



Magnetic Stirrer

RT Basic 12, RT Basic 17 and RT Basic 22

Operation Manual 9240-11-013



Important Before using this product, read this entire operation manual carefully. Users should follow all of the operational guidelines contained in this manual and take all necessary safety precautions while using this product. Failure to follow these guidelines could result in potentially irreparable bodily harm and/or property damage. ▲

Caution All internal adjustments and maintenance must be performed by qualified service personnel. ▲

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This manual contains important safety and operation information. You must carefully read, understand, and follow all the instructions in this manual prior to operating this instrument. Keep this manual in a safe place nearby for reference and make it easily available to all users.

- 1) This manual highlights DANGER/WARNING/CAUTION/NOTICE alerts to prevent injury or property damage and also to achieve optimum performance of your instrument.
- (2) These alerts are classified into four types in this manual depending on the importance and the risk levels as described below:

Symbols	Meaning
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Ignoring this warning could cause serious injury or even death.
	Ignoring this caution could cause injury or property damage.
	Ignoring this notice could cause operational problems.

- 3) The claim which is out of the quality guarantee published by the Manufacturer is out of Manufacturer's responsibility.
- 4) The damage which is from unexpected fault or damage of user by Acts of God is out of Manufacturer's responsibility.

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Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

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Table of Contents

Section 1	Functional Description	1-1
	Construction	1-2
Section 2	Unpacking and Installation	2-1
	Check the Instrument Components	2-1
	Introduction	2-2
	Connection to the Mains Power Supply	2-3
	Stirring Action	2-3
Section 3	Operation	3-1
Section 4	Maintenance	4-1
	Periodic Maintenance	4-1
	Cleaning	4-1
	To Store the Unit	4-2
Section 5	Troubleshooting	5-1
Section 6	Accessories	6-1
Section 7	Specifications	7-1
	Disposing of the Unit	7-2
Section 8	Warranty Information	8-1

Section 1 **Functional Description**

The Magnetic Stirrer RT Basic is an economically compact and lightweight magnetic stirrer for any experimental lab environment. This stirrer has an operating range of 150rpm ~ 2,500rpm by exact speed and powerful performance provides stirring of high viscosity solutions.

This magnetic stirrer is designed for user safety in the laboratory. A description of the convenience features follow;

- Non-slip silicon plate covers inhibit sliding of glass flasks, beakers, etc.
- Each RPM adjusts real-time stirring with a quick action.
- Non-spark BLDC (Brushless Direct Current) motor stirring to offer safety and high quality durability in laboratory
- Plate cover allows monitoring of various color samples.

Construction

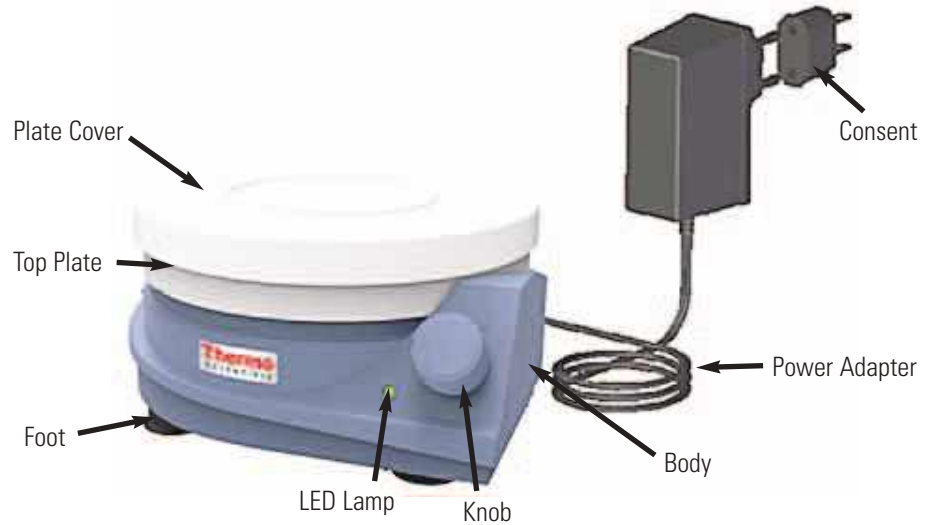


Figure 1-1. RT Basic-12, RT Basic 17 and RT Basic 22 Components





- Plate cover: Non-slip silicon covers prevent sliding of glass containers
- Top plate: Protecting stirrer inside and preventing liquid inflow.
- Foot: Unit support and non-skid protection
- LED Lamp: Easy to check if the stirrer is operating
- Knob: Power ON/OFF and controlling stirring speed.
- Body: Motor and control system located inside body
- Power adapter: Supplying power to stirrer
- Adapter:
 - 230V Model: Power adapter & multi plugs
 - 120V Model: Only for 120V power adapter

Section 2 Unpacking and Installation

Inspect the packaging before removing the outer container. On removal of the outer container, inspect the instrument for any damage that may have occurred during transportation.

Check the Instrument Components

- (1) Check the instrument components supplied in the package after unpacking.
- (2) If there is a noticeable issue or an omission is found, immediately notify your local Thermo Scientific dealer's Service Department.

Component	Figure	Quantity
Operating manual		1
Adapter		1
Plate cover (White 1, Black 1)		2
Magnetic stirrer bar		1

Introduction **Environmental Conditions**

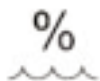
The unit should be installed in a suitable environment as described below.



- Avoid direct sunlight.



- Room temperature should be 5°C ~ 40°C



- Relative Humidity (RH%) should be less than 80%.



- Altitude should be less than 2,000m.

Location Conditions

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

⚠ 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.

⚠ CAUTION

- Do not place the unit near other laboratory equipment which can be readily influenced, even by weak motor vibration, or by magnetic force because the unit create a magnetic field.

Arrangement of Unit

- Place the unit on the table. Check to make sure the non-slip feet are secured tightly to the unit.
- Ensure that the unit will be parallel to the table.

Setting Up Cover Plate 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.

Connection to the Mains Power Supply

- (1) Turn the knob counterclockwise until the “click” sound is heard, to make sure that power is off.
- (2) Power connection on the Magnetic Stirrer RT Basic 12, RT Basic 17 & RT Basic 22

The power cord of the above units should be connected to the voltage specified (AC 100V-240V) through a free voltage adapter which can be converted to DC 12V from AC 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 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 safety instructions will result in burning of the cable, or risk of fire.
- Use only the main power cord recommended by the manufacturer or provided with the unit.

Stirring Action

Stirring test can be performed without placing a beaker, or flask on top of top plate, through the following procedure;

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

Section 3 Operation

To **start** the Stirrer, follow the procedure below.

- (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.

To **stop** the Stirrer, follow the procedure below.

- (1) After stirring is completed, turn the knob counterclockwise to off.
- (2) By inertia, the magnetic stirring bar may continue spinning for a short time, even if the LED lamp is off.

CAUTION

Do not exceed the maximum load of 10kg for Magnetic Stirrer RT Basic 12, and 20kg for Magnetic Stirrer RT Basic 17, respectively.

Section 4 Maintenance

Maintenance procedures for these units follow.

Periodic Maintenance

Classifications	Time Period	
	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	•	

Cleaning

Top plate

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

Plate cover

- Remove any contaminant by cleaning the unit frequently with a soft cloth before and after using, otherwise the cover may become difficult to clean.
- Always keep the unit clean, without any contaminants.

WARNING

- Do not immerse the unit in water for cleaning.

To Store the Unit

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

Section 5 Troubleshooting

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.
Building circuit breaker keeps going OFF.	Electrical short or too many plugs in.	<ol style="list-style-type: none"> 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. (Magnetic Stirrer RT Basic-12 & Magnetic Stirrer RT Basic-17)	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 malfunctioning.	Request service.




Section 5
Troubleshooting

Symptoms During Operation	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.

Section 6 Accessories

Plate Covers Catalog No.	Description
88880144	Plate cover (White color, Silicon Ø120cm)
88880145	Plate cover (White color, Silicon Ø170cm)
88880146	Plate cover (White color, Silicon Ø220cm)

Section 7 Specifications

MODEL		Magnetic Stirrer RT Basic 12	Magnetic Stirrer RT Basic 17	Magnetic Stirrer RT Basic 22
				
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 (Ø x L, mm/inch), Max.	8 x 30 / 0.31 x 1.18	8 x 40 / 0.31 x 1.57	10 x 50 / 0.39 x 1.97
	Load, Max (kg / lbs)	15 / 33.07	20 / 44.09	25 / 55.12
Top plate	Material	Poly propylene with non-slip plate cover		
	Dimension (mm, Ø)	120	170	220
General data	Body material	Poly propylene		
	Dimension (mm/inch, W x D x H)	130 x 130 x 65 /	185 x 185 x 65 /	230 x 230 x 65 /
		5.12 x 5.12 x 2.56	7.28 x 7.28 x 2.56	9.06 x 9.06 x 2.56
	Weight (kg / lbs)	0.6 / 1.32	0.9 / 1.98	1.1 / 2.43
	Permissible ambient temperature (°C)	+5 ~ 40		
	Permissible relative humidity (%)	up to 80		
	Electrical requirements	DC 12V x 1A Power adapter with free AC 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		

Disposing of the Unit

Before disposing of the magnetic stirrer:

1. 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. Contact your local governing body for regulations regarding disposal of electrical, metal (brass, aluminum, steel and stainless steel), refrigeration and rubber components. Thermo Fisher Scientific recommends the user find a local recycler or laboratory equipment recycler to properly dispose of the unit and its components.

THERMO FISHER SCIENTIFIC STANDARD PRODUCT WARRANTY

The Warranty Period starts two weeks from the date your equipment is shipped from our facility. This allows for shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner during the first year warranty period.

During the first two (2) years, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, labor included. Installation and calibration are not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, glass, filters and gaskets are excluded from this warranty.

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