

Operation Manual

ROCKING SHAKER
WAVING SHAKER

Model : CRS-350 / CWS-350

Manual No.: 00HAA0001244 Version: 2.2

JEIOtech



⚠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.

Thank you for purchasing JEIOTECH's products.

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.

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Quality Management System ISO 9001



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1.0 Safety Advice

1.1 Operation 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 WARNING/CAUTION/NOTICE Alerts

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

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

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) 2. 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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1.4 Warning statement

⚠WARNING
Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Please 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.

Please 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. Does not use in the place that has the industrial oil smoke and the metallic dust. It causes fire or electric shock.
Do not use the machine near to places where explosion can be happened due to organic evaporating gases.
Explosive materials: Acid, Esther, Nitro compound
Inflammable materials: salt peroxides, inorganic peroxide, salt acids.

Please check equipment Permissible environmental condition when you use inside of Temp. & Humid. Chamber or Incubator.
It can be cause fire or trouble by Shaker electricity, electronic, and damage of motor.
Shaker Permissible environmental condition
: Temperature 2℃ to 60℃, 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.
Please stop operating and request the 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 in the efficiency of the product. Also you cannot get after service by warranty regulation

1.5 Caution statement

⚠ 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 causes the 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.

Installation power outlet near instrument and may be convenient.

Do not install the stirrer neat machinery generating high frequency noise.

Please 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.

Please 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.

Please power off while product cleaning.

It may cause the electric shock or fire.

Put off the power plug if some sounds and burning smell, smokes are happened. And request the service.

Do not let the product take shock and fall down product.

It will be caused by wrong operating and malfunction

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2.0 Functional Description

2.1 Introductions

Rocking/waving shaker is commonly used for mixtures, homogenizing and various hybridization, immunocytochemistry reaction or gel staining / destaining process and over biotechnology.

2.2 Feature

(1) The CWS/CRS is aimed to be user safe in laboratories, convenient and follow features.

(2) The shaker is suitable to use low speed (5pm) for sensitive respond or test.

(3) User can choose easily the instruments rotating speed (5~100 rpm) for their own purposes.

(4) The controller display adopts VFD (Vacuum Fluorescent Display). It is easy to indicate stirrer set up and operating condition.

(5) Operator friendly set the tilt angle of their own purpose tests.
- Rocking shaker: Tilt 7 ~ 13° adjustable
- Waving shaker: Tilt 0~ 13° adjustable

(6) If you set angle 0°in case of Waving shaker, it can be used as small orbital shaker

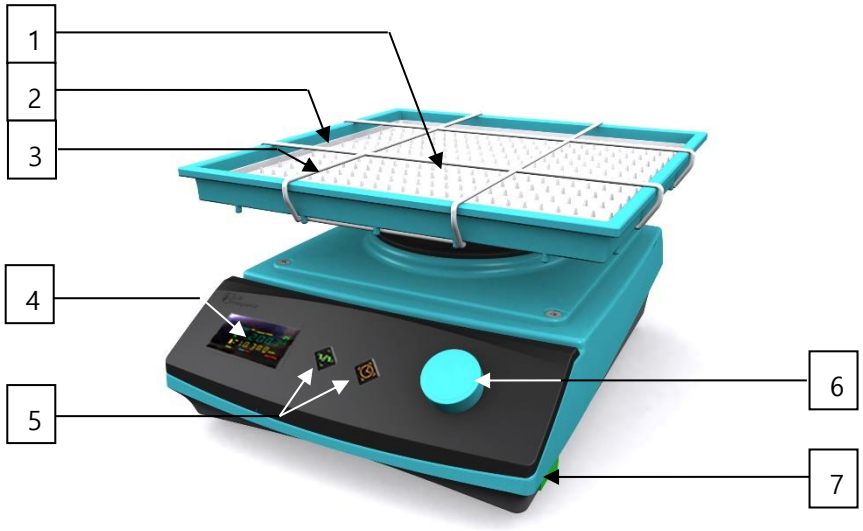
(7) Designed for conveniently use of experiment chamber (incubator, oven and etc)

(8) User can indicate easily equipment operating time. Also conveniently timer setting. (1 min to 99 hour 59 min)

(9) The tray has the efficient size to be placed 6 Well-pate and can be separated from main body to keep using in clean condition.

(10) Optional 3 different non-slip mats series. (refer. 22page8. Accessories list)

2.3 Construction



(1) Non-slip pad: Non-slip pad protect sliding of glassy flask and baker etc.
(Optional 3 different non-slip mats series. (refer. 22page8. Accessories list))

(2) Tray : to be placed sample or carried.

(3) Rubber rings : to fix and tie the sample.
(refer. 22page 8. Accessories)

(4) VFD panel & Controller: The panel indicates product setting and control condition.

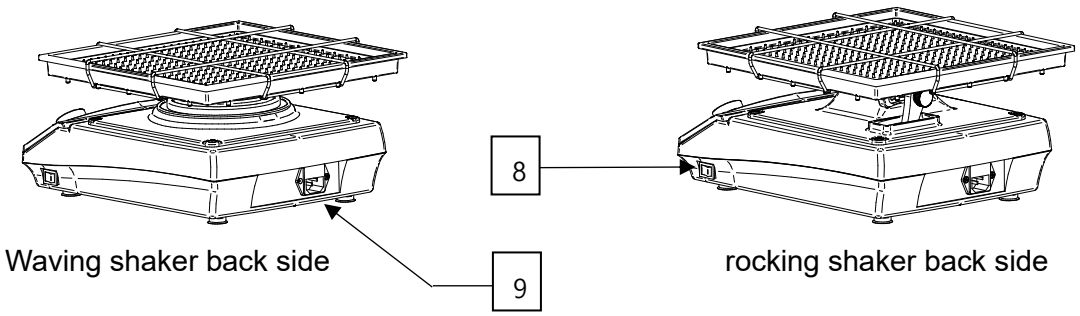
(5) Touch Button: to choose RPM or TIMER individually, operating by orange and green LED lamp

(6) Dial Knob: Knob : to set a shaking speed / timer and start / stop.

(7) Power switch: It is the main ON/OFF switch and supplying power of the product.

(8) Foot : to prevent from slippery and support main body

(9) Socket: Connect the power cable on the socket.



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3.0 Installations and Caution

3.1 Unpacking the package and Inspecting damage during transportations

(1) Check to see that the unit is not damaged before unpacking.
(2) Unpack the unit carefully.
(3) Inspect to see that the unit is not damaged during transportations.

3.2 Checking the unit components

(1) Please check the unit components supplied packaged in the package after unpacking.
(2) If noticeable damage or an omission is found, immediately notify your local Jeio Tech dealer's Service Department.

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

3.3 Installation

3.3.1 Installing environment

- Temperature: 2℃ ~ 60℃
- Relative Humidity: RH 10% ~ 80%
- Maximum attitude: up to 2,000 m

⚠WARNING

- The unit should be located away from naked flame sources, direct sunlight. It can come with the malfunction or lower the function.

3.3.2 Location conditions

Place the unit table as far as possible when in use, and keep suitable distance not to be placed from other instruments.

⚠CAUTION

- Do not place the unit nearby the other laboratory equipments which can be readily influenced, even by weak motor vibration

3.3.3 Fixing feet and keeping its balance

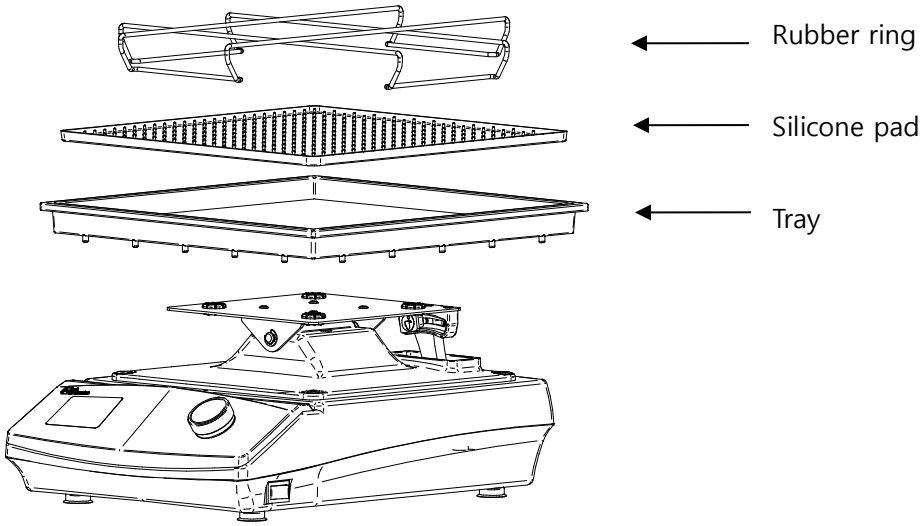
STEP 1: please gently press the feet on the table

STEP 2: please check horizontality of the shaker

3.3.4 Installation Tray (Optional)

Please 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: Please check if the tray is fitted perfectly

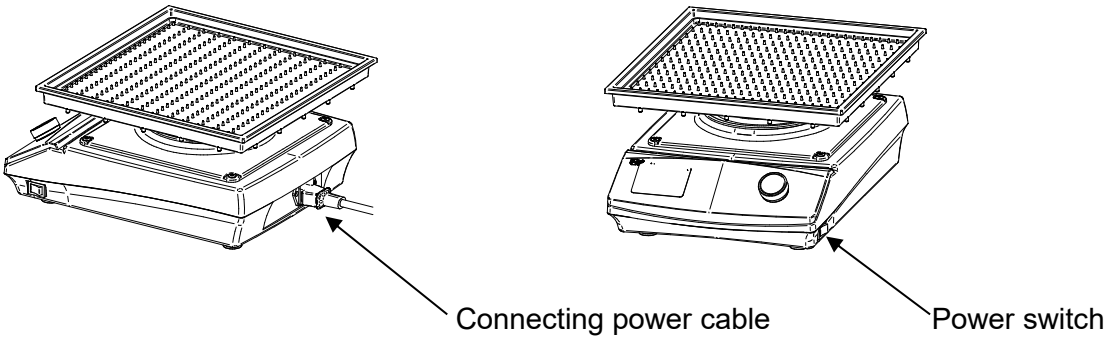


3.3.5 connecting to the mains power supply

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 on the socket located on the back side of the unit.



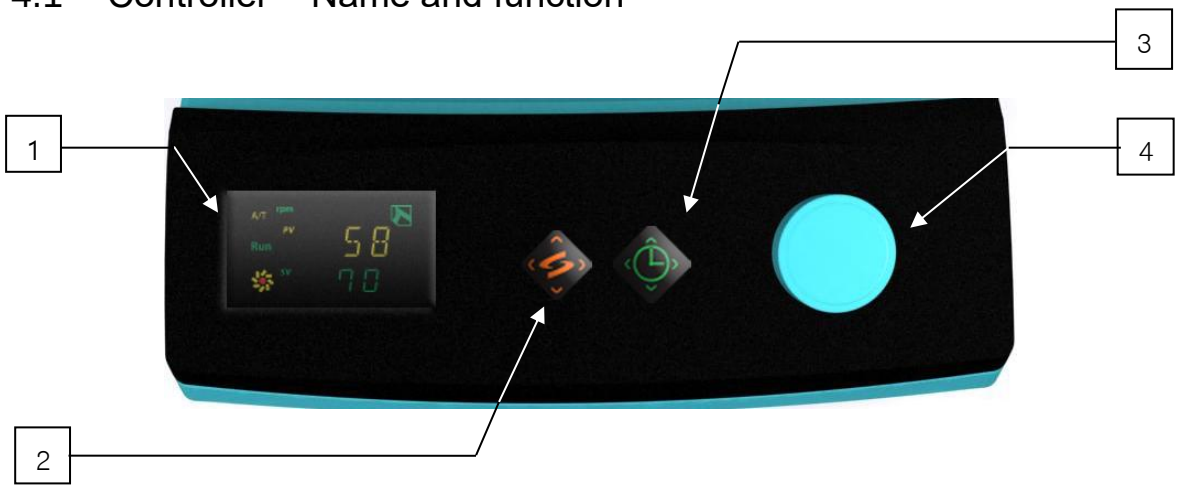
⚠WARNING

- Use the power cord only supplied with the unit.

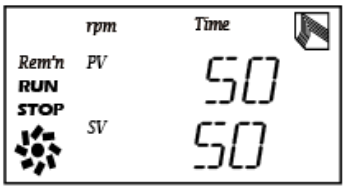
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4.0 Operation

4.1 Controller – Name and function



(1) VFD (Vacuum Fluorescent Display): Check out status of unit through VFD 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.


Rocking shaker


Waving shaker

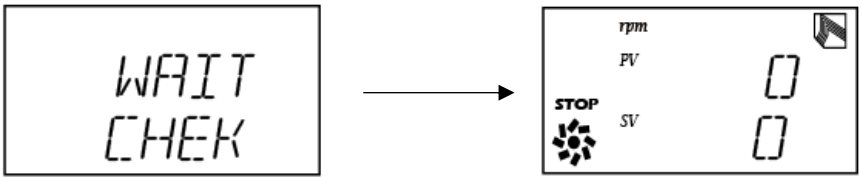
(3) TIME button : Timer and Run time can be verified.



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

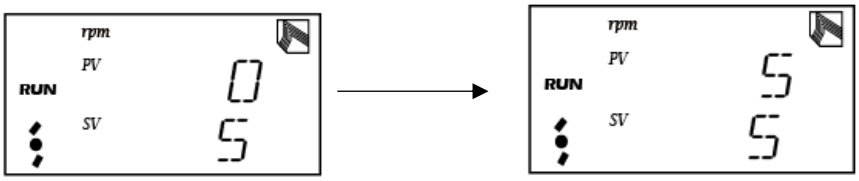
4.2 Start and stop

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

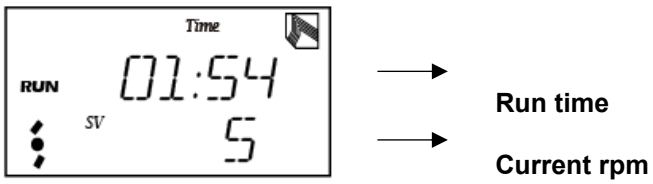


[Booting] [Stand by]

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



(3) Rum 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.

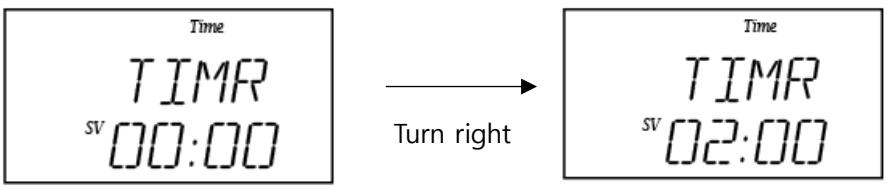
4.3 Timer function

4.3.1 How to set Timer

(1) Press  button when the unit stops.



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



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* Input Hour/Min : Hour blinks during setting.

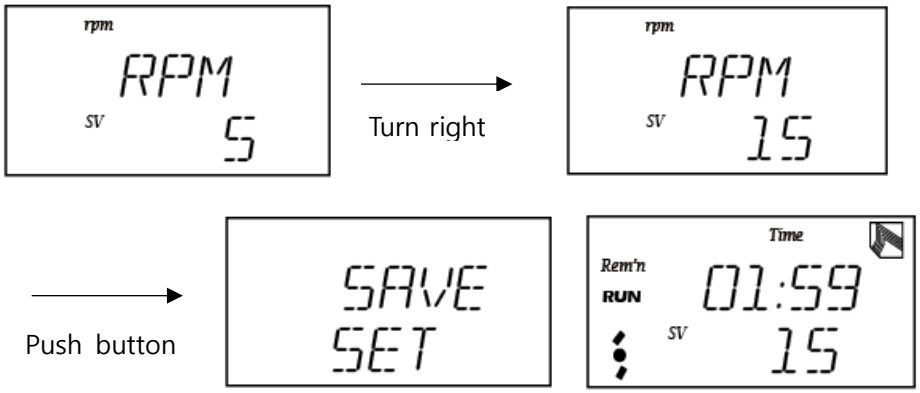
STEP 1: Input hour by rotating the dial knob to right or left direction.

STEP 2: Press the dial knob 1 time.

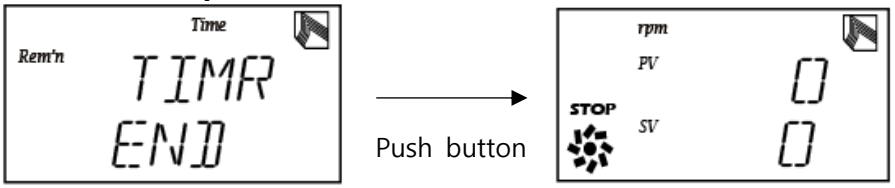
STEP 3: Input minute by rotating the dial knob to right or left direction.

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

(3) 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



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



4.3.2 Stop Timer mode

Timer function can stops 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 4.3.2 Stop Timer mode before using Timer function

NOTICE

- Rpm can be set from 5 rpm.

NOTICE

- If you press Timer button during Timer setting, the unit returns to Stand by display. Time and RPM can be set if you press Timer button again.

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4.4 How to adjust shaking angle

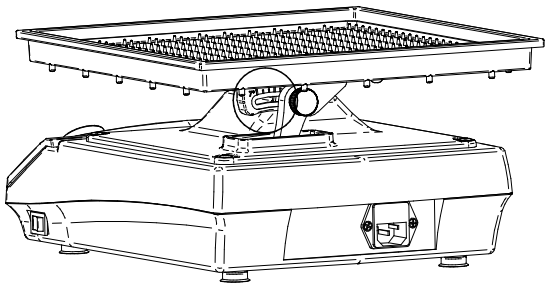
4.4.1 Rocking shaker

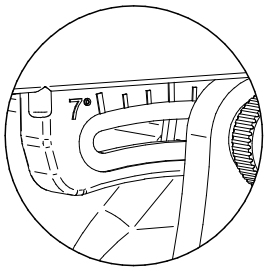
There is an adjustable angle screw under platform at the rear. Range of angle is 7° to 13°.

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.



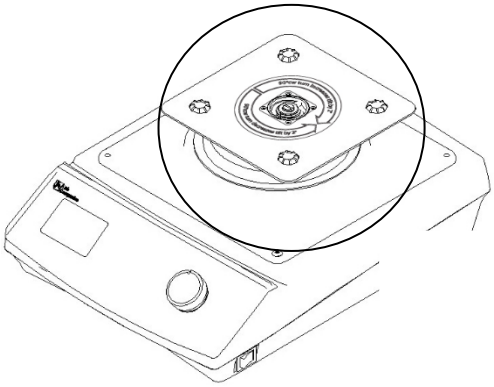


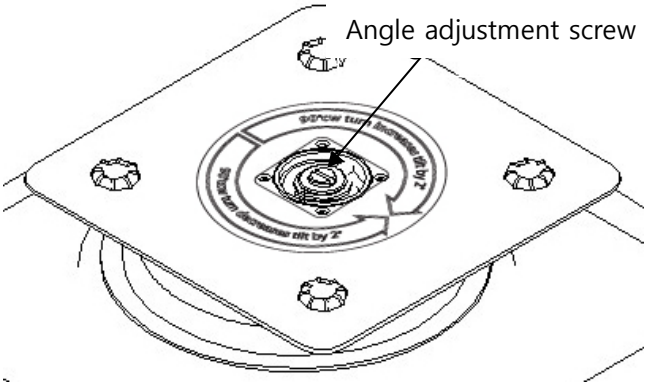
Angle adjustment part

4.4.2 Waving shaker

STEP 1: Lift up the tray with your hands.

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





5.0 Maintenance

5.1 Inspection cycle

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	●	

5.2 Cleaning for tray and accessories

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.

⚠WARNING

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

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.

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6.0 Troubleshooting

6.1 Power

Symptom	Causes	Actions
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 spills into the unit, and break the circuit inside of 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	Check the circuit breaker size along with the voltage and current supplied to it. 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 does not insert correctly	Make sure electrical cord connections at the outlet and the unit are firmly in place.
Button does not work	Power interruption	Check for power interruption.
	Button’s damaged.	Request service.

6.2 Error on the run

Symptom	Causes	Actions
Incurred while running the device if it sounds	Axis deviation in the interior of the unit	Request service.
Touch button doesn't operate well	Capacitance sensor initialization errors	Off the power switch on the power supply is blocked. In a few moments to initialize the controller power supply.
Spinning speed cannot be controllable properly.	DC Motor and circuit problem	Request service.
In case the severity of changes in rotational speed	Heavy leaning to one side of the sample tray is located	Reduce the load or tray in the center.

6.3 Error message on the 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 the 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.
In case the sound of buzzer ringing without no display.	Sub cpu problem	Request service.

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7.0 Technical Specifications

MODEL	Rocking shaker CRS-350	Waving shaker CWS-350
Shaking system		
Motion type	Rocking type	Waving type
Speed range(rpm)	5 ~ 100	
Speed accuracy	±5%	
Adjustable tilt	7 ~ 13°	0 ~ 13°
Max. load(kg)	5	
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	Silicone	
Electrical data		
Normal voltage, Hz	100 ~ 240VAC, 50/60Hz	

※ Specifications can be changed without prior notice for quality upgrade

.

8.0 Accessories

Cat. No.	item	component	Size (mm / inch)
AAA38501	Rubber mat	Tray	276 X 276 / 10.84 X 10.84
		Stick pad	250 X 250 / 9.84 X 9.84
AAA38502	Dimpled mat	Tray	276 X 276 / 10.84 X 10.84
		Silicone pad	250 X 250 / 9.84 X 9.84
AAA38503	Universal harness	Tray	276 X 276 / 10.84 X 10.84
		Rubber pad	250 X 250 / 9.84 X 9.84
		Rubber ring(6ea)	-

9.0 Warranty

9.1 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

9.2 Technical Service Contact Points

Technical Services
Address : 153 (Youngsan-dong), Techno 2-ro Yuseong-gu, Daejeon-city, 34025, Republic of Korea
Tel : +82 (0)2 -2627-3824
Website : https://www.jeiotech.com/eng/
E-mail : overseas@jeiotech.com

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9.3 Certificate of Product Warranty

This is a guide to the product quality warranty and service terms provided by JEIOTECH 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, JEIOTECH 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, JEIOTECH's liability under this warranty is limited to replacing the product or refunding the original purchase price at JEIOTECH'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 JEIOTECH Co., Ltd. Additionally, the warranty period is not extended due to free repairs. JEIOTECH 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 JEIOTECH Co., Ltd.
   * Malfunctions caused by using consumables or optional components not specified by JEIOTECH Co., Ltd.
   * Repairs performed by personnel other than JEIOTECH 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 JEIOTECH 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.
- JEIOTECH 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.
- JEIOTECH 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 JEIOTECH unless explicitly labeled as a "Warranty Amendment" and signed by an authorized representative of JEIOTECH.

• 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 JEIOTECH.
• This warranty does not apply to consumables and is non-transferable.

- The contents of this manual can be changed or upgraded without prior notice.
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