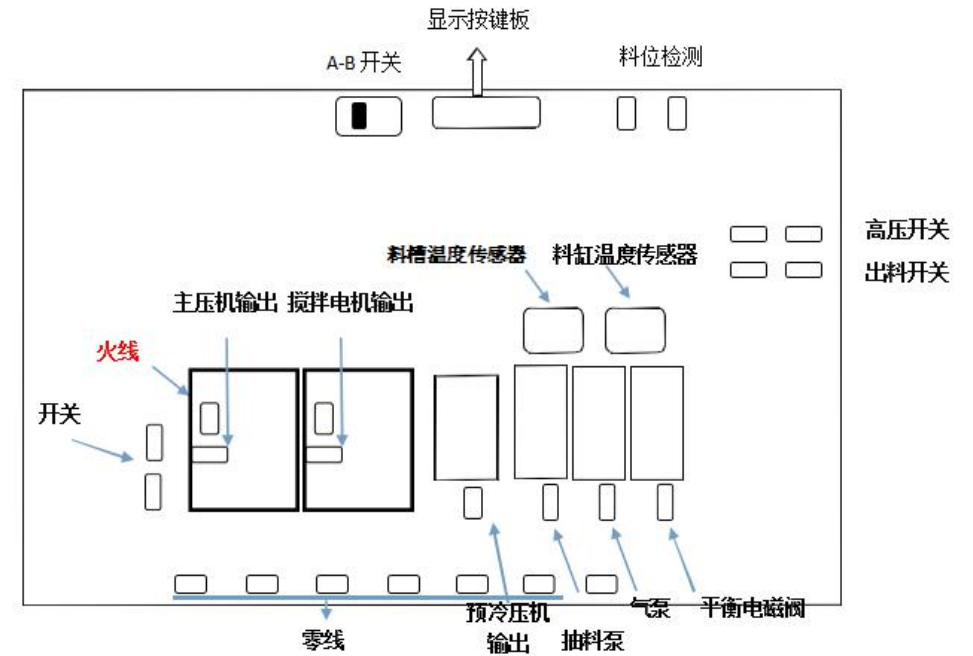


ZM-A168

# ICE CREAM MACHINE

## MANUAL





A-B 开关=A-B switch    料槽温度传感器=Material trough temperature sensor  
 料位检测=Level check    料缸温度传感器=Material cylinder temperature sensor  
 高压开关=High pressure switch    出料开关=Discharge switch    气泵=Air pump  
 主压机输出=Output of main press    搅拌电机输出=Output of mixer motor  
 火线=Fire wire    零线=Zero line    开关=switch    预冷压机=Precooling press  
 平衡电磁阀=Balanced solenoid valve    输出=output    抽料泵=transfer pump

Ice cream won't come out	1. No mixture inside 2. Mixture contains too much water.	1. DO NOT turn to freeze mode when no mixture inside. 2. Shut down for 30 minutes, then restart. Please make mixture according to the right proportion.
Ice cream is too soft	1. Mixture contains too little water. 2. Insufficient heat dissipation space 3. Hardness set too low 4. Cylinder lack of mixture	1. generally speaking: 1kg powder to 2.5-3kg water 2. Air outlets of the machine should be at least 1m away from walls or any other barriers, other sides should be at least 0.5m away from any barrier 3. Increase hardness value 4. Pour in mixture.
Leakage	1. Tighten bolt is not tightened 2. Apron misalignment 3. Apron damage	1. Tighten the tighten bolt 2. Put the apron in place 3. Replacing aprons

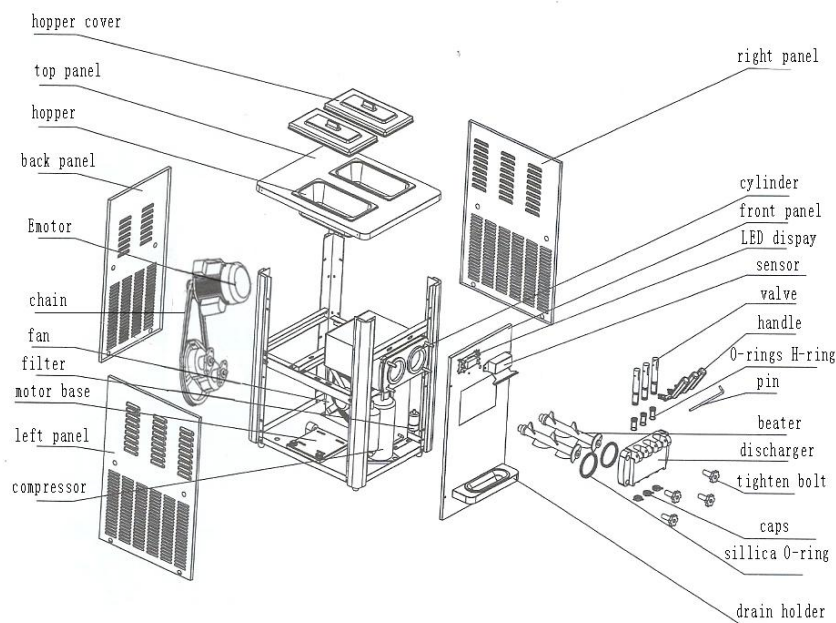
## 9.Repair

- 1) Please disconnect power before installing or wiring, always follow the circuit diagram, and make sure the power supply is in accordance with that on the nameplate.
- 2) Please hire a professional electrical technician for wiring.
- 3) Make sure all terminals are firmly connected to connectors.
- 4) Keep hands, fluid or any foreign objects off the PCB, and at least 6mm away from the panels, or else may result in short-circuit and fire.

## 1.Parameter

Model	Capacity	Yield	Voltage	Power	Refrigerant	Dimensions
ZM-A168	4.2L*2	18L/H	220V50Hz 220V60Hz 110V60Hz	1200W	R22/410a	55*42*76 CM
ZM-A200	5.8L*2	20L/H	220V50Hz 220V60Hz 110V60Hz	1850W	R22/410a	60*50*135 CM
ZM-A360	8L*2	36L/H	220V50Hz 220V60Hz 110V60Hz	2600W	R22/410a	72*58*138 CM
ZM-A480	8L*2	48L/H	220V50Hz 220V60Hz 110V60Hz	3800W	R22/410a	76*57*150 CM

## 2.Structure



### 3.Conditions

Our ice cream machine can work under below conditions:

Ambient temperature:5-40℃ Mixture temperature:2-35℃

Power:200-230V/50±1HZ ( standard model ) ,customized model e.g. 110V/60Hz,or 220V/60Hz,please follow other instruction.

▲The above conditions can directly affect performance and capacity.

### 4.Installation & Cautions:

Please strictly follow the instruction on the sticker.

▲After received the machine, please lay it aside for more than 5 hours before using.

▲There must be a free space more than 50cm left on both sides of the machine for heat releasing.

**▲Please make sure both cylinders to be filled with stuff before using, neither single nor both cylinders short of stuff will be forbidden. Do not use the water as stuff to test the machine.**

▲Put the machine still for 24 hour after transportation before using it.

▲Power wire should not exceed 10m.

▲Always use both cylinders at the same time.

▲Ice cream mixture should be in accordance with appropriate formula.

▲Always use the machine in stable voltage.

#### 1)Placement

① Place the machine on an even plain ground,and lock the brakes.

② Make sure the machine is in good ventilation,avoid heat sources or sunlight,Air outlets of the machine should be at least 1m away from walls or any other barriers,other sides should be at least 0.5m away from any barrier.

③ Avoid dust.

#### 2)Wiring:

① Make sure the socket is connected to the ground.

② Make sure the power supply has a circuit-breaker or any other device for protection against electric shock.

Cause of failure	Fault code
stall of the motor	-
the motor speed is low	nL
High pressure switch alarm	HH
the circuit of material cylinder sensor is open	AL
the circuit of material cylinder sensor is short	AH
the circuit of material trough sensor is open	bL
the circuit of material trough sensor is short	bH
Lack of material	CL
switch on the compressor automatically for 45 minutes continuously.	UL
switch off the discharge switch for 1 minutes continuously.	Cb

Problem	Cause	Solution
Voltage too low	Voltage too low	Install a voltage stabilizer.
Voltage too high	Voltage too high	Install a voltage stabilizer.
No display while machine turned on	1. Out of power,socket not well plugged. 2. Stabilizer not well connected,or display not well connected 3. Fuse broken 4. PCB broken	1. Check if power supply is normal. 2. Reconnect wires. 3. Solve the abnormality and replace with the same specification of fuse. 4. Check PCB
Display not clearly	Display and motherboard not well connected. Motherboard malfunction	Reconnect display to the motherboard well. Check motherboard.

E.Assemble back all the components.(apply some lubricant to the valve stem for easier assembling the O-rings and the valve stem back to discharger).

Notice:the O-ring on the middle stem is H shape,while the side stems are all O shape.

## 2) Wash the case

Please use a wet cloth to wipe the case only,avoid pouring water directly on control board or the inside,or else can result in malfunction.

## 3) Clean the condenser

After serving for a certain period of time,dust will cover the condenser and affect refrigeration(symptom:Ice cream hardness decreases in the same running time),please wash it at least once in 3 months.(or once a month in a worse condition).Make sure the machine is disconnected to electricity before washing,and avoid damaging the fins inside the condenser.Hiring a professional cleaner is recommended.

## 4)Lubricate the chain or belt

A168: After serving for a long time,it is recommended to open the back cover and maintain the chain with oil every month.

A200/A360/A480:After serving for a long time,the belt can be stretched,if adjustment is needed,please hire a professional technician.Make sure the power is off and belt tightness is appropriate.

## 8.Error & Solution

When errors occur,the system will shut down all outputs and display error code,meanwhile the alarm will keep beeping.

When the below problems occur,hire professional technician.

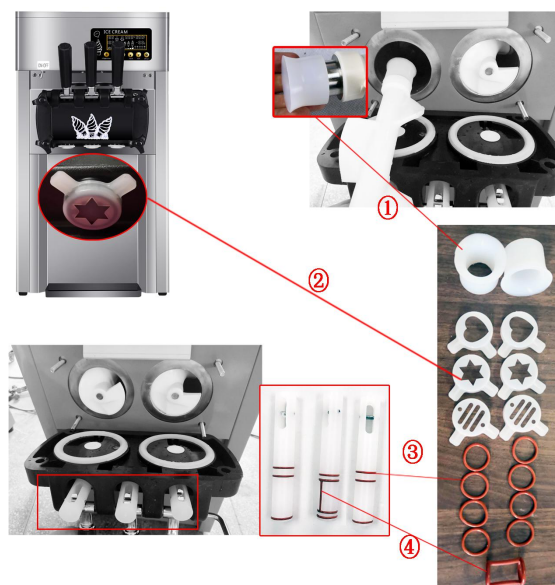
③The section area of power code copper core(a) MUST BE:

18L machine,20L machine:  $a \geq 2.5 \text{ mm}^2$  36L machine,48L machine: $a \geq 4 \text{ mm}^2$

④ Under-size power code can result in low voltage and overload,which affect machine performance or causing damage.

## 3) Installation

① Open the carton bag,you will find a parts bag in the hopper.In the parts bag you will find consumable parts,keep the spare parts for the future replacement.



①Horn-shaped rubber rings

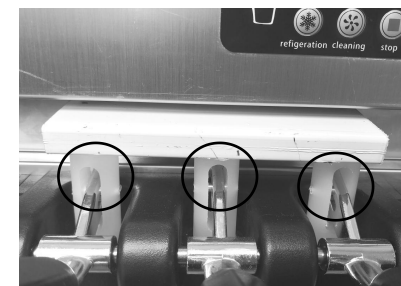
②Caps

③O-rings

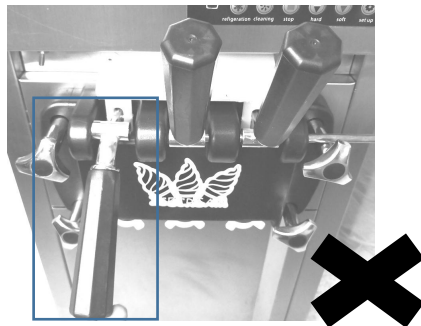
④H-rings

② Please check the nameplate on the right panel,confirm this is the correct model(voltage,frequency and power)you order.

③ Install the discharger properly,tighten it to the machine with 4 bolts(2 long ones up,2 short ones down),screw the 2 bolts in diagonal at the same time,mate sure no gap between the discharger and the machine,otherwise,water or mixture can leak from it during washing or making ice cream.Notice:sensor plate MUST BE on top of all valve stems.(see right photo)



④ Install the handles to the valve stems one by one ,in the mean time,slowly push the steel pin through the discharger and the handles.(Refer to below photo for the correct direction of the handles)



## 5.How to Make ice cream

### 1) Wash

Connect it to 16A socket,switch on the power with the stick on the left down part of control panel.Pour water from the hoppers to fulfill the cylinders,press“CLEAN”mode.Repeat this 2-3 times,until the water comes out is all clean.



### 2) Make mixture

Currently in the market,there are ready-made mixture of ice cream,or the powder that needs to mix with water.Please follow the instructions and formula on powder package(generally speaking:1kg powder to 2.5-3kg water),stir them even,let them completely dissolve and mix together,avoid lumps forming,leave it still for 30 minutes.These are very important factors for the texture and amount of the ice cream later produced.



### ⑦ reference speed learning

In the case of empty cylinder, start the cleaning button, dial the A-B switch from A to B,and display 'END' on the screen after the rotation speed is stable that indicate the success of learning. Dial it back to the A position to complete the reference speed learning.

### ⑧transfer pump and air pump operation

Transfer pump operation: In the refrigeration state, the pumps are started for the first time or the transfer pump is started by switching on and off the discharge switch, it is stopped after specified time of the operation parameters.Air pump operation: if the mixing motor operates, the air pump operates and switches on and off according to the parameter time. If the mixing motor stops, the air pump stops.

## 7.Maintenance

### 1) Wash cylinder

Please wash the cylinder once a day to improve the serve life of the machine and also to ensure food safety for customers.

- ① Press “ CLEAN ” ,to beat out all the mixture from the cylinder,then press“STOP/SET”.
- ② Dissolve proper amount of disinfectant in warm water,pour it inside the hopper.
- ③ Press“CLEAN”to beat for 5minutes,then drain it.
- ④ Pour in clear,to wash 3-5 minutes,then stop the machine.
- ⑤ Turn off the machine,and disassemble all other components(detail see the above picture for washing)

Please disassemble and wash the components according the following steps if the machine has stopped serving for a long time.

- A. Unscrew all 4 bolts from the discharger,unload the discharger,then disassemble all components from the discharger,
- B. Take off the pin,handles, valve stems and silicone O-ring.
- C. Take our the beater,disassemble the silicone seal from the beater end.
- D. Wash the components thoroughly and replace the broken ones.



motor starts, the balance valve starts, the delay main press starts, and the balance valve stops. When the material cylinder temperature reaches the set temperature, stop the main press, stop the stirring motor, start the balance valve and stop the balance valve for a 5 seconds delay. the pre-cooling of the material trough is controlled by the temperature setting value, when the temperature reaches or falls below the pre-cooling temperature setting value of the material trough, stop the pre-cooling press, when the temperature of the material trough rises back to the pre-cooling temperature setting value + 2 degrees of the material trough, start the pre-cooling press. When the above material trough and cylinder reach the temperature, it must be guaranteed that it can only enter the cooling state again with the interval of 7 minutes. Press the "overnight" button again and return to standby status, the corresponding "refrigeration" and "stirring" icons will be extinguished, and the "refrigeration" and "stirring" animation icons will be extinguished.

#### ④ Parameter setting

In the standby status, long press the setting button for 10 seconds, and enter the setting status of parameter. The digital tube in the voltage display area shows P\*, the current value of the parameters are shown in the display area of the number of the ice-cream, and the setting button is short pressed to switch the parameters. The corresponding parameter values are adjusted by pressing add-subtract button.

#### ⑤ Zero clearing setting of the number of the cups.

In the parameter setting status, long press "add" and "subtract" button for 5 seconds at the same time, clear the number of cups and return to standby status Automatically.

#### ⑥ Processing of alarm for lack of material

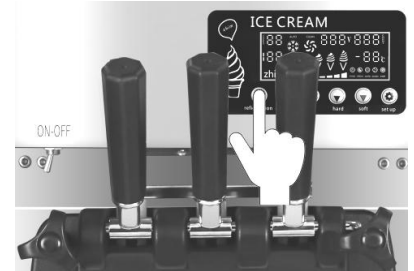
In the state of refrigeration and overnight fresh-keeping, the alarm for lack of material flashes

"CL" in the voltage display area and buzzes (stop after buzzing for 20 seconds, and the display continues). It returns to standby state automatically when the set value of shutdown time for lack of material is reached.

### 3) Make ice cream

① Make sure water is completely drained, then pour the mixture into the hopper.

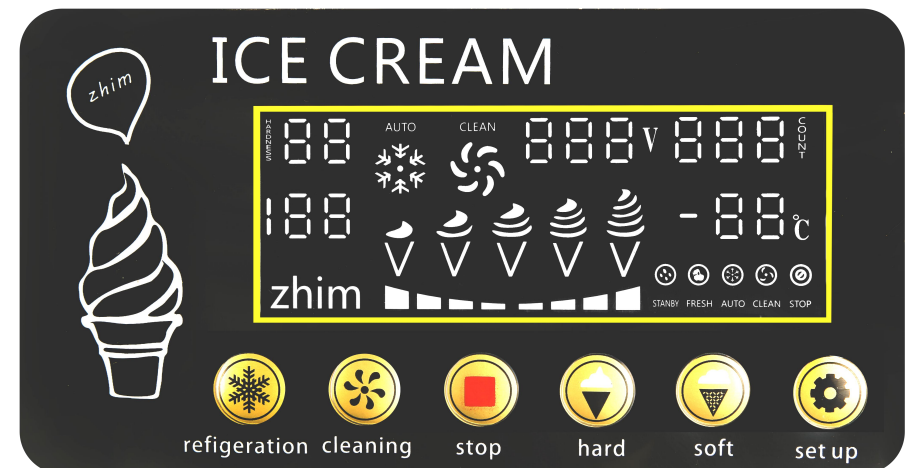
② Press "CLEAN" (beater will start to rotate, to beat it even), after 2 minutes, press "STOP", then press "WORK" to start freezing (Notice: Make sure the mixture level in neither cylinder should be lower than the inlet of discharger, or else can result in loud noise or damage.)



③ In "forming" mode, the display shows the progress of ice cream making, generally speaking, when it reaches 80%, the ice cream is ready for dispensing. When it reaches 100%, the machine will stop automatically and return to "Standby" mode.

④ Serve: Put a cone or a cup under the nozzle, press the handle down, slowly rotate the cone in hand, press the handle back to stop.

## 6. How to Operate



## 1) Parameter description

Corresponding parameter name	Name	Range	Default value	unit
gear		1--10	3	gear
Cycle restart time	P0	5--15	5	minute
shutdown time of mixing delay	P1	5--15	15	second
operation time of transfer pump	P2	0--30	15	second
Precooling temperature of material trough	P3	10—80 (1-8°C)	80	°C
Precooling temperature of material cylinder	P4	10—80 (1-8°C)	80	°c
setting value of down time for lack of material	P5	0-10	0	minute(0 is non-stop)
Intermittent operation time of air pump	P6	0-60	2	second
Intermittent stop time of air pump	P7	0-90	10	second
Speed reduction per gear	P8	1-100	10	0.1 turn
Pre cooling selection	P9	0-1	0	0without pre cooling 1with pre cooling

## 2)Functional operation

### ① cleaning function

In the standby status, press the "cleaning" button, the stirring motor starts, the corresponding "stirring" icon lights up, the stirring animation icon rotates, press the "cleaning" button again, the stirring motor stops,the corresponding "stirring" icon will be extinguished, and the stirring animation icon will be extinguished.

### ②automatic function

In the standby status, press the "refrigeration" button, “refrigeration”and "stirring" icon lights up, “refrigeration” and "stirring" animation icon rotates, start the stirring motor and balance solenoid valve, and start the main press for a 3 seconds delay, stop balance solenoid valve, when the hardness value reaches 99, stop the main press, start the balance solenoid valve, stop the stirring motor by setting value of 5 seconds delay, enter the waiting state, when the waiting time reaches the set number of minutes of the machine cycle restart time, start the stirring motor and balance solenoid valve, and start the main press for a 3 seconds delay, stop balance solenoid valve, and the cycle continues.The pre-cooling of the material trough is controlled by temperature setting value. When the temperature reaches or falls below the pre-cooling temperature setting value of material trough, stop the pre-cooling press; when the temperature of material trough rises back to the pre-cooling temperature setting value of material trough + 2 degrees, start the pre-cooling press. Press the "refrigeration" button again and return to standby status. The corresponding "refrigeration" and "stirring" icons will be extinguished. The "refrigeration" and "stirring" animation icons will be extinguished

### ③ Overnight fresh-keeping function

Press the "Fresh-keeping" button, “refrigeration” and “stirring” icons light up, “refrigeration” and “stirring”animation icons flash, the pre-cooling of material cylinder and material trough are controlled by temperature. When the temperature of the material cylinder is higher than the set temperature + 2 degrees, the stirring