---	
	Temp. sensor	---	
	Heater	---	
	Exterior	Aluminum die casting	
Stirring table	Aluminum die casting (ceramic coating)		
Stirring motor (rotation mode)	Constant speed, step out detection, intermittent, reversing, slow-up		
Safety functions	Overcurrent fuse	---	
	---	Temperature high limit function, power failure return mode selection, calibration offset function	
Other functions	Service outlet	---	
	---	Temperature high limit function, power failure return mode selection, calibration offset function	
Standard	External dimensions <sup>*3</sup>	W165×D275×H90mm Stirring table diameter φ135mm	
	Load capacity	Max. 30 kg	
	Power source	AC100 V 50/60 Hz	6A <sup>*4</sup>
	Overcurrent fuse capacity	For internal circuit: 0.5A	For internal circuit: 7A
		For service outlet: 5A	
	Power cable	2m length, inlet type with FG plug	
Weight	Approx. 2.8kg		
Ambient operating temp. range	4 to 40°C		
Accessories <sup>*5</sup>	1 heat shield plate, 1 protective cover, 2 screw caps, 1 power cord, 1 spare fuse each (for internal circuit and service outlet)		
	---	1 external temperature sensor	

<sup>\*1</sup> Performance values are based on a power supply of 95 to 105 VAC, room temperature of 23°C±5°C, humidity of 65 %RH±20%, no load when an internal sensor is used, and when an external temperature sensor is used, with the attached PT sensor inserted into an aluminum block (for Φ12), sold separately.  
Note that the maximum operating temperature may not be reached when the power supply voltage is below 95V or under low ambient temperatures. Temperature control accuracy is measured by JTM K05. (MFH series only)

<sup>\*2</sup> The values take into account self-heating (maximum condition) at room temperature of 23°C and rotation speed of 1600 rpm. <sup>\*3</sup> Protrusions are not included. <sup>\*4</sup> Service outlet is not included.

<sup>\*5</sup> Stirring bar is not included in this product.

Note that this product has a model for each destination, and product specifications and available options may differ.

Items that vary by model are noted separately by model.

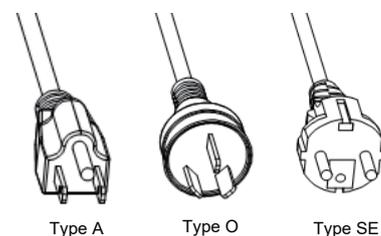
MFD series	Power specifications	Power supply cable	Service outlet	Destination	Instructions language	Warranty card
MFD800	100V±5% 0.25A 50/60Hz	Type A plug (PSE)	Yes	Japan	Japanese	Attached
MFD800-Y	115V±5% 0.25A 50/60Hz	Type A plug (UL)		America Asia Other	English	— (Note 1)
MFD810-Y	230V±5% 0.15A 50/60Hz	Type SE plug (VDE)	Without	China	Chinese	Attached
MFD810-B	220V±5% 0.15A 50Hz	Type O plug (CCC)				

MFD series	Power specifications	Power supply cable	Service outlet	Destination	Instructions language	Warranty card
MFH800	100V±5% 6A 50/60Hz	Type A plug (PSE)	Yes	Japan	Japanese	Attached
MFH800-Y	115V±5% 6A 50/60Hz	Type A plug (UL)		America Asia Other	English	— (Note 1)
MFH810-Y	230V±5% 3A 50/60Hz	Type SE plug (VDE)	Without	China	Chinese	Attached
MFH810-B	220V±5% 3A 50Hz	Type O plug (CCC)				

Power supply cable  
\* Cable specification and plug shape differ depending on the model.

#### Power supply cable plug shape list



Note 1 : Warranty is included in some regions. If you do not know the model number, refer to the model number on the model rating sticker on the side of the product.

## Option for MFH800 (Magnetic stirrer with hot plate)

Combination examples



Arrangement diagram



## List of Blocks

Name	Model	Product code	Weight	Container
Aluminum block	OA167	281432	1.7kg	Eggplant flask, 200mL
	OA171	281436	1.6kg	Eggplant flask, 300mL
	OA172	281566	1.8kg	Eggplant flask, 300mL
	OA173	281567	2.4kg	Eggplant flask, 1000mL
	OA174	281568	2.4kg	Eggplant flask, 2000mL
	OA175	281572	1.7kg	Round flask, 200mL
	OA176	281573	1.7kg	Round flask, 300mL
	OA177	281574	1.7kg	Round flask, 500mL
	OA178	281575	2.4kg	Round flask, 1000mL
	OA179	281576	2.4kg	Round flask, 2000mL
Aluminum plate	OA158	281423	1.6kg	Test tube $\phi$ 12mm / plate depth 20mm, 40 pcs.
	OA159	281424	1.4kg	Test tube $\phi$ 15mm / plate depth 20mm, 38 pcs.
	OA160	281425	1.3kg	Test tube $\phi$ 17mm / plate depth 20mm, 38 pcs.
	OA161	281426	1.3kg	Test tube $\phi$ 18mm / plate depth 20mm, 34 pcs.

Name	Model	Product code	Weight	Container
Aluminum plate	OA162	281427	1.2kg	Test tube $\phi$ 21mm / plate depth 20mm, 30 pcs.
	OA163	281428	1.7kg	Test tube $\phi$ 30mm / plate depth 26mm, 12 pcs.
	OA164	281429	1.4kg	Test tube $\phi$ 35mm / plate depth 26mm, 12 pcs.
Base holder	OA156	281421	0.4kg	Adapter, for 1 pc. mounting
	OA157	281422	0.6kg	Adapter, for 3 pcs. mounting
Adapter block	OA169	281434	0.6kg	Eggplant flask, 10mL
	OA168	281433	0.6kg	Eggplant flask, 20mL
	OA165	281430	0.6kg	Eggplant flask, 30mL
	OA166	281431	0.6kg	Eggplant flask, 50mL
	OA170	281435	0.5kg	Eggplant flask, 100mL
	Adapter plate	OA180	281577	0.6kg
OA181		281578	0.6kg	Test tube $\phi$ 16mm / plate depth 40mm, 6 pcs.
OA182		281579	0.5kg	Test tube $\phi$ 24mm / plate depth 40mm, 4 pcs.

## Options for MFD800 / MFH800

Name	Model	Product code	Remarks
Protective cover (for MFD)	OA154	281395	Protective silicon cover to protect the main unit from dirt and sample splattering
Protective cover (for MFH)	OA155	281396	
External temperature sensor	OA153	281394	Sensor used for external temperature control with MFH (included in MFH800)
Pole set	OA143	281381	Pole for fixing the bath or mixer $\phi$ 10×480mm
Container fall prevention frame	OA146	281384	Variable frame to prevent beakers and other containers placed on the stirring table from falling
Stage for lab jack	OA147	281385	Stage capable of placing the main unit on a lab jack
Power cable (2m length)	OA183	281587	Power cable with round terminals
Aluminum block handle for one hand	OA144	281382	Handle for carrying hot aluminum blocks with one hand
Aluminum block Handle for both hands	OA145	281383	Handle for carrying hot aluminum blocks with both hands
Muff	OLM44	231632	For $\phi$ 5 to $\phi$ 13mm
	OLM46	231633	For $\phi$ 6 to $\phi$ 17mm
	OLM48	231634	For $\phi$ 9.5 to $\phi$ 29mm

Name	Model	Product code	Remarks
Double-opening clamp	OLM50	231635	Tightening adjustment range 3~55mm, Shaft diameter 10mm
	OLM52	231636	Tightening adjustment range 3~80mm, shaft diameter 12mm
Glass tank for BOG100	OBO14	222193	Mounted on MFH and used as oil bath $\phi$ 150mm 1.0L
Glass tank for BOG200	OBO16	222194	Mounted on MFH and used as oil bath $\phi$ 180mm 2.2L
Strong magnetic force stirring bar	OA148	281386	Oval, $\phi$ 6×15
	OA149	281390	Octagon, $\phi$ 3×13
	OA150	281391	Octagon, $\phi$ 8×13
	OA151	281392	Octagon, $\phi$ 8×38
Stirring bar	OA152	281393	Micro, $\phi$ 2×5, Set of 5pcs.
	TB-20	F-4028-02	$\phi$ 7×20, 12pcs
	TB-30	F-4028-03	$\phi$ 8×30, 12pcs
	TB-40	F-4028-04	$\phi$ 8×40, 12pcs
	A-43	F-4025-04	$\phi$ 13×43, 6pcs.

# BOG100

Single controller included

External dimensions | Diameter  $\phi 150 \times D205 \times H140$  mm (Including heater unit)



# BOS100

Single controller included

External dimensions | Diameter  $\phi 150 \times D205 \times H140$  mm (Including heater unit)



## Specifications for oil bath

Model	BOG100		BOG200		BOS100		BOS200			
Product Code	222122		222123		222124		222125			
Configuration	Bath	Hard glass				Stainless steel plate				
	Exterior	Stainless steel sheet / Chrome-free electro-galvanized steel sheet, Baked finish								
	Heater									
Performance <sup>1</sup>	Heater capacity	310W, at 100V		425W, at 100V		310W, at 100V		425W, at 100V		
	Temperature setting range	0 to 260°C								
	Temperature control range	Room temp, +5 to 240°C <sup>*2,*3</sup>				Room temp. +5 to 250°C <sup>*2</sup>				
	Temperature control accuracy	$\pm 0.3^\circ\text{C}$ (at 200°C, when stirring)								
Controller	Temperature control method	P.I.D. control, Temperature difference control <sup>*4</sup>								
	Temp. setting and display method	Digital setting / display with UP/DOWN key (Indication 1°C Unit)								
	Operating functions	Fix temp. operation								
	Additional functions	Calibration offset function, Power failure compensation selection function, LED brightness switching function								
	Heater circuit control	Triac, Zero cross method								
Safety Devices	Sensor	Pt100 sensor (Class A)								
		Self-diagnosis function (temperature sensor error detection, automatic overheating prevention function, communication error, abnormality out of set temp. range), Fuse (6.3A short-circuit, overcurrent protection), Independent overheating prevention device								
Standard	External dimensions <sup>*5</sup> (diameter $\times$ depth $\times$ height)	$\phi 150 \times 205 \times 140$ mm (including heater unit)		$\phi 180 \times 235 \times 180$ mm (including heater unit)		$\phi 155 \times 210 \times 140$ mm (including heater unit)		$\phi 185 \times 240 \times 180$ mm (including heater unit)		
	Bath inner dimensions (inner diameter $\times$ height)	$\phi 140 \times 100$ mm		$\phi 170 \times 140$ mm		$\phi 140 \times 100$ mm		$\phi 170 \times 140$ mm		
	Bath capacity	No load (recommended)	Approx. 0.8L		Approx. 1.7L		Approx. 0.8L		Approx. 1.7L	
		No-load (maximum) <sup>*5</sup>	Approx. 1.0L		Approx. 2.2L		Approx. 1.0L		Approx. 2.2L	
	Controller unit (W $\times$ D $\times$ H)	150 $\times$ 90 $\times$ 45mm (protrusions not included)								
	Power source (frequency)	Single phase AC100V (50/60 Hz)								
	Rated current	4.0A		5.0A		4.0A		5.0A		
	Weight	Bath and heater unit	Approx. 1.8kg (including cable)		Approx. 2.3kg (including cable)		Approx. 2.5kg (including cable)		Approx. 2.9kg (including cable)	
Controller unit		Approx. 0.5kg								
Total weight		Approx. 2.3kg		Approx. 2.8kg		Approx. 3.0kg		Approx. 3.4kg		
Accessories	Heater guard (1 set), Arbor (outer diameter $\phi 12 \times 90$ mm: 1 piece), Stirring bar (approx. $\phi 8 \times 50$ mm: 1 piece) Connector cap (1 pc), Identification sticker (1 pc), Zip tie with tag (3 pcs)									

<sup>\*1</sup> Performance data are based on a rated power supply voltage of 100 VAC, room temperature of 23°C, use of recommended silicone oil TSF458-100, no load, stirring speed of 250rpm, and use of the supplied stirring bar. This product is for oil only. <sup>\*2</sup> The room temperature is +10°C to 25°C or lower. <sup>\*3</sup> The temperature may not reach 240°C if the voltage is 100V or lower.

<sup>\*4</sup> When the optional external temperature sensor is enabled. <sup>\*5</sup> The cable between the bath and the controller unit is approx. 2m long.

<sup>\*6</sup> Maximum input amount of silicon oil at room temperature. If the amount is exceeded, the oil may expand and overflow during heating.

Note that this product has a model for each destination, and product specifications and available options may differ. Items that vary by model are noted separately by model.

BOG100/BOS100 series	Power specifications	Power supply cable	Service outlet	Destination	Instructions language	Warranty card
BOG100/BOS100	100V $\pm 5\%$ 4.0A 50/60Hz	Type A plug (PSE)	Yes	Japan	Japanese	Attached
BOG100-Y/BOS100-Y	115V $\pm 5\%$ 3.5A 50/60Hz	Type A plug (UL)		America Asia Other	English	— (Note 1)
BOG110-Y/BOS110-Y	230V $\pm 5\%$ 2.0A 50/60Hz	Type SE plug (VDE)	Without	China	Chinese	Attached
BOG110-B/BOS110-B	220V $\pm 5\%$ 2.0A 50Hz	Type O plug (CCC)				

BOG200/BOS200 series	Power specifications	Power supply cable	Service outlet	Destination	Instructions language	Warranty card
BOG200/BOS200	100V $\pm 5\%$ 5.0A 50/60Hz	Type A plug (PSE)	Yes	Japan		Attached
BOG200-Y/BOS200-Y	115V $\pm 5\%$ 4.5A 50/60Hz	Type A plug (UL)		America Asia Other	English	— (Note 1)
BOG210-Y/BOS210-Y	230V $\pm 5\%$ 2.5A 50/60Hz	Type SE plug (VDE)	Without	China	Chinese	Attached
BOG210-B/BOS210-B	220V $\pm 5\%$ 2.5A 50Hz	Type O plug (CCC)				

Note 1 : Warranty is included in some regions.

If you do not know the model number, refer to the model number on the model rating sticker on the side of the product.

## Options for oil bath

No.	Name	Model	Product code	Specifications
①	External temperature sensor <sup>*1</sup>	OBO10	222191	1 Pt100 sensor (Class A) (O.D. $\phi 3.0 \times 200$ mm)
②	Controller mounting plate	OBO12	222192	2 stainless steel plates / 3 knurled screws
③	Glass bath for BOG100	OBO14	222193	Glass bath ( $\phi 150$ mm) 1 piece (for replacement, not including heater unit)
④	Glass bath for BOG200	OBO16	222194	Glass bath for BOG200 ( $\phi 180$ mm) 1 piece (replacement, heater unit not included)

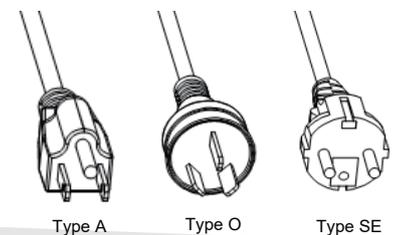
<sup>\*1</sup> The following functions are added when the external temperature sensor is enabled.

• Additional functions (external temperature sensor calibration offset function, liquid temperature display function in bath)

• Safety functions (self-diagnostic function: external temperature sensor error detection, temperature difference error, temperature rise error)

Power supply cable  
\* Cable specification and plug shape differ depending on the model.

### Power supply cable plug shape list



Type A

Type O

Type SE