



Operation Manual Magnetic Stirrer

Model : MS-12B, MS-17B, MS-22B
Manual No. : 330115L002 Version : 3.1



WARNING

Please read this user manual carefully before using the product. Users should operate the product according to the operating instructions contained in this user manual. Users should be aware of cautions and warnings for your safety. Failure to follow these guidelines may result in serious injury or damage to your property.

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JEIOTECH Co., Ltd. is committed to offer the customer service including product sales, Technical service, and follow-up management. If you have any question about this user manual, please contact our sales department

Quality Management System ISO 9001



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1.0 Safety

1.1. How to use manual

This operation manual describes the important subjects to maintain the product's functions and to use it safely. Especially, be sure to read <Safety Precaution> carefully before you use this equipment.

Please keep this manual close to the equipment to use it after reading through it once. Please place it where the new user can find it easily for the safety use when you hand over or lend the equipment to others.

1.2. Symbols used in this manual

- 1) The alert marks are for safety operation and protect user and instrument from Damage
- 2) Signal word panels are a method for calling attention to a safety messages or property damage messages and designate a degree or level of hazard seriousness.

Signal word	Explanation
 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates a property damage message.

- 3) Pay attention enough to the contents of alert marks.

1.3. Exemption for responsibility

- 1) The claim which is out of the quality guaranteed by the manufacturer is out of manufacturer's responsibility.
- 2) The damage which is from unexpected fault or damage of user by Acts of God is out of Manufacturer's responsibility.

2.0 Functional Description

2.1. Introduction

MS-12B, MS-17B, MS-22B is economically compact and light Magnetic stirrer under such kind of experimental lab environment. This magnetic stirrer operates range is 150rpm ~ 2,500rpm by exact speed and powerful performance provides stirring of high viscosity solution.

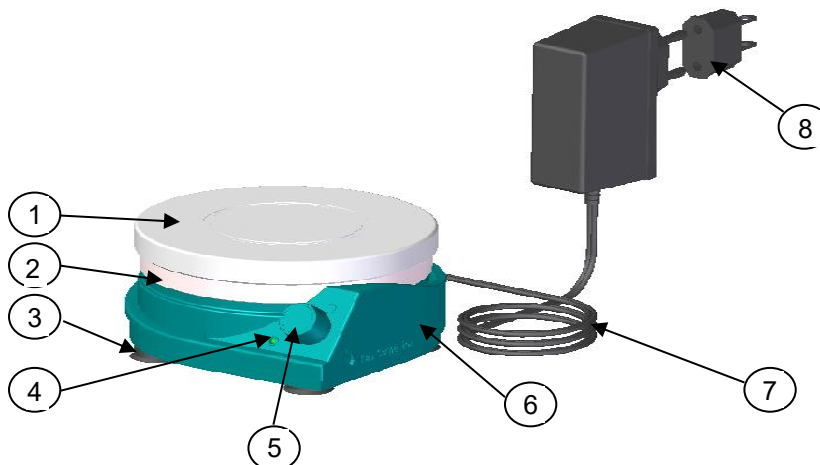
2.2. Features

This magnetic stirrer is aimed by user safety in laboratory, convenience and follow feature;

- Non-slip silicon plate covers not to be easily slide glass of flask and baker, etc.
- Each RPM adjust Real-time stirring with quick operation.
- Non-spark BLDC(Brushless Direct Current) motor stirring to make safety offer and high quality durability in laboratory.
- Basic White and Black plate cover accommodate to watch various color sample.

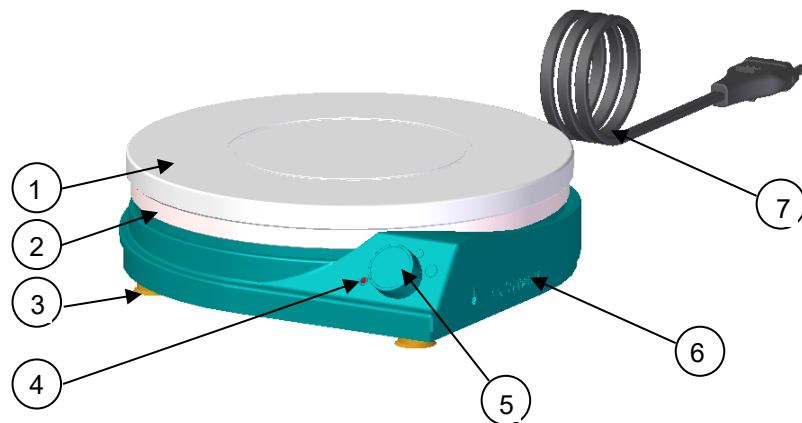
2.3. Structure

2.3.1. MS-12B & MS-17B



- ① Plate cover : Non-slip silicon covers protect sliding of glassy flask and baker etc
- ② Top plate : Protecting stirrer inside and preventing liquid inflow.
- ③ Foot : Non-marking foot allow for easy movement
- ④ Non-slipping the unite
- ⑤ LED Lamp : Easy to check the stirrer operating
- ⑥ Knob : Power ON/OFF and controlling stirring speed
- ⑦ Body : Motor and control system locate inside of body
- ⑧ Power adapter : supplying power to stirrer
- ⑨ Consent : To change adepter electric power input consent to 110V (100V).

2.3.2. MS-22B



- ① Plate cover : Non-slip silicon covers protect sliding of glassy flask and baker etc
- ② Top plate : Protecting stirrer inside and preventing liquid inflow.
- ③ Foot : Supporting and non-slipping the unite.
- ④ LED Lamp : Easy to check the stirrer operating
- ⑤ Knob : Power ON/OFF and controlling stirring speed.
- ⑥ Body : Motor and control system locate inside of body
- ⑦ Main power cord : It is cord to supply for main power.

3.0 Installation and Caution

3.1. Unpacking the package and inspecting damage during transportation

- (1) Inspecting before removing outer container.
- (2) Removing the container.
- (3) Inspecting damage of product during transportation.

3.2. Checking the unit components

- (1) After unpacking, please check the contents to ensure you have received all of the following magnetic stirrer components
- (2) If you didn't receive one or more of the components, contact your local JeioTech office or the distributor from which the magnetic stirrer was purchased.

COMPONENT	MODEL	MS-12B MS-17B	MS-22B
(Operating manual) 		○	○
Main power cord 		X	○ (built in)
Adapter 		○	X
(Plate cover) (White 1, Black 1) 		○	○
Magnetic stirring bar 		○	○

3.3. Introduction

3.3.1. Environmental conditions

- Temperature; 5°C ~ 40°C
- Relative humidity : RH 10% ~ 80%
- Maximum altitude : 2,000m.

 CAUTION

- The unit should be located away from naked flame sources, direct sunlight.
-

3.3.2. Location conditions

Place the unit on the wrench, or table when in use, and keep a proper distance between. The other apparatuses.

 CAUTION

- Do not place the unit nearby the other laboratory equipments which can be readily influenced, even by weak motor vibration, and also by magnetic force because the unit causes the magnetic field.

 WARNING

- Do not use the plastic beaker when operating the unit in explosive atmospheres.
 - The plastic beaker can cause the magnetic field, resulting in igniting to explosive substances.
-

3.3.3. Arrangement of unit

- Place the unit to be fixed tight to non-slip foot on the table
- Ensure that the unit will be paralleled to the table.

3.3.4. Setting up plate cover on top plate.

- Cover silicon pad on top of the top plate for the safety test.
- Silicon pad cannot be used according to user's option.

3.4. Connection to the mains power supply

- (1) Turn the knob counterclockwise until the clicker sounds “click” to make sure that power is off.
- (2) Power connection on MS-22B
The power cord of above should be connected to the voltage specified (DC100V~240V).
- (3) Power connection on MS-12B & MS-17B
The power cord of above should be connected to the voltage specified (DC 100V~240V) thru a free voltage adaptor which can be converted to AC 100V~240V
From DC 100V~240V.

 WARNING

- Ensure that the unit should be connected to a power source that is an appropriate voltage, phase, capacity.
 - Failure to connect to a proper connection of a power supply will cause the risk of fire, electric shock, and personal injury.
 - Never use a forked socket, or a double-tapped socket.
 - Failure to obey a safety instructions will result in causing burning the cable, or risk of fire.
 - Use only the main power cord recommended by the manufacturer or provided with the unit.
-

3.5. Stirring operation

Stirring test can be done without placing a beaker, or flask on top of top plate thru
The following procedure;

- (1) Make sure that the unit is on by turning the knob clockwise until the clicker sounds “click”.
- (2) Observe the magnetic stirring bar start to spin with lighting on LED lamp, and spinning motor.
- (3) Make sure that the more the unit is speeding up, the more the unit is vibrating up, by turning up clockwise the knob. Then, it works properly.
- (4) Finish the stirring with lighting off LED lamp by turning the knob counterclockwise to the end.

4.0 Operation

4.1. Startup stirring

- (1) Pour the liquids to be mixed into the beaker, or flask
- (2) Place a magnetic stirring bar at the center of the beaker base.
- (3) Place a beaker on top of the set-up plate, or plate cover.
- (4) Turn the knob clockwise to start stirring.
- (5) Adjust the knob clockwise or counterclockwise until the required stirring speed is achieved.

4.2. Finish stirring

- (1) After stirring is completed, turn the knob counterclockwise to off.
- (2) By inertia, the magnetic stirring bar can be further spinning, even LED lamp is off.

 CAUTION

- Max. Load can not be exceeded 10 Kg to MS-12B, and 20 Kg to MS-17B respectively.
-

5.0 Preventive Maintenance

5.1. Periodic maintenance

classifications	A period of checking time	
	Daily	Weekly
Generals		
The conditions of connection for power supply and an adaptor.	•	
The presence of power supply and an adaptor contact wetting, and cable peeling off, and out of contact.	•	
The cleanliness of top plate and plate cover		•
Magnetic stirrer		
The status of ON/OFF on LED lamp	•	
The status of ON/OFF on motor	•	
The status of motor speed up and down	•	

5.2. Cleaning of top plate and plate cover

5.2.1. Top plate

- Remove a contaminant by cleaning the unit with a wet soft cloth.
- Keep the unit clean always by cleaning the unit with a dry soft cloth.

5.2.2. Plate cover

- Remove a contaminant by cleaning the unit frequently with a soft cloth before and after using, otherwise it can not be readily wiped out for a long time.
- Keep the unit clean always without any contaminant.

WARNING

- Do not immerse the unit in water for cleaning.
-

5.3. In case of not using long time.

- (1) Unplug the unit from the main power.
- (2) Clean the unit with a soft cloth neatly.
- (3) Store in a dry place after packing.

6.0 Troubleshooting

6.1. Electrical

Trouble	Causes	Solution
The unit does not turn on	Incorrect electric power	Compare power source and voltage on the ID plate and make sure they are the same. ID plate is found on the back of unit.
	Power failure or circuit breaker shuts down	Find out the causes of power failure and recovery.
	Main plug not seated properly.	Check the electrical cord connection at the unit to ensure it is fully seated.
	Socket / plug / main power line might be cut	If the socket / plug / main power line are cut, request service.
Circuit breaker of building keeps OFF.	Short of electricity or too many plugs in.	1. Check out voltage capacity of circuit breaker. 2. Check the electrical cord connection at the unit to ensure it is fully seated.
No LED	Power failure	Find out the causes of power failure and recovery.
	Main plug not seated properly.	Check the electrical cord connection at the unit to ensure it is fully seated.
	Connection of adapter in socket. (MS-12B & MS-17B)	Check the adapter connection at the unit to ensure it is fully seated.
With the LED ON, the unit does not stir.	Motor could be malfunction.	Request service.

6.2. Problems occurs during operation

Symptom	Cause	Trouble shooting
Magnetic bar is out of position	Too much solution(solvent) in flask.	Reduce volume of solution(solvent) or increase RPM slowly.
	High density of solution(solvent) in flask.	Increase RPM slowly.
	Magnetic force of bar is weak..	Replace magnetic bar.
Some kind of bumping sound from inside.	Something could be loosened.	Request service.

7.0 Accessories

7.1. Description and order numbers

7.1.1. Adapter

Cat. No.	Description
MTT0001	MS-12B/17B (100~240V,50/60HZ)

7.1.2. Plate covers

Cat. No.	Description
MTT0002	White, Silicone for MS-12B (Φ120 mm)
MTT0003	White, Silicone for MS-17B (Φ170 mm)
MTT0004	White, Silicone for MS-22B (Φ220 mm)
MTT0005	Black, Silicone for MS-12B (Φ120 mm)
MTT0006	Black, Silicone for MS-17B (Φ170 mm)
MTT0007	Black, Silicone for MS-22B (Φ220 mm)

7.1.3. Magnetic stirring bars

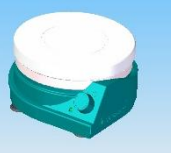
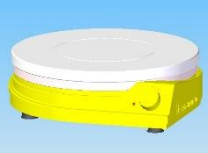
Cat. No.	Description
MTT0008	Octagon type (Φ8 x 12.7, mm)
MTT0009	Octagon type (Φ8 x 16.0, mm)
MTT0010	Octagon type (Φ8 x 22.0, mm)
MTT0011	Octagon type (Φ8 x 25.4, mm)
MTT0012	Octagon type (Φ8 x 28.6, mm)
MTT0013	Octagon type (Φ8 x 38.0, mm)
MTT0014	Octagon type (Φ9.5 x 50.8, mm)
MTT0015	Polygon type (Φ5 x 15, mm)
MTT0016	Polygon type (Φ5 x 20, mm)
MTT0017	Polygon type (Φ5 x 25, mm)
MTT0018	Polygon type (Φ5 x 30, mm)
MTT0019	Polygon type (Φ5 x 40, mm)
MTT0020	Polygon type (Φ5 x 50, mm)
MTT0021	Egg type (16.0 mm)
MTT0022	Egg type (19.0 mm)
MTT0023	Egg type (25.4 mm)
MTT0024	Egg type (31.8 mm)
MTT0025	Egg type (41.28 mm)

7.1.4. Retrievers

Cat. No.	Description
MTT0026	Plastic Retriever (PE, 300 mm)
MTT0027	Plastic Retriever (PE, 500 mm)
MTT0028	Plastic Retriever (Yellow, Teflon, 510 mm)
MTT0029	Plastic Retriever (Blue, Teflon, 510 mm)

8.0 Appendix

8.1. Technical Specifications

MODEL		MS-12B	MS-17B	MS-22B
				
Technical data	Stirring Capacity (Liter, H2O)	2	4	5
	Speed range (rpm)	150 ~ 2,500		
	Speed display	None		
	Motor rating input / output (W)	2.9 / 1.6		
	Magnetic bar (mm x Ø, Length), Max.	30×8mm	40×8mm	50×10mm
	Load, Max (kg)	15	20	25
Set-up plate	Material	Poly propylene with non-slip plate cover		
	Dimension (mm, Ø)	120	170	220
General data	Body material	Poly propylene		
	Body color	Persian Blue(BB), Yellow(BY), Pink(BP), Blue Gray(BG)		
	Dimension (mm, W x D x H)	130 x 130 x 65	185 x 185 x 65	230 x 230 x 65
	Weight (kg)	0.6	0.9	1.1
	Permissible ambient temperature (°C)	+5 ~ 40		
	Permissible relative humidity (%)	up to 80		
	Electrical requirements	DC 12V x 0.5A Power adapter with free AC voltage and frequency (AC 100 ~ 240V, 50/60Hz)		Free voltage and frequency (AC 100 ~ 240V, 50/60Hz)
	Power consumption (W)	5	6	6
	Controller	Long life BLDC motor and electronic speed control		
	Safety Device	Thermal Shutdown, Current limit protection		
	Protection class acc. to DIN EN 60529	IP42		

8.2. Disposing of magnetic stirrer

Before disposing of the magnetic stirrer:

1. Please dispose the unit with separating plastic mold, motor, and magnet.
2. Check with your institute or laboratory for individual policies and procedures for disposal of laboratory equipment.
3. Please, contact your local governing body for regulations regarding disposal of electrical, metal(brass, aluminum, steel and stainless steel), refrigeration and rubber components. Jeio Tech recommends the use find a local scavenger or laboratory equipment recycler to properly dispose of the unit and its components.

8.3. Warranty

8.3.1. Warranty period

- (1) If the product fails during normal and proper use, the warranty period for manufacturing liability shall be two years from the date of delivery.
- (2) If you request a repair, please check the items below and let us know so that you can get a quicker and more accurate repair.

- Date of purchase:
- Customer name / address / phone number / E-mail:
- Fault status
- Model
- Serial number

8.3.2. Technical Service Contact Points

Technical Services

Address : 153 (Yongsan-dong), Techno 2-ro Yuseong-gu, Daejeon-city, 34025, Republic of Korea

Tel : +82 (0)2-2627-3824

Website : www.jeiotech.com/eng/

E-mail : overseas@jeiotech.com

8.3.3. Certificate of Product Warranty

This is a guide to the product quality warranty and service terms provided by Jeio Tech Co., Ltd

All products are guaranteed to operate normally when installed under proper conditions, as specified in the user manual for each product, and used according to the intended purposes and permissible operating conditions.

The warranty period for product quality starts from the delivery date and is indicated in the catalog provided for each product or in the purchase order agreed upon with the customer. If a product malfunctions within the warranty period, Jeio Tech Co., Ltd. provides free repair services. However, among the transportation costs incurred during the repair process, any special costs resulting from the customer's site conditions (e.g., door or wall modifications, use of special handling equipment) are not covered under the warranty. Furthermore, Jeio Tech's liability under this warranty is limited to replacing the product or refunding the original purchase price at Jeio Tech's sole discretion if reasonable attempts to repair or replace the product fail.

Parts replaced during free repairs within the warranty period become the property of Jeio Tech Co., Ltd. Additionally, the warranty period is not extended due to free repairs. Jeio Tech is not responsible for any losses incurred by the customer due to delays in repairs caused by issues such as part shortages or shipping delays.

The following cases will be handled as paid repairs, even within the warranty period:

1. Non-defective cases

- * Requests to resolve issues arising from improper operating environments or abnormal installations.
- * Reinstallation requests or connections with external equipment other than the initial installation.
- * Requests for usage instructions or simple adjustments that do not require disassembly.
- * Inspections of non-defective products.
- * Cleaning or debris removal service requests.

2. Failures caused by user errors:

- * Malfunctions due to usage not in accordance with the user manual.
- * Issues resulting from improper operating environments or abnormal installations.
- * Malfunctions caused by incompatible chemical usage.
- * Malfunctions caused by irregular or improper electrical or utility supplies.
- * Damage due to product movement, storage, external impact, or dropping by the customer.
- * Malfunctions resulting from unauthorized modifications or repairs without prior written approval from Jeio Tech Co., Ltd.
- * Malfunctions caused by using consumables or optional components not specified by Jeio Tech Co., Ltd.
- * Repairs performed by personnel other than Jeio Tech or its authorized service agents.

3. Other cases

- * When the product model or serial number has been damaged, removed, manipulated, or altered.
- * Malfunctions caused by fire, flooding, or other natural disasters.
- * Failure due to consumable parts reaching the end of their lifespan (e.g., lamps, filters, fuses, gaskets, packings, hoses, heat transfer fluids).
- * Natural wear and tear (e.g., discoloration, screen printing degradation).
- * Damage or malfunction of product accessories (e.g., power cables, data cables, glass components) or options.
- * Malfunctions caused by errors in computers, computer components, or connected network systems.
- Before Jeio Tech performs free or paid repairs or accepts the return of a product, the customer must ensure the product has been decontaminated of chemical and biological hazards.
- Replacement parts used during repairs may differ from the original but will function correctly and be equivalent in performance.
- Jeio Tech does not bear any responsibility for damage to stored samples, data loss, or any other direct or indirect damages caused by product malfunctions, regardless of the warranty period.
- Jeio Tech does not guarantee issues related to computers, computer components, or network systems connected to the product, regardless of the warranty period.
- This warranty is the sole and exclusive warranty provided. Any implied warranties imposed by applicable laws are limited to the warranty period stated herein. This warranty cannot be modified by any verbal advice, statements, or documents on behalf of Jeio Tech unless explicitly labeled as a "Warranty Amendment" and signed by an authorized representative of Jeio Tech.
- This warranty applies only to products purchased for direct use by the customer. It does not cover products purchased for resale purposes without prior written approval from Jeio Tech.
- This warranty does not apply to consumables and is non-transferable.

- The contents of this manual can be changed or upgraded without prior notice in order to improve the performance of the product and to convey accurate information.
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