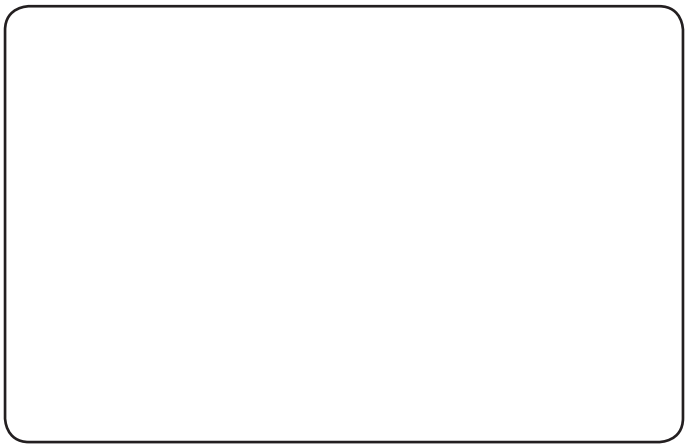
INSTRUCTION MANUAL

MC 12
MC 20



cattabriga

We wish to thank you for the preference granted to us by purchasing one of ***Cattabriga*** *machines.*
To the best guarantee, since 1993 ***Cattabriga*** *has submitted its own Quality System to the certification according to the international Standard ISO 9001, nowadays its production has got UNI-EN-ISO 9001:2008 Certified Quality System.*

Moreover, Cattabriga machines comply with following European Directives:
- *"Machinery" Directive 2006/42/EC,*
- *"Low Voltage" Directive 2006/95/EC,*
- *"EMC" Directive 2004/108/EC,*
- *"PED" Directive 97/23/EC,*
- *Regulation 2004/1935/EC relating to "Materials and articles in contact with foodstuffs"*

Cattabriga

Via Emilia, 45/a - 40011 Anzola dell'Emilia (Bologna) - Italy

Tel. +39 051 6505330 - Fax +39 051 6505331

Edizione: 03	Data: 2013/03	Modifiche: 3.3.3, 3.3.6, 3.3.7, 3.5
Redatto: AM	Verificato: AA	Approvato: RV

GENERAL INDEX

SECT. 1 GENERAL

SECT. 2 INSTALLATION

SECT. 3 DIRECTIONS FOR USE

FOREWORD

INSTRUCTION HANDBOOK

Editing this handbook, it was taken into due account European Community directions on safety standards as well as on free circulation of industrial products within E.C.

PURPOSE

This handbook was conceived taking machine users' needs into due account.
Topics relevant to a correct use of the machine have been analyzed in order to keep unchanged in the long run quality features charachterizing **Cattabriga** machines all over the world.
A significant part of this handbook refers to the conditions necessary to the machine use and to the necessary procedure during cleanout as well as routine and special maintenance.
Nevertheless, this handbook cannot meet all demands in details. In case of doubts or missing information, please apply to:

Cattabriga Via Emilia, 45/a - 40011 Anzola dell'Emilia (Bologna) - Italy
Tel. +39 051 6505330 - Fax +39 051 6505331

HANDBOOK STRUCTURE

This handbook is divided in sections, chapters and subchapters in order to be consulted more easily.

Section
A section is the part of the handbook identifying a specific topic related to a machine part.
Chapter
A chapter is that part of a section describing an assembly 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 operation reads and clearly understands those parts of the handbook of his/her own concern, and particularly:

- The Operator must read the chapters concerning the machine star-up and the operation of machine components.
- A skilled technician involved in the installation, maintenance, repair, etc., of the machine must read all parts of this handbook.

ADDITIONAL DOCUMENTATION

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

- **Part list**: a list of spare parts which is delivered together with the machine for its maintenance.
- **Wiring diagram**: a diagram of wiring connections is placed in the machine.

Before using the machine read carefully the instruction handbook.
Pay attention to the safety instructions.

CONVENTIONAL SYMBOLS

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

CAUTION DANGER FROM HIGH TEMPERATURES
This warns the staff involved that failure to abide by safety rules in carrying out the operation described involves the risk of burns and scalds.

CAUTION CRUSHING HAZARD
This warns the staff involved that failure to abide by safety rules in carrying out the operation described involves the risk of suffering crushed fingers or hands.

CAUTION: GENERAL HAZARD
The staff involved is warned that the operation described may cause injury if not performed following safety rules.

NOTE:
It points out significant information for the staff involved.

WARNINGS
The staff involved is warned that the non-observance of warning may cause loss of data and damage to the machine.

PROTECTIONS
This symbol on the side means that the operator must use personal protection against an implicit risk of accident.

SYMBOLOGY QUALIFICATION OF THE STAFF

The staff allowed to operate the machine can be differentiated by the level of preparation and responsibility in:

MACHINE OPERATOR
Identify unqualified personnel, those without any specific technical abilities who are capable of carrying out simple jobs, such as: operating the machine using the commands available on the keypad, the loading and unloading of products used during production, the loading of any consumable materials, basic maintenance operations, (cleaning, simple blockages, controls of the instrumentation, etc.).

MAINTENANCE ENGINEER
He/she is a skilled engineer for the operation of the machine under normal conditions; he/she is able to carry out interventions on mechanical parts and all adjustments, as well as maintenance and repairs. He/she is qualified for interventions on electrical and refrigeration components.

CATTABRIGA ENGINEER
He/she is a skilled engineer the manufacturer assigned to field interventions for complex jobs under particular conditions or in accordance with agreements made with the machine's owner.

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 damage to persons and things.
Who is in charge of plant safety must be on the look-out that:

- an incorrect use or handling shall be avoided;
- safety devices must neither be removed nor tampered with;
- the machine shall be regularly serviced;
- only original spare parts are to be used especially as far as those components with safety functions are concerned (ex.: protection microswitches, thermostats);
- suitable personal protective equipment is worn;
- high care must be payed during hot product cycling.

To achieve the above, the following is necessary:

- at the working place an instruction manual relevant to the machine should be available;
- tuch documentation must be carefully read and requirements must conse quently be met;
- only adequately skilled personnel should be assigned to electrical equipment.

IMPORTANT!
One must be on the look-out that the staff does not carry out any operation outside its own sphere of knowledge and responsibility (refer to “Symbology qualification of the staff”).

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.

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.

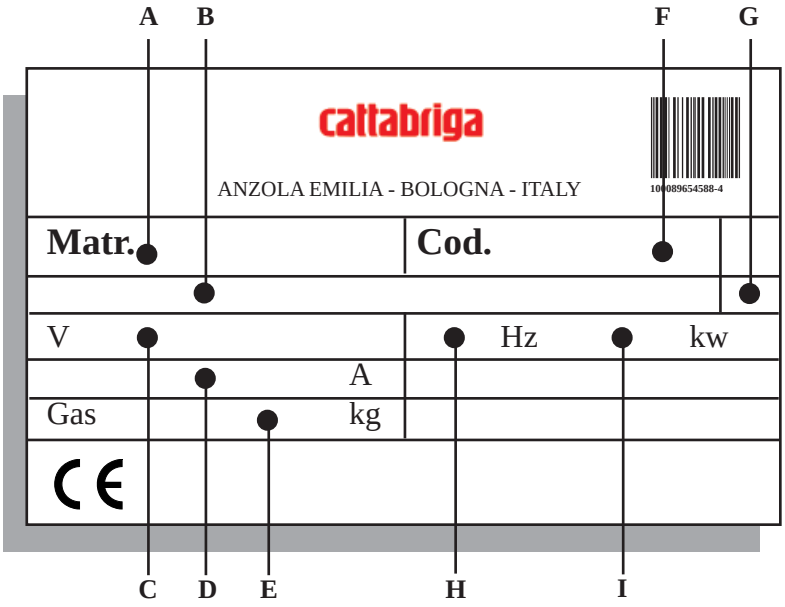
- Never put your hand into the machine, alike during production and cleaning operations. Before carrying out any maintenance operation, make sure that the machine is in “**STOP**” position and main switch has been cut out.
- It is forbidden to wash the machine by means of a bolt of water under pressure.
- It is forbidden to remove panels in order to reach the machine inside before having disconnected the machine.
- **Cattabriga** 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 **Cattabriga**.

cattabriga

1.2 INFORMATION ABOUT THE MACHINE

1.2.1 General information

MC 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.

Cattabriga 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 **Cattabriga**.

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.

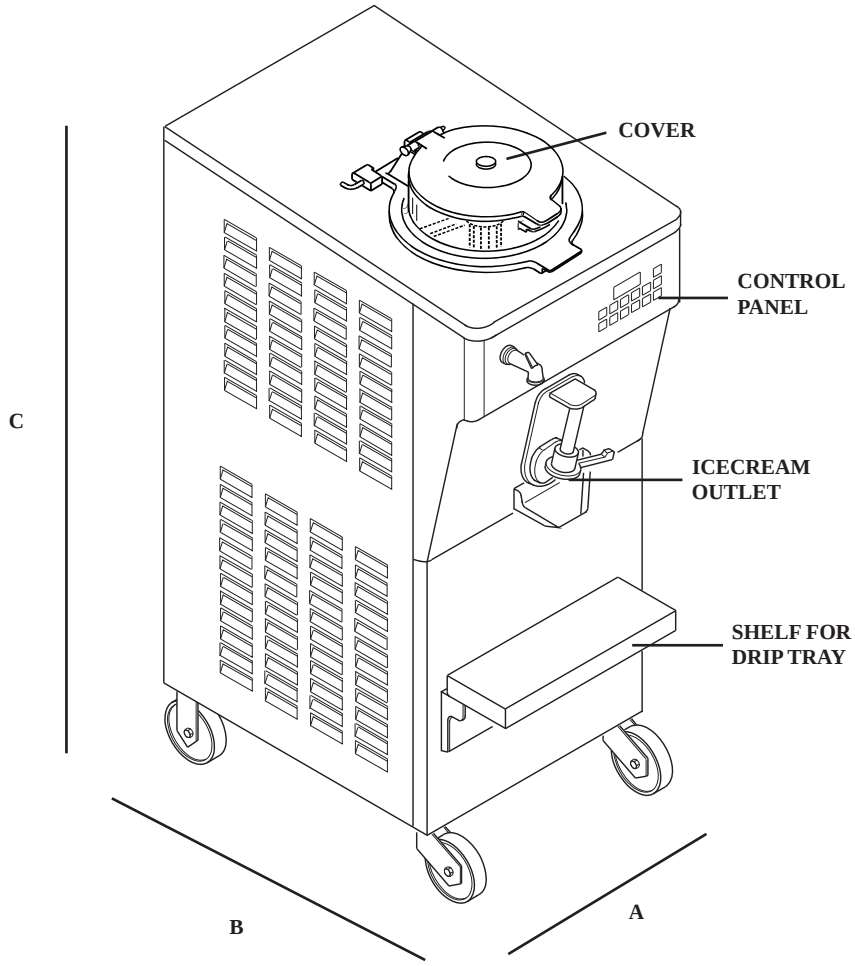
1.2.2 Technical features

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. (B)	Net Kg.
MC 12	22,5 ÷ 52,5	7	400	50	3	5,2	505	700	1280	190
MC 20	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

MC machines 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.

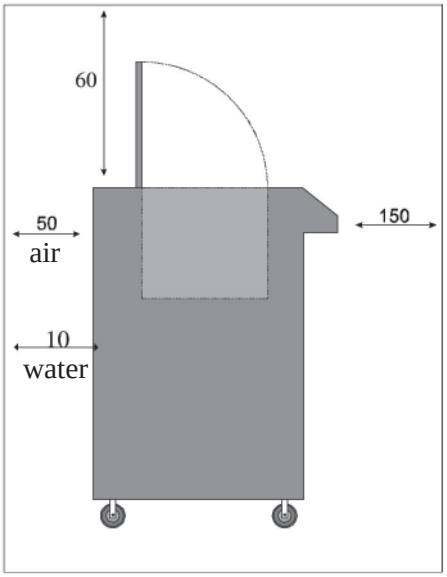
1.7 WEEE (Waste Electrical and Electronic Equipment)

In conformity with the European Directives 2006/66/EC, on batteries and accumulators and waste batteries and accumulators, and 2002/96/EC, also known as WEEE, the presence of the symbol on the side of the product or packaging means that the product must not be disposed of with normal urban waste. Instead, it is the user's responsibility to dispose of this product by returning it to a collection point designated for the recycling/treatment of electrical and electronic equipment waste. Differentiated collection of this waste material helps to optimize the recovery and recycling of any reclaimable materials and also reduces the impact on human health and the environment.
For more information concerning the correct disposal of this product, please contact your local authority or the retailer where this product was purchased.

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

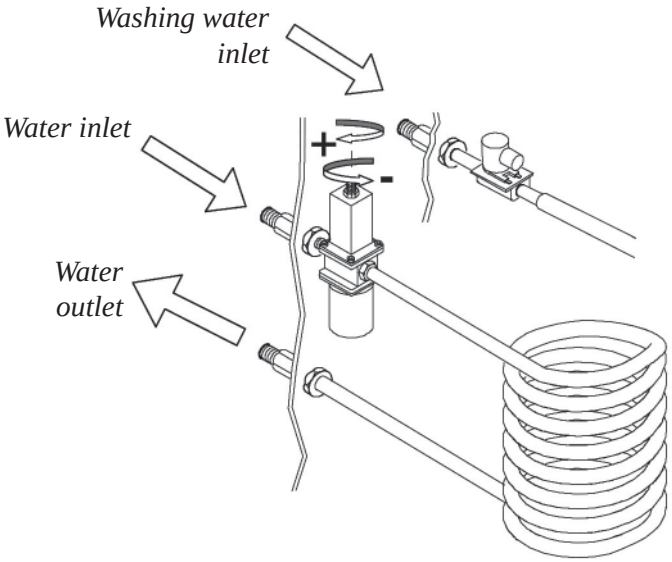
The machine must be connected to running water which pressure must not be higher than 0,8 MPa (8 bar).
By aircooled machines, water connection for drinking water (for machine wash), marked by the plate herebelow, is placed under the machine.
Connect this tube to drinkable water,only.

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.

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



2.4.1 Water valve adjustment

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 ELECTRIC CONNECTION

Before connecting the machine to the mains, check that machine voltage indicated in data plate corresponds with the mains.
Be sure to install, between the machine and the power mains, a **class D differential circuit breaker** of the correct size for the required power input and with a contact gap of at least 3 mm.
The machines are delivered with a 5 wire cable: blue wire must be connected to the neutral lead.

IMPORTANT
Yellow/green ground wire must be connected to an adeguate ground plate.

ATTENTION
Before connecting the machine to the electricity mains circuit, remember to always connect the water attachments (for the condenser and washing water).

Model	**Installed power** kW
MC 12	**5,2**
MC 20	**7,7**

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 **Cattabriga** 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 **Cattabriga** 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 **Cattabriga** 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 damage to persons and things.
Who is in charge of plant safety must be on the look-out that:

- an incorrect use or handling shall be avoided;
- safety devices must neither be removed nor tampered with;
- the machine shall be regularly serviced;
- only original spare parts are to be used especially as far as those components with safety functions are concerned (ex.: protection microswitches, thermostats);
- suitable personal protective equipment is worn;
- high care must be payed during hot product cycling.

To achieve the above, the following is necessary:

- at the working place an instruction manual relevant to the machine should be available;
- tuch documentation must be carefully read and requirements must conse quently be met;
- only adequately skilled personnel should 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 10.
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 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.

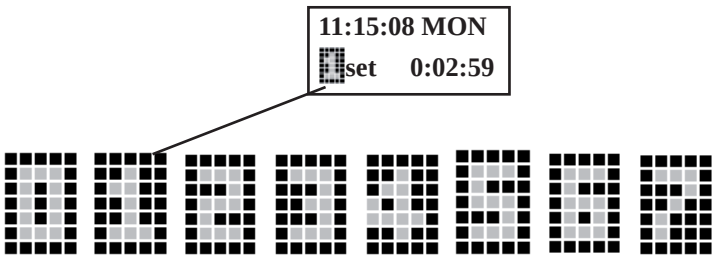
When the machine is STOPPED the display indicates the time and the day of the week on the first line, and the date and the TEV on the second line.
E.g.:

11:15:08 MON
23/10 +11°

THE STOP PUSH BUTTON IS ALSO USED TO RESET ANY ALARM.

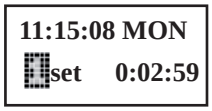
3.3.3 Beating push-button

This key activates the tank beater.
After 3 minutes the machine goes automatically into STOP mode.
The display shows time and day of the week on the first line.
On the second line the speed “number” on the left and the decreasing time on the right.

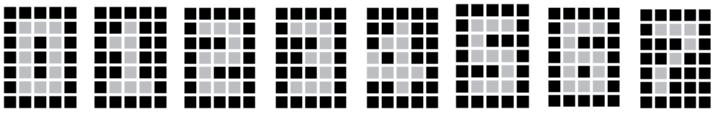


The beater motor is controlled by an Inverter.
For this reason the beating is divided into 7 speed steps with the possibility of setting speed 0 (beater stopped).
1 is associated with the lowest speed while 7 is the fastest.

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.

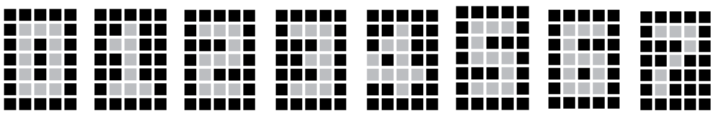
Pressing the Beater key again when the Beater is active, the LED flash and the Beater functions intermittently because it is controlled by the programmable ON/OFF timer.
In this case the intermittent beating does not stop after three minutes and functions for an indefinite time.
Pressing the Beater key once more, the machine goes into STOP mode.

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:



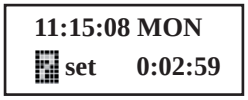
Speed0 (static) Speed1 Speed2 Speed3 Speed4 Speed5 Speed6 Speed7.

Press the Beater Speed Adjustment key again to deactivate the speed adjustment mode.

After 3 minutes the machine goes automatically into STOP mode.

3.3.5 Extraction push-button

The display shows:



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

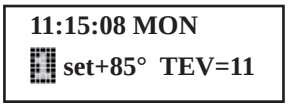
Pressing the Heating key, heat is activated for the time set in Programming. When the time ends, also the Beater is started at the speed 4 and the set temperature is 85°.
When you press the Beater Speed Adjustment pushbutton you can select a speed from the seven available as described in paragraph "Adjusting Beater Speed".

Pressing the Beater key instead, the LED flashes and the beating is intermittent and follows the times set in Programming. Pressing the Beater key again, the LED flashes quickly and the beating is activated only when Heating is activated. Pressing the Beater key again, the LED switches off to obtain Static Heating.

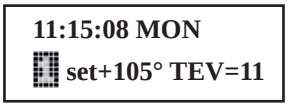
Heating may also be deactivated by pressing Heating pushbutton. In this way you can have beating without heating (the LED switches OFF and the heat is deactivated). If you press heating again the heat is activated and the previously selected speed remains active.

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

The display shows:



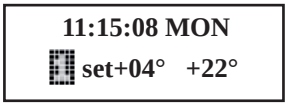
The Temperature Set can be modified with Increment and Decrement keys 10 to 120°C.
Its typical value is 85°C.



The 85°C heating temperature is shown in each manual heating cycle.

3.3.7 Cooling push-button

By pressing cooling set is entered at a 4°C, while on the right hand side you can see the current temperature of the mixture in the drum (TEV).



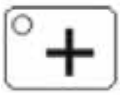
Pressing the Cooling key, heat is activated (EVC ON – MC ON in sequence) for the time set in Programming. When that time expires, cold is activated (EVF ON – MC ON) and the Beater is activated at speed n. 4.
The temperature may be changed using Increase and Decrease buttons from 2 to 105°C the typical 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".
Pressing the Beater key twice the LED flashes quickly and the beater is activated only when cold is requested, which means beating in parallel with the compressor. Pressing the Beater key three times (the LED switches off) beating is deactivated. In this case you obtain static cooling.

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
```

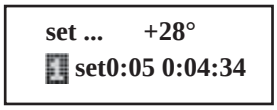
The total set time may be changed using Increase and Decrease from 1 to 59 minutes, if you continue to increase the value the hours increase (the minutes can no longer be changed) up to a maximum of 9 hours while on the right the time appears that decreases.
Once the time has ended a sound alarm sounds.
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

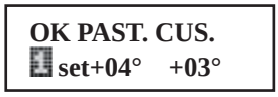
Select type of recipe with Increment and Decrement keys.
If you want to use one of the recipes press **GO**.
Available recipes:

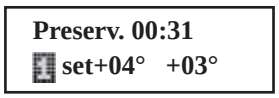
RECIPE NR 1	PASTRY CREAM
RECIPE NR 2	LEMON CREAM
RECIPE NR 3	BAVARIAN
RECIPE NR 4	PÂTÉ À BOMBE
RECIPE NR 5	MERINGUE
RECIPE NR 6	MIX PASTEURISATION
RECIPE NR 7	MOUSSELINE
RECIPE NR 8	BUTTER CREAM
RECIPE NR 9	TEMPERED CHOCOLATE
RECIPE NR 10	TEMPERED CHOCOLATE STORAGE
RECIPE NR 11	GANACHE CREAM
RECIPE NR 12	MIX-ICE CREAM PASTEURISATION
RECIPE NR 13	SPECIAL MIX-ICE CREAM PASTEURISATION
RECIPE NR 14	ICE CREAM
RECIPE NR 15	SPECIAL ICE CREAM
RECIPE NR 16	BESCIAMELLE SAUCE
RECIPE NR 17	INVERTED SUGAR
RECIPE NR 18	FRUIT JELLY
RECIPE NR 19	FRUIT JAM
RECIPE NR 20	POCHÉE FRUITS
RECIPE NR 21	MARSHMALLOW
RECIPE NR 22	MACAROON
RECIPE NR 23	SLUSH

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:





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

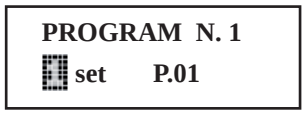
This button has a variety of functions related to reading, customising and making up user's own customised recipes.

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):



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).

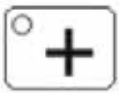
3.4.2 Example of program creation

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	*Tasto*	*Display*
1) press REC		***PROGRAM N.4*** ***set P.01***
2) press Heating		***PROGRAM N.4*** ***set+85° P.01***
3) press Increment up to 90°C		***PROGRAM N.4*** ***set+90° P.01***
4) press Beater Speed adjustment in order to set desired speed		***PROGRAM N.4*** ***set+90° P.01***
5) Adjust speed through Increment and Decrement keys, for instance speed 6		***PROGRAM N.4*** ***set+90° P.01***
6) press REC		***PROGRAM N.4*** ***set P.02***
7) press TIMER (free selection)		***PROGRAM N.4*** ***set0:30 P.02***
8) press Decrement up to 5' (deselect)		***PROGRAM N.4*** ***set0:05 P.02***
9) press REC		***PROGRAM N.4*** ***set P.03***
10) press Cooling (beating 1 will automatically be inserted)		***PROGRAM N.4*** ***set+04° P.03***
11) press Decrement up to 2°C		***PROGRAM N.4*** ***set+02° P.03***
12)press REC		***PROGRAM N.4*** ***set P.04***
13)press TIMER		***PROGRAM N.4*** ***set0:30 P.04***
14)press Decrement up to 0' (deselect)		***PROGRAM N.4*** ***set0:00 P.04***
15)press REC		***PROGRAM N.4*** ***set P.05***
16)press REC again		***14:15:08 TUE*** ***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  and  .
- Press **REC**  and release it
- Press **REC** for 5 seconds

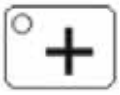
The display shows:

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  and  .
- 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**.

Values of user program steps CANNOT be modified during program execution.

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, ENG, FRA, DEU	n°	ITA	ESP 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 PRINT EVENTS

Place the machine in Stop mode.
Press the Increase key continuously.
When the display visualises “Print Events” release the key.
Select “Print Events” by pressing the Increase key:
- Print Events
- Print Pasteurisations
- Print Timer

Confirm by pressing the GO key.
Using the Increase/Decrease keys, select the number of events to be printed.
The maximum number of events that can be printed is [200].
Press the GO key again to start printing.

Selecting “Print Pasteurisations”
Using the Increase/Decrease keys, select the number of Pasteurisations to be printed.
The maximum number of Pasteurisations that can be printed is [200].
Press the GO key again to start printing.

Selecting “Print Timer"
Using the Increase/Decrease keys, select the number of minutes to be set.
The maximum number of minutes that can be set is [099].
For example, selecting 1 then pressing the GO key, the following will be printed: Function / TEV / Date / Hour or each minute if the machine is NOT in STOP mode.

3.8 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:

3.8.1 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.

3.8.2 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. SAFETY DEVICES

4.1 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".
Allarm Press. switch	Safety pressure switch ON. When 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 TESic	"TESic" temperature sensor in short-circuit. The display visualises "TESic Alarm" and the machine goes into Stop mode. Check the TESic temperature sensor and substitute it if necessary.
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.
Timeout Prod.	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.

4.2 NO POWER SUPPLY

If the machine was in:
- 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.

NOTE:
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. CLEANOUT DISASSEMBLING AND REASSEMBLING OF PARTS IN CONTACT WITH THE PRODUCT

5.1 GENERAL DESCRIPTION

Cleaning and sanitisation are operations that must be carried out habitually and with maximum care at the end of each production run to guarantee the production quality and respect the necessary hygienic norms.
Giving dirt the time to dry out can greatly increase the risk of rings, marks and damage to surfaces. Removing dirt is much easier if it is done immediately after use because there is the risk that some elements containing acid and saline substances can corrode the surfaces. A prolonged soaking is recommended.

5.2 WASHING CONDITIONS

- **Avoid using solvents, alcohol or detergents that could damage the component parts, the machine or pollute the functional production parts.**
- When manually washing never utilise powder or abrasive products, abrasive sponges or pointed tools. There is a risk of dulling the surfaces, removing or deteriorating the protective film that is present on the surface and scoring the surface.
- Never use metal scouring pads or synthetic abrasives that could cause oxidization or make the surfaces vulnerable to attack.
- Avoid using detergents that contain chlorine and its composites. The use of these detergents such as bleach, ammonia, hydrochloric acid and decalcifiers can attack the composition of the steel, marking and oxidising it irreparably and causing damage to the parts made from thermoset materials.
- Do not use dishwashers and their detergent products.

5.3 SUGGESTIONS

- Use a non-aggressive detergent solution to wash the parts.
- Manually wash the parts in water (max 60°C) using a non-aggressive detergent and the cleaning brushes supplied as standard.
- Use drinking water (bacteriologically pure) to rinse the parts.
- To sanitise leave the disassembled parts in sanitised tepid water for 10-15 minutes (use the sanitising product following the instructions of the manufacturer) and rinse them before reassembling.
- When the washing procedure has been completed and before the reassembly of each component dry thoroughly with a clean and soft cloth that is suitable for coming into contact with foodstuffs, to avoid leaving any humidity rich in mineral salts and chlorine that could attack the metal surfaces and leave opaque traces.

Carpigiani recommends the use of a cleaning/sanitising solution to wash the machine.
The use of a cleaning/sanitising solution optimises the washing and sanitising procedures in that it eliminates two phases of the procedure (a rinse and a washing phase). In substance the use of a cleaning/sanitising solution saves time by facilitating and simplifying washing/ sanitising procedures.

WARNING

Every time the machine is washed and its parts that come into contact with the ice cream mix are disassembled it is essential to carry out a visual control of all the parts manufactured in thermoset materials and metal such as sliding shoes, pump gears, beaters, etc. All parts must be integral and not worn, without cracks or splits, or opaque if originally polished/transparent.
Carpigiani declines all responsibility for any damage caused by imperfections and/or undetected breakages and not promptly solved by the substitution of original spare parts and is available for consultation and for any specific requests made by the customer.

5.4 HOW TO USE DETERGENT/SANITIZING SOLUTION

Prepare a solution of water and detergent/sanitizing following the instructions shown on the label of the product being utilised.

Washing/sanitisation by immersion of components
- Manually remove the bulk residues utilising the supplied brushes.
- Remove finer residues with a jet of water.
- Immerse the parts to be cleaned into the solution.
- Let the solution react for the time indicated on the label of the product being utilised.
- Rinse the parts with care, using plenty of clean drinking water.

5.5 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.

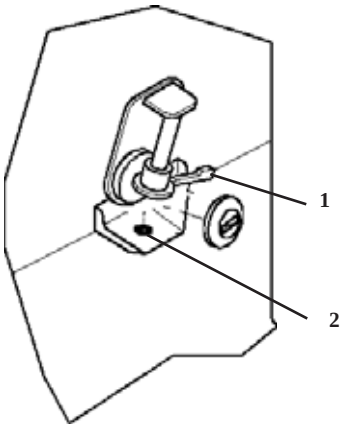
Press **STOP**.
Drain all water from the cylinder through the mix dispensing spigot.
Disassemble the machine by removing its parts.

5.6 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 O-Ring (ref. 2) of door sliding rod and take it out, so that the handle, too, will be disengaged.

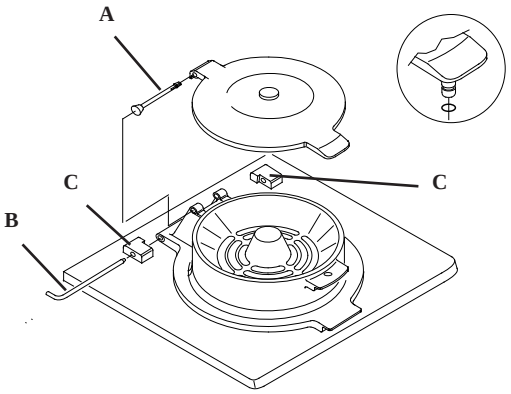
Wash disassembled parts with detergent/sanitizing solution, rinse and reassemble the door. Reassemble all disassembled parts, minding that all gaskets are lubricated with a film of foograde fat.

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



5.7 DISASSEMBLING THE TANK COVER

Remove pin A to remove the upper element of the cover. To remove the lower part, slide out the lever B from the two hinges C fixed to the upper surface of the machine.
Wash the disassembled components with detergent/sanitizing solution and rinse them .
Reassemble the pieces, taking care to grease the gaskets with a thin film of food-safe lubricant.



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

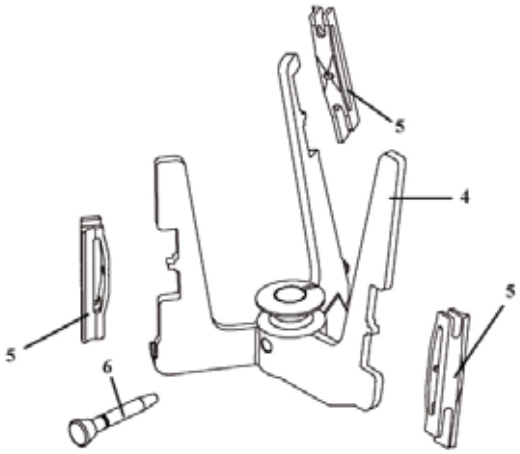
5.8 DISASSEMBLING THE BEATER

Take off the pin (rif. 6) and remove the beater (ref. 4) from the tank and disassemble the scraping blades (ref. 5).
Wash all disassembled parts with detergent/sanitizing solution, rinse and reassemble the beater, now.

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

Reassemble all disassembled parts, minding that all gaskets are lubricated with a film of foodgrade fat.
Reassemble the scraper to the beater.
Proceed as follows:

- Insert the scraper into its seat, making sure it is in the correct position. In fact, the side of the scraper with the longest end must remain at the bottom (see photo 1).
- Press down on the scraper, as illustrated in photo 2, until it clicks into place.



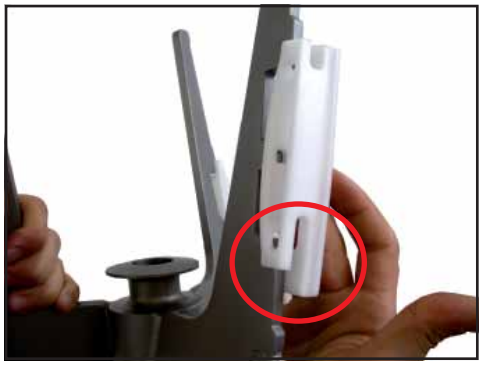


Photo 1

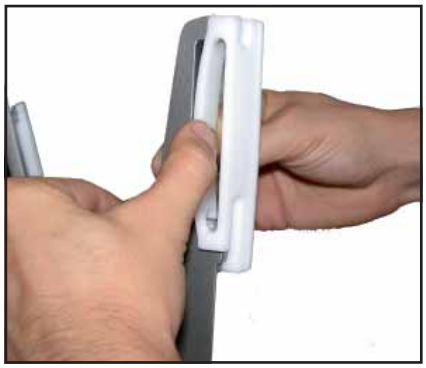


Photo 2

5.9 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.

5.10 SANITATION

This operation is required after each production cycle.
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 push button **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 manufacturer's 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

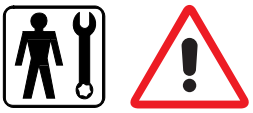
ATTENTION

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 lubricatingmoving parts is forbidden!
"Repairs to the wiring, mechanical, air supply or cooling systems, or to parts of same must be carried out by qualified personnel with permission to do so and if necessary, according to the routine and extraordinary maintenance schedules as envisaged by the customer with reference to specific intervention methods, according to the use for which the machine is destined".



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

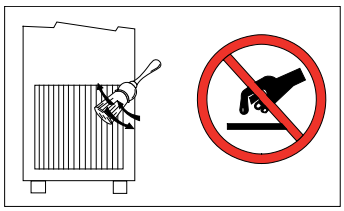
By machines with watercooled condenser, water must be drained from condenser at the end of selling season in order to avoid troubles in the event that the machine is stored in rooms where temperature may fall under 0°C.
- After closing water inlet pipe, withdraw drain pipe from its seat and let water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

NOTE: 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