ICE CREAM MACHINE
INSTRUCTION MANUAL

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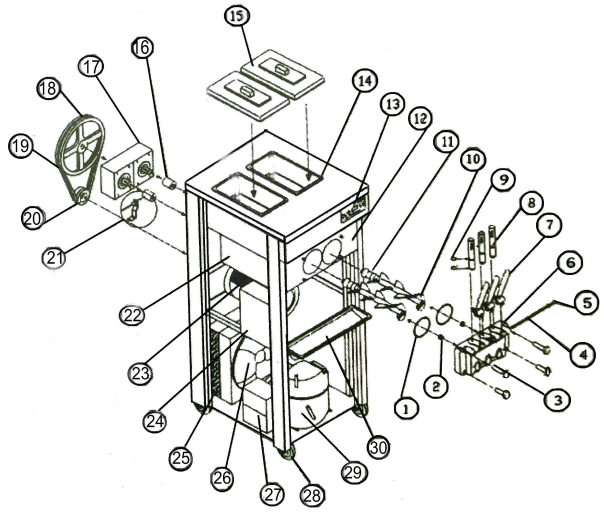
1. Basic structure

Ice cream machine structure diagram (vertical model)



1. Outlet valve seal ring 2. Blender supporting sleeves 3. Fastening screw

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2. Safety & Precautions

△ Security Warning

- To ensure personal safety, make sure the machine gets a reliable grounding.
- If the power cord is damaged, it must be processed by professionals from the factory, the maintenance branch or any relevant organization
- When the machine is operating, avoid inserting solid or anything similar into the inlet and outlet air grid or the grid on the charging hole
- Before any maintenance or repair work, make sure the power is off.

△ Notes

- Make sure the power conforms to the nameplate.
- The machines should not be started when there is no material (water) in the cooling cylinder; otherwise, it might damage agitator.
- Make sure the environment is dry, clean and good for air and heat circulation; avoid heat and direct sunlight; the distance between the air grid and wall or any obstacle should not be less than 50 cm.
- When moving or transporting, the tilt angle should not exceed 45 degrees.

3. Installation & Commissioning

A. Unpacking and Inspection

1. Cut and remove the fastening band on the carton.
2. Use a flat screwdriver or similar tool to force open the wooden box roof and the hoarding, then the paper box.
3. Remove the shock-absorbing foam board.
4. Please check the outside of ice cream machine again in case of any defects
5. Remove the box cover, get the packing list, and check the relevant accessories.
6. Remove the fixing bolts and feet at the bottom; push the machine to make the machine front wheels touch the ground and transfer the base to make the machine a smooth landing. Desktop products could be placed on the ground or any platform.

B. Installation

1. Choose a location

a. Select a position horizontal in order to ensure the machine work without accidents.

b. Good ventilation and cooling conditions; keep away from heat sources and direct sunlight, and the air grid is more than 50 cm away from wall or other obstacle.

2. Connect with power

a. Select the type and capacity of power source according to the marked voltage and effective capacity on the nameplate

b. Connect the power cord with corresponding power source, and make sure the proper connection of the green wire, the yellow wire and the ground wire.

c. Three-phase power wire contains: yellow/green ground wire or the green wire as ground, black line as null line(or N),other color lines as live line(L1, L2, L3);but the power cord are not allowed the coexistence of two or more lines with the same color.

△ Warning

■ For your safety, please make sure the machine gets a reliable grounding.

■ All of the external lines and electrical appliances should conform to the national standards

C. Commissioning

1. Turn the power switch to the position “ON” when you will hear a long “tick” sound. Looking at the control panel, you will see “00” on the screen.
2. Press “clean” key, the corresponding indicator light on. At the same time, you will hear the sound from the blender system.
3. Press “Auto” button, the corresponding indicator light on. Meanwhile, the blender system starts operating; within 3 seconds, the cooling system also starts working

D. Cleaning and sterilization

The machine should be cleaned and sterilized before the first-time use, and the specific methods are as follows: Take 5-6L warm water; add food detergents in proper amount, making into disinfectant fluid; put the disinfectant fluid into two separate plastic barrels, and let into the cooling cylinder before pressing the “clean” key, after 5 minutes, press the handle, the disinfectant fluid will be released through the outlet valve. Repeat the above-mentioned steps and finally wash with clean water for 2~3 times

△ Note

- The temperature of disinfectant fluid should not surpass 60℃; otherwise it will damage parts.
- All water cylinders must be released after cleaning, or the ice produced through cooling will damage the blender.
- Press “clean” the key, observe the indicator light to avoid misuse of “automatic” button

E. Installation of the puffing pipe (for air pump)

Note: The puffing tubes and air pump are optional accessories (not included as standard)

- Insert the end of the puffing pipe with a hole into the charging hole of the beverage bucket; then the ice cream can be puffed when use normally.
- When necessary, the puffing pipe can be installed oppositely to prevent the liquid in beverage bucket get into the cooling tank.

4. Instructions for use

A. Condition

1. Ambient temperature: sub-temperate type (SN),temperate-type(N):10~32℃;

2. Ambient humidity: relative humidity not larger than 90%.

3. Temperature of input material: 5-35℃;

4. Power supply: 198~242V

5. Power frequency:50Hz～60Hz

B. Control panel

（LED screen） ice cream machine Controller function description

Production instruction

GREC-DCP-BQL330-PHF ice cream machine controller operated easily, its function including speed estimation,jam pump flow control,compressor starting delay protection and function of showing failure code.

Graphic panel

LED screen display status description

1.Once the machine is powered on, screen shows “Ice Cream Machine”,includings the cups counter ,hardness shift ,standby and their symbol .13 snowflakes （❄） twinkle.

2.At clean model, screen shows “clean” and symbol rotate at the same time, “standby” and “AUTO” are off.

3.At AUTO model, ”clean” and “standby” symbols off, ”AUTO” symbol start to shine and rotate, the lattice increasing with freezing, snowflakes twinkle. Lattices display in red 10%~60% (ice cream no shaping), blue 70%~80%(ice cream almost shaping), Green 85%~99% (ice cream full shaping).

4.At standby mode., “standby” symbol become shiny,”Z” symbol also change, “clean”and “AUTO” symbol and lattices off.

5.As the machine show error, cups counter off and error code shine in red, show corresponding code.

Technical parameters

AUTO model power consumption: <2 KW

Standby model power consumption: <3W

The control panel size: 147mm X 108mm

Screen size: 180mm X 75mm

Operating environment temperature: -10℃ --- 50℃

Relative humidity: 20%--- 85%

Operating instructions

Settings

1.Hardness gradient :

At standby or AUTO model , long press “+” or”-” for 2 seconds, the number become shiny, the Hardness gradient will be changed by pressing again, shift range 01-16. The shift numbers stop and exit standby model and keeping this status without operating settings for 5 seconds.

2.System parameter settings;

At standby model, long pressing “set” for 5 seconds

The cups counter indicates settings code, shift indicator show parameters:

Settings useless compressor cycle start settings

compressor cycle start settings, it will be changed though pressing”+” or ”-”,around 3~5 minutes

press "set" key	
P01 →	time setting for compressor restarting
press "set" key	
XX →	prompt code of time setting for compressor restarting
press "set" key	
XX →	time setting values for compressor restarting
	press "+" or "-" to set up, setting range 3-20minutes
press "set" key	
P02 →	temperature setting for hopper
press "set" key	
XX →	prompt code of temperature setting for hopper
press "set" key	default value is 5 ,setting values of hopper temperature
XX →	press "+" or "-" to set up, setting range 0-20
press "set" key	
P03 →	time-lapse setting for jam pump
press "set" key	
XX →	prompt code of time-lapse setting for jam pump
press "set" key	default value is 5 (0.5 second),setting values of
XX →	time-lapse setting for jam pump
	press "+" or "-" to set up, setting range 0-20 (0-2 second)

1. Testing ways:

At “clean” model, long press “clean ” key for 3 seconds, cups counter show running speed of motor,. When it show “4xx”,the beer will buzz , Testing finished. If test again, please quit clean model and repeat the action.

2. Work process

1. At standby model, press ”clean” key, it will work with “clean” shiny and its symbol rotating. At clean status, the stirring motor start running, then press “standby” key, the “clean” off and its symbol stop , stirring motor stop and quit clean model.

2. At standby model, press “AUTO”, its symbol is on and machine start to freeze. The stirring motor starts working. when balance valve open for 45 seconds, the compressor starts working. Once the hardness values reach “99”, the compressor stop working, after 40 seconds, the stirring motor also stops. Press ”standby” to quit “AUTO” model with AUTO and its symbol off and motor stopping (Explanation：XX indicates the real settings time)

7 .Error alarm

1. After the motor working, if sensor can test the pulley running, the controller will stop working aromatically, and it indicates “-------”.

2. After the motor working, if speed is too slow, the controller will stop working aromatically, and it indicates “nL”.

3.Except cleaning status, time of Discharging switch cutting-out over 1 minute, it will display “Cb” error and alarm.

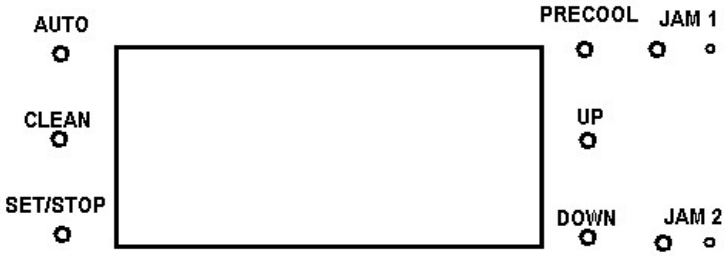
8.Cups record clear

At standby model, long press “standby” for 5 seconds to clear cups record. 999 is Max cups.

9.Jam options

No.1 and No. 2 Jam displays on panel, it control different flavors jams. Can just choose one of favors when making ice cream. The indicate light of flavor is on once choose the flavor .press down handle, the jam pump will work. Push the handle back, and then the jam pump will stop, and the light off.

LED screen operating sketch

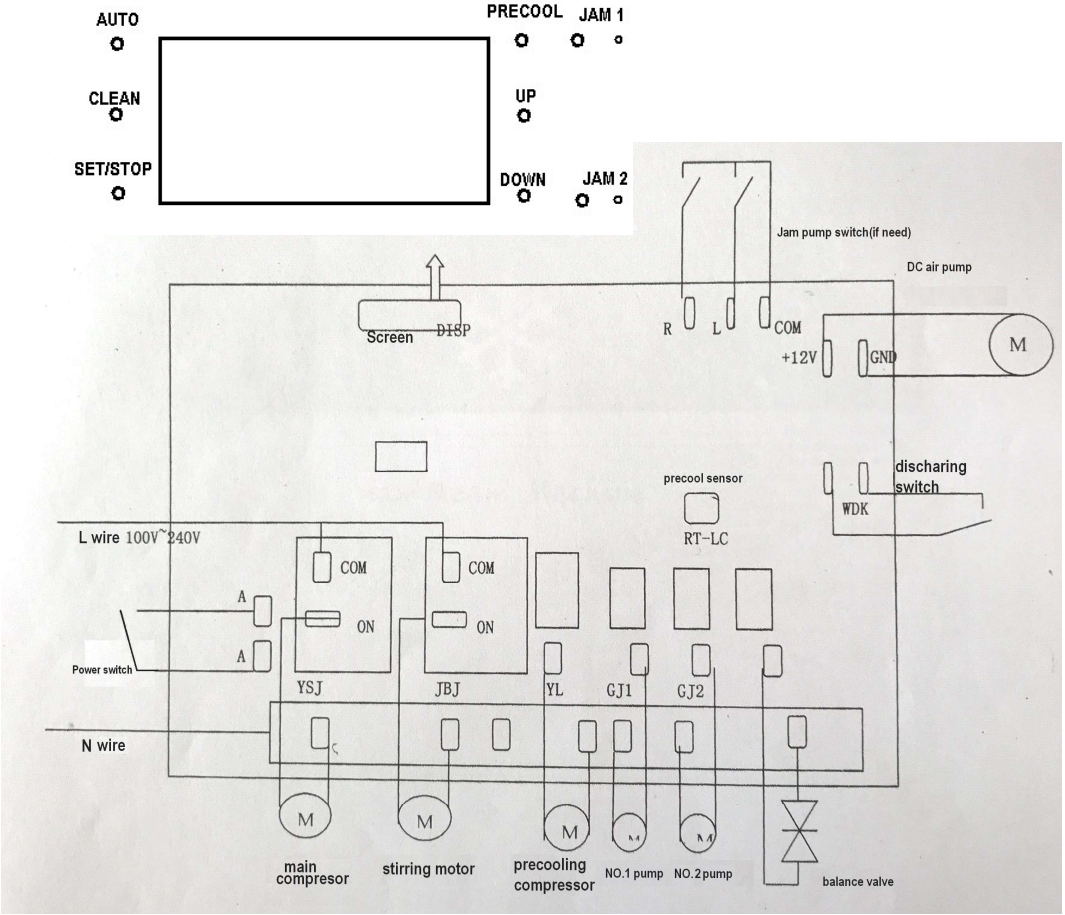


Error information

Error code	Possible reason
nL	Motor run slowly or belt get loose
_____	Sensor can’ t detect signal of pulley running
ERR	Over work load protection
Cb	Discharging switch short-circuit

Mode of connection instruction

Please distinguish Power, sensor and load connection according the marks on machine body back, and please connecting according to correspondent plugins.



Safety rules

Danger

Distinguish strictly the sensor leads, power wires and output relay interface, please can not be wrong, the relay can not be overloaded.

Warning

The machine is prohibited working in water or excessive humidity environment. It also is prohibited in high temperature, strong electromagnetic interference, and strong corrosive environment.

Caution

1.The Supply voltage shall be the same as the voltage marked on the machine, and the s tability of the supply voltage shall be ensured.

2.To avoid possible interference, it is recommended that the sensor leads be at an appro priate distance from the power wire.

1) Alarming

a. Sensor fault alarm:

If the sensor failed to detect speed signals, while the mixing motor is working, the machine stops. The screen displays "---"and the buzzer tweets intermittently. Then the power must be cut off to eliminate faults. The alarm can be removed by re-powering.

b. Slipping belt alarm

If the blender is over capacity resulting in a serious speed reduction, the machine stops. The screen displays "NL" and buzzer tweets intermittently. Then the power must be cut off to eliminate faults. The alarm can be removed by re-powering.

C. Configuration of input material

To make well puffed, delicate and exquisite ice cream even it is the first time, the right choice of a formula and configuring procedure is essential. Here, we recommend a formula for reference.

◆Basic formula

■Whole milk powder..8%	■Sugar….16%	■Essence…a little
■Water..... ....75%	■Emulsion stabilizer…0.5%	■Pigment…a little

△ Note

In this formula, the proportion of milk power and sugar has been very economical, which means if the proportion is further reduced; the quality of ice cream will be affected. It will not only bring complaints from customers, but also it will lead to faults like internal freeing and damage the machine and bring bigger loss.

Ingredients configuration

a. Take proper amount of different ingredients according to the proportion in the formula.

b. Put the milk powder, sugar, stabilizer into a clean container for mixing and stir to make it well-distributed

c. Pour boiling water which is cooled to 80 degrees Celsius into the container; rapidly stir to make the mixture completely dissolved with no undissolved particles;

d. Add a right amount of essence, pigment, fully mixed, to make them completely and evenly dissolved.

△Note

★Ingredients must be mixed evenly and completely dissolved with no undissolved particles and other debris;

★The ingredients and utensils should comply with food hygiene requirements.

◆ The pre-cooling **(Note: The pre-cooling hopper compressor is an optional accessory (not included)**

The slurry prepared above is normally in high temperature, which should not be directly put into the beverage bucket for making. In order to improve machine's efficiency, and produce well-puffed, delicate and exquisite ice cream, pre-cooling process is very necessary. Normally, the prepared slurry can be placed in the shade or cold water for natural cooling until room temperature or water temperature; it should be better if a refrigerator is used to cool down till 6 degrees Celsius. After pre-cooling, you will find the thick slurry turn into a thick paste, which is the concentration of the slurry.

◆ Other

You can buy specially made ice-cream powder to make slurry by simply adding water, but the ratio must be strictly in accordance with their instructions and methods of configuration, you can also buy prepared ice-cream slurry for producing ice cream.

◆ reference formula

Formula 1:

Skim milk powder: 10% Cocoa power: 1% Starch: 1.5%
Emulsifier: 0.5% Sugar: 15% Surplus

Formula 2:

Whole milk powder: 10% Sugar: 13% Eggs'%
Gelatin 0.5% Starch: 2% Water: Surplus

△Note

★Whenever you choose a new formula, please set the temperature at -3℃. Then according to the hardness of ice cream, adjust settings to achieve the best results

D. Production of ice cream

◆Pour the prepared slurry into the beverage bucket; no particles should exist in order to make it easily flow from the charging hole of the puffing pipe into the refrigerating tank.

◆ After that, press "auto" button to start the machine, entering the automatic running mode; you can also press the "clean" key; when stirring finishes, then click the "auto" key;

◆ You can see the figure displaying on the screen that increases gradually. When the hardness reaches above 99% of the set figure, the indicator light above the "auto" key flickers. It means the ice cream in the refrigerating tank has been successfully made.

◆ To get ice cream, place a cone or a cup under the outlet valve, press the corresponding handle, ice cream is squeezed out. Later, the handle can be pushed back.

△Note

★Make sure that there is an appropriate amount of ice cream slurry in the beverage bucket. It will damage the blender if there is no ice cream slurry remaining during the refrigerating.

★Regularly check the charging hole of the puffing pipe in case of blocking resulted from the unevenly mixed slurry.

5. Maintenance and repair

Maintenance should be conducted according to use condition and surroundings. Each machine should be maintained specifically considering practical situation.

A. Cleaning of production system

In order to ensure the health of consumers and increase the useful time of parts, you need to conduct a cleaning of cooling tank daily.

1) Press “clean” key, and discharge all the remaining water in the cooling tank; then, press “Stop” button.
2) Use warm water to make cleaning and disinfection fluid, the pour into the beverage bucket.
3) Press the “clean” key; after 5 minutes stirring, discharge cleaning fluid.
4) Use clean water to wash 2 to 3 times; power off the machine.

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B. Body cleaning

In order to attract more consumers, please keep the outside clean. You can use a damp towel to clean the outer shell and remove stains; no water should be used to wash in order to avoid any failures.

C. Condenser cleaning

After working for a period, the condenser will be covered with dust, affecting heat circulation and cooling effect. Please clean up on a regular basis (usually semi-annually). The specific method: turn off the power, remove the outer board, and use tools like vacuum cleaners, high-pressure air or a small brush to get rid of the dust. Take care of the fan of the condenser.

D. Belt adjustment

After use for a period of time, belt of the mixing system may be stretched ,which requires timely adjustment. Power off; remove the outer board, adjust the tensioning bolts to ensure proper tightness.

6. common faults and handling

The following table lists the possible failures, causes and treatment methods. Common failures can be the dealt with according to the descriptions in the table. If some faults still cannot be ruled out, there are more complex problems, please turn to repairing professionals. Do not try to cope with casually so as not to bring you unnecessary losses.

phenomenon	Possible cause	Approach
The machine fail to start	The power cord disconnected	Check the power and reconnect
	Circuit breaker disconnected	Reset the circuit breaker and then restart
	Protection circuit	Troubleshooting, restart
Cleaning mode does not work	Loose connection	Check the connection and then reconnect
	Stirring motor damaged	Repair or replace motor
	MCB disconnected	Check and remove faults and reset
	AC contactor disconnected	If necessary, replace it.
Compressor does not work	Function switch connection loose	Check and take a good connection
	Control board is faulty	Change panel
Compressor does not run	Low voltage	Solve the problem of low voltage
	Contactor damaged	Change contactor
	Relay damaged	Change the control board
	Control board problem	Change the control board
	Compressor overload protection	Check the problem and solve
	Compressor damaged	Change the compressor
	Compressor capacitance damaged	Change the capacitance
No refrigeration	Refrigerant leakage	Check the leakage place, vacuumize, input the refrigerant
	Solenoid damaged	Change the solenoid
	Fan not rotating	Fix or change the fan
	Fan capacitance damaged	Change the capacitance
	Compressor problem	Check and change when necessary
Machine hard to stop	The set hardness too high	Reset at a smaller hardness
	Control board problem	Change the control board
	Poor refrigeration	Check the refrigeration system

The shaking replay	Low voltage	Solve the voltage problem
	Control board problem	Change the board
	Contactor burned	Clean and change contactor
Material fails discharging	Improper material ratio, tank frozen	Modify the ratio
	No material in the tank	Add the ice cream flurry
	Micro-move switch damaged or connection line loose	Change switch or tighten the connection line
	Belt not tight	Tighten the belt or change
	Sleeve or stirrer abrasion	Change coupling band or stirrer
Ice cream too soft	Material ratio not proper	Modify the ratio
	The set hardness too low	Change the set hardness
Material leaking	Material discharge hole leaking	Fix or change the seal ring
	Outlet valve leaking	Tighten screw or change seal ring
	Inlet valve leaking	Change stirrer seal ring
Buzzer long time tweet	Low voltage protection	Switch off, restart 5 minutes later
	Switch off due to protection	Switch off, restart 5 minutes later
	Micro-switch fail to reset in time	Push handle, make the micro-switch reset
Digital pipe “NL” Digital pipe “_”	Belt loosened leading to low motor speed	Change the tightness of belt or fix the motor problem
	Proximity switch damaged	Modify or change

7. Technical parameters and the figure of electronic principle

1) See the technical parameters on the nameplate.

2) See the electronic principle on the cover board or the power cover.