

# **Hard Ice Cream Machine**

## **Operation Manual**

**EMB20**

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**Please read the manual before operating the machine**

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### **Note:**

Continuing research results in steady improvements; therefore, information in this manual is subject to change without notice.

Only instructions originating from the factory or its authorized translation representative(s) are considered to be the original set of instructions.

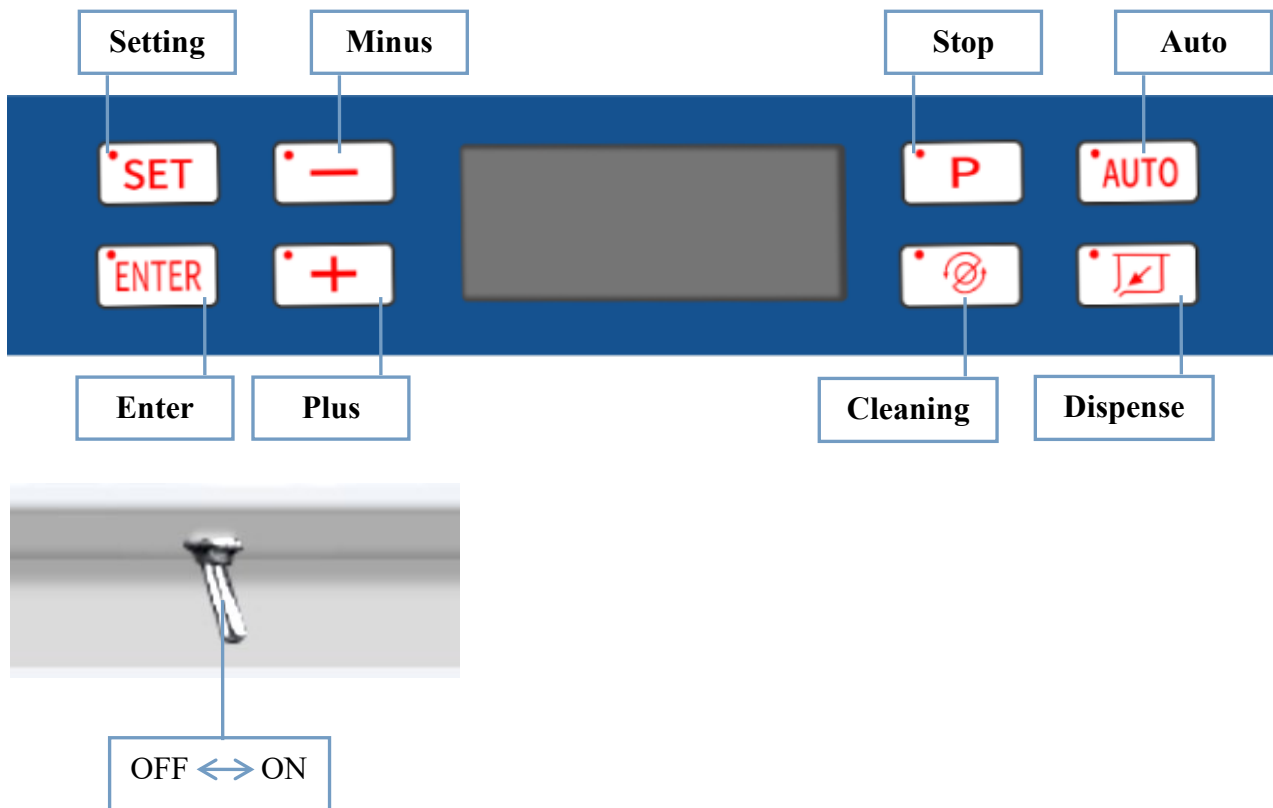
|                                                                            |
|----------------------------------------------------------------------------|
| the user must read the instructions carefully before operating the machine |
|----------------------------------------------------------------------------|

## 1. Technical Data

| Model No. | Voltage    | Frequency | Dim. (cm)  | Capa. | Output (L/H) | Compressor     | N.W. (Kg) | Refri. |
|-----------|------------|-----------|------------|-------|--------------|----------------|-----------|--------|
| EMB20     | 220V/50 Hz | 2.8 Kw    | 55*103*132 | 8L    | 20-30        | Embraco 1.75HP | 165       | R290   |

Note: the hourly output is based on the environment temperature at 25°C,  
The temperature of ice cream mix at 7°C.

## 2. Control panel Description



## 3. Precautions

### 1. Required conditions of environment

- Ambient temperature: 10 °C ~ 38 °C.
- Relative humidity: 55% ~ 85%.

### 2. Power supply

- socket must be in accordance with national electrical safety standards of the user's country, grounding device must be installed. Grounding line cross-sectional area is of not less than 1mm<sup>2</sup>.
- The wires must meet local safety standards, including wiring methods and the required safety standards of the machine.
- Ensure that the power supply circuit of the machine is equipped with short circuit and leakage protection device.
- Three-phase power supply voltage should be 220V / 50Hz .
- The cross-sectional area of the power cord can not be less than 1.5mm<sup>2</sup>.
- For machine of 380V or 220V Three phase, please observe whether the stirring shaft rotates clockwise. If it rotates counterclockwise, replace any two of these fire-wires and reconnect them to the power supply. Then have a test first.

### 3. Installation

- The machine should only be used indoors, should be placed in the horizontal and dry solid ground. Any heat source of more than 70 °C is not allowed within 500mm distance.

The distance between the machine, the machine  
Between the wall or between other items is  
shown in Fig. 3. The inlet and outlet of  
the condenser should be kept clear and  
there should be no foreign matter inhaled  
nearby.

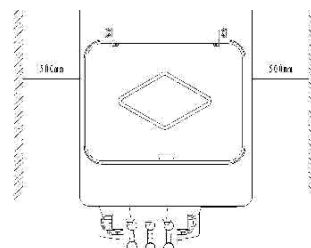


Fig. 3

- After the machine with the caster brake is placed in position, the caster brake device should be depressed to prevent the machine from shifting (depending on the models).
- For the purpose of safety, the machine must be operated or supervised by well trained personnel. The operator should have adequate electrical and mechanical safety knowledge and fully understand the special operating requirements of this machine.
- The machine is used to prepare ice cream, operators should fully understand the requirements of food hygiene, should hold the health certificate issued by local health management dePartment in line with the law of health.

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- The operation should be in accordance with hygienic requirements, including the use of disinfection qualified auxiliary tools, containers and proper use of hygiene items such as hoods, masks, gloves and so on.

### 4. Safety rules

#### ① Notes:

- The machine is inevitably subject to shock in the transport process, it is better to use it 24 hours later.
- The machine should be away from sunlight and high temperature radiation heat source.

#### ② Precautions:

- For the purpose of safety, the machine must be operated or supervised by well trained personnel, who should fully understand the special operating requirements of this machine.
- If the machine fails or the power cord is damaged, it must be handled by the manufacturer, or by authorized maintenance dePartment or by a professional qualified refrigeration serviceman.
- When the machine won't be used for a long time, please cut off the power, clean the Parts of the machine in contact with the raw material, and then keep them dry.
- Keep the machine clean and sanitary, timely clean up the ice cream mixture to avoid corrosion of the machine.
- Do not rinse any Part of the machine with a faucet.

#### ③ Dangers:

- Do not touch live plugs or switches when skin exposed, wet environment, wet gloves or wet clothes.
- Do not operate a machine that is not properly grounded.
- Do not perform any maintenance work on the machine before disconnecting the power supply.
- Do not open the side panels before disconnecting the power supply.

#### ④ Transport and storage

- It must not tilt 45°C more while moving the machine, and any violent vibration.
- Storage should be away from sunshine and rain, the ambient temperature should be between -15 °C ~ 55 °C, the relative humidity of less than 85%.

#### ⑤ Maintenance area

- Need to remove the side panel (or other board) to enter the maintenance area.
- Should be charged by only well trained qualified personnel.

## 4. The ice cream ingredients

Buy the ingredients directly from the ice cream powder suppliers or prepared by yourself.

## 5. Cleaning Procedure

### 1. Preliminary clean-out

A . Open the lid, first twist down the screw cap on the stirring shaft, and then take the stirring shaft from the cooling cylinder.

B . Wash the cylinder, stirring shaft and outlet with lukewarm water using a mild non-foaming detergent that meets hygienic requirements. Scrub each of the Parts with the cleaning brushes. Finally, install the Parts as they are.

Note: Do not use hot water of above 40 °C to wash plastic Parts, otherwise it will cause damage to the original seals inside the machine.

### 2. Cleaning after ice cream dispensed

After determining your schedule, remove any ice cream remaining in the cylinder. Then open the lid, rinse the cylinder with the faucet on the machine, then close the lid. Turn on the machine, then press the “Cleaning” button, and let the beater run for about 3 minutes. Then drain all water from the cylinder.

The entire cleaning process is repeated several times.

## 6. Ice Cream Processing

### 1. Processing

Wash, sterilize, and thoroughly rinse the machine before use.

Pour the desired volume of ice cream mixture into the cylinder. Follow the minimum and maximum volume of mixture allowed by the Machine, EMB20 minimum 4L.

Before filling the machine with mix, ensure the front door and ice cream gate are properly closed.

Push the “Auto” button. The machine will start the processing by beating and cooling the ice cream mix. The processing time is shown on the display panel by a time indicator. The time can be preset in advance. When the freezing time reaches preset time, the machine will stop freezing automatically. It means the ice cream is ready to be dispensed.

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Hold a pan under the ice cream gate, then open the gate, push the “Dispense” button to dispense the ice cream. Put the pan into a blast freezer at last.

While you want to add peanuts or something else during the processing, push the button “P”, to stop the machine 1<sup>st</sup>, then the “Auto” button to continue the process.

Note: the processing time is commonly about 15-20 minutes for EMB20 model. (It might vary according to different recipes and the environment temperature. The processing time can be shortened or extended according to the situation)

### 2. Setting of processing time

Push the “set” button twice till the numbers on control panel flickering. Then press the “-” or “+” to set the cooling time and press the “Enter” button to save the setting.

Note: If continue to make ice cream, the second dispensing time can be shorter.

## 7. Maintenance

1) Forbid metal foreign bodies to enter the machine (such as metal spoon), which will damage the motor

2) Replace the sealing ring every year.

3) Adjustment and replacement of scraper: under normal circumstances, fine tune the scraper every year according to the situation to make it contact the cylinder wall.

4) Gearbox maintenance. For high load machines, it is recommended to add lubricating oil regularly according to the situation to prevent dry grinding

5) For air-cooled machines, clean the air network of condenser and fan once every 3-6 months to assure efficiency.

A: Disconnect with the main power supply.

B. Use a screwdriver to remove the fixing screws from the condenser outlet plate and then remove the plate.

C. Remove the dust and fluff on the condenser with a brush.

Note: a) Never use a screwdriver or other metal object to clean the Parts between the fins. b) If the dust is difficult to clean, require refrigeration professionals to deal with.

(You can deal with it flexibly as you see fit.)

### Cautions:

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Any operation requiring the opening of machine, so side panels must be carried out with machine set to stop and disconnected with the main power supply!

Repairs of electrical and freezing plants must be carried out by skilled engineers.

### 8. Warranty Description

1. When use the machine, one must follow the use of methods and precautions.
2. If troubles occurs during the processing, please refer to troubleshoot guide. If troubles still cannot be solved, please contact the dealer or us to solve it.
3. Warranty is one year, since the date of the machine delivered from our factory (indicated on the nameplate of the machine). If the machine runs badly because of quality problems, dealers or our factory will offer free maintenance within warranty.

Note: If you do not operate correctly in accordance with the instructions specified in this manual, we will not offer free maintenance within warranty.  
(For example: the machine is processing ice cream, hard objects fall into the cylinder, causing damage to the cylinder or blade. In such a case, we will not offer free maintenance within warranty.)

## 9. Troubleshooting Guide

| Signs                                                                                                                                                                       | Problems                                             | Cause                                                                                                                                                                                                                                 | Tips                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Freezing stops                                                                                                                                                              | A. Compressor doesn't work                           | A. Starter sensor of the compressor broken;<br>Starting capacitor of the compressor broken<br>B. Compressor or control panel is damage<br>C. The power supply voltage is too low, or the power line cross-sectional area is too small | *Replace the starter sensor or starting capacitor<br>*Make sure the voltage of the machine is within the specified range.                                                        |
|                                                                                                                                                                             | B. Ice clogging or foreign matter clogging           | The refrigeration system has moisture or impurities                                                                                                                                                                                   | *Remove the moisture and impurities from the refrigeration system                                                                                                                |
|                                                                                                                                                                             | C. Refrigerant leakage                               | Refrigeration system is badly sealed                                                                                                                                                                                                  | * Check out the leaking spots, Have them repaired, then re-vacuum, re-add refrigerant.                                                                                           |
|                                                                                                                                                                             | D. improper flow of throttle valve                   | The throttle valve is improperly adjusted or damaged                                                                                                                                                                                  | * Re-adjust or re-replace the throttle                                                                                                                                           |
| Leakage of ice cream mix or water                                                                                                                                           | The leakage of lubricant or ice cream mix of reducer | The Y-type or O-type seals in the reducer is disabled                                                                                                                                                                                 | *Replace the disabled seals                                                                                                                                                      |
| No ice cream dispensed                                                                                                                                                      | A. shortage of ice cream mix                         | Too little of ice cream mix in the cylinder                                                                                                                                                                                           | Add more ice cream mix                                                                                                                                                           |
|                                                                                                                                                                             | B. Ice cream too hard                                | A. not enough sugar in the ice cream mix<br>B. The processing time is set wrongly                                                                                                                                                     | Add enough sugar in the mix, and reset the processing time                                                                                                                       |
|                                                                                                                                                                             | C. The stirring shaft does not rotate                | A. Damage of motor or of control panel<br>B. Belt is too loose<br>C. Reducer failed                                                                                                                                                   | * A. Replace damaged Parts<br>* B. Adjust the motor position<br>* C. Repair reducer                                                                                              |
|                                                                                                                                                                             | D. Ice cream gate gets frozen                        | Haven't thoroughly wipe off the water at the ice cream gate, which makes it frozen                                                                                                                                                    | thoroughly wipe off the water at the ice cream gate or dispense Part of mix to wipe off the water                                                                                |
|                                                                                                                                                                             | F. Pressure switch is activated                      | Condenser has poor heat dissipation                                                                                                                                                                                                   | A. Clean the foreign matter on the condenser<br>* B. Replace the damaged cooling fan<br>C. to improve the ambient temperature, so that the temperature should be less than 35 °C |
| The "*" indicates that it must be repaired by the manufacturer, its authorized after sales service department, or a professional qualified refrigeration service personnel. |                                                      |                                                                                                                                                                                                                                       |                                                                                                                                                                                  |
| <b>Note:</b> The company reserves the right to make improvements to all models, subject to change without notice.                                                           |                                                      |                                                                                                                                                                                                                                       |                                                                                                                                                                                  |

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Meanings of Error Code:

|           |                              |                                            |
|-----------|------------------------------|--------------------------------------------|
| <b>CE</b> | Inverse Phase                | Check Electric wire connection             |
| <b>CU</b> | Phase Absence                | Check Electric wire connection             |
| <b>UL</b> | Low Voltage                  | Low voltage, check Electric supply         |
| <b>UH</b> | High Voltage                 | High voltage, check Electric supply        |
| <b>JJ</b> | Over-current                 | Check ice cream making time and Ingredient |
| <b>HH</b> | High Air Pressure Protection | Check condenser fan working                |