

Dear Customer,

We from Shenzhen Ocean power food technology Co., ltd. would like to send you our sincerely wishes and thanks for purchasing one of our soft ice cream machines.

To be able provide our customers with the best possible service we added ISO 9000 and ISO 14000 into our own quality and environmental system since 2000-07-11.

In addition to the norms from the ISO we also seriously follows the directives of CB and CQC for the manufacturing of this machine.

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Oceanpower carries out a continuing research, toward further development and improvement; therefore, the information found in the manual is subject to change without further notice.

All technical data, pictures and drawings contained in this manual are not binding on the manufacturer, nor can the manufacturer be held liable for any modifications to the machine in whole or in part.

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## **Conventional symbols**



Information notice: General information or tips.



Warning: General warning concerning the safety of the operator and the machine.



Warning: Warning that is directly connected with the electrical safety of the operator, failure to follow this warning may result in electrocution.

## **Safety**

During the use of any kind of industrial equipment or plants, the user must be aware of that the drive mechanisms, high voltage components, as well as parts subject to high temperatures may cause serious damage to the user or the environment.

Oceanpower are seriously concerned about the safety of the operator, and therefore only personal with adequately knowledge's about our product should be assigned to operate the machine.

For safe operation of the machine,  
DO NOT:



- Operate the soft ice cream machine without reading this manual. Failure to follow its instruction can cause serious damage to the machine or cause personal injury.
- Operate the soft ice cream machine, if it is not properly grounded. Failure to follow this instruction may result in electrocution.



- Attempt to remove any parts of the machine or perform any repair, if the machine power supply to the machine has not been disconnected and the power switch is in "OFF" position.
- Operate the soft ice cream machine if any of its parts is lose.

## **Chapter 1, General information**

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## **1.1 General information**

### **1.1.1 Announcement**

Shenzhen Oceanpower Technology Co., Ltd claims earnestly that this product is manufactured on the basis of the corporation standard (registered number is QB/440304L1193-2002) by shenzhen technology supervision station. This standard is according to the industrial requirement (SB/T10235-1994) in china, the food sanitation and safety related standards. The design of this machine and its technology is protected by patent. In addition , we also seriously follows the directives of CB and CQC for the manufacturing of this machine.

### **1.1.2 Information to the user**

- For any explanation and information regarding the machine, its spare-parts or how to operate it, the manufacturer of the machine will be available if any questions should arise.
- If any problem should occur, please contact our local distributor or the manufacturer if no distributor is available.

## **1.2 Information about the machine**

### **1.2.1 General data**

OPF serial soft ice cream machine is manufactured and developed by Shenzhen Oceanpower Technology Co., Ltd. It can be used for production and distribution of one or two flavored soft ice cream.

It applies the technology from several patents that our company has gained, such as our unique evaporation cooling technique and the digital control system of the machine. The machine is fitted with an electronic temperature and consistency control system and the hardness level of the ice cream can directly be chosen from the control board. The operative condition of the motor can also be seen in a real-time display for a clear indication that the machine is working properly.

Oceanpower recommends that high quality ice cream mixes should always be used, like Oceanpower ice cream powder mixes. It is also possible to use other brands, but if so, please make sure that the mixes been made by high quality raw materials or ingredients from reliable or trustworthy suppliers.



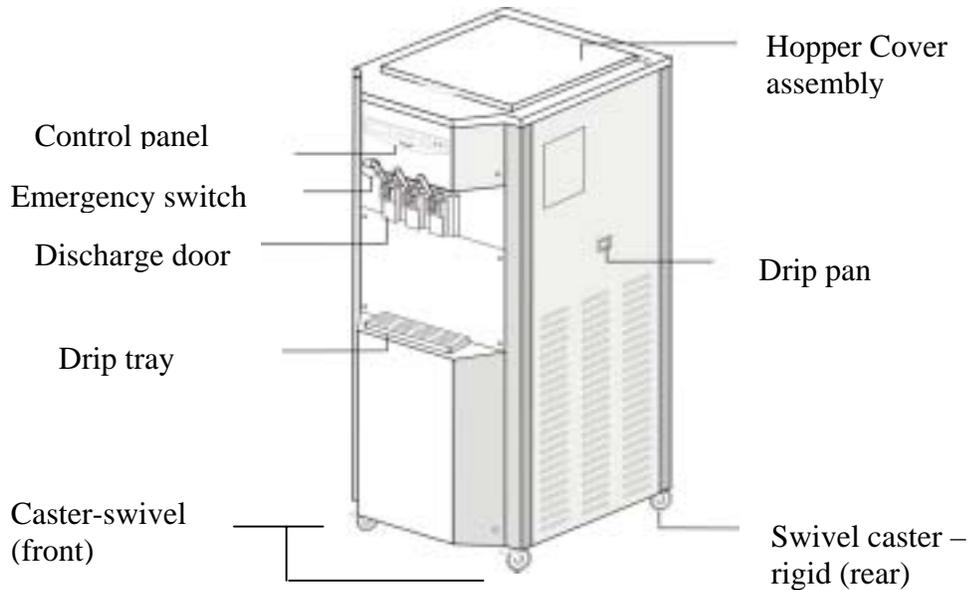
Note. Make sure that the milk fat content of a different ice cream mixes than Oceanpower ice cream mix is about 5 %.

Beside what is mentioned above it is of important to consider:

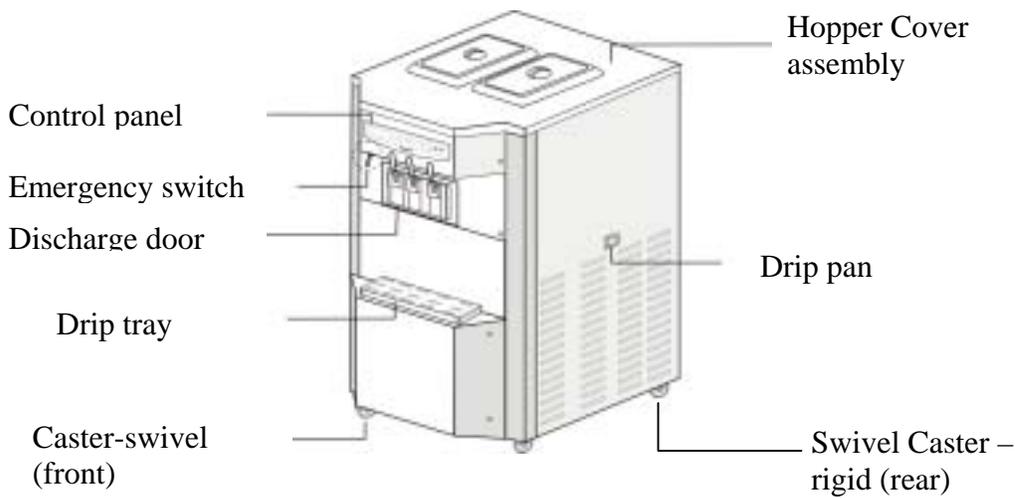
- Always follow the instruction given by the supplier.

- When using ice cream mixes, with a milk fat content of 5 %, do not try to add more water or sugar, since this may lower the quality of the product or disturb the operating condition of the machine.
- Always remember to sanitize the machine after it been used, and always keep a strict hygiene.
- For best customer satisfaction, always taste the product before serving so you are always sure that you will provide the customer with a first class product.

## 1.2.2 Machine assembly identification

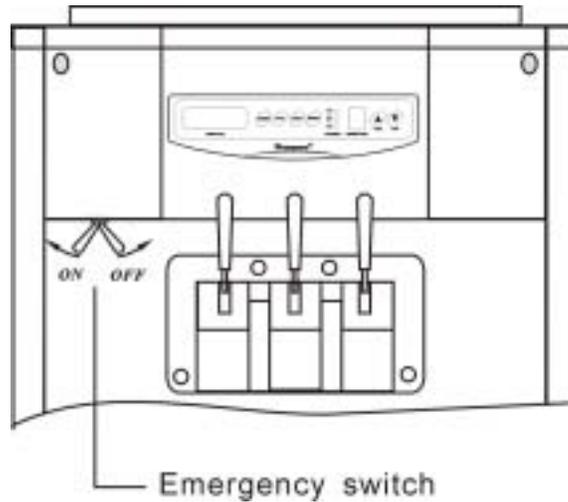


Picture 1 ( OPF138/136)



Picture 2 ( OPF130)

## 1.2.3 Emergency stop demonstration :

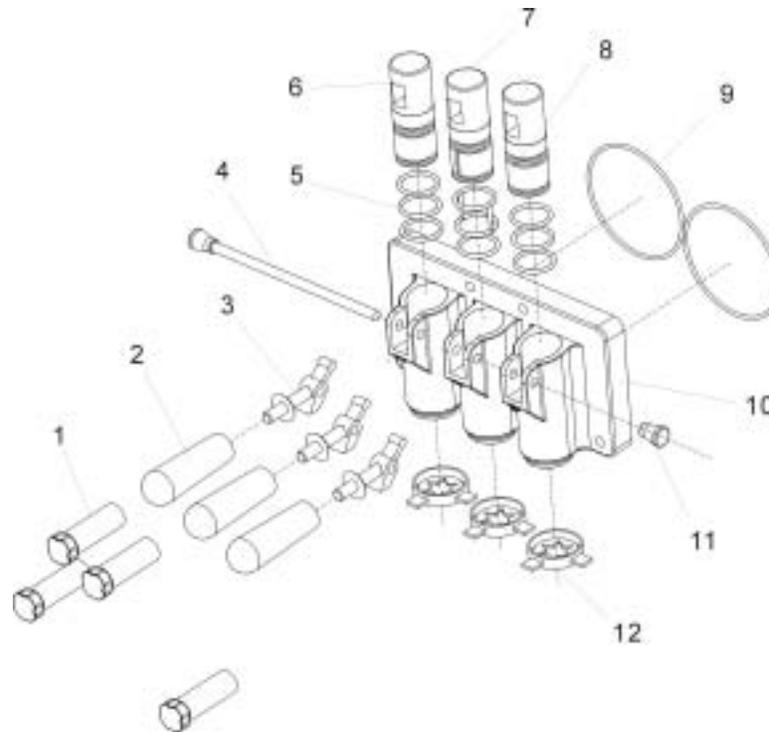


*Picture 3 schematic picture of emergency switch*

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**Emergency switch button**—the motor will stop immediately after the emergency switch been switched to “off” position. During maintenance and adjustment use the emergency switch in order to prevent the machine from starting unexpectedly. The left position is “on”, the right position is “off”.

## 1.2.4 Discharge door assembly



Picture 4: Schematic picture of the door assembly

Item	Name	Quantity	Item	Name	Quantity
1	Hand screw	4	7	Center draw valve	1
2	Distribution handle	3	8	Center draw valve O-ring( 33 × 3.1)	1
3	Distribution lever	3	9	O-ring( 105 × 5.7)	2
4	Pivot pin	1	10	Discharge door body	1
5	Draw valve O-ring( 33 × 3.1)	7	11	Pivot pin nut	1
6	Draw valve	2	12	Design cap	3

### 1.2.5 Technical features

MODEL		OPF138	OPF136	OPF130
HOURLY OUTPUT(liter)		38	36	30
TANK CAPACITY(liter)		6.5x2	6.5x2	6.5x2
FLAVOURS		2+mixed	2+mixed	2+mixed
ELECTRICAL POWER	volt	220V	220V	220V
	cycles	50/60HZ	50 HZ	50/60HZ
	phase	1	1	1
INSTALLED POWER(KW)		2.4	2.2	2
CONDENSER		Air	Air	Air
REFRIGERANT		R22	R22	R22
WEIGH IN KG	Net	160	156	136
	Gross	178	174	152
DIMENSIONS (mm)	Width	555	555	555
	Depth	735	735	735
	Hight	1335	1320	947
PACKING DIMENSIONS (mm)	Width	780	780	780
	Depth	880	880	880
	Hight	1530	1530	1360

### 1.3 Operation condition

OPF serial soft ice cream machine has been design and manufactured for making of one- or two-flavored soft ice cream and should only be used for this purpose. The operation requirement for OPF series soft ice cream machine is as follows:

- Voltage 220 V (198V~242V)
- Operating air temperature 10 °C – 38 °C
- Max relative air humidity 90 %
- Max height above sea level 2000 m
- Normal atmospheric condition

### 1.4 Noise

The noise level of OPF serial soft ice cream machine is bellow 68 dB.

## **Chapter 2, INSTALLATION**

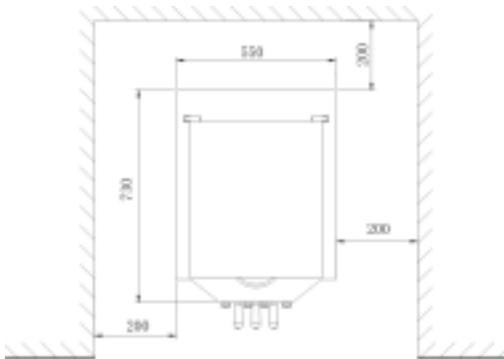
## 2.1 Room conditions

The room used for the operation of the OPF soft ice cream machine must be able to provide air that can circulate freely, to prevent over-heating. Therefore the distance to the machine must be at least 200 mm to the closest wall. The space where the machine is located should be kept clean, in order to prevent dust or other particles to be sucked into the machine by its fan.

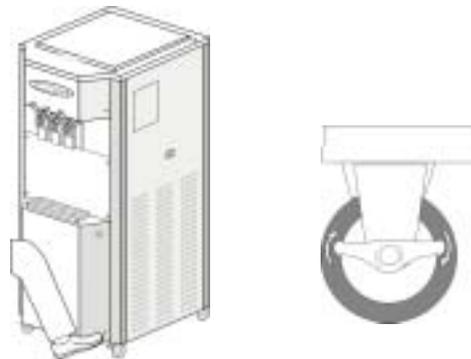
The place where the machine stands should be firm and dry and there should not be any heat sources within 500 mm to the machine.



NOTE: If the minimum room condition is not followed, it may affect the operation of the machine and its output capacity.



Picture 5: the machines placement



Picture 6: the machines safety breaks

## 2.2 Electrical connection

It is of great importance that the power supply to the machine is within the permitted range 198V~242V, with a current capacity above 16 A, also that the machine can be properly grounded. If the voltage should be outside the permitted range, then the machine safety protection will prevent the machine to start and the machine need to be restarted. The cross-section area of the cable that is connecting the machine with its power source should be over 2.5mm<sup>2</sup> and the length shorter than 6m.



Warning: if the power cable should of any reason be damaged, a skilled technician with sufficient knowledge and skill should immediately replace it.

Warning: Always ensure that socket of the power source is properly grounded before connecting the machine.

## 2.3 Safety breaks

To be able to move the machine freely, it has been equipped with wheels with mechanical breaks. During operation the wheel breaks should be engaged to prevent the machine to move.



## 2.4 Accessories installation

IMPORTANT: Remember to clean the soft ice cream machine and its parts, according to chapter 4.2, before using the machine the first time.

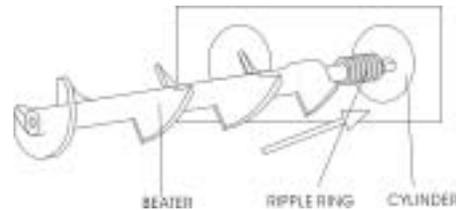
### 2.4.1 Beater and Discharge door installation

1. Put a thin layer of lubricant on the end section of the steel shaft as showed in the picture and pull on the ripple seal ring.



Picture 7: beater lubrication

2. Insert the beater assembly into the cooling cylinder. When it is properly installed, then if it will spring back if pushed inward.



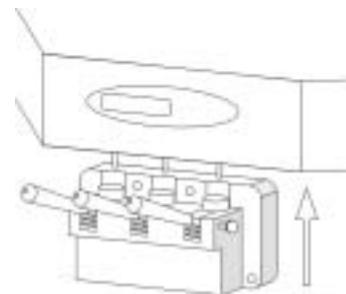
Picture8: the beaters placement

3. Put a thin layer of lubricant on the o-rings sealing the Discharge door with the machine.



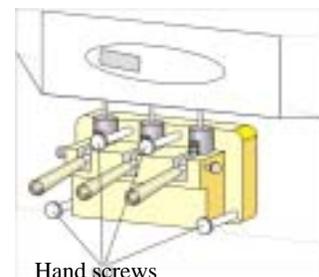
Picture 9: the Discharge door lubrication

4. To attach the discharge door to the machine, use the Discharge door body to press up the three springy touch poles. Finally aim so that the four holes on the Discharge door body fit into the four screws on the machine.



Picture 10: the placement of the discharge door.

5. Finally, screw the hand screw tight, as is shown on the picture. Remember to control that the gap between the discharge door and the machine is small and that the O-rings is in place.



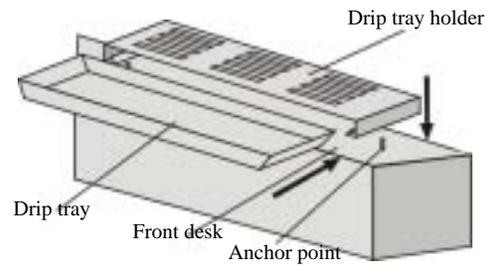
Picture 11: the Discharge door placement 2

## 2.4.2 Installation of drip tray, drip pan and air tube

1. Attach the drip tray holder on its anchor points.
2. Insert the drip tray into its holder.



Warning: Be careful when handling the drip tray holder, since sometimes it can have sharp edges.



Picture 12: the drip tray.

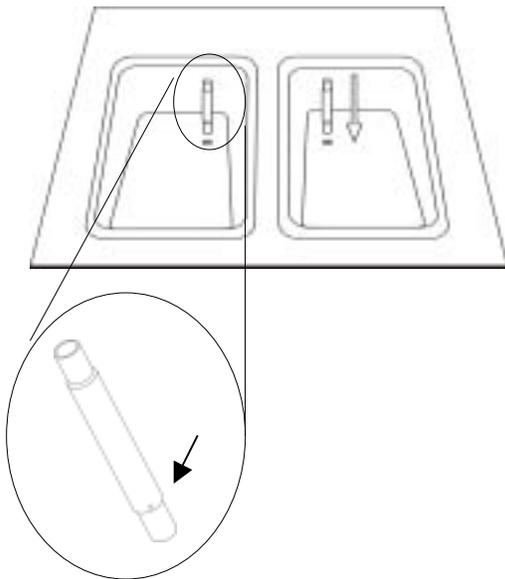
3. Insert the two air tubes into its hole in respective hopper container.
4. Insert the drip pan into the hole on the side panel.



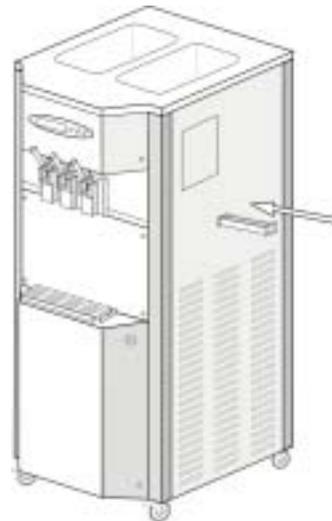
NOTE. Please, make sure that the small hole on the air tubes is pointing downward.



NOTE: the function of the air tube is to optimize the flow rate of soft ice cream mixture into the cooling cylinder.



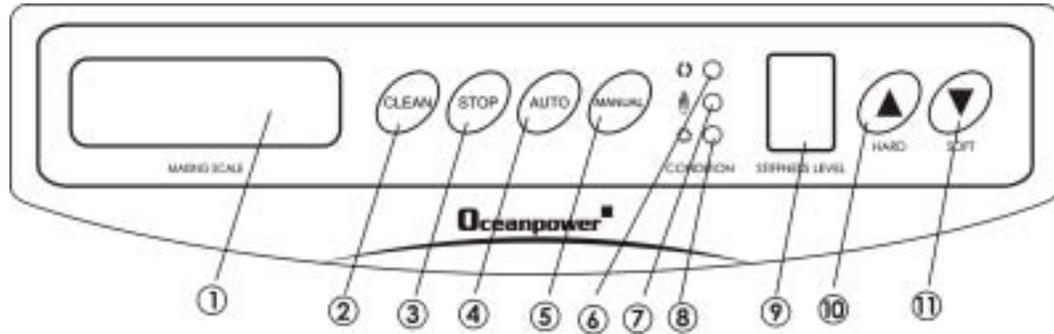
Picture 13: the air tubes placement



Picture 14: the drip pan placement

## **Chapter 3, OPERATING INSTRUKTION**

## 3.1 the machine controls



1. Display of the motors current
2. clean button
3. stop button
4. Button for automatic operation
5. Button for manual operation
6. Indicator for cleaning condition (green )
7. Indicator for refrigeration condition (blue )
8. Indicator for STOP condition (red )
9. Indicator of the hardness level
10. Button to increase the hardness
- 11 Button to decrease the hardness



**Cleaning**—means auto-cleaning, the cylinder and the hoppers need to be filled with water, the green light indicates the motor is working.



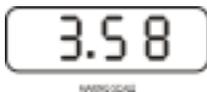
**Auto-operation**—The machine will stop automatic, when temperature and hardness meets the configured condition. If the temperature rise, the cooling cycle will start automatically and the blue light will indicate that normal operation occurs.



**Manual-operation**—Will start the cooling cycle manually, which is suitable during high workloads, and the blue light will indicate that normal operation occurs.



**Stop**— Will stop the machine. Remember that during cleaning or repair of the machine the machine should be in STOP condition, the red light indicates this.



**Motors current**— the screen indicates that the machine is working and the number indicates the current in the motor. When the configured number for the certain hardness level is reached, then the machine will stop automatically; this number represent the resistance in the cooling cylinder.



**Hardness indication**—it represents the set hardness value from 0-7 , the bigger the number, the harder products.



**Hardness adjusting**— adjust the hardness of the product.

## 3.2 Starting the machine



IMPORTANT. Remember to clean and sanitize the machine according to the instruction in chapter 4.2, before the machine is used the first time, to ensure the hygiene.

### 3.2.1 Filling soft ice cream mixture

1. Ensure that the machine is in STOP  condition.
2. Ensure that the beater assembly, the discharge door, the drip tray and the air tube have been properly installed.



IMPORTANT: This machine has been designed, in the way that both of the cooling cylinders must be filled with soft ice cream mixture during operation. Make sure to fill mixture before any of the hoppers is empty.



INFO: to prepare Oceanpower's soft ice cream mix for one hopper the following need to be done:

- Pour 3 L drinkable clean water into a clean container.
  - Add 1kg Oceanpower soft ice cream powder slowly while stirring the mix until it is totally dissolved.
  - Let the mix rest for 15 minutes, the effect will be better if the mix is stirred during the rest.
  - Pour the soft ice cream mix into one of the hoppers or put it into a refrigerator with a temperature of 5-7°C.
3. Both of the hoppers must be filled with an equally amount of soft ice cream mixture.
  4. Push the CLEAN  button, for 10~15 min, to fill the cooling cylinder fully with soft ice cream mixture. After the mix has stopped bubbling down into the freezing cylinder, than you can make ice cream flowing the next step



NOTE: Make sure that the little hole on the air tube is in downward position.



IMPORTANT: Always remember to wait for 10~15 min after the soft ice cream mix been poured into the hoppers to ensure that enough mixture is in the cooling cylinder. If the cooling cylinder is not filled during operation, then the frozen cylinder phenomena may occur, see chapter 5.1.1, this may cause serious damage to the machine.

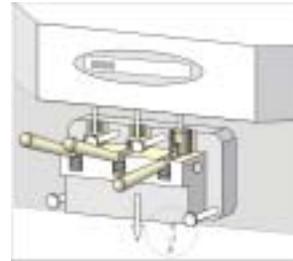
## 3.2.2 Starting the production,

1. First choose the desired hardness level of the product by adjust the value shown in the hardness indicator window. 



NOTE: if you are unsure what value on the hardness is best for your mixture, start with a hardness level of 4 since this is a middle value.

2. Place a container under one of the drawn valves. Lower the distribution handle slowly until ice cream mixture comes out from the design cap and when it occurs replace the handle to its original position (This is to remove the air that still may be present in the cooling cylinder). Repeat the process for all draw valves and handles.



Picture 15: Ice cream distribution

3. Push the AUTO  button; to start the cooling process of the ice cream, when the resistance in the cooling cylinder is according to the hardness value, then the machine will stop automatically.
4. Place a cup or a cone under the design cap.
5. Lower the distribution handle to fill the cup or cone with soft ice cream.
6. Replace the distribution handle when the desired amount of ice cream has filled the cup or cone.



NOTE: Rotate the cone our cup while the ice cream is coming out from the design cap



NOTE: during high ice cream demand, use the MANUAL  operation for maximum refrigeration efficiency, remember that the refrigeration will not stop automatically, so the screen of the **Motors current** need to be checked regularly to ensure that the ice cream will not become to hard and result in “frozen cylinder”, see chapter 5.1.1 for explanation.



## **Chapter 4, CLEANING AND SANITIZING**

## 4.1 washing and sanitizing

In order to ensure that the machine is clean, before it is used the first time its parts need to be sanitized and washed. The cleaning process is also necessary as a daily routine after soft ice cream production has been done or if the machine has not been used for a long time.



**WARNING:** Before disassembling any parts, always remember to stop and unplug the machine.



**IMPORTANT:**

- Because this is a food-producing machine, always remember to keep good hygiene and to wash and sanitize all parts that have been in contact with the product after the machine has been used.
- After the cleaning process is done then the parts should be rinsed with bacteria-free drinking water and thereafter dried.
- The temperature of the **water** used during cleaning, should never exceed **40 °C** since it may cause damage to the plastic parts and seal in the machine.



**INFO:** To prepare Oceanpower sanitizing solution you need to:

- Fill a 5 L container with water.
- Pour one bag of sanitizer into the water.
- Mix the solution for 2 minutes or until all the sanitizer is dissolved.
- The sanitizing solution is ready to be used.



**WARNING:** Always remember to be careful while handling the sanitizing powder or solution, since it may cause personal injury or irritation if inhaled or if it gets in contact with sensitive parts of the body (like the eyes).

## 4.2 Daily cleaning

1. Sanitize and clean the hoppers and the cooling cylinders (chapter 4.3)
2. Sanitize and clean the discharge door (chapter 4.4)
3. Sanitize and clean the beater assembly (chapter 4.5)
4. Clean the machine shell with a cloth drenched in a sanitizer.
5. Clean the drip tray and drip pan with water and sanitizer.

## 4.3 Sanitizing and cleaning of the machine

During the cleaning and sanitizing process, the usage of Oceanpower sanitizer powder is recommended to ensure that the machine and its components will be properly sanitized. If other products are used, please consult with our local distributor or contact OP directly if there is none present, to ensure the safety of you and your consumers/customers.



NOTE: the ratio between the amount of water and sanitizer should strictly be kept; this is to ensure the effect of the sanitizer.

1. STOP  the machine.
2. Fill both of the hoppers with lukewarm water.



NOTE: remember to remove the air tube, so that the water can enter the cooling cylinder freely.



NOTE: Sometimes to be able to clean the inside of the air tube as well as the pipe, connecting the hopper with the cooling cylinder, a bristle brush is needed.

3. Open each draw valve, one at the time to empty the water ice cream mix into a container.
4. Refill the hoppers with lukewarm water and repeat the same process until all ice cream is removed and the water is clear when it exits from the drawn valve.



NOTE: Remember to use all three drawn valves during the cleaning/sanitizing process when you drain the cooling cylinder of water or sanitizer.

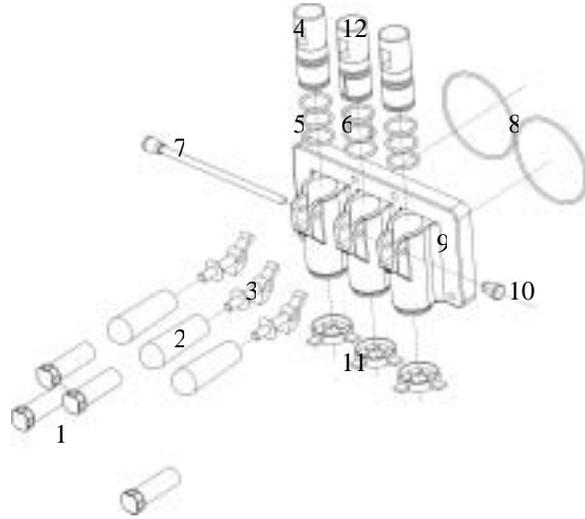
5. Fill both hoppers with the sanitizing solution and push the CLEAN  button.
6. Wait for 15 minutes.
7. Push the STOP  button and drain the sanitizing solution.
8. Finally rinse the two hoppers with cold drinking water and drain all the water from the cooling cylinder.

## 4.4 Disassembling, cleaning and sanitizing of the discharge door



Warning: before disassembling the discharge door, remember to stop and unplug the machine.

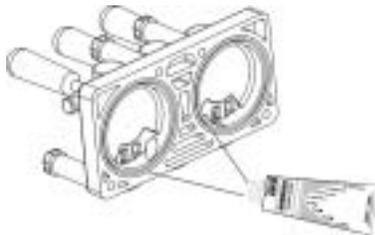
1. Pull down all the distribution handles, so they are in distribution position.
2. Unscrew the four hand screws (1) and remove the discharge door from the machine.
3. Remove the o-rings (8).
4. Unscrew the pivot pin nut (10) and remove the pivot pin (7).
5. Remove the distribution handles (2) and Distribution level (3) and screw them apart.
6. Press out the drawn valves (4,5) and remove Draw valve O-ring (5,6).
7. Clean all the parts with lukewarm water and the place them in a container with sanitizing solution for 10 min.
8. Rinse the parts in cold drinking water.
9. Dry the parts with air or a clean towel.
10. Reassemble the discharge door and replace it.



Picture 16: discharge door assemble 2



NOTE. Remember to put a thin layer of lubricant on the different o-rings after they have been put in place.



Picture 17: discharge door lubrication



Picture 18: drawn valves lubrication

## **4.5 disassembling, cleaning and sanitation of the of the beater assembly**

After the discharge door been removed, then it is possible to remove the beater assemble from the machine.

1. Pull out the beater assemble and remove the ripple seal ring.
2. Place the two parts in a container with sanitizer for 10 minutes.
3. Rinse the part with cold drinking water.
4. Dry the parts with air or with a clean towel.



NOTE: Remember to put a thin layer of lubricant as shown on the picture bellow.



IMPORTANT: Remember to always ensure that the cooling cylinder been drained of water after it been cleaned or sanitized.



*Picture 19: beater lubrication*

## **Chapter 5, TROUBLESHOOTING GUIDE**

## **5.1 Problems that may occurs during operation and suggested solutions**

### **5.1.1 Frozen cylinder phenomena.**

INFO: The frozen cylinder occurs when there is ice formation in the cooling cylinder; this results in that the resistance on the beater and the motor become too larger for the machine to handle and may cause serious damage to the machine. This phenomenon is usually noticed by abnormal friction noise from the cooling cylinder and a sudden sharp increase of the value on the display for the motors current.

#### **HOW to avoid it:**

- a. Always follow the mixing rate specified between the soft ice cream powder and the amount of water (ex. 1 to 3 for Ocean power soft ice cream powder)
- b. Always remember to remove all the water from the cooling cylinder after cleaning.
- c. Keep balance of the amount of soft ice cream mixture in the two hoppers. If one flavor is used very little extrude some ice cream and return it to the hopper time after time.
- d. Turn off the machine if it is not used for more then 30 min and let it “rest” for 5 minutes or extrude some soft ice cream.
- e. Always keep ice cream mixture in the hoppers when the machine is on.

#### **WHAT to do if it happens:**

1. Press the STOP  button or use the emergency switch to turn off the machine and let it “rest” for at least 30 min. This is so the ice formation has a chance to melt.
2. Return the emergency switch to the “on” position and try to extrude some ice cream by pulling the distribution level. If abnormal noise can be heard or if the display for the motors current shows a high value (>5.00) use the emergency switch to immediately turn of the machine and let it rest for an additional 30 minutes.
3. repeat this procedure until ice cream can be dispersed by pulling the distribution level and the machine is operating normally.
4. Finally press the Auto  button, to start the production of soft ice cream again.

### **5.1.2 Operation conditions that will result in “AUTO”-protection.**

The “AUTO” protection will be activated if any of the operation conditions mentioned bellow would occur. The machine will then be in stand-by condition for 10 minutes and then return into normal operating condition.

- Because of the “Frozen cylinder” phenomena.
- The voltage is below 198 V, low-voltage protection.

- The voltage is above 242 V, high-voltage protection.
- The compressors temperature is high, then PTC protective device will stop the compressor, to let it cool down for 10 minutes.



NOTE: the machine can be returned into normal operating condition manually by pressing the Stop  button. Before you restart the machine, please ensure that the problem been solved.



NOTE: If the machine often enters the protective mode, it is recommended that a manostat (5KVA) is purchased and used to stabilize the voltage.

### 5.1.3 The machine do not start.

Cause:

1. The auto-protection of the machine is triggered.
2. Machine is not connected to the main power source.

Solution:

1. Ensure that the power supply is normal and the voltage is within the permitted range.
2. Control that the power plug is well connected and that the emergency or the power switch is in operating position.

### 5.1.4 The machine do not stop automatic during AUTO condition.

Cause:

1. Because of to little ice cream mixture in the cooling cylinder,
2. That the surrounding temperature is to high (>38 °C)

Solution:

1. Control that the little hole in the air tube is in downward position
2. Try to lower the surrounding temperature.



NOTE: These two conditions may results in that the necessary resistance in the cooling cylinder cannot be reached and the machine will not stop.

### 5.1.5 The machine will not stop when pushing STOP button.

Cause:

1. The springy touch pole or its spring has been deformed or damaged.

Solution:

1. Repair or change the pole or its spring.

### 5.1.6 The ice cream is too hard or too soft.

Cause:

1. The hardness value is not properly set.
2. The ice cream mix has not been properly prepared.
3. The ice cream mix that is used is not suitable for this machine.
4. The ice cream is distributed before the refrigeration cycle is finished,
5. The amount of soft ice cream in the cooling cylinder is to little.

Solution:

1. Adjust the hardness value.
2. Follow the instruction provided together with ice cream mixture.
3. Consult with your local distributor or contact Oceanpower if none is available.
4. Never start distribution ice cream before the cooling cycle is finished and the compressor and motor stops and the motors current drops down quickly to zero.
5. Control that the air tube is installed correctly and that there is enough of mix in respective hopper.



NOTE: When machine is operated manually, then the motors current should never be bellow 4.00 during distribution, otherwise the product will be to soft to be served.

### **5.1.7 Ice cream comes out behind the discharge door.**

Cause:

1. The O-ring behind the discharge door is placed incorrectly.
2. The O-ring behind the discharge door is deformed.

Solution

1. Replace the O-ring correctly and make sure that the bolts holding the discharge door is well screw tight, according to the instructions in chapter 2.4.1.
2. Change the O-ring to a new one.

### **5.1.8 Big amount of ice cream in the drip pan**

Cause:

1. The ripple seal ring is installed incorrectly
2. The ripple-sealed ring is damaged.

Solution:

1. Reinstall the ripple-sealed ring according to the instructions in chapter 2.4.1
2. Change the ripple-sealed ring into a new one.

### **5.1.9 Mixture or ice cream leaks from the draw valves.**

Cause:

1. The O-rings is installed incorrectly.
2. The O-rings are damaged.

Solution:

1. Reinstall the O-rings according to the instructions in chapter 4.4.
2. Change the O-ring into a new one.

### **5.1.10 The Ice cream mixture do not flow into the cooling cylinder**

Cause:

1. The temperature of the mix is too low.
2. To little water was used when preparing the mix.
3. Old mix is used that has a different viscosity (usually to thick).

Solution

1. Do not let the mix become colder than 1-4°C.

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2. Follow the mixing rate according to the manufacturer.
3. Try to always use fresh mix.

## Appendix A

### Electric connection chart

