INSTRUCTION MANUAL

MASTERCHEF
MASTERCHEF S

Ott Swiss Freezer

We wish to thank you for the preference granted to us by purchasing one of ***OTT FREEZER*** *machines.*

To the best guarantee, since 1993 ***OTT FREEZER*** *has submitted its own Quality System to the certification according to the international Standard ISO 9001-94, nowadays its production has got UNI-EN-ISO 9001-2000 Certified Quality System.*

Moreover, Ott freezer machines comply with following European Directives:

- *98/37/CE Machines Directive;*
- *73/23/CEE Low tension Directive;*
- *89/336/CEE EMC Directive;*
- *89/109/CEE Food Contact Directive.*

OTTFREEZER

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FOREWORD

INSTRUCTION HANDBOOK

Editing this handbook, it was taken into due account community directions on safety standards as well as on free circulation of indstrial products within E.C. (R.E.C. Council direction 89/392 and subsequent, known as "Machines Direction".

AIM

This handbook was edited while taking into due account needs of machine users.
Topics relevant to a correct use of the machine have been analyzed in order to keep unchanged in the long run quality features of the worldwide OTT FREEZER machines.
A significant part of this handbook refers to the conditions necessary to the machine use and to the necessary behaviour during cleanout as well as routine and special maintenance.
Nevertheless, this handbook cannot meet in details all demands; in case of doubts or failing information, please apply to:

OTTFREEZER Via Emilia, 45/A - 40011 Anzola Emilia (Bologna) - Italy
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HANDBOOK STRUCTURE

This handbook is structurilized in sections, chapters and subchapters in order to consult it more easily.

Section

A section is the part of handbook identifying a specific topic referred to a machine part.

Chapter

A chapter is that part of section describing a group or concept relevant to a machine part.

Subchapter

It is that part of a chapter detailing the specific component of a machine part.
It is necessary that each person involved in the machine running reads and clearly understands those parts of the handbook of own concern, and particularly:

- The Operator must have a look at chapters concerning the machine start-up and the operation of machine groups.
- A skilled technician employed in installation, maintenance, repair, etc., must read all parts of this handbook.

ADDITIONAL DOCUMENTATION

Along with an instruction manual, each machine is also supplied complete with further documentation:

- **Machine equipment**: A list of spare parts delivered together with the machine for its maintenance.
- **Wiring diagram**: A diagram of wiring connections put into the machine.

ATTENTION!!

Before using the machine read carefully the instruction handbook.

Pay attention to the safety instruction

SAFETY

When using industrial equipment and plants, one must be aware of the fact that drive mechanisms (rotary motion), high voltage components, as well as parts subject to high temperatures may cause serious damages to persons and things.
Who is in charge of plant safety must be on the look-out that

- an uncorrect use or handling is avoided
- Safety devices must neither be removed nor tampered
- Only original spare parts are to be used especially as far as those components with safety functions are concerned (ex.: protection microswitches, thermostats).

To achieve the above, the following is necessary:

- At working place an instruction manual relevant to the machine should be available.
- Such documentation must be carefully read and regulations must consequently be followed.
- Only adequately skilled personnel will have to be assigned to electrical equipment.

QUALIFICATION OF THE STAFF

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

OPERATOR

- A person who has not necessarily a high technical knowledge, just trained for ordinary operation of the machine, such as: startup, stop, filling, basic maintenance (cleanout, simple blocking, instrumentation checkings, etc.).

SKILLED ENGINEER

- A person enganged on more complicated operations of installation, maintenance, repairs, etc.

IMPORTANT!

One must be on the look-out that the staff does not carry out any operation outside its own sphere of konwledge and responsibility.

NOTE:

According to the standard at present in force, a SKILLED ENGINEER is who, thanks to
- training, experience and education,
- knowledge of rules, prescriptions and interventions on accident prevention,
- knowledge of machine operating conditions,
is able to realize and avoid any danger and has also been allowed by the person in charge of plant safety to carry out all kinds of interventions.

CONVENTIONAL SYMBOLS

ATTENTION: ELECTRIC SHOCK DANGER
The staff involved is warned that the inobsevance of safety rules in carrying out the operation described may cause an electric shock.

ATTENTION: GENERAL DANGER
The staff involved is warned that the operation described may do harm if not carried out in the observarnce of safety rules.

NOTE
It points out significant information for the staff involved.

WARNINGS
The staff involved is warned that the inobservance of information may cause a loss of data and damages to the machine.

MACHINE OPERATOR
It deals with an unskilled person , who has no specific competences and can only carry out easy functions, such as the machine operation by means of controls available on push-button panel , and filling and drain of products used during production.

MAINTENANCE ENGINEER
He is a skilled engineer for operation of the machine under regular conditions; he is able to carry out interventions on mechanical parts and all regulations, as well as maintenance and repairs. He is qualified for interventions on electrical and freezing plants.

OTT FREEZER ENGINEER
It deals with a skilled engineer the manufacturer puts at clients' disposal for complicated interventions und particular conditions or anyhow in accordance with agreements taken with the machine's user.

PROTECTIONS
This symbol placed by description side means that the operator must use personal protections against an implicit risk of accident.

WARNING

When installing the machine, insert a differential magnetothermal protection switch on all poles of the line, adequately sized to the absorption power shown on machine data plate and with contact opening of 3 mm at least.

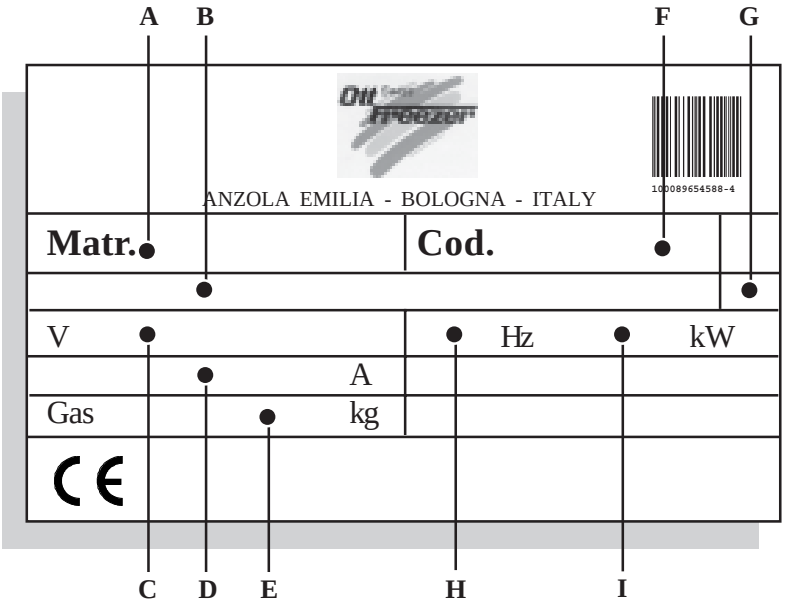
- Never put your hand into the machine, alike during production and cleaning operations. Before carrying out any maintenance operation, make sure that the machine is in "**STOP**" position and main switch has been cut out.
- It is forbidden to wash the machine by means of a bolt of water under pressure.
- It is forbidden to remove panels in order to reach the machine inside before disconnecting the machine.
- **OTT FREEZER** is not responsible for any accident that might happen during operation, cleaning and/or servicing of its units, if this warning has not been fully complied with.

1. GENERAL

1.1 GENERAL INFORMATION

1.1.1 Manufacturer's identification data

The machine has a data plate carrying manufactuer's data, machine type and identification number given when it is manufactured.



A = Serial number
B = Machine type
C = Voltage
D = Fuse Current
E = Gas type and weight
F = Machine code
G = Condensation
A=Air W=Water
H = Frequency
I = Power input

1.1.2 Client/user's identification data

CLIENT: .....
ADDRESS: .....
TELEPHONE: .....
Machine serial number: .....
Machine delivered on: .....
Instr. handbook delivered on: .....

1.1.3 Information about service

All operations of routine maintenance are described in section "Maintenance" of this handbook; any further operation requiring radical interventions on the machine must be agreed with the manufacturer, who will also examine the possibility of a direct action on the spot.

1.1.4 Information to the user

- The manufacturer of the machine here described is at user's disposal for any explanation and information about the machine operation.
- In case of need, the interlocutor is the distributor being present in user's country, or the manufacturer if no distributor is in that market.
- Manufacturer's service department is at clients' disposal for any information about operation, and requests of spare parts and service.
- The manufacturer reserves the right to carry out all machine changes deemed as opportune without previous notice.
- Descriptions as well as pictures contained in this handbook are not binding.
- Reproduction rights are reserved to OTT FREEZER

1.2 INFORMATION ABOUT THE MACHINE

1.2.1 General information

Masterchef machines produce ice cream and confectionery and they can work fruit and greens in pieces.
This machine was not designed:

- to produce "pasta"
- to freeze water, i.e., to produce ice cream with high water contents
- to mix, work out, etc. explosives or substances prejudicial to the health.

OTT FREEZER recommends to always use high quality ingredients for confectionery products in order to satisfy your customers, even the hardest-to-please ones. Any saving made to the prejudice of quality will surely turn into a loss much bigger than the saving itself.
Bearing in mind the above statements, please take heed of the following suggestions:

- Choose high quality natural ingredients or buy them from reliable companies.
- Closely follow instructions given by your supplier.
- Do not alter your supplier's recipies, by adding, for instance, water or sugar.
- Taste your product before serving and start selling it if only entirely satisfactory.
- Make sure your staff always keeps the machine clean.
- Have your machine always serviced by companies authorized by OTT FREEZER.

RESIDUAL RISKS

Danger of thermal nature

By opening the cover of the tank containing high temperature product, the operator runs the risk of being caught in hot steam.

Act with utmost care and use proper protections before opening the tank cover.

1.2.2 Technical features

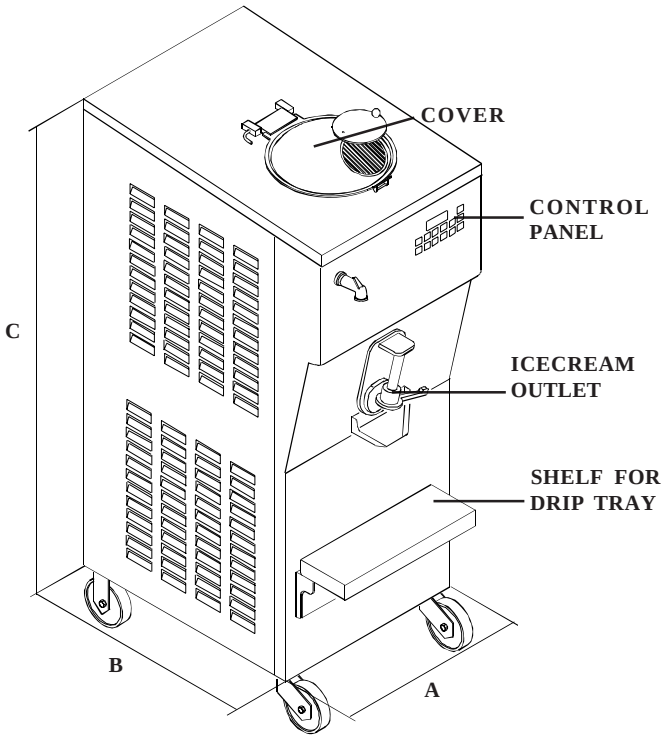
MODEL	Hourly output	Tank capacity	Electric power*			Installed power	Dimensions			Weight
	l.	Litres	Volt	Cycles	Phases	kW	Width mm. (A)	Depth mm. (B)	Height mm. (C)	Net Kg.
Masterchef	22,5 ÷ 52,5	7	400	50	3	5,2	505	700	1280	190
Masterchef S	37,5 ÷ 90	12	400	50	3	7,7	550	740	1390	265

* Other voltages and cycles available

** Models also available in aircooled execution

Performances refer to a room temperature of 25°C and to 20°C temperature of condensing water

1.2.3 Location of the machine groups



1.3 INTENDED USE

Masterchef must only be used conforming with contents of paragraph 1.2.1 "General Information", within the functional limits hereunder reported:

Voltage:	±10%
Air min. temperature:	10°C
Air max. temperature:	43°C
Water min. temperature:	10°C
Water max. temperature:	30°C
Water min. pressure:	0,1 MPa (1 bar)
Water max. pressure:	0,8 MPa (8 bar)
Max air relative humidity:	85%

- This machine has been designed for its use in rooms being not subject to explosion-proof laws; its use is thus bound to complying rooms and normal atmosphere.
- The machine must not be used in the open air, at the risk of rain.
- The machine must be used in lying flat and with castors locks engaged.
- The machine must only be used by the operators.
- The machine may not be washed with any direct water spray.

1.4 NOISE

The continuous level of acoustic radiation pressure, which has been weighed and called A on working place, turns to be lower than 70 dB(A), both by aircooled and by watercooled units.

1.5 STORING A MACHINE

The machine must be stored in a dry and dump-free place.
Before storing the machine, wrap it in a cloth in order to protect it against dust and else.

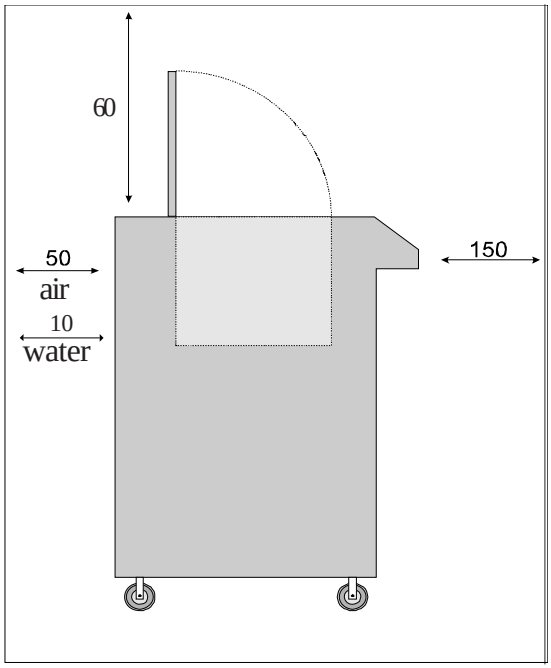
1.6 DISPOSAL OF PACKING STUFFS

When opening the packing crate, divide packing stuffs per type and get rid of them according to laws in force in machine installation country.

2. INSTALLATION

2.1 ROOM NECESSARY TO THE MACHINE USE

The machine may only run indoors.
The machine must be installed in lying flat, so that air can freely circulate all around.
Rooms for the approach to the machine must be left free in order to enable the operator to act without constraint and also to immediately leave working area, if need be.
The minimum approach room to working area should be at least 150 cm in consideration of space taken by opened doors.



2.2 MACHINE LOCATION

The machine is provided with wheels for its easy location; two castors are provivded with mechanical locks, which once engaged, lock the wheels and so keep the machine standstill.

2.3 MACHINES WITH AIRCOOLED CONDENSER

Machines with aircooled condenser must be installed no closer than 50 cm to any wall in order to allow free air circulation around the condenser.
Frequently clean the floor beneath and near to the machine, to avoid that paper and else obstruct a regular airflow. Further, condenser needs to be cleaned monthly, so eliminating dust, paper and what else can obstruct it and affect a regular operation.

NOTE
An insufficient air circulation affects operation and output capacity of the machine.

2.3.1 Water supply connection for wash

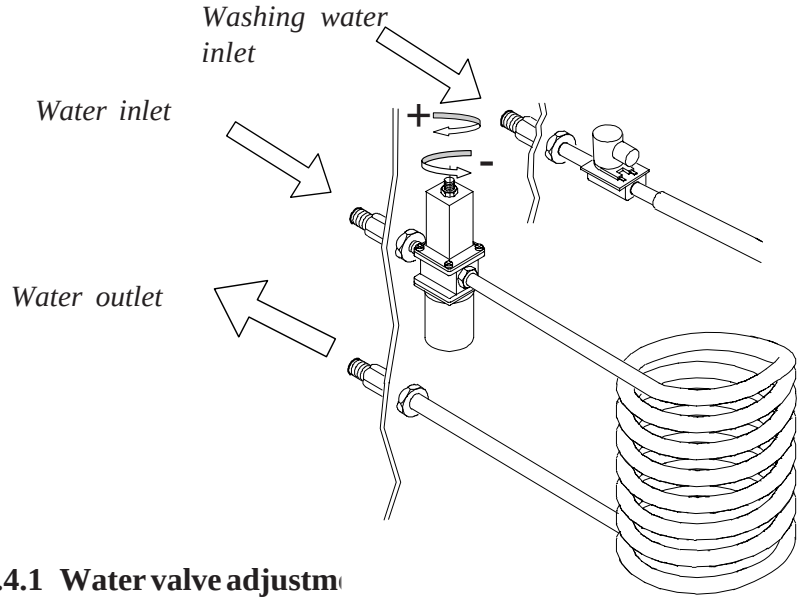
The machine must be connected to running water which pressure must not be higher than 0,8 MPa (8 bar).
By aircooled machines, water connection for drinking water (for machine wash), marked by the plate herebelow, is placed under the machine.
Connect this tube to drinkable water,only.

For an easy cleaning, we advise you to install a shut-off valve between machine and warm water used in laboratory.

2.4 MACHINES WITH WATERCOOLED CONDENSER

By watercooled machines wash water and gas cooling connections are on the back panel.
There are three connections aligned on the same vertical.
Watercooled machines can only run when connecting them to running water supply or to cooling towers.
Water must have a pressure o 0,1 MPa (1bar) at least, and a deliver at least eequal to the estimated hourly consumption.
Connect inlet pipe marked by the plate "Entrata Acqua" (water inlet) to water supply, instlaling a shut-off valve and the outlet pipe marked by "Uscita Acqua" (water outlet) to a drain pipe, installing a shut-off valve, too.

We recommend to use rubberized canvas tubes with a working pressure up to 0,8 MPa (8 bar).



2.4.1 Water valve adjustm

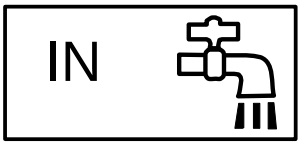
IMPORTANT
If water valve needs to be reset, such an operation must be carried out by skilled personnel, only.
Set water valve so that, with machine off no water comes out and lukeawarm water flows out when on.
Water consumption
Estimated water consumption per hour is shown in the table.

NOTE:
Water consumption increases if temperature of entering water is above 20°C.

ATTENTION
Do not leave the machine in a room with temperature below 0°C without first draining water from condenser (see Section 5).

2.4.2 Water supply connection for machine wash

Alike aircooled and watercooled machines have been provided with a separate inlet pipe for washing water. Only has drinking water to be connected to this pipe, which is marked by the plate shown herebelow.



To make clean out easy, we recommend to connect warm water used in your laboratory directly to wash pipe, installing a shut-off valve.

2.5 ELECTRICAL CONNECTION

Before connecting the machine to the mains, check that the voltage is the same as the one stated on its plate.
Power cable by machines on 400 V, 50 Hz, threephase is made up of 5 wires: 3 wires for phases, the blue one for neutral and the green/yellow one for earthing.
By machines with other voltages, power cable is made up of 4 wires, without the neutral one.
Between the machine and the mains, insert a magnetothermic differential sectioning switch properly dimensioned to the input required, and having a contact opening of 3 mm, at least.

Model	Installed power kW
Masterchef	5,2
Masterchef S	7,7

IMPORTANT
Yellow/green ground wire must be connected to a good ground plate.

2.5.1 Replacing the input cable

Should the main cable of the machine be damaged, it needs to be replaced immediately through a cable with similar features. Replacement shall be carried out by skilled technicians, only.

2.6 REFILLING

Motor installed in the machine is of the type with lubrication for life; no action of checking/ replacing or topping up is necessary.
Gas filling necessary to the freezing system is carried out at OTT FREEZER works during machine postproduction testing.
If a gas addition happens to be made, this must be carried out by skilled technicans, only, who can also find out trouble origin.

2.7 MACHINE TESTING

A postproduction test of the machine is carried out at Ott freezer premises; Operation and output functionality of the machine are thoroughly tested.
Machine test at end user's must be carried out by skilled technicians or by one of OTT FREEZER engineers.
After the machine positioning and correct connections, also carry out all operations necessary to functional check and test of the machine.

2.8 MOVEMENT - TRANSPORT

Should the machine need be moved from its original location, it is necessary to turn to skilled personnel.

3. DIRECTIONS FOR USE

3.1 MACHINE SAFETY WARNINGS

When using industrial equipment and plants, one must be aware of the fact that drive mechanisms (rotary motion), high voltage components, as well as parts subject to high temperatures may cause serious damages to persons and things.
Who is in charge of plant safety must be on the look-out that

- an uncorrect use or handling is avoided
- Safety devices must neither be removed nor tampered
- Only original spare parts are to be used especially as far as those components with safety functions are concerned (ex.: protection microswitches, thermostats).

To achieve the above, the following is necessary:

- At working place an instruction manual relevant to the machine should be available.
- Such documentation must be carefully read and regulations must consequently be followed.
- Only adequately skilled personnel will have to be assigned to electrical equipment.

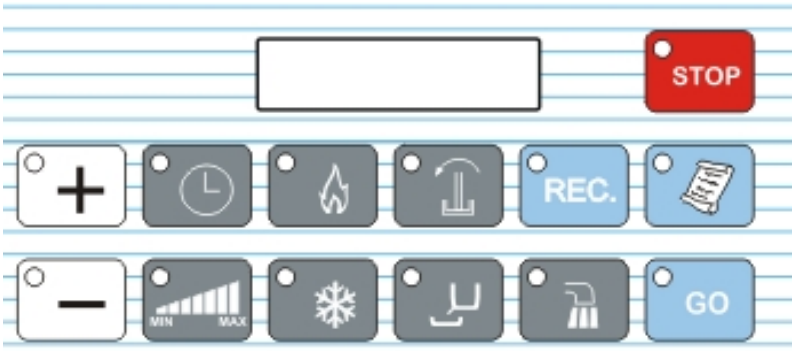
3.2 MACHINE CONFIGURATION

The machine consists of a transmission of movement for beater assembly, a heating and cooling system with aircooled or watercooled condenser.
The product is prepared by pouring a mix into the tank and starting the production cycle, while referring to minimum and maximum quantities reported in Section 1, table on page 49.
As the machine is provided with specific programs for the preparation of various products, one must set the program relevant to the selected product before starting the cycle.
When the cycle ends, the product can be drawn out from the special spigot, by pressing the di **EXTRACTION push-button.**

3.3 CONTROLS

3.3.1 Control panel

For a correct use of commands on keypad, press on the symbol or anyway in the middle of the key.



3.3.2 Stop push-button

In this function the machine is stopped and the relative LED is ON.
From the Stop position you can access any machine function.

When the machine is STOPPED the display indicates the time and the day of the week on the first line, and the date and the TEV on the second line.
E.g.:

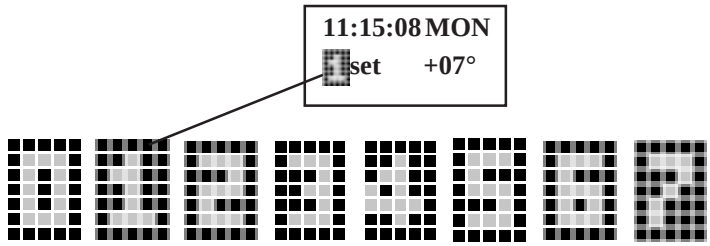
```
11:15:08 MON
23/10     +11°
```

THE STOP PUSHBUTTON IS ALSO USED TO RESET ANY ALARM.

As well as stopping any function if you hold the pushbutton down for 5 seconds you enter into the technical program (described below).

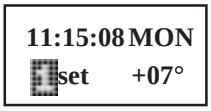
3.3.3 Beating push-button

This key activates the tank beater.
The display shows time and day of the week on the first line.
On the second line, on the left the number of the speed appears, and on the right the temperature of the mixture in the tub (TEV) appears:



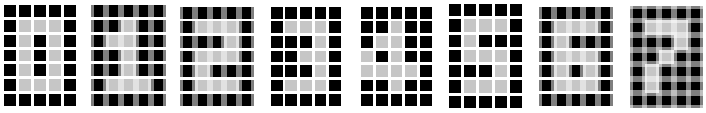
The beater motor is controlled by an Inverter.
For this reason the beating is divided into 7 speed steps with the possibility of setting speed 0 (beater stopped).
1 is associated with the lowest speed while 7 is the fastest.

Press Beating key once and you access the function, and the relative LED switches ON in fixed mode and the last speed set is activated.
Once the beating has started it can be modified by pressing first the Beater Speed Adjustment key. The Increase and Decrease LEDs switch ON. The display continues to display:



At this point the speed can be modified (one step at a time) with Increase and Decrease keys.

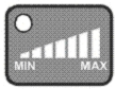
The first character on the second line of the display indicates the speed:



Speed0 (static) Speed1 Speed2 Speed3 Speed4 Speed5 Speed6 Speed7.

When beating is active press again and beating stops

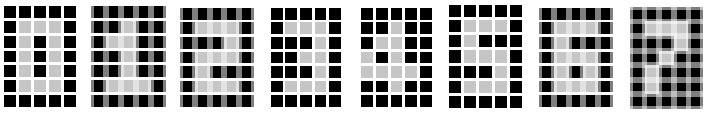
3.3.4 Adjusting beater speed push-button



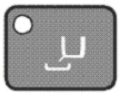
The function is only active when the Beater function has been selected.

Press Beater Speed Adjustment button to select the desired speed, using Increase and Decrease buttons.

As described above, the first character on the second line of the display indicates the speed:



Speed0 (static) Speed1 Speed2 Speed3 Speed4 Speed5 Speed6 Speed7.



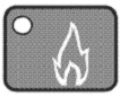
3.3.5 Extraction push-button

The display shows:

```
11:15:08 MON
set      +07°
```

Press Extraction button The beater goes to maximum speed (even if the display shows the last speed selected).

One can also obtain a Cooled Extraction by pressing Cooling key during the extraction. In this way, one activates cooling which will end after a timer of 20 seconds stops.



3.3.6 Heating push-button

When you press the Heating pushbutton the Beater starts at the last speed set.After a 2 sec pause the hot is also activated
When you press the Beater Speed Adjustment pushbutton you can select a speed from the seven available as described in paragraph "Adjusting Beater Speed" or also To deselect it by pressing Beater once to obtain static heating.
Heating may also be deactivated by pressing Heating pushbutton. In this way you can have beating without heating (the LED switches OFF and the heat is deactivated). If you press heating again the heat is activated and the previously selected speed remains active.

The heat remains active until the temperature set on the display is reached.

The display shows:

```
11:15:08 MON
set+85°  +21°
```

The Temperature Set can be modified with Increment and Decrement keys 10 to 120°C.
Its typical value is 85°C.

To display temperatures over 99°C the "+" is eliminated:

```
11:15:08 MON
set105°  +21°
```

The heating temperature is memorised and the next time the last Set will be set again.

3.3.7 Cooling push-button

When you press the cooling pushbutton the display shows the last temperature set, while on the right hand side you can see the current temperature of the mixture in the drum (TEV).

```
11:15:08 MON
set+04°  +22°
```

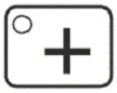
The cooling function starts up the beating at the last speed set. After a two second pause the cooling is activated.
The temperature may be changed using Increase and Decrease buttons from 2 to 105°C the typical value set is 4°C.

Beating speed may be changed by pressing the Beater Speed Adjustment button Adjustin Beater Speed as described in paragraph "Adjusting Beater Speed".
When you press Beater it switches OFF. In this case you obtain static cooling.
Cooling will be active till the programmed Temperature Set on display is reached.

3.3.8 "GO" push-button

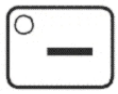
When you press **GO** push-button the temperature of TEC is displayed for 5 seconds in place of TEV
in all functions apart from STOP.
When you hold it down you access User Programming (see relative paragraph).

3.3.9 Increment push-button



With this pushbutton you can increase the temperature Set, when enabled (relative LED ON), for example during heating or cooling or to increase beater speed.
In Programming it is used to increase the value of programming step.
See paragraph PRINT EVENTS.

3.3.10 Decrement push-button



With this pushbutton you can decrease the temperature Set, when enabled (relative LED ON), for example during heating or cooling or to decrease beater speed.
In Programming it is used to decrease the value of programming step.

This key is also used to read events.
The machine has a wide memory which helps us recording most events (such as the function selected, alarms and so on).
In order to read events in memory, it is necessary to have the machine in STOP position, and press the Decrement key.
The newest event will be displayed, as well as its date and time.
All events can be scrolled through Increment and Decrement keys.
In the Events all operations executed will be displayed starting from the last one (from the newest to the oldest).On top, the display shows the functions and down date time and TEV.
To leave EVENTS mode press STOP or just wait for 15".

The events list let us understand when and how often an alarm occurred.
Further we can have information about the pasteurization program by checking all its steps and relevant times.

3.3.11 Timer push-button

In manual function the timer button is used to set a time that is only connected to beep.
In Ice cream production recipe however, see timer connected to HOT.

In a manual function, when you press the button, the display shows:

```
14:15:08 TUE
set0:30 0:29:59
```

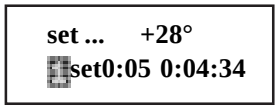
The total set time may be changed using Increase and Decrease from 1 to 59 minutes, if you continue to increase the value the hours increase (the minutes can no longer be changed) up to a maximum of 9 hours while on the right the time appears that decreases.
Once the time has ended a sound alarm sounds.
During Timer count you can read **TEC** temperature by pressing **GO** and **TEV** temperature by pressing **REC**.

When an automatic program is run where we have for example heating at 85°C followed by thermostat control for 5 minutes, in timer count (5') the display becomes:

```
set +85°   +85°
set0:05 0:02:34
```

At top left the thermostat controlled temperature appears, at top right the current TEV temperature, bottom left set of time set and bottom right the time which decreases.

If the first step of an automatic program is the timer without heating or cooling functions being ON, the display becomes:



At top left there is no thermostat controlled temperature as heating and cooling were not ON in previous step, top right is current TEV temperature and at the bottom timer and count.
If the cover is opened when the timer is counting, the count stops and then restarts when the cover is closed again.

3.3.12 Washing push-button

When you press this button you switch on the water to the spray head. The water may be switched ON during any machine function.
The water supply time may be programmed (default=3').

3.3.13 Recipes push-button

To carry out an automatic program press **RECIPES** (both RECIPE and arrow LEDs come ON).

The display shows the last recipe made, e.g.:

```
ICE CREAM
```

Select type of recipe with Increment and Decrement keys.
If you want to use one of the recipes press **GO**.
Available recipes:

RECIPE NR 1	ICE CREAM
RECIPE NR 2	ICE CREAM 1/2 BATCH
RECIPE NR 3	CUSTARD
RECIPE NR 4	DYNAMIC CUSTARD
RECIPE NR 5	MIX PASTEURIZATION
RECIPE NR 6	ICE CREAM MIX PASTEURIZATION
RECIPE NR 7	ICE CREAM MIX PASTEURIZATION 1/2 BATCH
RECIPE NR 8	CHOCOLATE HARDENING
RECIPE NR 9	STORING CHOCOLATE HARDENING
RECIPE NR 10	COMPOTE
RECIPE NR 11	YOGHURT
RECIPE NR 12	CHEESE
RECIPE NR 13	ZABAIONE
RECIPE NR 14	SHERBET
RECIPE NR 15	ITALIAN MERINGUE
RECIPE NR 16	GANACHE
RECIPE NR 17	BUTTER CREAM
RECIPE NR 18	INVERT SUGAR

When during any stage of the recipe, the Set value (temperature, time or speed) may be changed the arrow LED comes ON.
To skip a step press **RECIPE** for a few seconds.
At the end of each step the buzzer sounds for 5 seconds.
At the end of the cycle the name of the program alternates with the preservation time or extraction message.

If the recipe is changed while the cycle is being run the changed temperature and time values are stored. If you return to run that recipe again the updated values will be active.
The speed set, however, remains at the recipe default speed.

Some recipes end with an indeterminate preservation time. This time is counted and displayed top right. For example at the end of Custard cream the display alternates between the 2 below if the time it remained in Preservation is 31 minutes:

OK PAST. CUS.
set+04° +03°

Preserv. 00:31
set+04° +03°

The product may be extracted at the end of any program by selecting a beating. The beating selected runs continuously and may be stopped by passing to static thermostat setting by pressing the same button again.

3.3.14 Rec push-button

This button has a variety of functions related to reading, customising and making up user's own customised recipes.

3.4 PERSONALIZED PROGRAMS

Up to 9 user's programs can be stored.

3.4.1 Creating user's porgrams

Press **REC** from Stop: the machine will automatically set at the first available program (1÷9). Display will be as follows (if the first available program is Nr 1):

PROGRAM NR 1
set P.01

Different functions of program steps shall now be inserted (heating, cooling, timer and so on). To store steps press REC every time and then got to the next one.

The maximum number of steps per program is 25. If you go beyond this limit, the display will show "STEPS OUT" and will set back at STOP so deleting the program.

In order to complete a program with thermostatic control for indefinite time, it is enough to provide setting timer at "0" (press neither cooling key nor heating key).

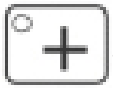
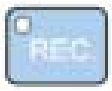
3.4.2 Example of program creation

Heating 90°C with beating 6, thermostat temp set to 90°C for 5 minutes (static), cooling with beating 1 to 2°C, setting thermostat temperature for undetermined time at 2°C (static).

Sequence of operations	*Key*	*Display*
1) press REC		***PROGRAM NR 4*** ***set P.01***
2) press Heating		***PROGRAM NR 4*** ***set+85° P.01***
3) press Increment up to 90°C		***PROGRAM NR 4*** ***set+90° P.01***
4) press Beater Speed adjustment in order to set desired speed		***PROGRAM NR 4*** ***set+90° P.01***
5) Adjust speed through Increment and Decrement keys, for instance speed 6		***PROGRAM NR 4*** ***set+90° P.01***
6) press REC		***PROGRAM NR 4*** ***set P.02***
7) press TIMER (free selection)		***PROGRAM NR 4*** ***set0:30 P.02***
8) premere Decremento fino a 5' (deselect)		***PROGRAM NR 4*** ***set0:05 P.02***
9) press REC		***PROGRAM NR 4*** ***set P.03***
10)press Cooling (beating 1 will automatically be inserted)		***PROGRAM NR 4*** ***set+04° P.03***
11)press Decrement up to 2°C		***PROGRAM NR 4*** ***set+02° P.03***
12)press REC		***PROGRAM NR 4*** ***set P.04***
13)press TIMER		***PROGRAM NR 4*** ***set0:30 P.04***
14)press Decrement up to 0' (deselect)		***PROGRAM NR 4*** ***set0:00 P.04***
15)press REC		***PROGRAM NR 4*** ***set P.05***
16)press REC again		***14:15:08 MAR*** ***10/06 +02°***

3.4.3 Cancelling a user program

To cancel a user program you must:

- Press **RECIPE**  .
- Choose recipe to cancel with keys  e  .
- Press **REC**  and release it
- Press **REC** for 5 seconds

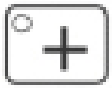
The display shows:

Sure? [Y/N] **[GO/RIC]**

Press **GO** to confirm cancellation of program and press **RECIPE** to abandon operation.

3.5 READING PROGRAMS (AUTOMATIC AND USER)

To read a program step sequence you must:

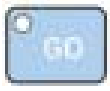
- Press **RECIPE**  .
- Choose recipe with  e  .
- Press **REC** 

In this way you may go to any step of any program without having to run it.
When you read the various steps the values for temperature and time may be changed using arrow buttons (relative LEDs come ON).
The changed value is stored.
To pass to next step press **REC** again.
When finished reading press **STOP**.

All values in user program may be changed while program is running-.

The maximum number of user recipes which may be programmed is 9. If you exceed this limit the words "RECIPE EXHAUSTED" will appear. To make space for a new recipe you must cancel one or more user recipes.

3.6 USER PROGRAMMING

From STOP press button 

for about 3 seconds..

On display appears

Linguaggio
ITA [num]

means **Language is** Italian.
Release **GO** button.

With Increment and Decrement push-buttons you can change language, if need be.

Press **GO** in this way the steps of the following table appear, all may be changed using Increase and Decrease buttons.
To exit user program press **STOP** or automatically without pressing any key for about 15".
The changed values are automatically memorised.

STEP	DISPLAY	Note	U.M.	MIN	MAX	TYPICAL
1	Language	ITA,FRA,ENG,DEU	n°	ITA	DEU	ITA
2	HOURS		hrs	0	23	
3	MINUTES		min	0	59	
4	SECONDS		sec	0	59	
5	DAY OF WEEK		day	sun	sat	
6	DAY OF MONTH		day	1	31	
7	MONTH		mon	1	12	

3.7 MACHINE START

After washing, sanitizing and thoroughly rinsing the machine right before using it, according to the instructions given in section 5 CLEANING, pour the mix into the tank following minimum and maximum quantities mentioned in the table (Sec. 1)
Before pouring the mix, make sure that ice cream spigot is perfectly closed.

Note:
If tank cover is open or not perfectly closed, the machine will not run.

Machine operation modes are 2, namely:

3.7.1 Automatic Operation

For the execution of an automatic program, press key RECIPES (RECIPES LED as well as Increment and Decrement LEDs will light).
The recipe last executed (for example ICE CREAM) will be displayed. Select the recipe with Increment and Decrement keys and then press GO.

3.7.2 Manual operation

Masterchge can produce many other specialties requiring heating, cooking, cooling, storing, mixing beating and else.
Thanks to manual functions (see descriptions on pages 18 and 19), this machine is performing any recipe, in the observance of accuracy and hygiene.

4. ALARMS

When the machine is in STOP the alarm is shown on the two lines of the display.
E.g. (pressure switch alarm):

Allarm Press.switch
Allarm Press.switch

The bottom line indicates that the alarm is still active, when the alarm resets the writing disappears.
The top line stays on the display to remind you that the alarm came on.
To cancel the writing press any key.

When an alarm comes on, that does not STOP the machine (for example pressure switch in Preservation):

Allarm Press.switch
set +04° +28°

The alarm is displayed on the top line of the display while the bottom line continues to indicate the temperature or times. When the alarm resets the top line remains, to remind us the alarm came on until you press any key.

Display	Description
Compress.Overload	Compressor overload relay ON When this alarm comes on the compressor stops.When the overload resets, the alarm is automatically reset.The machine passes to STOP.On display appears "Termico Compress".
Alarm Press.swtch	Safety pressure switch ONWhen this alarm comes on the compressor stops.When the pressure switch resets, the alarm is automatically reset.If the pressure switch comes on 3 times consecutively or if it remains open for 2 minutes consecutively the machine passes to STOP.On display appears "Alarm Press.swtch".Check all water in and out flow pipes to ensure that the water circulates freely when the compressor is running.For machines with air cooling check that the condenser fan is running when the compressor is ON, or check that the air condenser is not clogged, if it is clean it with a jet of air.
Cover open	Drum cover openIf the cover is opened while the machine is running, the machine stops immediately and we see on display "Coperchio Aperto". The machine only restarts when the cover is closed again.The alarm message remains on the display until any button is pressed. When the cover is opened, the count of any timers stop to start again when the cover is closed.
Alarm TEV	Temperature probe " TEV " interrupted or in short.The display shows "Alarm TEV" and machine goes to Stop.Check temperature probe TEV and if necessary change it.
Alarm TEC	Temperature probe " TEC " in short.The display shows "Alarm TEC" when machine is in STOP.Check temperature probe TEC and if necessary change it.When TEC probe detects a value less than the limits respectively higher and lower than the bottom of the control unit scale, the temperature TEC is set equal to the TEV one. In this way the machine continues to function but without "end" check on heating and cooling.Using this machine with this alarm must only be temporary.

Display	Description
Alarm Inverter	The inverter used (Inverter AC TECH SF230Y) has a clean contact that is closed if there is an overall alarm generated by the Inverter. To reset the Inverter alarm it is necessary to switch OFF and switch ON the machine.If necessary check on inverter display to see which messages is shown and see Inverter manual about how to deal with the problem.
Err.cool.Ice cream	Cooling Ice cream Error (Difficulty in cooling).Comes on when machine does not cool down. If during beating the compressor remains switched ON continuously for more than 20 mins and the HOT does not reach the limit value programmed, the machine switches OFF the machine switches OFF outputs in the sequence below: compressor motor (MC) OFF cold solenoid valve (EVF) OFF beater motor OFF the machine then automatically STOPS with alarm "Err.cool.Ice cream" on display, the alarm may be reset by pressing any button. A possible cause of this problem may be a lack of gas in the machine.
Alarm TES	Safety thermostat The display shows "Alarm TES" when the safety thermostat comes on. The machine STOPS.

4.1 NO POWER SUPPLY

- STOP
-BEAT
-TIMER
when power supply is restored **the machine goes to STOP**.

If the machine was in:
- any recipe apart from PASTEURISING MIX ICE CREAM
when power supply is restored **the machine returns to the point it was at before.**

If the machine was in:
- PASTEURISING MIX ICE CREAM
the control unit memorises the temperature and counts the time there was no power supply. When power supply is restored, the control unit continues the function in progress, only if the temperature and time parameters guarantee that the mix during the Black-Out, **has not undergone any alteration**.
If, on the other hand using values of temperature and time, the control unit considers that the mix **has undergone alteration**, start new PASTEURISING cycle, sending a warning message to operator.
The display shows:

RESTART Automat. Min=012 TEV +28°

That means that there was no power supply for 12 minutes and that TEV at return is 28°C. After a few seconds the writing below appears:

BLACK OUT set=+50° +28°	alternates with	Recipe1 P.01 set=+50° +28°

This means that PASTEURISING will be repeated from step 1 (heating at 50°C).

When power supply is restored the temperature of the mixture in the drum is checked.
What we mean by a mixture that has **undergone no alteration** is that the time when the power supply was OFF during COOLING is LOWER than the one indicated in the table below corresponding to the relative temperature interval, the machine continues the function in progress.

NO POWER SUPPLY TABLE

TEV temperature intervals	Time
from 85°C to 65°C	1 hour
from 64°C to 50°C	30 minutes
from 49°C to 15°C	10 minutes
from 14°C to 4°C	20 minutes
4°C	2 hours

If the machine had to pasteurise again after the power supply has been cut off and the cycle is completed, the message is:

Pasteurising **set=+50° +28°**	alternates with	**BLK 28/09 13:16** **set=+50° +28°**

BLK 28/09 13:16 means that on the date 28/09 at 13:16 the power supply returned and the machine repeated the cycle.

If there is more than one black out during one cycle the one memorised is always the last one.

N.B.:
if the power supply goes off during PASTEURISING mix ice cream and the machine has to pasteurise again and the power supply goes off again, the message BLK disappears and is replaced with the End recipe one.
In this case the blackout will only be registered in EVENTS.

5. CLEANING, DISASSEMBLING AND REASSEMBLING PARTS IN CONTACT WITH THE PRPODUCT

ATTENTION

Never put your hand into the machine, alike during production and cleaning operations. Before carrying out any maintenance operation, make sure that the machine is in "STOP" position and main switch has been cut out.

IMPORTANT

Cleaning and sanitizing are to be carried out as a habit, at the end of every working day with utmost care, in order to gaurantee high quality as well as the observance of all healthy rules.

5.1 PRELIMINARY CLEANING

Make sure that the product dispensing tap is closed; hence let water necessary to wash (5 lt. max) in the tank through the nozzle, by pressing key **WASH**
Press pushbutton **BEATING** and leave the machine in that position **no longer than 3 minutes.**

CAUTION

Do not keep the beater running for more than the time strictly needed to complete washing and sanitization. Without the lubrification of mix butterfatu the beater wear out quickly

Press **STOP**.
Drain all water from the cylinder through the mix dispensing spigot.
Disassemble the machine by removing its parts.

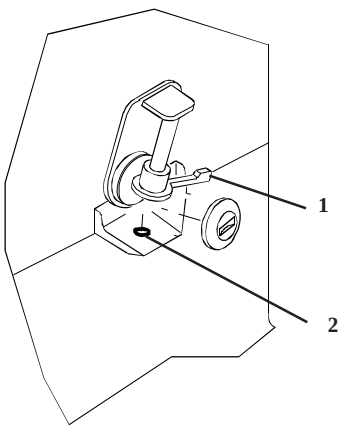
5.2 DISASSEMBLING THE SPIGOT

To disassemble the ice cream spigot, lift the door by turning the handle (ref. 1) towards left, lift the handle and the door and lock it by turning the handle towards right up to the lock.
Remove the ORing (ref. 2) of door sliding rod and take it out, so that the handle, too, will be disengaged.

Wash disassembled parts with water and detergent, rinse and put them in a sanitizing solution; rinse and reassemble the door. Reassemble all disassembled parts, minding that all gaskets are lubricated with a film of foograde fat.

CAUTION

When using the sanitizer, follow the instructions given by the supplier.
Use a sanitizer without plastic corrosive agents.

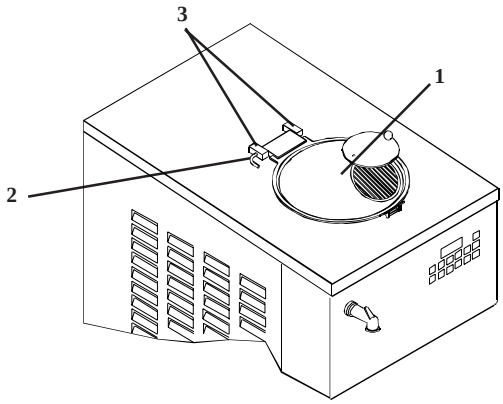


5.3 DISASSEMBLING THE TANK COVER

To disassemble the cover (ref. 1) it is necessary take the handle out (ref. 2) from both hinges (ref. 3) fastened on machine top side.

Wash the cover with water and detergent, rinse and put in a sanitizing solution; rinse again and reassemble.

CAUTION
When using the sanitizer, follow the instructions given by the supplier.
Use a sanitizer without plastic corrosive agents.

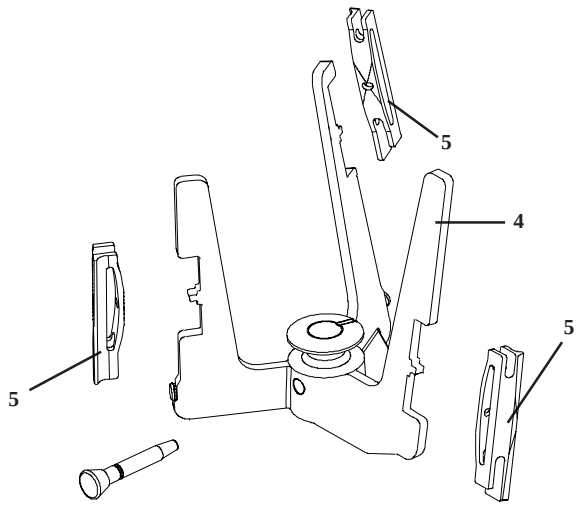


5.4 DISASSEMBLING THE BEATER

Remove the beater (ref. 4) from the tank and disassemble the scraping blades (ref. 5).

Wash all disassembled parts with water and detergent, rinse and put them in a sanitizing solution; rinse and reassemble the beater, now. Reassemble all disassembled parts, minding that all gaskets are lubricated with a film of foograde fat.

CAUTION
When using the sanitizer, follow the instructions given by the supplier.
Use a sanitizer without plastic corrosive agents.



5.5 HYGIENE

Mix fat contents are ideal fields for proliferation of mildew and bacteria.
To eliminate them, parts in contact with mixes and creams must be thoroughly washed and cleaned.
Stainless steel materials as well as plastic and rubber ones used for the construction of these parts and their particular design make cleaning easy, but cannot prevent the growth of mildew and bacteria if not properly cleaned.

5.6 SANITATION

With machine off, after reassembling the beater and checking that spigot is closed, fill the tank with a NON CORROSIVE sanitizing solution (5 lt. max).
Press pushbutton **BEATING** and leave the machine in that position **no longer than 3 minutes.**

CAUTION
Do not keep the beater running for more than the time strictly needed to complete washing and sanitization. Without the lubrification of mix butterfatu the beater wear out quickly

Press **STOP**.
Let the solution act 30 minutes, at least, depending on manufacture'rs instructions.
Drain all the sanitizing solution through the dispensing spigot.

CAUTION
Do not touch the sanitized parts with hands, napkins, or else.

WARNING
Before starting again with production, rinse thoroughly with just water, in order to remove any residue of sanitizing solution.

6. MAINTENANCE

ATTENTION

Never put your hand into the machine, alike during production and cleaning operations.
Before carrying out any maintenance operation, make sure that the machine is in "STOP" position and main switch has been cut out.

6.1 SERVICING TYPOLOGY

ATTENTION

Any servicing operation requiring the opening of machine panels must be carried out with machine set to stop and disconnected from main switch
Cleaning and lubricating moving parts is forbidden
Repairs of electrical and freezing plants must be carried out by skilled engineers

Operations necessary to proper machine running are such that most of servicing is completed during the machine production cycle.
Servicing operations, such as cleaning of parts in contact with the product, disassembling of beater assembly are to be carried out at the end of a working day, so as to speed up servicing operations required.
Herebelow you can find a list of routine servicing operations:

- **Cleanout of tank and cover**
  At the end of a working day.
- **Cleanout of spigot**
  At the end of a working day
- **Cleanout of beater assembly**
  At the end of a working day
- **Cleanout of panels**
  To be carried out daily with neutral soap , seeing to it that cleansing solution never reaches beater assembly at its inside.
- **Cleanout and sanitation**
  At the end of a working day, according to procedures described in section 5 of this manual.

WARNING

Never use abrasive sponges to clean machine and its parts, as it might scratch their surfaces.

6.2 WATERCOOLING

By machines with watercooled condenser, water must be drained from condenser at the end of selling season in order to avoid troubles in the event that the machine is stored in rooms where temperature may fall under 0°C.
- After closing water inlet pipe, withdraw drain pipe from its seat and let water flow out from circuit.

6.3 AIRCOOLING

Clean the air filter in order to remove dust and impurities that may hinder air circulation to the condenser. Use a brush with long bristles or a bolt of compressed air.

CAUTION!

When using compressed air, put on personal protections in order to avoid accidents; put on protective glasses!

NEVER USE SHARP METAL OBJECTS TO CARRY OUT THIS OPERATION. GOOD WORKING OF A FREEZING PLANT MOSTLY DEPENdS ON PROPERLY CLEANING OF THE CONDENSER.

6.4 ORDERING SPARE PARTS

In the event of breaking or wear of one or more parts, request the new ones directly to your local distributor, who will replace the part and will test the new one.

7 TROUBLESHOOT GUIDE

7.1 TROUBLESHOOT GUIDE

Troubles	Cause	Cure
Machine does not run or does not start	- Tank cover loose. - Main switch, main fuse or starting current protection faulty because of a short circuit or overload.	- Fasten tank cover. - Have the main switch checked by an engineer and replace, if need be. Also let the technician find out short circuit reason, make the repair and replace the fuses.
Freezing plant starts and stops at intervals	- Watercooled machine: No or insufficient cooling water. - Aircooled machine: condenser is dirty or air not circulating properly - Fan of the air-condenser is faulty.	- Checks: (watercooled units): - open the water cock as well as cooling water tap - Water tubes squashed - Checks aircooled units): - Blades clean - Machine at least 30 cm from obstacles - Disassemble the fan and replace it, if need be
Too little cold, so ice cream consistency is not sufficient	Coolant in the freezing plant insufficient; during cooling cycle there are air bubles in the coolant window. Thermostatic valve does not work properly	- Have it checked by an engineer - Freezing circuit leaks - Have gas leakages repaired - Top up
Freezing plant works but ice crem is too soft	- Scraping blades worn out (no more edges) and ice crusts are formed on the cylinder wall.	- Replace scraping blades