Chapter One Preface

Dear customers:

Thank you for using our products, products will bring to you excellent quality and good performance. For your convenience, please read this manual carefully.

Please follow instructions at each step from the beginning to end. Brand also means excellent service that will accompany you regardless of your questions and needs. Please refer to warranty card or your local representative for service contact information.

With continuous product improvement, the piece of equipment you have received may not match exact description in the manual; we apologize for any inconvenience if it should occur.

Ice cream machines are manufactured with integration of advanced refrigeration and electronic control technologies and application of a good number of patents, and thus fine craftsmanship. The company’s soft ice cream machines feature prominent look, high refrigeration efficiency, good operating performance and ease of operation.

Equipped with hermetic compressor and patented evaporator, the machine freezes while beating the product until the product forms semi-solid shape and reaches to a certain temperature (usually from -4°C. to -7°C.).

In order to better understand this manual and to use the machine, please follow the explanation of the icons in the manual:

- **Prohibited signs**: Behaviours described in this manual accompanied with this sign must be forbidden; otherwise it may cause damages of product or endanger the personal safety of users.

- **Warning signs**: All contents with the logo related to the safe operation and the user’s safety, operator must strictly follow the requirements; otherwise it may cause damages of product or endanger the personal safety of users.

- **Caution sign**: All contents with the logo are the part of which the user must take seriously; otherwise damages or loose may occur due to inappropriate operations.
Quick Operation Guide

Installation

1. Open the package to check the machine and parts
2. Place the machine as specified, Please refer to (page 5) installation requirements
3. Read and understand all safety and standards operational Procedure

Machine Preparation And Cleaning

4. Test the machine, clean and sterilize spare parts
5. Cleaning the hopper, cylinder and all components
6. Reassemble the parts and smear the lubricant, Then sterilize the machine.

Making ice cream at Auto or manual mode

7. Prepare ice cream mixture and make it fully blended
8. Pour the ice cream mixture into hopper of machine and press Auto or manual button to start making ice cream
9. Press the hardness button to adjust the hardness of ice cream
## Machine Parts

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Control panel</td>
</tr>
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<td>2.</td>
<td>Discharge door body</td>
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<td>3.</td>
<td>Pivot Pin</td>
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<td>4.</td>
<td>Hand screw</td>
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<td>5.</td>
<td>Distribution handle</td>
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<td>Draw valve</td>
</tr>
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<td>Design cap</td>
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<tr>
<td>12.</td>
<td>Big drip trap</td>
</tr>
<tr>
<td>13.</td>
<td>Small Drip Tray</td>
</tr>
</tbody>
</table>

(at the front of machine) (at the side of machine)
Safety Warning
Chapter Two Safety Warning

Section 1 Safety Precautions

◆ Electricity
  • Install grounded device according to the home or industrial standard.
  • According to residential and industrial standards, machine should be grounded.
  • Power lines, connection method and electric devices must meet safety standards.
  • The machine must have leakage and short circuit protections.
  • User must not touch the connected plug or switch when the hands are naked or wearing wet gloves or clothes.
◆ Bodily Injury mechanical injuries
  • Do not touch the running part of the machine (see Figure 1).
  • When moving the machine, please keep a safe distance from the machine.
◆ Sanitation
  • Products may be polluted due to the machine is not disinfected strictly; this may also lead to illness of customers, and end up with severe claims or legal actions.
  • Keep machine sanitary and clean the waste on time to prevent corrosion.
  • Clean and disinfect the machine strictly according to this manual.
◆ Fire Hazard
  • This machine is a high-power device; the capacity of the power supply circuit must be bigger than the maximum operating current of the machine. If not, excessive heat will cause burning and even fire hazard. Please pay high attention to this!
◆ Operation
  • To ensure safety, the machine must be operated by trained personnel with knowledge of electricity and machinery and know clearly of the operation requirements of this machine.
  • Ice cream is a food product; the operators must know the requirements of food sanitation and holds Health Certificate proved by local health department.
  • The operation processes must meet health standard, including the proper usage of disinfected tool and hygienic products like head cover, mask and glove.

Section 2 Safety Warning about Machine

◆ Transportation
  • This machine is a commercial refrigerating facility. It should be vertically placed during the transportation; leaning, lying down or inversion is prohibited. Transportation in wrong way would destroy the machine (see Figure 2).
◆ Installation
  • Install this machine strictly according to this manual. Over or low voltage, strong heat radiation, water, no ventilation, corrosive gas and excessive dust will all malfunction and even destroy this machine!
◆ Usage Correctly
  • The machine can run normally with voltage ranges between, according to the requirements, three-phase five-wire 380V / 50Hz or 220V / 50Hz power supply. Operating voltage fluctuations should be within the three-phase 350V-410V and single-phase 180V-250V, the ambient temperature should be 10 ℃-38 ℃.
Attention:
During the process of transportation and operation, machine damage caused by wrong usage or installation warranty would lose its efficiency.

Section 3 Moving the Machines

◆ Using Base and Package
· When being carried, this machine should be fixed on a specialized base. Forklift is recommended to handle this machine (see Figure 3).

◆ Transportation
· Transport this machine with base and package, avoid shaking and impact. The maximum angle of inclination is 45°, horizontally position is prohibited. Machine without package must not be moved by forklift or transported for long distance.

◆ Unpacking Methods
· Cut the packing strings and remove the package. Strip off the stuff material with care, do not use sharp tool or it will scrape the surface.
· In the package, there are machine, accessories, documents, stuff materials and surface protector.

◆ Remove the Base
· Remove the fastening bolts that connect the base with the base of machine, lift the machine, remove the base, and gently place the machine on a solid ground (see Figure 4). Unpackaged machine can only be moved by soft sling or moving manually (see Figure 5 & 6)
· This machine can be pushed on the ground, please lose the front wheel brake before pushing. The front wheels can spin 360 degree and the back wheels are fixed. This machine can be pushed up the slope less than 15 degree (see Figure 7).
• After installation, please fix the machine by using the front wheel brakes (see Figure 8)

![Figure 7](image1)  ![Figure 8](image2)  ![Figure 9](image3)

• This machine must be placed on dry and solid ground. Heat source over 70°C are not allowed within 500mm range. Keep machine out of sun and rain (see Figure 9)

Section 4 Machines’ installation environment

• After Installation, the machine must not be turned on in the next 24 hours.
• This machine should be placed more than 300mm away from the wall; the vent hole should not be blocked. (see figure 10).

![Figure 10](image4)  ![Figure 11](image5)

• In the case of small indoor space, an exhaust fan with flow rate of no less than 1000mm/h should be installed. Side-exhausted ice cream machines cannot be placed side by side, if you have to be place them side by side, please use air conditioning or ventilation device for cooling.
• Check the power supply circuit of this machine. Please choose the socket with proper size and type or use three-phase five-wire electrical switch to supply power, its single-phase current capacity should be more than 15A. Circuit should be equipped with short-circuit protection and leakage protection devices (see figure 11).
• The machine must be grounded to ensure safety. Before turning on the machine, please make sure the grounding lead of the plug is securely connected with a separate line. The power cable of this machine is a five core wire with rubber coat. The wire with yellow and green color should be connected by the ground terminal of the shell of the machine and the power socket. The sectional area of the machine power cable should be more than 1.5mm.

**WARNING:** To ensure safe use of electricity, it is strictly forbidden to remove the power plug of the machine! If the machine requires power from other types of electrical outlets, please use a conversion plug.
Product Introductions
Section 1 Overview of general spare parts

Section 2 Control Panel

1. Ice-Cream instruction
2. Cleaning button
3. Stopping button
4. Automatic ice-cream button
5. Manual ice-cream button
6. Cleaning instruction (Green)
7. Ice-Cream instruction (Blue)
8. Stopping status indication (Red)
9. Level status indication
10. Stiffness Level (0~7)
11. Hard button
12. Soft button

Section 3 Overview of valve body (single handle)

<table>
<thead>
<tr>
<th>Item</th>
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<td>Handle</td>
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<tr>
<td>2</td>
<td>Large nut</td>
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<tr>
<td>3</td>
<td>Inserted nut</td>
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<tr>
<td>4</td>
<td>Small sealing ring</td>
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<td>6</td>
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<td>7</td>
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<td>9</td>
<td>Plug-in</td>
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◆ Overview of valve body (three handles)

![Diagram of valve body]

<table>
<thead>
<tr>
<th>Item</th>
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<th>Item</th>
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<td>Middle valve plug</td>
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**Warning:** The valve body should be assembled according to the original structure after cleaning and the middle sealing ring must be installed on the middle valve plug.

◆ Use food machine lubricant for maintenance

Clean and disinfect the components, and apply lubricant to the following parts according to instruction before using.

Firstly, lubricate the beater and the sealing ring randomly as shown in the figure. Then install the sealing ring to the beater and also apply lubrication on it.

Install the sealing rings into valve plugs and then lubricate all the sealing rings.

Install the sealing ring into valve body and then lubricate it.

◆ Section 4 Accessories Installation

- **Installation of the beater:** sealing ring should be installed into the beater firstly against water or ice cream leakage. Firstly, install the corrugated sealing ring in square-shaft head of the beater and then push the square-shaft head of the beater into the mixing cylinder with a slight turn to make the square-shaft head match the square hole at the end of the mixing cylinder. The beater is installed and matched successfully when it can automatically rebound slightly and slowly after pushing. (Figure 12)

- **Installation of the valve body:** The machine should be in power-off condition during the installation process. Hold the valve body and press the spring inserted rod rolling back, at the same time; match the hole of the valve body with the mounting stud of control panel. Then push the body steadily to make the sealing rings join the panel surface and screw four big corresponding nuts to make the backlash between the panel and valve body uniform. (Figure 13, 14)
• Check after installation of the valve body to ensure that the sealing ring of the valve body and panel join tightly together and the four nuts are screwed uniformly as well as the valve body can be moved up and down smoothly and fluently.
• During installation of the receiving case, the positioning hole of the receiving case should be aligned with positioning pin and fixed tightly. Then the material box is put on the material rack to catch the drop when making ice cream. (Figure 15)
• Clean the expanded tube and then insert one end with a small hole into the feed tube of the cylinder. (Figure 16)
• Insert the blue water box into the square hole at the right side of the machine panel until the water box is completely inserted.

Note after the installation, pull the switch to the left into “on” state, and the red indicator on the panel will turn on.
After pressing the “clean” button, mixing motor is starts, which indicates the installation of machine spare parts is correct.

Section 5 Product specification
Product Specifications

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</table>
“HC-D” system function introduction

Features

1. Cleaning button: Running motor;

2. Stop button: Stop all operations;

3. Automatic button: Start to making ice cream automatically;

4. Manual button: Start one cycle of making ice cream;

5. Indicator light:
   ① Cleaning indication;
   ② Making scale indication (under Auto function is always on, under the manual function is flashings.);
   ③ Stop indication;
   ④ Low level indication;

6. Hardness indication: 1-8 level;

7. Hardness adjustment button: up or down level;

8. Stand-by mode: when user press hardness “+” “-” at same time, the machine enter into stand-by mode. In display screen, it will show as “—”. When the machine enter into stand-by model, the compressor works less than 2.5 minutes for every half hour to make sure the ice cream mixture in the cylinder stay cold. Attention: The stand-by mode can only keep the mixture inside the cylinder fresh. If the machine is without pre-cooling (for hopper cooling), the mixture in the hopper needs to take out and keep in refrigerator. Press the stop button to end the stand-by mode.

9. Low level alarm: When ice cream mixture is low, the blue indicator will flash. We can also set the sound alarm in the system. If the sound alarm turn on, the machine will sound the alarm for 4 times and then stop;

10. Display screen: 1. at ready mode, it shows the voltage;
    2. at cleaning mode, it shows the electric current of motor.
    3. at Auto or Manual model, it shows the rate of making progress
    4. In stand-by mode, it shows as “—”.

11. Each hardness level related to electric current check: long press “Clean” or “Auto” button, in the display screen, it will show L-xx (present electric current) and H-xx (the electric current at this hardness level when the ice cream will be ready), and it will automatically exit this mode after 10 seconds.
Operation Procedures
Section 1 Operation TEST

- After the installation, the functions of the machine should be tested before use, to ensure all functions are in good conditions.
- Goods and equipment needed to be prepared
  - Cleaning cloth -- for cleaning the inside and outside surface of the machine and blotting up moisture.
  - Mixture container -- A stainless steel or plastic container for containing ice cream mixture and water.
  - A thermometer -- or measuring the temperature of the environment, ice cream mixture, and the produced soft ice cream.
- Operation test
  - The machine consists of three independent power devices which are beater motor, compressor and cooling fan.
  - Press the “cleaning” button to start the beater motor individually. Then transmission drives the agitating shaft rotation. Press the “cleaning” button again to stop running.
  - Press the “dispensing” button to start refrigeration cycle. The agitating motor starts firstly and the compressor and the cooling fan run after 10 seconds. Press the “dispensing” button again and then the compressor and the agitating motor stop running.
  - When making ice cream, press the handle and the valve plug rolls the spring inserted rod back. At the same time, the agitating motor stars to run. Then the soft ice cream will be squeezed out.

The test time of refrigeration should be within 1 minutes when lack of ice cream mixture. Long time refrigeration is prohibited without ice cream mixture. Refrigeration without ice cream mixture will lead to freeze the tank and damage the ice cream machine severely.

Section 2 Disinfection of the Machine

As for containers and spare parts which contact food directly, they must be disinfected and cleaned thoroughly before and after use in order to ensure the health of food. Please use the disinfectant provided by our company and uses it according to the provisions of the user manual.

- The preparation of disinfectant
  - Pour 5kg water into a clean container and then pour a small bag of disinfection powder (15 g). Stir the mix for 2 minutes to make it dissolved thoroughly. (Figure 17).
  - The disinfectant mainly contains C3N3O3C12Na, SDIC for short, which is a food-grade dedicated product. Please do not use other products as the replacement without our confirmation in order to avoid health risk.

- The use of the disinfectant
  - As for the disinfection of spare parts, the immersing method and the injecting washing method can be applied in order to reach thorough sterilization. Disinfection shall continue for a period of time and can kill all kinds of bacteria, mildew and viruses, etc. which would endanger human body. According to the basic characteristics of different kinds of bacteria and viruses, sterilization time should be no less than 10 minutes.
  - All the disassembling components like air tube, discharge door, beater and ripple ring can be soaked in the disinfectant. Full contact is needed between the disinfectant and the spare parts. The discharge door should be disassembled completely before soaking.
Section 1 Washing the Machine

◆ Wash Before Using

1. First, use clean water to wash the hopper and take the remaining mix away from the freezing cylinder.
2. Put 5 kg of clean water and a bag of disinfectant powder (15g) in the plastic drum; stir for two minutes to dissolve it.
3. Pour 5L cleaning liquid into the hopper; remove the air tubes to allow rapid inflow of water into the cylinder. Using the brush to clean air tubes, feeding tubes and the hopper. (Figure 18, Figure 19)
4. Turn on the power switch and press the “Clean” button and the beater will rotate. The stirring shaft drives the water inside the cylinder to wash the inside of the cylinder. After three minutes, press down the dispenser handle and discharge water, then release the handle, press the “stop” button. Then repeat steps 2, 3 and 4 for three times.
5. Pour 5 liters of clean, hot water (90℃) into the hoppers. Press the “Clean” button and the beater will rotate. The stirring shaft drives the water inside the cylinder to wash the inside of the cylinder. After three minutes, press down the dispenser handle and discharge water. Then release the handle and press the “stop” button to finish the cleaning.
6. Finally, get all the removable parts of discharge door body down. Place them in a clean, dry environment. Put them back and repeat steps 1-5 again before next time usage.

◆ Wash After Using

• After making ice cream, discharge the remaining mix as much as possible. The mix could be discharged until it melts under increased temperature after a period of time after processing. The remained mix can be put in a refrigerator with a container under the temperature from 5℃ to 7℃ for next time to use.
• After getting all the remained mix out, put 5 liters water in both hoppers. Remove the air tube to allow the clean water flow in to the cylinder.
• Push the “clean” button and the stirring motor starts rotating. Waiting for 3-5 minutes, pull down all the distribution handles to drain the water.
• Wash the hopper and other parts of the machine.

◆ Repeat the steps above for 3-4 times.

• After draining the wash water, turn the emergency switch button off. Unplug the plug, and then remove the valve body in the reverse order of installation. That is, tear down the four hand screws and pull down the handle to push back the spring cannula. Then take out the whole discharge door carefully.
• Pull out the beater and pay attention to remove the corrugated seal at the rear at the same time.
• Clean all parts of the valve body and remove the distribution lever, distribution handle, center draw valve, draw valve o-ring. Then put them in sterilizing liquid for 10 minutes. Finally, clean all parts with water.
• Clean and dry the hopper, panel, top-roof, and mix drip pan.

Attention: The disinfectant is chemical product that may do harm to the skin and mucosa. Please wash with water if the disinfectant drips on the eyes, nose, mouth or skin. Go to see a doctor if necessary. The disinfectant cannot be used for other purposes! Keep it away from children!
• Check the drip pan on the right of the machine. Pull it out to see if there has too much leaking mix. If there has leaking, then clean it. When the leaking mix is too much, examine the ripple ring and then reinstall it. (figure 20)

Keep the separate parts properly. Keep them dry and clean and avoid dust and pests.

Section 4 Making Ice Cream

◆ Mixing the Ice Cream Powder
Take Gelinao ice cream powder for example:
1. Follow the instructions of how to mix ice cream powder: pour the ice cream powder slowly in and keep stirring until all the powder is completely dissolved (see Figure 21).
2. Stand the mix powder for 15 minutes, making it fully aged.
3. Now the aged mixed powder can be pour into the hopper to make ice cream or be stored in the temperature of 5 to 7°C for later use.
4. The DW ice cream machine must have mixed powder in both hoppers. They can be the same or different flavor. Using two different flavors, the user can make ice cream of two flavors and one mixed flavor (see Figure 22).
5. A minimum of 500g ice cream powder is required for each program, that is to say, a minimum of 2000g mixes is required for every hopper. More mixes can be made with same proportion according to actual needs.

Warning: When there is any water in cooling cylinder, the machine is strictly prohibited to be on the ice-cream making condition; otherwise the cylinder will be frozen, and may cause the parts of the machine to be ruined badly. So the water in cylinder must be drained completely before ice-cream making and the water in hopper also should be absorbed entirely.

◆ Making Soft Ice Cream
1. Install the air tube properly; insert the end with a side hole into the exit pipe.
2. Pour mixes into the hoppers and the mixes will flow into the cylinder from the hole in the bottom of the air tube.
3. Pay attention to the discharge port, when the liquid mix can flow out of the dispenser, it’s time to push the “start” button.
4. When the process starts, the beater motor runs immediately, followed by the compressor after a while.
5. When the mix achieves the certain hardness, compressor will stop automatically. About 40 seconds later, the stir motor will stop itself. Press down the dispenser handle, and you will get the satisfactory soft ice cream.
6. After the machine remains idle for two to five minutes, beater motor and compressor run again and refrigeration process resumes. When temperature of the mixes in the cylinder rises above a threshold value, refrigeration process resumes until certain hardness is reached.
7. When an ice cream making process ends, the user can stop refrigeration and clean and disinfect the machine according to the manual. Power off the machine at last.
Precautions and Maintenance
Section 1 Precautions for Use and Preventive Measures

◆ Environment
1. The operation of the machine should be in a relatively dry environment, and the air humidity should not exceed 90% generally, the altitude should not over 2000 meters.
2. Normal ambient temperature should range between 10℃ and 38℃. Avoid extreme high temperature.
3. Avoid usage in the sunlight or in the rain. Do not let water or mixes infiltrated into machine.
4. Avoid working in the serious dust containing area or corrosive gases environment.
5. Maintain good ventilation around the machine and avoid usage in the locations where the space is narrow.
6. Watch out the rats and pests near the machine.

◆ Key Point of Safety
1. Keep good ventilation
   This machine is air-cooled model, the machine is air-cooled models, in the cooling state, and the machine has a strong hot air discharge to ensure the normal refrigeration cycle. The operator should recognize that the ventilation area is not covered or jammed while using the machine. It is necessary to pay attention to maintaining good ventilation, which is very important to ensure the performance and lifetime of the machine.
2. Maintain the rated voltage
   In generally, the machine can be used in the normal range of voltage. If the power supply voltage is lower or higher than the allowable value, it will lead to automatic protection or damage to the machine. The operator should be aware of this situation and take appropriate preventive measures.
3. Protect circuit capacity
   The machine is high-power electricity equipment, the largest working current of which will be higher than 15A. If the supply line is too long or the diameter is too small, while start-up the machine, the voltage drop of the circuit will increase significantly, and resulting the actual supply voltage of the machine to drop. The machine will start difficultly, get damaged or even burnt. The machine needs an independent source power supply line, the section of which should be larger than 4mm² and the length should be as short as possible.
4. Reliable grounding protection
   Each machine’s power plug is equipped with standard earthing end marked with the grounding mark. When the machine left the factory, the grounding terminal has reliable connection with the machine, and earthing through the power cord grounding protection device. Before operating the machine, make sure the earthing device of the power supply terminal is reliable, to ensure the machine shell is reliable grounding to release static electricity or prevent possible accidents caused by failure.

◆ Reasonable use
1. Use the spare parts correctly, such as cover the hopper, thus to keep it with quality, safety and hygiene.
2. Use a reasonable ratio of fresh mix, and keep the fluidity of the mix, so as to accelerate the flowing speed of the mix if it is necessary. Do not add water in while the machine is working.

Section 2 Common Problems

The phenomenon listed here may be related to your use of the raw materials, the environment factors, the supply power situation, and the method of operation. Please try to improve the operating environment or operation methods to avoid such incidents.

◆ Machine malfunctions, no display at all.
1). Make sure that the power works properly and is on; voltage is normal; power connectors are compliant and works properly. Check whether extensions cord or receptacles are burnt or deformed. A 220V, single-phase power output should normally range from 198V to 220V.
1. Lack of or no mix in the hopper cause a frozen beater.
2. Too much water left in the hopper or cylinder after washing, causing a frozen beater after making ice cream.
   If the machine be protected frequently. A 5KVA alternating current is needed to increase the stability. Any situation above will lead to the self-protection of the machine. The minutes later, the machine will be back to the standby mode or manual restoration by push the “stop” button. If the ice has not melted, it will be protected and locked after a new start. When the voltage is back to 198V-236V, the voltage canceled itself.

- Machine can boot and cleans well, yet there is no quality ice cream discharged after a period of working. In this situation, the main control board works as usual. There is something wrong with the stir motor. Change the start capacitance, working capacitance, or motor to remedy the trouble. The essential reason is motor working under a low voltage for a long time. The suggestion is the machine needs an independent source power supply line, the section of which should be larger than 2.5mm and the length should be shorter than 6 meters.

- Machine cannot stop automatically.

1. Refrigerate too long time during the working, and cannot stop automatically. Push the “stop” button can stop it. That is because there is no or too less mix flow into the cylinder, thus cannot achieve the demand resistance to stop the machine. Check the feed tube hole, to make sure mix can flow in to cylinder quickly. If it is almost the end of working, stop the machine. Ambient temperature is too high. Check whether the Ambient temperature is higher than 38℃ or not and try to cool it down. Or if the condenser unwashed during a long time, use water with some pressure to clean the cooling fin of the condenser.

2. The “stop” button is invalid.
   Discharge door body in a working location or spring inserted link gets stuck. Remove the spring plunger back to the original position.

- The ice cream is too hard or too soft
  This situation is related to the following factors:
  1) The hardness gear setting is not appropriate: need to set hardness level to higher or lower
  2) Problem of raw material: Please contact the supplier and change the mix.
  3) Don’t make the ice-cream before the cooling being finished. You may do it until the machine stops automatically.
  4) The machine is cooling too long time with less mix, so the ice-cream will be too hard.

- The machine is making big friction noise while operating, and cannot discharge ice cream or mix. The machine got frozen-up.

**Definition:** The frozen cylinder phenomenon probably occurs when there is ice in the cooling cylinder because the mix has high freezing point or the machine is in cooling too long. This will result in the rise of stirring torque, which will lead to the damage of the worm gear and worm reducer, even can be burnt down the motor of the machine. Please operate carefully to avoid frozen cylinder phenomenon.

**Reasons and avoidance measures:**
1. The mixing rate between the soft ice cream powder and the amount of water must follow the manual. It tends to be frozen if the mix contains too much water.
2. Remember to remove all the water from the cooling cylinder after cleaning or frozen cylinder phenomenon would happen
3. The machine has been refrigerating for a long time without mix, which will lead to frozen cylinder phenomenon. So please make sure that there is enough mix in the hoppers while the machine is working.
Stop the machine for 20 min, press the “Stop” button, restart the machine when the temperature of the cylinder rises and the ice melts naturally. Then discharge the water completely in the cylinder, put the air tube at its original place, start producing the ice cream finally.

◆ The mix drip out from the discharge door
There is some room left near the discharge door to ensure the wellness of the shape of ice cream. The remains of the ice cream at this place will melt and drip. Please use the drip tray appropriately, and clean the drip in time.

◆ The leak of the discharge door
The hand screw of the discharge door goes loose. Please tight it up with force, and keep the edge of discharge door and the commissure of board parallel.

◆ The leak or the mixture of different mix of draw valve
The O-ring draw valve is not installed or has been seriously damaged. Please pay attention to the draw valve in the middle place which differs from the two other ones in structure. Use the proper O-ring and install it well.

Section 3 Maintenance
You should clean the surface and interior of the machine on a regular basis, including wiping surface attachments and dust of the machine. Brushes and rags can be used for cleaning. You can use detergent aerosol for cleaning, but in order to prevent workers get poisoned and burnt as well as the damage of machine, burnable solvent inside the machine, alcohol, gasoline and other flammable solvent are not allowed.

Warning:
All the maintenance, repair work must be carried out when the power supply is disconnected. Please confirm the power has been cut off before opening panels of the machine.

1. Please remove all face-panels of machine for cleaning inside the machine during the maintenance and the cleaning parts including compressors, pipes, back plane, the radiator fin of the condenser and other parts.
2. Pay attention when cleaning of the leaking mix in the gap of the front board.
3. Pay attention to the pest and rodents in the machine; please take measures to control insect and rodent’s infestation.
4. Clean the dust and dirt of the inside surface of the machine and clear the radiator fin of the condenser with clean water. Do not let water drip into the electric box to wet the electronic items.

After cleaning let wind dry the machine.
5. Measure the insulation condition of this machine with 500V gauge, mainly including the insulation between the external power supply and machine body motor, between the power supply line of motor, air blower, compressor and machine body. The normal insulation resistance should be more than 20MΩ.
6. Check if the internal connector is loose and rusty. Refasten and deal the rusty parts with antirust. Please do not make belts and other rubber parts contaminated with oil while handing.
7. Do not touch electrical components, expansion valves and other adjustable components when cleaning. Insulated pipes should be restored after maintenance.
8. After the internal clean-up is completed, please install them in original place. Refasten screws, clean the surface and the maintenance work is completed.
Section 4 selection and application of accessories

Declaration of the spare parts of accessories:
- In the package of soft serve machine you bought, it contained some of the free accessories; including accessories installed on the machine and some elements which can be easily damaged, however, the number of easily damaged elements may not be able to satisfy the long term use. It is suggested that, it will be better for you if you buy an appropriate number of elements which can be easily damaged.
- When the machine is damaged and it needs maintenance, maintenance accessories are needed for the replacement of the damaged elements as well. Within the warranty, maintenance accessories will be provided by manufacturer freely, however, the damaged elements should be returned.

When the warranty is expired, you need to buy the maintenance elements yourself.

Warning: Blindly and incautious maintenance may cause the increasing of the damaged area of the machine, and create difficulty for the formal maintenance. When this machine is under the energized condition, there are factors that may lead to danger contained in the transmission mechanism and electrical system! Incautious operations will lead to personal injury; severe accident may cause physical injury or even death!!!

Attention: within the warranty, if there is no authorization issued, free maintenance provided by supplier will become invalid when user personally conducts a wrong service on soft serve machine.

Attention: This machine is mainly applied in the field of food industry, and it is recommended that this product should be used in a clean and healthy surroundings. Under operation situation, heat may be produced by this machine, along with some noise, and there may be a sudden radio jamming; employees need to be prepared for these situation.

Attention: remind the user that there are some special operation requirements.

Warning: remind the user that there are possibilities of personal injuries and product damage under operation.
Appendix 1

Configuration of Power Line
The normal voltage of the soft ice cream machine ranges from 198V to 242V. In order to meet this condition, when the power is higher than 3.5KW, we have to equip a standard power line. There are too many factors that affect the voltage: the supply condition of the city’s electricity, accident and so on. The main factor you can control is to reduce the loss of the power line. Please read the table below, and equip a suitable line for your machine to reduce the loss of power line.

In the table below, the power supply line is divided into two segments (level). In general, supplying the electricity from distribution center to electrical terminals directly is not allowed because it is unsafe. If power the supply line has two or more segments, you can refer to the first paragraph.

This table is designed for soft ice cream machine only, if you have to add other electric equipment within this power supply line, please refer to the table and figure out your power. Take a 1000~1200W electric equipment for example, figure out the conversion coefficient K first. K is the total power of all electrical appliances/the rated input power=1200W/2400W=0.5. Then, figure out the corresponding reference data in the table. If you have to calculate the data in segment 2, row 3, and the line is 50 meters long, the sectional area of the cable is: 6/K=6/0.5=12 (mm²), so you should choose 16mm² cables. When the cable’s cross-sectional area is 6mm² unchangeably, the length of the cable should be 50*k=50*0.5=25 (m).

Dear customer, if you find the operating voltage is not range from 185V~250V or 350V~410V, please ask a certified engineer to check it. Please make sure that your power supply line is in accord with the requirement in this table if other factors are normal. Table of soft ice cream machine power line’s parameter. The national standard and ICE stipulate that the voltage of electric equipments should range from 185V~250V, so in order to meet the requirement, please guarantee your power line capacity, and dispose your line according to this table while the machine is operating. (City center--Distribution center--Distribution box--Outlet--Ice cream machine)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Distance/meters</th>
<th>Cable nominal area (mm²)</th>
<th>Memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution center</td>
<td>&lt;100</td>
<td>16</td>
<td>If the line in this segment is longer than 400A, a 50mm² cables is necessary.</td>
</tr>
<tr>
<td></td>
<td>&lt;200</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Distribution box</td>
<td>&lt;30</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;50</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;70</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Outlet</td>
<td></td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Explanation
1. The cable must have 3 cores at least: L phase line + N null line + PE protective grounding.
2. While counting the charge of the ice cream machine, 20A or a higher meter is necessary.
3. If the local power grid is unstable, install a 5KVA power stabilizer on the socket before the ice cream machine.
Appendix 2

Supplementary instruction of magnetic stirrer

1. Pulley 2. Tensioning wheel 3. Pulley
7. Magnetic stirring component
10. Cover of the magnet

Motor power transfers to the magnetic stirring component through the pulley and belt. The blades (magnet inside) in hoppers are drove by the magnetic stirring components (covered with magnet) which are under the hoppers. The rotation of the blade makes the mix in the cylinders flows. Motor holder is installed on the left side’s beam of machine; magnetic components are installed in the bottom of the hoppers, sealed with O-ring.

2. Features
The magnetic stirring keeps the mix at a proper temperature and achieves best fresh-preserved result by the stirring of the blades in coppers. A lower mix temperature speeds up the production of ice-cream in the cylinders and prevents the mix layering.

3. Disposals of malfunction
Magnetic stirring blade does not work
1. Please check whether the temperature of mix in hoppers is too low or not. The material’s temperature’s being too low would result in the bad fluidity of the mix and cause the blade not able to rotate normally.
2. Please open the panel which is near the magnetic system motor. Check if the belt got loosen. Loosen the tension pulley nuts and tighten them after adjusting the belt pressure, if necessary.
3. Please open the cover of magnet (No.10), check the screw of the magnet (No.9), and make it tight if it is loose.
Appendix 3

Elementary diagram
Appendix 4

The Instruction of Air Tube

◆ Air Tube Introduction

- The Air tube is a kind of structural parts that increases ice cream puffing rate. The inner of the cylinder will form partial vacuum after the ice cream made. The mixtures and the air will be socked into the cylinder at the same time. Stirring equally through the beaters so as to achieve the puffing effect.
- The structure of air tube shows as the picture1: there totally has seven sealed o-rings in up and down and two air tubes. The hollow inside of the air tube is the air inflow channel, the air will has two times path changing, when it flows. Always keep the feeding entrance close to the bottom of the hopper when you use the air tube.
- The ice cream puffing rate can be reached 20% to 30% after you used the new-developed air tube.

◆ Air Tube Usage

- Clean the air tube before using. Smear a little bit of food lubricant on the button of the O-sealed, insert it in the feeding entrance of the cylinder, then pour the mixture into the hopper. Press the “Clean” button, shut down the “Clean” button after 3 to 5 minutes, then press “Auto” button.

◆ Air Tube Cleaning

- Pull out the air tube when you wash the machine, then insert it into the feeding entrance after inverted the direction of the air tube. Pour some water to wash the hopper. Pull out the air tube again after the hopper washed, Wash the air tube with sanitizer mixed water. It’s not recommended to use superheated water to prevent deformation and aging of the air tube gaskets.

◆ Attention

1. Recommendation: Use the feeding entrance corresponding to "1" or "2" when the mixture is viscous; Use the feeding entrance corresponding to "3" when the mixture is dilute.
2. Clean the air tube every day.
3. Keep a parallel between the feeding entrance and bottom of the hopper during installing in order to make all the mixture can flow into the cylinder.
Appendix 5

Instructions of air pump

◆ Main function of the air pump
The air pump is a kind of device which can enhance the aeration of the soft ice cream. The quality of ice cream and the production efficiency of the ice cream machine will therefore be improved.

◆ The structure of the air pump

<table>
<thead>
<tr>
<th>Item</th>
<th>Name</th>
<th>Item</th>
<th>Name</th>
<th>Item</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Left tightening screw</td>
<td>8</td>
<td>Sealed O-ring 4×2.06</td>
<td>15</td>
<td>PE pipe</td>
</tr>
<tr>
<td>2</td>
<td>Pump body</td>
<td>9</td>
<td>Spool</td>
<td>16</td>
<td>Sealed cap</td>
</tr>
<tr>
<td>3</td>
<td>Driving gear</td>
<td>10</td>
<td>Spring</td>
<td>17</td>
<td>Junk ring</td>
</tr>
<tr>
<td>4</td>
<td>Follower gear</td>
<td>11</td>
<td>Sealed O-ring 14×2.65G</td>
<td>18</td>
<td>Sealed O-ring 5×1</td>
</tr>
<tr>
<td>5</td>
<td>Pump body O-ring</td>
<td>12</td>
<td>Inlet pipe</td>
<td>19</td>
<td>Hopper joint</td>
</tr>
<tr>
<td>6</td>
<td>Pump cover</td>
<td>13</td>
<td>Right-angle plinth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Locknuts</td>
<td>14</td>
<td>Right-angle joint</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
◆ Installation and Disassembly
The two pumps are marked by "L" and "R" respectively. Please fix them in the right place.

1. The Procedure of Installation
A. Lubricate the following parts first
   • The gear teeth and two sides (3, 4)
   • Pump body and lumen surface (2)
   • O-ring surface (5, 8, 11, 18)
B. Install the inlet pipe (8, 9, 10, 11, 12) and spring on the pump cover (6).
C. Install the joint (13, 14), plinth on the pump cover (6)
D. Connect the driving gear (3), follower gear (4) and sealed O-ring (5) with the air-pump body.
E. Install the air-pump on the bracket and then screw down the nuts.
F. Install the air-pump on the hopper. Screw down the locknuts (2) after the pump reach the fixed position (1).
G. Connect the pipes. Seal the pump joint (1) and then the hopper joint (2). Press the junk ring down.
2. Dissembling of the Air Pump
Follow the opposite order of assembling while disassembling the pump.
Note: please perform careful installation, dissembling on the air-pump, in order to avoid any damage from clash.
Note: Do not touch moving drive of the machine during operation.

◆ Cleaning and Maintenance of the Air Pump
  • Disinfectant preparation
  Put a pack of sanitizer (12 gram) in 5liter water, and stir it till complete dissolved for 2 minutes.
  • Clean the air-pump after every 6 to 8 hours.
Steps:
1. Put all parts of air-pump in water, and wash them with brush.
2. Dip all parts of air-pump in the disinfectant for 10 min and wash it with brush. (see the following chart).
3. Wash all parts of air-pump with pure water for 3 times.
4. Wipe the water and put them away.

Note: The sanitizer is offensive to skin and in jured parts. Please protect your eyes, nose, mouth in jured skins from the disinfectant when cleaning. And wash it with pure water if it happens or go to the doctor’s. Please make strict use of sanitizer and keep it away from children.

• Brush operation instruction
please use the following brushes to clean parts of an air-pump. Brush 1 is used to take out sealed 0-rings.

Please use the right brush to clean different parts of an air-pump according to the number.

◆ Steps of using the pump
1. Assemble the pump properly
2. Pour the ice cream mix into the hoppers
3. Connect the machine to power and press the “Clean” button. After the air-pump been working for 10 minutes, press the “Auto” or “Manual” button to set the machine into ice cream making process.
4. Shut the cover of the hoppers and wait until the ice cream making process ends.
5. When the machine is in automatic mode, if no ice cream has been sold for over half an hour, please extrude 150ml ice cream through the left and right nozzles separately (300ml in total). And put it in two hoppers with proper stirring, in order to promote slurry recycling and to prevent freezing and to reduce the emergence of bubble.
6. While ice cream hasn’t been sold out for a long time (over 1 hour), please change the system into automatic mode and adjust the hardness value to 0 or 1 degree.
   - It’s a normal phenomenon that some ice cream slurry overflowed from the two small holes on the pump while the air-pump is running normally. The overflow slurry, dropping to the hoppers can be used continuously.
7. little ice cream mix may come out from two holes on the air-pump cover. This is a normal phenomenon. The ice cream mix will come down to the hoppers, making circulation itself.
8. Remember to frequently observe the amount of material in the tank and add if the ice cream mix level is too low.