



SHANGHAI ICEMA REFRIGERATION TECHNOLOGY CO., LTD

Brine Block Ice Machine

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Catalogue

Warning.....	2
Usage and Maintenance Summary.....	3
1. Installation.....	3
2. Basic safety instructions.....	3
3. Power and Materials.....	4
4. Start the Ice Maker.....	5
5. Ice machine operation	6
6. Ice Maker Stopped.....	6
7. Description of the control cabinet.....	6
8. Instructions.....	9
9. fault resolution.....	9

Warning

Danger !!	Any illegal operation may cause: equipment damage, personal injury or even death!
Attention !!	Any improper operation may cause: equipment failure, personal injury and property loss!

Danger !!!

- ◆ When the machine is powered on, any part of the human body is prohibited from touching the live parts of the machine. If the live parts are not clear, any metal parts of the machine are prohibited.
- ◆ When the machine is working, any part of the human body is prohibited from approaching the rotating or moving parts of the machine.
- ◆ When the machine is running or stopped, it is prohibited to touch the red pipe or the pipe with high voltage. Be careful of burns.
- ◆ If the machine is left idle or not working for a long time, please disconnect the main power supply to avoid the risk of electric shock.
- ◆ Before starting the machine, please confirm that the rotation direction of each motor is correct. Any motor reversal is prohibited.
- ◆ It is prohibited to install or connect other electrical equipment in the machine's electrical control box.
- ◆ If the machine stops suddenly, it is prohibited to start it again without finding the correct reason for the stop.
- ◆ Please arrange professionals to operate the ice crane and do daily maintenance of the crane.
- ◆ In freezing weather or freezing season, if the ice machine is not used, please drain all the water inside the ice machine unit pipe, condenser, and shell and tube evaporator, otherwise there will be a risk of freezing and cracking.

Attention !!!

- ◆ Only personnel who have been specially trained and experienced in the maintenance and use of refrigeration equipment can operate the system.
- ◆ Before starting the ice machine, the power supply must be connected 8 hours in advance, the main power switch and all electrical switches including emergency stop must be turned on, the crankcase heater of the compressor must be operated, and the temperature in the crankcase must be 5°C higher than the ambient temperature. Starting the ice machine when the crankcase temperature is too low will cause serious damage to the compressor.
- ◆ The ice machine can only be used under standard atmospheric pressure. Any high pressure or negative pressure environment will cause damage to the piping system of the ice machine.
- ◆ Wrong or non-standard electrical wiring can cause short circuits, circuit breaks, electric shocks, electric injuries and other accidents. Therefore, it is strictly forbidden to repair the equipment without an "Electrician's Certificate" or non-refrigeration equipment maintenance personnel.
- ◆ The operator on duty should continuously observe the operation of the equipment according to the indicator light and solve the problems found in time.
- ◆ Read the instructions carefully and understand all the terms in it to correctly install, connect, operate, use and maintain the machine. Compliance with the standards in this document is important for achieving the rated operating effect of the machine and protecting the safety of the operator.
- ◆ Read the instructions carefully, strictly abide by the standards, and have the appropriate operator perform maintenance.
- ◆ The technical standard data contained in this manual may change due to technological development without prior notice.
- ◆ Please give this manual to the person who will eventually use the machine.

Usage and Maintenance Summary

This product is a salt water block ice machine in our company's block ice machine series. The machine has been installed in our factory and has passed various tests. Our machines are all made of world-renowned brands of refrigeration accessories and electrical components. They are carefully assembled by engineers through three-dimensional mapping and assembly personnel. Even in harsh environments, the machines can operate normally, allowing customers to use them with confidence. In order to make the machine better and reduce your repair and maintenance costs, daily maintenance and preventive maintenance are also necessary.

Dear user, please note: Only by carefully reading and strictly following the instructions below can you correctly install your machine. Please read our instructions carefully before operation. You will find that a complete reading and remembering will bring you a lot of convenience in installing the machine and in future use and maintenance.

1. Installation and operation personnel

Please hire or arrange personnel with experience in refrigeration equipment installation to direct the installation on site. And hire or arrange qualified electricians holding the "Electrical Network Operation Certificate" to connect the cable between the machine and the power grid. Damage to the machine caused by customers who choose to install the equipment themselves is not covered by our company's warranty.

Please hire or arrange one or two responsible personnel with ice-making experience to turn on and off the machine and be responsible for the daily inspection of the machine. This staff must understand the entire start and stop sequence of the machine and understand simple troubleshooting.

When the machine fails, please hire professional refrigeration equipment maintenance personnel or qualified electricians and engineers holding the "Electrical Network Operation Certificate" to repair it. You can also call our after-sales service department directly for help. We will patiently and carefully answer any questions about the ice maker raised by each customer.

It is strictly forbidden to disassemble and assemble the machine randomly. Unreasonable operation will seriously shorten the service life of the machine and may cause loss of life and property.

2. Basic safety instructions

All personnel involved in machine operation must be familiar with the safe operating procedures of mechanical equipment, understand the basic essentials of refrigeration equipment, and have read our company's instructions in full. Ensure that these personnel thoroughly understand and fully comply with the instructions.

1. The components of the refrigerant cycle are under high pressure. Please do not open the pipes, valves or other components at will;
2. When the machine is in use, the components will heat up. Burns may occur when approaching the red high-pressure exhaust pipe;
3. Only personnel who have received professional electrical knowledge training and hold the "Electrical Network Operation Certificate" can repair the electrical part of the machine;
4. Only refrigeration personnel who have received professional refrigeration equipment knowledge training and have experience can repair the refrigeration part of the machine;
5. For the daily use of the machine, please hire or arrange responsible personnel who understand the basic operation of refrigeration equipment to manage;
6. Smoking is prohibited in the room where the ice machine is installed.
7. The gaseous refrigerant is denser than the surrounding air. In order to prevent refrigerant leakage and hypoxia, the room where the machine is installed must be well ventilated.

The following rules must be followed when operating valves, buttons, and switches:

1. You must know the function of the component and understand the consequences of opening or closing the component;
2. Some pipes of the machine are high-pressure pipes. When suddenly opened, high air pressure may rush out. Please pay attention to personal safety;
3. The pipes of the machine are filled with refrigerant. Opening the pipes or valves at will will cause refrigerant leakage, which may cause death in serious cases;
4. After the refrigerant leaks, the machine will lose its ice-making ability;
5. The switches of the electronic control equipment contain AC 400 volts or even higher voltages. Please do not operate them at will;
6. Consider for 30 seconds before operating any component, and start when you are sure it can be operated;

The following rules should be followed in particular when operating an ice machine:

1. At least 8 hours before starting the ice maker, all switches in the electric control box should be turned on, the emergency stop button on the electric box operating table (surface) should be turned on, and the power should be turned on;
2. The main power should be cut off when repairing the ice maker;
3. Trained professionals must be arranged to operate the ice crane in the ice maker system, and daily maintenance work must be done on the crane, and it is strictly forbidden to pass the crane over the human body;
4. Each ice crane is customized according to the weight of the ice cubes and ice buckets in the salt water pool. It is strictly forbidden to use the ice crane in the ice making system to lift other objects;
5. Before opening the pipeline, make sure that all refrigerants have been recovered to the liquid storage tank and the isolation valve has been closed to prevent refrigerant leakage;
6. When the ice maker is not used for a long time, please recover the refrigerant to the storage tank. Liquidator, close the isolation valve, turn off the main power supply, close the drain valve and water inlet valve of the brine pool, drain the water from the unit pipes, water-cooled condenser, shell and tube evaporator, cooling tower and other places, and take moisture-proof and dust-proof measures for the equipment;
7. In freezing weather and freezing seasons, special attention should be paid to draining the water in the shell and tube evaporator, water-cooled condenser and unit pipes, otherwise there will be a risk of freezing and cracking;
8. At no time can the ice bucket and coil evaporator be exposed to the air for a long time. When not in production, the ice bucket should be filled with water and placed in the brine pool, and the brine inside the brine pool should submerge the coil evaporator;
9. The brine solution is not highly toxic, but it cannot be eaten. If it accidentally enters the eyes, mouth and nose, it will cause discomfort to the human body and requires immediate medical attention;

3. Power supply and materials

3.1 Power

Depending on the region and customer, the ice machine may use different levels of voltage.

In China, our machine power standards are as follows:

Power: AC 380V3P+N 50Hz

Control: AC 220V1P+N 50Hz

Control: DC 24V

Please ensure that the site where the machine is installed has sufficient power and the main line voltage cannot be lower than 380V. When the line voltage is lower than 380V, the machine will not make enough ice.

When the line voltage is lower than 360V, it is forbidden to turn on the ice machine. Low voltage (commonly known as: under voltage) can easily burn compressors, motors and other equipment.

Please refer to the machine nameplate for specific voltage standards.

The burning of the machine due to low voltage is not covered by our company's warranty.

3.2 Water

3.2.1 Cooling water (water-cooled type machine)

Cooling water is the water used to cool the ice machine system. It is not the same system as the water used to make ice. In principle, cooling water also needs to be tap water, but according to the actual situation, in order to save costs, cooling water can use other water that is free of alkali, salt, and corrosive agents (substances). Such as well water, river water, mountain spring and natural water.

3.2.2 Making Ice Water

Please use standard tap water, purified water, drinking water or other fresh water as the ice making water for the machine.

Different water specifications may cause the accumulation of dirt or rust in the pipes in the water circulation, which may seriously affect the production efficiency of the ice machine.

3.3 Refrigerant

Our machines use two refrigerants, R22 and R404a, depending on the design. Please refer to the machine nameplate or call Bingma for help to find out which refrigerant should be added to your machine.

3.3.1 R22 Refrigerant

R22--If it leaks into the atmosphere, it can destroy the ozone layer of the atmosphere and affect the environment, but its refrigeration performance is very consistent with R404A. It can no longer be used in developed countries, but is generally used in developing countries and has a good price.

3.3.2 R404a Refrigerant

R404A--It is an environmentally friendly refrigerant, does not pollute the air, has superior performance, and is relatively safe to operate, but it is relatively expensive. It is now basically used in European and American countries.

It is strictly forbidden to add different types of refrigerants into the same machine.

4. Start the ice machine

In order to heat the oil in the crankcase and evaporate the refrigerant mixed in the oil, the power supply must be turned on, the main power switch and other electrical switches including the emergency stop must be turned on at least 8 hours before the compressor is operated to ensure that the temperature in the compressor crankcase is at least 5°C higher than the ambient temperature.

Please follow the steps below to start the machine:

1. Make sure that water and electricity are fully connected;
2. Make sure that the compressor crankcase temperature is higher than the ambient temperature;
3. Check that each manual valve of the unit is in the correct position;
4. Manually run each step (if there is a manual function), and all can work normally;
5. Press the Reset button once before pressing the start button;

After the machine starts up normally, you need to observe the machine's operation for at least 10 minutes.

If you encounter abnormal noise, loud sound, severe vibration, etc., please press the emergency stop button immediately. Do not restart the machine before the fault is eliminated.

◆ **Repeated operation of a faulty ice machine will cause secondary damage to the machine that is not covered by our warranty.**

5. Ice machine operation monitoring

1. The following points should be noted when operating the ice machine:
2. Observe whether the voltage and current are within the parameters marked on the machine nameplate;
3. The high pressure should be below 20 bar, and the low pressure should be within 1.0 bar to 4 bar;
4. There is no abnormal sound from the compressor;

6. Ice machine shutdown

There are two situations when the ice machine stops, namely: emergency stop and normal stop.

6.1 Emergency stop

1. Purpose of emergency stop: Emergency stop can only be performed when there is a threat to equipment and life safety;
2. Method of emergency stop: Pressing the "Emergency Stop" button on any part of the machine can achieve the purpose of stopping the machine instantly;
3. When restarting the machine, please confirm that the emergency before the emergency stop has been eliminated and the machine is in the correct state;
4. Please wait at least 5 minutes before restarting the machine after each emergency stop;

6.2 Normal stop

Normally stopping the ice machine means that when the machine is making ice normally, the "Stop" button of the machine is pressed, and the machine gradually stops each process step according to the predetermined stop sequence and time.

No system pressure shock will occur during normal shutdown. Therefore, it is recommended not to use the emergency stop button to stop the machine under normal circumstances.

7. Functional description of each part of the control cabinet (the screen of each device is slightly different)

7.1 Touch screen screen



startup screen

Language selection button

Menu screen button



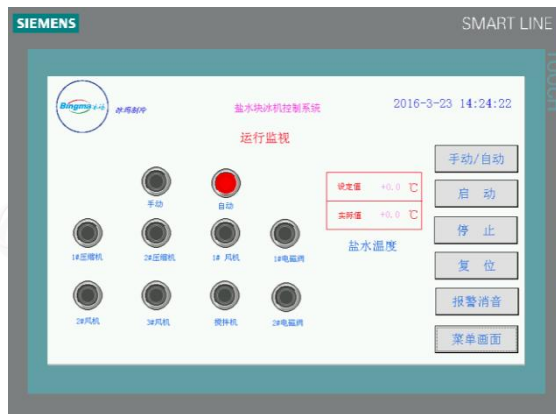
Menu screen

The menu screen can enter various sub-screens and switch screens.



Manual screen

The manual screen can be used to start a motor or solenoid valve individually. It is used for installation and debugging. Please do not operate the control switches on this screen at will.



Home screen

The main screen can monitor the operation of the unit, start and stop the unit, and set the temperature. The brine temperature is factory set to -16°C and it is not recommended to exceed this value



Alarm screen

The alarm screen can check current alarm items and historical alarm items, and can also clear alarm records.



Time setting screen

The time setting screen can be used to set the time and date.

8 Operating Instructions

8.1 After the ice machine is powered off and then powered on again, you need to press the "Reset" button on the touch screen once. The ice machine can only be started after the fault indicator light goes out. Otherwise, the ice machine cannot be started.

8.2 After the ice machine fails, the unit will stop suddenly, the fault indicator light will be on, and the buzzer will sound an alarm. After the operator arrives at the scene, he can first press the "Mute" button on the touch screen to eliminate the alarm sound, then check the alarm on the "Alarm Screen" on the touch screen, and then eliminate the fault, and then press the "Reset" button, and then the ice machine can be started again (the fault has not been eliminated and the ice machine cannot be started).

8.4 Touch screen main screen setting value

The customer can manually set the brine temperature setting value of the main screen. The customer can set the "Set brine temperature" (factory value is set to -16.0 degrees Celsius) according to the actual situation of ice making, but it is not recommended to exceed -17.0 degrees Celsius, otherwise it will cause damage to the unit.

9.General Troubleshooting

Fault	Display status	Troubleshooting methods
Motor overload	The unit is in emergency stop state, the system fault indicator (System Error) flashes or stays on	1. Check whether the three-phase winding of the motor is balanced;
High and low voltage fault	The unit is in emergency stop state, the system fault indicator (System Error) stays on or flashes	2. Check whether the transmission part is stuck, whether there is phase loss, undervoltage, and whether the connection between the low-voltage electrical appliances is loose.
Cannot start	The whole machine cannot start	1. Check whether the unit pressure is too high or too low; 2. Check whether the electrical connection part is disconnected, and whether the high and low voltage switch contacts are intact. 3. Whether the air-cooled or water-cooled condenser is normal. 4. Whether the refrigerant is leaking.
Power indicator light is off	After closing the power switch, the power indicator does not light up, and the system cannot start	1. Check whether the power supply of the equipment is abnormal and the button contacts are intact;

Regular maintenance of the equipment can greatly reduce the occurrence of faults, such as regular inspections to check whether the motor sounds abnormal, frequently checking whether the connecting wires of each part are loose, and keeping the surface of the equipment clean.

The fault indications of each series of ice machines produced by Bingma Company vary according to different models. For details, please refer to the random manual, electrical drawings or call our after-sales service department.

After-sales telephone:

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