Oceanpower

Oceanpower Soft Ice Cream Machine Operating Manual
NE2430L

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Foreword

Dear Oceanpower customers:

Thank you for using our products, Oceanpower 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. Oceanpower 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.

Oceanpower 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 Oceanpower's 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:

Forbidden — Any action marked with this symbol is prohibited. Otherwise, the product may be damaged and/or the user safety is at risk.

Warning — Any action marked with this symbol is related to machine and user safety. The warnings must be strictly followed. Otherwise, the product may be damaged and/or the user safety is at risk.

Caution — The user must pay attention to the parts with caution sign marked; otherwise it may result in product damage or other losses due to improper operation.

Quick Guide to Operation

Installation

1

Open the paing and inspect the machine and parts

2

Place the machine in accordance with the installation instructions. For details, see (page 5) Installation Requirements.

3

Read and understand all safety and standard operating procedures.

Machine Preparation and Cleaning

4

Perform machine tune-up by cleaning and disinfecting parts.

5

Clean the hopper, the cylinder and all the parts Reassemble the parts and apply the lubricant,

6

Disinfect the machine.

Freezing

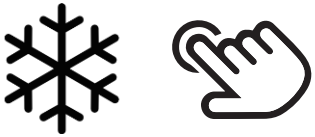
7

Stir the mix fully into uniformity.

8

Pour the mix into the hopper and start freezing.

9



If necessary, adjust viscosity level to modify product viscosity.

Model Data

Model	NE2430L
Power	220 50Hz/60Hz
Rated Amperage (A)	14
Rated Power (W)	2550/2700
Compressor Cooling Capacity (W)	1088/1316
Beater Motor Power (W)	1100
Fan Power (W)	130
Rated Power Consumption (kw.h / kg)	0. 145
Condensation	Air-cooled
Cooling Capacity (W)	141/83
Pre-cooling Refrigerant	R134a 70g
Refrigerant Charge (kg)	1. 0
Cylinder Number	2PCS
Cylinder Volume (L)	2×1. 83
Hopper Volume (L)	2×12
Net Weight (kg)	170
Gross Weight (kg)	188
Dimensions (mm)	831X540X1430

Parts

◆ Parts Diagram

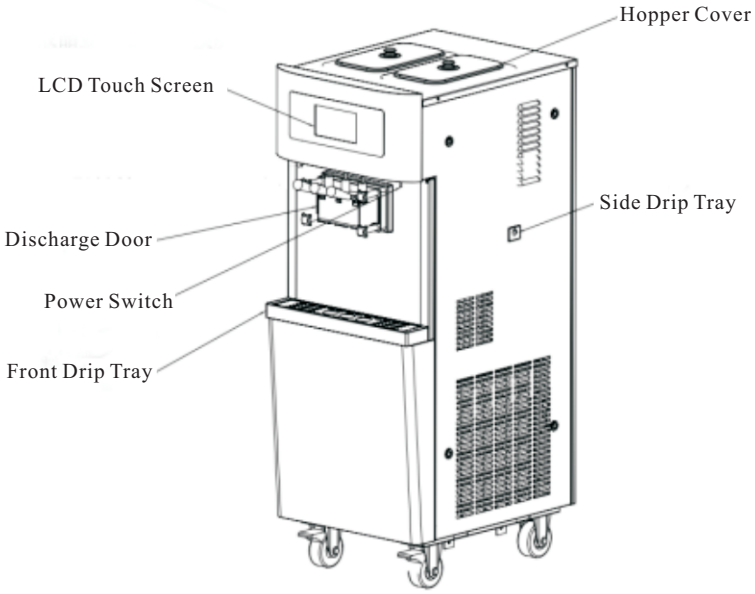


图12

NE2430L

◆ Power Switch

The switch can be used for emergency power-off and should be switched to the 'Off' position during maintenance and inspection. Upon power-off, machine will stop operation immediately, with screen shutoff as well. Turn the switch back to 'On' position to turn on the machine.

Power switch of the DW series models is marked on Diagram 15.
Push the switch to the left to power the machine on and to the right to power the machine off.

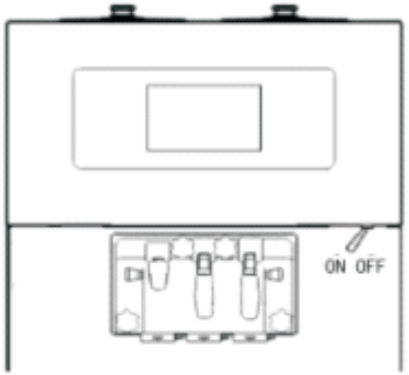
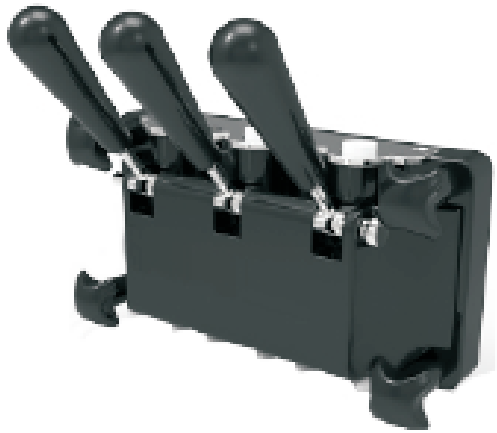
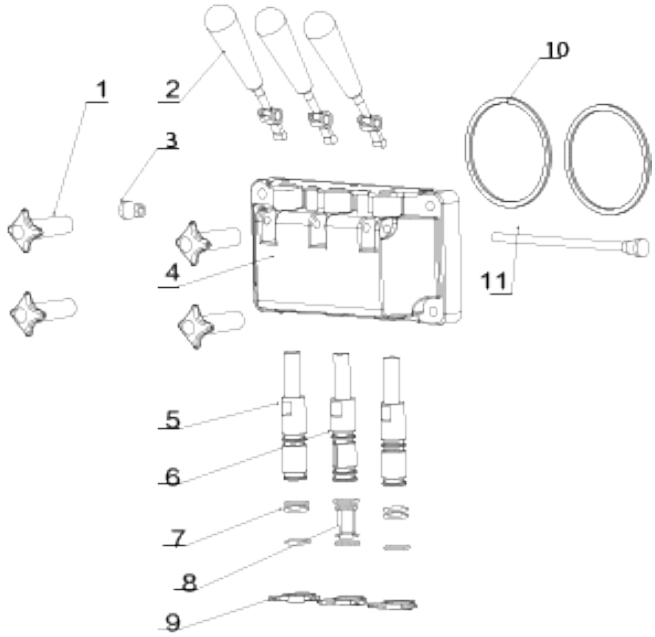


图15

◆ Discharge Door Assembly





Number	Part Name	Quantity
1	Hand Screw	4
2	Spigot	3
3	Pivot Pin Nut	1
4	Discharge Door	1
5	Draw Valve	2
6	Center Draw Valve	2
7	Draw Valve O-ring	7
8	Center Draw Valve O-ring	1
9	Design Cap	3
10	Discharge Door O-ring	2
11	Pivot Pin	1

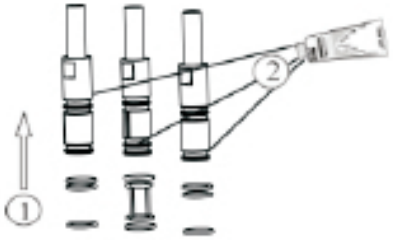
Warning: Upon disassembling and cleaning, the discharge door assembly needs to be assembled as originally intended; the centerdraw valve o-ring has to be fixed to the center draw valve.

◆ Food-grade Lubricant

Prior to running the machine, parts have to be sanitized and cleaned. Food-grade lubricant has to be applied as follows.。

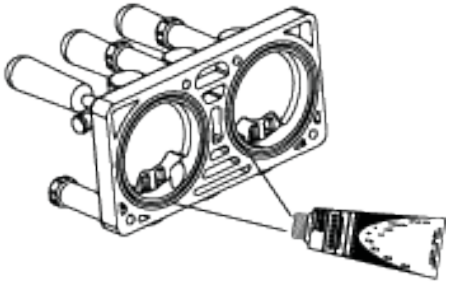
17

Apply lubricant to the section of the beater as illustrated above. Apply lubricant to the ripple seal ring and put it onto the beater.



18

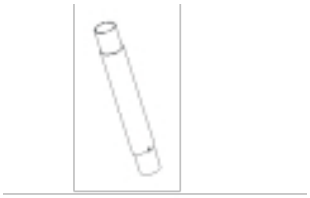
Install the eight o-rings to the positions on the draw valves and then apply lubricant to them.



19

Install the two discharge door o-rings and apply lubricant to them.

Parts Functions



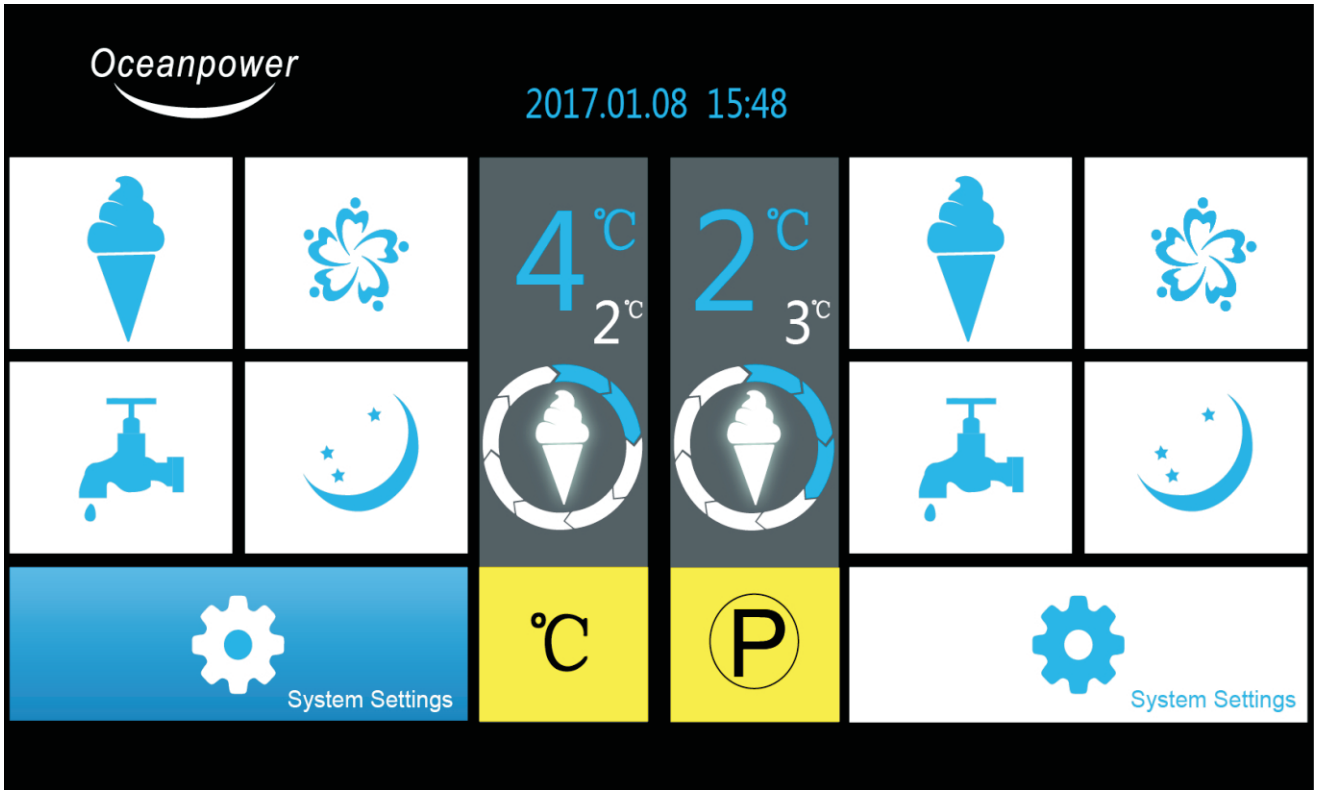
Air Tube——Regulates inflow and speed of inflow of mix into the beater cylinder. If desired, turn the air tube upside down to closethe inlet and maintain product overrun in the beater cylinder. Soft serve products should always have proper overrun when getting served.

Discharge Door Assembly——shapes and discharges product. Press down spigot and discharges the product.

Touch Screen Interfaces and Functions

◆ User Setting Interface–Primary Level Menu

By operating the touch screen interface, the user is able to make product, clean the machine, adjust viscosity, reset counters, etc. The main screen
also monitors and displays operating status, hopper and cylinder temperature readings, product-making progress, among other information.

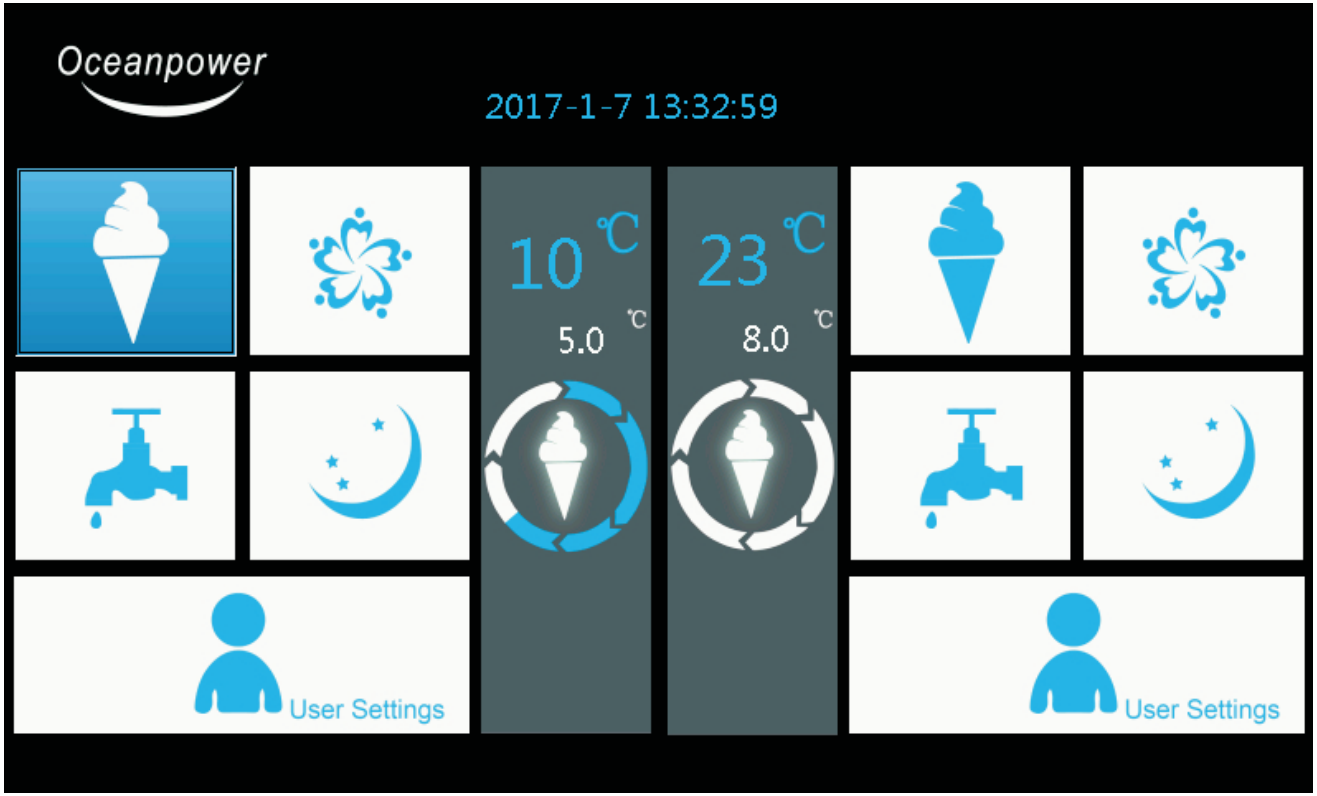


1. Auto --After pressing Auto

The machine will run freezing cycle as programmed.
The cycle will stop when desired levels of product temperature and/or viscosity are met; after a certain period when product temperature rises to a preset level,freezing cycle will resume.

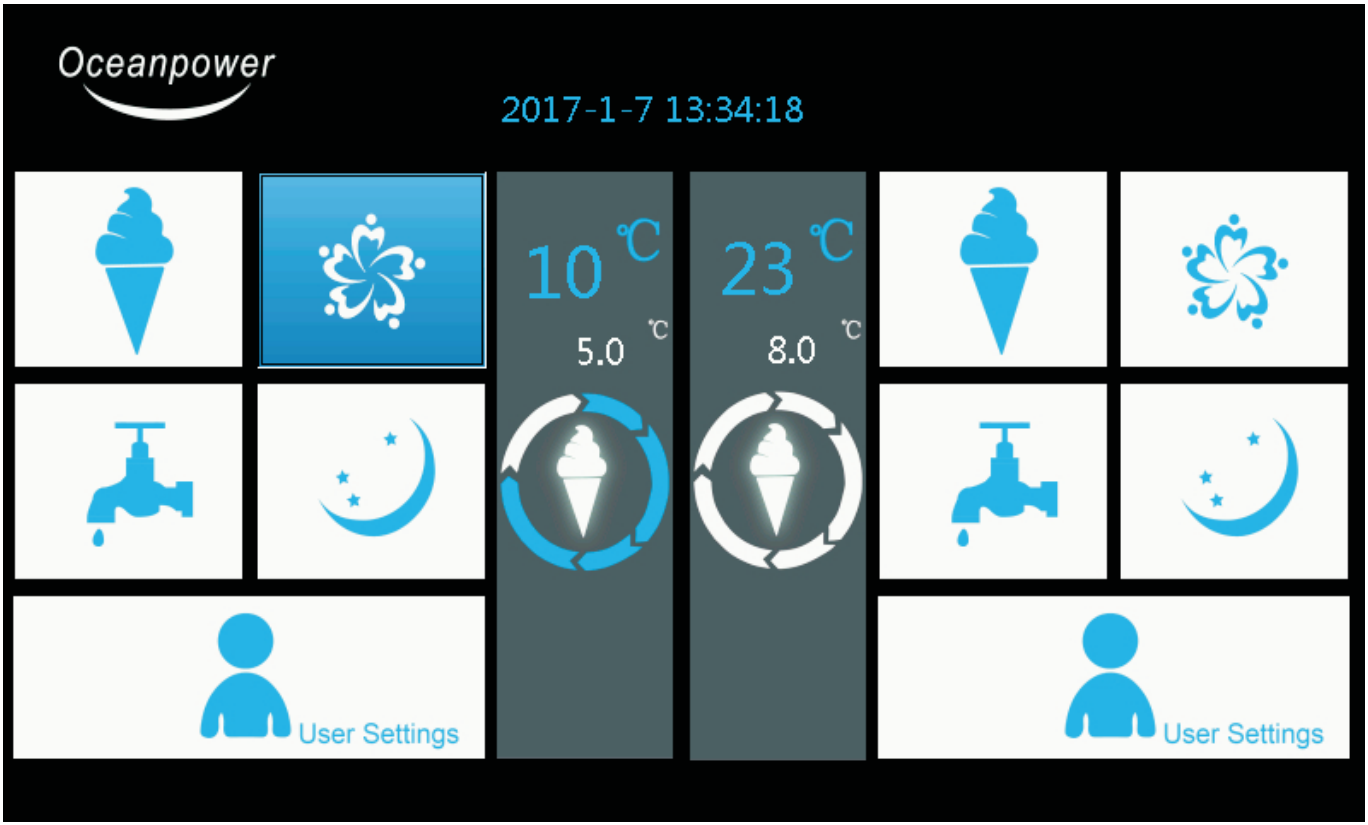


Product-making icon shows the progress and process movement.



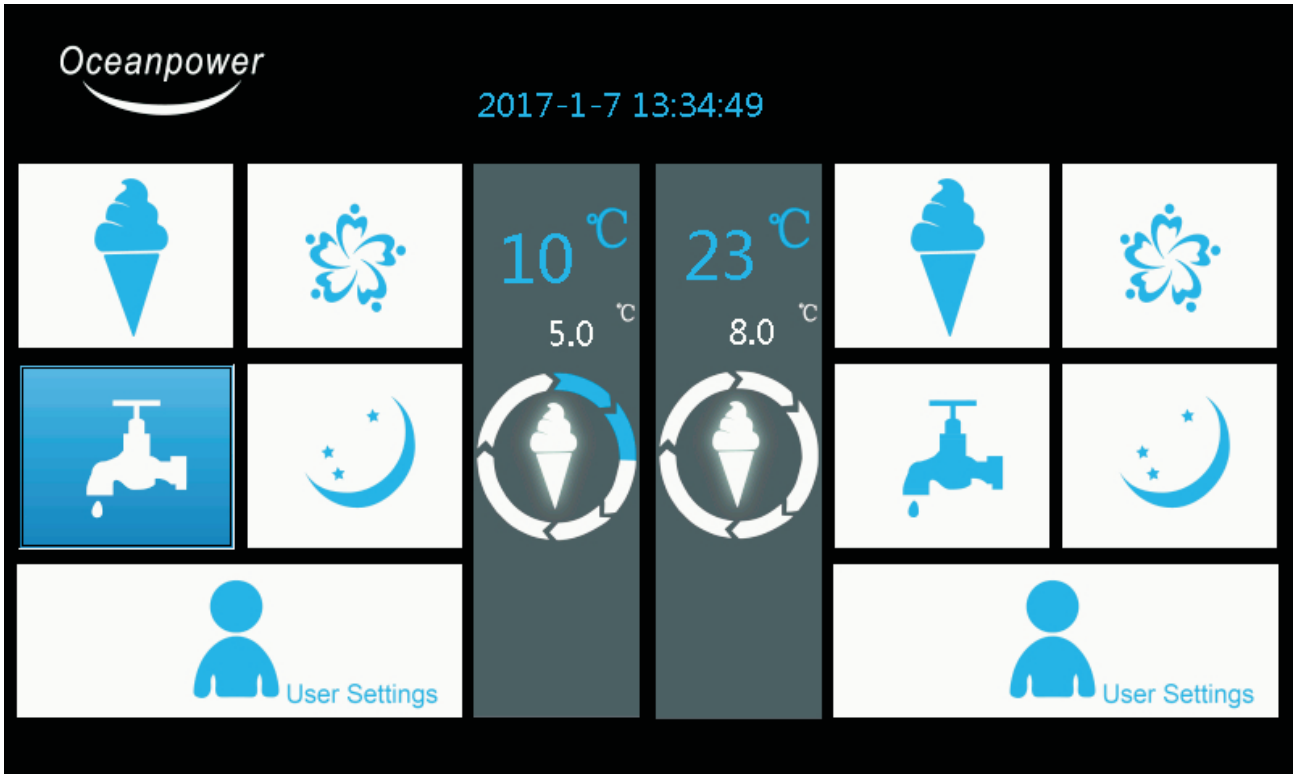
2.Hopper Refrigeration

When it is pressed, hopper refrigeration process starts. Otherwise, when freezing cycle starts, hopper refrig-eration also starts; when freezing cycle stops, hopper refrigeration also stops.



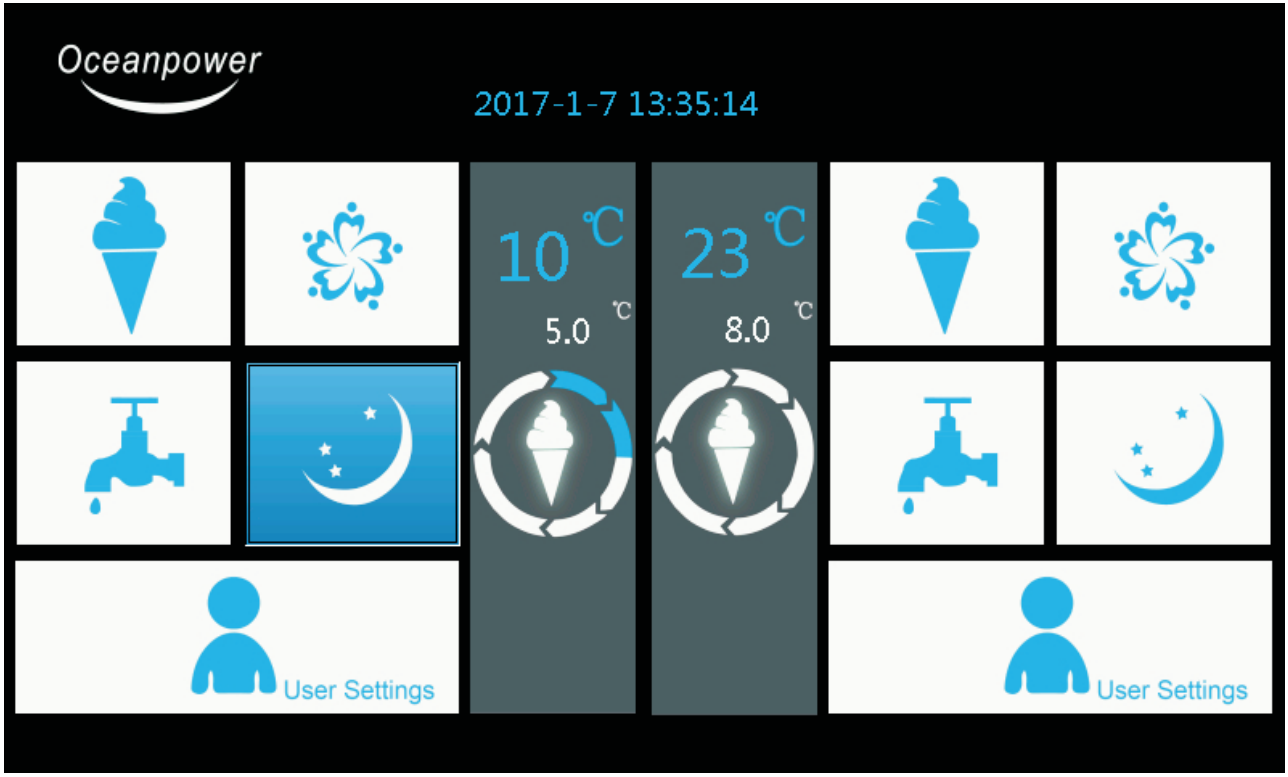
3.Clean

When pressing Clean, machine will start cleaning itself. Make sure to fill the beater cylinders with water. Beater motors start to run and the machine enters the clean mode. Clean page will be displayed on the screen



4. Sleep--When Sleep is pressed,

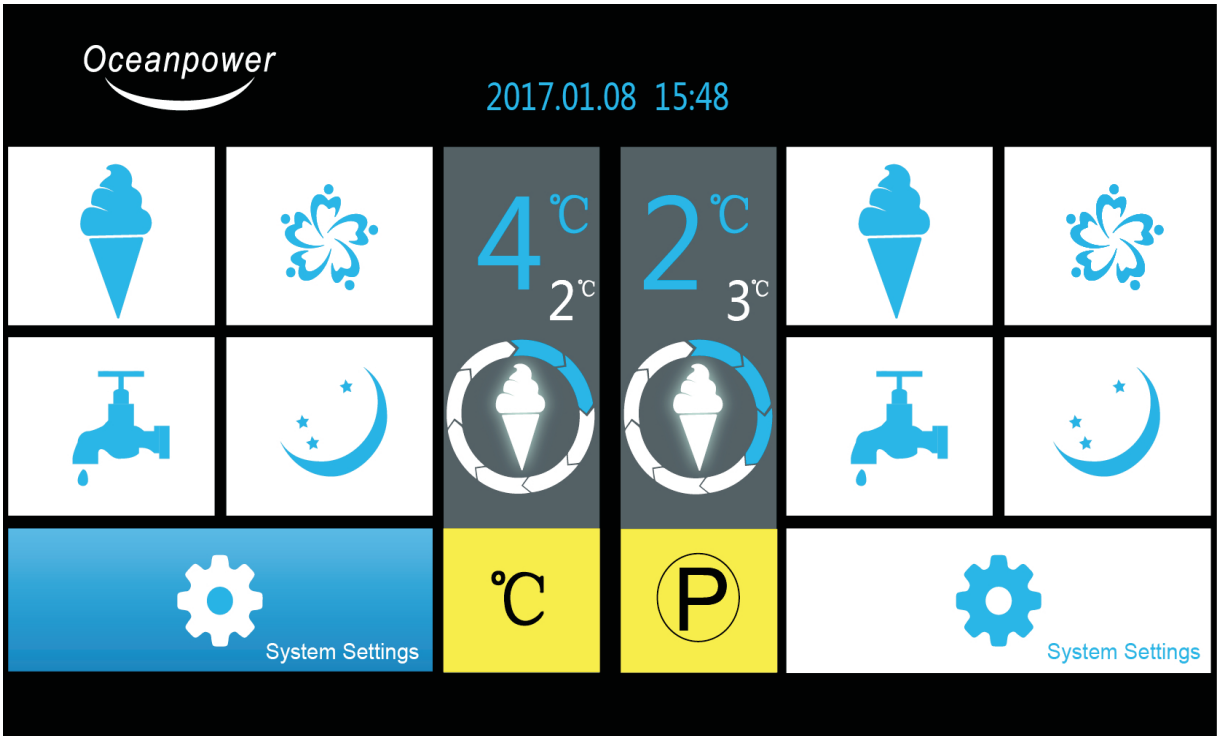
The machine enters night-time sleep mode, which maintain product freshness and prevent bacteria from growing.

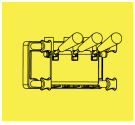


5.User Setting Interface--Secondary Level Menu – — –

6.Small Font- Beater cylinder temperature at present.– — – — – –

5. Touch-screen Functions



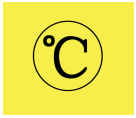


Discharge Door Alarm
The icon warns of improper installation of the discharge door assembly. For safety, the machine will stop running immediately.

Overtime Alarm
During freezing cycle and sleep mode, the icon warns that the machine has been run -ning for beyond present time period and s ystem will shut off compressor to prevent over-freeze.。

Beater Motor Alarm
During freezing cycle and sleep mode, the icon warns of motor non-start or over-load and system shuts off beater motor.

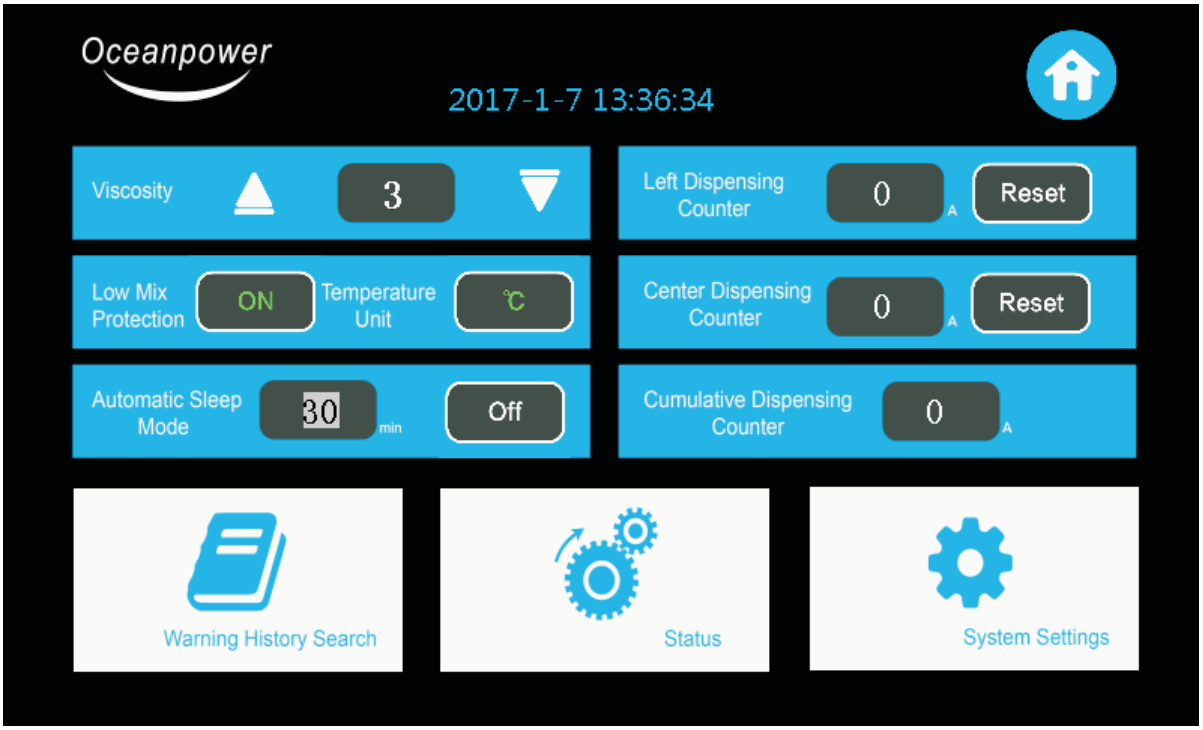
High Pressure Alarm
The icon warns of overly high pressure in the refrigeration system and system shuts off compressor immediately.



Low Temperature Alarm
During freezing cycle and sleep mode, The icon warns of excessively low tem -perature in the beater cylinder and system shuts off compressor to prevent over-freeze.

Mix Low Alarm
The icon warns of low mix level in the hopper. If low mix protection is activa -ted, system will shut off compressor to prevent over-freeze.

◆ System Setting – Secondary Level Menu



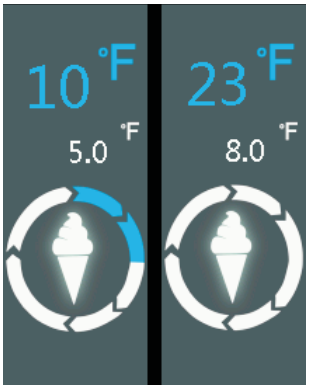
1.Return to the main screen

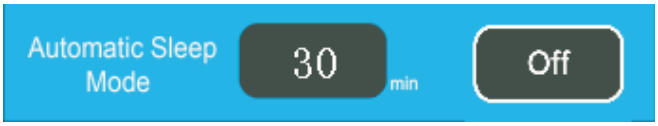
2. Viscosity Adjustment——modifies product viscosity level, from 1 – 8; viscosity rises with the level number.

3.Viscosity Arrow—
adjusts viscosity as desired for different types of mixes used.

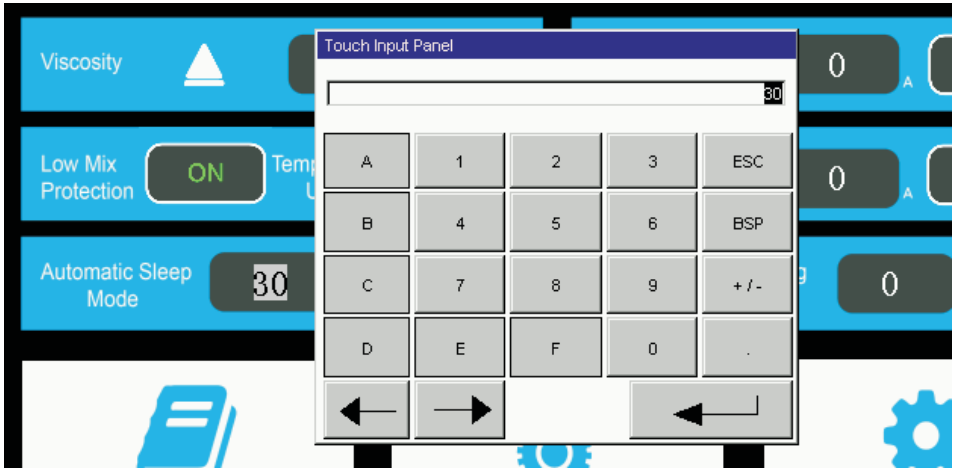
4.Low Mix Protection——
can be turned on or off,
factory default as on.

5.Tempareture Unit——
switch between Celsius and Fahrenheit units，displayed on the main screen.





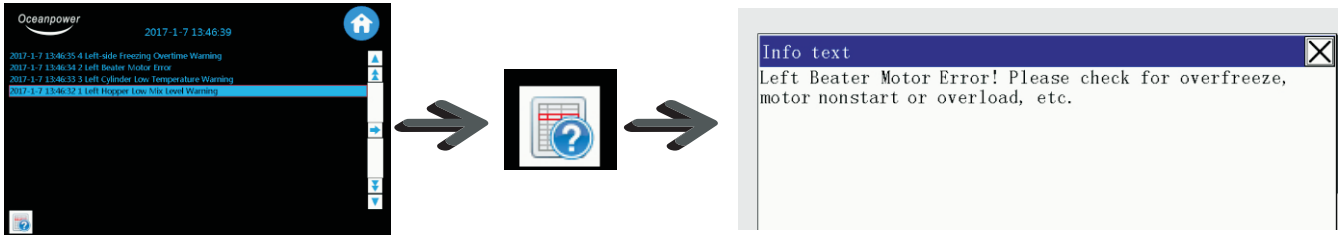
8.Automatic Sleep Mode——
Turns on and off and configures sleep mode settings. When the machine sits idle and automatic sleep mode is turned on, system will enter sleep mode after a preset period of time has passed. The time period can be set between 10 and 50 minutes

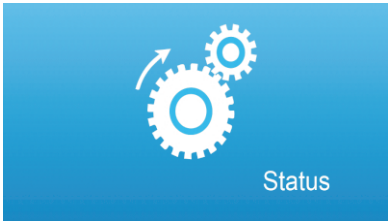


7.Upper——Left dispensing counter and reset.
Middle——Center (twist) dispensing counter and reset.
Lower——Cumulative dispensing counter

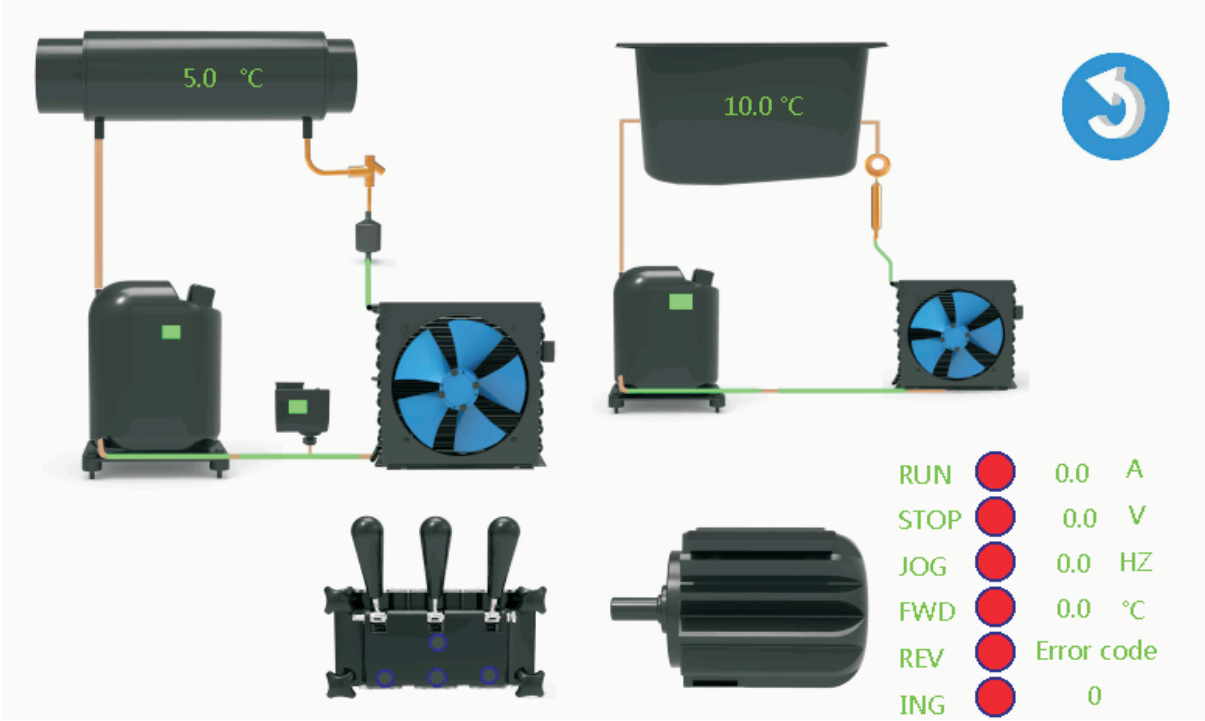
8.Upper——Right dispensing counter and reset.
Middle——Center (twist) dispensing counter and reset.
Lower——Cumulative dispensing counter

Warning History Search——allows users to search through alarm records, which include alarm types and the dates and times when they occurred.

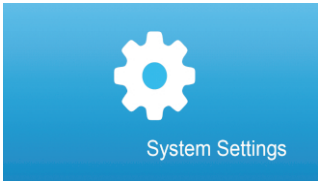




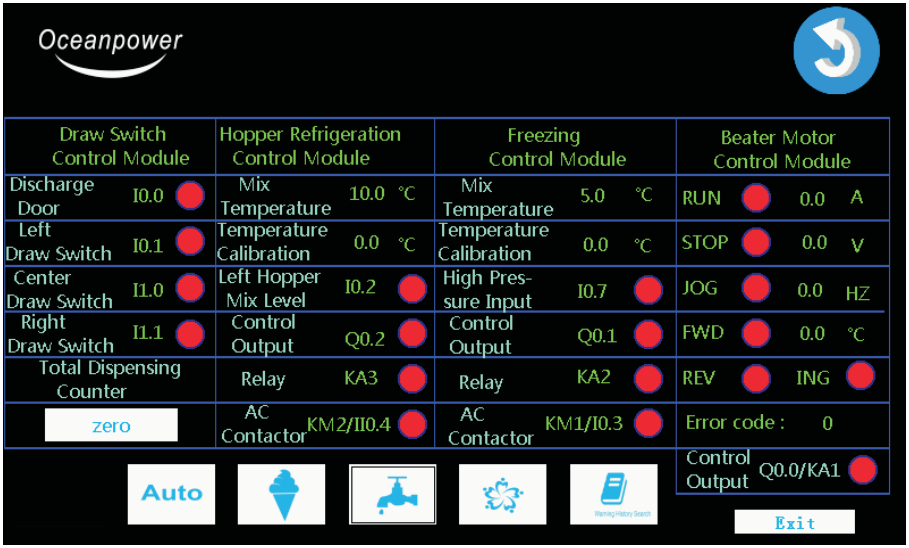
There are four status indicators on the discha-rge door; the upper one corresponds to instal-lation of the discharge door and each of the lower three corresponds to the relevant spigot installation.
If the discharge door or any of the three spigots is not properly installed, indicator light will be off.



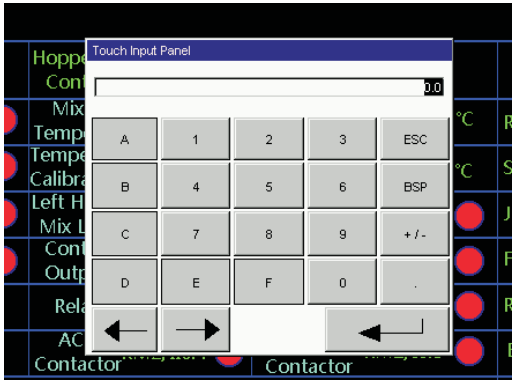
System Setting——Self Inspection



System Setting——
Self Inspection，Service personnel use this operation.



Calibration of hopper and cylinder temperature readings.



Click temperature reading and start to calibrate.

Self-inspection– Upon pressing the icon, system will initiate self-inspection process as follows. Turn on cleaning for 60 seconds and turn it off, turn on hopper refrigeration for 60 seconds and turn it off, turn on freezing for 60 seconds and turn it off. In the meantime, technicians are able to monitor running statuses of each part and make diagnosis with tools such as mult -imeter and pressure gauge.

Manual Icons—Technicians can press each individual icon corresponding to the functions and inspect each part and make diagnosis with tools such as multimeter and pressure gauge.

Clear Alarm – merely clears alarm records. System malfunctions still have to be addressed.

Exit – exits the secondary menus.

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 temp -erature.

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 spa -ce 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 sho -uld 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 voltag -e 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 mea -sures.

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 ma -chine, 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 lar -ger than 4mm²and 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 flo -wing 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 oper -ating 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 defor -med. A 220V, single-phase power output should normally range from 198V to 220V.

2). If the power supply master switch of the machine is turned off. Please turn it on.

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 mak -ing ice cream.

If the machine be protected frequently. A 5KVA alternating current is needed to increase the sta -bility. 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 捞top?button. If th -e 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 w -hich should be larger than 2.5mm ^{2} 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捞top? 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 wor

-king, stop the machine. Ambient temperature is too high. Check whether the Ambient temperat -ure 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 捞top?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 carefu -lly 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 cyli -nder phenomenon. So please make sure that there is enough mix in the hoppers while the mach -ine is working.

Stop the machine for 20min, press the 擲top?button, restart the machine when the temperature of the cylinder rises and the ice melts naturally. Then discharge the water completely in the cylin -der, 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 appropriat -ely, 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 su -rface attachments and dust of the machine.
Brushes and rags can be used for cleaning. You can use detergent aerosol for cleaning, but in or -der to prevent workers get poisoned and burnt as well as the damage of machine, burnable sol -vent 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 disconn -ected. 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 mainten -ance and the cleaning parts including compressors, pipes, back plane, the radiator fin of the co -ndenser 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 co -ndenser 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 500Vgauge, mainly including the insul -ation 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 anti -rust. 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 accesso -ries 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.

When ordering spare parts of accessories, please fill in the type of machine, serial numb -er, manufacture date, and the name of accessories, in order to simplify shipping process and make sure that you can receive the correct elements on time.

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 per -sonal injury; severe accident may cause physical injury or even death!!!

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

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 situati -on, 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

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 will affect to the voltage: the supply condition of a city?s electricity, accident and so on. The main factor you can control is to reduce the loss of the power line. Pleas -e 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, suppl -ying the electricity from distribution center to electrical terminals directly is not allowed becau -se 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 equipm -ent 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=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 (mm^2), so you should choose 16mm^2 cables. When the cable's cross-sectional area is 6mm^2 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--Distr -ibution center--Distribution box--Outlet--Ice cream machine)

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 pow -er line capacity, and dispose your line according to this table while the machine is oper -ating. (City center--Distribution center--Distribution box--Outlet--Ice cream machine)

Segment	Distance/ meters	Cable nominal area (mm^2)	Memo
Distribution center ↓ Distribution box	<100	16	If the line in this segment is longer than 400m, a 50mm^2 cables is necessary.
	<200	25	
Distribution box ↓ Outlet	<30	4	If the line in this segment is longer than 120m, a 16mm^2 cables is necessary.
	<50	6	
	<70	10	

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.