

 PLEASE WELL READ THIS MANUAL BEFORE USE

BATCH FREEZER

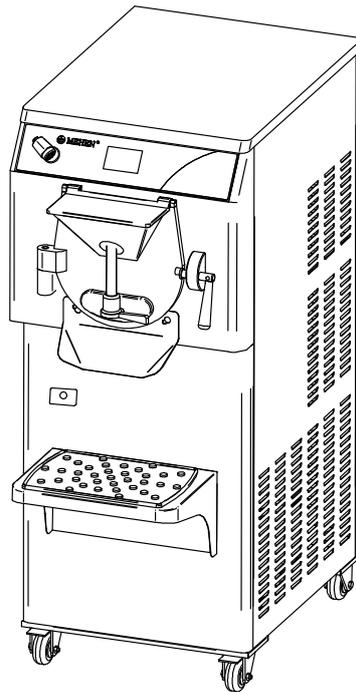
M10

M15

M20

M30

Version 4.00



On behalf of MEHEN, we hereby wish to express our sincerely thanks for purchasing MEHEN machines.

MEHEN Machines are in conformity with EU Directive(s):

Machinery Directive: 2006/42/EC

Electromagnetic Compatibility Directive: 2004/108/EC

Food processing machinery – Basic concepts – Part 2: Hygiene requirements: EN 1672-2:2005+A1:2009

Electrical Equipment of Industrial machines: EN60204-1:2006+A1:2009

Immunity for industrial environments: EN61000-6-2:2005

Emissions for Industrial environments: EN61000-6-4:2007

Comply with the requirements of the Standard(s) for Special Purpose Food Equipment & Devices (NSF-169) and are identified with the ETL Sanitation Listed Mark.

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Product design and specifications are subject to change without notice. This includes primary product specifications, controller and this manual.

The manufacturer assumes no liability for any errors or discrepancies in this manual.

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FORWORD

Handbook Instructions

This handbook is edited while taking needs of users into due account. Topics regarding proper operation and ensuring long-term and stable running of the machine in different areas and conditions have been illustrated.

Furthermore, the knowledge of maintenance is also provided with instructions in this manual book.

The users can also contact manufacturer in case that any problems can not be solved within this handbook.

Symbols Annotation



- ◆ Caution of Electric Shock Danger, Non-compliance of safety principle in carrying out the operation described under this symbol may cause an electric shock.



- ◆ Caution of General Danger, Non-compliance with safety principle described related to this symbol may cause dangers to operators.



- ◆ NOTE, It points out significant information for the staff involved.



- ◆ Warning, Non-compliance of related warnings may cause harm to person involved and damages to the machine.



- ◆ Qualification of the Staff (Machine operator), Contents to describe what the operator should grasp to use the machine.



- ◆ Skilled Technician, Contents to describe what the skilled technician should grasp.



- ◆ MEHEN Engineer, Symbol to indicate that maintenance should be carried out by MEHEN or work unit appointed by MEHEN. In case of any specific maintenance or repair requires components from manufacture or professional operation by skilled technicians, the user should contact the distributors, designated service providers or service department from MEHEN.



- ◆ Security Protection, Symbol means that the user must pay extra attention to prevent risk during operation and increase the awareness of personal protection.



Requirements of Staff

Staff attached to the machine can be distinguished according to position and training degrees as follows:



Operator

A person who does not have to be with professional technical background, just trained for ordinary operation of the machine, such as filling, extracting, cleaning, basic maintenance, could identify warning information and do easy handling.

Any operator should be aware of that, when using industrial equipment or devices, rotary motor, driving system, high voltage components as well as high temperature parts may cause serious damages to persons.



Skilled Technician

A person with professional knowledge and skills capable of operation, installation, maintenance and repairs, etc.



CAUTION

One must be aware that the staff does not carry out any operation out of its own sphere of knowledge and responsibility.



NOTE

According to the current standard, a technician should have the following characteristics:

- ◆ *well-trained with experience and knowhow.*
- ◆ *familiar with principle and prescriptions, capable to take accident prevention.*
- ◆ *knowledge of machine operating conditions, is able to realize and avoid any danger and carry out all kinds of interventions permitted by the person in charge of plant safety.*



NOTE

Before carrying out any kind of maintenance, make sure that the machine is not under working. It is prohibited to remove the covers of the machine or reach inside of the machine without disconnecting the machine from the power.



MEHEN is not responsible for any accident happened to machines or any operators caused due to non-compliance to the principle and regulations in operating, washing and maintenance.

CHAPTER 1. RECEIVING, MOVING, UNPACKING



1.1 Precautions On Receiving

Before unpacking the machine, check the package to observe if any external damages caused by hitting or capsizing during transportation.

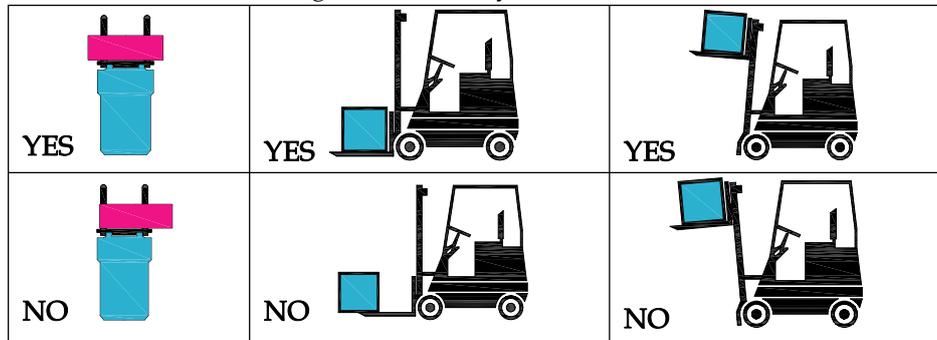
An external damage could mean the machine itself might have been damaged already. In this case, the clients must:

- Immediately make a claim to insurance company and leave everything as it is on reception.
- Reject to accept the machine.
- Don't open the external package to leave everything as it is.
- Immediately inform the seller and insurance company and make a claim.



1.1.1 Moving Notice for Packed Machine

To move the package, insert lift forks into the space between pallet feet, so as to balance the machine weight and steadily lift the machine.



1.2 Unpacking

- ◆ Bottom part of the machine will be fixed on a wooden base, while the four sides will be nailed by four pieces of wooden board.
- ◆ Wear gloves and use proper tools when opening the wooden package so as to prevent any scratch by debris of wood or nails.
- ◆ Prize up the top of the package, open the four side-boards and only leave the base as it is.
- ◆ Take off the plastic cover of the machine.
- ◆ Check up if any damages during the transportation.
- ◆ Balance the machine in proper position, open the machine side-panels and loose the bottom screw.
- ◆ Move machine from the wooden base.
- ◆ Make sure safety during all operations mentioned as above. Improper operation may cause injury of people crashed or cut by machine, even the machine may capsize when it loses balance.

NOTE

Inside of the machine you will find an instructions handbook, please read it carefully before any operation of the machine.

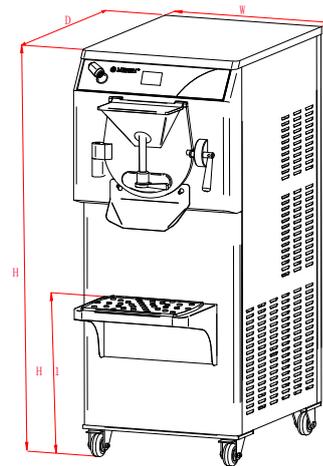


2.2.2 Machine Lay-out

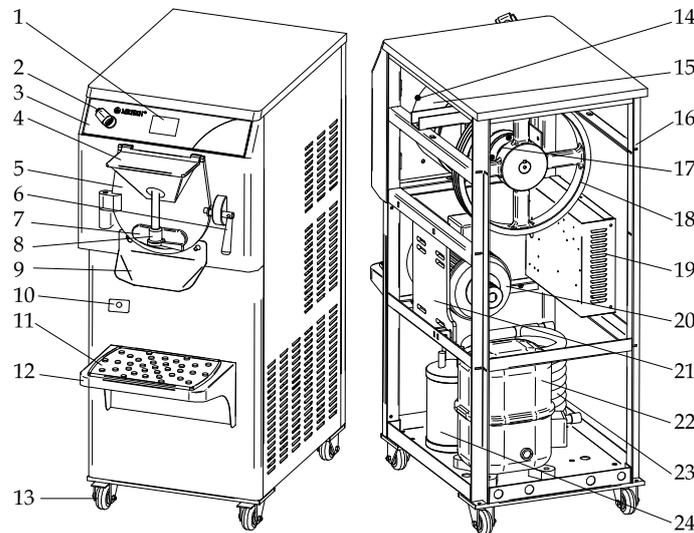
TIP

Dimension may be various depending on type of condensation.

Model	Dimension (mm)			
	Width (W)	Depth (D)	Depth (D1)	Height (H)
M5	400	595	700	730
M10	555	800	935	1360
M15				
M20	555	870	1010	1450
M30				



2.2.3 Components Position



- 1-Touch Screen 2-Rinse spigot 3-Plastic panel 4-Inlet cover 5-Cylinder door
 6-Door latch 7-Output door 8-Output wrench 9-Output groove
 10-Waste liquid collector 11-Anti slip pad 12-Pan holder 13-Caster
 14-Door open detector 15-Cylinder 16-Frame 17-Bearing holder
 18-Driving pulley 19-Electrical components box 20-Dasher motor
 21-Motor mounting plate 22-Compressor 23-Condenser 24-Reservoir

2.3 Working Conditions

The following conditions are requested to ensure long term and steady operation:

- ✧ Voltage Fluctuation: <10%
- ✧ Ambient temperature: 5~35 °C
- ✧ Air-cooled temperature: below 25 °C
- ✧ Cooling water temperature: below 25 °C
- ✧ Cooling water pressure: 1~8 bar
- ✧ Max relative humidity: 85% (without moisture condensation)





CAUTION

The machine is not designed with anti-explosion standards. Thus make sure the working place is out of explosive danger.

WARNING

MEHEN is NOT responsible for any accident happened to people or machine in case the machine is used out of the designed condition.

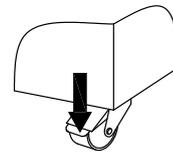
2.4 Noise

The noise is less than 35 dB for both water cooling and air cooling system while the machine is operated under requested working condition.

CHAPTER 3 INSTALLATION

3.1 Position

After the machine is positioned, lock the caster immediately to prevent movement of the machine during working.



3.2 Room Condition

The machine must be installed in room with a good air-ventilation so as to dispel the hot air generated by the condenser. The room would be better with enough space for operators to withdraw when necessary.



3.3 Installation of Air-cooled Machine

WARNING

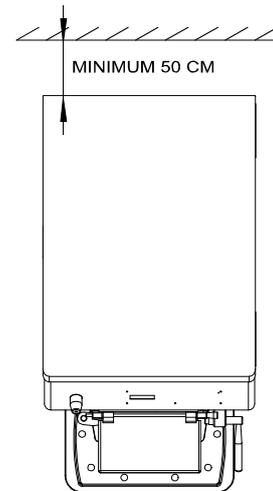
Machine with air-cooled condenser must be installed no less than 50 cm from the wall in order to allow free air circulation around the condenser.

WARNING

Clean the floor near and under the machine to avoid paper and other stuffs entering into the condenser and blocking a regular air flow.

NOTE

Insufficient air circulation affects both machine working and its performance.



3.4 Installation of Water-cooled Machine

The inlet and outlet pipes of cooling water must be properly installed before operating the machine.

The requirements for the cooling water are:

- ◆ Pure and no debris;
- ◆ It's better to use soften water to prevent that furring appears inside of the pipe to block the pipe and reduce the heat-exchange-efficiency.
- ◆ Water temperature does not exceed 25 degrees Celsius;
- ◆ Pressure range: 1 ~ 8 bar.

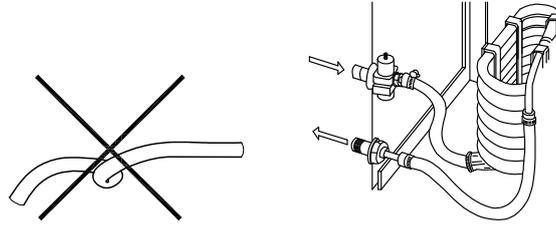
Connect the cleaning water pipe to a drinkable water

source if the machine is equipped with a cleaning tap.



NOTE

*MEHEN recommends to use steel pipe which can bear pressure up to 8 bar.
Keep the pipes fluent, don't bent.*



**There is an electric water valve inside which can cut the water flow.
Keep the cooling water supply tap OPEN before starting the machine.**



3.5 Electrical Connection

Before connecting the machine to the power mains, check power information indicated on nameplate and choose a suitable power supply to the machine.

Get a circuit breaker protection device according to the parameters on nameplate and install it to the power supply circuit during installation.

The specifications of the wires should strictly follow the requirements of the machine and the minimum diameter is no less than 3 mm.



NOTE

Please refer to the label on the power wires.

WARNING

For single phase and three phase, Yellow-green wire must be connected to a good ground outlet.



3.6 Change Cable

If machine main cable is damaged, it must be replaced with same features and carried out by an skilled technician.



3.7 Refrigerant Gas Refill

The freezing system has been filled with refrigerant gas and inspected by MEHEN before delivery. If the machine met problem of gas leaking in use, a skilled technician should be got to find the leakage, fix it then refill the refrigerant gas.

3.8 Machine Testing

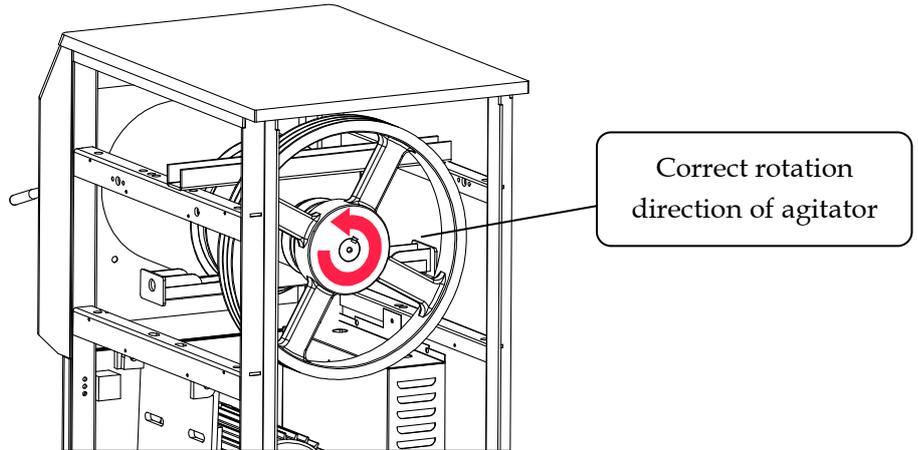
Each machine from MEHEN is tested with full record before delivery. After the machine is installed properly at the clients working site, it should be inspected and tested by a skilled technician or engineer from MEHEN.

3.8.1 Check the Rotation Direction of Agitator (for three-phase machine only.)

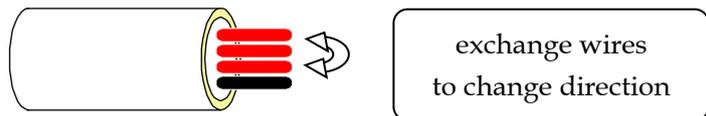
- ◆ Remove the side panel of the machine
- ◆ Take out the blender then close and latch the cylinder door.

◆ Test the rotation direction:

Push button **Rinse** to run it with empty cylinder.



Check the rotate direction of the blending wheel according to above picture. Otherwise, please exchange the connection of any two of three HOT-LINE to change the rotating-direction, then test it again.



Assemble the machine panel after this test.

3.8.2 Running Test

Prepare proper quantity (half of the named capacity) material, pull into the cylinder and test it.

WARNING

Pure water can't be used to freeze in the cylinder under any condition, otherwise may cause the blender seriously damaged.

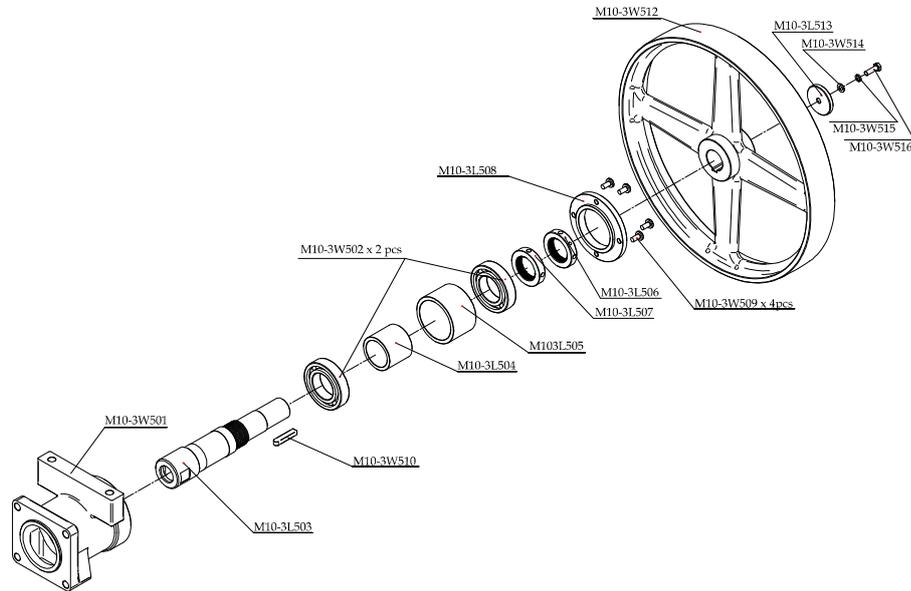


CHAPTER 4 CONFIGURATION AND EXPLOSIVE DIAGRAM

4.1 Machine Configuration

The machine is installed with a powerful compressor and an agitator motor. It works automatically in accordance with the preset parameters of micro-computer controller.

4.2 Driving Parts Diagram

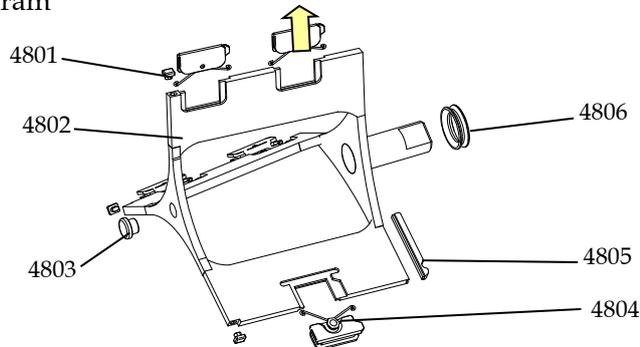


Pos.	Description	Pos.	Description
M10-3W501	Shaft holder	M10-3L508	Fixing ring
M10-3L503	Drive shaft	M10-3W509	Fastening screw (4 pcs)
M10-3W510	Key	M10-3W512	Drive pulley
M10-3W502	Bearing (model:6008, 2 pcs)	M10-3L513	Big washer
M10-3L504	Bearing sleeve (inner)	M10-3W514	Small washer
M10-3L505	earing sleeve (outer)	M10-3W515	Spring washer
M10-3L507	Nut A	M10-3W516	Pulley locking screw
M10-3L506	Nut B		



4.3 Blender Diagram

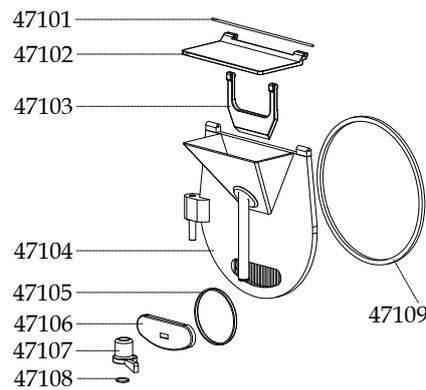
Pull to take out



Pos.	Description	Pos.	Description
4801	Radial support	4804	Plastic blade
4802	Blender frame	4805	Cylinder bottom blade
4803	Axis support	4806	Cylinder bottom seal



4.4 Cylinder Door Diagram



Pos.	Description	Pos.	Description
47101	Cover axis	47106	Outlet door
47102	Inlet cover	47107	Handle
47103	Inlet stopper	47108	Handle stop ring
47104	Cylinder door	47109	Cylinder seal ring
47105	Outlet door seal ring		



WARNING

When the machine is running, never put your finger or tool into the cylinder, otherwise may cause serious damage to body or machine.

CHAPTER 5 CONTROLS AND OPERATION

The Touch-Screen-Controller (TSC), dynamically display the working status of the machine, the main parameters of the operation can be carried out, as well as fault-diagnosis. Built-in processing program, all parameters of each program can be regulated freely. Thus to realize a simple and easy way to deal with variety mix.

5.1 Some Specified Concepts

There are some concept to be specified to understand this chapter well.

HOME PAGE (STANDBY MODE)

The machine will enter STANDBY MODE automatically after it is power on if without any problem. All components stop working. Under HOME PAGE, the LCD Screen will automatically get into Sleep Mode after 45 minutes standby without any operation, when you touch the screen, it will wake up again.

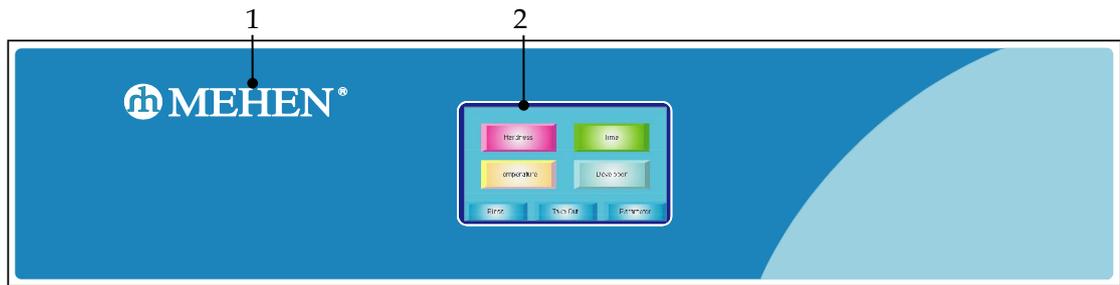
ERROR MODE

The machine stop all running and give alarm message if the controller detects some error.

MIX TEMPERATURE

In this manual, it refers to the mix temperature inside of the cylinder.

5.2 Electrical Control Panel



1-Logo 2-Touch Screen



5.3 Main Specification of Controller

Range of temperature detected: -50~+150°C

Range of temperature adjustable: 0~110°C

Ambient temperature range: 0°C ~+50°C

Relatively humidity: 20%~85% (without moisture condensation)

Detecting accuracy: ±0.1°C

Accuracy of controls: ±1°C

5.4 Daily Operation

It will enter home-page after power on if no problems.

Press **Hardness** to start a product making with hardness-control-mode;

Press **Time** to start a product making with timer-control mode;

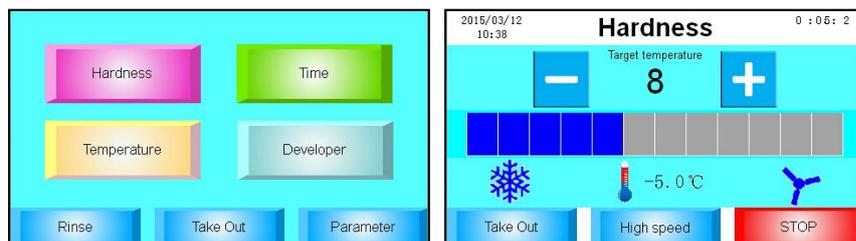
Press **Temperature** to start a product making with temperature-control-mode;

Press **Developer** to start a product making with developer-control-mode;

Press **Rinse** to perform a Rinse for cleaning;

Press **Take Out** to run a product taking out operation;

Press **Parameter** to regulate the parameters.



5.5 Producing Programs

There are 4 programs for producing, you can use them according to your recipe or habit accordingly.

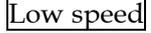
5.5.1 Hardness Mode

Under this mode, the controller will:

- Detects the product texture hardness, it will finish freezing and turn to agitating only when the setting hardness achieved;

- Detects the product temperature and change the agitating speed according to setting.

During processing, the operator can:

- Press  or  to increase or decrease the target hardness;
- Press  to finish the processing and turn to take out the product;
- Press  or  to switch the agitating speed;
- Press  to stop the processing and turn to Standby mode.

TIPS

The controller will automatically record the new setting and repeat from next time.

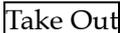


5.5.2 Time Mode

Under this mode, the controller will:

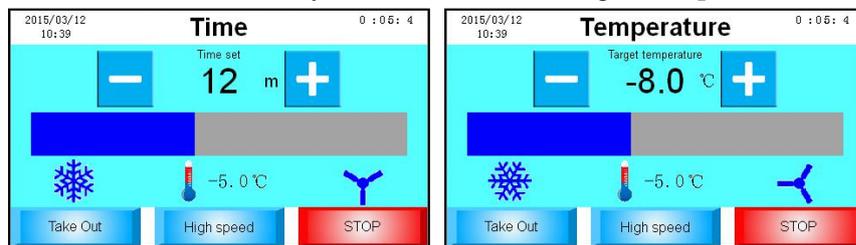
- Perform a freezing processing according to the Time setting, it will finish the freezing and turn to agitating only when the setting time is over;
- Detects and display the product temperature.

During processing, the operator can:

- Press  or  to increase or decrease the time setting;
- Press  to finish the processing and turn to take out the product;
- Press  or  to switch the agitating speed;
- Press  to stop the processing and turn to Standby mode.

TIPS

The controller will automatically record the new setting and repeat from next time.

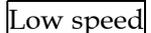


5.5.3 Temperature Mode

Under this mode, the controller will:

- Perform a freezing processing according to the Temperature setting, it will stop freezing and turn to agitating when the setting temperature is achieved;
- The compressor will restart if the product temperature increase 2 °C;
- Detects and display the product temperature.

During processing, the operator can:

- Press  or  to decrease or increase the temperature setting;
- Press  to finish the processing and turn to take out the product;
- Press  or  to switch the agitating speed;
- Press  to stop the processing and turn to Standby mode.



TIPS

The controller will automatically record the new setting and repeat for next times.
Only Temperature-Mode has temperature holding function.

5.5.4 Developer Mode

- The developer mode offers a flexible options for the chef to produce different products;
- The freezing will finish if the Setting Temperature is achieved;
- The agitating will continuous until the operator manually press **Take out** or **STOP**;
- The entire temperature range is divided into 4 segments (Fig 1.);
- In each temperature range:
 - The operator can program the compressor: Continuous or Intermittent working;
 - The operator can program the agitating motor: Low Speed, Intermittent Low Speed, High Speed or Intermittent High Speed.

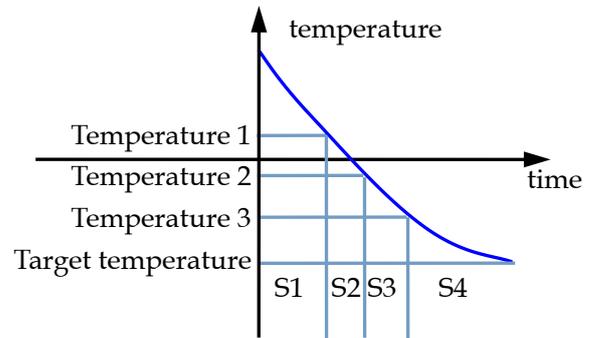
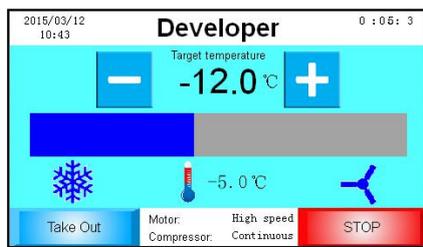


Fig 1

During processing, the operator can:

- Press **+** or **-** to decrease or increase the temperature setting;
- Press **Take out** to finish the processing and turn to take out the product;
- Press **STOP** to stop the processing and turn to Standby mode.



TIPS

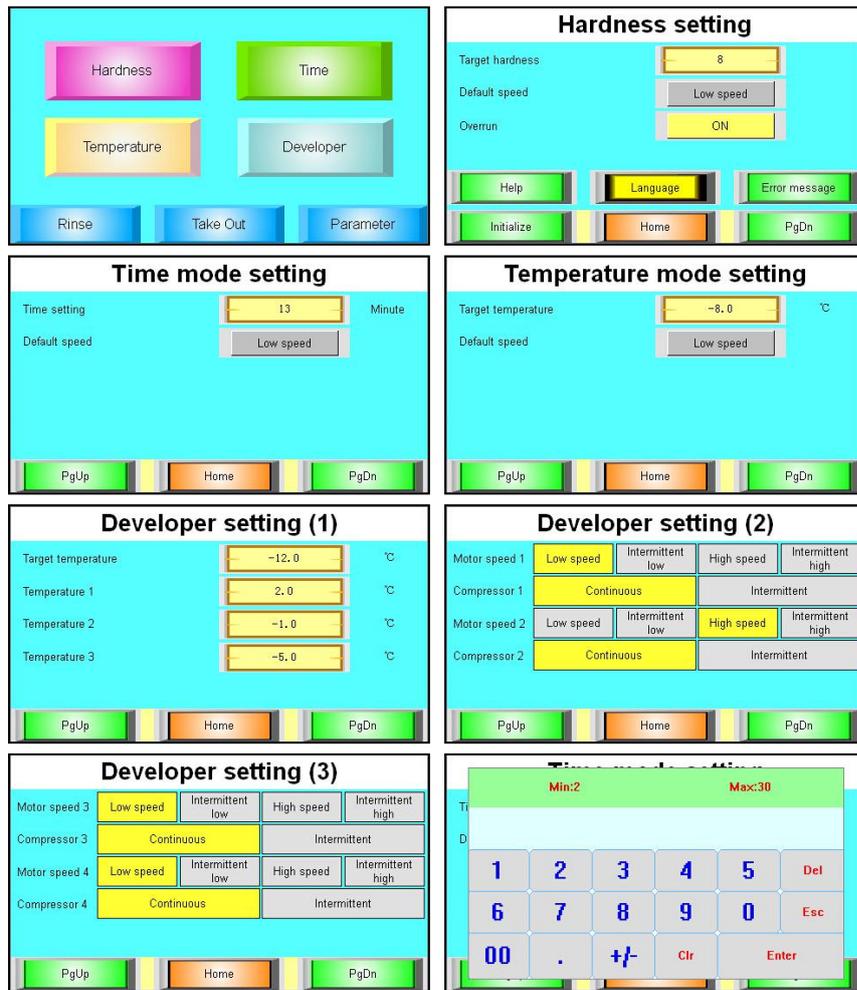
The controller will automatically record the new Target Temperature Setting and repeat from next time.

We suggest you use this program only if you are experienced.

5.6 Program Setting

5.6.1 How to Set Program?

- On Home-page, press **Parameter** will enter program setting mode;
- Press the volume frame to regulate.
- The new setting will be saved automatically.



5.6.2 Programs Setting

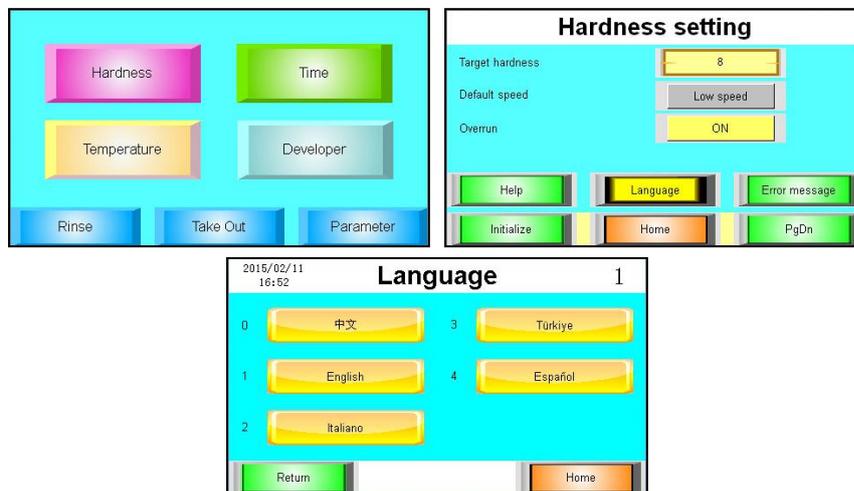
Program	Parameters	Range	Unit	Factory Volume	Explanation
Hardness	Target hardness	1~12	==	8	Higher volume results in harder product.
	Default speed	Low/High	==	Low	Low: Low-speed agitation. High: High-speed agitation.
	Overrun	On/Off	==	On	The machine will automatically switch to high-speed when the product temperature is in the range of 1 °C ~ -3 °C.
Time	Time setting	2~35	minutes	10	Freezing time.
	Default speed	Low/High	==	Low	Low: Low-speed agitation. High: High-speed agitation.
Temperature	Target temperature	-15 ~ 2	°C	-8	Target temperature.
	Default speed	Low/High	==	Low	Low: Low-speed agitation. High: High-speed agitation.

Developer	Target temperature	-15 ~ 2	°C	-8	Target temperature.
	Temperature1	-15 ~ 80	°C	2.0	Minimum temperature of S1 (refer to Fig 1)
	Temperature2	-15 ~ 80	°C	-1.0	Minimum temperature of S2 (refer to Fig 1)
	Temperature3	-15 ~ 80	°C	-5.0	Minimum temperature of S3 (refer to Fig 1)
	Motor speed 1	<ul style="list-style-type: none"> ◆ Low speed ◆ Intermittent low ◆ High speed ◆ Intermittent high 		Low speed	Agitation speed in temperature range S1 (refer to Fig 1)
	Compressor 1	<ul style="list-style-type: none"> ◆ Continuous ◆ Intermittent 		Continuous	Compressor mode in temperature range S1 (refer to Fig 1)
	Motor speed 2	<ul style="list-style-type: none"> ◆ Low speed ◆ Intermittent low ◆ High speed ◆ Intermittent high 		High speed	Agitation speed in temperature range S2 (refer to Fig 1)
	Compressor 2	<ul style="list-style-type: none"> ◆ Continuous ◆ Intermittent 		Continuous	Compressor mode in temperature range S2 (refer to Fig 1)
	Motor speed 3	<ul style="list-style-type: none"> ◆ Low speed ◆ Intermittent low ◆ High speed ◆ Intermittent high 		Low speed	Agitation speed in temperature range S3 (refer to Fig 1)
	Compressor 3	<ul style="list-style-type: none"> ◆ Continuous ◆ Intermittent 		Continuous	Compressor mode in temperature range S3 (refer to Fig 1)
	Motor speed 4	<ul style="list-style-type: none"> ◆ Low speed ◆ Intermittent low ◆ High speed ◆ Intermittent high 		Low speed	Agitation speed in temperature range S4 (refer to Fig 1)
	Compressor 4	<ul style="list-style-type: none"> ◆ Continuous ◆ Intermittent 		Continuous	Compressor mode in temperature range S4 (refer to Fig 1)

5.7 Language

This controller offers a quick language setting.

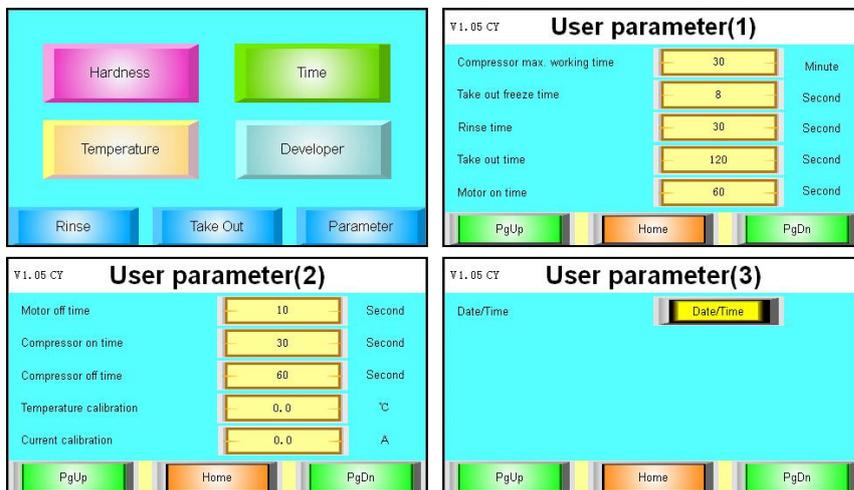
- On Home-page, press **Parameter** and enter Hardness-setting;
- Then press **Language** to enter Language-setting;
- Press the Language you want.



5.8 User Parameters Setting

5.8.1 How to Set User Parameters?

- On Home-page, press **Parameter** ;
- Press **PgDn** 3 times, then enter parameters setting.
- Press the volume frame to change it;
- The controller will save it automatically after each changing.



5.8.2 User Parameter List

Parameters	Range	Unit	Factory Volume	Explanation
Compressor max. working time	15 ~ 40	minutes	30	This is a safety device, the compressor will stop working if exceeds this volume.
Take out freeze time	3 ~ 60	seconds	8	When taking out the product, press the button Take out freeze will start the compressor for few seconds according to this setting. This is helpful for big capacity machine.
Rinse time	3 ~ 240	seconds	30	When cleaning the cylinder, the agitation motor will run a period of time according to this setting.
Take out time	5 ~ 240	seconds	120	This is a timer, the agitation motor will stop when the time is over.
Motor on time	5 ~ 180	seconds	60	Under Developer mode, the motor can work on and off according to this setting.
Motor off time	5 ~ 120	seconds	10	Under Developer mode, the motor can work on and off according to this setting.
Compressor on time	3 ~ 180	seconds	30	Under Developer mode, the compressor can work on and off according to this setting.
Compressor off time	3 ~ 180	seconds	60	Under Developer mode, the compressor can work on and off according to this setting.

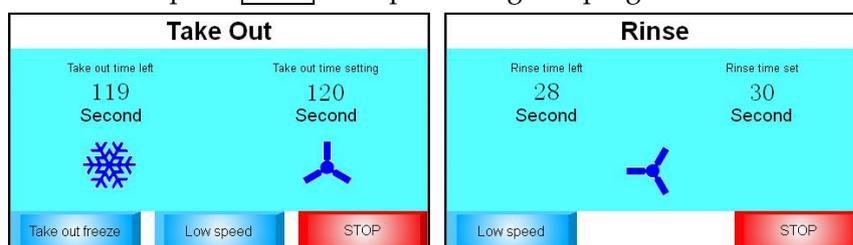
Temperature calibration	-9 ~ 9	°C	0	Temperature correction for temperature sensor probe.
Date/time	==	==	==	System date and time setting. Set Date, press down-arrow ▼, pop up a menu and select the Date. Set Time, press up or down arrow  to regulate the time.



Date/time setting

5.9 Take Out the Product

- Press button **Take out** will start a high-speed agitation.
- The agitation will stop automatically when the timer is over.
- Timer **Take out time** is programmable.
- Press button **Low speed** or **High speed** to switch the agitation speed.
- Press **Take out freeze** to start the compressor when taking out.
- The **Take out freeze time** is programmable.
- You also can press **STOP** to stop it during this progress.

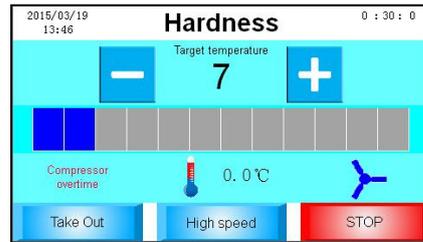
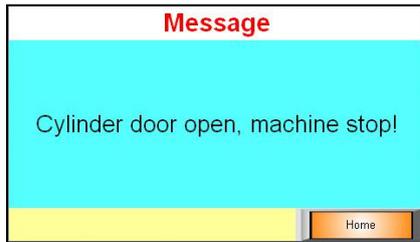


5.10 Clean the Cylinder

- After taking out the product, put proper quantity cleaning (warm) water into the cylinder, then press button **Rinse** will start a high-speed agitation.
- The agitation will stop automatically when the Timer is over.
- The Timer **Rinse time** is programmable.
- Press button **Low speed** or **High speed** to switch the agitation speed.
- You also can press **STOP** to stop it during this progress.
- Repeat above 2 to 3 times until the cylinder is almost clean. Take out the blender and clean it separately and use a dry and clean dish towel to clean the cylinder properly.

5.11 Door Open

At any time, when the cylinder door is open, the machine will stop and a message will appear on the screen. Close the door and press the button **Home** to reset it.



WARNING

This is a safety design. Never open the cylinder door when the machine is running, otherwise may cause serious damage to body or machine.

5.12 Compressor Overtime

The parameter “Compressor-max.-working-time” is a safety device.

If the compressor continuous running time exceeds this limit, the controller will stop the compressor and gives a warning.

The operator can:

- Press **Take out** to take out the product.
- Press **STOP** to stop.

The possible reasons for this warning can be:

- Inappropriate recipe and material used.
- Inappropriate parameters.
- Pool cooling condition and/or pool cooling ability.

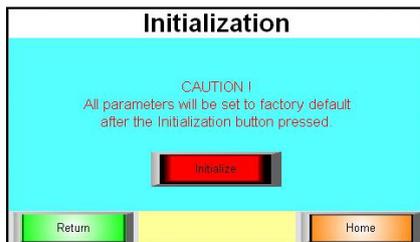


TIPS

The agitator will continuous. It's necessary to check and solve the problem(s) before run it again.

5.13 Initialization the Controller

This initialization will reset all the user and system parameters to factory setting.



This operation need to input the user security code 1111.

CAUTION

The parameters are important to ensure the correct performance of the machine. The initialization can be operated by a qualified technician only.



5.14 Error Alarm

The machine will stop running and show message when an error detected.

Press **Reset** to exit.



Error	Possible Reason(s)	Troubleshooting
Compressor overload	Too much gas quantity.	Release gas properly.
	Pool cooling condition.	Improve cooling condition.

Motor overload	Product temperature is too low.	Set the parameters properly.
	Product hardness is too high.	
	Too much product quantity.	Reduce the product quantity.
Pressure overload	Pool cooling condition.	Improve cooling condition.
	Too much gas quantity.	Release gas properly.
	Refrigerate pipe is block.	Check and fix the block.
Current sensor error Temperature sensor error	The sensor cable is loose.	Connect it tightly.
	Sensor probe fault.	Replace the probe.
	Sensor module fault.	Replace the sensor module.
	PLC fault.	Replace the PLC.



TIPS

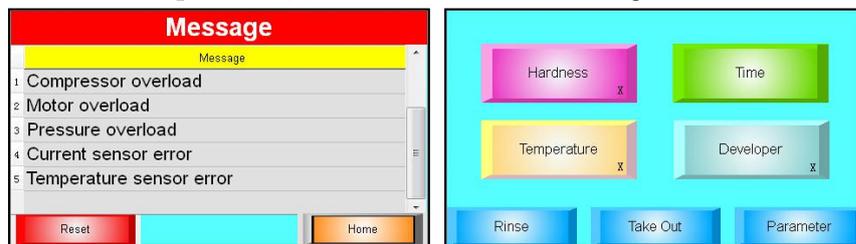
It will display the detected error(s) only.

Even sensor error happened, the machine still can be used with other programs.



CAUTION

Find out and fix the problem(s) before run the machine again.



5.15 Operation With Error

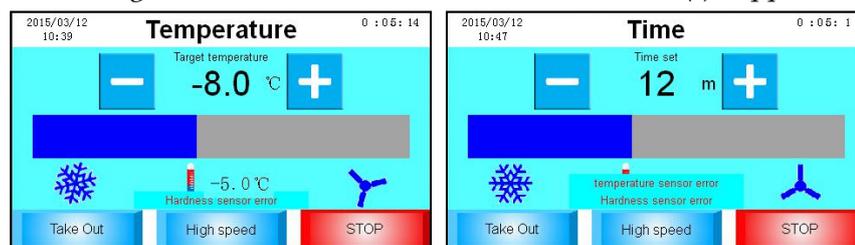
In case of electric current sensor error, the machine still can be used with Time-mode or Temperature-mode.

In case of both electric current sensor and temperature sensor have problems, the machine still can be used with Time-mode.



Tip

A small signal "x" on the screen indicates certain error(s) happened.



Tip

Even you can use the machine with Time-mode, we still suggest you to contact with service timely to fix the problems.

5.16 A Typical Producing Operation

- Well latch the cylinder door and output door then put in proper quantity material.
- Press the program name to start producing.
- After the setting target achieved, it will stop freezing and continue the agitating, also the buzz will alarm to remind the operator,

- Now the operator can open the output door to take out the product,
- You may use low-speed if you want to take it slowly, otherwise you can use high-speed to get a faster taking out,
- Please switch to high speed at the end of the process for better cleaning up inside,
- Press **STOP** after taking out.

TIPS



The agitation will continue and the freezing will stop after the product is ready. Under Temperature mode, the compressor will restart if the product temperature increase more than 2 degrees, the compressor will stop when the temperature achieve again. This will repeat until the operator take out the product and stop it manually.

*Please press **Take Out** directly to take out the product if the operator thinks the product is ready during the process. Please don't stop the machine entirely then take out, this will result in more components abrasion.*

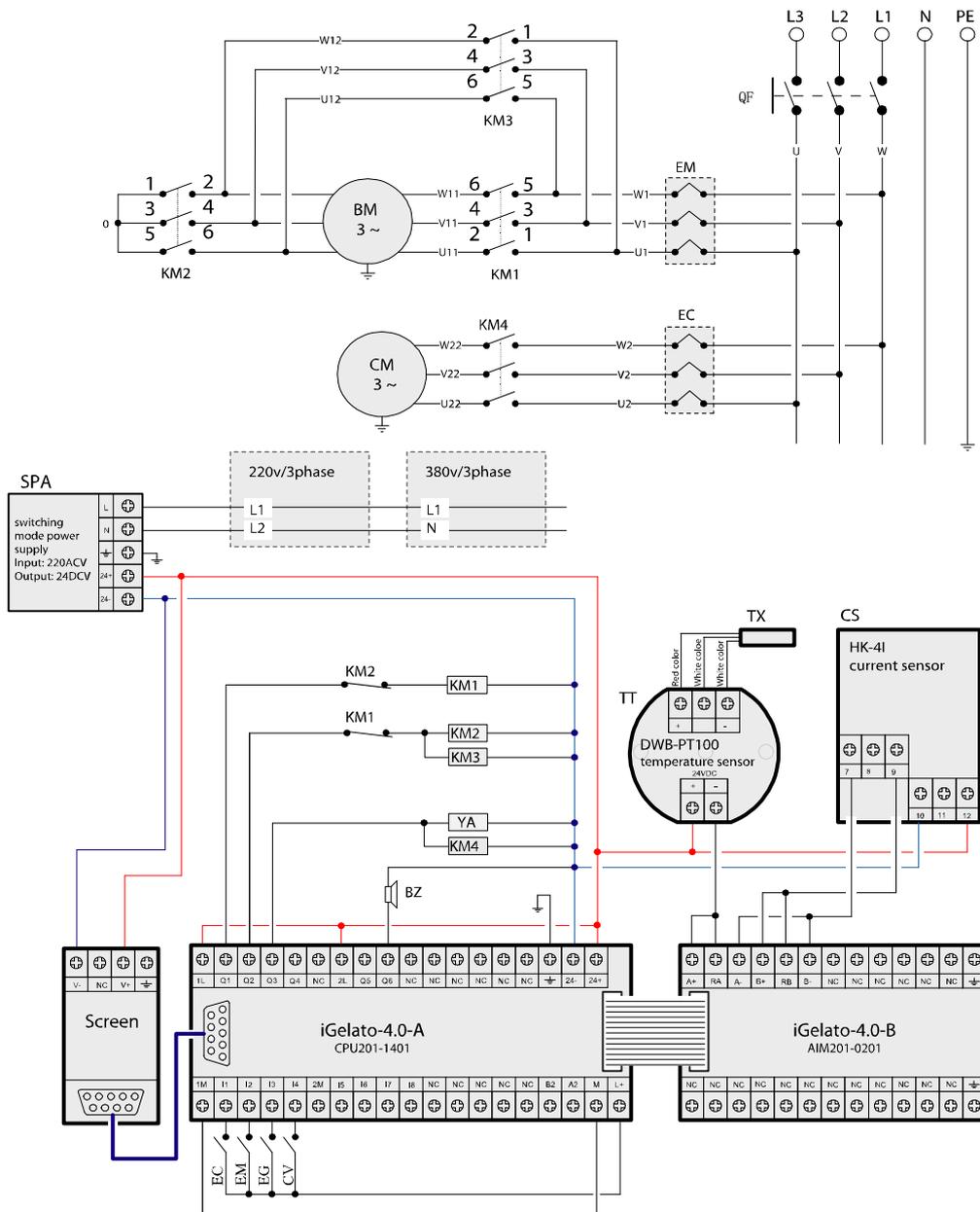


5.17 Electric Diagram

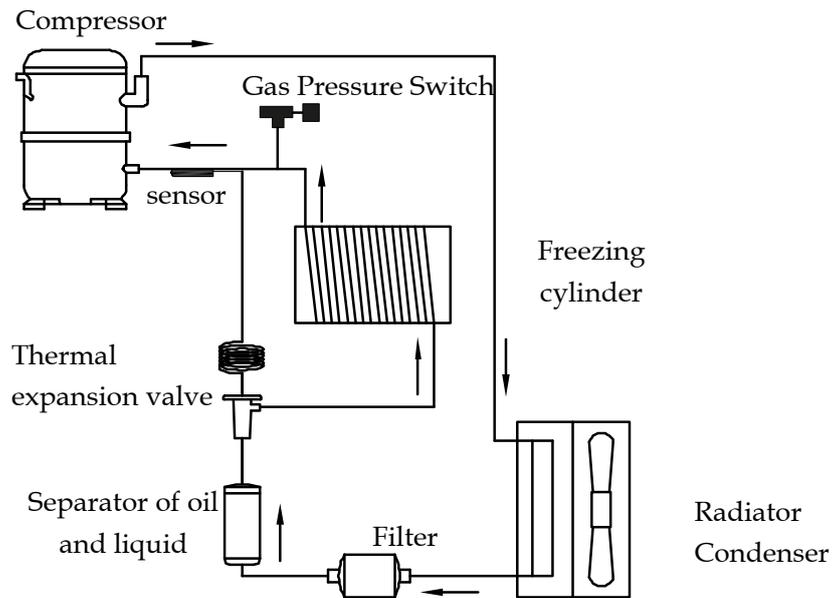
BATCH FREEZER V4.00

3 PHASE- 2 SPEEDS

YA	Cooling water valve- Water cooled	EM	Thermostatic overload relay of beat motor	QF	Air-Switch/Breaker
YA	Fan motor- Air cooled	EC	Thermostatic overload relay of compressor	SPA	Switching mode power supply
CM	Compressor	EG	Compressor pressure detector switch	BZ	Alarm buzzer
BM	Beating motor	CV	Magnetic door sensor	L1, L2, L3	Live line
KM1	Beating motor, low speed relay	TX	Mix temperature sensor (PT100)	N	Live line
KM2, KM3	Beating motor, high speed relay	TT	Temperature transformer	PE	Power earth
KM4	Compressor relay	CS	Current sensor		



CHAPTER 6 FREEZING SYSTEM DIAGRAM



CHAPTER 7 HYGIENE



The ice cream mix and other food materials are an ideal ground for mildew and bacteria to proliferate to eliminate them, it is necessary to thoroughly wash and clean all parts in contact with the food. Stainless steel and plastic materials, as well as rubber used in the construction, and also their particular shapes are designed for easy cleaning, but cannot prevent proliferation of mildew and bacteria if not properly cleaned.



NOTE

New machine should be cleaned and sterilized totally before first time using.

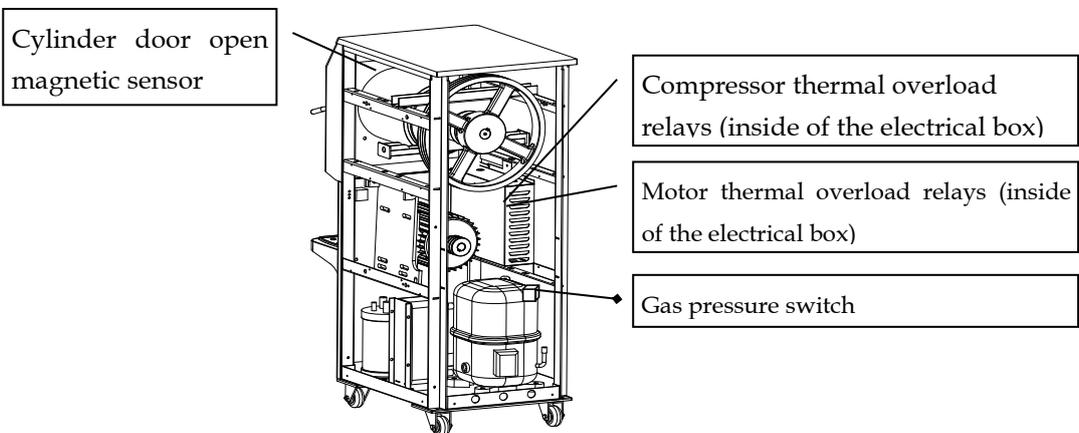


NOTE

It is advised to wash all the parts which touch the food after every working day.

CHAPTER 8 SAFETY DEVICE

8.1 Safety Device Position



8.2 Safety Device Explanation

8.2.1 Door Open Operate Forbidden Safety Device

It monitors the door position. When the door is open, the computer will immediately stop running to protect the operator and show a warning message. Close the door and press **Home** button will reset it.

8.2.2 Compressor Overload Safety Device

It is a Thermal Overload Relay with auto-reset function, responsible for protecting the compressor from overloaded. Once operated, all the motor and compressor will stop and show a warning message. For the reset of the unit, solve overload problem and restart the machine.

8.2.3 Agitator Motor Overload Safety Device

It is a Thermal Overload Relay with auto-reset function, responsible for protecting the agitator motor from overloaded. Once operated, all the motor and compressor will stop and show a warning message. For the reset of the unit, solve overload problem and restart the machine.

8.2.4 Refrigerate Gas Pressure High Safety Device

It is a GAS-PRESSURE-SWITCH with auto-reset function. When the refrigerate gas pressure is higher than the setting volume, it will active to stop the machine to prevent the compressor from damaged. For the reset of the unit, please wait at least three minutes and solve the gas-pressure-high problem, then run the machine again.



CAUTION

It is prohibited to modify or remove the safety devices! MEHEN will not be responsible or accept any claim for an accident to people or machine caused by modifying or removing safety device.



NOTE

Some safety device can be seen only after the cover is removed.



CHAPTER 9 MAINTENANCE

9.1 Routine Maintenance

CAUTIONS



- ◆ Any service operation requiring the opening of machine panels must be carried out with machine in stop position and disconnected from main switch!
- ◆ It is prohibited to remove the covers of the machine or reach inside of the machine without disconnecting the machine from the power.
- ◆ Cleaning and lubricating moving parts is prohibited!
- ◆ Repairs of electrical and freezing plants must be conducted by skilled technician!
- ◆ It is prohibited to wash the machine by means of water under pressure.





NOTE

It is advised that to wash the parts in contact to food every working day after the ice cream are all made.



9.2 Maintenance of Water-cooled Machine

Machine with water cooling condenser has to been stored up at the end of selling season and the water inside the pipe should be drained out. Otherwise, if the outside temperature falls under 0°C, the water inside may be frozen and damage the pipe of the machine.



9.3 Maintenance of Air-cooled Machine

Use a long-haired brush or a bolt of compressed air to clean the condenser regularly and remove dust, paper other stuffs inside.



CAUTION

When using compressed air, operators should take personal protections in order to avoid accidents; To wear safety goggles is advised for safety!

WARNING

Never use sharp metal objects to clean the condenser which may damage the system; The efficiency of condenser is highly related to the way of its cleaning.



9.4 Preventive Maintenance

Check out the stored machine according to the following steps so as to prepare for a new selling season.



CAUTION

Work of maintenance here below must be carried out by technician with qualified training and professional knowledge.

Check the gas quantity of the freezing system to ensure the efficiency of freezing. Make sure the tightness of the chamber and replace the seal if needed. Use long-haired brush or compressed air to clear out the dust and other stuff on the condenser.

9.5 Order Spare Parts

Replace the worn out parts timely to ensure the normal running.

To order new spare parts or any components, please contact with local distributor designated by MEHEN or our service department directly.

CHAPTER 10 TROUBLESHOOT GUIDE

PROBLEM	POSSIBLE CAUSE	REMEDY
machine does not start, Screen is off.	Main switch is OFF.	Turn ON the main switch.
	Inside air-switch(breaker) is off	Check and solve the possible reason then turn on it.
	PLC power cable loosen.	Re-plug it and tighten it
Machine does not start, Door open warning.	Door is not closed properly.	Close and latch it tightly.
	The magnetic sensor is not aligned.	Regulate and make the magnetic sensor aligned.
	The magnetic fault, magnetic lost.	Replace the magnetic.
The temperature drops too slowly than usual when freezing or whipping time too long.	Poor refrigeration. - Gas leak.	Fix leak point(s) and refill.
	Air-cooled machine, the room temperature is too high	Improve the cooling condition
	water-cooled machine, the cooling water temperature is too high	Improve the cooling condition
	Insufficient condensation due to water supply pressure too low.	Improve the cooling water supply.
	Flexible hose bent or squashed.	Straighten or replace hose.
	Product overloading.	Reduce load.
	Too less material input.	Increase the quantity input.
	Material input is not correct.	Ask the chef to use correct material.
Compressor starts but stop after a about 1 minute. (water-cooled machine)	Cooling water supply stop or tap closed.	Open tap and ensure cooling water supply.
	Cooling water flexible hose bent or squashed.	Straighten or replace hose.
	Cooling water pressure too low.	Improve the cooling water supply.
	Cooling water inlet and outlet wrong installed	Exchange the connection of inlet and outlet of cooling water pipes.
	Condenser clogged with deposits.	Clean chemically.
	Too much gas inside of the refrigerate system	Release some gas properly. Call a refrigerate serviceman to do this.
	The electric cooling water valve block or fault	Clean or replace the valve.
Compressor starts but stop after a about 1 minute. (air-cooled machine)	Condenser unit too close to wall.	Keep machine back at least 50 cm from the wall.
	Condenser dirty.	Remove dust, dirt, etc.
	Condenser fan motor run in wrong direction.	The general principle is the fan motor blow out hot air from the machine. Correct the direction.
	Condenser fan motor fault.	Replace the fan motor.
	Too much gas inside of the refrigerate system	Release some gas properly. Call a refrigerate serviceman to do this.

The temperature drops too slowly than usual when freezing or whipping time too long.	Poor refrigeration. - Gas leak.	Fix leak point(s) and refill.
	Air-cooled machine, the room temperature is too high	Improve the cooling condition
	water-cooled machine, the cooling water temperature is too high	Improve the cooling condition
	Insufficient condensation due to water supply pressure too low.	Improve the cooling water supply.
	Flexible hose bent or squashed.	Straighten or replace hose.
	Product overloading.	Reduce load.
	Too less material input.	Increase the quantity input.
	Material input is not correct.	Ask the chef to use correct material.
Heavy ice appears on the cylinder surface.	Worn out or broken scraping blades.	Replace blades
	Driving belt worn out or too loose.	Tighten or replace belt.
Heavy ice appears on the cylinder and the product doesn't come out.	The blender direction is wrong.	Correct the agitation direction.
Error: Mix sensor probe error	It's not connected or fault	Connect it, fix or replace it.
	Temperature model fault or cable loosen.	Tighten the cable or replace the model.
Error alarm: Gas pressure high error	Poor cooling.	Improve the cooling condition.
	The gas-pressure-switch setting too low.	Regulate/increase the setting properly.
	Gas leakage.	Check and fix the leaking and recharge gas.
	Refrigerate pipes block.	Check and fix the block.
	Compressor fault.	Repair or replace the compressor.
The blender does not turn	The Beating speed is set to OFF	Set it to ON in user program.
	Blender is not installed	Install it.
	Driving part(s) blocked	Fix or replace the part(s)
	Beat motor fault.	Replace.
Error alarm: Beating motor overload error	Driving system blocked	Check and fix Driving system.
	Product overloading.	Reduce load.
	Motor thermal reply is set too low	Set it higher.
	One of the three phase has no power.	Improve the power supply.

Error alarm: Compressor overload error	Water-cooled	Water not circulating, tap closed.	Open tap.
		Flexible hose bent or squashed.	Straighten or replace hose.
		Water pressure too low.	Check tubing and mains pressure.
		Condenser clogged with deposits.	Clean chemically.
	Air-cooled	Condenser unit too close to wall.	Keep it at least 50 cm from the wall.
		Condenser dirty.	Remove dust, dirt, etc.
		Condenser fan motor inoperative.	Replace fan motor.
	Water-cooled, Air-cooled	Refrigerant gas quantity incorrect.	Check gas pressure and leakage, fix.
Thermal switches is not set right.		Correct it.	
It's very difficult to take out product. A lot of product left in the cylinder after extrude.	Always use low speed to extrude out the product.	Use low speed at the beginning of taking out, and use high speed later.	
	The blender turn in wrong direction.	For three phase machine, exchange any two hot lines of the power supply.	
		For single phase, program the inverter parameter properly.	
Noise	Cooling fan loose	Tighten it.	
	Machine not properly installed	Properly install machine.	
	Other stuff comes into the machine	Take out the stuff	