Manual of DW118TC/132TC/138TC/150TC/165TC Series

Table of Cntent

Chapter One Preface

Dear DW ice cream machine customers,

Hello! Thank you for using our products, DW series， DW series products have good qualities and good performances. For your convenience, please read this guide carefully, and use accordi -ng to this guideline. Our service will assist you throughout the time while you are using our DW series products. If you have any questions during using, please contact us according to warranty card, we are always ready to assist you.

Due to the improvement of the product, the ice cream machine you purchased may not be exa -ctly the same as that described in the manual. We apologize for any inconvenience.

DW (Dragon Winner) is a new generation of soft ice cream machine developed by our compa -ny, and assemble advanced refrigeration technology and controlling system, it also contain the application of various patented technologies, accurate equipment, as well as superb technologies. Our company's soft ice cream machine has many features, like beautiful appearance, high coolin -g efficiency, and good performance, easy to use and so on.

As for refrigeration technology, we use the advanced closed compressor unit and our company's patented evaporator. Using the principle of refrigeration to cool down the prepared soft ice cream slurry, and stir it at the same time. When the ice cream slurry cools down to an appropriate temp -erature (generally -4℃~-7℃). It will appear in the form of semi-solid soft ice cream For your better read the guide and use of machines, the following are explanations of the symbols that ap -pear in our 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 p -ersonal safety of users.

Warning signs

All contents with the logo related to the safe operation and the user's safe -ty, operator must strictly fellow 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 seriou -sly; otherwise damages or loose may occur due to inappropriate operations

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.

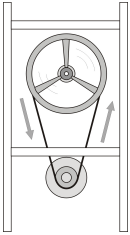


Figure 1

◆Bodily Injury mechanical injuries

·Do not touch the running part of the machine (see Figure1).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 ill-ness 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 electric-ity 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 ho-lds Health Certificate proved by local health department.The operation processes must meet he-alth standard, including the proper usage of disinfected tool and hygienic products like head co-ver, 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!

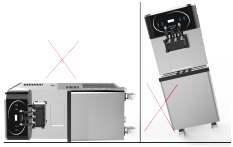


Figure 2

◆ 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℃.

·This machine can only be used to produce ice cream; do not use it for other purposes, including making ice, cold beverage and cooling the air. Improper usages will cause seriously damage and beyond repair.

◆ Malfunction

·If you have trouble in installing and operating this machine, please check the relevant part of this manual.

·If you cannot understand this manual or the problems remain unsolved, please contact your sup -plier or Oceanpower after-sale service center for professional help.

Attention:
During the process of transportation and operation, machine damage caused by wrong usage or installation warranty would lose its efficiency.

Children being supervised not to play with the appliance.
The appliance is not suitable for installation in an area where a water jet could be used.
The appliance has to be placed in a horizontal position.
The appliance is only to be installed in locations where it can be overseen by trained personnel.
Access to the service area is restricted to persons having knowledge and practical experience of the appliance,in particular as far as safety and hygiene are concerned.

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).

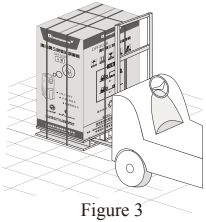


Figure 3

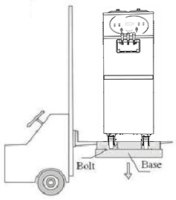


Figure 4

◆ 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 Figure5&6)

Figure 5

Figure 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 slop less than 15 degree (see Figure 7).

After installation, please fix the machine by using the front wheel brakes (see Figure 8).

This machine must be placed on dry and solid ground. Heat source over 70℃ are not allowed w -ithin 500mm range. Keep machine out of sun and rain (see Figure 9)

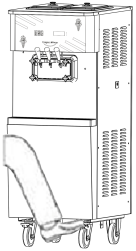


Figure 7

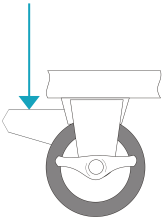


Figure 8

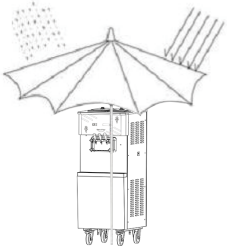


Figure 9

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).

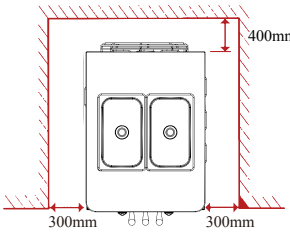


figure 10

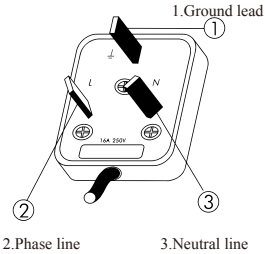
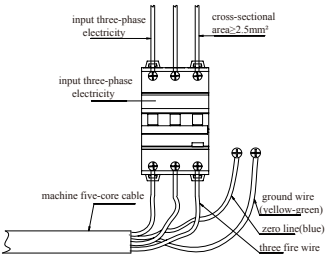


figure 11

In the case of small indoor space, an exhaust fan with flow rate of no less than 1000mm^3/h shou -ld 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 capa -city should be more than 15A. Circuit should be equipped with short-circuit protection and leak -age 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^2.

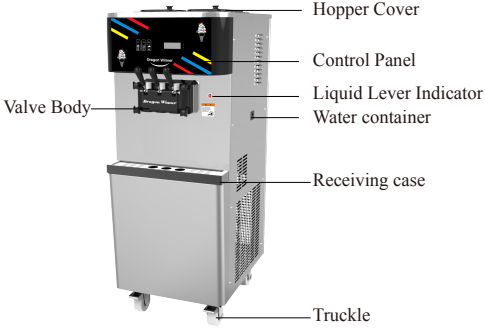


The rotation direction of stirring shaft is clockwise; ice cream cannot be made if there is a counterclockwise rotation. If that happens, please switch the positions of two live wires.

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.

Chapter Three Product Introductions

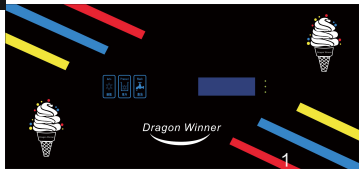
◆Section(1)Overview of general spare parts



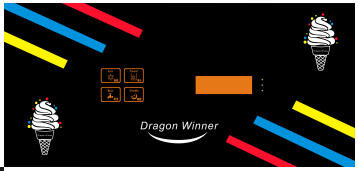
Section (2) Control Panel

DW165TC/DW150TC control panel

DW138TC control panel



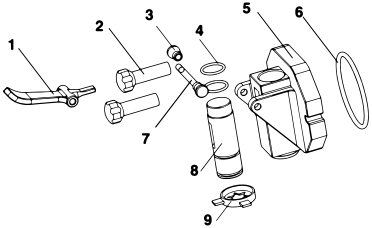
DW138TC control panel add standy



DW132TC/DW118TC control panel

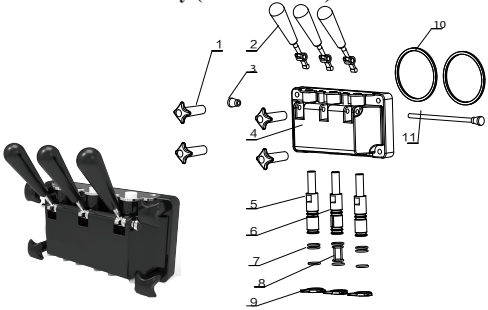
DW132TCQ control panel

Section (3) Overview of valve body (single handle)



Sequence Number	Name	Quantity	Sequence Number	Name	Quantity
1	Handle	1	6	Large sealing ring	1
2	Large nut	2	7	Valve rod	1
3	Inserted nut	1	8	valve plug	1
4	Small sealing ring	2	9	Plug-in	1
5	Valve body	1			

Overview of valve body (three handles)



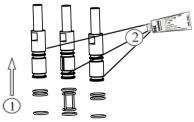
Sequence Number	Name	Quantity	Sequence Number	Name	Quantity
1	Large nut	4	7	sealing ring (valve plug)	7
2	Handle	3	8	Middle sealing ring	1
3	Inserted nut	1	9	valve plug	3
4	Valve body	1	10	sealing ring (valve body)	2
5	valve plug	2	11	Inserted rod	1
6	Middle valve plug	1			

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.

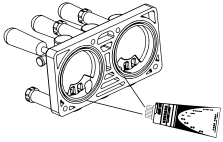
◆ Use food machine lubricant for maintenance

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)

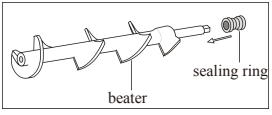


Figure 12

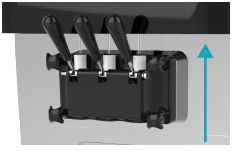


Figure 13

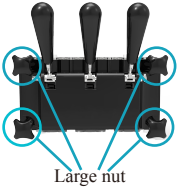


Figure 14

Installation of the valve body: The machine should be in power-off condition during the installa -tion 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 cyli -nder. (Figure 16)

·Insert the blue water box into the square hole at the right side of the machine panel until the wa -ter 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.

Figure 15

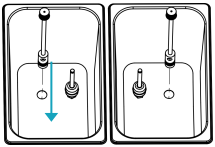


Figure 16

Section 5 Product specification

Product Specifications

Model	DW165TC	DW150TC	DW138TC	DW138TCP	DW132TC	DW118TC
Power supply	380V50Hz/Tri-pha	220V/50Hz	220V/50Hz	220V/50Hz	220V/50Hz	115V/60Hz 220V/50Hz
Input current	9/5	16	14	14	13	13/7
Input power	3500	2730	2400	2600	2200	1500
Power consumption(kw.h/kg	0.083	0.083	0.083	0.083	0.083	0.083
Compressor cooling capacity	3HP	2HP	1.5HP	1.5HP	1.25HP	1HP
Power(mixing motor)	1100	1100	1100	1100	1100	750
Input Power(fan)	130	130	130	130	130	130
Cooling methods	Air cooling	Air cooling	Air cooling	Air cooling	Air cooling	Air cooling
Refrigerant type	R404A	R404A	R404A	R404A	R404A	R404A
Refrigerant charge(kg)	1.2	1.2	1.0	1.0	1.0	0.8
Number of mixing tank	2	2	2	2	2	1
Volume of mixing tank(L)	2Lx2	2Lx2	2Lx2	2Lx2	2Lx2	2Lx1
Volume of Hopper	2×12L	2×12L	2×12L	2×12L	2×6.5L	12L
Output(L/h)	65L/H	50L/H	45L/H	45L/H	32L/H	25L/H
Working temperature	10 C -38 C	10 C -38 C	10 C -38 C	10 C -38 C	10 C -38 C	10 C -38 C
Weight(kg)	175	170	165	165	148	118
Dimension(mm)	540*727*1430	540*727*1430	540*727*1430	540*727*1430	813*536*918	779*499*934

Overview and Function of spare part

Expanded tube-for controlling the quantity and speed of ice cream when enter the mixing tank. Place the expanded tube upside down will close the entrance of the mixture and ensure the air level in the tank is appropriate, all types of so -ft ice cream should keep an appropriate expansion rate.

Valve body-control the discharge and shape of ice cream, operate it directly to produce ice cream.

“Dispensing” button--press the button, and then the blue LED backlight will turned on which shows the ice cream machine begins to automatically dispense. The mixing motor and the cooling system will work automatically according to system setup.

Standby” button--press the “standby” button, and then the whole ice cream ma -chine enters standby mode. The cycle period of the standby mode is to stop for 30 minutes and work for 6 minutes. If the user also needs to keep ice cream mi -xture in the hopper freezing, press the “pre-cooling” button.

“Mixture preservation “button--press the button to start the pre-cooling compres -sor or open the electromagnetic valve. Temperature of the ice cream mixture in the hopper will decrease from room temperature to 3-5 ℃ so as to shorten produ -cing time and meet better production requirements.

“Cleaning” button - pressing the button to start the mixing motor, then the user can add water to the hopper to clean the ice cream machine. After cleaning, pres -s the button to stop the mixing motor.

“Left producing” button - press the button and blue LED backlight turns on, whi -ch indicates the automatic manufacturing state of the machine. The mixing motor and the cooling system will work automatically according to system setup. (Double control button)

“Right producing” button - press the button and blue LED backlight turns on, which shows the ice cream machine is in automatic manufacturing state. The mixing motor and the cooling system will work automatically according to system setup.(Double control button)

Introduction of “T” system

A.Characteristics
1.Strong anti-interference ability, reliable operation
2.Display the ABC three phase current
3. Dynamic phase protection
4. Visual fault code for easy maintenance
5. Temperature control. - 10 ℃ ~ 26 ℃ (resolution 0.5 ℃)
6. Motor delay shut down time: adjustable, from 20s to 60s
7. Load current: 3 A
B.spcifications setting

◆Buttons illustrations

·The upper hole - raise the setting upper domain. The ABC three phrases current can be visualized during the measurement of temperature.
·The downward hole - lower the setting parameter. Refrigeration can be forced to start when the hole is long pressed for three seconds in temperature meas -urement state. (Only one time for electricity)
·The middle hole, the “SET” key -choose the setting parameter.

◆The setting menu for functional parameter

Item menu	Function explanation	Adjustable range	Factory default	Setting method
“U” flicker	Maximum temperature	-10 ℃~16 ℃	-10 ℃	Press on the “SET” button for 3 seconds after power on
“d” flicker	Minimum temperature	-16 ℃~26 ℃	-16 ℃	
“F” flicker	Fan delay downtime	20S-60S	40S	
“P” flicker (Two tanks)	Setting value of Current overload	2.2A ~ 2.5A	DW165TC 2.3A	
		5.0A ~ 6.0A	DW150TC DW138TC 5.7A	
		3.8A ~ 4.6A	DW132TC 4.3A	
F” flicker (One tank)	setting value of Cur -rent overload (two tanks)	1.5-4.5A	4.3A	
“E” flicker	Automatic recovery time of compressor	2-10 mins	3mins	
“b” flicker	Quantity of manufacturing (compressor starts)	1-6 times	3 times	Press on the “SET” key before power on

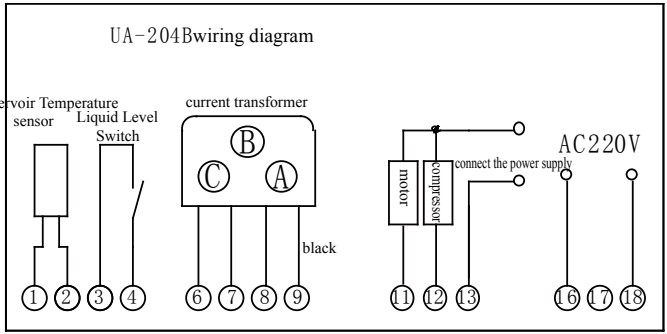
◎◆Fault code

HHH	LLL	E03	
Short circuit of sensor	Open circuit of sensor	ultralow temperature alarm	liquid level alarm

The instrument sends out alarm sound when the sensor has short circuit or open circuit. Press any key to remove the alarm and let the compressor work in a way of 3- minutes running and 5-minute stopping until problem solved.

Ultralow temperature alarm: the instrument sends out alarm and shows the fault code “E03” when the temperature is lower than the minimum temperature -2°C. At the same time, alarm indicator turns on and all loads stop working. After 3 minutes, the instrument stops alarm and the indicator goes out if the temperature is higher than the minimum temperature. Or the alarm continues.

Low liquid alarm: the alarm indicator lights when the liquid level switch is on. Conversely,it recovers to normal when the liquid level liquid is off.



Chapter Four Operation procedures

Section 1 operation test

·After the installation, the functions of the machine should be tested before use, to ensure all fun -ctions are in good conditions.

◆Goods and equipment needed to be prepared

·Cleaning cloth -- -- --for cleaning the inside and outside surface of the machine and blot ting up moisture.

·Mixture container -- -- -- A stainless steel or plastic container for containing ice cream mixture and water.

·A thermometer -- -- -- for 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 clean -ed thoroughly before and after use in order to ensure the health of food. Please use the disinfect -ant 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 C3N3O3Cl2Na, 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.

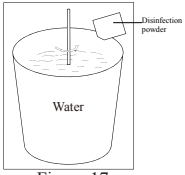


Figure 17

◆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 bacterias and viruses, sterilizati -on 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.

·The spare parts with volume, such as hopper and cylinder, can be disinfected by washing. Pour the disinfectant into them for sometimes, make sure there is a full touch, and then use brush or towel to clean. Under the finished-installment condition, user can also pour the disinfectant into hopper and press the “clean” button to disinfect the cylinder, and finish washing with the “stop” button.

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!

Section 3 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 waterand 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.

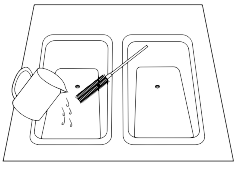


Figure 18

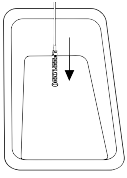


Figure 19

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 handl -e, 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 beat -er will rotate. The stirring shaft drives the water inside the cylinder to wash the inside of the cyl -inder. 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 di -scharged 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℃ to7℃ for next time to use.
·After getting all the remained mix out, put 5 liters water in both hoppers. Remove theair 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.

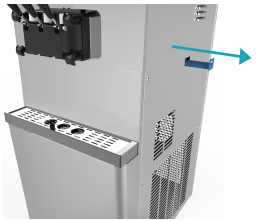


Figure 20

·Clean and dry the hopper, panel, top-roof, and mix drip pan.
·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, exami -ne the ripple ring and then reinstall it. (See 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 po -wder 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).

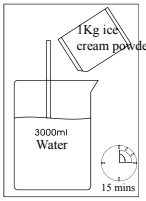


Figure 21

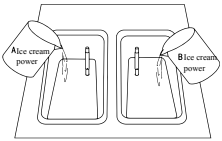


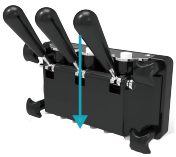
Figure 22

Attention: 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 ma -de with same proportion according to actual needs.

Making Soft Ice Cream

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.

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 cyl -inder 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.

Chapter Five 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 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 "stop" 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"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 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 “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 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 ”Stop” 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 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 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 (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--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 (mm²)	Memo
Distribution center	＜100	16	If the line in this segment is longer than 400m, a 50mm² cables is necessary.
↓	＜200	25	
Distribution box			
Distribution box	＜30	4	If the line in this segment is longer than 120m, a 16mm² cables is necessary.
↓	＜50	6	
Outlet	＜70	10	
		16	

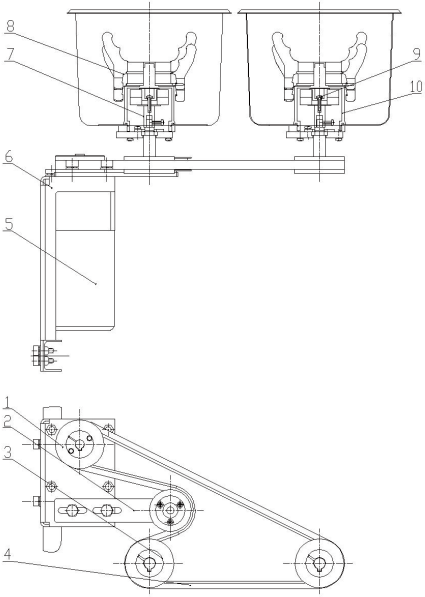
Explanation

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.

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.Structure introduction



1. Pulley 2.Tensioning wheel 3. Pulley 4.Belt
5. Motor 6. Motor holder 7. Magnetic stirring component
8. Magnetic stirring blade 9. Fixing screw of the magnet
10. Cover of the magnet

Motor power transfers to the magnetic stirring component through the pulley and belt. The blad -es (magnet inside) in hoppers are drove by the magnetic stirring components (covered with ma -gnet) which are under the hoppers. The rotation of the blade makes the mix in the cylindersflo -ws. Motor holder is installed on the left side's beam of machine; magnetic components are ins -talled 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 tem -perature'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

The Instruction of Air Tube

Ⅰ. Brief introduction of expanded tube

The air tube is a structural component that increases puffing rate. After the mix is frozen, it will form a partial vacuum environment in the cylinder. The ice cream mix and the air will be sucked into the cylinder at the same time, stirring evenly through the beaters so as to achieve the puffing effect.

The structure of air tube shows as the picture: outer tube, inner tube and vent plug. The three parts are sealed through o-rings. The air enters from the air inlet, the mix flows from the feed inlet. The size of air inlet can be controlled by rotating the inner tube.

For ice cream mix with different viscosity, you can rotate the inner tube to adjust the size of adjustable opening for different puffing rate.

Ⅱ. The Usage of Air Tube

Clean all the parts of air tube before using, then put on the Food grade o-rings accordingly, spre -ad a little food lubricants on the o-rings evenly, then insert the vent plug into inner tube and put the inner tube into outer tube, then the air tube assembly is formed. After that, insert the air tube sub-assembly into the discharging outlet of the cylinder. Then pour the ice cream mix into the ho -pper, press the “Clean” button, 3-5 minutes later, press it again and press the “Auto” button.

Ⅲ. The Cleaning of Air Tube

Separate the air tube sub-assembly before and after using the air tube. For inner cleaning, mix th -e sanitizer and water with brush. For outer cleaning, use clean towel to wash and then sterilize the outer parts with boiled water.

Attention

1.It’s not suggested to use the air tube when the viscosity of ice cream is too high lest the cylind er freezes and other problems appear.

2.The air tube must be cleaned every day.

3.Draw a parallel between the feeding inlet and bottom of the hopper when installing. Meanwhile, adjustable opening must be aligned with the feeding inlet in order to make the ice cream mix flow into the cylinder.

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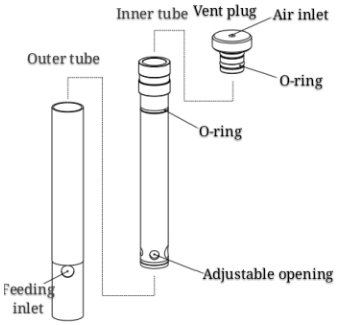

Appendix 4

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