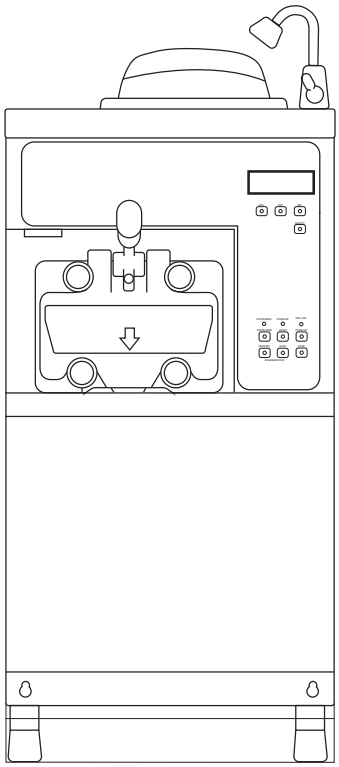
Soft & Yogurt Ice Cream Maker
User Manual



ISI-301TH, THP

* Read this manual carefully before using the product.
  Keep the booklet in a safe place after reading.
* The product is to be used indoors.
  Be sure to install it inside a building.
* Appearances, design, color, or parts may be changed
  without prior notice for the most effective manufacturing process.

ICETRO

This Soft & Yogurt Ice Cream Maker has the following benefits:

1. Minimal noise level and pleasant cooling system

The high-efficiency, low-noise motor provides minimal noise and pleasant cooling system.

2. MICOM control system

The product boasts of an intelligent, optimal control system.

3. Pasteurization function

Low-temperature pasteurization at 68℃ for 30 minutes ensures clean, safe ice cream with no ingredient getting stale.

4. Defrosting function

Soft ice cream in the cylinder can be defrosted into liquid.

5. Soft touch button

The touch button provides prompt reaction and functionality.

6. Convenient washing system

Water supply can be connected directly; the model with pasteurization function can boil water for the easy cleaning of the cylinder and water storage bucket.

7. Inverter system

The speed of making and supplying ice cream can be customized to ensure optimal ice cream quality.

Dear customer,

Thank you for purchasing this Soft & Yogurt Ice Cream Maker from Icetro Corp. Be sure to read this user manual for the correct usage and maintenance of the product. If you encounter any problem while using the product, refer to this manual for troubleshooting. Keep this manual in a safe place since it contains the warranty certificate.
The product must be installed by a qualified engineer. Icetro will not be liable for any quality or functionality issue resulting from using a part or a component other than that authorized or supplied by Icetro or any part or component authorized or supplied by Icetro but modified in any way.
(Functions or specifications published on the Icetro website or this manual may be changed at the discretion of Icetro without prior notice.) Be sure to visit http://www.icetro.com for the latest specifications.

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Safety Cautions

To prevent any safety-related accident and to ensure convenient usage of this product with better understanding, cautions and warnings are accompanied by symbols and figures. Make sure you understand the symbols and figures below before proceeding.

Danger	Using the product without taking careful note of this symbol may cause death or serious injury to the user or fire.
Warning	Using the product without taking careful note of this symbol may cause death or serious injury to the user or fire.
Caution	Using the product without taking careful note of this symbol may cause injury to the user or property damage.

※ Injury includes wound or burn that requires long-term outpatient treatment.
※ Property damage means damage or loss of one's house or furniture.
※ Label: If the caution label is corrupted, or its text is not legible enough, contact the customer service center or the store where the product was purchased.

Each figure has the following meaning:

Must be followed

General prohibition

Contact not allowed

The power cord must be disconnected from the outlet.

Must be grounded

Disassembly not allowed

Danger of electric shock

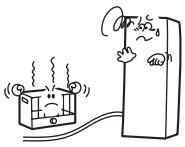
Warning

Contact a professional service supplier (※) to install or move the product.
Incorrect installation may cause damage due to electric conduction.
Installation requires construction work in accordance with related standards or laws including, but not limited to, KS, road traffic act, fire service act, food sanitation act, etc.
Improper installation may cause accidents.
※: Please contact the agent where the product was purchased.

Please comply with related laws.

Contact a professional service supplier to repair the product.
Incomplete repair may cause electric shock, fire, or injury.

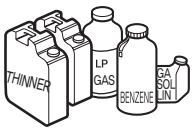
Contact the customer service center.



Keep away any heating appliance from the power cord.
It may melt the coating of the cord, causing fire or electric shock.

Prohibited

To replace or repair the power cord, contact a professional technician or our customer service center.



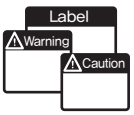
Combustible gas or flammable material (benzene, gasoline, thinner, LP gas, etc.) must be kept away from the product and should never be put on the product.
It may explode or cause fire or injury.

Prohibited

When cleaning the inside of the product, remove the power cord from the outlet and wear protective gear such as rubber gloves.
Failure to do so may cause electric shock or injury.

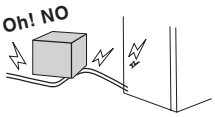
Do not disassemble or modify the product.
It may cause electric shock, fire, or injury.

Disassembly not allowed



Be sure to clean the warning or caution labels so that the text on them is legible enough.
If an important part of the text is not legible enough, accidents may occur due to misuse.

Check the labels.



Avoid putting any object on the power cord and make sure that the cord does not get tangled or tied.
It may cause fire or electric shock.

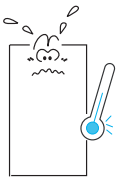
Prohibited

Stop using the product if the power cord is damaged.
It may cause fire or electric shock.

Prohibited

Do not use combustible gas or flammable material (benzene, gasoline, thinner, LP gas, etc.) near the product.
It may explode or cause fire or injury.

Prohibited

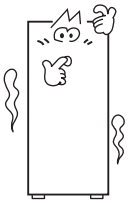


The product provides optimal functions in an atmosphere of 10~30℃.

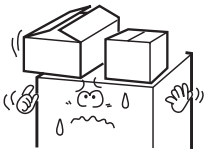
Warning

Do not touch any electrical component or the power cord with wet hands.
It may cause electric shock.

Contact not allowed

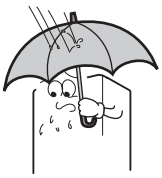


Turn off the circuit breaker if strange noise, smell, or smoke is emitted from the product.
Failure to do so may cause fire or electric shock.

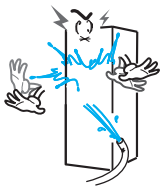


Do not put any object on the product.
It may cause electric conduction or injury.

Prohibited



Make sure no rain or snow comes into contact with any electric part inside the product when refilling the product with ingredient.
It may cause short circuit or electric shock.



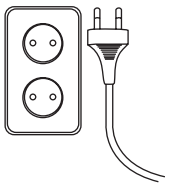
Make sure no water comes into contact with any electric part or inside the product.
If the product has been immersed in water due to causes such as flood, be sure to contact the customer service center. Otherwise, the product may short circuit and cause fire or electric shock.

Do not touch any moving part.
Do not touch any moving part inside the product.

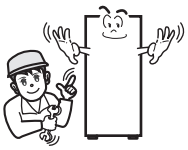
Contact not allowed

Do not ride on, shake, or tilt the product.
It may cause electric conduction or malfunction.

Prohibited



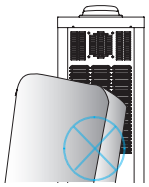
Remove the power plug from the outlet if the product is not to be used for an extended period of time.
Failure to do so may cause product malfunction or accidents.



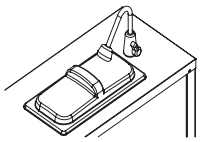
Contact a professional disposal service provider when disposing of the product.
Failure to dispose of the product properly may result in accidents.

Be sure to provide this user manual when selling or loaning the product.
The absence of a user manual will lead to misuse of the product and may cause accidents.

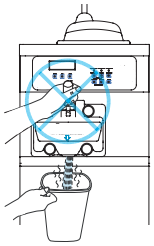
Warning



Do not block the area around the vent.
It may cause the degradation of functionality.

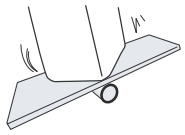


Keep the upper cover completely closed while the product is in operation.
Bugs or foreign object may get inside.

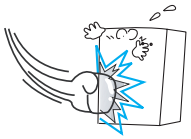


Be sure not to operate the outlet lever during pasteurization or defrosting.
Hot ingredient may come out and cause burn.

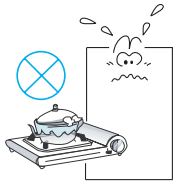
Prohibited



Do not install the product on a tilted surface.
It may cause injury to the user or damage to the product.



Do not apply excessive force or shock to the product.
It may damage the product.



Do not store or use combustible gas or flammable material near the product.
It may cause electric shock or fire.

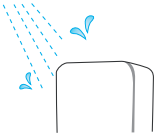
Prohibited

Do not press the "WASH" button in no-load state (no ingredient or water).
Lack of lubrication wears out the bearing drum.
The product may fail to operate.

Prohibited

To make quality ice cream, pasteurization on a daily basis is recommended.
The ingredient may go bad.
If pasteurization is not done, at least clean the product on a daily basis.

Do not put container with water, medicine, food stuff, small metallic object, or flammable material on the product.
If such object gets inside the product, it may cause electric shock or fire or damage the product.

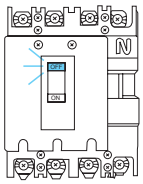


Do not install the product at a place where moisture or dust gathers easily or where rain or water spatters.
It may cause electric shock or fire.

Do not allow a child or a person without proper training on using the product to use the product.
It may cause injury to the user or damage to the product.

Prohibited

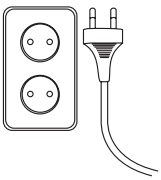
Warning



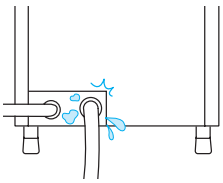
If the earth leak circuit breaker is set to 「OFF」 automatically, do not turn it 「ON」 by force.
Turning the circuit breaker 「ON」 by force while the product is out of order may cause fire or electric shock. Please contact the customer service center.

Prohibited

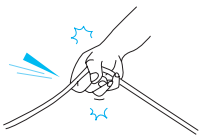
Close the water supply valve and unplug the product if it is not to be used for an extended period of time.
It may cause electric shock or fire.



If water got inside the power components, immediately unplug the cord and completely dry the product before using it.
Failure to do so may cause electric shock or fire.

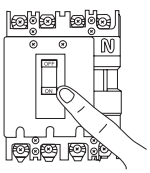


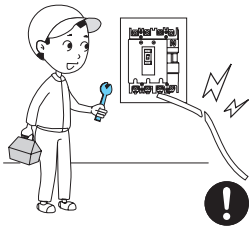
Do not pull the power cord.
Failure to do so may cause electric shock or fire.



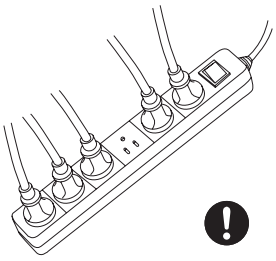
Prohibited

Do not turn on and off the circuit breaker repeatedly.
Failure to do so may cause electric shock or fire.

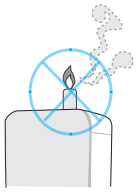




To replace or repair the power cord, contact a professional technician or our customer service center.



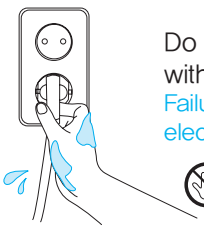
Do not plug too many appliances into one outlet; only one appliance per outlet is recommended.
Otherwise, there is danger of fire.



Do not put a candle or a lit cigarette on the product.
Otherwise, there is danger of fire.

Prohibited

Do not alter the power cord or arbitrarily modify it to connect to an unauthorized power source.
Failure to do so may cause electric shock or fire.



Do not touch the power cord with wet hands.
Failure to do so may cause electric shock or fire.

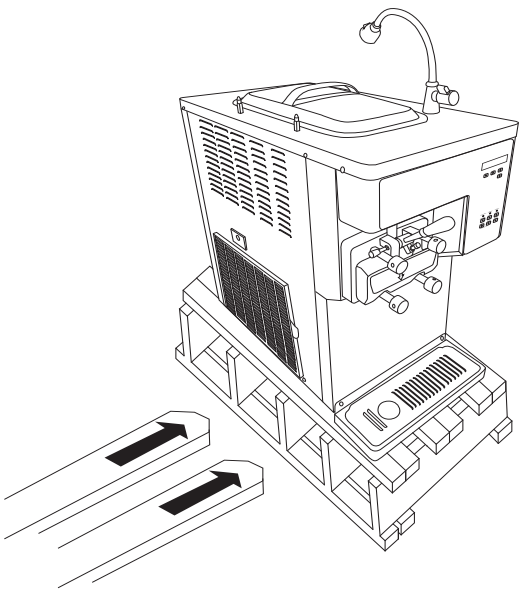
Contact not allowed

How to Unpack and Install the Ice Cream maker

This soft & yogurt ice cream maker has been inspected at the factory prior to shipping out. Remove the wooden or other packaging; if the product is found to be damaged during transport, contact the local agent or manufacturer.
Check the serial number both outside and inside the product, since it is required when inquiring about the product or requesting for customer service. Contact the local agent or a professional service supplier to install or move the product.

1. Remove the wooden packaging, taking care not to damage the exterior of the ice cream maker.
2. Remove the protective tapes and check the parts.

※Caution : Watch out for electric conduction when tilting or moving the product.

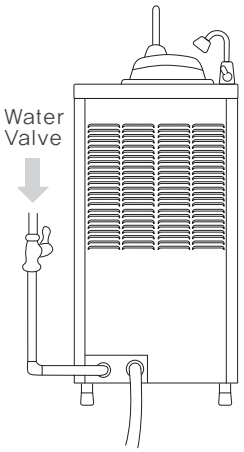


• Where to Install/Cautions

1. Do not install the product on any tilted or uneven surface.
   – Otherwise, there will be danger of electric conduction or malfunction of the product.
2. Install the product in an indoor place with minimal direct sunlight, wind, or rain.
   – Water from the ice cream–making process or rainwater may cause short circuit, fire, or electric shock.
3. Install the product in a place without the direct influence of sea air or toxic gas.
   – It may give rise to complaints from customers selling ice cream from this maker.

How to Install

● Follow this process!



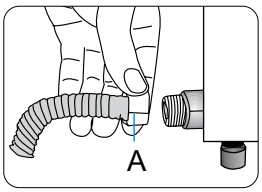
● The water supply valve may have different shapes depending on the installation condition.

For Your Information

- To guarantee the optimal operation of the product, please consult our technician on how to install the product. (Contact our authorized technician in case of moving the product after the initial installation.)
- Avoid uneven surface or place with direct sunlight, too much dust, or spattering water.
- If the product is to be used for an extended period of time, reset the current time.

● Connecting the water supply

1. Insert the o-ring into the nut of the wrinkled pipe and tighten the nut on the water supply connecto on the lower back of the product with a tool.
2. Make sure that "A" is not damaged in the process.

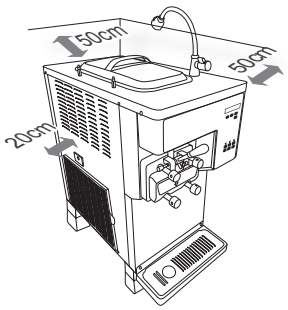


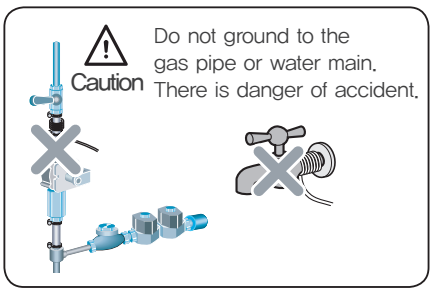
※ The following must be checked when connecting the water supply!

1. The water pressure must be in the range of 1~3kgf/㎠.
   ▸ Too much pressure will cause leak from the connected part.
2. If the product is installed where the temperature drops below 10℃, be sure to prepare a freeze protection measure for the product.
   ▸ Otherwise, leak or product malfunction may occur.
3. The water supply must have a valve so that it can be closed in case of malfunction of the tap on the top of the product.

● Connecting power

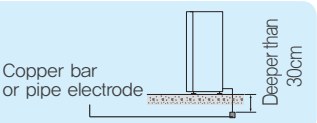
1. Be sure to connect to a single-phase power outlet with 220V and 60Hz; connect only one product per outlet.
2. Connect the earth leak breaker (higher than 20A) to the distribution box.
3. Ground the product for safety.
4. The distance between the right side and the back of the product must be longer than 50cm, and that between the right side and the wall must be longer than 20cm.
5. Install the rubber feet correctly to prevent slippage.





Caution

If there is no grounding equipment at the installation area, be sure to ground the product.
– Bury a copper bar or a pipe electrode deeper than 30cm from the surface.
– Lack of proper grounding may cause electric shock due to leak.



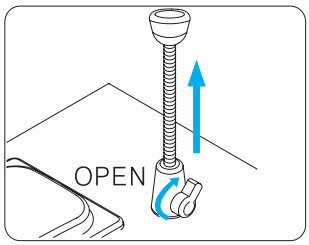
Storing the product for an extended period of time

※Water-chilling model

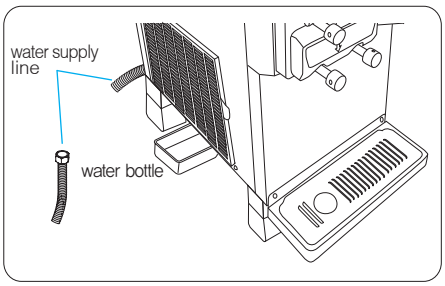
Caution

Subzero temperature causes the water to freeze, making the product unusable.
Be sure to drain the cooling water as follows before storing the maker:
We do not assume liability for product rupture due to freezing, and the repair may cost a lot.
Therefore, be sure to comply with the following:

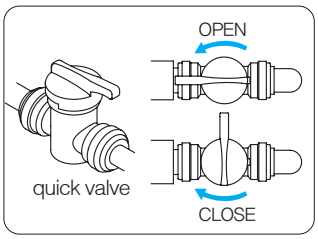
1. Close the water valve and check if the power cord is plugged. The product must be plugged into a power outlet.
2. Fully stretch the wrinkle pipe to drain any stagnant water from inside the pipe, and then turn the valve to the left to open it. (Figure 1)
3. Remove the water pipe from the back of the product to drain water. (Figure 2)
   (Have a container ready at the water inlet to prevent leak on the floor. A substantial amount of water will be drained.)
4. After completing steps 1 to 3, press the operation button (AUTO) to operate the product for 5~10 minutes. (Up to 10 minutes until the high-voltage switch is turned on and the maker stops)
5. Press the (STOP) button.
6. After draining all water from the product, put back the water valve cover (Figure 3).
   (About 1.3~1.5 liters of water will be drained.)
7. Drain water from the hopper and cylinder, and then clean thoroughly.
8. To use the product again, connect the water pipe again (Figure 2) to supply water.



(Figure 1)



(Figure 2)

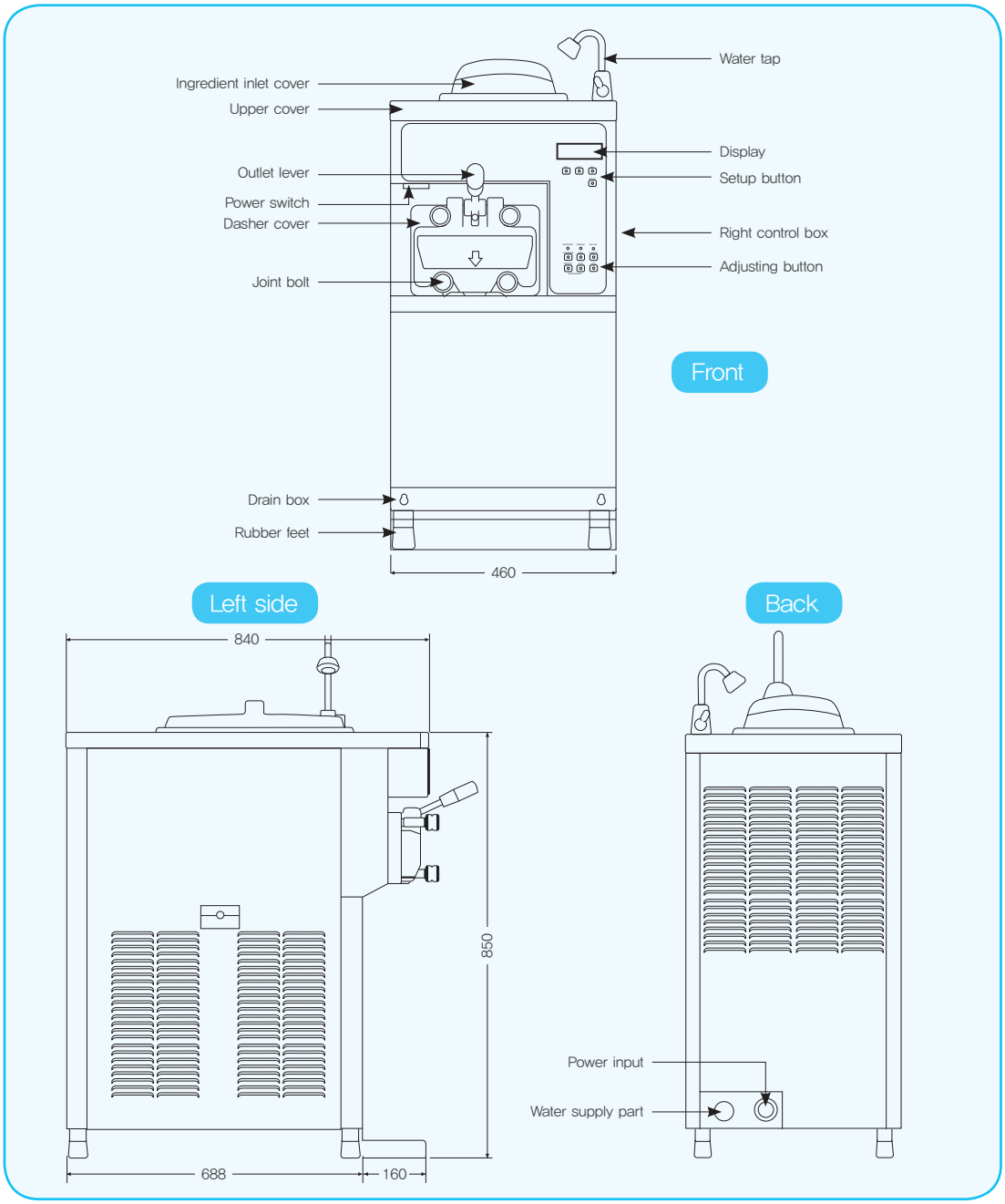


(Figure 3)

● **Be sure to check the following when connecting the water supply!**

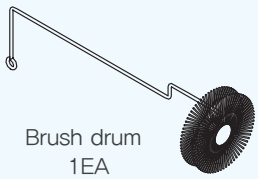
1. The water pipe must have a diameter of more than Φ12.7mm.
2. The water pressure must be in the range of 0.3~0.5Mpa on the pressure gauge after connecting the water supply. (The water pressure gauge is on the back of the product.)
3. If the pressure is lower than 0.3Mpa, control the amount with the main valve to set the pressure between 0.3 and 0.5Mpa; otherwise, the product will not operate.
4. Low pressure will activate the safety measure of the product (HPS) to stop and protect the maker; thus, be sure to maintain proper pressure.

Description of Parts and Dimensions

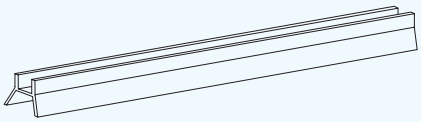


Description of Parts and Dimensions

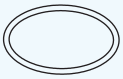
Included accessories



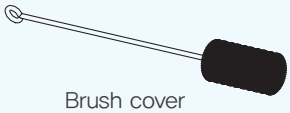
Brush drum
1EA



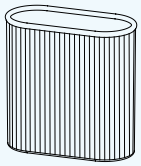
Dasher lug foam
2EA



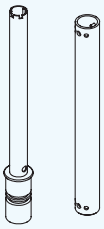
Packing dasher cover
1EA



Brush cover
1EA

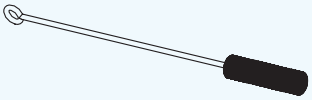


BEZEL
1EA



Carburetor tube body, tube
1EA, 1EA

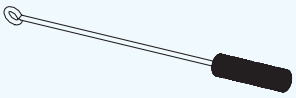
O-ring lever shaft
1EA



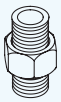
Brush carburetor in
1EA

Carburetor packing
2EA

Packing down
1EA

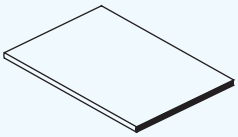


Brush carburetor out
1EA

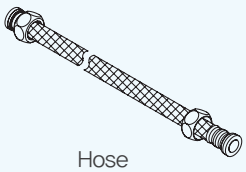


Nipple
1EA

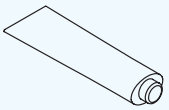
Packing dasher shaft
2EA



User manual
1EA



Hose
1EA



Edible grease
1EA

Specifications

Category		Specification
Product		Soft ice cream maker
Model		ISI-301TH, THP
Voltage and frequency rating		Single Phase, 230V, 50Hz
Power consumption		2400W
Rated Current		12A
Dimensions (including wheels)	Horizontal(W)	462mm
	Depth(D)	840mm
	Height(H)	850mm(Including rubber feet, excluding cover)
Cylinder capacity		3.2ℓ
Maximum capacity of hopper		19.5ℓ
Continuous making capacity (per 30 seconds)		More than 1,000g
Initial cooldown time		7~10minute
Refrigeration temperature		Can manage lower than 8℃
Compressor		Completely enclosed compressor
Pasteurization		68℃ 30minute Low-temperature pasteurization
FILTER		Install to the left (for the air-cooling model)
Refrigerant amount		1180g
Refrigerant type		R-404A
Panel type		LCD screen
Weight (without packaging)		140Kg

What to check before using the product

【 The following must be checked before using the product! 】

Be sure to connect to a single-phase power outlet with 220V and 60Hz.
Plug the power cord into an available outlet.
(Consult a qualified electrical engineer regarding the installation of the product.)
The power cord must be connected to operate the product.

- Do not block the area around the vent.

  The inlet and outlet of air must be smooth to ensure proper cooling operation.

- Regular filter cleaning (at least once a week)

  Do not skip filter cleaning to ensure good-quality ice cream.

- The condenser has to be cleaned once a month.

  The daily cleaning of the cylinder, carburetor, hopper, agitator, dasher, piston, and other parts is recommended.
  The condenser has to be cleaned more than once a month.

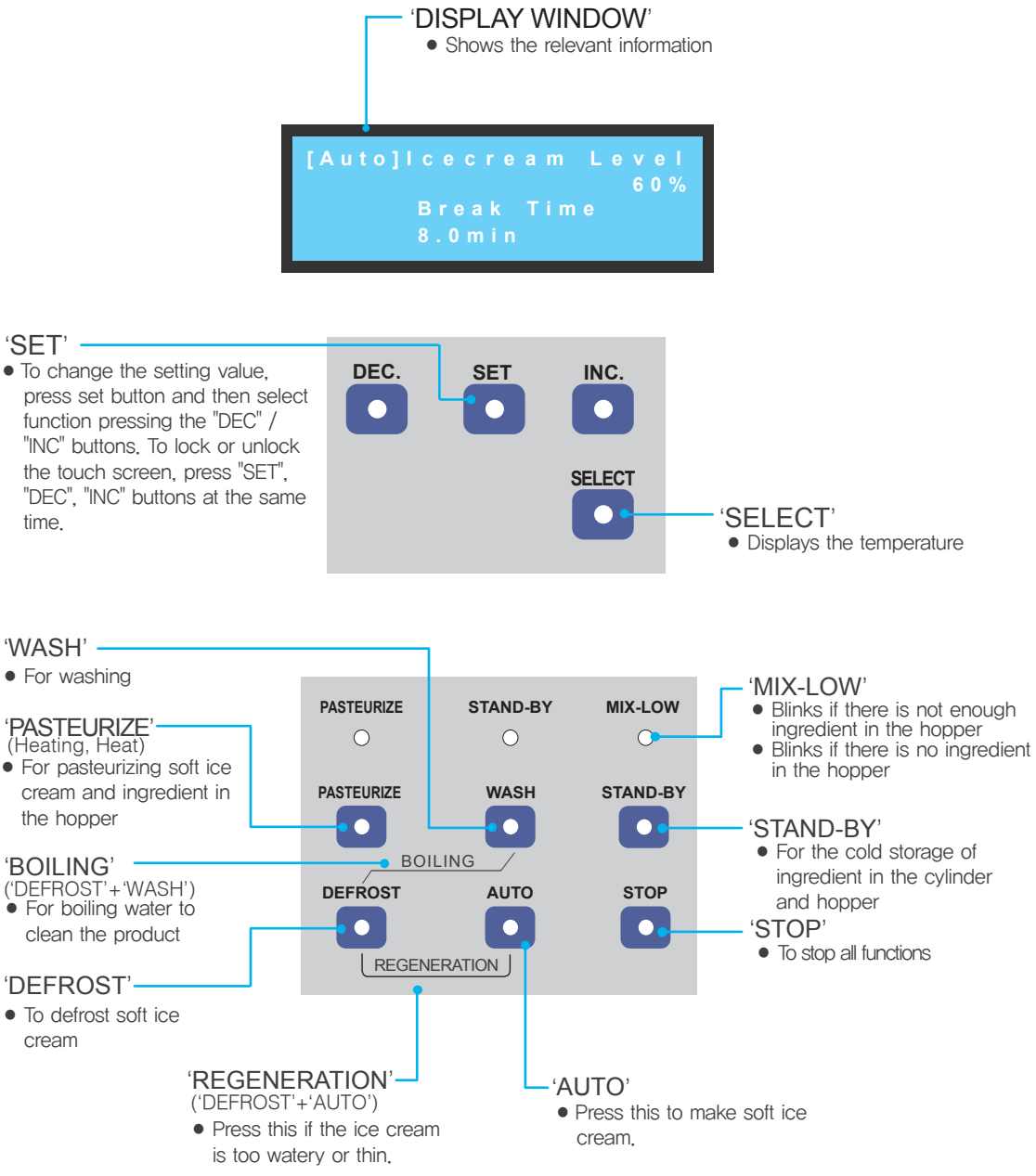
- Pasteurize the product more than once a day.

  Parts that come into contact with soft ice cream or ingredients – such as cylinder, hopper, agitator, dasher, and piston – need to be cleaned on a daily basis.

For Your Information

Clean the product and turn off the earth leak breaker if the product is not to be used for an extended period of time.

Button display description and functions



Detailed description of each mode

【 Detailed description of each mode 】

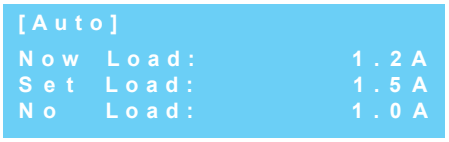
Put ingredient into the hopper and press “DEC.” The display shows the status information presented in the figure on the right.

① The current level of soft ice cream

② Press “SELECT” to see the current level, target level, and no-load level in turn.
Hold down SET for about 3 seconds to change the configured values.
(Refer to the “Checking the configured values” section of this manual for details.)

Soft ice cream is being made in “AUTO” mode

For checking the setting values of “AUTO” mode ②



To check the ingredient information in the hopper, press “SET” to change the display to that shown in the figure on the right.

③ Shows information including the temperature of the hopper and cylinder
Press and hold down the “SET” button for 3 seconds to change the temperature setting of the hopper.
(Refer to the “Checking the configured values” section of this manual for details.)

For checking the ingredient information in “AUTO” mode

After making soft ice cream, the compressor goes into hibernation for a certain period with the display window shown in the figure on the right.

④ The required time (in minutes) to reactivate the compressor is displayed.
(If the temperature of the room is high enough, the compressor may get reactivated earlier than the displayed minutes.)

⑤ Shows the current level of soft ice cream.
(The level goes down after reaching 100%; the speed of decrease will be higher if the temperature of the room is high.)

After making soft ice cream in “AUTO” mode

For Your Information

The level of soft ice cream is set to default by the manufacturer, so you need to change the level suitable to the type of ingredient and wear of the blade.
The proper level set may differ from ingredient and installed circumstance of the machine.

Detailed description of each mode

【 Detailed description of each mode 】

If the maker doesn't sell the ice cream for a long time, the textire and shape of the ice cream become unsatisfactory. The "REGENERATION" function can improve the texture. Press and hold down "DEFROST" and "AUTO" simultaneously for about 2 seconds to change the display to that shown in the figure on the right.

※ Caution : "REGENERATION" is available in "AUTO" mode only.

"REGENERATION" mode

① Shows the current temperature of soft ice cream
② Shows the configured temperature of the cylinder
③ Displays the duration (in minutes) when the current temperature (①) stays at the target value (②)

When the duration (③) expires after the current temperature (①) reaches the target value (②), "AUTO" mode is activated automatically to make soft ice cream.

For Your Information

The "REGENERATION" function melts soft ice cream in the cylinder and subsequently remakes it into ice cream; it gets activated in "AUTO" mode only and takes about 20~30 minutes.

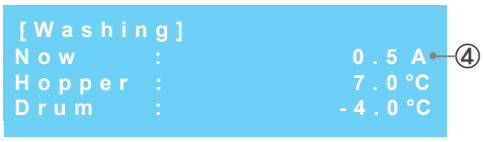
The "DEFROST" function is for melting soft ice cream in the cylinder.

"DEFROST" mode

"WASH" mode is used to activate the dasher motor of the cylinder and agitator in the hopper as well as to drain the liquid ingredient or soft ice cream to clean the maker.

④ Shows the current value of the dasher motor

"WASH" mode

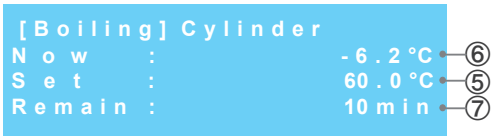


Heats water in the hopper and cylinder to the configured temperature if you want to clean the maker with hot water Holding down the "DEFROST" and "WASH" buttons simultaneously for more than 1 second will turn the display into that shown in the figure on the right.

⑤ Shows the configured temperature of the cylinder
⑥ Shows the current temperature of soft ice cream
⑦ Displays the duration (in minutes) when the current temperature (⑥) stays at the target value (⑤)

The maker "stops" when the duration (⑦) expires after the current temperature reaches (⑥) the target value (⑤)

"BOILING" mode



Detailed description of each mode

【 Detailed description of each mode 】

Even though the ingredients are kept at a temperature lower than 5℃, they may go bad after 2~3 days.
To prevent the spoiling of ingredients and maintain the freshness of ice cream, heating at 68~70℃ for more than 30 minutes is required.
This is called low-temperature pasteurization, which is activated by the "PASTEURIZE" function as in the figure on the left.

"PASTEURIZE" mode

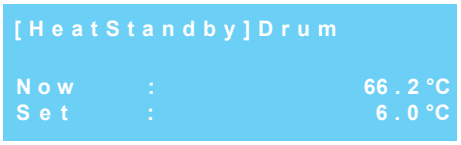
The current temperature and duration of pasteurizing (in minutes) are displayed as in the figure on the upper right side.
Press "SELECT" to show the managed temperature of the hopper and cylinder.

For checking the configured temperature in "PASTEURIZE" mode

The step to maintain the coldness of the ingredient in the hopper and cylinder after pasteurization is completed.
Cold preservation is first done for the hopper, and then for the cylinder, as in the figure on the right.

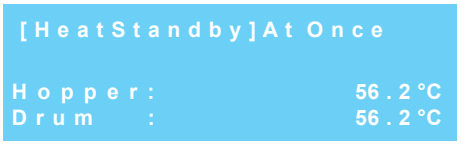
Cold preservation of the hopper after completing "PASTEURIZE"

Cold preservation of cylinder after completing "PASTEURIZE"



For the simultaneous cold preservation of both hopper and cylinder by configuration, the temperatures of both hopper and cylinder are displayed as in the figure on the lower right.

Simultaneous cold preservation of both hopper and cylinder after completing "PASTEURIZE"



For Your Information

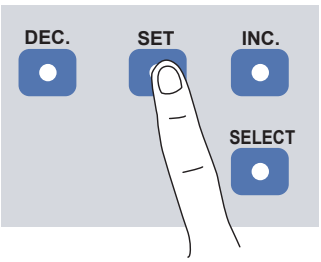
⚠ Take caution since the covers of the dasher and hopper are very hot during "PASTEURIZE." Never disassemble or modify the dasher and hopper. Hot ingredient may cause burn.

⚠ If "PASTEURIZE" is not activated, be sure to remove any remaining ingredient or ice cream from the hopper and clean it.

Detailed description of each mode

【 Checking the configured values 】

Press the “SET” button to shift to the mode of checking the values of the maker.
Press “INC” or “DEC” after shifting to this mode to check the configured values in the following order:



The configured temperatures of the hopper and cylinder are displayed.

```
[Temperature]

Hopper:          8.2°C
Drum   :         -6.2°C
```

The rated voltage, frequency, and current supplied to the product are displayed.

```
[Power]
Voltage   :      220V
Frequency:       60Hz
Current   :      1.2A
```

The versions of programs for the main PCB, vend PCB, and control PCB in the product are displayed.

```
[Version]
Main:    1.0
Control:         1.0
```

The time and date set for the product are displayed.

```
[Current time]

      2012.12.03
        17:01:02
```

The unloaded current value of the dasher motor is displayed.

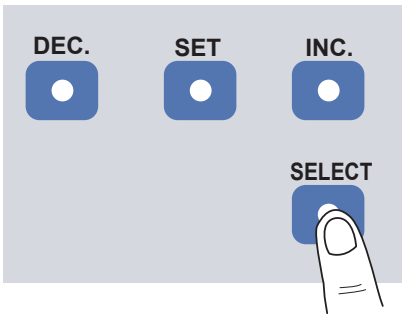
First : Unloaded current for the initial control of ice cream making
Run : Unloaded current for the control of ice cream during operation
Draw : Unloaded current for dischanging the ice cream

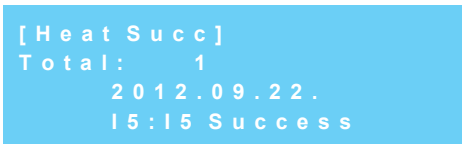
```
[Noload Current]
First    :  3.0A
Run      :  3.0A
Draw     :  2.1A
```

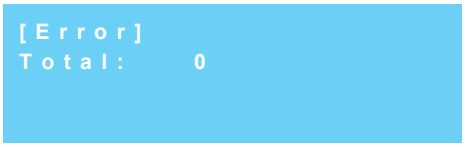
Detailed description of each mode

▌Checking the temperature value and records▐

Press and hold down “SELECT” for more than 3 seconds to check the records in order of “PASTEURIZE – WASH – ERROR.”
The displayed item can be changed with the “DEC” and “INC” buttons. To check the recorded date, there must be more than one record. Press “SELECT” to display the year, month, and date as the lowest part. If there are multiple records, press “DEC” or “INC” to check the records alternately.



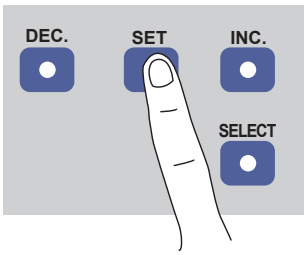




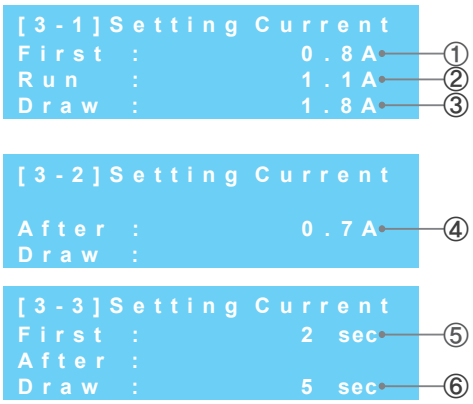
Button description

【 Changing the configured values 】

"Press and hold down the "SET" button for more than 3 seconds to shift to the mode for changing the configured values.
Press "DEC" or "INC" to switch among items. Press "SET" at the item to check; when the value blinks, press "DEC" or "INC" to change the value, and then press "SET" to move on to another item.
Press "SET" to switch among multiple items; the screen switches to the first item after change is made to the last item.
Press and hold down "SET" for about 3 seconds to save and leave the mode.



3–1 : Changing the ice cream level
This item controls the current value for soft ice cream making – higher value means higher level, and lower value means lower level. If the level is too high, the available amount of ice cream to make may decrease.
① The level is applied for the initial making of ice cream by high speed in ② is applied for making ice cream.
③ is applied for dischanging ice cream.
④ is applied for the after draw making of ice cream by high speed.
⑤ is delag time after reaching ① level.
⑥ is delag time after reaching ④ level.



3–4 : Controlling the hopper temperature
This item controls the temperature of the hopper to store the ingredient at low temperature. Higher value means higher temperature, and lower value means lower temperature. If the temperature is too low, the ingredient in the hopper may become frozen. If it is too high, the ingredient may go bad.

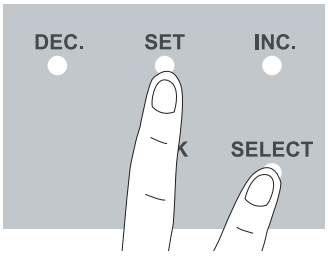
3–5 : You can opt to use voice service and set its volume and time.

3–6 : Set the time and date of the maker here.
You should set the time and date exactly.
If you want to use the "Auto Pasteurization" Function.

Explanation of the function buttons (set by an Administrator)

Only experts that have been designated by the main office shall adjust this category.
A service charge will be applied if problems occur due to unapproved alterations.

Press 'SET' + 'SELECT' buttons for 2 seconds to enter the stage of inputting the password.
Password has 4 digits and input begins from the left and the relevant digit blinks.
Select the number by 'DEC.' or 'INC.' buttons and press 'SET' button to move to the next digit.
Input the 4 digit password in this way.
Do not let anyone without professional education know the 4 digit password under any circumstances.



4-0: This is the category that can be selected according to the characteristic and model of the product and that has a meaning that is different from the model name of the product. When the model is changed in this category, the content in Category '4' is reset to the default setting.

【 Definition of model name 】

I	S	I	S	-	2	7	3	T	H	C	_	I	A	A
①	②	③	④		⑤	⑥	⑦	⑧	⑨	⑩		⑪	⑫	⑬

① I : Icetro
② S : Soft
③ I : Icecream
④ S : S - Self machine
V - Vending machine
M - Manual
⑤ 2 : Cylinder capacity(Two digits)
⑥ 7 : Cylinder capacity(Single digit)
⑦ 1 : Number of discharge ports
(1: 1EA, 3: 3EA)
⑧ T : T - Table type
S - Standing type
⑨ H : H - Heating
S - No Heating
⑩ C : Cups
S : Self
⑪ I : I - Inverter using
S - No Inverter
⑫ A : A - Alone(Operation of individual systems)
T - Together(Operation of both of the left and right systems simultaneously)
⑬ A : W - Water Cool Type
A - Air Cool Ttpe

Explanation of the function buttons (set by an Administrator)

4-1: Break time setting

This is the function to allow the compressor to rest for a certain period of time by minute after the soft ice cream is made. Adjust this category carefully as it can make the soft ice cream melt quickly.

4-2: Set the compressor to restart temperature

This remembers the temperature at the time of making soft ice cream. When the temperature rises above the temperature that was set in this category, the compressor is restarted.

The rest time of the compressor can be extended when the temperature in this category is increased.

4-3: Hopper management temperature setting

This sets the management temperature to refrigerate the raw material in the hopper.

The temperature set in this category is managed as the value added from the value in Categories '3 - 4'.

For example, if '3 - 4' is 2℃ and '4 - 3' is 2℃, the management temperature of the hopper is maintained at 2~4℃.

4-4: Standby OFF temperature setting

This sets the cylinder's raw material storage temperature in the standby mode. When the temperature of this category is too low, the raw material inside the cylinder freezer and soft ice cream can become like porridge.

4-5: Standby management temperature setting

This sets the management temperature to refrigerate the raw material in the hopper. The temperature set in this category is managed the value added from the value in Categories '3 - 4'.

For example, if '3 - 4' is 2℃and '4 - 3' is 2℃, the management temperature of the hopper is maintained at 6 ~ 8℃.

4-6: Standby reset time setting

This sets the motor's operation cycle to the standby mode. When one is satisfied with the temperature value of '4-4' + '4-5' and the time of this category, the motor and compressor are operated.

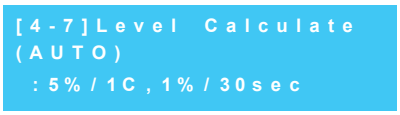
important

The categories that determine the compressor rest time during operation are '4-1'and '4-2'. When one is satisfied with these two categories, the compressor rest time ends.

Explanation of the function buttons (set by an Administrator)

4-7: 1℃ rise level calculation

When the soft ice cream is made, 100% is displayed on the LCD window and the percentage value is deducted from the compressor rest time. At this time, when 1℃ is added to the temperature at which the soft ice cream is made, the value set for this category is deduced from the percentage and is then displayed.



30℃ seconds pass level calculation

When the soft ice cream is made, 100% is displayed on the LCD window and the percentage value is deducted from the compressor rest time. At this time, the value set for this category is deduced from the percentage every 30 seconds after the making of the soft ice cream and displayed.

4-8: Upper limit current setting

This category sets the maximum value when adjusting the hardness of the soft ice cream in Category '3-1'.
This category value needs to be set within the range, in which excessive current does not flow on the motor.

4-9/4/9-1: Selection of pasteurization

This selects the function to pasteurize the raw material and the soft ice cream in the hopper and the cylinder.
The model with the pasteurization function is on and the model without the pasteurization function is off.

For the model with sterilization function, the functions of water boiling, defrosting, and regeneration may be used when the sterilization function is turned off.

4-9-2: Control temperature setting during pasteurization

This sets the highest temperature to pasteurize the raw material and the soft ice cream in the hopper and the cylinder. When lowering the value in this category, pasteurization may not work.
When increasing the value in this category, the raw material may become carbonized and the taste of the soft ice cream may change.

4-9-3: Management temperature during pasteurization

This indicates the temperature deducted by the temperature set for this category from the temperature of '4-9-2'. For example, if '4-9-2' is 70℃ and '4-9-3' is 2℃, the raw material in the hopper and the cylinder is maintained at 68-70℃.

4-9-4: Pasteurization maintenance time setting

This sets the time to maintain the temperature for '4-9-2' and '4-9-3' during pasteurization.
The time set for this category can be reducedor extended in order to control the time to maintain the effect of pasteurization.

4-9-5: Maximum pasteurization time setting

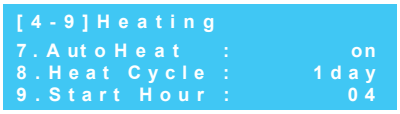
This sets the maximum operation time for the pasteurization time of '4-9-2' ~ '4-9-4'.
It is set to stop pasteurization when gas leaks or when problems occur in the pasteurization device.
If pasteurization continues until the time set for this category, pasteurization failure is recorded and the machine needs to be checked for problems.

4-9-6: Designation of a warning date when pasteurization is not performed

When the date set in this category is passed when pasteurization failure is recorded, an alarm(Voice Supported Model) is set off for not performing pasteurization.
Therefore, perform pasteurization daily.

Explanation of the function buttons (set by an Administrator)

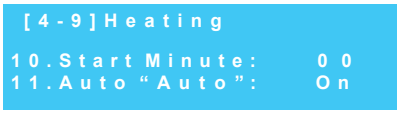
4-9-7: Selection of auto pasteurization
Choose ON for auto pasteurization and choose OFF for no auto pasteurization.
When ON is selected, the following categories are activated.



4-9-8: Auto pasteurization cycle setting
Execute auto pasteurization according to the date set in this category.
For example, '1day' is everyday, '2day' is every other day, and '3day' is every three days.
Auto pasteurization is alway executed in the auto mode and the standby mode and is not executed in any other mode.

4-9-9: Auto pasteurization start time setting
This sets the time to start auto pasteurization. Set the hour for this category.

4-9-10: Auto pasteurization start time setting
This sets the time to start auto pasteurization.
Minutes are set in this category.



4-9-11: Auto set after pasteurization
Select whether to execute auto when stand by has completed after pasteurization.
Set this category as ON and execute auto and make sure to open the carburetor hole.

4-10: Select between Celsius and Fahrenheit
Select between Celsius (℃) and Fahrenheit (℉)

4-11:Environmental temperature detect function setting
The function to detect the environmental temperature can be turned ON/OFF.
Environmental temperature is the temperature of the air coming into the compressor.
Therefore, the temperature for this category can be high and a warning message can be given if the place of installation is small and has no ventilation.
Then the installation environment must be improved.

caution

The reference voltage measurement must be in accordance with the measured PCB input voltage.

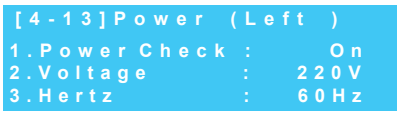
Explanation of the function buttons (set by an Administrator)

4-12: No load detection function setting

The no load detection function can be turned ON/OFF. 'No load' means the raw material inside the cylinder exists in a liquid condition. The motor current is then called 'no load current' If this function is set to on, power is allowed to the product and the noload current is remembered when the temperature of the cylinder is higher than 5℃.

4-13/4-13-1: Supply power standard value setting

Set the voltage and frequency standard of supply power. When this function is on, the following category appears.



4-13-2: Voltage standard value setting

Measure the voltage at the place of installation and enter the standard value. This product guarantees ±10% of the supply power. When it is outside of the range a warning sound is given. If used continually, the product can have problems. As for voltage of single phase, it is required to measure voltage of L and N. When voltage is 3W, 3 phases, voltage shall be adjusted based on the phase voltage.

4-13-3: Frequency standard value setting

Set the frequency standard of the supply power. When the standard value of this category is wrongly selected, the present supply voltage of '1-3' can be displayed differently.

4-16: Current value compensation setting

This is the function for performing overall compensation when the measured current is different from the actual measurement value.

4-17/4-17-1: Air pump selection

If the model has an air pump, this category can be turned on to control the operation of the air pump.

4-17-2: Operation time setting during the initial operation

Set the operation time of the air pump when beginning initial operation.

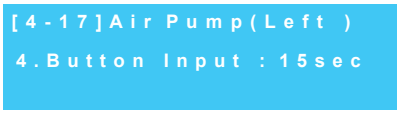
4-17-3: Operation time setting after sales

Set the operation delay time of the air pump sales. After the motor operation is stopped, the air pump is additionally operated according to the time set for this category.

4-17-4: Operation time set after button input

(Applying the relevant model)

Set the time that the air pump operates every time the button is pushed.



Explanation of the function buttons (set by an Administrator)

4-18/4-81-1: Select the use of refresh.

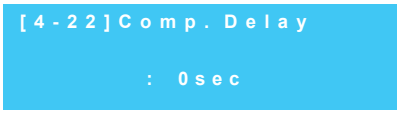
4-18-2: Refresh time setting
Set the refresh's Operating time.

4-18-3: Set the refresh's work limit time
Set the limit time in order to prevent continuous operation after refresh movement. Refresh can be used again when the time set for this category has passed.

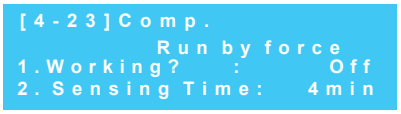
4-20: Calibration of voltage measurement value
The function aligns voltage measured during installation of the product with voltage indicated on [POWER] on the information checking window. The two voltages be shall kept identical to each other with this function.

4-21: Dasher motor delay time setting
Sets the motors operation delay time after making soft ice cream.

4-22: Compressor delay time setting
This sets the compressor's operation delay time after making soft ice cream. If this category is given much time, soft ice cream can be frozen too much and problems can occur to the product.



4-23/4-23-1: Selection of the compressor forced operation
This is the function for forcibly operating the compressor during rest time when the compressor is not operating. The following categories appear when this category is turned on.



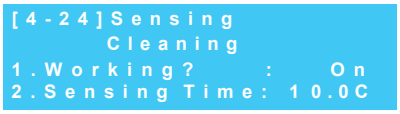
4-23-2: Temperature detection time setting after stop
This chooses the time to determine the temperature during the rest time.
In case '4min' is chosen, it means, detecting temperature 4minutes after rest.
It sets the temperature for operating the compressor.
The compressor is operated when the temperature reaches the temperature that has been set for this category.

4-23-3: Operation temperature selection
This detects the temperature at the time set in Category '4-23-3' and sets the temperature at which the compressor can be operated.
The compressor is operated when the temperature reaches the temperature that was set for this category.

4-23-4: Operation time control
In case the temperature reaches the temperature of '4-23-3' at the time of '4-23-2', it sets the time for compressor operation.

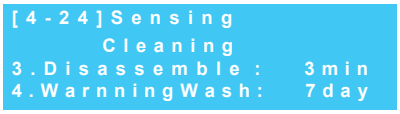
Explanation of the function buttons (set by an Administrator)

4-24/4-24-1: Wash detection function setting
This is the category to select the wash detection function.



4-24-2: Determine the temperature setting during washing
This adjusts the detection temperature in the cylinder and thehopper during washing when '4-24-1' is activated.

4-24-3:Dasher cover separation time setting during washing
This sets the separation time of the dasher cover during washing. Be careful as a 'wash failure' is recorded when the dasher cover is attached within the time set for this category.



The time for this category means, the minimum time necessary to clean the parts inside the cylinder such as the dasher, the blade, and so forth.

4-24-4: No wash warning date setting
An alarm(Voice Supported Model) is set off when washing is not performed within the value(days) set within this category.

4-24-5: No wash lock setting
The product cannot be used when no washing is performed within the days set for this category.
If this product cannot be used due to no washing, perform cleaning according to the method indicated in the manual.

4-25/4-25-1: Selecting the operation mode of the impeller in the mix tank
The impeller in the reservoir bin operates depending on the ON/OFF adjustment of the sensor of raw material temperature in accordance with the following items:

"COMP" : Activated only when the compressor operates
"TIME" : Operating in accordance with time(4-25-2, 4-25-3) setting independent from the operation of the compressor
"Co.t" : Operating in the same way as the compressor, also activated by time setting (4-25) after the materials in the reservoir bin reach the temperature setting

4-25-2: Operation maximum time setting
This is the function to limit the impeller operation time by providing the maximum operation time under the condition of impeller operation. It is usually used when a lot of foam is created by raw material.
When the agitator operation time is short, ice may form on the wall of the hopper.

4-25-3: Maximum rest time setting
The impeller stops when the raw material in the hopper reaches the set temperature, and the impeller operates when the temperature reaches the operation temperature. At this time, the temperature distribution in the hopper may not be even when it takes a long time to reach the operation temperature.
Then setting the rest time for the agitator can control it.

caution

Do not turn off the power switch during the wash cycle.
This is because the program that detects washing is in operation

Explanation of the function buttons (set by an Administrator)

4-26: Hopper temperature compensation function setting
The temperature in the hopper is measured with the temperature sensor on the floor of the hopper. The temperature is correct in the models having an impeller, however it may have deviation in the models without impeller.
As such, the temperature has to be corrected.

4-26-1: Temperature compensation value setting for 10℃ or lower
This sets the temperature compensation value of the hopper to the environmental temperature of 10℃ or lower.

4-26-2: Temperature compensation value setting for 20℃ or lower
This sets the temperature compensation value of the hopper to the environmental temperature of 20℃ or lower.

4-26-3: Temperature compensation value setting for 30℃ or lower
This sets the temperature compensation value of the hopper to the environmental temperature of 30℃ or lower.

4-26-4: Temperature compensation value setting for 4℃ or lower
This sets the temperature compensation value of the hopper to the environmental temperature of 40℃ or lower.

4-26-5: Temperature compensation value setting for 40℃ or higher
This sets the temperature compensation value of the hopper to the environmental temperature of 40℃ or higher.

4-27: Sale lever no return judgment time setting
When the lever does not return to the original position after the ejection of the soft ice cream, an alarm is set off after the time that was set for this category.

4-28/4-28-1: Defrost function selection
The action function can be set to ON/OFF.

4-28-2: Cylinder temperature setting during defrost
Defrosting the soft freezer inside the cylinder to the temperature that was set for this category.

4-28-3: Maintenance time setting during defrost
It sets the delay time after reaching the temperature of '4-28-2'.

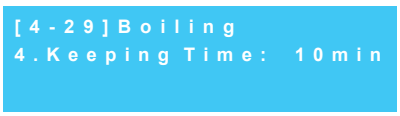
4-29/4-29-1: Water boiling function
Water boiling function can be set to ON/OFF.

Explanation of the function buttons (set by an Administrator)

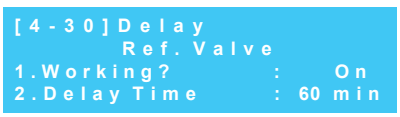
4-29-2: Heating temperature setting during water boiling
It sets the temperature of raw material in the cylinder and hopper during water boiling.

4-29-3: Management temperature setting during water boiling
It maintains the temperature of the cylinder and the hopper set at this category from the temperature set at '4-29-2'.

4-29-4: Management time setting during water boiling
It sets the time necessary to maintain the management temperature of '4-29-2' and '4-29-3'.

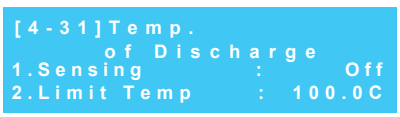


4-30/4-30-1: Refrigeration value delay function setting
It is the function that is used to make soft ice cream faster by delaying the operation of refrigeration value when making soft ice cream.



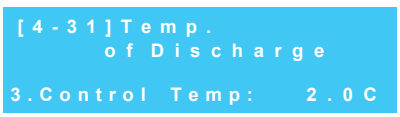
4-30-2: Refrigeration value delay time setting
It sets the time of refrigeration value closure at the time of initial operation, and this time loses its effect after soft ice cream is made. Therefore, it sets the time to keep the refrigeration value closed before the making of soft ice cream.

4-31/4-31-1: Cylinder refrigerants temperature use selection
It can select the use of cylinder refrigerants temperature sensor. It is the function to detect and limit the temperature of refrigerants inside the cylinder when performing pasteurization without any raw material.



4-31-2: Cylinder refrigerants maximum temperature setting
It is the function to prevent the temperature of the refrigerants inside the cylinder from rising above this value set at this category.

4-31-3: Cylinder refrigerants management temperature setting
It manages the temperature of refrigerants inside the cylinder by reducing the value of this category from the temperature of the category '4-31-2'.

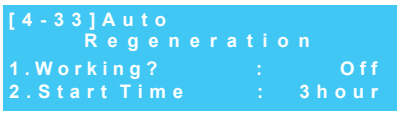


4-32-1: MIX OUT function selection
When this category is activated, all operations are stopped in case there is no raw material.

4-32-2: MIX OUT function selection

Explanation of the function buttons (set by an Administrator)

4-33/4-33-1: Auto recycling function setting
Activate this category when auto recycling is needed. Make sure to block the carburetor hole when performing auto recycling.

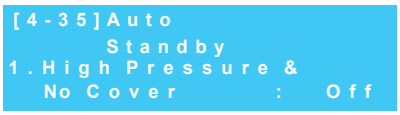


4-33-2 : Auto recycling judgment time setting
Auto recycling is performed when the time set at this category is passed under auto.

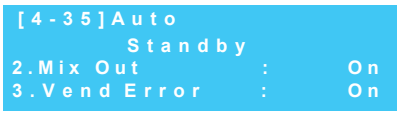
4-33-3: First auto recycling limit time setting
Set up the time while auto-regeneration is not carried out.

4-33-4: Second auto recycling limit time setting
Set up the time while auto-regeneration is not carried out.

4-35-1: Standby auto shift selection
It selects the function to set standby automatically when the machine stops due to high pressure or cover error.
When this category is turned on, standby is activated.
When it is turned off, the operation before error is executed after error is lifted.

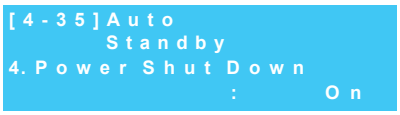


4-35-2: Standby auto shift selection
It selects the function to set standby automatically when '4-32-1 ' (MIX OUT function) is activated and no raw material is detected.



4-35-3: Standby auto shift selection
It selects the function to set standby automatically when dispenser error (Er27, Er28, Er29, Er30, Er33, Er34) appears.

4-35-4: Standby auto shift selection
It selects the function to set auto under auto and standby under pasteurization and standby when the power is allowed after being turned off during operation.



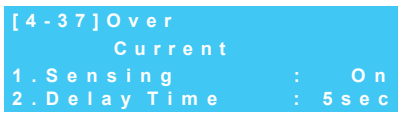
For your information

Turn the power off, for a while to reset Dispenser related errors.

Explanation of the function buttons (set by an Administrator)

4-36: Auto selection(It applies to the fully automatic vending machine, not to the manual system.)
This selects the function to set standby when the category '4-35-1' and '4-35-2' are activated or automatically set auto when supplying raw material or cup during operation.

4-37/4-37-1: Excessive current detection function selection
This category is the function to select the protection function by detecting the excessive current of the dasher motor.



4-37-2: No current detection is performed during the time set at this category.

4-37-3: Excessive current detection current setting
Soft ice cream is controlled by the value set at '3-1' and the machineis operated normally.
When troubles (lack of raw material and soforth) happen and motor stops, this function detects it.
The value set at this category is added to the value of '3-1' , and the function begins to be operated when the set value is reached.

4-37-4: Excessive current detection delay time setting
Excessive current detection function is operated when more than the value of '4-37-3' is detected and the time set at this category is passed.

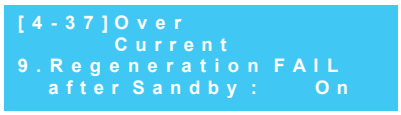
4-37-5: Reset function selection
This category selects reset function when abnormal operations
(excessive current, TP on peration, inverter trouble and so forth) occur in the motor.

4-37-6: Reset number setting
When category '4-37-5' is activated, it selects the number of resets.

4-37-7: Recycle after the number of resets is terminated.
It selects the function to recycle automatically when an error occurs even after auto reset.

4-37-8: Recycling number setting
When category '4-37-7' is activated, it selects the number of recyclings.

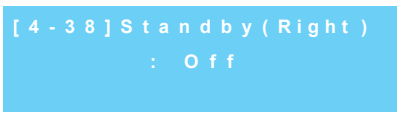
4-37-9: Standby in case of defrost / auto error
It selects the function to set final standby when the processes from '4-37-5' to '4-37-8' all failed.



Explanation of the function buttons (set by an Administrator)

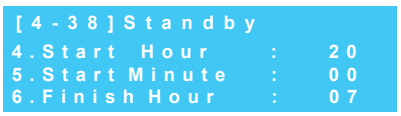
4-38-1: Select whether to use 'Standby' button
When this category is activated, press the 'refresh' button for longer than 3 seconds to operate the standby function.

4-38-2: Selection of auto 'Standby'
Choose ON for auto Standby and choose OFF for no auto Standby.
When ON is selected, the following categories are activated.



4-38-3: Auto 'Standby' cycle setting
Execute auto Standby according to the date set in this category.
For example, '1day' is everyday, '2day' is every other day, and '3day' is every three days.
Auto Standby is alway executed in the auto mode and the standby mode and is not executed in any other mode.

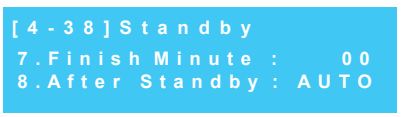
4-38-4: Auto 'Standby' start time setting
This sets the time to start auto Standby.
Set the hour for this category.



4-38-5: Auto 'Standby' start time setting
This sets the time to start auto Standby.
Minutes are set in this category.

4-38-6: Auto 'Standby' finish time setting
This sets the time to start auto Standby. Set the hour for this category.

4-38-7: Auto 'Standby' finish time setting
This sets the time to start auto Standby.
Minutes are set in this category.



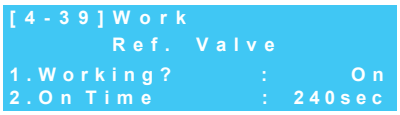
4-38-8: Auto set after 'Standby'
Select whether to execute auto when stand by has completed after Standby.
Set this category as AUTO and execute auto and make sure to open the carburetor hole.

Select whether to execute auto when stand by has completed after Standby.
Set this category as HEAT and execute auto Pasteurization.

Select whether to execute auto when stand by has completed after Standby.
Set this category as STAN and execute auto stand by.

Explanation of the function buttons (set by an Administrator)

4-39/4-39-1: Refrigeration valve operation selection
It selects the use of operation time of refrigeration valve that refrigerate the raw material in the hopper.
Activate this category when refrigerating the cylinder and the hopper with a single compressor.



4-39-2: Refrigeration valve operation time setting
It sets the operation time of refrigeration valve that refrigerates the raw material in the hopper.
Be careful as ice can be formed on the wall of the hopper when the time of this category is adjusted too much.

4-39-3: Refrigeration valve rest time setting
It sets the rest time of refrigeration valve that refrigerates the raw material in the hopper.
soft ice can be formed on the wall of the hopper when the time of this category is too short, and the raw material in the hopper may not be refrigerated when the time of this category is too long.

4-39-4: By choosing refrigeration valve operation mode, effective storage of ingredient can be done.
Either : At the operation of either the freezing valve or refrigeration valve, the compressor starts to operate.
Drum on : Only when the freezing valve operates, refrigeration valve starts to operate.

4-40: Set up compressor cooling fan delay time
This function sets up the delay time in compressor cooling fan start-up.

4-41: Set up hot gas valve operation in standby mode
Set up the operation of the hot gas valve during standby status.

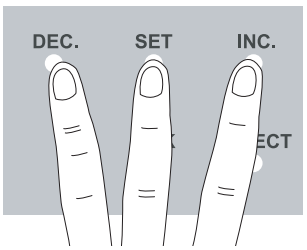
4-42: Set up hot gas valve operation in ‘ AUTO’ mode
Set up the operation of the hot gas valve during AUTO status.

Explanation of the function buttons(set by a user)

Only experts that have been designated by the main office or by those who received professional education and received approval from the main office shall adjust this category.
A service charge will be applied if problems occur due to unapproved alterations.

Press ‘DEC.’ + ‘SET’ + ‘INC.’ buttons for 2 seconds to enter the stage of inputting the password.
Password has 4 digits and input begins from the left and the relevant digit blinks.

Select the number by ‘INC.’ and ‘DEC.’ buttons and press ‘SET’ button to move to the next digit. Input the 4 digit password in this way.
Our engineer knows the password, and password input window will not appear. if you set 9-19-2 items as 'OFF'.



9-1/9-1-1: Pressure stabilization function selection after pasteurization

```
[9-1]Pressure
     Equalizer
1.Working?   :    Off
2.Valve Open :  60sec
```

9-1-2 : Value open time setting
It sets the operation time of related valve in order to stabilize the pressure in the cylinder and the hopper.

9-1-3 : Value block time selection
It sets the block time of the related valve in order to stabilize the pressure in the cylinder and the hopper.

```
[9-1]Pressure
     Equalizer
3.Valve Close:   1min
4.Comp.Work  :   0sec
```

9-1-4 : Compressor operation time setting

9-1-5 : Compressor rest time setting

9-1-6 : Final Compressor rest time setting

```
[9-1]Pressure
     Equalizer
5.Comp.Break :   1min
6.Last Break :   1min
```

9-2-1 : Hopper refrigeration operation time setting after pasteurization
It sets the maximum operation time when refrigerating the hopper after pasteurization.

```
[9-2]Heating
after Hopper STANDBY
1.Limit Time  :  60min
2.Ending Temp :   5.0°C
```

9-2-2 : Set refrigeration temperature in the hopper after pasteurization
It sets the target temperature when refrigerating the hopper after pasteurization.
If one is satisfied between ‘9-2-1’ and ‘9-2-2’ , hopper refrigeration after pasteurization is terminated.

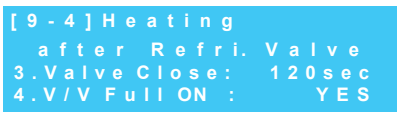
9-4/9-4-1 : Refrigeration valve operation selection (Apply during refrigeration after)
It selects the use of operation time of refrigeration valve that refrigerate the raw material in the hopper.
Activate this category when refrigerating the cylinder and the hopper with a single compressor.

```
[9-4]Heating
after Refri. Valve
1.Working?   :    On
2.Valve Open :  60sec
```

Explanation of the function buttons(set by a user)

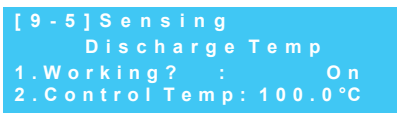
9-4-2: Refrigeration valve operation time setting
It sets the operation time of refrigeration valve that refrigerates the raw material in the hopper. Be careful as ice can be formed on the wall of the hopper when the time of this category is adjusted too much.

9-4-3: Refrigeration valve rest time setting
It sets the rest time of refrigeration valve that refrigerates the raw material in the hopper. Ice can be formed on the wall of the hopper when the time of this category is too short, and the raw material in the hopper may not be refrigerated when the time of this category is too short.



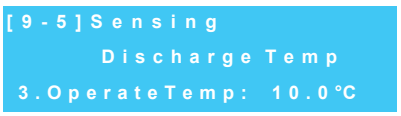
9-4-4: Set up refrigeration valve 'Full OPEN'
Set up valve Full Open while refrigerating the raw material in the hopper.

9-5/9-5-1: Refrigerants temperature use
Refrigerants temperature use can be set to ON/OFF. This category needs to be activated first in order to activate the category '4-31'. When this category is activated and category '4-31' is not activated, the refrigerants temperature of '2-4' may display error.

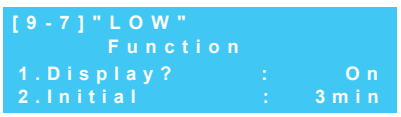


9-5-2: Refrigerants detection control temperature
When '9-5-1' is activated, the temperature of the refrigerants set at this category is checked. If the temperature is hotter, the operation of the compressor is stopped.

9-5-3: Refrigerants detection management temperature
When temperature reaches the reduced temperature by the value set at these categories (9-5-2, 9-5-3) after the compressor stopped at the value set at '9-5-2', the compressor is operated again.



9-7/9-7-1: 'LOW' output use setting
Soft ice cream reaches the set value after the machine is operated. When it does not reach the controlled value due to other reasons (lack of raw material supply and so forth), LOW message is displayed. This category decides output.



9-7-2: Initial 'LOW' output time
When operating the machine for the first time, if soft ice cream is not made 100% with in the time set at this category from the moment of 0.2A(9-7-6) increase from no load current (1-2), LOW is displayed.(ex L90%)

Explanation of the function buttons(set by a user)

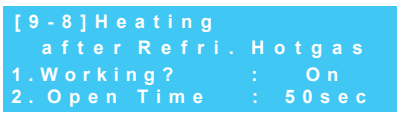
9-7-3: Set up the time criteria for deciding ‘LOW’ in resale Set up the reference time for deciding ‘LOW’ in resale

9-7-4: Rest time setting when LOW appears
When LOW appears, the rest time set at this category is applied instead of the rest time set at category ‘4-1’.

9-7-5: High speed rotation time setting when LOW appears
When LOW appears, it sets the time for high speed rotation after the rest time of the category ‘9-7-4’.

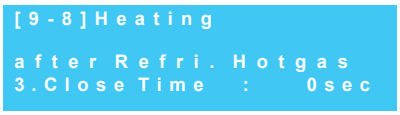
9-7-6: Set up the reference current for deciding ‘LOW’ in resale
Set up the reference current for deciding ‘LOW’ in resale

9-8/9-8-1:Cold storage preferred refrigeration set up after pasteurization
It selects the use of hot gas valve during standby after pasteurizationIt is applied to the refrigeration of hopper after pasteurization, and refrigeration valve works even when this category is not activated.

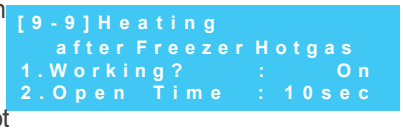


9-8-2: Hot gas valve operation time
It sets the operation time of hot gas valve during the refrigeration of hopper after pasteurization.

9-8-3: Hot gas valve rest time
It sets the rest time of hot gas valve during the refrigeration of hopper after pasteurization.

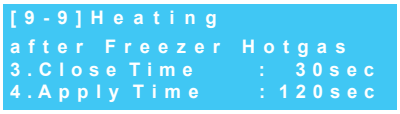


9-9/9-9-1: Freezing preferred refrigeration set up after pasteurization
Selection of hot gas valve use during standby after pasteurizationIt is applied to the refrigeration of the cylinder after pasteurization.
Refrigeration valve works even when this category is not activated.



9-9-2: Initial Hot gas valve operation time
It sets the operation time of hot gas valve during the refrigeration of cylinder after pasteurization.

9-9-3: Initial Hot gas valve rest time
It sets the rest time of hot gas valve during the refrigeration of cylinder after pasteurization.



9-9-4: Initial hot gas valve cycle operating time set up
Set up the time applied to the cycle operation of ‘9-9-2’ and ‘9-9-3’.

important

1. ‘LOW’ message appears when soft freezer does not reach the set current.
   It happens when the blade does not clean theinner wall of the cylinder, the raw material is not supplied from the hopper or there are problems in refrigeration capacity.
2. Categories ‘9-7-4’ and ‘9-7-5’ are activated in the models with inverter.
   However, this function is repeated 2 or 3 times before normal operation.

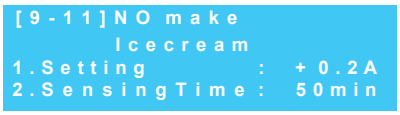
Explanation of the function buttons(set by a user)

9-9-5: Second Hot gas valve operating time set up
Set up the valve operating time after the cycle operation of '9-9-4'.

9-9-6: Second Hot gas valve resting time set up
Set up the valve resting time after the cycle operation of '9-9-4'

9-10: Pasteurization prevention function selection during 'MIX LOW'
When this category is activated, pasteurization is not performed during 'MIX LOW'.

9-11-1: No formation judgment current
It is the category ton control the error conditions that can cause the failure of soft freezer making, and it occurs when the current doesnot rise above the value set at this category from no load current during operation.

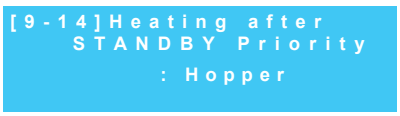


9-11-2: No formation judgment time
It is the category to control the error conditions that can cause the failure of soft ice cream making, and it occurs when the time of this category is passed while not reaching the current value set at '9-11-1'.

9-12: Compressor operation judgment current
In case of typical 'ON/OFF' in auto mode, it sets the current value ofthe motor that is needed to operate the compressor. When the present current is lower then the current value after deducting the current value of this category from the current set at '1-1', compressor is operated.
Otherwise, the compressor is not operated.

9-13: Inverter use setting
This category is activated in models with inverter.

9-14: Refrigeration priority setting after pasteurization
This category is to set the priority in refrigerating the hopper and the cylinder after pasteurization.

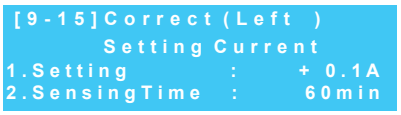


important

When soft freezer is not sold and becomes thin, it cannot be returned to the original ice quality. By using recycling function, soft freezer can become similar to its original ice quality. When recycled, however, overrun can drop and ejection amount can be different.

Explanation of the function buttons(set by a user)

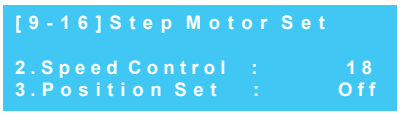
9-15-1: Current compensation value in case of no sale during operation
When soft ice cream is not sold for a long period of time, it becomes thin and ejection amount tends to be large. After a long period of time without sale, it makes soft ice creama little harder by adding the value of this category to the value set at '3-1'.



9-15-2: Judgment time setting in case of no sale during operation
When soft ice cream is not sold for a long period of time, it becomes thin and ejection amount tends to be large. After a long period of time without sale, it makes soft freezer a little harder by adding thevalue of this category to the value set at '9-15-1'.

9-16-1: Set up cup holder travel stroke
Set up the travel distance from the soft ice cream discharge port to the cup discharge port of the cup dispenser.

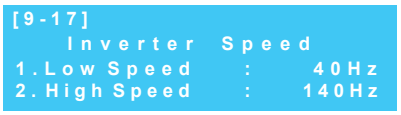
9-16-2: Set up cup holder travel speed
Set up the travel speed of the cup holder.



9-16-3: Adjust cup discharge port position
For fine adjustment of the cup holder, change the setting value at '9-16-1'.
Activate (ON) the item, and adjust the position of the cup holder using the '–' and '+' buttons to the left and right, respectively.

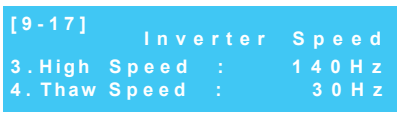
※ '9-16': It applies to the fully automatic vending machine, not to the manual system.)

9-17-1: Set up dasher motor speed (At the start of producing ice cream)
set the frequency of the inveter to run the dasher motor at the start of ice cream producing.



9-17-2: Adjust dasher motor speed (For the operation stage)
set the frequency of the inverter to run the dasher motor for the stage after the start of the ice cream production.

9-17-3: Adjust dasher motor speed (at dispensing)
The inverter which runs the dasher motor operates at the frequency set up in this item when dispensing soft ice cream



9-17-4: Adjust dasher motor speed (at pasteurization and referigeration)
The inverter operates at the frequency set up in this item when pasteurizing and referigerating the hopper and the cylinder.

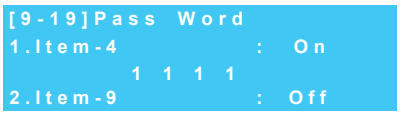
caution

The password of this item can be assigned to the technicians authorized by the manufacturer under proper security procedures.
Releasing the password can be subject to legal punishment.

Explanation of the function buttons(set by a user)

9-18: Time Adjust brightness of LCD BACK LIGHT
Adjust the LCD BACK LIGHT time
Kept lighted if set up as ‘FULL ON’

9-19-1: Set up password
Set up the password required for administrator mode(Item No4)



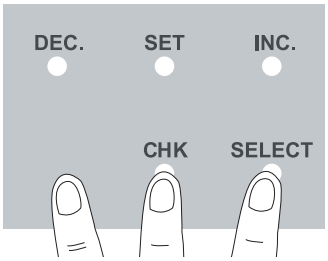
9-19-2: Set up use-or-not of administrator’s password
Set up use-or-not of the password required for Technician mode.
If this item is ‘ON’ the password will be set up automatically, and no more items can be checked out.

For your information

- When soft ice cream is not sold and becomes thin, it cannot be returned to the original ice quality. By using recycling function, soft ice cream can become similar to its original ice quality. When recycled, however, overrun can drop and ejection amount can be different.
- The password of this item can be assigned to the technicians authorized by the manufacturer under proper security procedures. Releasing the password can be subject to legal punishment.

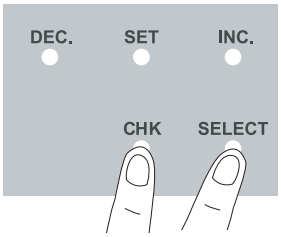
How to check the operation of each part

Pressing “CHK,” “SELECT,” and empty space next to “CHK” simultaneously and holding them down for three seconds enable the mode for checking the operation of each part.
This operation is performed if a particular part is suspected of failure. Selecting “ON” and “OFF” for each part activates the part.
If the part is not activated, check the part for failure and connection of the power cable to identify promptly the failure of the part. Once you finish checking, turn the part off.



Sale related Settings

If you push 'CHK' and 'SELECT' button at the same time for 2 seconds,
you enter into sales related settings, and you can change relevant values by pressing 'SET' button.



*1-1: Verifying the total sales amount.

```
[1 - 1] Total Sum

Total:                    ₩
```

It is allowed to verify the total sales amount.

1-2: Verifying the total sales quantity.

```
[1 - 2] Total Count

Total:                   EA
```

It is allowed to verify the total cups sales.

*1-1: Verifying the sales amount per column (upon setting to one time).

```
[1 - 1] Total Sum
Col 1:                    ₩
Col 2:                    ₩
Col 3:                    ₩
```

It is allowed to verify the sales amount per column.

*1-2: Verifying the sales quantity per column (upon setting to one time).

```
[1 - 2] Total Count
Col 1:                   EA
Col 2:                   EA
Col 3:                   EA
```

*1-1: Resetting the sales amount per column (upon setting to one time)

```
[1 - 1] Total Sum

          Reset?: NO
```

It is allowed to initialize the sales amount made so far: press the 'SET' button and select 'YES' to initialize the amount.

*1-2: Resetting the sales quantity per column (upon setting to one time).

```
[1 - 2] Total Count

          Reset?: NO
```

It is allowed to initialize the quantity of sales made so far.

*1-1: Resetting the sales amount per column (upon setting to one time).

```
[1 - 1] Total Sum

      Reset  Finish
```

Initializing the amount displays the message, as shown in the figure.

*1-2: Verifying the sales quantity per column (upon setting to one time).

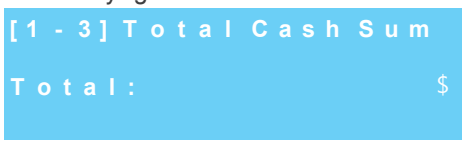
```
[1 - 2] Total Count

      Reset  Finish
```

For your information

- Items '1 - 2' only applicable to manual machine.
- Items '1-2 & 1-12' only applicable to self-service machine.
- '*'Function applied only to vending machine models.

Sale related Settings

*1-3: Verifying the total sales amount for cash



It is allowed to verify the total amount of cash sales

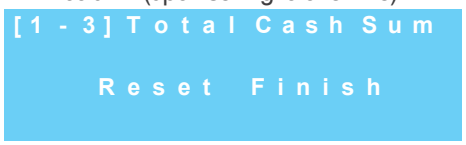
*1-3: Verifying the total sales amount for cash per column.(upon setting to one time)

It is allowed to verify the total sales amount for cash per column.

*1-3: Resetting the sales amount for cash per column.(upon setting to one time).

It is allowed to initialize the sales amount for cash made so far: press the 'SET' button and select 'YES' to initialize the amount.

*1-3: Verifying the sales amount for cash per column.(upon setting to one time)



Initializing the amount display the message, as shown in the figure.

*1-4: Verifying the total sales quantity for cash

It is allowed to verify the total cups sales.

*1-3: Verifying the total sales quantity for cash per column.(upon setting to one time)

It is allowed to verify the total sales quantity for cash per column.

*1-3: Resetting the sales quantity for cash per column.(upon setting to one time).

It is allowed to initialize the sales quantity for cash made so far: press the 'SET' button and select 'YES' to initialize the amount.

*1-3: Verifying the sales quantity for cash per column.(upon setting to one time)

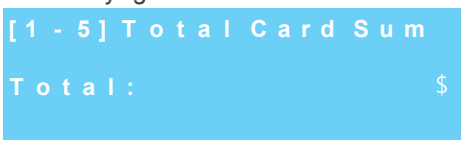
Initializing the amount display the message, as shown in the figure.

For your information

- Items '1 - 2' only applicable to manual machine.
- Items '1-2 & 1-12' only applicable to self-service machine.
- '★'Function applied only to vending machine models.

Sale related Settings

*1-5: Verifying the total sales amount for card



It is allowed to verify the total amount of cash sales

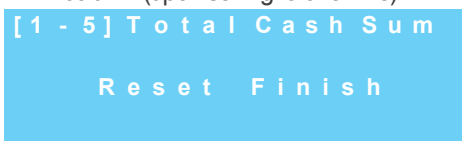
*1-5: Verifying the total sales amount for card per column.(upon setting to one time)

It is allowed to verify the total sales amount for card per column.

*1-5: Resetting the sales amount for card per column.(upon setting to one time).

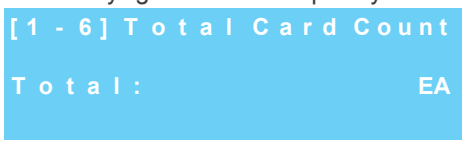
It is allowed to initialize the sales amount made for card so far: press the 'SET' button and select 'YES' to initialize the amount.

*1-5: Verifying the sales amount for card per column.(upon setting to one time)



Initializing the amount display the message, as shown in the figure.

*1-6: Verifying the total sales quantity for card



It is allowed to verify the total cups sales.

*1-6: Verifying the total sales quantity for card per column.(upon setting to one time)

It is allowed to verify the total sales quantity for cash per column.

*1-6: Resetting the sales quantity for card per column.(upon setting to one time).

It is allowed to initialize the sales quantity for card made so far: press the 'SET' button and select 'YES' to initialize the amount.

*1-6: Verifying the sales quantity for card per column.(upon setting to one time)

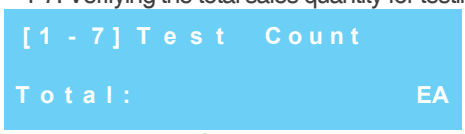
Initializing the amount display the message, as shown in the figure.

For your information

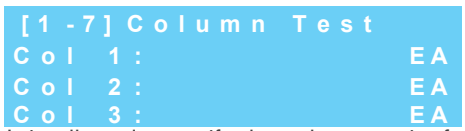
- Items '1 - 2' only applicable to manual machine.
- Items '1-2 & 1-12' only applicable to self-service machine.
- '*'Function applied only to vending machine models.

Sale related Settings

*1-7: Verifying the total sales quantity for testing.



Pressing the 'CHK' button for five seconds or longer allows for for checking on the amount of test sales, and it is allowed to verify the total sales quantity.

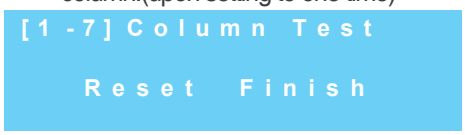


It is allowed to verify the sales quantity for testing per column.

*1-7: Resetting the sales quantity for testing per column.(upon setting to one time).

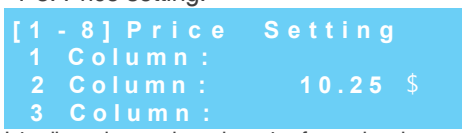
press the 'SET' button and select 'YES' to initialize the amount.

*1-7: Verifying the sales quantity for testing per column.(upon setting to one time)



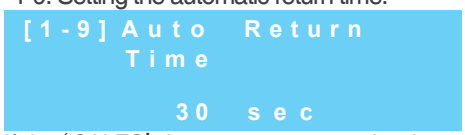
Initializing the amount display the message, as shown in the figure.

*1-8: Price setting.



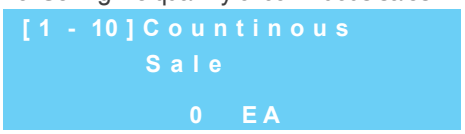
It is allowed to set the sales price for each column.

*1-9: Setting the automatic return time.



If the 'SALES' button is not pressed within a certain period of time after the bills and coins have been inserted, the bills and coils will be returned.
It is allowed to set the return time.
After 30 seconds plus the time set at this menu, the coin will be returned.

1-6: Setting the quantity of continuous sales.



It is allowed to conduct continuous sales if an amount larger than the sales price remains after bills and coins have been inserted and after the 'SALES' button has been pressed.
For example, setting the value to '0' allows for continuous sales to be conducted, while setting the value to '1' automatically returns change.

1-11: Lighting adjustment.

It is allowed to adjust the lighting of the LED lamp that is installed on the front face of the product for advertisement.
For example, Full ON: LED is kept lit.
Full OFF: LED is kept off.

In case of controlling the lighting by time setting, change the time by setting as 'AUTO'.

1-12: Setting free sales.

It is allowed to set free sales.
Setting this function to 'ON' allows for continuous sales to be conducted with the 'SALES' button without having to insert bills or coins.

For your information

- Items '1-2' only applicable to manual machine.
- Items '1-2 & 1-12' only applicable to self-service machine.
- '*'Function applied only to vending machine models.

Making ice cream

1. With the carburetor removed, pour ingredient into the mix hopper until the "MIX–OUT" indicator goes off.

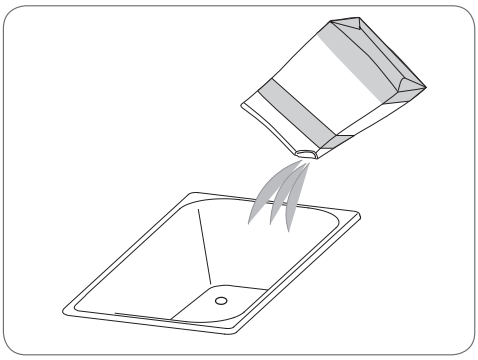
2. Put the carburetor back on when a sufficient amount of ingredient is poured. Adjust the carburetor hole according to the amount you want to sell.

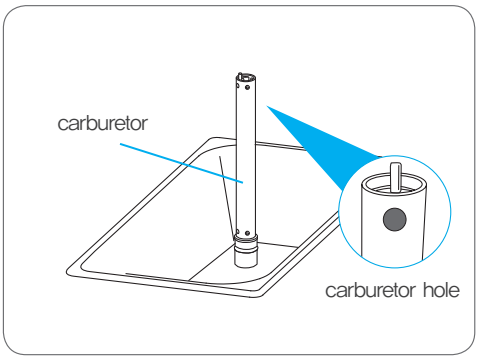
3. Insert the impeller and put back the cover.

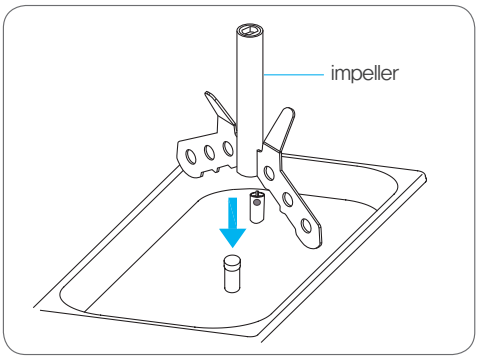
4. Press the WASH button to run the motor so as to make the putting of ingredient smoother.

5. Press AUTO.

6. If the maker is operated for the first time, wait till the ice cream level reaches 100% before dischanging ice cream.





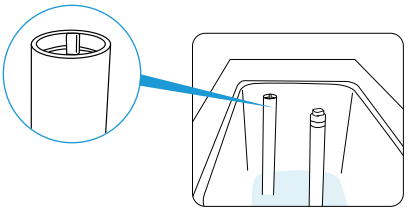


For Your Information

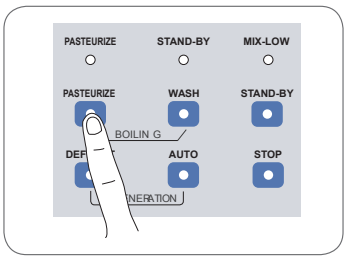
- The smaller the carburetor hole is, the higher the possibility of overrun (ratio of air). Note, however, that it also slows down the supply of ingredient and speed of making ice cream. Therefore, adjust the carburetor hole if you want to sell a large amount of ice cream per session.
- The carburetor hole may get clogged, so be sure to check the hole frequently and clean it.
- The manufacturer is not liable for any issue arising from failure to keep the ingredient at temperature below 10℃, including, but not limited to, spoiled ingredient, overfreezing, or inability of the maker to make ice cream.

How to pasteurize ice cream

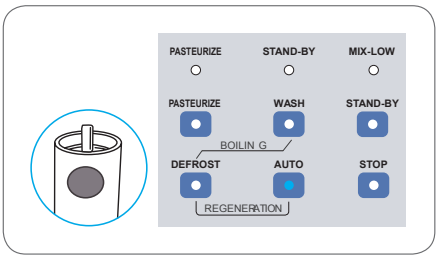
1. Plug the carburetor hole inside the hopper.



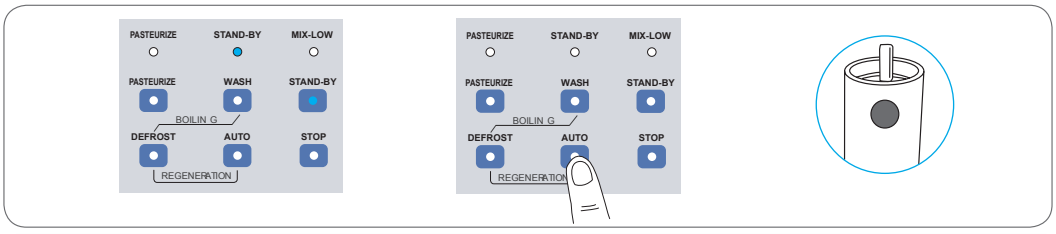
2. Press PASTEURIZE, which sterilizes soft ice cream and ingredient in the hopper and cylinder at low temperature between 68~70℃ for 30 minutes and prevents the formation of microorganisms to keep the ice cream as fresh as possible.
Pasteurization must be performed on a daily basis.
Otherwise, at least wash the maker on a daily basis.



3. After the pasteurization is completed, and the AUTO indicator is on, ice cream is made automatically.
Open the carburetor hole if you want to sell ice cream at this time.



4. After the pasteurization is completed, and the STANDBY indicator is on, the ingredients in the cylinder and hopper are stored at low temperature, and the maker is converted STANDBY mode.
Press AUTO to make ice cream at this time.
Open the carburetor hole when soft ice cream being made.

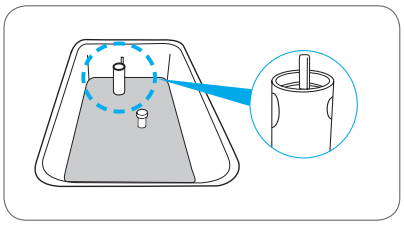


For Your Information

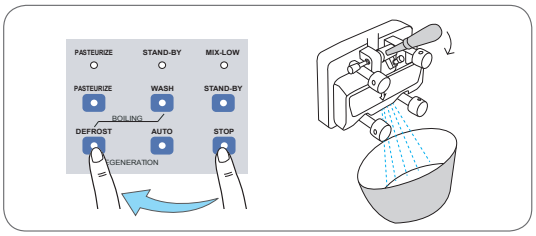
- For pasteurization, a minimal amount of ingredient must be present in the hopper and must be agitated smoothly by the impeller. The amount must be more than 4 liters (with cylinder full).
- The product provides an automatic pasteurization function, which is activated in AUTO and STANDBY modes only. All buttons will be deactivated during pasteurization.
- Automatic pasteurization is set to be activated at 4:00 AM; the time may differ per model.
  The product must be in either AUTO or STANDBY mode, and it must stay connected to the power source during pasteurization.
  The manufacturer is not liable for the spoiling of ingredient due to failure to perform pasteurization.
- Please do not use pasteurization function when you use yogurt ingredient in order to protect lactic acid bacteria.

To get the desired texture of ice cream (Regeneration)

1. Plug the carburetor hole in the hopper.

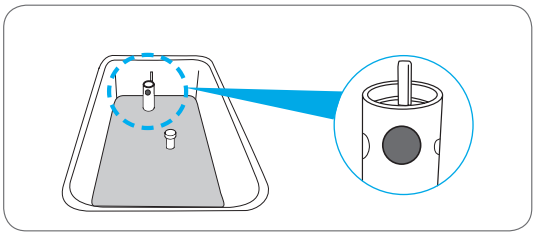


2. Press STOP, followed by DEFROST.



3. Pull the outlet lever to let out 200~300g of ice cream, and then put back the ice cream into the hopper. Press AUTO to make ice cream again.

4. When the making of ice cream is completed, open the carburetor hole.



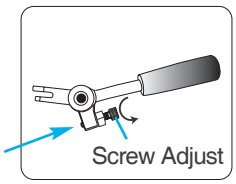
For Your Information

- An ingredient with lots of fat results in bad texture if a small amount of ice cream is sold for 5~6 hours. Perform the steps above to improve the texture of ice cream.

※ For the model with orifice, use the REGENERATE function without adjusting the carburetor hole.

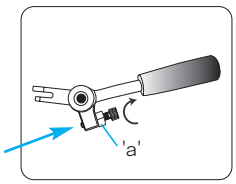
Controlling the speed of making ice cream

1. Adjust the bolt below the draw lever to control the dischanging speed of ice cream.
   As shown in the figure, loosen the bolt by turning it counterclockwise to speed up the dischanging of ice cream.



2. As shown in the figure, tighten the bolt by turning it clockwise to slow down the dischanging of ice cream.

※ After Adjusting the bolt, tighten the middle nut "a" to keep the bolt at that position and stabilize the amount and speed.

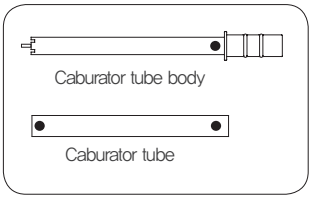


For Your Information

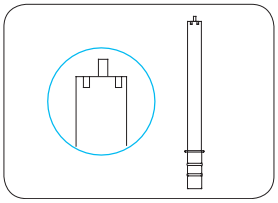
- Higher speed by loosening the bolt also means slower supply of ingredient to the cylinder from the hopper, and ice cream may not come out at a certain point. Due to overfreezing of the cylinder Thus, setting the speed at 6~8 seconds is recommended for a cup of ice cream.

How to adjust the caburator

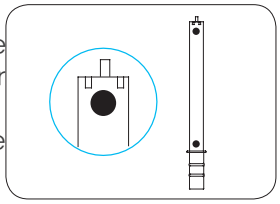
The carburetor has two components.
The one inserted into the hopper is "BODY," with a "TUBE" going into the body.
The tube is open on both sides and cannot be inserted in the wrong direction.



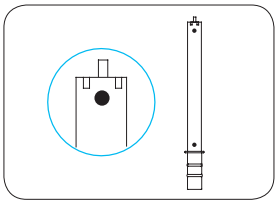
The carburetor hole is clogged.
Match the projecting part on the upper "BODY" to the upper part of the "TUBE" without a hole so that the hole in the lower part of the "BODY" is plugged.
Conditions : ① When making ice cream for the first time
② When on pasteurization mode
③ For regeneration



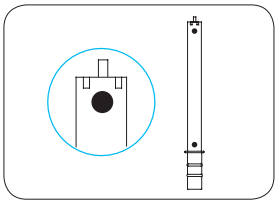
The carburetor is set to a bigger hole.
Match the projecting part on the upper "BODY" to the big hole in the upper part of the "TUBE" without a hole so that the hole in the lower part of the "BODY" matches the big hole.
This is to minimize overrun and increase the ingredient for the continuous making of ice cream.
Conditions : ③ For operation



The carburetor is set to a smaller hole.
Match the projecting part on the upper "BODY" to the smaller hole in the upper part of the "TUBE" without a hole so that the hole in the lower part of the "BODY" matches the smaller hole.
This is to increase overrun and decrease the ingredient when demand for ice cream is low.
Conditions : ③ For operation



The carburetor is set to a medium-size hole.
Match the projecting part on the upper "BODY" to the medium-size hole in the upper part of the "TUBE" without a hole so that the hole in the lower part of the "BODY" matches the smaller hole.
This is to set medium overrun and ingredient.
Conditions : ③ For operation

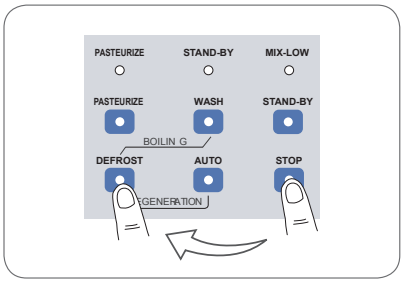


For your information

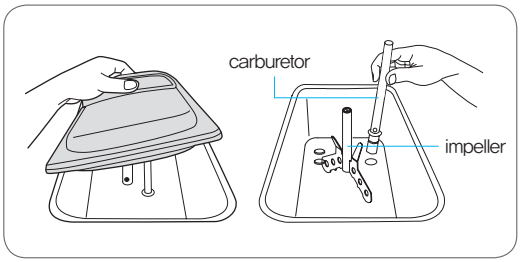
Even if overrun is improved with a smaller hole, the amount of ice cream may vary depending on the amount of ingredient in the hopper.
The smaller the amount of ingredient that the hopper has, the bigger the overrun will become, and vice versa.

How to clean

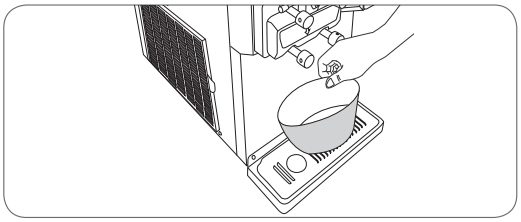
1. Press STOP, followed by DEFROST.
   (Wait till the ice cream in the cylinder melts)



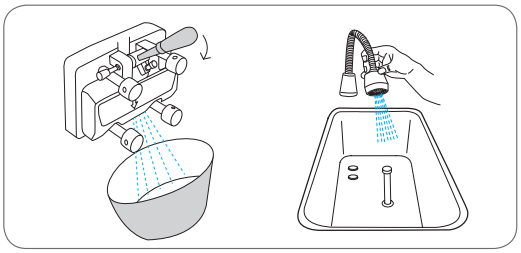
2. Open the cover of the mix hopper and remove the carburetor and impeller.



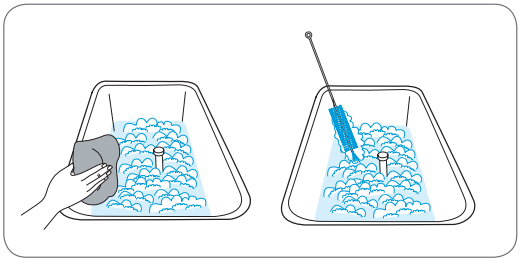
3. Put the draining basin on the drain box.



4. Remove all liquid ingredients in the hopper, pour some tap water, and then drain the water a couple of times until you get clean water.



5. For any ingredient residue around the agitating axis, draining hole, and height sensor, use neutral detergent and brush and apply steam cleaning (boiling) as well.
6. Press STOP after finished boiling to drain the water, and then wash again with clean water.

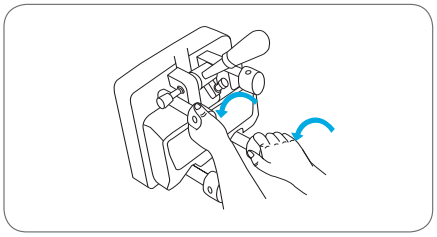


Caution

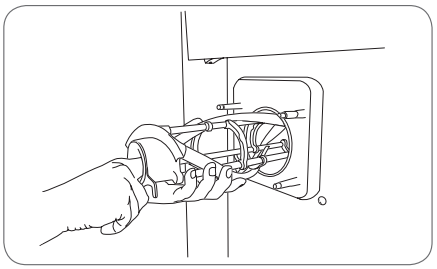
If the maker is pasteurized on a daily basis, apply the steps above at least every 2 weeks. Note that the carburetor, impeller, and area around the ice cream dischange must be cleaned frequently.

How to clean

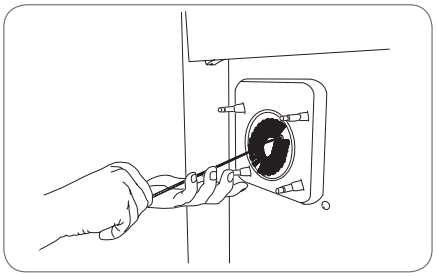
7. Loosen the dasher cover bolts two by two in the diagonal direction as in the figure on the right to remove the dasher cover from the product.



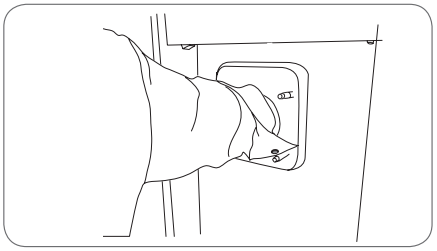
8. Remove the dasher bundle from the cylinder.



9. Clean the inside of the cylinder with brush and soft cloth. Insert "BRUSH DRUM" into the bottom of the cylinder and turn in both directions to clear residue at the bottom.

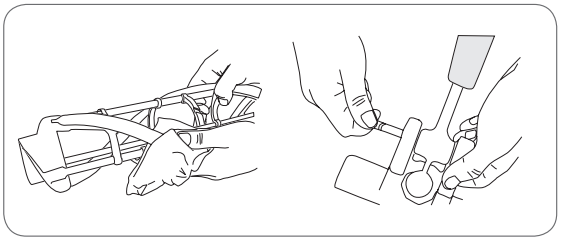


10. Use soft cloth to remove any moisture inside the drum after cleaning it with a brush.



11. Clean the dasher bundle with detergent and dry with soft cloth.

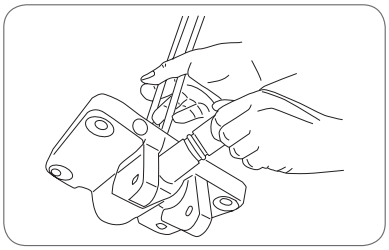
12. Take out the handle shaft of the dasher cover to the right and remove the handle.



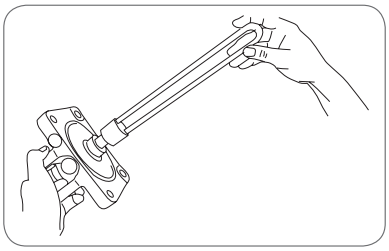
Caution Be sure to wear rubber gloves when cleaning the inside of the product.
Failure to do so may cause electric shock or injury.

How to clean

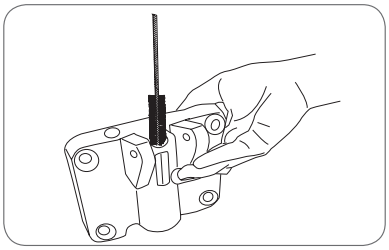
13. Remove the piston from the dasher cover and clean it with a brush.
    Make sure that no ingredient residue is left in the o–ring groove of the piston.



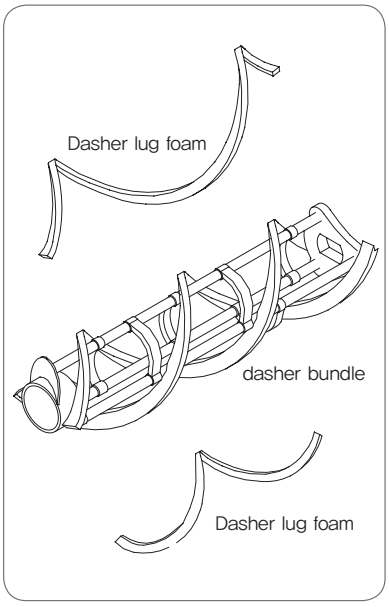
14. Disassemble the mixing shaft and clean with a brush.



15. Clean the piston hole of the dasher cover and use soft cloth to clean the grooves of the dasher cover.



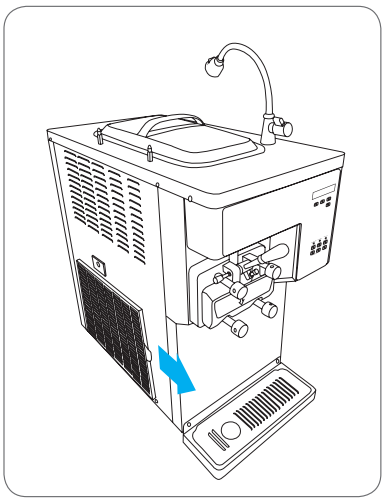
16. Assemble in reverse order after cleaning all the parts.



How to clean

【 How to clean the condenser and filter 】

※ The 301THW' (water-cooled) model does not come with a filter, so it does not require condenser and filter cleaning.

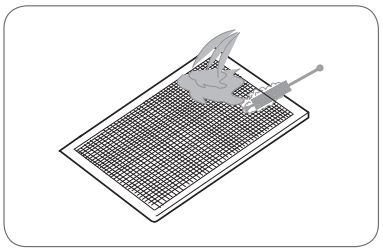


1 . Disassembling the filter

• Filter at the side :
Pull out the left filter to the front to remove it.

2 . Dust and clean it with water.

3 . The cleaned filter should be dried before putting it back into the product.



4 . Remove dust on the surface of the condenser with a small brush.

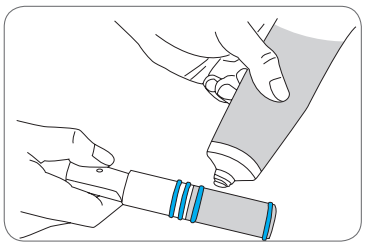
• Remove the left-side panel; you will find the condenser inside the product.

• Recommended frequency of cleaning :
- Filter : Once a week
  ※ The degree of contamination may vary depending on the installation location; thus, clean as frequently as possible if you find the filter dirty.
- Condenser : Once a month
  ※ Use a brush to clean the condenser.

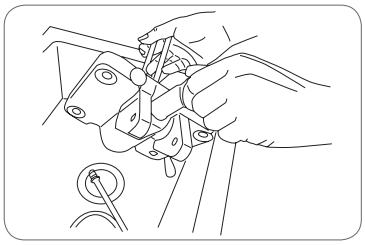
Caution Be sure to wear rubber gloves when cleaning the inside of the product. Failure to do so may cause electric shock or injury.

Assembling the dasher and dasher cover

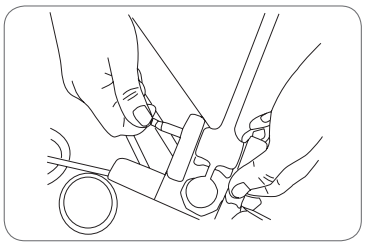
1. Apply edible grease on the ring inserted into the piston.



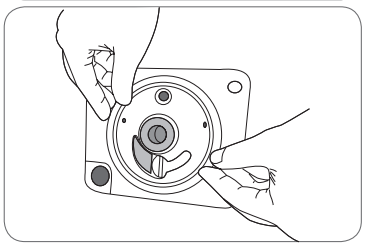
2. Insert the piston into the dasher cover.



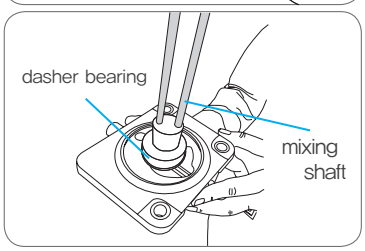
3. Insert the dischange lever into the piston, and then install the lever shaft to fit the dasher cover and outlet lever.



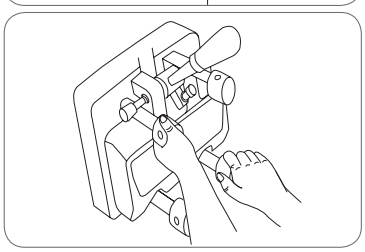
4. Insert the packing dasher into the dasher cover.



5. Insert the mixing shaft, and then assemble the dasher bearing.

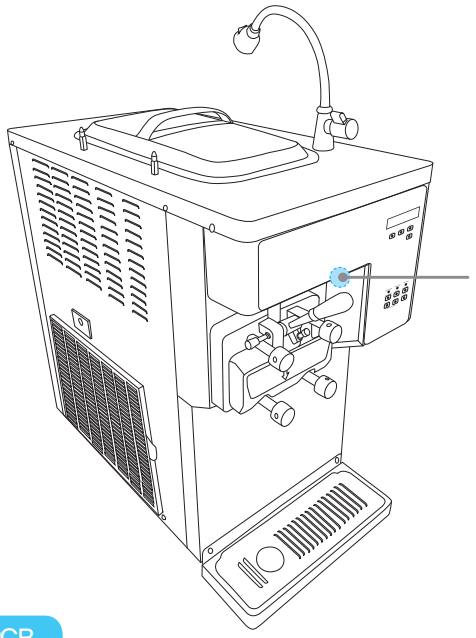


6. Insert the assembled dasher cover into the product and tighten the 4 dasher cover bolts, two at a time, in the diagonal direction.
Be sure to tighten the bolts fully; a loose dasher cover bolt may result in the leak of ice cream.

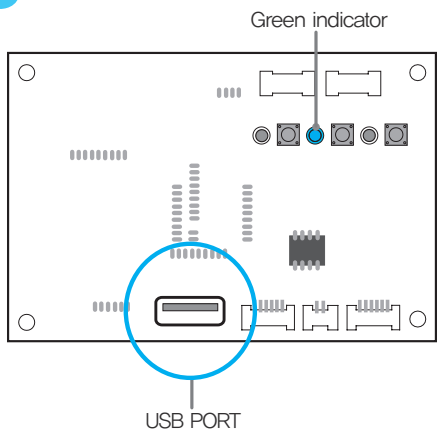


How to update the software

1. Download the software to a USB drive from the manufacturer's website.
2. Insert the USB drive into the USB port of the “a” part.
3. Turn off the product, and then turn it on again.
4. Wait till the front LCD display is on (may take 5~10 minutes).
5. Unplug the USB drive and select the model to initialize the product (as in 4).
   ex) ISI-301TH Standard Korea ⟶ ISI-271THI Standard Korea
   ⟶ ISI-301TH Standard Korea
6. Turn off the product, and then turn it on again.
7. Pour ingredient and use the product as needed.



USB DOWNLOAD PCB



How to use the USB downloader

1. How to apply software to the Main PCB, Vend PCB, and Control PCB

1–1. Follow the steps below with the Main PCB, Vend PCB, Control PCB, and USB downloader board connected.

1–2. Turn off the maker.

1–3–1). Copy the software named “ISIV273_Main.hex” to the USB drive's root.
3–2). Copy the software named “ISIV273_Control.hex” to the USB drive's root.

1–4. Insert the USB drive into the USB downloader board.
1–5. Power on the maker.
1–6. When download complete, The LCD's backlight is on.
1–7. Do initializing ice cream maker as P.56's guide after remove USB drive.

For Your Information

- If downloading time takes over 30 minutes, please insert USB drive again after turning the power off. If the same problem occurs, please contact our service center.
- Delete the date and version from the original file “ISIV273_Main_2012.12.03_V2.hex” ; afterward, follow the copying process below.
  ex) “ISIV273_Main.hex”

How to use the USB downloader

2. How to apply software to the Main PCB only

2-1. Copy the software named "ISIV273_Main.hex" to the USB drive's root.
There must be no "ISIV273_Control.hex" in the root of the USB drive.

2-2. Insert the USB drive into the USB downloader board.
2-3. Power on the maker.
2-4. When download complete, The LCD's backlight is on.
2-5. Do initializing ice cream maker as P.56's guide after remove USB drive.

For Your Information

- Delete the date and version from the original file "ISIV273_Main_2012.12.03_V2.hex" ; afterward, follow the copying process below.
  ex) "ISIV273_Main.hex"

How to use the USB downloader

3. How to apply software to the Control PCB only

3–1. Copy the software named “ISIV273_Control.hex” to the USB drive's root.
There must be no “ISIV273_Main.hex” in the root of the USB drive.

3–2. Insert the USB drive into the USB downloader board.
3–3. Power on the maker.
3–4. When download complete, The LCD's backlight is on.
3–5. Do initializing ice cream maker as P.56's guide after remove USB drive.

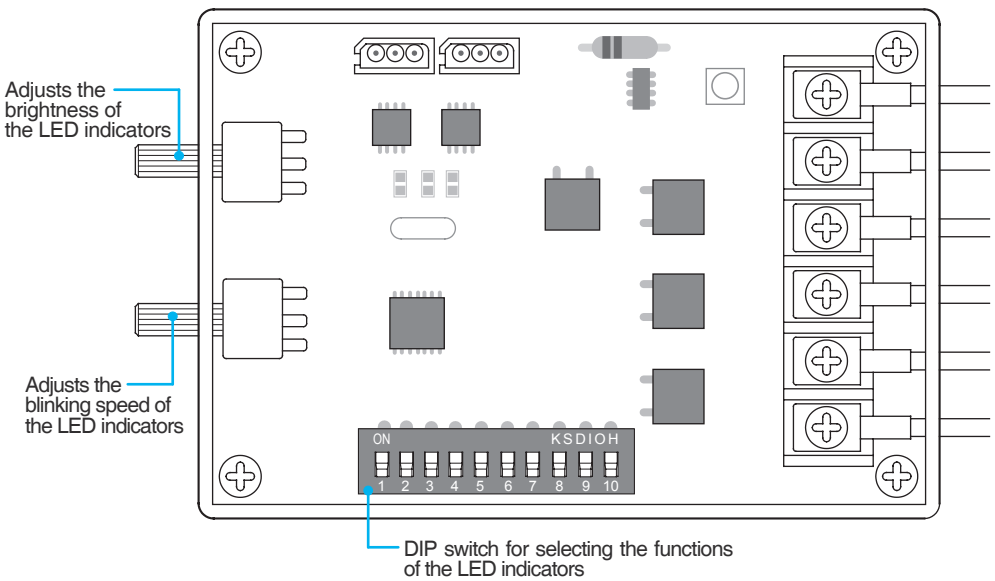
For Your Information

- Delete the date and version from the original file “ISIV273_Control_2012.12.03_V2.hex”; afterward, follow the copying process below.
  ex) “ISIV273_Control.hex”

How to adjust the LED indicators

Remove the screws on the LED controller cover on the right side of the system to detach the cover.
Adjust the DIP switches in the LED dimmer controller as follows to select the LED indicators:닏

- Turning “1” on lights the red LED indicator.
- Turning “2” on lights the green LED indicator.
- Turning “3” on lights the blue LED indicator.
- Turning “4” on lights the yellow LED indicator.
- Turning “2” and “3” on simultaneously lights the sky blue LED indicator.
- Turning “3” and “1” on simultaneously lights the violet LED indicator.
- Turning “4” on lights the LED indicator of a fixed color in single mode.
- Turning “5” on dims the LED indicator in the selected color in compound mode. (The LED lamp slowly turns on and off repeatedly)
- Turning “6” on causes the LED indicator to blink in the selected color in compound mode (the LED indicator turns on and off repeatedly).
- Turning “7” on causes the LED indicator to blink psychedelically in the selected color in compound mode.
- Turning “8” on operates the LED indicator in compound mode with a rainbow cluster effect.(LED lamp turning on and off repeatedly in the sequence of rainbow colors)
- Turning all switches off stops the functions of all the indicators.
- Turning 5, 6, 7, and 8 on simultaneously repeats the performance of four types of actions from No. 5 to No. 8.



[LED DIMMER CONTROLLER]

Service for Refrigerant Lines

Removal and replacement of freezing parts

CAUTION

1. This unit should be diagnosedd and repaired only by qualified service personnel to reduce the risk of death, electric shock, serious injury, or fire.
2. Move the ELCB switch to the "OFF" position before servicing
3. CHOKING Hazard : Ensure all components, fasteners, and screws are securely in place after the unit is serviced.
4. Make sure hopper and cylinder in the ice-cream maker are clean after the unit is serviced.

A. Service for Refrigerant Lines

WARING

1. Repairs requiring the refrigeration circuit to be opened must be performed by Properly tarined service personnel.
2. Always recover the refrigerant and store it in an approved container. Do no discharge the refrigerant into the atmosphere.
3. Use an electronic leak detector or soap bubbles to check for leaks. Add a trace of refrigerant to the system (if using an electronic leak detector), and then raise the pressure using nitogen gas (140PSIG). DO NOT use R-404A as a mixture with pressurized air for leak testing

CAUTION

1. The Polyol Ester (POE) oils used in R-404A units can sbsorb moisture quickly. Therefore it is important to prevent moisture from entering the system when replacing or servicing parts.
2. Always install a new drier every time the ealed refrigeration system is opend.
3. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
4. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250℉ (121℃)
5. Do not leave the system open for longer than 15 minutes when replacing or servicing parts.

Service for Refrigerant Lines

1. Refrigerant Recovery

This ice cream vending machine has a refrigerant service valve (nipple).
Recover the refrigerant through this nipple and keep the recovered refrigerant in an approved storage bin. Never discharge the recovered refrigerant to the atmosphere.

2. Brazing

WARING

1. R-404A itself is not flammable at atmospheric pressure and temperatures is to 176°F(121℃)
2. R-404A itself is not explosive or poisonous. However, when exposed to high temperatures (open flames), R-404A can be decomposed to form hyfrofluoric acid and carbonyl fluoride both of which are hazardous.
3. Do not use silver alloy or copper alloy containing arsenic.
4. Use an electronic leak detector or soap bubbles to check for leaks. Add a then raise the pressure trace of refrigerant to the system (if using an electronic leak detector), and using nitogen gas (140PSIG). DO NOT use R-404A as a mixture with pressurized air for leak testing

1) When brazing copper pipe, purge the pipe with nitrogen gas at pressure of 3~4 psig.

CAUTION

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
3. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F (121℃)

2) Use an electronic leak detector or soap bubbles to check for leaks.
Add a trace of refrigerant to the system (if using an electronic leak detector), and then raise the pressure using nitogen gas (140PSIG). DO NOT use R-404A as a mixture with pressurized air for leak testing.

Service for Refrigerant Lines

3. Vacuuming and recharging (R-404A)

1) Install the vacuum pump on the system. Connect the charging hoses on the charging nipples of both high-pressure and low-pressure ends.

> **IMPORTANT**
>
> The vaccum level and vacuum pump may be the same as those for current refrigerants. However, the rubber hose and gauge manifold to be used for evacuation and refrigerant charge should be exclusively for POE oils.

2) Turn the vacuum pump on and open the manifold valve.
The oil of the vacuum pump shall not be allowed to leak into the system.

3) Wait until the desired vacuum level is obtained. Vacuuming time may vary depending on the capacity of the vacuum pump.

4) Open the manifold valves on the high- and low-pressure ends.

5) Remove the manifold hose from the vacuum pump and connect the hose to the refrigerant service cylinder. Purge air from the hose with the hose kept slightly open. Use pure refrigerant with no foreign materials.

6) The use of liquid refrigerant is recommended.
Turn the service cylinder upside down on a scale and open the manifold valve on the high-pressure end.

7) Wait until an adequate amount of refrigerant is injected.

8) If necessary, inject the remaining refrigerant into the low pressure-end. Inject refrigerant into the low-pressure end while the system operates.

9) Close the manifold valves on the high- and low-pressure ends. Remove the manifold hoses.

10) Reattach the caps on the nipples.

Removal and Replacement of Compressor

B. Removal and Replacement of Compressor

WARING

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
3. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250℉ (121℃)

When replacing the compressor with defective winding, replace the start capacitor and the start relay as well.
The compressor shall be replaced and serviced within 15 minutes since the POE oil inside the compressor rapidly absorbs moisture.

1) Turn off the power of ELCB.
2) Open the side door.
3) Recover the refrigerant using an adequate vessel.
4) Remove the terminal cover of the compressor and disconnect the compressor cable.
5) Remove the discharge and the suction pipes.
6) Remove the bolts, washers, and rubber grommets from the compressor.
7) Remove the compressor. Remove the packaging of the new compressor.
8) Insert the rubber grommets in the new compressor.
9) Place the compressor on the system and assemble it on the system by tightening the bolts and the washers.
10) Replace the drier with a new one.
11) While purging with nitrogen gas at pressure of 3-4 psig, braze the copper connections.
12) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
13) Vacuum the system and inject the refrigerant.
14) Connect the terminal and assemble the terminal cover on its position.
15) Close the side door.
16) Turn on the power of ELCB.

Removal and Replacement of Capillary Tube

C. Removal and Replacement of Capillary Tube

> **CAUTION**
>
> 1. Always install a new drier every time the sealed refrigeration system is opened.
> 2. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
> 3. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F(121℃)

1) Turn off the power of ELCB.
2) Open the side door.
3) Recover the refrigerant using an adequate vessel.
4) Remove the capillary tube and install a new one.
5) Replace the drier with a new one.
6) While purging with nitrogen gas at pressure of 3~4 psig, braze the copper connections.
7) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
8) Vacuum the system and inject the refrigerant.
9) Close the side door.
10) Turn on the power of ELCB.

Removal and Replacement of Hot Gas Valve or Liquid Line Valve.

D. Removal and Replacement of Hot Gas Valve or Liquid Line Valve.

IMPORTANT

1. Always use a copper tube of the same diameter and length when repalcing the valve lines; otherwise, performance may be affected
2. Always replace the strainer when replacing the hot gas valve

WARING

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
3. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the and drier 4-way valve from overheating, Do not allow the drier to exceed 250˚F (121℃)

1) Turn off the power of ELCB.
2) Open the side door.
3) Recover the refrigerant using an adequate vessel.
4) Remove the bolts and the solenoid valves.
5) Disassemble the valve. When replacing the hot gas valve, replace the strainer as well.
6) Install the new valve and strainer.
7) Replace the drier with a new one.
8) While purging with nitrogen gas at pressure of 3~4 psig, braze the copper connections.
9) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
10) Vacuum the system and inject the refrigerant.
11) Connect a new solenoid valve.
12) Install the solenoid on the valve body and tighten the bolts.
13) Close the side door.
14) Turn on the power of ELCB.

Removal and Replacement of Condenser'

E. Removal and Replacement of Condenser'

> **WARING**
>
> 1. Always install a new drier every time the sealed refrigeration system is opened.
> 2. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
> 3. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F(121℃)

1) Turn off the power of ELCB.
2) Open the side door.
3) Recover the refrigerant using an adequate vessel.
4) Remove the condenser filter, if any.
5) Remove the inlet and the outlet from the condenser.
6) Open the back panel cover.
7) Remove the harness from the fan motor.
8) Remove the four screws from the fan motor assembly.
9) Remove the screws fastening the bracket that fixes the condenser (total of 4 screws on the left and the right).
10) Replace the condenser with a new one.
11) Tighten the screws fastening the bracket that fixes the condenser (total of 4 screws on the left and the right).
12) Replace the drier with a new one.
13) While purging with nitrogen gas at pressure of 3~4 psig, braze the copper connections such as the condenser inlet and outlet.
14) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
15) Vacuum the system and inject the refrigerant.
16) Tighten the four screws from the fan motor assembly.
17) Connect the harness to the fan motor.
18) Tighten the screws on the back panel cover.
19) Close the side door.
20) Turn on the power of ELCB.

Replacement of Fan motor

F. Replacing the fan motor

1) Turn off the power of ELCB.
2) Open the back panel cover.
3) Remove the harness from the fan motor.
4) Remove the four screws from the fan motor assembly.
5) Remove the fan motor and the fastening brackets (total of four bolts).
6) Replace the motor with a new one.
7) Assemble the fan motor and the fastening brackets (total of four bolts).
8) Tighten the four screws from the fan motor assembly.
9) Connect the harness to the fan motor.
10) Tighten the screws on the back panel cover.
11) Turn on the power of ELCB.

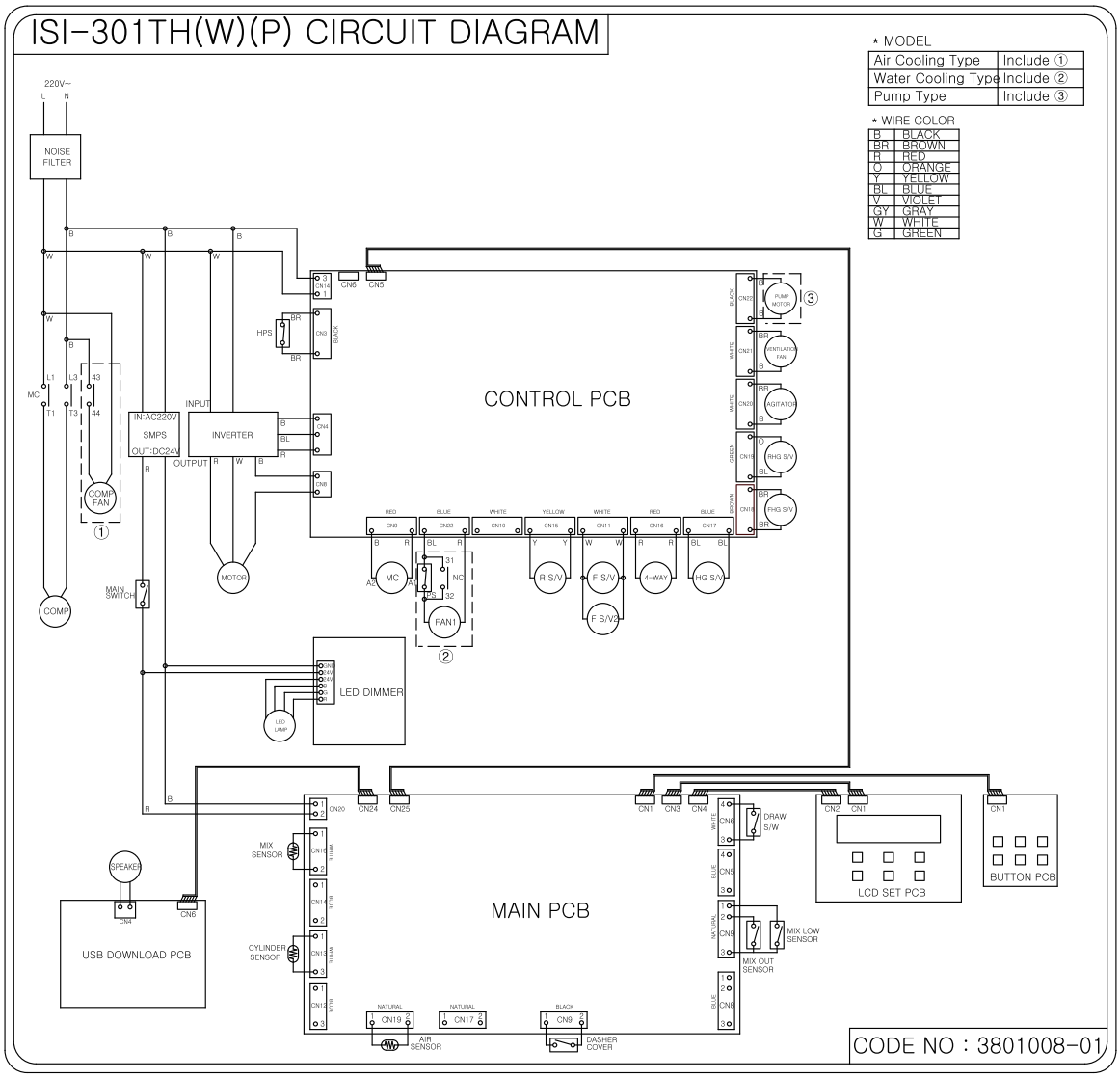
Replacement of 4-way valve

WARING

1. Always install a new drier every time the sealed refrigeration system is opened.
2. Do not replace the dried until after all other repair or replacement has been made. Install the new drier with the arrow on the drier in the direction of the refrigerant flow
3. When brazing, protect the drier and 4-way valve by using a wet cloth to provent the drier and 4-way valve from overheating, Do not allow the drier to exceed 250°F(121℃)

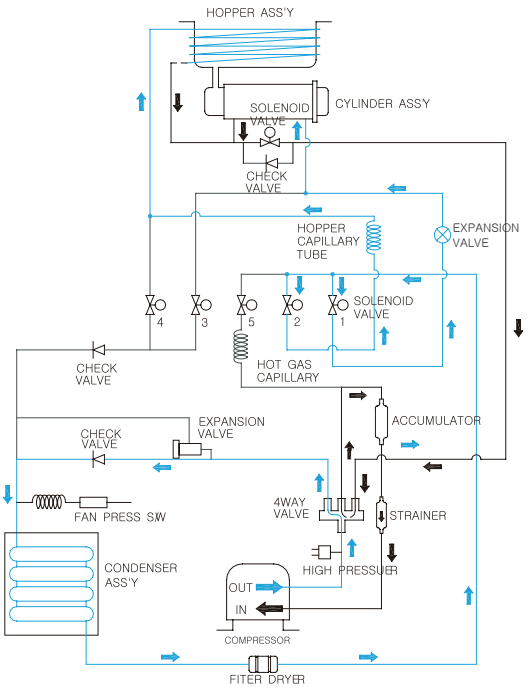
1) Turn off the power of ELCB.
2) Open the side door.
3) Recover the refrigerant using an adequate vessel.
4) Remove the insulator from the 4-way valve assembly.
5) Remove the harness from the 4-way valve.
6) Remove the solenoid coil from the 4-way valve (1 bolt).
7) Remove the 4-way valve (four brazing points).
8) While purging with nitrogen gas at pressure of 3~4 psig, braze a new 4-way valve.
9) Replace the drier with a new one.
10) Inject nitrogen at pressure of 140 psig and check for leaks with electric leak detector or soap water.
11) Assemble the solenoid coil connected to the 4-way valve (1 bolt).
12) Assemble the harness on the 4-way valve.
13) Vacuum the system and inject refrigerant.
14) Close the side door.
15) Turn on the power of ELCB.

Circuit diagram

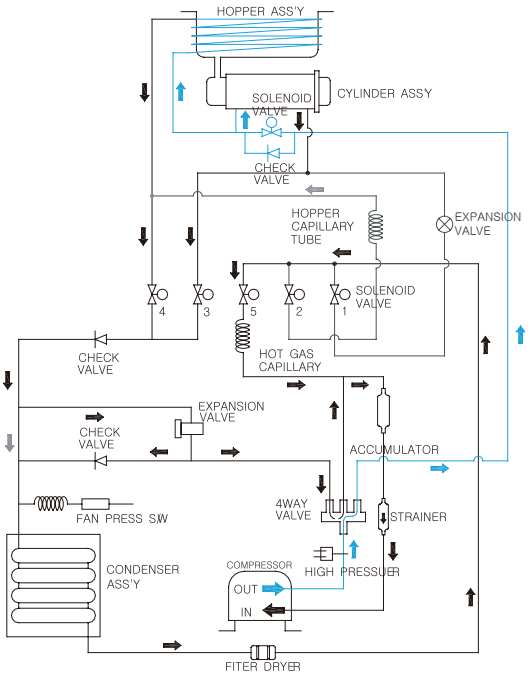


Cooling distribution diagram

For normal operation



When the pasteurization is activated



What to watch out for

Overcooling may give rise to issues such as unintended stopping of operation, damage to the product itself or any part, or malfunction of the power delivery axis.
There may be excessive noise or smell due to abrasion. Any issue inside the product may result in the formation of foreign object in the ice cream.
Refer to the main causes of overcooling for safe operation.

1. Using the exclusive liquid ingredient supplied by the manufacturer is recommended.
   Mixing powdered ingredient with water or milk must be done based on the ratio recommended by the manufacturer.
   (The ice cream maker makes ice cream with appropriately mixed ingredients.
   Powdered ingredient may cause precipitation or separation of ingredients, leading to overcooling. Making ice cream under such conditions will cause more issues with ice cream.)

2. Mixing the recommended ingredient with other additives or arbitrarily adjusting the mixing ratio of a diluted ingredient may lead either to the proper icing of ice cream or to overcooling.
   The manufacturer is not liable for any issue arising from improper use or mixing of ingredient.
   Be sure to check and follow the diluting ratio.

3. Mixing of powdered ingredient must be done by hand slowly.
   If mixing is done fast with the maker, too much oxygen may get into the mixture, resulting in oxidization or clotting of ingredient.
   In such case, the ingredient will coagulate into a form similar to soft tofu, causing difficulty in the supply of ingredient and overcooling.

4. If ingredient is not supplied normally to the inside of the drum where ice cream is made, leading to lack of ingredient, overcooling may occur.
   Check the amount of ingredient frequently to prevent such issues.
   Even if enough ingredient is in the hopper, coagulation may cause the clogging of the carburetor (mixing valve) that supplies the ingredient to the drum and prevent the proper supply of ingredient.
   Be sure to remove and clean the carburetor frequently.

5. If the maker is not used for an extended period of time, the waiting time of the ingredient isextended, causing freezing in the hopper as well as separation of fat in the process of making or keeping ice cream during the waiting time.
   In such case, ice cream may get too thin, or the maker may be overcooled.
   Be sure to operate the maker regularly even though there is no demand for ice cream to prevent such waiting time.

6. Repeated use of ingredient may deteriorate the quality of ice cream and cause overcooling.
   Be sure to refill with new ingredient after cleaning instead of reusing the old one.

Before requesting for customer service

Even though the product is functioning normally, unfamiliarity with the product or any trivial factor may cause malfunction. Check the items below to resolve any simple issue.
If the issue persists even after checking the following items, contact the customer service center:

Status	What to check
It is not working!	1. Check if the power cord is connected. 2. Check if the power switch is on.
The maker does not stop but keeps running!	1. Check if the ventilating hole has too much dust – remove the filter and dust it. 2. Too short distance from the wall and lack of proper ventilation also cause such issue – make sure that the distance from the wall is at least 20~50 cm. 3. Check if the carburetor hole is clogged and clean it thoroughly. 4. Check if the temperature of the ventilation hole (inlet) at the bottom is too high (should be maintained at a minimum of 38℃).
The ice cream is too thin!	1. Check if the carburetor is properly installed. 2. If no ice cream is made for more than 3 hours, melt ice cream with the "REGENERATE" function, and then make ice cream again (plug the carburetor hole for REGENERATE). 3. Check if the ingredient has too much sugar and adjust the level of sugar appropriately. (If an ingredient different from the one used for training is used, readjust the ice cream level value or contact the customer satisfaction team.)
There is too much noise!	1. The product may cause more noise than other consumer appliances. The product is designed to generate noise lower than 70dB. If you think that the noise is too loud, contact the customer satisfaction team. 2. The initial operation may generate a clacking noise, which is normal; it comes from the plastic blade (dasher blade) that hits the cylinder wall when ice cream is made.
Too little ice cream is made!	1. Check if the low ingredient indicator blinks. If the status is "MIX LOW," the amount of ice cream may decrease. Make sure that a sufficient amount of ingredient is in the maker to prevent the MIX LOW status. 2. The size of the carburetor hole may cause a difference in the amount of ice cream. Set the size to big to increase the amount. 3. Check if the ice cream level is set too high. (Higher level means little amount, whereas lower level means excessive amount.) (If the level is too high, there may be no ice cream.)
Too much ice cream is made!	1. If more ice cream is made, the ice quality may deteriorate, and the amount may increase. In such case, use the REGENERATE function to return the quality of ice cream to normal. 2. The size of the carburetor hole may cause a difference in the amount of ice cream. Set the size to small to decrease the amount. 3. Check if the ice cream level is set too low. (Higher level means little amount, whereas lower level means excessive amount.) (If the level is too high, there may be no ice cream.)
Overrun is not good enough!	1. Be sure to familiarize yourself with the ice cream–making process with the user manual. 2. Use a smaller carburetor hole to improve overrun. 3. The extended operation of the maker may worsen the overrun. In such case, plug the carburetor hole in the hopper to melt the ice cream, and then check the level of ingredient in the hopper. If more than 75% of the cylinder is filled with ingredient, overrun may worsen. Drain the ingredient to fill just about 50% of the cylinder and make ice cream to improve overrun. Draining too much ingredient to fill less than 25% may result in bad ice cream quality.

Before requesting for customer service

Status	What to check
Fat lump can be felt in the ice cream.	1. If the ingredient has too much fat, the ice cream may have a fat lump depending on the ratio of fat. If the amount of ice cream sold per unit time is small, use a smaller carburetor hole. Melt the ice cream when it gets thin and make ice cream again. (This kind of issue does not occur if a sufficient amount is sold per unit time.)
The ice cream went bad!	1. The product has to be cleaned on a daily basis. Dump any leftover ingredient and use only fresh ingredient the next day. If cleaning is not done daily, pasteurization must be done at least daily. The manufacturer is not liable for any issue arising from failure to follow this advice.

Replacement cycle per part

Part name	Cycle	Quantity	Size
Packing dasher cover	6 months	1EA	Φ116.5(Φ5.5)
Packing piston top	6 months	2EA	Φ30.4(Φ3.2)
Carburetor packing	6 months	2EA	Φ22(Φ3)
Dasher lug foam	Once a year is recommended.	2EA	Length : 353mm

Error code type

◆Resolution

Even though the product is functioning normally, unfamiliarity with the product or any trivial factor may cause malfunction. Contact the customer service center if the troubleshooting does not work, the error code is not included in the list, or the same error occurs repeatedly.

Before contacting the service center, turn off the maker, wait for 5 minutes, and turn it on and operate again.

Error code		Cause	Troubleshooting	Deactivation	Operation
Er00	Mix Out	No ingredient	Refill the hopper with ingredient.	Automatically deactivated	Stop
Er01	Hop. Sensor Op.	Cooling sensor OPEN	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er02	Hop. Sensor St.	Cooling sensor SHORT	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er03	Cyl. Sensor Op.	Cooling sensor OPEN	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er04	Cyl. Sensor St.	Cooling sensor SHORT	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er05	Air. Sensor Op.	Condenser sensor OPEN	Sensor malfunction (Contact the service center.)	Automatically deactivated	Operation
Er06	Air. Sensor St.	Condenser sensor SHORT	Sensor malfunction (Contact the service center.)	Automatically deactivated	Operation
Er07	EOCR	Overcurrent detected with the motor (overcooling)	Melt the ice cream and run the maker again.	Deactivated after resetting	Resetting
Er08	High Pressure	Overvoltage detected	Clean the filter and check the ventilation hole and water supply.	Automatically deactivated	Stop
Er09	noLA	Not forming	Issue with coolant (Contact the service center.)	Automatically deactivated	Operation
Er10	Low Voltage	Supplied voltage exceeded more than 15%	Power supply issue (Contact the service center.)	Automatically deactivated	Stop
Er11	High Voltage	Supplied voltage exceeded more than 15%	Power supply issue (Contact the service center.)	Automatically deactivated	Stop
Er12	Draw Switch Er.	Outlet lever error	Raise the outlet lever.	Automatically deactivated	Operation
Er13	Condensor OH	Condenser temperature too high	Check if the ventilation hole is clogged.	Automatically deactivated	Operation
Er14	Motor Belt Er.	Power axis issue	Melt the ice cream and run the maker again.	Deactivated after resetting	Resetting
Er15	EEPROM Error	EEPROM issue	PCB issue (Contact the service center.)	Reset power	Operation
Er16	Reverse Phase	Negative phase detected	Power supply issue (Contact the service center.)	Automatically deactivated	Stop
Er17	Heating Error	Pasteurization issue	Replace the ingredient and clean the product.	Abnormal operation	Operation
Er18	Cover Error	Dasher cover issue	Make sure the cover is correctly assembled.	Automatically deactivated	Stop
Er19	Eva. Sensor Op.	EVA sensor OPEN	Sensor malfunction (Contact the service center.)	Automatically deactivated	Operation
Er20	Eva. Sensor St.	EVA sensor SHORT	Sensor malfunction (Contact the service center.)	Automatically deactivated	Operation
Er21	Motor Power Er.	Motor current not detected	Product issue (Contact the service center.)	Deactivated after resetting	Resetting
Er22	Power Fail Er.	Power goes off.	Power blackout (No action to be taken.)	Deactivated after resetting	Operation
Er22	Motor TP Er.	Motor over heat	Motor cooling.	Automatically deactivated	Stop
Er30	Vend Error	Product issue	PCB issue (Contact the service center.)	Deactivated after resetting	Stop
Er31	Top Sensor Er.	Top sensor issue	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er32	Down Sensor Er.	DOWN sensor error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er33	Piston NO Er.	No input from piston	Sensor malfunction (Contact the service center.)	Deactivated after resetting	Stop
Er34	Piston NC Er.	Nc input from piston	Sensor malfunction (Contact the service center.)	Deactivated after resetting	Stop
Er35	Cup Ring Sensor	Cup-ring sensor input error	Remove foreign object from the cup holder.	Automatically deactivated	Stop

Error code type

Error code		Cause	Troubleshooting	Deactivation	Operation
Er36	Cup Out Sensor	Cup outlet sensor input error	Remove foreign object from the cup outlet part.	Automatically deactivated	Stop
Er37	Step Origin Er.	Motor's starting point input error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er38	Step Reduce Er.	Motor deceleration input error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er39	Step Motor Er.	Step motor error	Remove foreign object from the cup holder part.	Deactivated after resetting	Stop
Er40	Cup Empty Er.	No cup	Refill cup.	Automatically deactivated	Stop
Er41	Cup Drop Er.	Cup outlet error	Not used.	Deactivated after resetting	Stop
Er42	Cup Position Er.	Cup outlet error	Remove foreign object from the cup holder.	Deactivated after resetting	Stop
Er43	Cup Empty Er.	NO CUP switch OPEN	Refill cup.	Automatically deactivated	Stop
Er44	Vend Comm.	Vend PCB communication error	PCB issue (Contact the service center.)	Automatically deactivated	Stop
Er45	Door Open Er.	Door open error	Remove foreign object from the door.	Reset power	Stop
Er46	Door Close Er.	Door close error	Remove foreign object from the door.	Reset power	Stop
Er47	Coin Mechanism	Coin part error	Empty coins.	Reset power	Stop
Er48	Bill Validator	Bill part error	Empty bills.	Reset power	Stop
Er49	Door Comm. Er.	Door PCB communication error	PCB issue (Contact the service center.)	Automatically deactivated	Stop
Er50	Power IC Er.	Power IC issue	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er51	Invertor DE Er.	Inverter out of order	Product issue (Contact the service center.)	Automatically deactivated	Stop
Er52	Invertor Comm.	Inverter communication error	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er53	Invertor OC	Inverter overcurrent	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er54	Invertor OE	Inverter overvoltage	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er55	Invertor OE	Inverter overheated	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er56	Invertor LU	Inverter low voltage	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er57	Invertor TH	Bad temperature sensor	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er58	Invertor COM	Communication error detected	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er59	Invertor OL	Average overcurrent detected	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er60	Invertor OT	Protection of maximum output	Sensor malfunction (Contact the service center.)	Automatically deactivated	Stop
Er61	Control Comm.	Control PCB communication error	PCB issue (Contact the service center.)	Automatically deactivated	Stop

Turn off the product and turn it on again in case of errors related to selling ice cream (Er05, 36, 37...).

Warranty

If no receipt or warranty certificate is received, the receipt/warranty certificate is lost, or the date of purchase cannot be confirmed for reasons other than the foregoing, the warranty expires within 6 months of the manufacturing date.

[Free repair]

1. For issues with functions or performance during normal usage within the warranty period

[Paid repair]

1. If the warranty has expired
2. If installation is required again due to incorrect installation by the customer or the store
3. If installation is required again due to the relocation of product or moving of the customer
4. If the malfunction is not attributable to the product
5. If the wrong power specification is applied
6. If any accessory or consumable other than that recommended by the manufacturer is used
7. If damage is caused by external force or dropping of the product
8. If damage is caused by natural disaster such as lightning, fire, earthquake, storm, typhoon, etc.
9. If any accessory/consumable goes obsolete or its service life comes to an end (packing, o–ring, blade, cleaning brush, etc.)
10. If foreign object is put into the product such as water, beverage, coffee, toy, etc.)
11. If external force is applied during installation or usage, causing damage or malfunction
12. If any accessory/consumable other than that made by the manufacturer is used
13. If directions for installation or standards are not followed
14. If the customer arbitrarily disassembled and lost or damaged any part
15. If a person other than an authorized engineer from the manufacturer repairs or modifies the product
16. If malfunction is caused by failure to follow the "Safety warning / caution" on the user manual
17. If the water supply pipe froze and burst

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