

**TRUFROST & BUTLER**

# **USER MANUAL**

**SINGLE FLAVOUR SOFT SERVE  
MACHINE: SOLO**



Please Read the Instructions Carefully Before Operating the Machine

C O N T E N T S




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 <p>Content with this sign are acts that must be prohibited; otherwise it may result in product damage or threaten the safety of users.</p>	 <b>Warning</b> <p>Content with this flag is related to product safety or consumer safety. We must strictly follow the requirements of the operation.</p>	 <p>Content with this flag is a matter of consumer must pay attention to, or it may cause damage to the product due to improper operation or other damage.</p>
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## **SAFETY CAUTION**

- ◆ To prevent the water and other conductive liquids flow into the machine;
- ◆ When there is no mix or water in the freezing cylinder, the machine is not allowed to work, failure to follow this instruction may damage the beater.
- ◆ When the machine is working, no stick or something like that put into the air grid or the dispenser door spout.
- ◆ Carrying or moving the machine, the maximum tilt angle is 45°.



- ◆ The machine is applying to use indoor, keeping the inside working environment good ventilation and heat dissipation. Keep dry and clean. Avoid the heat source, direct sunlight and the place where water splashing. The distance between the air grid and the wall or some similar barrier should be over 50cm.



- ◆ The machine should be operated by the professional or the trained staff.
- ◆ To ensure the personal security, please keep ground connection.
- ◆ If the power wire is damaged, to avoid the danger, please contact the manufacture or serviceman of the Maintenance department.
- ◆ To ensure the using voltage power is same as the nameplate on the machine and the working voltage is ranging from the  $\pm 10\%$  of the rated voltage.
- ◆ If the power wire is damaged to avoid the danger, please contact the manufacture or serviceman of the Maintenance.
- ◆ If the machine needs to be repaired, please contact the manufacturer or serviceman of the maintenance department.
- ◆ When remove the assembly unit or clean the machine, please cut off the power after

stopping the use of machine,

- ◆ For the machine without plug, the power wire must be connected with the external power with air switch, and the power wire should be connected with the air switch directly. If the rated power of the machine is lower than 2000w, use the air switch of 10Amp (single-phase source) or 10A(three-phase source); if the rated power is over than 2000w, please use 32A(single-phase source) or 16Amp(three-phase source).
- ◆ The material of foaming layer is flammable. The user may not discard them or handle it personally. It should be handled by the specialized department according to the relevant regulations of the state.

## **INSTALLATION AND TEST RUN**

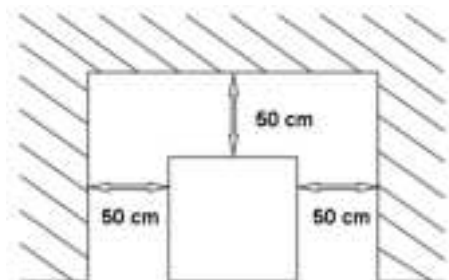
### **A. Installation**

\*Ambient temperature: 10~25°C    Ambient humidity: Relative humidity≤90%

\*Put the machine in a stable flat indoor environment so as to make sure it works well and prevent any accident;

\*Good ventilation and heat dissipation environment; Avoid heat, direct sun or water splash;

**1. Unpack the case, move the machine to a suitable place. Count the accessories according to the packing list.**



Description of the least space for installation



Attention: Enough space must be guaranteed to make sure operator can work well:

## 2. Connect power (professional technicians only)

- Must obey the safety standards regulated by the country;
- Ensuring power type and capacity according to the voltage and power on the nameplate;
- Connect the power cord to air switch, make sure the yellow and green line is reliably connected with the ground line;
- Three phase power supply cord regulation: ground line is yellow/green line or green line; zero line is the black line; others are fire lines(L1/L2/L3), same color is forbidden in power lines;
- The power outlet must be placed convenient to customer, so the customer can cut the power immediately when needed.
- **Any type of extension cord is prohibited;**
- **Changing original plug is prohibited;**
- **Using adaptor is prohibited**

### Attention:

- 1, Make sure the ground line is perfectly connected;
- 2, All outside wires and electrical appliance meet the relative national standard;
- 3, For the machine without plug, the power line can only be directly connected to the air switch; If rated power less than 2000W, please use air switch with 10A (single phase power) or 10A (three phase power); If rated power greater than 2000W, please use air switch with 32A (single phase power) or 16A (three phase power).



## B. Run Test

1. Connected the machine to the power.
2. Put the main power switch in the “on” position, the screen lights up and the machine is in standby mode.
3. Press the “WASH” button, and the sign will be in the status of rolling.
4. Press the “AUTO” button, the auger will start turning, minutes later, the compressor will also starting freezing.
5. In either “AUTO” mode , press “STANDBY” button, wait 2-3 minutes, check the hopper bottom to see if it is freezing on the hopper.

## C. Cleaning and Sanitizing

1. Before the first time of using the machine, the machine should be thoroughly cleaned and sanitized as the following steps:
2. Prepare 3 liters of solution using sanitizer in bucket cold water, pour the solution into the hopper and clean all the surface parts of the hopper carefully.
3. Turn on the main power, press “WASH” button and let the machine run for 2 minutes.
4. Place a bucket beneath the dispenser door, pull down the handle to drain out the solution.
5. When solution comes out, press “WASH” button to quit the washing mode.
6. Use the clean water to repeat the above steps 2-3 times.



1. The temperature of the solutions should be less than 60°C, or it will damage the parts.
2. After the cleaning, please make sure no any water in the cylinder, or the frozen ice will damage the auger when the machine is freezing.
3. Pay attention to it when you press the “WASH” button in case that the “AUTO” button is used as the “WASH” button.

**OPERATING INSTRUCTION**

**A. Front Panel**

**I . Instructions for setting**

- 1.1 Cup counting checking and reset function: it will show the counting while pressing the “UP” and “DOWN” buttons together (Only when in auto mode, and only count when the micro-switch works, it will return to the previous state if no operation for more than 5 seconds. And the counting will be cleared away if pressing the “UP” and “DOWN” buttons together for 5 Second.
- 1.2 Firmness setting: Under standby state, press “UP” for 1 second, “HARD/SET” window flashing, then Press “UP” or “DOWN” to adjust the firmness (from 1 to 10). The level value will be saved and return to the standby state if no operation for more than 5 seconds.
- 1.3 Temperature checking function: Press “UP” for 3 seconds, you can check the temperature of hopper and cylinder.
- 1.4 System parameter setting: Press “SET” for 3 seconds, and continue to press “SET ”from P0 to P5, you can press “UP”or“DOWN” to adjust the parameter when prompt change, the details are as follows:

N	Meaning	Prom	Scope of	Default
1	Hopper pre-cooling temperature	P0	1--19℃	4℃
2	Frozen cylinder keep fresh	P1	1--10℃	4℃
3	Hopper pre-cooling temperature	P2	1--10℃	2℃
4	Compressor restart period setting	P3	2-15min	15min
5	Compressor restart period setting	P4	1--15min	5min
6	Beater motor shutdown delay time	P5	1--	30seco

P1 is not suggested to adjust.



## II .Instruction for function

### 2.1 Wash

Press the “WASH” button to enter into the washing mode when the machine is in standby, then the drive motor will turn on, press the “WASH” button again to quit the washing mode. Press the “WASH” button for 10 seconds to enter into the online speed measurement function and can measure the current no load speed of the motor.

### 2.2 Keep Fresh

Press the “Keep Fresh” button to enter into the keep fresh mode, the compressor is working to freeze the frozen cylinder until it is 70% frozen, the solenoid valve of freezing is off and the solenoid valve of pre-cooling is on, when the temperature of hopper reach the setting temperature(P0), the solenoid valve of pre-cooling and compressor stop. The compressor will continue to freeze the frozen cylinder when the P3 reaches.

### 2.3 Auto

Press the “Auto” button to enter into the auto mode, the compressor is working to freeze the frozen cylinder until it is 100% frozen. Then the compressor will continue to work to freeze the hopper until it reach the setting temperature(P0).

## III Alert function

1. If the RPM can not be detected by the limit switch, the screen will show “--”, and the machine will buzz and stop working at the same time.
2. The rotating speed of drive motor is too slow, the screen will show “NL”, and the machine will buzz and stop working at the same time.
3. If the limit switch behind the dispenser door is connected to the power for over 1 minute, the screen will show “Cb”, and the machine will buzz and stop working at the same time.
4. If the mix in hopper is not low, the screen will show “QL”

## B. Making Ice Cream

### 1. Rinsing before making the ice cream

1.1 Prepare 3 liters of solution using sanitizer in bucket of cold water, pour the solution into the hopper and clean all the surface parts of the hopper carefully.

1.2 Turn on the main power, press “WASH” button and let the machine run for 3 minutes.

1.3 Place a bucket beneath the dispenser door, pull down the handle to drain out the solution.

1.4 When solution comes out, press “WASH” button to quit the washing mode.

1.5 Unscrew two bolts of dispenser door, take off the dispenser door assembly and remove all the part from it, put all the parts into the solution for cleaning, then reassembly the Parts and install the dispenser door assembly back to the machine.

1.6 Pour moderate amount of clean water into the hopper and drain the water out, repeat the above steps until the water becomes as clear as possible.

1.7 At last, dry off the dispenser door with a dry, clean, lint-free towel.

### 2. Preparation of Mix

- ✧ Follow the instruction to make the mix with ice cream powder, avoid ice cream particles or impurities inside.
- ✧ Fill into the container after 5 minutes' standing, or you can use liquid ice cream mixture directly.
- ✧ If a fridge is available , the mix can be pre-stored in it to 4 °C for better ice cream producing.

### 3. Adding mix to the hopper

3.1 Pour half of the prepared mix into the hopper.

3.2 Press the “WASH” button to have the mix fully stirred until there is no bubble going out from the feed hole on the hopper, press the “WASH” button again to stop stirring.

**3.3** Pour the other half of the mix into the hopper and put on the lid, press the “AUTO” button to enter into the ice cream mode, pay attention to the percentage display, when the percentage is over 99, it indicates the ice cream is ready.

**3.4** Pull down the handle to dispense the ice cream with a cone or other container beneath the dispenser door.

**4. Press the “STANDBY” button to turn on the hopper cooling function, which not only prevent the mix going bad in high temperature, but also get the ice cream ready in a shorter time.**

**5. Remember to drain out the residual mix before the machine is going to be cleaned, refer to the above cleaning steps to clean the machine.**

## **CLEANING AND MAINTENANCE**



There is no set period and procedures of the maintenance. It depends on the using and working condition, so each ice cream machine needs

### **A. Cleaning**

#### **1. Cleaning of hopper and cylinder**

**1.1** Press “WASH” button and draw off all the residual mix in the hopper and cylinder, then press “WASH” button again to stop.

**1.2** Prepare 3 liters of solution using sanitizer in a bucket of cold water, pour the solution into the hopper.

**1.3** Press “WASH” button and let the machine run for 3 minutes, then draw off all the sterilizing solution, repeat the above steps with clean water two or three times to clean the machine thoroughly, press “WASH” button to stop the machine.

**1.4** Unplug the machine, remove and wash all the parts.

- Unscrew the four bolts on the dispenser door and remove the dispenser door.

- Disassemble the parts of the dispenser door in turn, pin, handle, piston, O-rings.
- Remove the auger from the cylinder, and then remove the gasket for the auger.
- Clean all the parts, and change new ones if it is necessary.
- Assemble all the parts according to reverse procedure of disassembling, use lubricate while assembling the piston, O-ring and gasket.



1. Before installing the piston, O-ring for piston, beater and gasket for auger, you should lubricate Vaseline (lubricating Vaseline onto the groove of the gasket, do not onto the auger's end ), using the Vaseline frequently can extend the service life of components.

## 2. Cleaning of the exterior of machine

Keep the exterior of machine clean, use wet towel to clean it, and do not flush the machine with water directly.

## 3. Cleaning of condenser

After be used over a period of time, the condenser maybe thick with dust, and this will effect heat dissipation and cause bad refrigeration, so it needs periodic cleaning (every half year).

### Cleaning methods:

Step 1: Disconnected the main power switch.

Step 2: Remove the back panel and side panels.

Step 3: Clean dust with tools such as vacuum cleaner, high-pressure air and soft brush, be careful while cleaning to avoid damaging the fins of the condenser.

## B. Maintenance Tip

- Be sure to drain the product, and thoroughly clean and sanitize your unit daily. Proper cleaning and preventative maintenance results in a creamier product consistency, increases your unit reliability and efficiency, and prevents costly repairs from occurring in the future.
- Do not run the machine while the machine is empty. This can severely damage the internal parts.
- Be familiar with all the operational modes of your machine and what they do. Understand the different features of each mode for safe and reliable operation.
- Use a recommended soft serve machine cleaner and sanitizer when cleaning your unit. Regular dish soap, chemicals, and detergents can degrade seals and leave unwanted residues in your machine.
- Do not run the machine with water in Auto Mode. The water will solidify into ice, expand, and severely damage the beater, freezing cylinder, bearing, and drive motor which can lead to unrepairable damage.
- Lubricate seals and o-rings with a food grade lubricant
- Do not pour water, product, or any fluid into the hopper while the beater are removed from the freezing cylinder. Doing this will cause the fluid to be discharged from the discharge tube located under the machine.
- Do not add any candies, jellies, or other particles into the hopper. Particles may clog the passageway leading into the freezing cylinder causing damage to the unit.
- Do not operate the machine while the stainless steel panels are removed from the unit. Loose garments and long hair can get caught in the moving parts resulting in serious injury.

## **TROUBLE SHOOTING AND SOLUTION**

Some problems may happen to the machine, the corresponding solutions have been listed on the following trouble shooting sheet for your reference, if the problem persists, please don't handle it by yourself and contact our professional technicians for help, in order

to avoid unnecessary loss.

PROBLEM	PROBABLE CAUSES	SOLUTIONS
Machine does not run	Machine is not plugged in.	Check it and plug it properly.
	The general switch is not on.	Turn the general switch on.
	The general switch is broken.	Replace the general switch with new one.
	Protective circuit works.	Change the fuse.
The washing mode does not work	The wiring for this function is loose.	Check the wiring and make it connected.
	The drive motor is not working.	Repair the motor or replace it.
The AUTO mode or does not work	The wiring for this function is loose.	Check the wiring and make it connected.
	The control board is not active	Replace the control board.
Compressor does not work	The voltage is low.	Try to get a high and stable voltage.
	The relay is bad.	Replace the control board.
	There is something wrong with control board.	Replace the control board.
	The overload protection is working.	Find the cause and restart.
	The compressor is bad.	Replace the compressor.
	The capacitor for compressor is not working.	Replace the capacitor.
Machine does not freeze	Refrigerant leaking.	Find the leaking point and fix it, charge the refrigerant after vacuuming the refrigeration

		system.
	Solenoid valve is not working.	Replace the solenoid valve.
	The fan motor does not work.	Fix the fan motor or replace it.
	The compressor is out of order.	Check the compressor, replace it if necessary.
Machine does not stop	The hardness is set too high.	Reduce the hardness setting.
	There is something wrong with control board.	Replace the control board.
	Bad refrigeration system.	Check the refrigeration system.
Relay is tripped out	The voltage is low.	Try to get a high and stable voltage.
	There is something wrong with control board.	Replace the control board.
	The contactor is burnt.	Replace the contactor.
No product is being dispensed with draw valve open and the machine in soft serve mode	The improper mix caused frozen cylinder.	Prepare a proper mix.
	No mix in the cylinder.	Add mix to the hopper.
	The limit switch is not working or the wiring of limit switch is loose.	Replace the limit switch or rewire.
	The coupling or auger is broken.	Replace coupling or auger.
Ice cream is too soft	Wrong ratio of mix.	Make the mix with a correct ratio.
	The hardness is set too low.	Increase the hardness setting.

Mix leaking	The dispenser hole is leaking.	Check the O-ring for piston, replace it if it is necessary.
	The dispenser door is leaking.	Check the O-ring for dispenser door, replace it if it is necessary.
	The drain pipe is leaking.	Check the gasket for the auger, replace it if it is necessary.
The buzzer keep squealing	Low voltage protection.	Turn off the machine first, then turn on the machine 5 minutes later.
	Shutdown protection.	Turn off the machine first, then turn on the machine 5 minutes later.
	Limit switch does not reset in time.	Pull up the handle to reset the limit switch.
“NL” CODE	The speed of drive motor decreases fast.	The hardness is set too high, or check if it is a problem with motor.
“——”CODE	The proximity switch is not in the right position or bad.	Adjust the position of the proximity switch or replace it.

*Marketed globally by*

**TRUFROST AND BUTLER PRIVATE LIMITED**

1215, 12th Floor, Tower B, Emaar Digital Greens, Golf Course Extn. Road,

Sector 61, Gurugram - 122011, India

T. +91-7303166766    info@trufrost.com

**www.trufrost.com**