

- Thank you for using our products;
- you should read this manual in its entirety prior to equipment setup,operation,and maintenanc
- Our company has a policy of continuous improvement on its products and reserves the right to change materials and specifications without notice.
- The standards without date numbered in this manual will carry out the current latest valid version

HAVE PRODUCT QUESTIONS?

NEED TECHNICAL SUPPORT?

PLEASE FEEL FREE TO CONTACT US :

✉ After-sales e-mail: service@callsupports.com

🌐 After-sales website: Callsupports.com

📞 +1 888-968-7197 (US) 9AM - 6PM EST

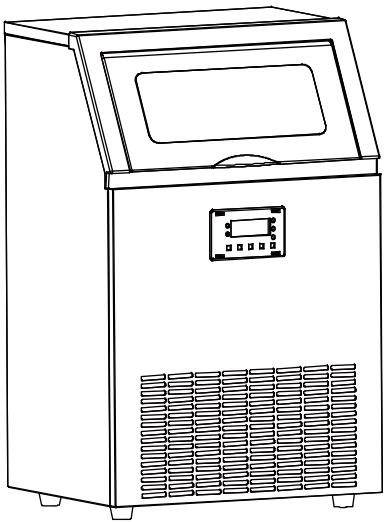
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GET OPERATION VIDEO



Commercial Ice Maker

Instruction Manual



Specifications:

Model	AZB-45FAB	AZB-55FAB/FA
Net weight	26kg/57.3lbs	28kg/61.7lbs
Unit Dimensions	500*400*800mm	500*400*800mm
Rated Voltage	AC115V	AC115V
Rated Power	370W	400W
Refrigerant	R290	R290
Water Inlet Mode	Tap Water & Bottled Water	Tap Water & Bottled Water
Appearance materials	Stainless steel,PP plastic and ABS	Stainless steel,PP plastic and ABS

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WARNINGS

DANGER – Risk of fire or explosion. flammable refrigerant used. to be repaired only by trained service personnel. do not puncture refrigerant tubing.

CAUTION – Risk of fire or explosion. flammable refrigerant used. consult repair manual/owner's guide before attempting to service this product. all safety precautions must be followed.

CAUTION – Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. flammable refrigerant used.

CAUTION – Risk of fire or explosion due to flammable refrigerant used. follow handling instructions carefully in compliance with local government regulations.

CAUTION – This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. children should be supervised to ensure that they do not play with the appliance.

CAUTION – Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.

WARNING – Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.

WARNING – Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

WARNING – Do not damage the refrigerating circuit.

WARNING – Do not use electrical appliances inside the food/ice storage compartments unless they are of the type recommended by the manufacturer.

Safety Tips
The climatic class of appliance is 4 and 5, the meaning of them as below:

Test room climate class	Dry bulb temperature(°C)	Relative humidity(%)	Dew point(°C)
4	30	55	20
5	40	40	23.9

Flammable refrigerant used, this appliance is to be installed in accordance with the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15.



The triangle warning sign means “warning; Risk of fire / flammable materials”



Means : connection to portable water supply only

WARNING – Flammable refrigerant use, the component parts shall be replaced with like components so as to minimize the risk of possible ignition due to incorrect parts.

WARNING – If the SUPPLY CORD is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard

WARNING – The new hose-sets supplied with the appliance are to be used and that old hose-sets should not be reused.



WARNING – Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

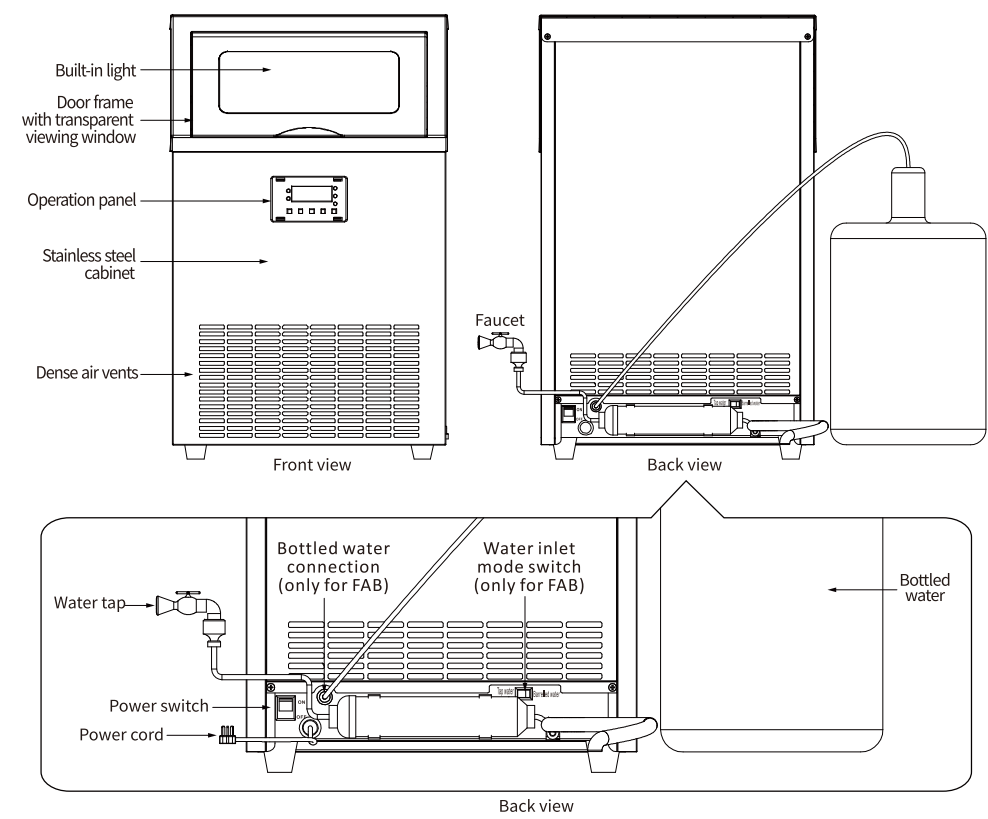
WARNING – The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.

WARNING – Do not pierce or burn.Be aware that refrigerants may not contain an odour.

WARNING – Keep any required ventilation openings clear of obstruction.

INSTALLATION INSTRUCTIONS

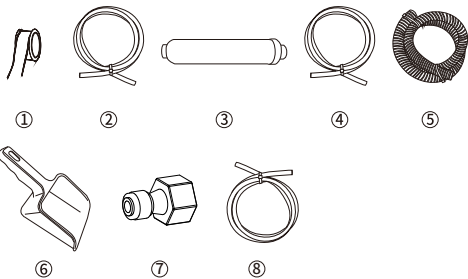
1. Parts and features



2. Installation and placement of the ice-maker

Accessories Content (If the product is damaged or the accessories are missing, please contact the after sales service timely.)

Number	Part name	AZB45FAB Quantity	AZB55FAB Quantity
①	Thread seal tape	1 pc	1 pc
②	PE connecting pipe 1 (about 500mm)	1 pc	1 pc
③	Water Filters	1 pc	1 pc
④	PE connecting pipe 2 (about 2000mm)	1 pc	2 pc
⑤	Water Drain Hose (about 1000mm)	1 pc	2 pc
⑥	Ice Scoop	1 pc	1 pc
⑦	Faucet adapter	1 pc	1 pc
⑧	Water Supply Hose (only for FAB, about 2000mm)	1 pc	2 pc



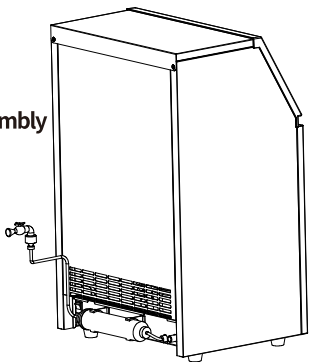
3. Tap water ice making and filter element installation

1. Firstly, connect the PE connecting pipe 1 with the water outlet end of the filter element (the filter element label indicates the direction of water inlet and outlet), and then plug the PE connecting pipe 1 into the water filter interface.

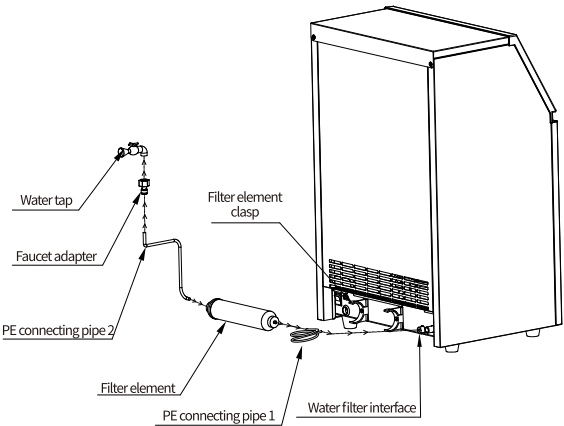
Then, the filter element is stuck in the two filter element clips, and the PE connection pipe 2 is inserted into the water inlet end of the filter element, and the other end is connected with the adapter that has been screwed in the faucet.

As shown in the figure:

After assembly

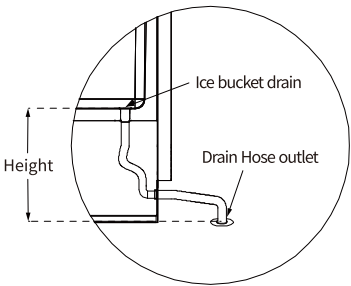


Before assembly

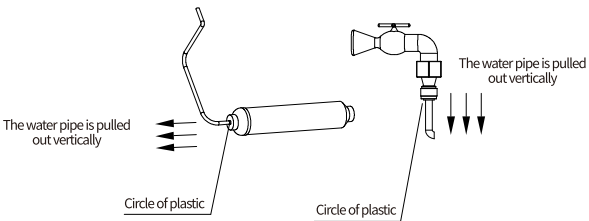


(Note: the water supply pressure should be controlled between 0.1-0.6MPa. If the overpressure needs to be installed, the inlet pipe is a hard pipe, do not fold and squeeze, otherwise it may be deformed and lead to water failure.)

2. Plug the drainage into the drainage pipe interface and put the other end into the drainage ground. Pay attention to the drainage of the ice machine is gravity drainage, so the outlet of the drainage pipe should not be higher than the outlet of the ice bucket to ensure sufficient slope or drop difference.



3. If you need to remove or replace the filter element, please pull out the filter element from the filter element snap first, and then according to the procedure in the figure, press the washer of the nozzle at the same time, pull out the water pipe at the place forcefully in the opposite direction, and remove the water pipe connected one by one.



UNPACKING

This product cannot be used in outdoor environments. Not intended for use by children, persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge.

The installation, repair or maintenance of this ice machine must be carried out by professional and qualified personnel. Electric shock, fire, personal injury may result from incorrect operation.

After the ice machine is delivered, please keep the machine upright for at least 24 hours to have the refrigerant be fully precipitated before startup. Otherwise the compressor may be damaged.

When handling, keep the cabinet upright with the inclination not exceeding 45 degrees. Do not invert the machine or lay it horizontally. This ice machine should not be placed in wet or easily splashed areas.

The grounding of this ice machine cannot be connected to a gas pipe, water pipe, telephone line or lightning rods, etc.

There are rotating components in this ice machine. Do not insert slim objects into ventilation or exhaust ports, or serious mechanical damage and injury may occur.

Do not store volatile or flammable substances in this ice machine or it may result in an explosion or fire.

Do not store any sundries or freeze any food in the storage bin. Keep the ice scoop clean.

The ice machine must be placed on a floor sufficient enough to support its weight. An insufficient base may cause the equipment to fall over and cause injury.

There should be sufficient ventilation space around the ice machine.

Only the power supply specified on the machine nameplate can be used with this ice machine.

This ice machine cannot be connected to hot water.

Outlet for this ice maker must be reliably grounded with leakage protection.

The ice machine must be disconnected from power before manual cleaning, repairing and maintenance.

Before cleaning, repairing and maintenance, the remaining ice in the ice bin should be removed from the ice machine to avoid contamination to ice.

Do not splash water directly onto the surface of the ice machine during the cleaning process; otherwise it may cause short circuit, leakage or other faults.

Flammable foaming agent is used during the foaming process. The ice maker should be disposed of and recycled by qualified personnel and institutions.

The ice machine should be properly managed to ensure that children will not play with the machine.

When the ice machine malfunctions, turn off the power and contact professional personnel to be repaired.

LOCATION

- Power supply: the rated voltage indicated on the machine nameplate $\pm 6\%$;
- Water source: potable water, with water pressure from 0.1 MPa to 0.6 MPa; water temperature: 5-32°C;
- The ice machine should be kept away from heat sources, and should pay attention to safety when using;
- Avoid the extremely high or low temperature environment, and should avoid direct sunlight;
- There should be sufficient ventilation space around the ice machine; the distance from the ice;
- make to the wall should be no less than 7.9" for the front, 5.9" for the sides, and 7.9" for the rear;
- The ice machine must be placed on a floor sufficient to support its weight;
- The socket for the ice maker must be reliably grounded and leakage protection;
- Proper floor drainage must be provided near the installation location of the ice machine.

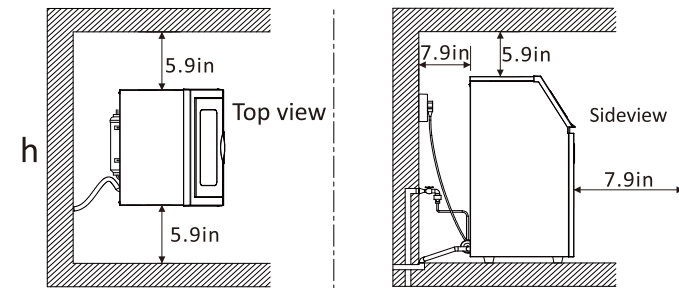
INSTALLATION STEPS

(1) Check to see if the ice machine is in good condition and the accessories are all present; check the machine model and the machine nameplate.

(2) Clean the ice storage bin and the food area inside with a sponge soaked in warm water and soap. Then rinse with potable water and dry.

(3) Place the ice machine in the operation area; ensure that the machine is placed on a leveled floor so the water flows evenly into the evaporator.

(4) The compressor chamber is located below the front of the ice bin where the compressor and condenser are installed. It requires good ventilation so the ice maker must have ventilation space of more than 7.9" for the front, 5.9" for the sides, and 7.9" for the rear;

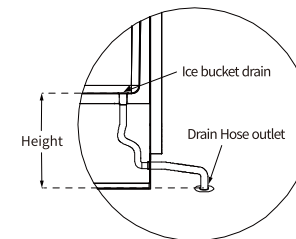


(5) The bottom of the ice machine is equipped with adjustable legs for level adjustment and clearance for floor cleaning.

(6) Connect the machine's inlet water filter and water line referring to the installation instructions of your water filter brand; if the installation site is already equipped with a drinking water system, the water filter may not be needed.

(7) Connect the machine to the water supply using the 3/4" inlet fitting supplied with the machine. It is recommended to install a water ball valve (not supplied with this machine) on the water supply line.

(8) Connect the drain line to the drain connector. To achieve a proper draining, it is recommended that the drain pipe should have a difference in level of more than 1" per 3"; and confirm that the drain line is not blocked. It is recommended that the drain line be connected to an open drainage port.



(9) Any joint in the drain line must not be higher than the machine drainage port; any joint in the drain line cannot be higher than the previous joint.

(10) Confirm the power requirements stated in the machine's nameplate; ensure that the power supply meets the requirements.

(11) A circuit breaker or switch with leakage protector and reliable grounding is required.

(12) Turn off the switch on the power line and connect the machine to the power source.

NOTE: The filter flow direction should be correctly installed as per the direction marker on the filter head cover or the filter body. The filter cartridge should be replaced every 3 to 6 months.

OPERATING INSTRUCTIONS

(1) Start-up

Before you start up the machine, please check and confirm:

That the packaging tape inside the ice machine has been removed.

The accessories or items in the ice bin have been taken out.

The ice machine has been adjusted to a leveled state.

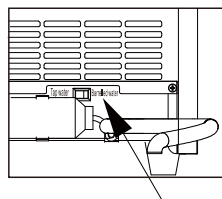
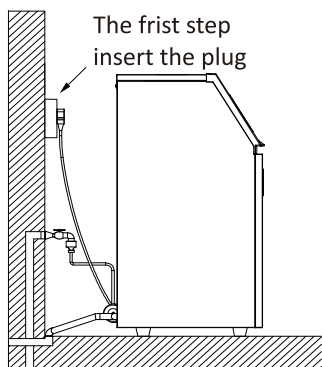
The water line has been connected and the water valve is open.

The plug has been connected to the power supply and the power switch is off.

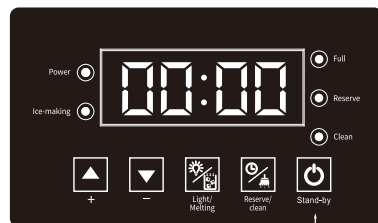
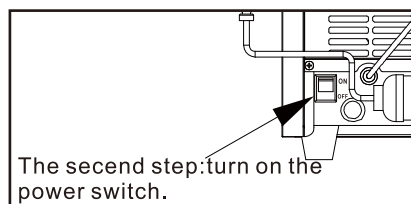
The ambient temperature, water temperature, and pressure of the water supply meet the above requirements.

(2) Start up

turn on the power switch and select the water intake mode. Then turn on the standby switch, the machine begins to make ice automatically.



The third step: select the ice making way (only for FAB)



At the end, when the Power led is lighting, turn on the Stand-by switch. The machine begins to make ice automatically.

For normal operation, please confirm:

There is water in the water trough and no overflow occurs.

The pump is working properly and water is flowing evenly in the evaporator.

The compressor is running normally, the temperature of the evaporator and the ice making water is gradually decreasing.

For air cooled machines, make sure the fan is running normally, and there is stable air flow in the inlet and outlet of the ice machine.

The ice machine has no abnormal noise.

The ice machine has no abnormal vibration.

It takes about 10 to 20 minutes to make one batch of ice, depending on the ambient temperature and the temperature of the water. The higher the temperature is, the longer the ice making will take.

Ice cubes can be properly harvested from the machine.

(3) Operation

Startup: after proper installation, connect the water source and turn on the power supply to turn on the machine. Please confirm that the machine is operating normally when you turn it on for the first time.

Preparing: with power on for the first time, the water valve is opened and the water is flooded.

Ice making: after pre-cooling for 60 seconds, the water pump starts, the water flows through the evaporator smoothly and evenly, the ice cubes are gradually formed in the ice cube tray.

Ice harvest (Drop): after the ice making process finishes and the water pump is turned off, the defrosting valve is turned on. After the hot gas enters into the evaporator for about 1-2 minutes the ice cubes slide from the evaporator into the storage. Warning: Do not put your hand into the ice storage bin during the ice-falling process to prevent the ice from hitting your hand!

Shutdown: The ice maker will stop working when you push the "Stand-by" button on the control panel during the running process.

Bin full stop: Once the ice storage bin is filled to a certain height, the ice making process will stop. There is a sensor at the Ice guide which will trigger this stop in production. In order to maximize the bin space make sure to spread around the ice that piles up in front of the sensor.

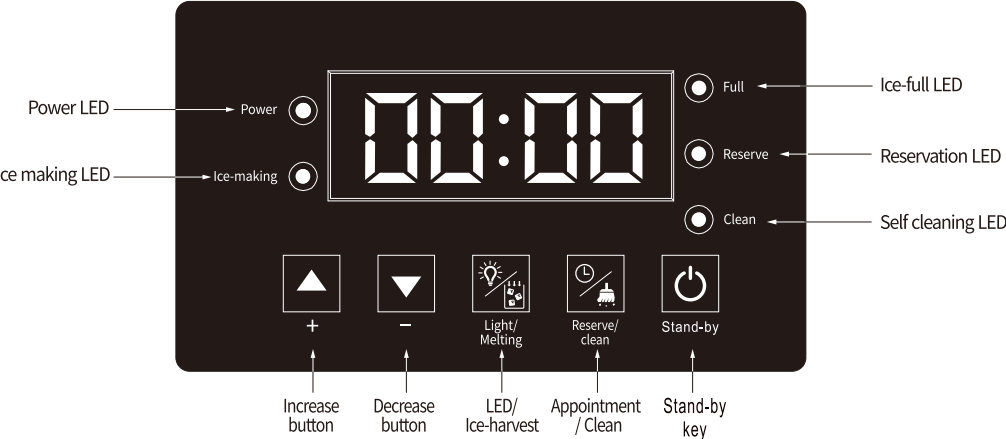
Repeat ice-making: When the ice cubes triggering this sensor are moved or taken away, the ice maker will go back to the ice making process within seconds.

CONTROL PANEL

This product is a commercial ice making machine, and fits perfectly in your home, coffee shop, bar, beverage store, or restaurant.
This product can control the ice making time according to the ambient temperature to make the ice more even and stable.
The usage temperature range of the product is 10-38°C/50-100.4°F, humidity range is 40%-85% RH.
The product uses water can freely choose filtered tap water or bottled pure water, and with minimal noise, providing you with a comfortable environment.

1. LED digital Display

Smart Control Panel



Mechanical buttons	function	Operation instrucion	Remarks
 Stand-by Stand-by key	START/STOP	Long press to start/ stop working;	In order to prevent miscontact , the open chance has a 3-second countdown, and the shutdown does not need to count down.
 Appointment / Clean	Appointment function / cleaning function entry	1. Under shutdown mode , long press to enter the cleaning mode; 2. Under the shutdown mode, short press to enter the reservation mode;	When long press the cleaning button,a 3-second countdown will be displayed
 Light/Melting LED/Ice-harvest	Switch light / Forced de icing	1.Shortpress toturmon/offthe light; 2.Longpress toenterthe Ice-harvestmodeduring icemakingmode;	When you long press the deice button,a 3-second countdown will appear.
 + Increase button	Ice making time/ appointment time adjustment	1. Short press to exchange showing remaining ice making time and showing water temperature; 2. In the setting mode, the ice making time can be increased; 3. Increase reservation time in reservation status;	In the setting mode, the increase or decrease span of ice making time is 1 min; In the reservation mode, the time span is 1 H.
 - Decrease button	Ice making time/ appointment time adjustment	1. Setting mode can reduce ice making time; 2. Reduce appointment time in reservation mode;	

REMARKS:

- (1) During the ice making process, the digital countdown displays the remaining ice making time. Short press the plus button to display the water temperature. After 10 seconds the temperature display will automatically exit and the countdown will continue to display the time. Short press again to directly display the remaining ice making time.
- (2) In the failure condition, the On/Off light button is not affected. Every time when the light is turned on, it will automatically turn off after 10 minutes.
- (3) During the ice making process, hold down + for 3s to enter the setting mode.

2. Functional mode

This product in the working process, mainly related to the shutdown mode, ice making mode, deicing mode, reservation mode, failure mode, cleaning mode five modes:

(1) Shutdown mode

Only the power LED is on,the other four lights are off. The scream shows nothing at this time. Long press the Stand-by to exit the shut down mode and enter the working mode.In shutdown mode, long press cleaning button to enter the cleaning mode.In shutdown mode, tap the Reservation button to enter there servation mode.

(2) Ice making mode

- After the system has been plugged on (or trun on the power switch), if there is no fault, the working mode will be opened. At this time, the ice is mading normally.
- The ice-making time is determined automatically.
- During working mode, please keep the ice bos clean;
- Duing working mode, please keep the water box clean;
- During working mode, please keep the tap is on or the bucket is not empty;
- During working mode,Each round of the thickness is standard.
- In the entire ice making process, when the water in the water box is pre-cooled to 7°C, the ice making process starts and the countdown time is 13 minutes. If the ice production is too thin or too thick, you can adjust the countdown time manually in the setting mode.
- If the ice production is too thin, press the "+" button inthe setting mode to adjust the time 1-5, corresponding countdown time is 14-18 minutes.
- If the ice is too thick, press "-" in the setting mode to adjust the time -5 to -1, corresponding countdown time is 8-12 minutes. the countdown time corresponding the ice' s thickness:
Tip: At 25°C , the ice thickness is as follows:



(3) Deicing mode

Each time when ice making is finished , the system enters deicing mode automatically.

In this mode, the machine will automatically remove the ice into the ice box.

In the deicing process, please do not open the front panel to remove ice, to prevent the falling ice to harm our customer.

In the deicing process, there will be a sound of ice cracking when the ice is cracked from the ice grid, which is a normal phenomenon;

In the deicing process, the ice will fall into the ice box, and there is a certain height between the evaporator and the bottom of the ice box, so the sound of heavy objects falling when the ice falling is common.

In the deicing process, if the ice is too thick to fall off, or the ice is too small to form ice, it will enter the fault state, please the customer according to the corresponding fault code, make the correct treatment.

If the customer will not handle it by himself, please contact our professional after-sales personnel to assist;

If the customer does not need to continue to make ice and chooses forced deicing at this time, please wait for the ice to fall off and then power off, or wait for the end of the forced deicing time before shutting down.

(4) Reservation mode

When the device is in shutdown mode, short press the reservation button to enter the reservation mode, and the screen will show 00:00 at the first time.

when you enter this mode. Short press the plus button, and the panel will display 01:00, which can be increased to 24:00 (the unit is in hours). Short press the minus button to decrease the time to 00:00. At this point, the scheduling function is cancelled and the device enters the shutdown mode.

After the scheduling mode is set, the system automatically counts down to the scheduled time, with the count-down time accurate to minute.

In the scheduling mode, the power indicator and scheduling indicator lights will be on.

If the power is cut off during the rescheduling mode, after the power is recovered, the system will enter rescheduling mode automatically, and the count-down time will be refreshed.

(5) Failure mode

When the product fails, the system will automatically enter fault mode, This product has six faults:

Failure codes	Problem cause	Failure phenomenon	Solution
FULL	Full ice	Power LED and ice-full led are on; The screen will show FULL and system stop ice making;	1. When the ice is full, it will lights up, the appliance stops working. It will work again after you take out the ice. And make sure let the baffle return to the initial position. 2. If the ice bucket is not full of ice, observe whether the baffle is interfered with debris, resulting in its inability to return or return to place. Remove the interfering object so that it can be classified as ready for the next round of ice making.
E1	Full ice switch error	Power LED is on; The screen will show E1 and system stop ice making;	Check whether ice is full or contains obstacles to block the return of the cover plate, restart the product, if this fault still exists, please contact the maintenance personnel for repair.
E2	Ice making failure	Power LED is on; The screen will show E2 and system stop ice making;	Inform professionals to repair the system.
E3	Signal sensor error	Power LED is on; The screen will show E3 and system stop ice making;	Restart your product. Check it whether become normal.If the product screen show E3 again.Please inform professionals to repair the system.
E4	Water inlet error	Power LED is on; The screen will show E4 and system stop ice making;	1. Check whether the external environment has water supply. 2. Check whether the float switch inside the ice bucket is interfered with by debris and cannot be returned. 3. After re-energizing, the above problems can not be solved, please contact after-sales personnel to check whether the diaphragm pump and water inlet valve are damaged.
Ec	Communication error	When the communication between the power PCB and the display PCB is abnormal, it flashes, but automatically resume work after the fault disappears.	

(6) Cleaning mode

In off mode, hold down the Clean button for 3 seconds to enter the clean mode. The cleaning mode lasts for 10 seconds, at this time the display is 10:00, and the countdown is pressed in seconds. When the countdown ends, it automatically enters shutdown mode. In cleaning mode, the power indicator and cleaning indicator are steady on. After the end, the cleaning light is extinguished.

CLEAN AND MAINTENANCE

1. Clean:

Please follow this manual to maintain and maintain the ice machine in order to improve the reliability and service life, and to maintain hygiene while avoiding the increase of energy consumption coefficient of ice production.

Note: Maintenance must be done by a qualified technician.

WARNING: Before maintenance or manual cleaning, be sure to shut off the water source and power supply.

Exterior Cleaning

Frequently clean the environment around the ice machine to keep it clean. Do not block the vents. The outer enclosure should be cleaned with a mild detergent and then wiped clean. If necessary, use commercial stainless steel cleaners and polishes. NOTE: Stainless steel may rust without proper maintenance.

Water Filter

If a water filter is installed, the water filter should be inspected regularly. It is recommended to replace the filter cartridge every 3 to 6 months.

Interior Cleaning

The inside of the ice storage bin can be washed with water and cleaner solution. Rinse thoroughly with water. Repeat this process with a water and sanitizer solution.

Note: Check and confirm the water pressure is lower than the maximum allowed pressure. Do not flush the part above the water pump or the evaporator directly.

Water Pipe

In order to ensure food safety, the water pipe of the ice machine should be cleaned regularly.

Winterizing

Turn off the water and power supply, drain the residual water from the water trough inlet pipe and drain pipe.

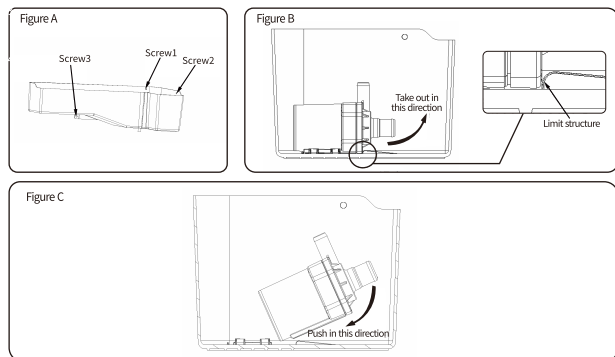
Note: The maintenance of the ice machine is not covered by the manufacturer's warranty!

(1) Machine casing Use a clean, soft cloth to wipe the outside of the ice maker at least once a week, and a damp cloth dampened with a neutral cleaner to wipe away grease or other impurities.

(2) Ice scoop cleaning (Suggest once a week) Soak the ice scoop in a mixture of neutral cleaner and water for at least 3 minutes, then rinse with clean water and shake dry.

(3) Refrigerator cleaning (Suggest once a week) Open the ice door, remove all the ice, clean the inside of the refrigerator with a neutral cleaner, and rinse with water. Then wipe the inner wall with a clean, neutral detergent cloth, rinse with water, and finally dry the inner surface with another clean cloth.

(4) Water storage tank cleaning (Suggest once a week) The water storage box should be cleaned once a week, remove the power plug of the machine before cleaning, and then wipe the water storage box with neutral detergent, and then rinse with water. You can also remove the screws according to the position indicated in (Figure A), remove the water pump in the direction indicated in (Figure B), and take out the water storage box for thorough cleaning. After cleaning, (Figure C) push the water pump into the screw



2. Maintenance:

Attentions of flammable refrigerants

Servicing shall be performed only as recommended by the manufacturer.

Qualification of workers

Every working procedure that affects safety means shall only be carried out by competent persons that qualification of the working personnel for maintenance, service, and repair operations.

Examples for such working procedures are

- a) breaking into the refrigerating circuit;
- b) opening of sealed components;
- c) opening of ventilated enclosures.

Checks to the area

Prior to beginning work on systems containing FLAMMABLE REFRIGERANTS, safety checks are necessary to ensure that the risk of ignition is minimised.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., nonsparking, adequately sealed, or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available on hand. A dry chemical or CO2 fire extinguisher should be adjacent to the charging area.

No ignition sources

No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment shall be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigerating equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times, the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

- a) the actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
- b) the ventilation machinery and outlets are operating adequately and are not obstructed;
- c) if an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;

- d) marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- e) refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices:

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment, so all parties are advised.

Initial safety checks shall include:

- a) that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- b) that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- c) that there is continuity of earth bonding.

Repairs to sealed components:

During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that the apparatus is mounted securely.

Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

Repair to intrinsically safe components:

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.

Replace components only with parts specified by the manufacturer. Other parts can result in the ignition of refrigerant in the atmosphere from a leak.

Cabling:

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants:

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity might not be adequate, or might need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine can react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system. Removal of refrigerant shall be according to instruction of removal and evacuation.

Removal and evacuation:

When breaking into the refrigerant circuit to make repairs – or for any other purpose –conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- a) safely remove refrigerant following local and national regulations;
- b) purge the circuit with inert gas;
- c) evacuate (optional for A2L);
- d) purge with inert gas (optional for A2L);
- e) open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Charging procedures:

In addition to conventional charging procedures, the following requirements shall be followed.

- a) Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimise the amount of refrigerant contained in them.
- b) Cylinders shall be kept in an appropriate position according to the instructions.
- c) Ensure that the REFRIGERATING SYSTEM is earthed prior to charging the system with refrigerant.
- d) Label the system when charging is complete (if not already).
- e) Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning:

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate the system electrically.
- c) Before attempting the procedure, ensure that:
 - i) mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - ii) all personal protective equipment is available and being used correctly;
 - iii) the recovery process is supervised at all times by a competent person;
 - iv) recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with instructions.

- h) Do not overfill cylinders (no more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- k) Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

Labelling:

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

Recovery:

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

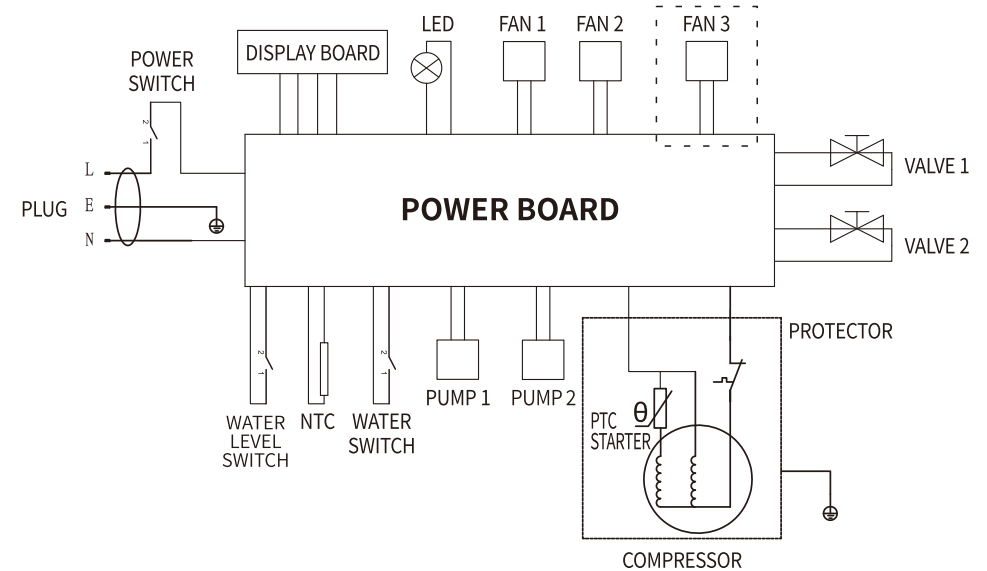
The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

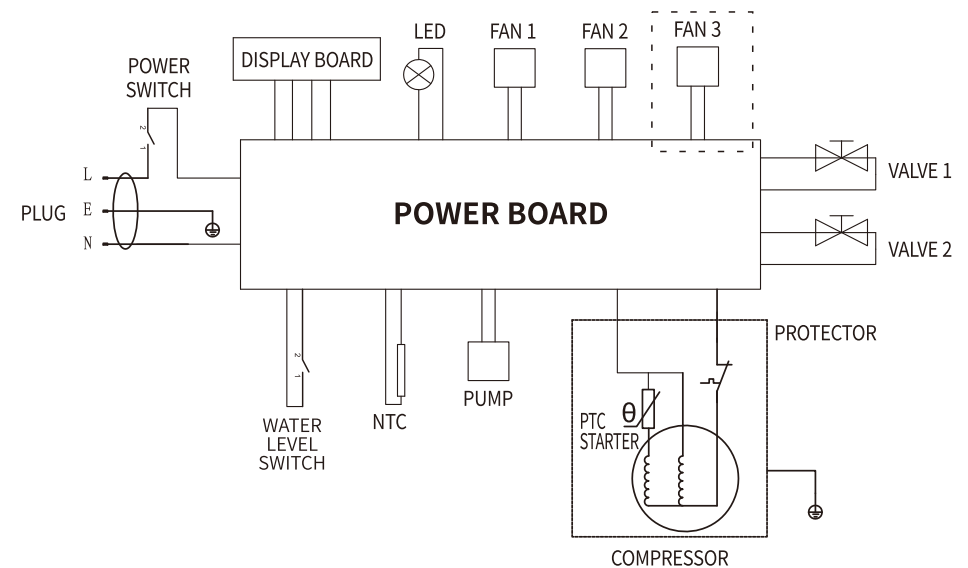
If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

CIRCUIT DIAGRAM

Dual-purpose model(FAB)



Tap water model(FA)



WARRANTY NOTICE

Warranty commitment:

1. On the premise that users abide by the rules of use and maintenance, our company provides a one-year free warranty for the entire machine and a three-year compressor warranty (calculated from the date of purchase) for any damage to parts caused by product quality issues.
2. The following situations are not covered by the warranty, and users are required to pay the corresponding material and maintenance costs.
- (1) Damage caused by violation of operating procedures.
(2) Damage caused by the use of mismatched power supplies and components.
(3) Damage caused by non-compliance with the instructions during installation and use.
(4) Any damage caused by human or accidental factors.
(5) Damage caused by self-repair and modification without our company's approval.
(6) Aging or scratches on the surface shell of the product.
(7) Free warranty period exceeding 1 year.
3. If the user discovers any quality issues with the product during use, please contact customer service and provide this warranty card. After customer service verifies the user information and factory number, we will provide warranty services to the user as soon as possible.
4. After the free warranty period expires, users can still receive paid repair services provided by our company and charge the required cost of repair.
5. After purchasing the product, please keep this warranty card properly. This card must be provided during warranty, otherwise it will be invalid.

User Information:	Product Information:
Name:	Model:
Phone No. :	Purchase date:
Address:	Purchased by:

Warranty Card Repair Record Table				
Repair date	Fault content		Maintenance agency	Maintenance person
	Fault content	Replaced accessories		