

Compact Digital Rocker

Compact Digital Waving Rotator

Operation Manual 9240-11-016



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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MANUAL NUMBER

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REV	ECR/ECN	DATE	DESCRIPTION	By

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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Section 1 Warnings and Cautions

WARNING

Ignoring the following warnings could cause serious injuries or even fatal accidents.

Check and connect properly -the voltage, phase and capacity of power supply on the ID plate before installation.

Power supply must be properly grounded. Abnormal grounded connection causes serious damage. Grounded connection must not be on the water pipe and gas pipe.

Use correct and provided power code.

Power cord: Wall outlet with grounded terminal power cord 250V 7A.

Do not install the product in the place that the gas could leak out. Do not use in a place that has industrial oil smoke and metallic dust. It causes fire or electric shock.

Do not use the machine near places where explosion can occur due to organic evaporating gases.

Explosive materials: Acid, Esther, Nitro compound

Inflammable materials: salt peroxides, inorganic peroxide, salt acids.

Check equipment for permissible environmental conditions when used inside Temp. & Humid. Chamber or Incubator. It can be cause of fire or trouble by shaker electricity, electronic, and damage of motor.

Shaker Permissible environmental condition; Temperature 2°C to 60°C, Maximum relative humidity 80%.

Wear your personal protective equipment in accordance with the hazard category of the medium to be processed. Splashing liquids, projectile parts, body parts, hair, clothing and jeweler getting caught.

Unplug, when there is strange sound, smell and smoke from the product. Stop operating and request service.

Keep out of the direct sunlight. It may influence that product life and operation properly.

Do not use the machine at places where moisture is high and flooding can be happened.

Do not assemble, repair, modify on your own. The product may not work well and electric shock change the efficiency of the product. Also this will void the warranty.

Section 1

Warnings and Cautions

CAUTION

Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

Do not put heavy things on the power line. Do not put the machine on the line. It may take off the wire coating and cause electric shock or fire.

Do not touch it with wet hands and put the main plug correctly. It may cause the electric shock or injuries.

Install power outlet near instrument for convenience.

Do not install the stirrer near machinery generating high frequency noise. Avoid installed from high frequency- welding machine, sewing machine, and mass SCR controller.

Do not inject any liquid and inflammable things inside of product.

Do not pure water or put liquid on the top of the product when cleaning.

Intercept the main power immediately and request the service when water may be in the product.

Do not let the product take any strong shock or vibration. It causes abnormal operation or trouble. It may deteriorate the ability of the product and not obtain correct results.

Do not sprinkle insecticide or flammable spray on the product. Use smooth cloths. Cleaning with solvent can cause fire and deformity.

Power off while product cleaning.

It may cause the electric shock or fire.

Disconnect the power plug if some sounds and burning smell, smokes occur. And request service.

Do not let the product take shock by falling down. It will cause wrong operation and malfunction.

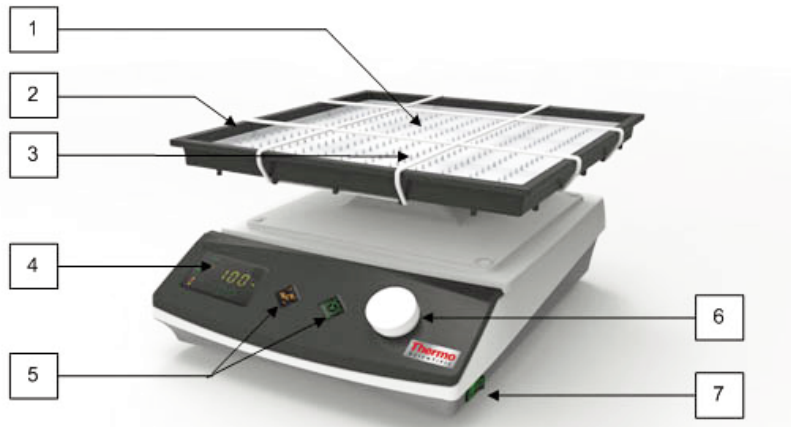
Section 2 Functional Descriptions

Compact Digital Rocker / Compact Digital Waving Rotator is commonly used for mixtures, homogenizing and various hybridization, immunocytochemistry reaction or gel staining / destaining process and over biotechnology.

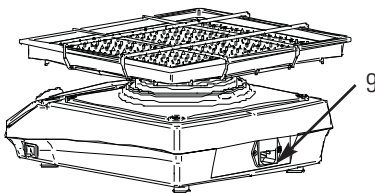
Features

- (1) The Compact Digital Waving Rotator/Compact Digital Rocker is designed to be user safe in laboratories with convenient and easy to follow features.
- (2) The shaker is suitable to use low speed (Compact Digital Rocker: 5rpm, Compact Digital Waving Rotator: 8rpm) for sensitive response or test.
- (3) User can easily choose the instruments rotating speed (Compact Digital Rocker: 5-100 rpm, Compact Digital Waving Rotator: 8-100 rpm) for their own purposes.
- (4) The controller display uses VFD (Vacuum Fluorescent Display). It is easy to indicate stirrer set up and operating condition.
- (5) Operator-friendly tilt angle can be set for their own purpose tests.
 - Compact Digital Rocker : Tilt 7 ~ 13° adjustable
 - Compact Digital Waving Rotator : Tilt 0 ~ 13° adjustable
- (6) If the angle is set at 0° on waving shaker, it can be used as small orbital shaker.
- (7) Designed for convenient use of experiment chamber (incubator, oven and etc).
- (8) User can easily indicate equipment operating time. Also convenient timer setting. (1 min to 99 hour 59 min).
- (9) The tray has the efficient size to be used with 6 well-plates and can be separated from main body to maintain in clean condition.
- (10) Optional 3 different non-slip mats series. (Refer to Accessories section.)

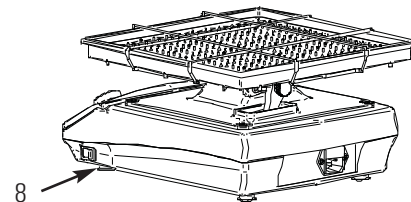
Construction



- (1) Non-slip pad: Non-slip pad protect sliding of glassy flask and baker etc. (Optional 3 different non-slip mats series. (See Accessories section.)
- (2) Tray: to be placed sample or carried.
- (3) Rubber bands: to fix and tie the sample. (See Accessories section.)
- (4) VFD panel & Controller: The panel indicates product setting and control condition.
- (5) Touch Button: to choose RPM or TIMER individually, operating by orange and green LED lamp
- (6) Dial Knob: to set a shaking speed / timer and start / stop.
- (7) Power switch: the main ON/OFF switch and supplying power of the product.



[Waving Rotator back]



[Rocker back]

- (8) Foot: to prevent from slippery and support main body
- (9) Socket: Connect the power cable on the socket.

Section 3 Installation

Check to see if there is any damage in the instrument packaging before unpacking. Then unpack the instrument carefully. Inspect to see that the instrument was not damaged during transportation.

Checking Instrument Components

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

BASIC COMPONENT	QUANTITY/ RECEIVED	DESCRIPTION
Operating Manual	1/OK	-
Main unit	1/OK	-
Power cord	1/OK	-
Dimpled mat	1/OK	-
Rubber bands	2/OK	-

Installation Environment

- Temperature: 2°C ~ 60°C
- Relative Humidity: RH 10% ~ 80%
- Maximum Altitude: Up to 2000m

WARNING

- The unit should be located away from naked flame sources, direct sunlight. It can cause a malfunction or lower the function.
- Place the unit onto a table as far as possible when in use and keep suitable distance from other instruments.

CAUTION

- Do not place the unit near other laboratory equipment which can be readily influenced, even by weak motor vibration.

Fixing Feet and Keeping Balance

STEP 1: Gently press the feet on the table.

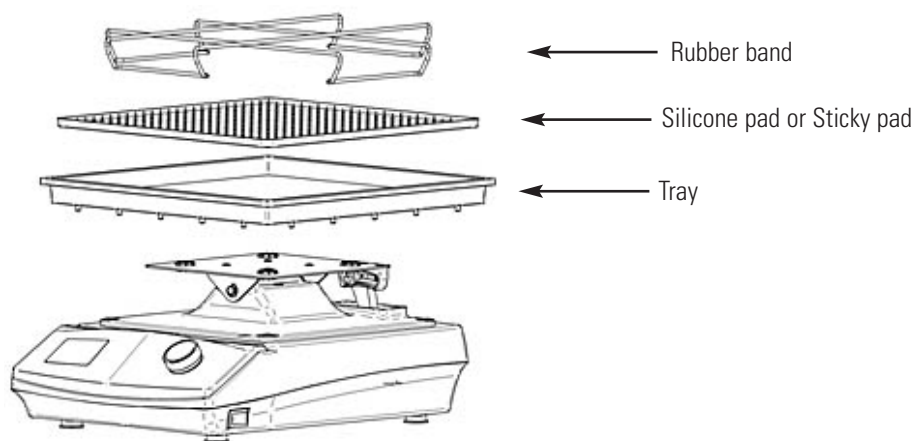
STEP 2: Check that the shaker is level.

Tray Installation

Install the provided tray with main body as follows. It can be used by installing non-slip pad as necessary.

STEP 1: Put the protrusions of tray into the 4 holes of main body.

STEP 2: Check if the tray is fitted perfectly.

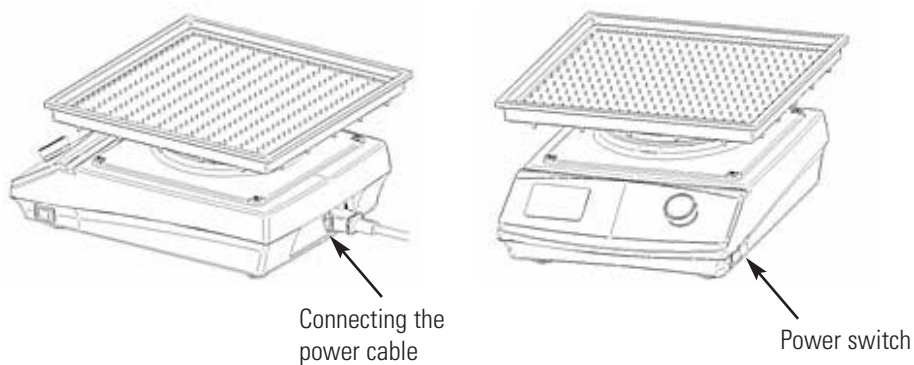


Connecting to the Mains Power Supply

Connect the electric power to the unit according to the following process.

STEP 1: Switch off the main switch before connecting AC power cable.

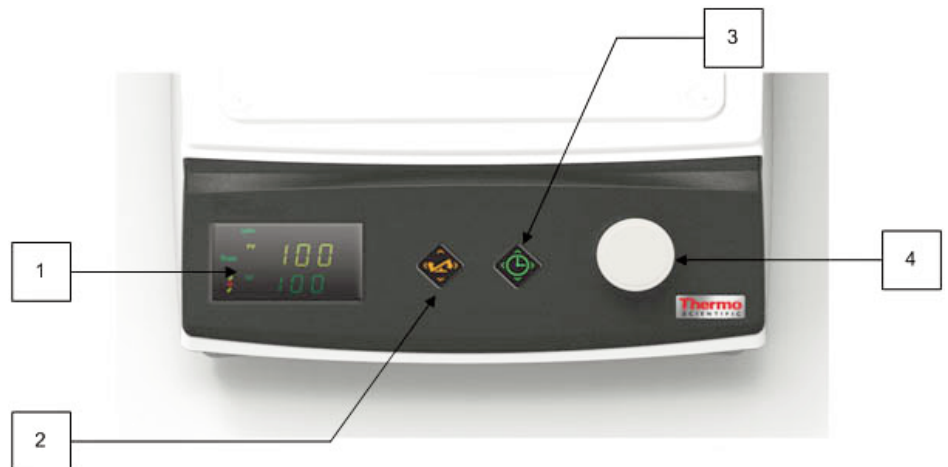
STEP 2: Connect the power cable to the socket located on the unit back.



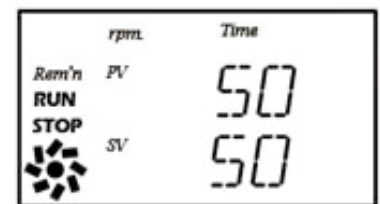
⚠ WARNING

- Use only the power cord supplied with unit.

Section 4 Operation



- (1) VFD (Vacuum Fluorescent Display):
Check status of unit on display.



rpm : Just indication below PV and SV show RPM.

Time: Run time or Indicating Timer mode.

PV: Current RPM

SV: Setting RPM

Run: It indicates the unit works.

Stop: It indicates the unit stops.

Rem'n: It shows remaining time during Timer mode operation

- (2) RPM button: It indicates that the unit works. RPM can be verified during Timer mode operation.



Compact Digital Rocker



Compact Digital Waving Rotator

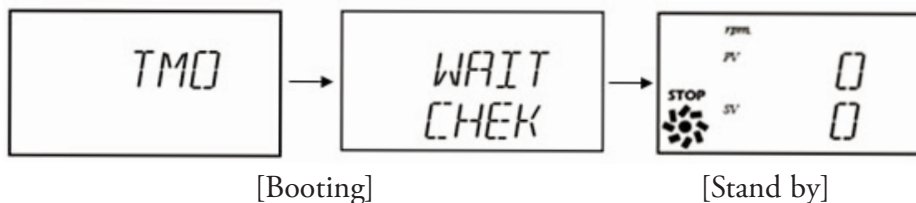


- (3) TIME button : Timer and Run time can be verified

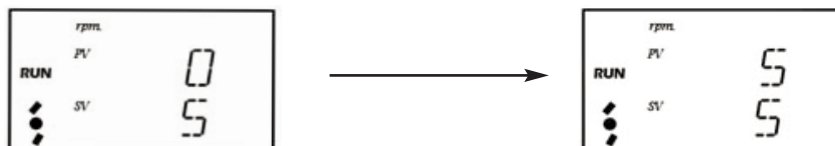
- (4) Dial knob : RPM setting, Input time, or stop the unit


Start and Stop

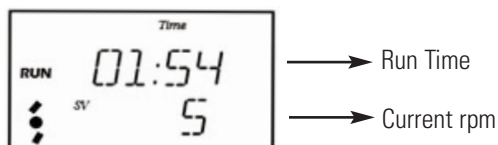
(1) Turn on the switch at the right bottom of the unit.



(2) Dial the knob and set the desired RPM.



(3) Run time can be verified during shaking if you press  button.



Display returns to previous display about after 10 seconds.

(4) You can stop the unit if you rotate or press the dial knob.

How to Set the Timer

(1) Press button when the unit stops.



(2) Time input display shows when you press the dial knob.



* Input Hour/Min : Hour blinks during setting.

STEP 1: Input hour by rotating dial knob to right or left direction.

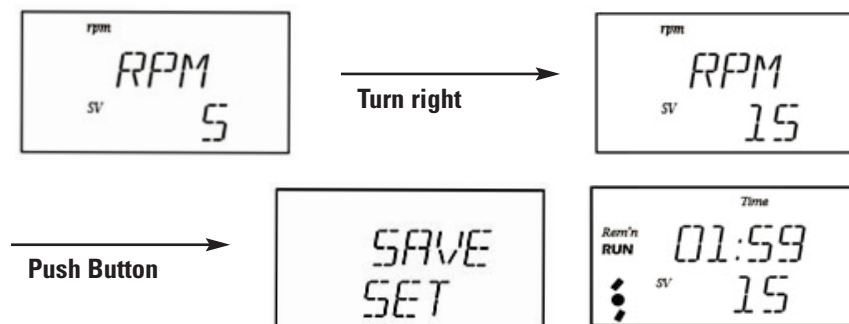
STEP 2: Press dial knob 1 time.

STEP 3: Input minute by rotating dial knob to right or left direction.

STEP 4: Press dial knob 1 time. Display moves to next mode (RPM setting)

How to Set the Timer (continued)

(1) Input RPM by dialing the knob. Press dial knob 1 time to save set value and unit starts shaking. Remaining time and set value (RPM) shows on display.



(2) Shaking stops and alarms when the time is terminated. If you press dial knob or touch button, display returns to stand by status.



Stop Timer Mode

Timer function can stop as follows;

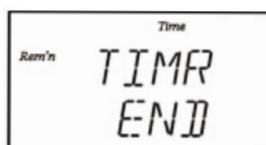
STEP 1 : Press the dial knob.



STEP 2 : Choose STOP YES by rotating the dial knob to the clockwise.



STEP 3 : Press the dial knob.



⚠ CAUTION

- Stop button does not work during timer function. Please, read carefully Stop Timer Mode section before using timer function.

NOTICE

- RPM can be set from 5 rpm.
- If Timer button is pressed during timer setting, the unit returns to Stand by display. Time and RPM can be set if Timer button is pressed again.

How to Adjust Shaker Angle

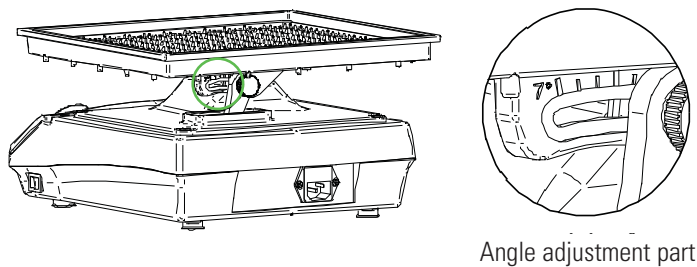
Compact Digital Rocker

There is an adjustable angle screw under platform at the rear. Range of angle is 7° to 13°.

STEP 1: Rotate 1 round of adjustable screw to clockwise.

STEP 2: Move the screw to set desired angle.

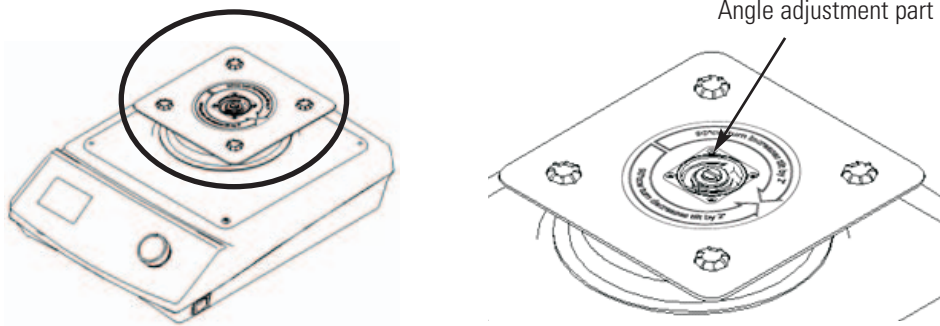
STEP 3: Rotate the screw to anti clockwise to fix the angle.



Compact Digital Waving Rotator

STEP 1: Lift up the tray with your hands.

STEP 2: Rotate the screw at the center with screwdriver or coin to set the desired angle.



Section 5 Maintenance

Classification	Inspection cycle	
	Daily	Weekly
General		
Power cord		
- Inspect power cord connection at unit and receptacle.	•	
- Inspect power cord for wear, cracks or cuts.	•	
Cleanness for the surface of the unit.		•
Body unit		
Controller display checking	•	
Controller function		•
Motor on/off checking	•	
Attachment connection checking	•	

Cleaning of Tray and Unit Body

Remove any contaminant by cleaning the unit with a wet soft cloth.

Keep the unit clean always by cleaning the unit with a dry soft cloth.

WARNING

- Do not soak the product in the water to clean.

Keeping Product

- (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 6 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 in case of circuit breaker shuts down.
	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.
	Reagents spill into the unit, and break the circuit inside the unit	Request service.
Room circuit breaker trips often when the unit is turned on or running	Too many plugs connect at the same time	<ol style="list-style-type: none"> 1. Check the circuit breaker size along with the voltage and current supplied to it. 2. Check that several similar units are inserted together, if so, you should not use overly.
VFD display does not illuminate	Power interruption	Check for power interruption
	Main plug is not inserted correctly	Check electrical cord connection at the unit to ensure it is fully seated.
Button doesn't work	Power interruption	Check for power interruption
	Button switch has damage	Request service.

Section 6
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.
	Check the electrical cord connection at the instrument to ensure it is fully seated	If the socket / plug / main power line are cut, request service.
	PCB is damaged by reagent	Request service.
Room circuit breaker trips often when the unit is turned on or running	Too many plugs connect at the same time	1. Check the circuit breaker size along with the voltage and current supplied to it. 2. Check that several similar units are inserted together, if so, you should not use overly.
	Product internal circuit problem	Request service
No VFD	Power failure	Check for power interruption
	Main plug is not seated properly	Check electrical cord connection at the unit to ensure it is fully seated.
Button doesn't work	Power failure	Find out causes of power failure and recovery.
	Button switch is damaged	Request service.

Error Message on Display

Symptom	Cause	Action
OVER LOAD	Overloaded by the amount of work overload on the motor	Use in a fixed range of uses.
	Motor driver board problem	Request service.
	Average life of motor ends	Request service.
WARN KEY	In the key of button pressed	Request service in case symptoms remain.
MOTR CHEK	Motor driver board problem (communication part)	Request service.
	Bad wiring connection between the motor driver and motherboard	Request service.
If buzzer rings with no display.	Sub CPU problem	Request service.

Section 7 Accessories

Item	Component	Cat. No.	Size (mm / inch)
Rubber Mat	Tray	88880101	276 X 276 / 10.84 X 10.84
	Sticky pad		250 X 250 / 9.84 X 9.84
Dimpled Mat	Tray	88880102	276 X 276 / 10.84 X 10.84
	Silicone pad		250 X 250 / 9.84 X 9.84
Universal Harness	Tray	88880103	276 X 276 / 10.84 X 10.84
	Sticky pad		250 X 250 / 9.84 X 9.84
	Rubber bands (6ea)		-
Rubber bands	Rubber band	88880105	-

Section 8 Technical Specifications

MODEL	Compact Digital Rocker	Compact Digital Waving Rotator
Control System	Feedback Control with PID	
Display	VFD	
Shaking system		
Motion type	Rocking type	Waving type
Speed range (rpm)	5 ~ 100	8 ~ 100
Speed accuracy at 100 rpm	± 5% rpm	
Adjustable tilt	7 ~ 13°	0 ~ 13°
Max. load (kg/lbs)	5 / 11.02	
Dimension		
Tray (W X D, mm / inch)	276 X 276 / 10.87 X 10.87	
Overall (W X D X H) (mm / inch)	276 X 320 X 150 / 10.87 X 12.6 X 5.91	
Net weight (kg / lbs)	3.7 / 8.16	
Materials		
Main body	PP (Polypropylene)	
Dimpled mat	PP (Polypropylene) + Silicone	
Electrical data		
Normal voltage, Hz	100 ~ 240VAC, 50/60Hz	

**Specifications can be changed without prior notice for quality upgrade.*

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.

Replacement or repair of components parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any components or equipment. At Thermo's option, all non-conforming parts must be returned to Thermo Fisher Scientific postage paid and replacement parts are shipped FOB destination.

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