

EYELA

Cute Mixer

CM-1000

Instruction Manual



IMPORTANT

This manual is designed to use the product efficiently and safely with keeping its best performance.

**Be sure to read "Safety
precautions" before use.**



Please keep this manual in a place easily accessible to every user.

Safety precautions

1. Signal word for warning

Due to its functions and characteristics, some parts of the main unit are shaken. Touching these part during operation may cause you physical injury. However, if you learn proper information before use, you can avoid almost all these troubles.

Therefore, this manual categorizes the level of importance and danger as below with alert mark and signal word. Please follow the instructions and use the product safely.

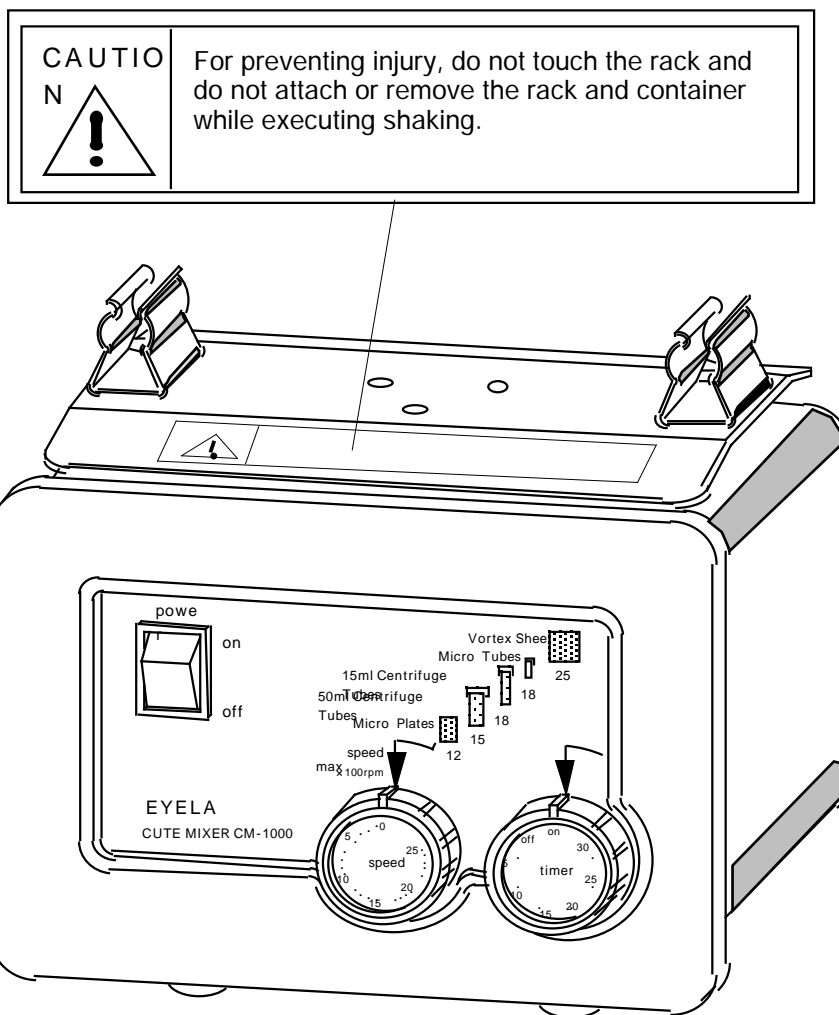
Alert mark Signal word	Definition
 WARNING	Mishandling the product may cause users serious personal injury or loss of life.
 CAUTION	Mishandling the product may injure users or cause property damage.

Though we are trying to look into conceivable risk of using the product, it is very difficult for us to expect all of it. It means that all the instructions in this manual do not cover all the types of risks that may be caused by the product. However, if you follow the instructions, you surely can handle and operate the products safely. Please use extreme care when handling this product and try to prevent all the potential accidents and mechanical failures.

Warning display on the product

For highly priority danger, warning label is attached on the machine body. The position of the label is as below. Please read the instructions carefully whenever using the machine.

If you have any trouble reading the label because it is worn out and etc., please replace with new one. Contact us if you require new label.



Congratulations on your purchase of a
EYELA product.

Introduction

This instruction manual describes the procedure of installation, operations, troubleshooting, maintenance, check-up, and disposal of CM-1000, high-speed mixer.

Please read this manual carefully before use.

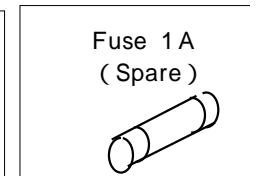
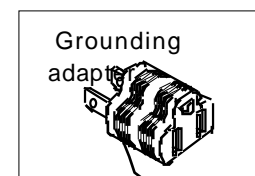
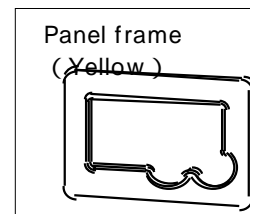
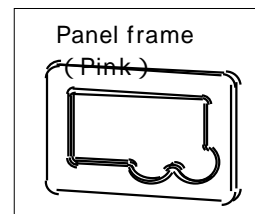
Contents

1. For safety use		
2. Outline of the product	1	
2 - 1 Use application	2	
2 - 2 How to use	2	
2 - 3 Specifications	2	
2 - 4 Options	3	
2 - 5 Name of each part	4	
3. Descriptions		
3 - 1 Operation panel	5	
3 - 2 Safety functions	5	
4. Installation		
4 - 1 Installation environment	6	
4 - 2 Installation conditions	6	
4 - 3 Utility connection	7	
5. Operation		
5 - 1 Preparation	8	
5 - 2 Setting up options	8	
5 - 3 How to operate	10	
6. Troubleshooting	12	
7. Maintenance · checkup		
7 - 1 Cleaning and caring the product	13	
7 - 2 Replacing fuse	13	
7 - 3 Replacing panel frame	14	
7 - 4 Replacing vortex sponge	15	
8. Disposal of the product	15	
9. After-sales service	16	

Items contained in your packing

Please check the type and quantity of each part before setting up.


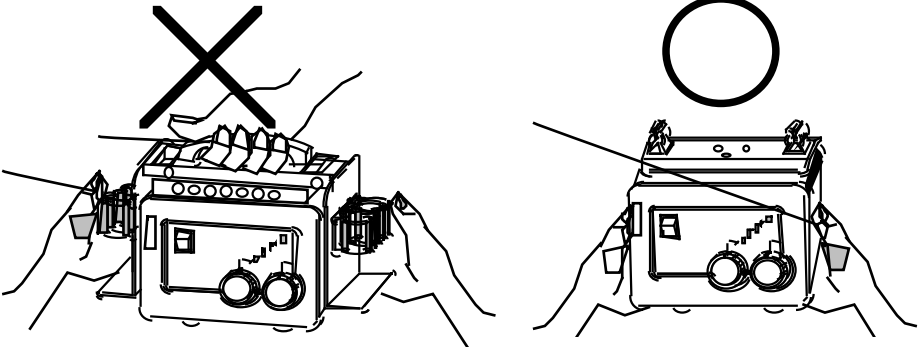


Parts	Product	CM-1000
1	Main unit	1
2	Panel frame (Pink)	1
3	Panel frame (Yellow)	1
4	Fuse 1A (Spare)	1
5	Grounding adapter	1
6	Instruction manual	1



Panel frame (green) is attached to the main unit.

1 For safety use

The shaking board of this product shakes in high speed.
Use care when handling it.

 CAUTION	<p>Do not hold the rack when carrying the product.</p> <p>Hold the main unit whenever carrying the product. If you hold the rack and carry the product, main unit may drop on the floor.</p> 
 CAUTION	<p>Do not shake the product without attaching rack or out of specified application.</p> <p>The instrument is designed to execute shaking smoothly in keeping with the loading amount. If you shake the instrument without attaching rack or out of specified shaking speed, it will cause disruption of a balance, which may move the main unit or drop down the rack or vessels. Use the unit with attaching rack and within a range of specified shaking speed.</p>
 CAUTION	<p>Raise the shaking speed from 0 to your desired speed gradually.</p> <p>Turn on the power switch after setting shaking speed controller at 0 and raise the speed gradually. If you turn on the power switch with setting the controller at high shaking speed, the main unit may move because of heavy load. Also, rack or vessel may drop down depending on the speed.</p>

2 Outline of the product

2-1 Use application



WARNING

Do not remodel the product.
Do not use the product out of specified application.
Remodeling or using the product out of specified application may cause electric shock or malfunction.

This product is a high speed mixer that is used for multipurpose such as extraction experiment of DNA and RNA, blending and dissolution of reagent and ELISA experiment.

2-2 How to use

Shaking speed can be set to adjusted to the type of the vessel. Shaking speed and timer can be set by turning the selector on the operation panel.

For more details, please refer to 「5-3 How to operate」 on page 10.

2-3 Specifications

Product name		High speed mixer (CUTE MIXER)
Model		CM-1000
Shaking system		Circling
F e a t u r e	Range of shaking speed	300 ~ 1500rpm (50ml With attaching rack for centrifuge tube) 300 ~ 1800rpm (15ml With attaching rack for centrifuge tube) 300 ~ 1800rpm (With attaching rack for micro tube) 300 ~ 1200rpm (With attaching rack for micro plate) 300 ~ 2500rpm (With attaching rack for vortex)
	Rotation amplitude	Approx. 3mm
F u n c t i o n	Setting of shaking speed	Volume setting
	Safety functions	Fuse (1 A)、Over load protection for motor
	Ancillary function	30-minute mechanical timer for operation
Motor		DC brushless motor (5W)
S p e c.	Applicable vessel	0.5ml Micro tube × 24、 1.5ml Micro tube × 24、 2.0ml Micro tube × 24、 15ml Centrifugal tube × 12、 50ml Centrifugal tube × 6、 Micro plate × 2
	Withstand load of shaking board	Approx. 1kg
Range of ambient temperature		5 ~ 35
External measurement (mm)		160 (W) × 170 (D) × 155 (H)
Weight		Approx.4.5kg
Rated supply		AC100V 50/60Hz 0.5A

External measurement includes selector, panel frame and holder for fixing rack, however it excludes the rack.

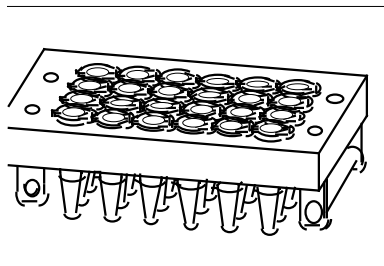
Rack is not supplied with the product. Please select your desired one from the list on the next page.

-4 Options

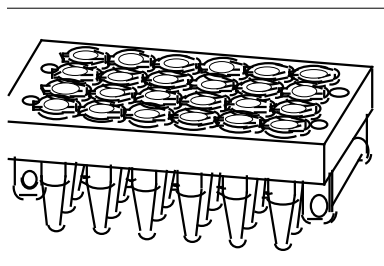
Rack is not supplied with this mixer.

Please select your desired one from the list below.

Each vessel is not supplied with each optional accessory.

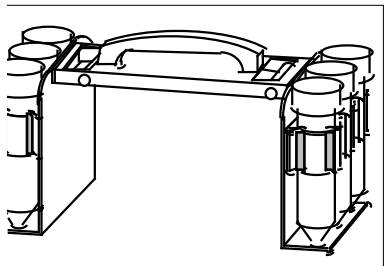


Name	0.5ml Rack for micro tube
Model	CM-R0.5
Catalogue No.	188150
Type of vessel	0.5ml Micro tube
Maximum setting number of vessel	24
External measurement (mm)	143 (W) × 95 (D) × 24 (H)

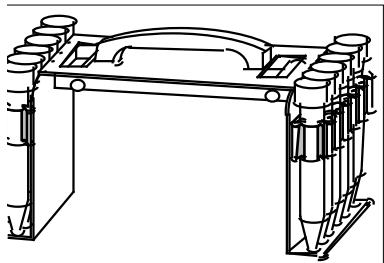


Name	1.5ml Rack for micro tube
Model	CM-R1.5
Catalogue No.	188160
Type of vessel	1.5ml Micro tube, 2.0ml Micro tube
Maximum setting number of vessel	24
External measurement (mm)	143 (W) × 95 (D) × 31 (H)

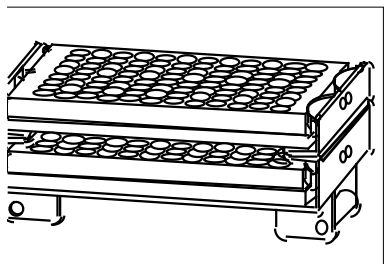
CM-R0.5 · R1.5 can be also used as a tube rack.



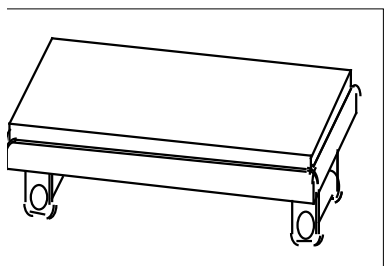
Name	50ml Rack for centrifugal tube
Model	CM-R50
Catalogue No.	188170
Type of vessel	50ml Centrifugal tube
Maximum setting number of vessel	6
External measurement (mm)	254(W) × 130(D) × 140(H)



Name	15ml Rack for centrifugal tube
Model	CM-R15
Catalogue No.	188180
Type of vessel	15ml Centrifugal tube
Maximum setting number of vessel	12
External measurement (mm)	260(W) × 150(D) × 140(H)

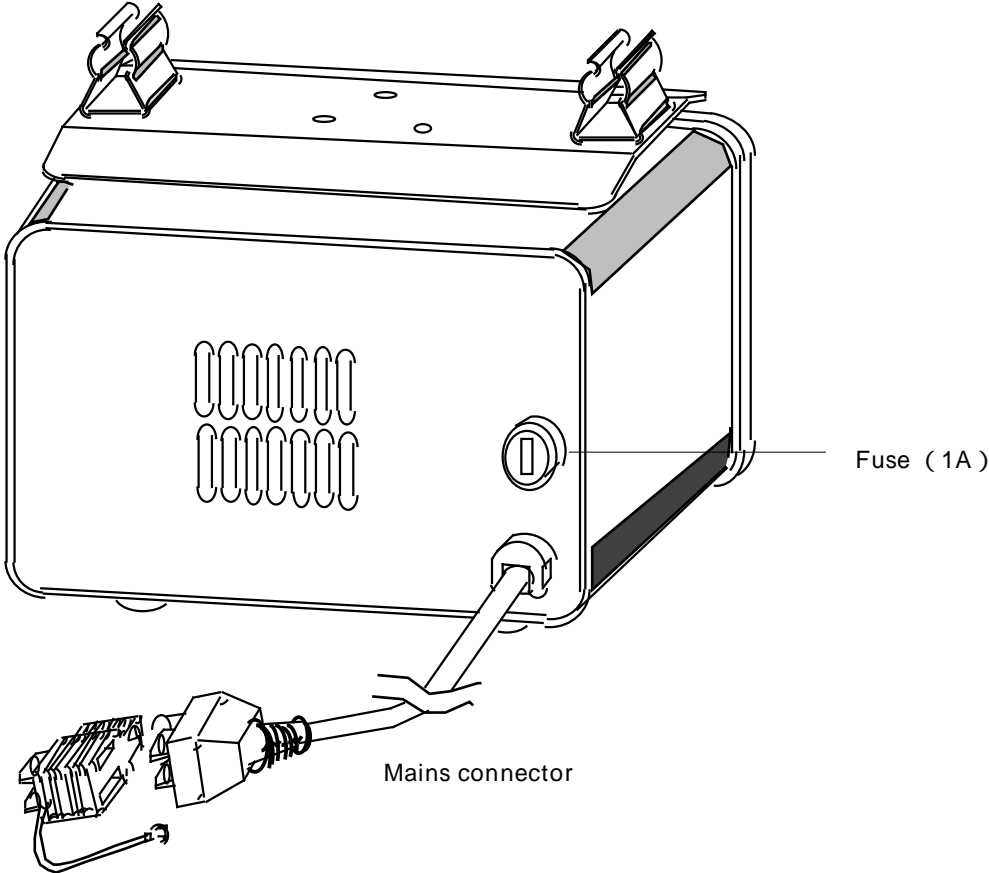
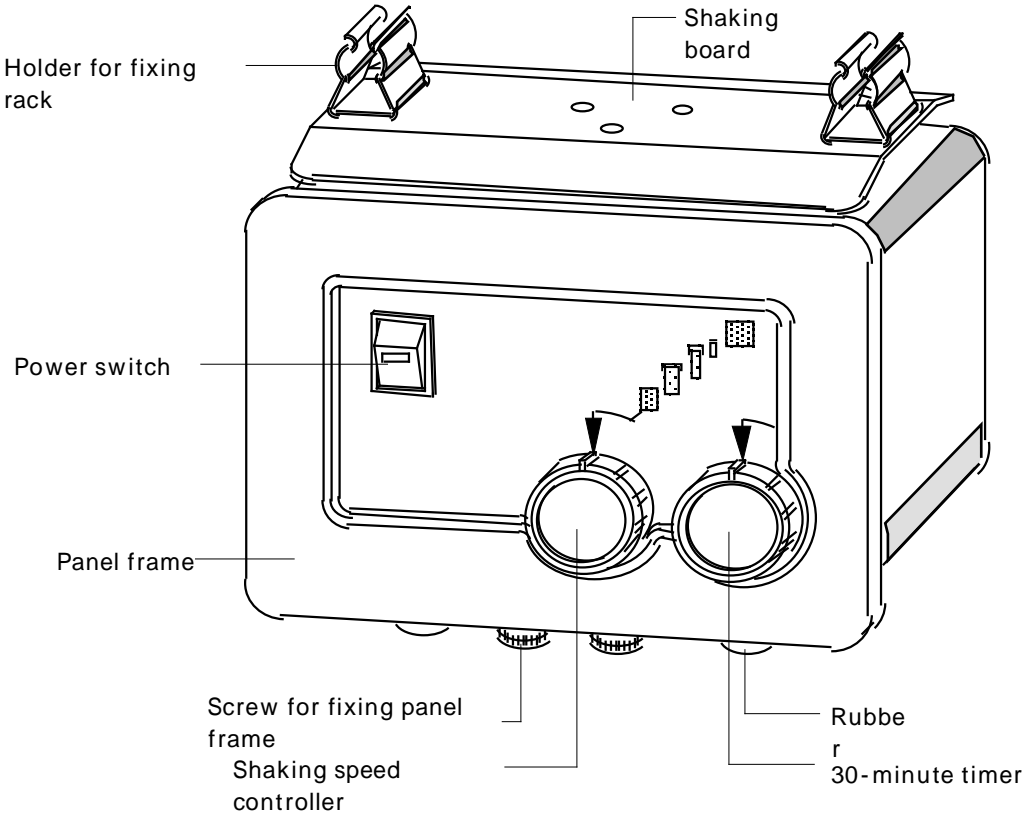


Name	Rack for micro plate
Model	CM-RP
Catalogue No.	188190
Type of vessel	Micro plate
Maximum setting number of vessel	2
External measurement (mm)	137(W) × 90(D) × 56(H)



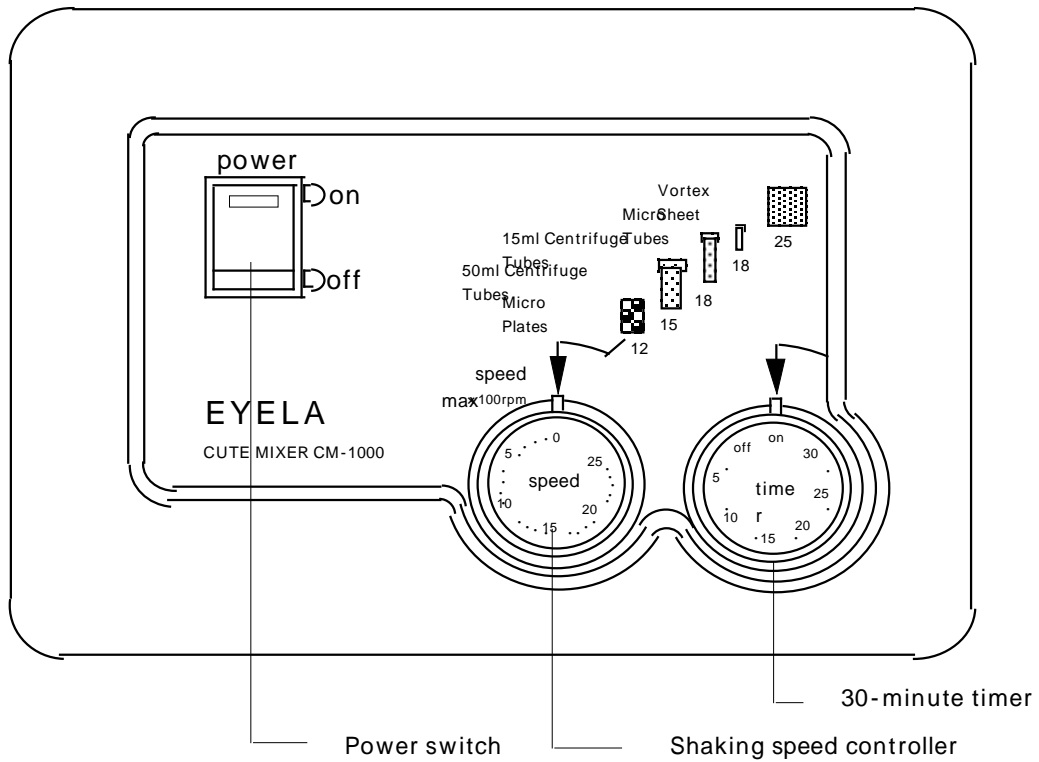
Name	Rack for vortex
Model	CM-RV
Catalogue No.	188200
Type of vessel	Any vessel that can be shaken
Maximum setting number of vessel	1
External measurement (mm)	146(W) × 90(D) × 32(H)

2-5 Name of each part



3 Descriptions of operating portion

3-1 Operation panel



NO	Name	Function
	30-minute timer	Selects operation time from 0 minute to 30 minutes.
	Shaking speed controller	Sets shaking speed.
	Power switch	Turns on and off the power.

3-2 Safety functions

This product is equipped with safety functions as below.
 When you find any trouble, please refer to "Troubleshooting" on page 12 and follow the instructions.

Safety functions

Safety device	Operation	Reasons why the device works.
Fuse	When abnormal electric current occurs, fuse blows and cuts off the power source.	Electric circuit is shortened or excess current flows.
Protection for motor's over load	Motor stops running if the motor is over-loaded for longer than 5 seconds.	Overloaded. Each rack was shaken out of specified capacity, which made the motor is overloaded.

4 Installation

4-1 Installation

⚠ CAUTION

Install the product in a leveler, stable and solid place.

This product is used for shaking and stirring the samples. If you run the product in a place where is uneven or wet with water or oil, it will fall down and be impaired, which may lead some troubles.

Select the installation site that meets the following conditions.

Leveler, stable and solid

No inflammable or any other hazardous substance around the unit.

Ambient temperature must be from 5 to 35 .

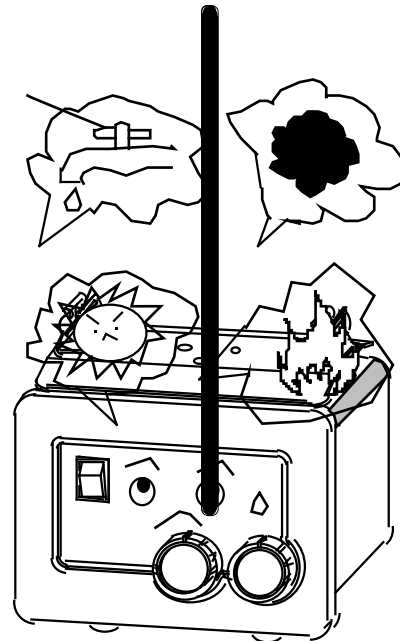
No dew condensation

Lesser humidity and no dripping falls on the unit.

Lesser dust

No direct sun light

Well-ventilated

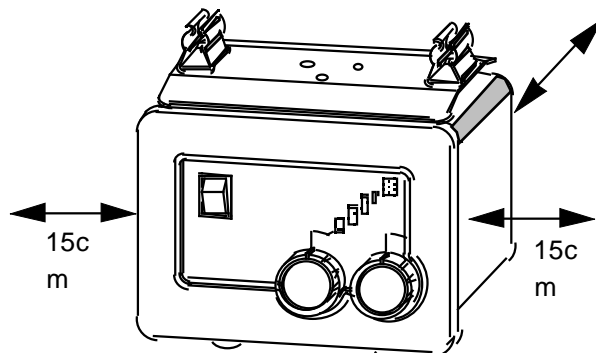


4-2 Installation conditions

⚠ CAUTION

Keep enough space around the unit.

To keep its best performance, keep the distance between the product and wall and ceiling plane longer than the length shown in the picture below.



4-3 Utility connection



WARNING

Check the voltage, phase and capacity of the power source before use.

Wrong connection may cause a fire or electric shock.



WARNING

Do not use branching socket.

Excess current may burn cable or cause a fire.

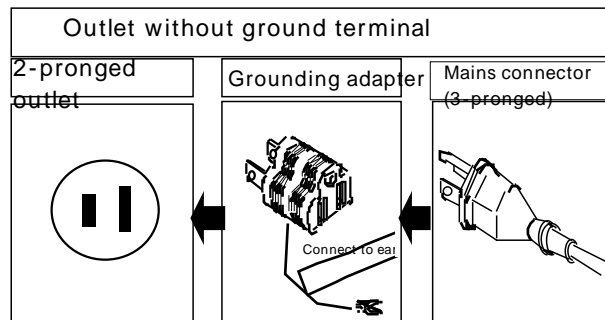
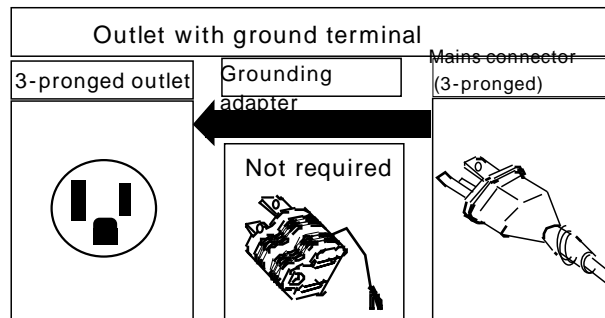
1) Check the voltage, phase and capacity of the power source.

Required power source is as shown in the right table.

Model	Required power source	
	Voltage	Capacity
CM-1000	AC100V	15A

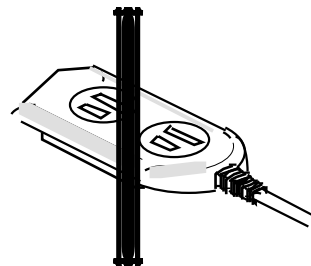
2) Check the outlet of the installation site.
(Do not plug the mains connector yet.)

Mains connector can be connected to the outlet with ground terminal.



In case the outlet has no ground terminal, set the grounding adapter on the mains connector. Connect earth wire of adapter to ground terminal. If no ground terminal is available at the site, please consult your closest electric appliance shop to conduct the third type construction work to set up the terminal.

When connecting to power source, do not use branching socket.



5 Operation

CAUTION

Set the vessels properly.

If the load on the shaking board is not well-balanced, the unit may be overloaded and cause malfunction even though the load amount for shaking board is permissible.

CAUTION

Do not shake the unit without attaching rack or out of specified shaking speed.

If the unit is shaken without attaching rack or out of specified shaking speed, the unit will disrupt a balance, which makes the unit move or drop the rack or vessels.

5-1 Preparation

- (1) Each rack is not supplied with the unit.
Prepare the appropriate vessel before using the unit by referring to "Options" on page 3.
- (2) Put the sample into the vessel before running the unit.

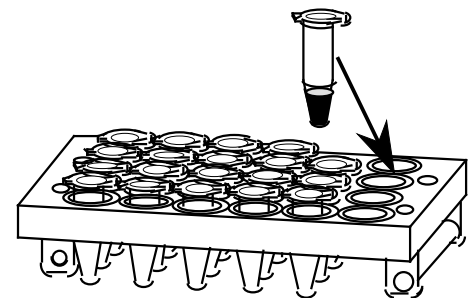
5-2 Attaching options

1 setting rack

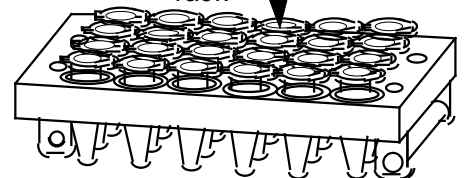
1-1. Setting rack for micro tube (CM-R0.5 · R1.5)

- (1) Put sample into the micro tube and cover with the cap.
- (2) Hold the rack for micro tube and push the micro tube into it.
- (3) Make sure that the shaker is turned off.
Turn it off if it is turned on.
- (4) Push joint bar of the rack into the holder for fixing rack (set up at two points) and tighten it.

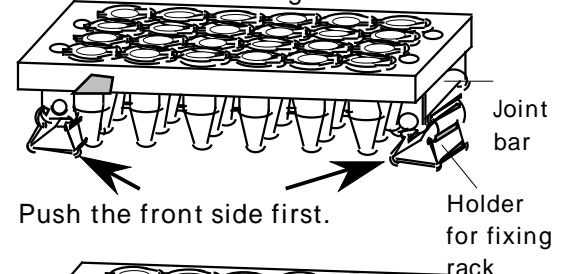
To set it up easier, tilt the rack a little bit and push the front side into the holder first, and then push the back side in.



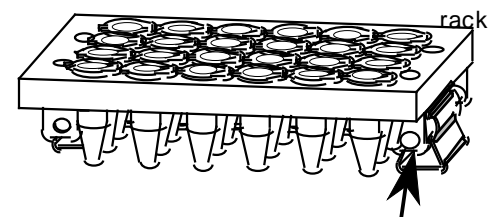
Put micro tube into the rack



Setting the tubes into the holder for fixing rack



Push the front side first.



Tighten the back or the opposite side.

1-2. Using rack for centrifugal tube (CM-R15 · R50)

- (1) Put sample into the tubes and seal them tightly with cap and put them into the holder of the rack. Attach the tubes to produce a symmetric appearance.

Number of the vessels should be even number. If you have to set odd number, prepare dummy tube and pour some water into it and attach onto the rack so that the number of the vessel should be even number.

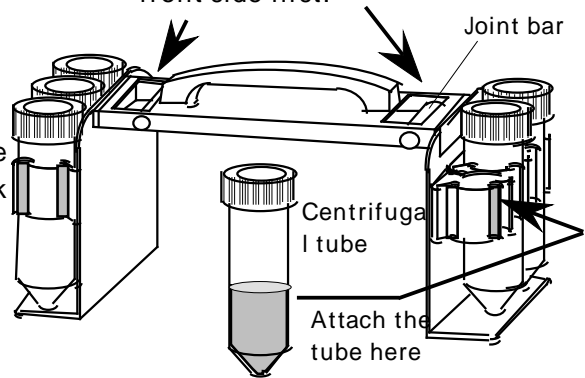
Total capacity of the 50ml tubes should be within 180ml and the capacity of each tube should be less than 30ml.

Recommended procedure of attaching tubes is shown in the right picture.

Resin coating of the holder is consumable. The life of the coating differs depending on the type of tube or arrangement of attaching tubes. Though coating is worn out or removed, it does not affect the shaking capability.

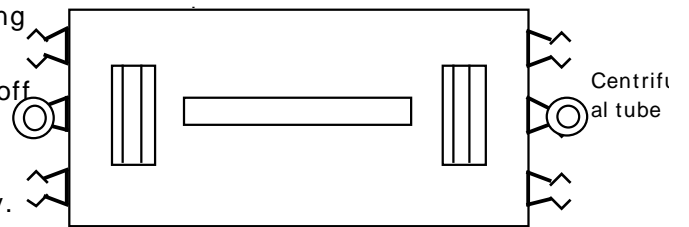
- (2) Make sure that the shaker is turned off. Turn it off if it is turned on.
- (3) Push joint bar of the rack into the holders (2 points) for fixing rack on the shaking board tightly. To attach the bar into the holder easily, incline the holder a little bit and push the bar into the front side first.
- (As for setting, please refer to "1-1 Setting holder for fixing rack" on page 8.)

Check the position of the holder through observation window and push the bar on the front side first.

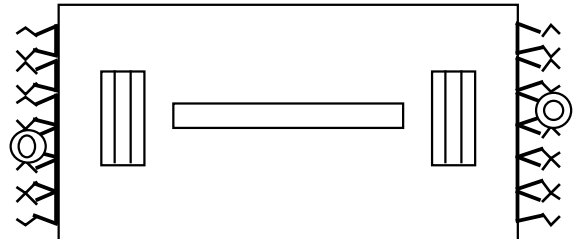


Roll the tube when attaching it to the holder.

Rack for 50ml centrifugal



Rack for 15ml centrifugal tube



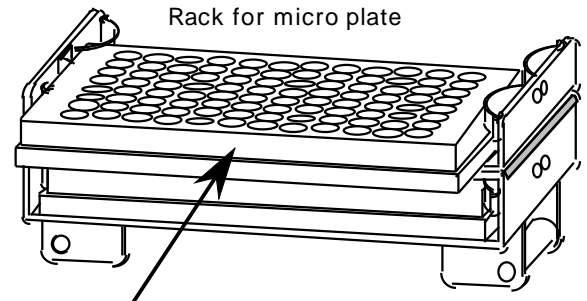
1-3. Using rack for micro plate (CM-RP)

- (1) Put samples into the micro plate.
- (2) Make sure that the shaker is turned off. Turn it off if it is turned on.
- (3) Push joint bar of the rack into the holders (2 points) for fixing rack on the shaking board tightly. To attach the bar into the holder easily, incline the holder a little bit and push the bar into the front side first.

(As for setting, please refer to "1-1 Setting holder for fixing rack" on page 8.)

- (4) Slide micro plate onto the rack to fix them tightly. Do not forget to remove the cap before attaching the plate.

Rack for micro plate



Slide the plate onto the rack

1-4. Using rack for vortex (CM-RV)

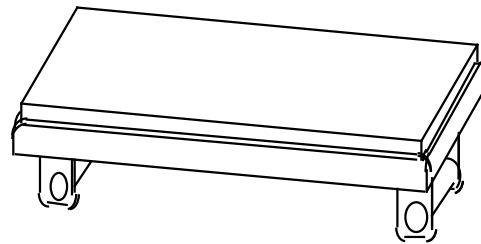
(1) Make sure that shaker is turned off.
Turn it off if it is turned on.

(2) Push joint bar of the rack into the holders (2 points) for fixing the rack on the shaking board tightly.

To attach the bar into the holder easier, incline the holder a little bit and push the bar into the front side first.

(As for setting, please refer to "1-1 Setting holder for fixing rack" on page 8.)

Rack for Vortex



5-3 How to operate

1. Continuous running

(1) Make sure that shaking speed controller points at "0" and 30-minute timer is turned before turning on power switch.

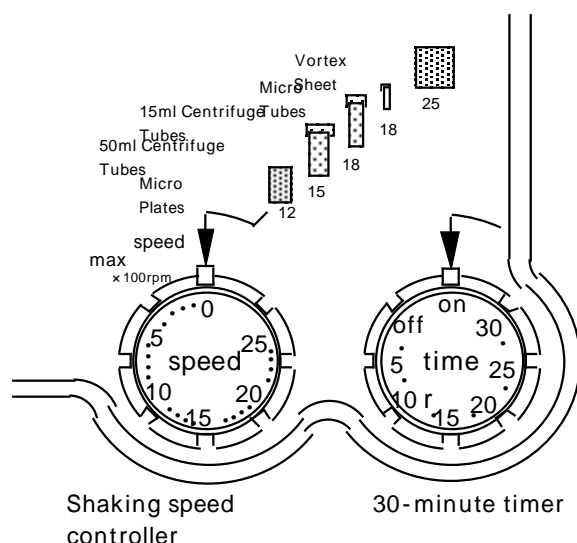
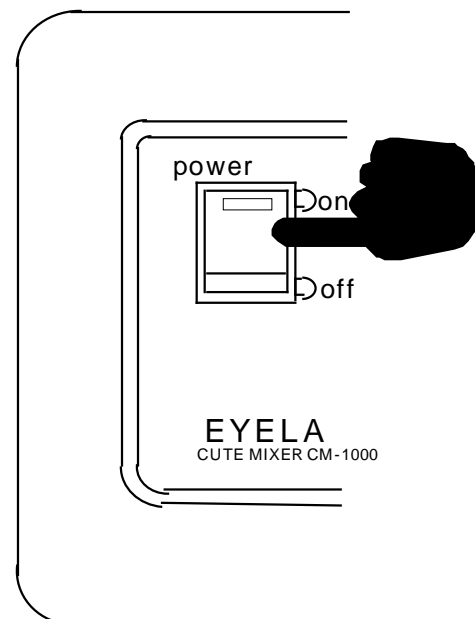
If you set the timer at the point between on and off, the timer will not be turned on. In case that you set it at the point closer to "on", the timer will start running after several seconds. So if you would like to execute continuous running, set the timer at leftmost point (i.e."on").

(2) If you turn on the power switch, it will light up and the the main unit is turned on.

(3) Turn the shaking speed controller and set it at the value that is suitable for your selected rack.

Maximum speed for each rack is written on operation panel. If you set the value that is out of its capacity, it disrupts a balance of main unit, which may lead malfunction. If you use centrifugal tube or micro tube and the sample is not shaken very well because of its amount or viscosity, do not change the shaking speed and turn the power switch off and on. If that will not work out, reduce the amount of the sample.

(4) Make sure that shaking speed controller points at "0" and turn off the power switch and unplug the mains connector from the outlet.



Timer operation

1) Make sure that shaking speed controller points at "0" and 30-minute timer is off before turning on power switch.

2) When turning on power switch, it will light up and the main unit is turned on.

3) Set 30-minute timer at your desired time.

If the setting time is too short, turn the timer and set it at the time a little bit longer than your desired value and return it to your desired value again.

4) Turn the shaking speed controller and set it at the value that is suitable for your selected rack.

Maximum speed for each rack is written on operation panel. If you set the value that is out of its capacity, it disrupts a balance of main unit, which may lead malfunction.

If you use centrifugal tube or micro tube and the sample is not shaken very well because of its amount or viscosity, do not change the shaking speed and turn the power switch off and on. If that will not work out, reduce the amount of the sample.

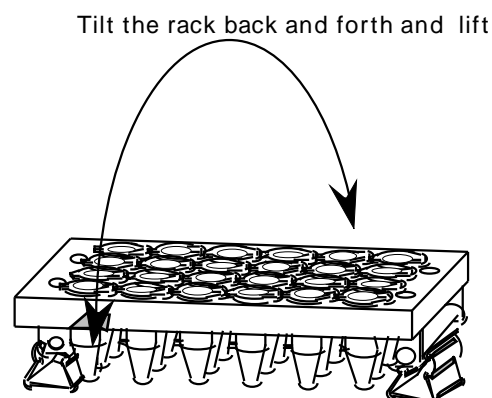
5) Make sure that shaking speed controller points at "0" and turn off the power switch and unplug the mains connector from the outlet.

Detaching and replacing rack

1) When detaching the rack from the main unit, tilt it back and forth.

If you use the rack for micro plate (CM-RP), detach micro plate first before detaching the rack.

2) When replacing the old rack with new one, please refer to "5-2 Attaching options".and follow the instructions.



6 Troubleshooting

If you face the trouble that is not addressed in this manual, please contact your local dealer or closest customer service center.

Trouble	Cause of trouble	Countermeasure
The instrument can not be turned on even though the power switch is on.	Mains connector is not plugged or not plugged completely.	Turn off the power switch and plug the mains connector into outlet.
	Power is not supplied.	Turn on the breaker of distribution board.
	Power switch is impaired.	Stop running the unit and call your local dealer or closest customer service center.
	Fuse blows because of excess current. (short-circuited)	
The instrument does not shake.	30-minute timer is turned off.	Turn the timer on or set the timer at your desired time.
	Overload protection for motor worked.	Set the shaking speed within a range of its capacity.
	Motor or speed controller is impaired.	Stop running the unit and call your local dealer or closest customer service center.
Noise is generated.	Some of the parts are worn out or disturb the operation, or screw are loosen.	Stop running the unit and call your local dealer or closest customer service center.
Rack can not be fixed.	Rack is not attached tightly.	Please refer to "Attaching options" on page 8 and attach the rack.
	Holder for fixing rack is worn out.	Stop running the unit and call your local dealer or closest customer service center.
	Joint bar of the rack is worn out.	
Main unit moves.	The unit was shaken without attaching rack.	Please refer to "Attaching options" on page 8 and attach the rack.
	The unit is shaken out of its capacity.	Set the speed within a range of specified capacity.
	Load (on centrifugal tube) is not well-balanced.	Please refer to "Attaching centrifugal tube" on page 9 and attach the vessels.
	Setting board is not clean or not level.	Remove the dirt. Set the unit on a level board.
Vessel falls down.	The unit is shaken out of its capacity.	Set the appropriate value.
	The type of vessel is not appropriate. (although the shaking speed was within specified capacity.)	Replace with suitable vessel.
	Holder is worn out. (although the shaking speed is appropriate)	Stop running the unit and call your local dealer or closest customer service center.

7 Maintenance • checking-up

7-1 Cleaning and caring the product

WARNING

Do not disassemble the product.

Since some parts inside the unit are under electric pressure or subject to high temperature, disassembling the product may cause electric shock or physical injury.

CAUTION

Use designated fuse.

If you use undesignated fuse, it will not blow when excess current flows, which may cause a fire or other accidents.

CAUTION

Use appropriate products for cleaning and caring the product in proper way.

When cleaning and caring the product, do not pour the water on the exterior or interior part directly. Also, do not use cleanser (polish), thinner, oil, lamp oil, acid and related products. These product may cause electric shock or damage the product.

- (1) Make sure that shaking speed controller sets at "0" and turn off the power switch, and unplug the mains connector from the outlet.
- (2) Clean the unit with soft wet cloth after wringing water tightly. For greasy dirt, use mild detergent and wipe the dirt off with cloth.

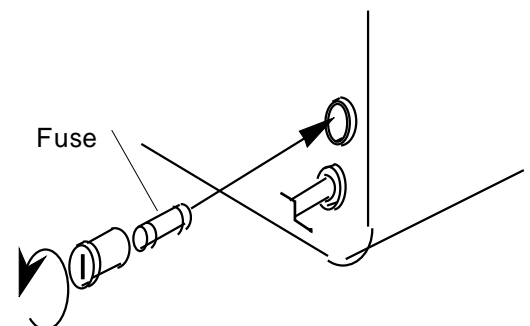
7-2 Replacing fuse

- (1) Turn off the power switch and unplug the mains connector from outlet.
- (2) Turn the cap of fuse holder counter clockwise with flat-blade screw driver and remove it, and remove the blown fuse from the holder.
- (3) Push spare fuse or other fuse that has same capacity into the holder and turn the cap clockwise to attach.

Specifications of the fuse is written on the metal part of the fuse.

If you use undesignated fuse, it will not blow when excess current blows, which may cause a fire or other accidents.

If the new fuse still blows, stop using the product and call your local dealer or closest customer service center.



Part name	Qty	Catalogue number
Fuse (1A)	2	139870

7-3 Replacing the panel frame

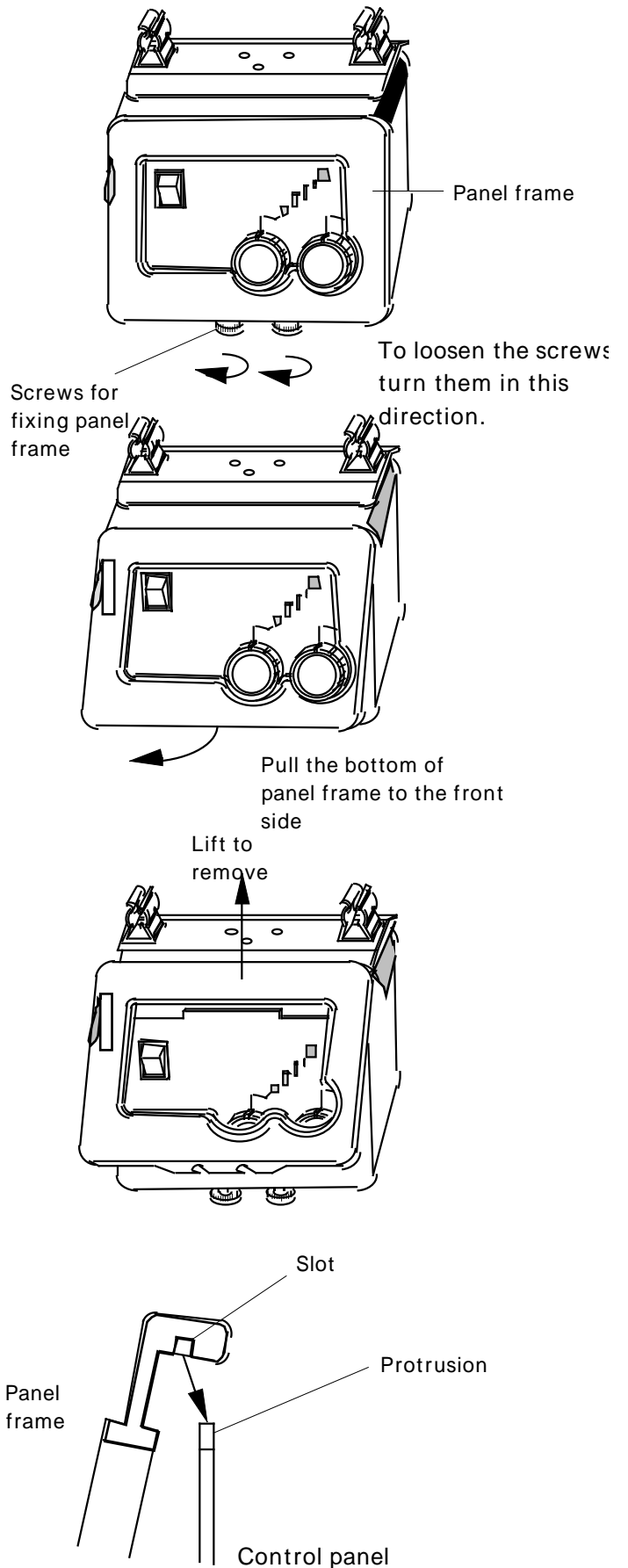
(1) Make sure that shaking speed controller points at "2" and turn off the power switch, and unplug the mains connector from the outlet.

(2) Turn two screws for fixing panel frame as shown in the right picture and loosen them. Panel frame can be removed without removing the screws completely.

(3) To remove the frame, pull the bottom of the frame to the front side and lift it.

(4) Push the protrusion of the control panel into the slot situated inside the top surface of the panel frame and attach them tightly by following the completely opposite procedure of above-mentioned description.

Tighten the screws for fixing panel frame. If the unit is shaken without tightening them, noise may be generated from the screws.

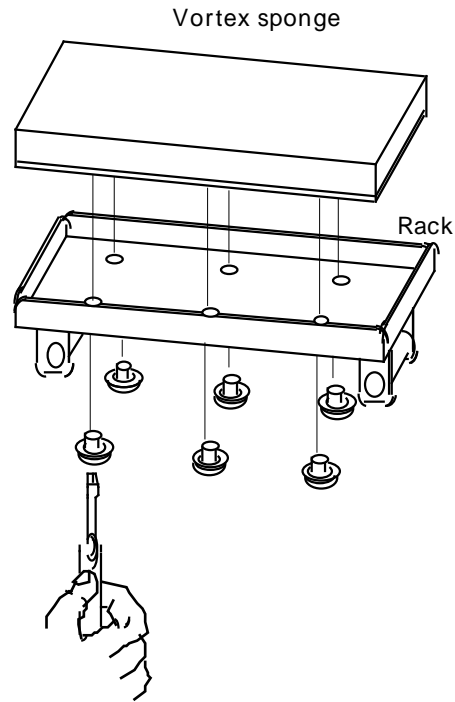


7-3 Replacing vortex sponge

When the sponge rubber (silicon rubber) for the rack for vortex is worn out, replace it with new one by following the procedure below.

- (1) Remove 6 screws from the bottom of the rack with using cross slot screw driver and remove the used-up sponge rubber.
- (2) Replace the old sponge rubber with new one and attach it to the rack tightly with screws.

Part name	Qty	Catalogue number
Vortex sponge	1	188610



8 Disposal of the product

When disposing the product or parts, please follow the instructions as below.

Main components and instruction for disposal

Component	Specifications	CM-1000	How to dispose
Main unit	Total weight	Approx.4.5kg	Please contact waste disposer.
	External measurement	160 (W) × 170 (D) × 155 (H) mm	

Please dispose packing material by separating each type of material.

1. In case of malfunction, please refer to the section of troubleshooting to check how that trouble case is.
2. If that failure mode still remains, please contact your local dealer or the closest customer service center mentioned in this manual.

