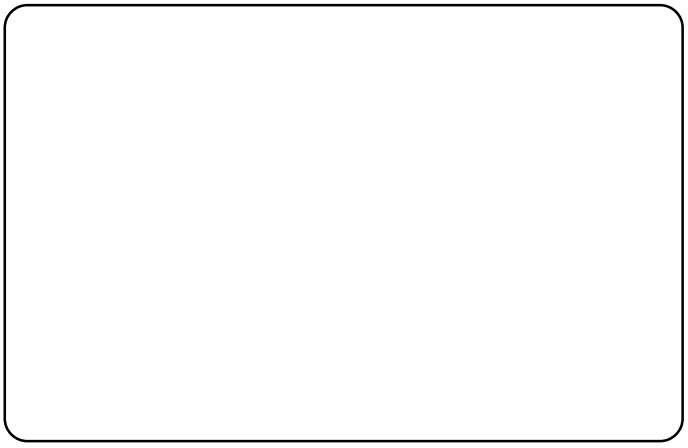
INSTRUCTIONS HANDBOOK

MANTEMATIC KEL
MANTEMATIC KEL G



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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 9001-94.

Moreover, Cattabriga 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.

CATTABRIGA

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

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FOREWORD

INSTRUCTIONS HANDBOOK

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

PURPOSE

This handbook was edited while taking needs of machine users 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 characterizing **CATTABRIGA** machines throughout the world.
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:

CATTABRIGA - Via Emilia, 45A - 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 have 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 operating the machine, carefully read this handbook.
Also carefully read safety instructions

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 are neither removed nor tampered.
- The machine is regularly serviced.
- Only are original spare parts 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 must adequately skilled personnel 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.

CATTABRIGA 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.

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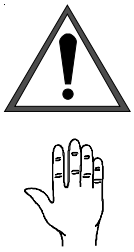
PROTECTIONS
This symbol placed by description side means that the operator must use personal protections against an implicit risk of accident.



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 hands into the machine, alike during production and cleaning operations. Before carrying out any maintenance operation, make sure that the machine is in "**STOP/ RESET**" 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.
- **CATTABRIGA** is not responsible for any accident that might happen during operation, cleaning and/or servicing of its units, if safety warnings are not fully complied with.

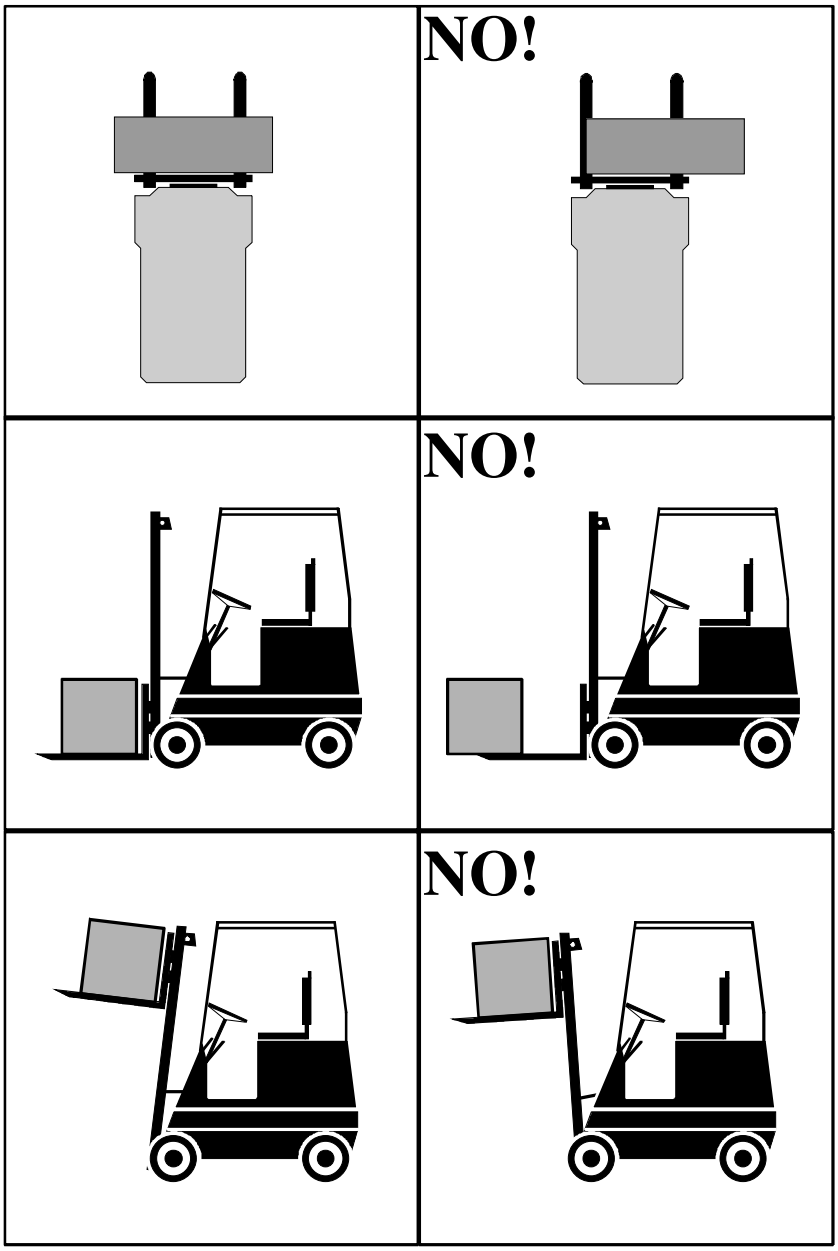
1. RECEIVING, MOVING, UNPACKING

1.1 RECEPTION

- Before unpacking the machine, check that packing shows no external damages due to collisions during transportation.
- An external damage could mean the machine itself is damaged: in this case, immediately apply to insurance company and leave everything as it was on reception.

1.1.1 Lifting pscked mschinrs

To lift the packing, insert lift forks into the space between pallet feet, so as to balance the machine weight and consequently packing barycenter.



1.1.2 Forbidden material handling equipment

Material handling equipment not in compliance with following safety characteristics must never be used:

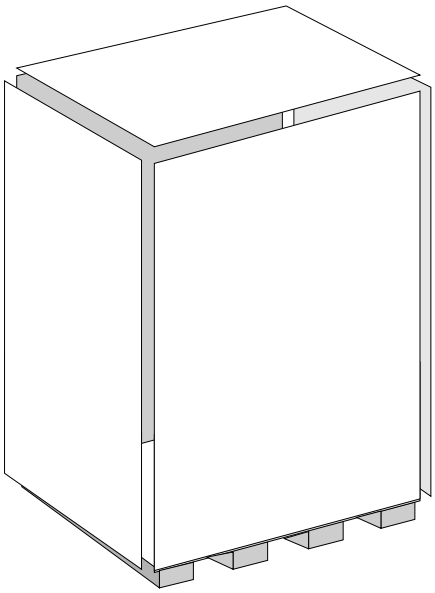
- Lifting capacity lower than machine weight
- Unsuitable construction features of the lift (ex.: too short forks)
- Construction features altered by use
- Unconforming ropes and cables
- Worn ropes or cables.

1.2 UNPACKING

There are two types of packing: wooden type or in corrugated board.

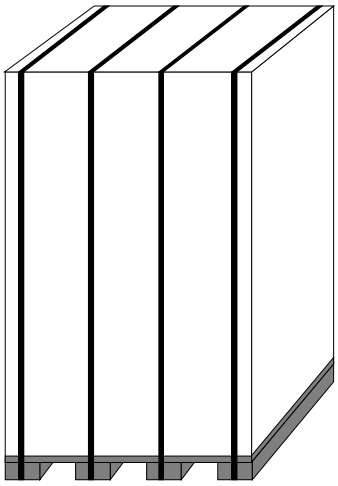
Walls of a wooden packing are nailed and the machine is fastened by means of stay bolts connecting machine frame bottom to packing wooden base.
A wooden packing can be opened by means of proper tools; it is recommended to protect exposed parts, such as hands with gloves, against wood splinters.

- Remove nails starting from the upper part until the machine still fastened to the pallet (board) is left uncovered.
- Remove protection film wrapping the machine.
- Check that the machine has not been damaged during transportation.



- Board packing is externally closed by three steel straps.
- The machine is secured through other straps at the inside.
- This packing can be opened with snips.

Act with utmost care, as you may hurt yourselves when cutting the straps, if they are not strongly held during this operation.

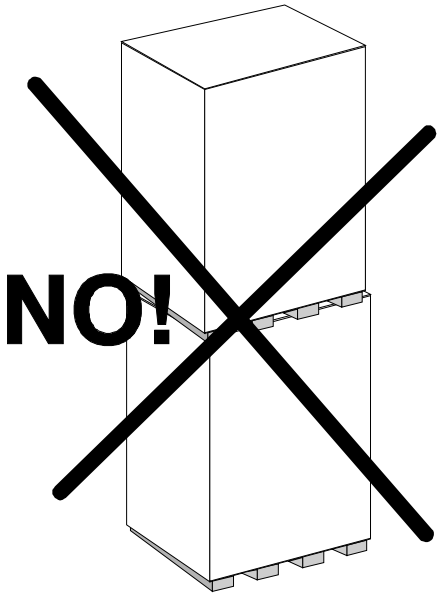


CAUTION
Inside the machine you will find an instructions handbook; it is necessary to carefully read it before operating the machine.

1.3 STORING THE 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 agains dust and else.

IMPORTANT
When storing a packed machine, never place a crate on another.



1.4 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 the machine installation country.

1.5 WEEE (Waste Electrical and Electronic Equipment)

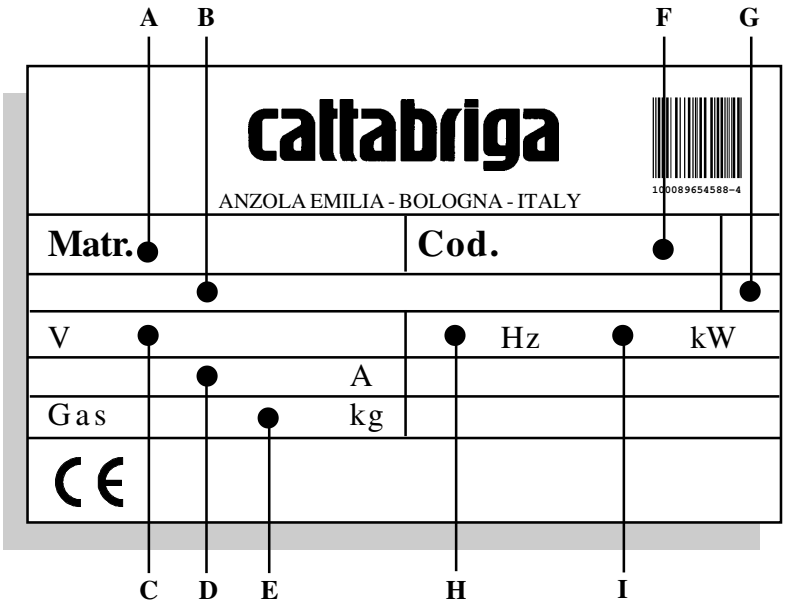
In accordance with European Directive 2002/96/EC on WEEE (Waste Electrical and Electronic Equipment), the presence of the above symbol on the product or on its packaging indicates that this item must not be disposed of in the normal unsorted municipal waste stream. Instead, it is the user's responsibility to dispose of this product by returning it to a collection point designated for the recycling of electrical and electronic equipment waste. Separate collection of this waste 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. GENERAL INFORMATION

2.1 GENERAL INFORMATION

2.1.1 Manufacturer's identification data

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



Legenda:

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

2.1.2 Client user's identification data

CLIENT: .....

ADDRESS: .....

TELEPHONE: .....

Machine serial number: .....
Machine delivered on: .....
Instr. handbook delivered on: .....

2.1.3 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.

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2.1.4 Information to the user

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- 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**.

2.2 INFORMATION ABOUT THE MACHINE

2.2.1 General data

MANTEMATIC KEL are electronic horizontal batch freezers for the production of artisan ice cream. An electronic microcomputer combined with a sight check couple system allows a steady check of ice cream consistency. Further, a backlighgted display gives alarms, if any, while indicating type and cause.

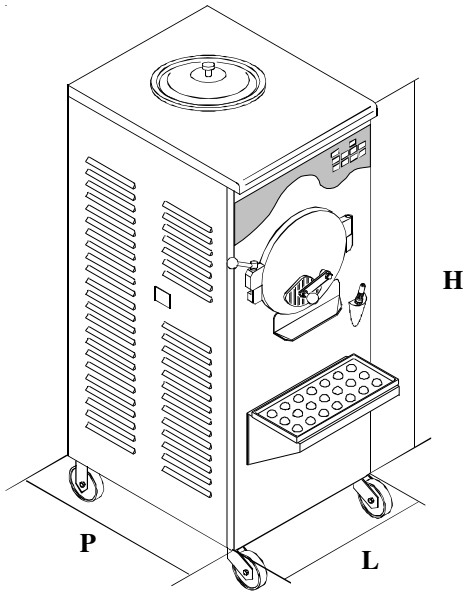
CATTABRIGA recommends to always use high quality ingredients for the preparation of ice cream, in order to satisfy your customers, even the hardest-to-please ones.
Any saving made to the prejudice of quality will surely turn into a loss much bigger than the saving itself.
Bearing in mind the above statements,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

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

2.2.2 Machine layout

NOTE
Dimensions given may vary depending on type of condensation.

Model	Dimensions		
MANTEMATIC KEL	Width mm (W)	Depth mm (D)	Height mm (H)
Mantematic Kel 40	510	740	1270
Mantematic Kel 60S	510	960	1270
Mantematic Kel 80	610	990	1270
Mantematic Kel 100S	610	1055	1270

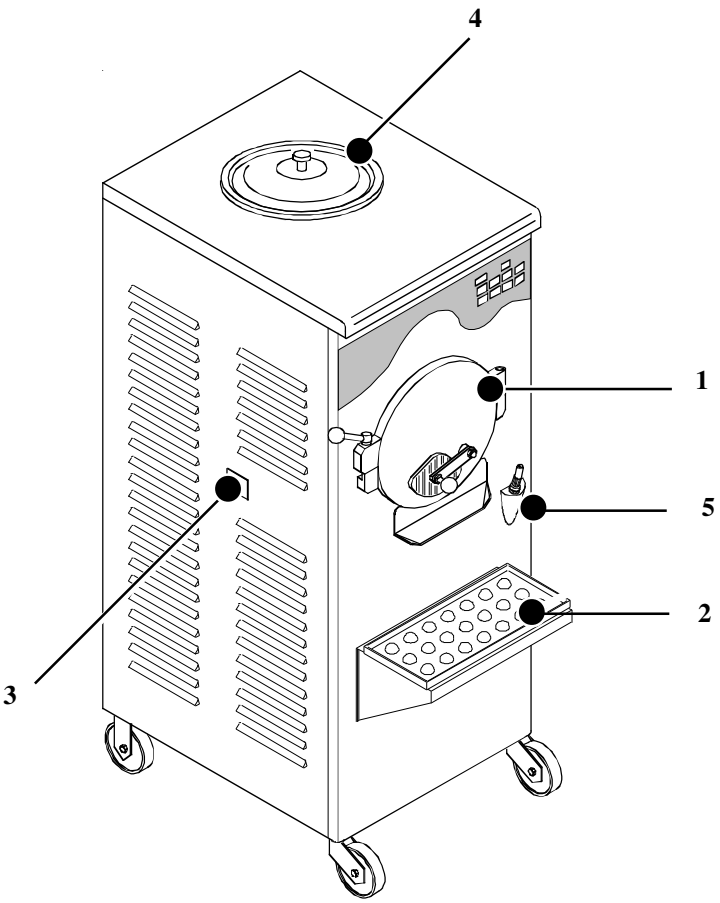


2.2.3 Technical features

MODEL	Cylinder capacity per batch Min ; Max	Hourly output	Electric power*			Condenser	Net weight
	litres	kg/h	volts	cycles	phase		kg
Mantematic kel 40	**3 - 6**	**20 ÷ 30**	**400**	**50**	**3**	**Water Air**	**230/280**
Mantematic kel 60S	**4 - 8**	**30 ÷ 45**	**400**	**50**	**3**	**Water Air**	**260/310**
Mantematic Kel 80	**4 - 12**	**60 ÷ 90**	**400**	**50**	**3**	**Water**	**350/400**
Mantematic kel 100S	**4 - 16**	**70 ÷ 100**	**400**	**50**	**3**	**Water**	**420/480**

* *Hourly output and quantity of mix per batch may vary depending on temperature and type of mix used, as well as on desired overrun.*

2.2.4 Groups location



Caption:

1 Ice cream front lid
2 Shelf
3 Drip drawer
4 Hopper
5 Water dispenser

2.3 INTENDED USE

The **MANTEMATIC KEL** must only be used for the production of ice cream and slush conforming with description made in chapter 2.2.1 "General information", within the limits indicated here under**.**

- Voltage ±10%
- Min air temperature °C 10°C
- Max air temperature °C 43°C
- Min water temperature 10°C
- Max water temperature 30°C
- Min. water pressure 1 bar
- Max water pressure 8 bar
- Max relative humidity 85%

The machine has been designed for its use in places which are not subject to explosion-proof standards; its use is thus bound to conforming places and normal atmosphere.

WARNING
CATTABRIGA is NOT responsible for damages to people and/or things in case the machine is used unlike its design and realization.

2.4 NOISE

The steady acoustic pressure level weighed A in a working place alike by watercooled and by aircooled machines is less than 70 dB(A).

3. INSTALLATION

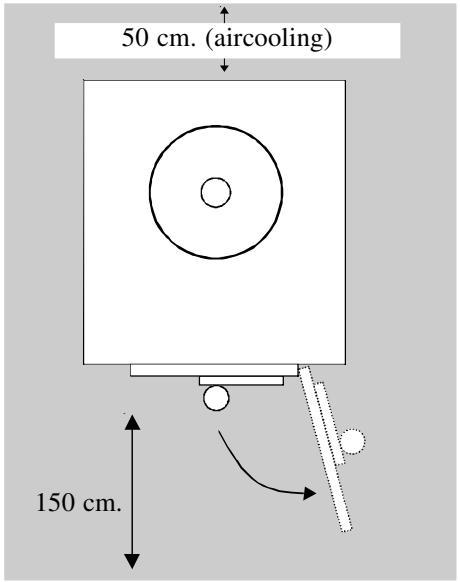
3.1 ROOM NECESSARY TO THE MACHINE USE

The machine must be installed in such a way 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.

CAUTION
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

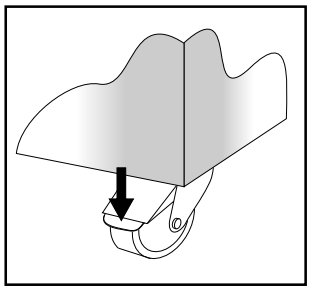
CAUTION
Clean the floor near and beneath the machine, very often, in order to avoid that paper and other foreign bodies obstruct a regular air flow.

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



3.2 LOCATION

The machine is provided with castors for its easy positioning; a mechanical block system, once engaged, prevent the machine from moving and keeps it standstill.



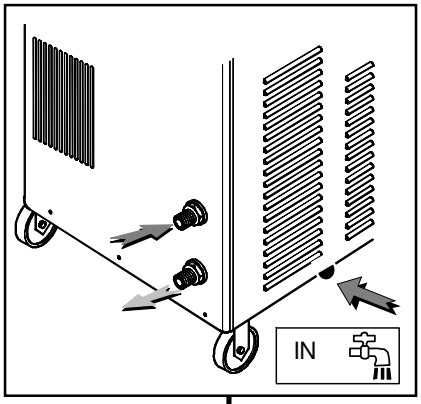
3.3 WATER CONNECTION

Machines are provided with an electric device for immediate heating of washing water.
The machine must be connected to the water pipe after checking that working pressure is between 1 and 8 bar.

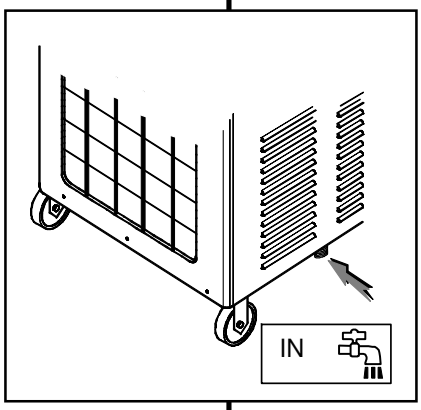
NOTE
To meake cleanout easy, we recommend to connect the machine to water used in the laboratory by installing a shut-off valve.

Water connection for wash is marked by the plate 

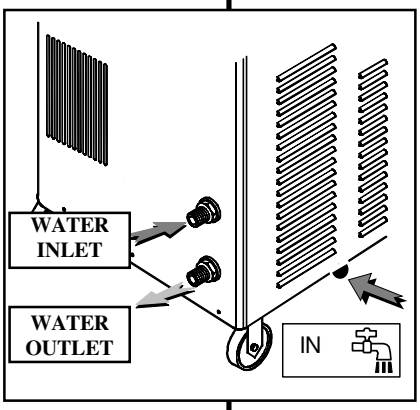
.



By **watercooled machines** water connection for wash is placed on the machine bottom panel (see picture on the right side).

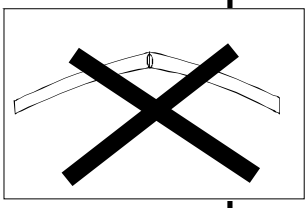


By **aircooled machines** connection for washing water is placed on the machine bottom panel (see picture on the right side).



3.4 WATER CONNECTION FOR MACHINES WITH WATERCOOLED CONDENSER

The machines with watercooled condenser can only work if connected to running water or to a cooling tower.
Water must have at least 1 Bar pressure and delivery must be equal to the estimated hourly consumption (see paragraph 2.2.3 Technical Features).
Connect inlet pipe, marked by the plate "Entrata Acqua" (Water Inlet) to water supply by installing a shut-off valve, and outlet pipe, being marke by the plate "Uscita Acqua" (Water Outlet) to a drain pipe by installing a hurt-off valve (see picture on the right side)



NOTE
Use rubberized canvas hoses suitable for operating pressure up to 8 bar and mind not to bend, so avoiding to break them.

CAUTION
Never leave the machines in a room where the temperature is below 0°C witout first draing water from the condenser (see Section 7).

3.4.1 Water valve adjustment

IMPORTANT
If water valve needs to be reset, this operation must be carried out by skilled personnel, only.

Set water valve so that, when the machine is in production, water temperature when coming out of the machine is ±12°C as to entering water temperature.
Approach to the water valve is oly possible by removing a side panel.

NOTE
Water consumption increases if water temperature when entering into the machine is over 20°C.

3.5 ELECTRIC CONNECTION

Before connecting the machine to the mains, check that machine voltage indicated in data plate corresponds with the mains.
Insert a differential magnetothermal protection switch adequately sized to absorption capacity required and with contact opening of 3 mm , at least. Machines are delivered complete with a 5-wire cable. Blue wire must be connected to the neutral one.

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

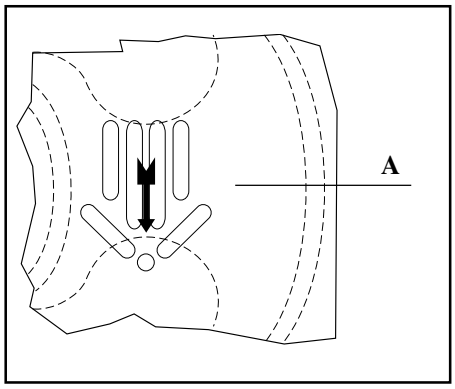
CAUTION
Do not forget to connect all water connection (condenser and washing water) before connecting the machine to the main.

3.5.1 Replacement of power cable

If machine main cable is damaged, it must be replaced through a cable with similar features. Replacement will have to be carried out by an expert engineer, only.

Direction of rotation
Beater rotation is anticlockwise. (facing frontally).
Reversal of rotation
Should direction of rotation be wrong, reverse it by exchanging two of the three leads coming from the differential magnethermal protection switch.

NOTE
By threephased machines, it is necessary to check that axial pulley A has clockwise rotation (facing the rear). Remove a side panel to check.



3.6 CLEANOUT

Eliminate dust from machine, as well as the protective material the machine was strewed with before its delivery. To do that, use just water and add a soap-based mild detergent, if need be, with a soft cloth.

CAUTION
Do not use either solvents, or alcohol and detergents that may damage the machine parts or contaminate parts coming into contact with the product.

3.7 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.

3.8 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.

4. INSTRUCTIONS FOR USE

4.1 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

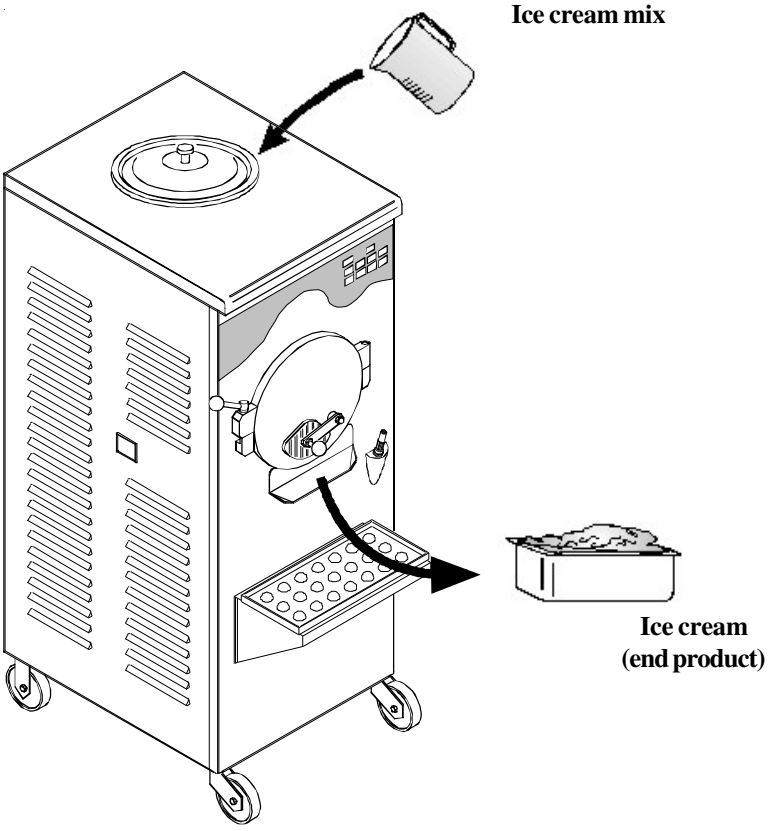
- an uncorrect use or handling is avoided
- Safety devices must neither be removed nor tampered
- Only must original spare parts be used, especially as far as those components with safety functions are concerned (ex.: protection microswitches, thermal relays).

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 must adequately skilled personnel be assigned to electrical equipment.

4.2 MACHINE CONFIGURATION

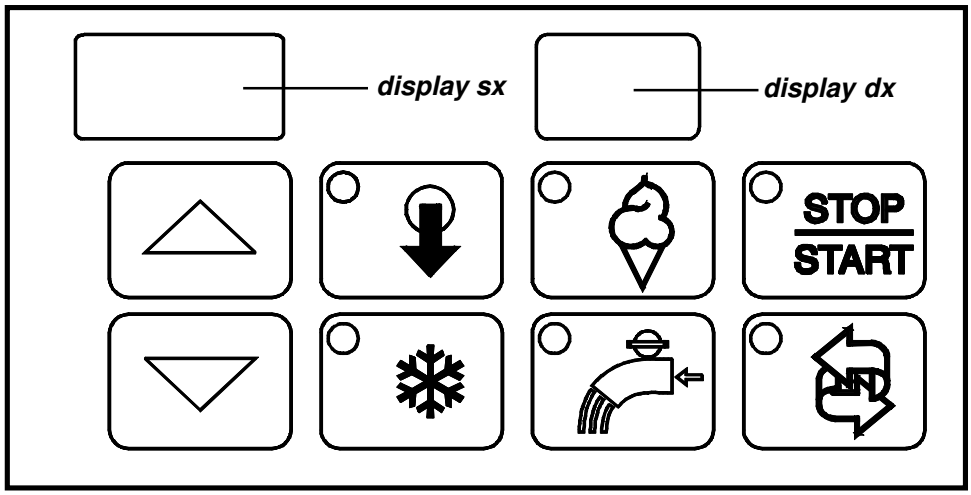
The machine consists of motor drive for beater assembly drive, a cooling system with water- or aircooled condenser (or both, depending on machine execution) and a wash water heating system which makes cylinder cleanout easier.
Ice cream is prepared by pouring the mix into the hopper and starting the automatic production cycle up to optimum ice cream concistency value set by **CATTABRIGA**, while referring to the minimum and maximum quantities per batch, as shown in table of Sec. 2. When the cycle is completed, ice cream is ready to be taken out through the ice cream door and put into ice cream tanks.



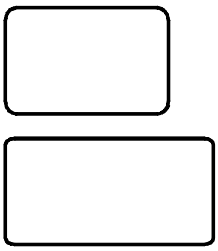
4.3 CONTROLS

4.3.1 Electronic check and control panel

The machine is provided with an electronic panel on operator front side; all push-buttons are provided with symbols explaining relevant functions.



4.3.2 Push-button functions

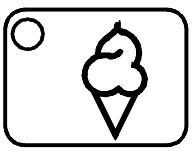


DISPLAY DX, SX

An electronic microcomputer dialogues with the operator through this display which, combined with a revolutionary system, i.e., C.V.C. (visual controlling couple), allows to know the trend of ice cream consistency, every moment.
It also allows all possible alarm messages to be displayed.

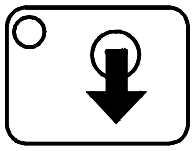
"STOP/START" KEY

When pushing **STOP/START** key, the machine will turn on and relevant warning light will be on.
By pushing it again, the machine will stop.

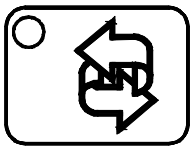


"PRODUCTION" KEY

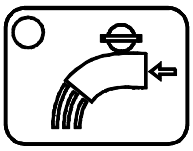
By pushing **PRODUCTION** key, the machine starts its batching process.
DX monitor will display a number indicating the consistency of product inside the cylinder (maximum consistency value shown on display is 12) and SX monitor displays the consistency value to be reached.
When batching process is complete, maximum consistency being reached, an audible alarm will indicate the compressor is off.
If one does not take the product out immediately, compressor starts running cyclically, in order to keep an ideal product consistency.



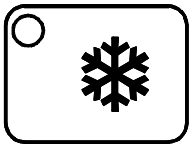
"PRODUCT EXTRUSION" KEY
This function is activated by pushing relevant key and it is timed for 3 minutes, as a maximum time.
During extrusion process, the beater runs fast.
EXTRUSION can be entered from **PRODUCTION** and **CLEANOUT,** whilst from extrusion you can enter **CLEANOUT** and **STOP**.
If, during the function of **EXTRUSION,** one pushes **PRODUCTION** key, the compressor runs for 20 seconds and you get a chilled "**POST-COOLING**" extrusion.



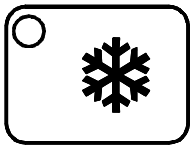
"CLEANOUT" KEY
This function is activated by pushing relevant key and lasts 5 minutes, as a maximum, if not stopped through **STOP** function before time is over.



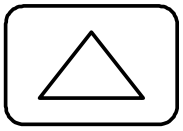
"WASH" KEY
By pressing the push-button **WASH** followed by push-button **UP**, timed water inlet in the hopper is activated according to the time set (usually 3 minutes).
When pressing, instead, the push-button **WASH** followed by push-button **DOWN**, water inlet is activated through washing nozzle located on machine front side.



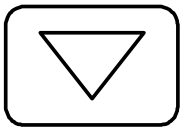
FRUIT CREMOLATA PRODUCTION KEY (CF)
If pressed, this key starts **FRUIT CREMOLATA** production and the beater motor runs cyclically, alternating working periods with pauses.
The production cycle is timed by the user on the check monitor.



SICILIAN SLUSH (GS) ***(for Mantematic kel 60 S "G" option only).***
By selecting the slush production program , the compressor is on and the beater runs at very slow speed, special for slush. The production time unit shall be selected on the display by the users.



"UP" (INCREASE) KEY
Pressing this key while **PRODUCTION** is active will increase consistency of ice cream inside the cylinder (maximum attainable value is 12).
If the push-button is pressed after **WASH** function has been selected (led is on), you activate water inlet in the hopper.



"DOWN" (DECREASE) KEY
Pressing this key while **PRODUCTION** is active will decrease consistency of ice cream inside the cylinder.
If the push-button is pressed after **WASH** function has been selected (led is on), you activate water inlet through the washing nozzle located on the machine front side.

NOTE
UP and DOWN push-buttons allow product consistency setting to be optimized in relation to type of mix used.

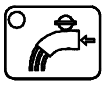
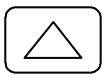
4.4 PRELIMINARY OPERATIONS, WASH AND SANITIZATION

Before starting the machine for the first time, it is necessary to thoroughly clean its parts and sanitize all parts coming into contact with ice cream.

IMPORTANT

Cleanout and sanitization must be carried out as a habit at the end of ever working day, with utmost care, in order to guarantee production quality and the observance of necessary hygienic and healthy rules.

4.4.1 Cleanout

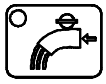
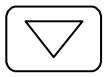
- With non operating machine and closed lid, remove hopper cover;
- Press push-button **WASH**  and push-button UP  .
- Water inlet time lasts about 9 minutes, ax a maximum, then the machine automatically sets at **STOP** position.
  If you want to stop water inlet before maximum time set is reached, push the push-button **STOP** 

  -
- Push key **CLEANOUT**  and wait for some 20 seconds.
- Press **STOP** 

  .

CAUTION

To avoid a useless wear of scraping blade and cylinder, the machine will anyway return to STOP after a 5 minute continuous running.

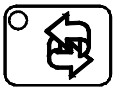
- Press the push-button **WASH**  and **DOWN**  in order to start water inlet through the nozzle, so as to further rinse the hopper. To open the nozzle, unscrew its head anticlockwise.
- Drain all washing water through ice cream door.
- Remove front lid with a leftwards rotation and then lift in order to withdraw it from its support.
- Remove the beater by slighly pulling it outwards and minding not to damage its scraping blade.
- Remove the stuffing box from its seat on beater shaft.
- Wash all parts in water.
- Reassemble all disassembled parts after lubricating all scraping blade ORs and the stuffing box with a film of edible fat.
- Reassemble the beater complete with its parts and insert it into the freezing cylinder: to do that, hold it in both hands and press so as to insert it easily.
- Push the beater towards the cylinder bottom.

WARNING

In order not to damage the scraping blades and/or the freezing cylinder, try not to bump it again the rim of the cylinder.

Push the beater deeply and at the same time rotate it so as to insert the beater shaft end into its seat.

4.4.2 Sanitization

- With machine not operating, beater assembly being inserted and front lid closed, pour a NON CORROSIVE sanitizing solution into the hopper.
- Press push-button **CLEANOUT**  .

CAUTION **A longer operation in CLEANOUT position with empty cylinder, or with only water and sanitizing solution causes a quick wear of beater scraping blades.**

- Run the machine only the time strictly necessary to the said operations (recommended time 20 seconds).
- Drain the sanitizing solution through the ice cream door.

CAUTION
Never touch sanitized parts with hands, napkins or else.

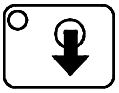
4.4.3 Hygiene

Ice cream mix fat contents are an ideal ground for mildew and bacteria to proliferate.
To eliminate them, it is necessary to thoroughly wash and clean all parts in contact with mix and ice cream, as described above.
Stainless steel and plastic materials, as well as rubber used in the construction, and also their particular shapes and design make cleanout easy, but cannot prevent proliferation of mildew and bacteria if not properly cleaned.

ATTENTION
Before using the machine again, thoroughly rinse with water, only, in order to remove residues of sanitizing solution.

4.5 ICE CREAM PRODUCTION (BATCHING PROCESS)

After washing, sanitizing and thoroughly rinsing the machine right before its use, as previously described, take the mix from the storing vat, pour the quantity you wish into the cylinder through the hopper, while also respecting minimum and maximum quantities shown in the table (Sec. 2, page 4).

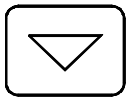
- Before pouring the mix, make sure that front lid and ice cream door are perfectly closed.
- Pour the desired quantity into the tank.
- By pushing **PRODUCTION**  key, the machine starts the batching process: mix stirring and cooling.
- After a time that can vary in relation to the temperarature and the type of entering mix, an audible alarm warns the operator that ice cream has reached its optimum consistency.
- Now, if you do not take ice cream out, the refrigerating plant starts working cyclically, until you push extrusion key.
- Place an adequately capable tank beneath the ice cream door, turn the knob anticlockwise and then shift it upwards and block the ice cream door in that position by turning the knob clockwise, press key  so starting **EXTRUSION**.
- This operation must be done with a high speed beater rotation, if you like, you can have a chilled extrusion by pressing **PRODUCTION**  .
- Every time you press the key, you activate a **POST-COOLING** lasting 20 seconds.
- Close the ice cream door again.

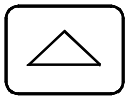
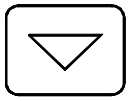
CAUTION

Never put any objects into the metal grid of ice cream door while the beater is running; door and beater might be damaged.

4.5.1 Changing ice cream consistency

CATTABRIGA delivers the machines according to optimum consistency set, in relation to the working mix.

PIn order to change final ice consistency, push keys **UP**  and **DOWN**  on the electronic control panel, when the machine is in production (batching process).

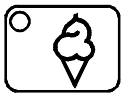
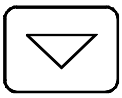
- To get a harder ice cream, press **UP**  so as to increase setting number shown on **DISPLAY SX**.
- To get a softer ice cream, press **DOWN**  so as to decrease setting number i shown on **DISPLAY SX**.

NOTE

Typical setting value is 10.

The new value set by the operator is stored till a new change is carried out.

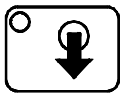
EXAMPLE
Change consistency from its typical value 10 into 7 (end product with a lower consistency value):

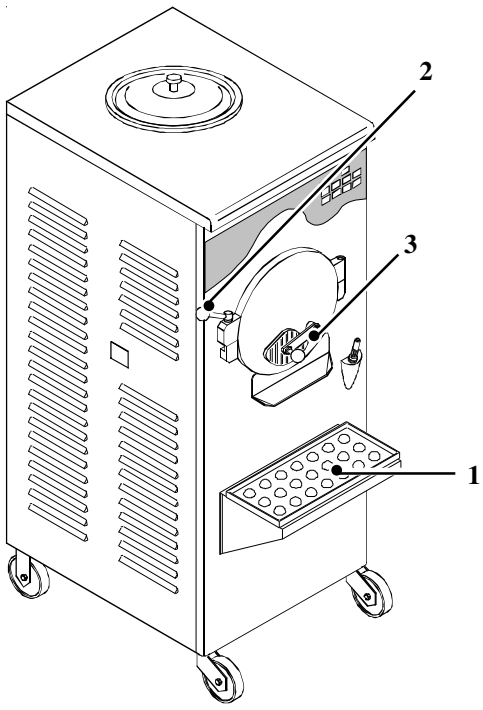
- Press production key 
- Press arrow key  more times until the number decreased is 7; the new consistency value is immediately stored.
- When the production cycle is completed, the buzzer will sound and LED bar will blink, ice cream conistency will be 7 instead of 10.

IMPORTANT
MANTEMATIC hourly output may vary depending on
- **room temperature or temperature of water to condenser**
- **type and quantity of mix used**
- **programmed consistency**
- **Wear of scraping blades**

CAUTION
To avoid a useless wear of scraping blades and cylinder, the machine returns to STOP after 3 minutes continuous running in extrusion.

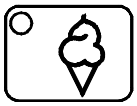
4.5.2 Ice cream extrusion

When the production cycle is completed, being indicated by an audible alarm, ice cream shall be taken out from the freezing cylinder, as follows:
- Place a tank on the shelf (Ref.1), beneath ice cream outlet shoot
- Unscrew the locking knob of front lid handle (Ref.2).
- Lift both the handle and the lid.
- Lock the lid upwards by turning the handle (Ref.3) to the righthand until it stops.
- Press **EXTRUSION**  in order to extrude ice cream.
- When this oepration is over, press **STOP**  .



4.5.3 Post-cooling

This function, which all **MANTEMATIC KEL** is provided with, is useful especially by those models with a higher output capacity (2 ice cream tanks and more per batch).
As a matter of facts, if each ice cream tank needs to be still worked after ice cream extrusion (variegating, guarnishing,etc.) ice cream still inside the machine being stirred at extrusion high speed, will tend to loose its starting consistency.
To obviate such a disadvantage, it is enough, when in **EXTRUSION**, to press **PRODUCTION** button



in order to cool down ice cream still inside the machine.
Ice cream so obtained will always have an unchanged consistency from beginning to end.

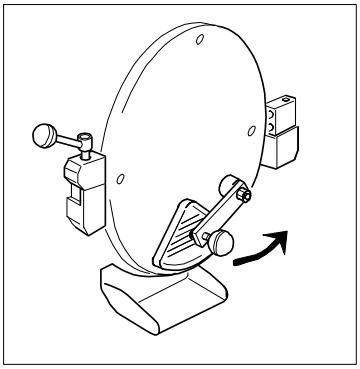
NOTE
Post-cooling cycle *lasts 20 seconds and will restart with the same length every time the production button is pushed.*

4.5.4 Use of ice cream dispensing handle

Locking
Lock the ice cream door by screwing the knob clockwise.

Opening
Loosen the black knob by unscrewing it anticlockwise; turn the handle by 90° leftwards and the knob clockwise.
Lift handle and knob.
Lock the ice cream door upwards by turning the handle to the righthand, until it stops.

Closing
Repeat in the opposite direction the opening sequence described above.



4.6 FRUIT CREMOLATA PRODUCTION

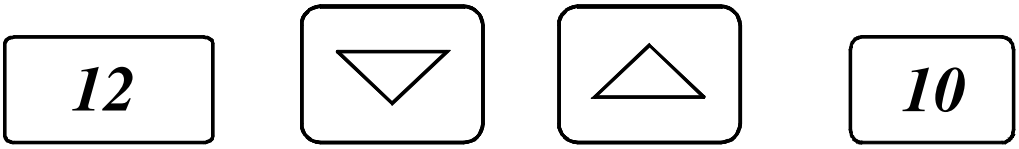
NOTE
*The function "**CREMOLATA**" is available in all models **MANTEMATIC KEL**.*

- Pour the fruit-based mix into the freezing cylinder, through the hopper.

- With machine in **STOP** position, press **CREMOLATA PRODUCTION**  in order to start the production process which alternates working with pause cycles.
- **DISPLAY SX** shows "CF" (Fruit Cremolata) so as to identify the function selected.

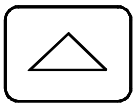
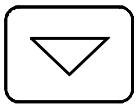
- On **DISPLAY SX** is then displayed the production time in minutes and on **DISPLAY DX** is shown time needed to cycle end.

NOTE
Machine production setting time is 12 minutes.



4.6.1 Changing fruit cremolata production time

The user can change production time in relation to the end product desired, within a range of 3 to 20 minutes.
In order to change the production time of **CREMOLATA** it is enough to act on arrow buttons, being the machine set at **CREMOLATA PRODUCTION.**

Lengthen times by pressing  for a drier cremolata and, vice versa press  in order to shorten times.

NOTE
In case of power failure, time regulation will automatically be the one according to the last stored data.

4.6.2 Cremolata extrusion

When the production cycle is completed, being indicated by an audible alarm, compressor and beater will stop.
Open the lid and take out **CREMOLATA** by hand, using the spatula you find in the machine accessories kit.

4.7 SICILIAN SLUSH PRODUCTION

NOTE
The function of "SICILIAN SLUSH " is available in model MANTEMATIC KEL 60S "G", only.

Through front lid hopper, pour slush mix into the cylinder

From **"STOP"** position, press push-button **"SLUSH PRODUCTION"**  in order to start cooling cycle with low speed beating so that slush is not emulsified.

The display will show:

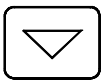
 which means **CREMOLATA**

 which means **SICILIAN SLUSH**

Select "**GS**" by means of  button.

On **DISPLAY DX** is then displayed the production time in minutes and on **DISPLAY SX** is shown time needed to cycle end.

4.7.1 Changing Sicialian Slush Production Time

The user can vary production time between 2 and 20 minutes, depending on final product he would like to obtain.
In order to change slush production time, it is necessary to act on push-buttons arrow of MONITOR, with the machine in **SLUSH PRODUCTION**. In order to obtain a drier slush, times should be extended by pressing  , and vice versa shortened by pressing  .

New time set is displayed on MONITOR.

NOTE
By power failure, time setting remains automatically on datum last stored.

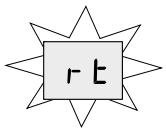
4.7.2 Slush extrusion

When the porduction cycle is over, as indicated by the buzzer sound, the machine sets to STOP. You can take the slush out, now, by opening the lid and using the special spatula.

5. SAFETY DEVICES

5.1 MACHINE SAFETY SYSTEMS

THERMAL RELAYS
They take overheating of beater motor and motorcompressor; maximum values of setting bring about machine stop , setting at **STOP**, whilst MONITOR displays a blinking "RT" message, meaning that THERMAL RELAYS has tripped.



On automatic resetting of thermal relay, the display stops blinking.
Before resetting the operation, it is necessary to find out reason of tripping.
In order to restart the machine, press the desired push-button.

FUSES
They protect control electric circuit against overloads.
In case of tripping, check and eliminate causes of trouble, before replacing them.

NOTE
To identify values and features of fuses, refer to machine wire diagram.

PRESSURE SWITCH
It is a protection of the cooling plant and makes cooling circuit compressor stop in the event of water failure in the circuit itself (by watercooled units) or insufficient air circulation to the condenser (by aircooled units). Resetting is automatic.

CAUTION
Too a long operation of compressor, as well as stop and restart over and over again mean that cooling is insufficient; check reasons.

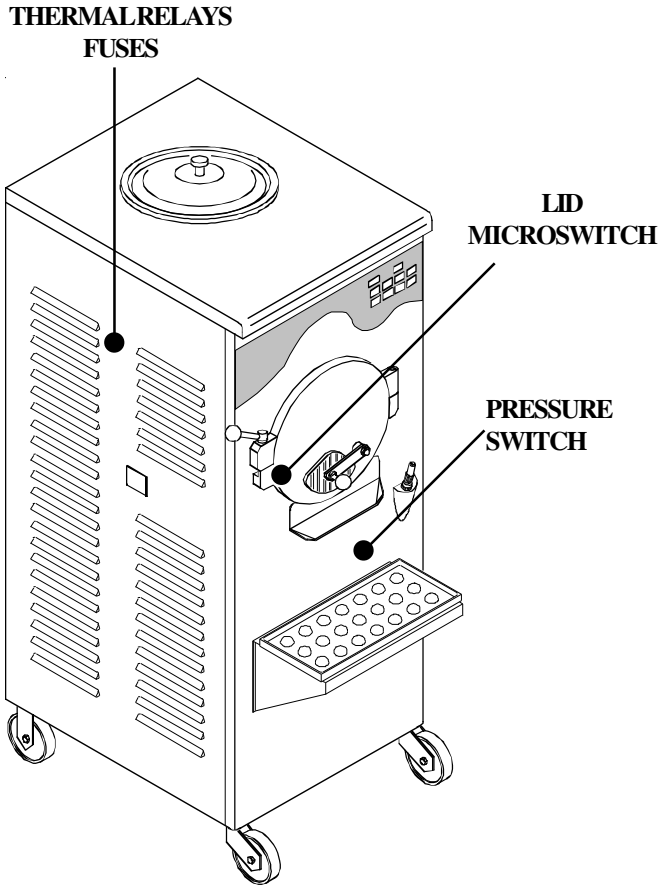
PROTECTIONS FOR THE OPERATOR

Microswitch
The machine is provided with a microswitch on closing lid of the freezing cylinder at which inside there is the beater assembly; the microswitch controls immediate stop of the machine on lid opening. The machine sets at **STOP** and MONITOR displays Pt : the light is blinking if the machine was running, but it will be fixed if the machine was already in **STOP** position. Reclosing of lid keeps the machine to **STOP** and puts out the alarm on display.

CAUTION
Before opening front lid, make sure the machine is in STOP position.

5.1.1 Diagram of safety devices location

The diagram with location of above mentioned safety devices is hereunder illustrated.
Safety devices can be seen on right and left sides of the machine, after removing side panel.



NOTE
Parts are meant nside the machine

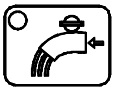
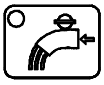
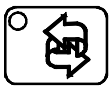
WARNING
Tampering and elimination of safety devices provided for the operator is forbidden!

WARNING
CATTABRIGA will be not liable for possible damages to people and/or to the machine itself, if devices provided for safety sake are tampered.

6. CLEANING, DISASSEMBLING AND REASSEMBLING PARTS IN CONTACT WITH THE PRODUCT

IMPORTANT
Cleanout and sanitization must be toroughly carried out at the end of every working day, as a habit and with utmost care, in order to gurantee high quality of product and observance of healthy rules.

6.1 PRELIMINARY CLEANOUT

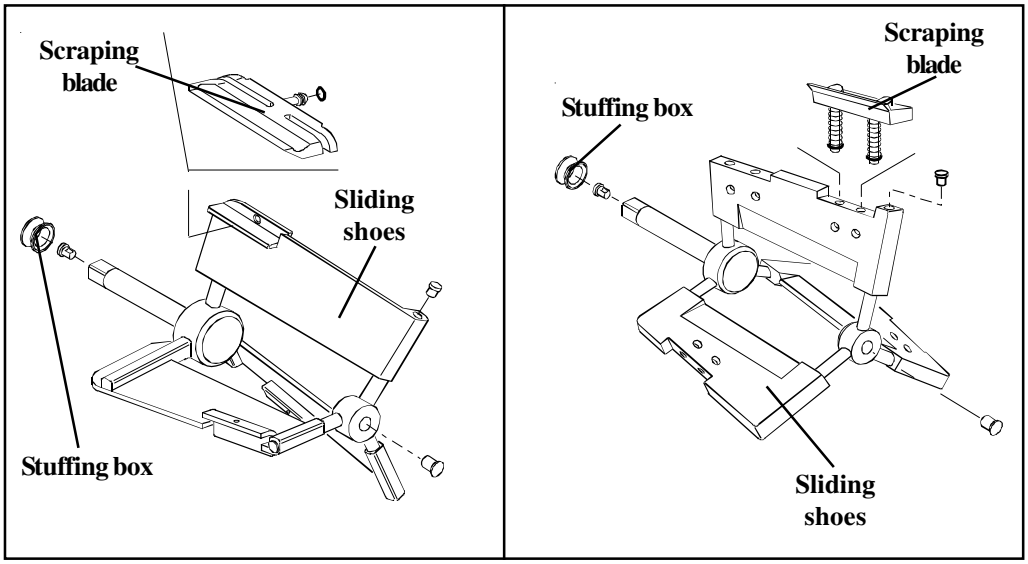
- With machine not operating, after closing beater assembly lid, insert water into the freezing cylinder by pressing **WATER INLET** key  . Water inlet lasts about 9 minutes, max., then the machine will automatically set at **STOP**. If you want to stop water inlet before maximum time set is reached, press again **WASH** key  or **STOP**  -
- Press **CLEANOUT**  and run the beater the less you can.
- The machine will run about 5 minutes and the automatically sets at **STOP**, so avoiding a useless wear of scraping blades and cylinder.
- Drain all water from the cylinder, open the front lid in order to remove the beater.

6.2 DISASSEMBLING THE BEATER

Remove the beater with care, paying attention not to damage its scraping blades.

WARNING
Carry out this operation with utmost care, since beater may be damaged if it falls to the ground.

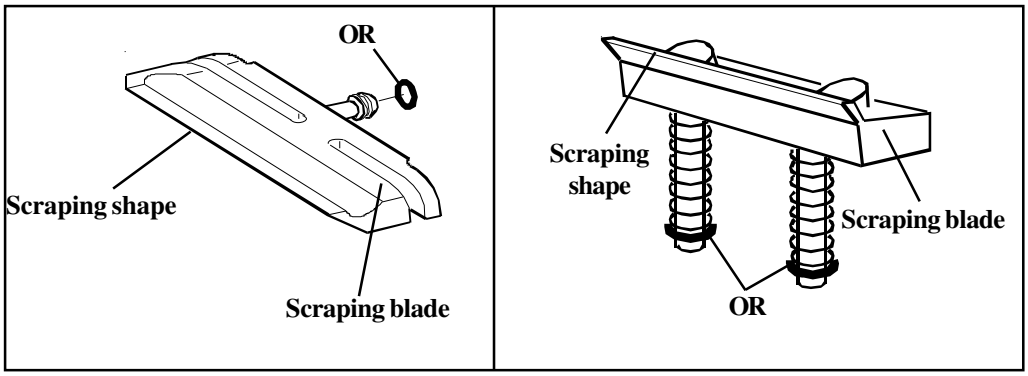
Disassemble the scraping blades, completely; remove stuffing box from its seat on the beater shaft.



STANDARD **SLUSH VERSION**

6.2.1 Disassembling the scraping blades

Beater scraping blades are "self-adjusting".
An accurate cleanout secures full working order of the system.



STANDARD **SLUSH VERSION**

Reassemble all parts disassembled while lubricating ORs of scraping blades and stuffing box with edible fat.

IMPORTANT

For an optimum production, we recommend to replace scraping blades at least once a season.

Also check that wear of scraping shape is not over 3-4 mm or replace the blades.

Wear of scraping blades may vary depending on type and quality of ice cream the machine will process; furthermore, in order to avoid blades strain, at the end of a production day, leave the complete beater outside the cylinder till next production, the day after.

6.2.2 STUFFING BOX

On disassembling the beater, also check wholeness of stuffing box (see picture on previous page); depending on machine operation length, it is necessary to replace it through the spare one you find in the accessory kit envelope inside machine packing.

- Remove the beater assembly
- Remove the stuffing box from its seat
- Lubricate spare stuffing box
- Install the new stuffing box
- Clean and lubricate the old stuffing box and put it away for recovery of its elasticity.

IMPORTANT

Stuffing box must be replaced every time ice cream drops are found in the drip drawer placed at the machine side.

If you keep on operating the machine after finding ice cream drops, you bring about a bigger leakage from stuffing box, thence a malfunctioning of the machine, such that production is consequently affected.

CAUTION

When you do not use the machine, leave beater lid open in order to avoid that stuffing box is compressed and so buckles.

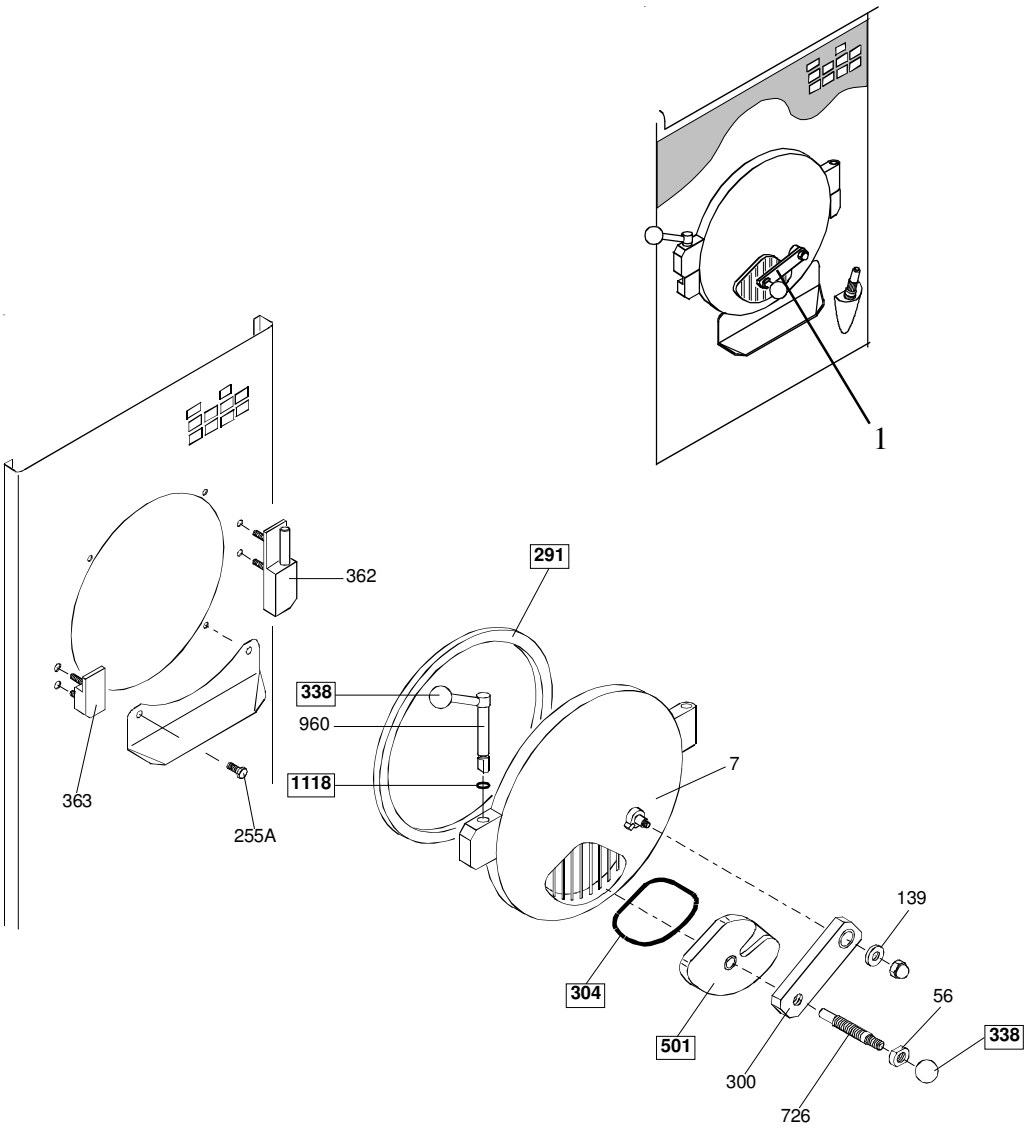
6.3 DISASSEMBLING FRONT LID AND DOOR

Lift the handle ref. 1 which locks the lid and shift it towards the righthand. Open lid pos. 7 by rotating it on its hinge.
Lift the lid to remove it.
Remove all movable parts and cylinder seal in order to carry out cleaning operations.

Lift the door pos. 501, remove sliding rod OR di fondo and withddraw it so as to release the handle, too.
Also remove ice cream door OR pos. 304 in order to clean it.

Wash all parts in water, grease ORs with edible fat.

IMPORTANT
Keep handle pos. 960 and pin pos. 362 always well oiled, in order to avoid slides seizure

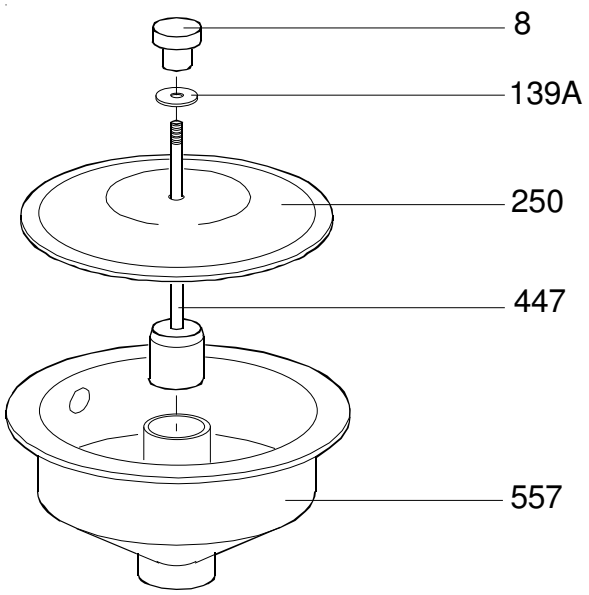


6.4 DISASSEMBLING HOPPER COVER

Unscrew hopper cover knob pos. 8, in order to easily remove hopper cover pos. 250.

Disassemble all other parts of the hopper.

Wash in water and reassemble by following reverse procedure as to disassembling.



6.5 REASSEMBLING THE BEATER

During night idle time do not insert the cylinder beater in order to avoid strain to scraping blades form.
In the morning, before starting the production, reassemble the beater complete with its parts and position it into the freezing cylinder: to do that, hold it in both your hands and press its scraping blades in order to easily insert it.

Push the beater towards the cylinder bottom.

WARNING
In order not to damage scraping blades and/or freezing cylinder do not knock the beater against the cylinder rim.

Push the beater deeply and, at the same time, rotate it in order to put the beater shaft end into its seat.

6.6 SANITIZATION

With machine not operating and after closing the beater assembly lid, pour a NON CORROSIVE sanitizing solution into the the freezing cylinder

Push **"CLEANOUT"** key  .

WARNING
Too a long running at "CLEANOUT" position with empty cylinder or with just water and cleansing solutions will bring about an early wear of plastic parts of the unit.

Run the machine only for the time strictly necessary to these operations (recommended time is 20 seconds).

WARNING
To avoid a useless wear of sliding shoes andcylinder, the machine will anyway return to stop position after 3 minutes uninterrupted running.

Drain all sanitizing solution from the freezing cylinder.

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

6.7 HYGIENE

Ice cream fat contents are ideal fields for proliferation of mildew and bacteria.
To eliminate them, parts in contact with mix and ice cream 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.

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

7. MAINTENANCE

7.1 SERVICING TYPOLOGY

ATTENTION
Any servicing operation requiring the opening of machine panels must be carried out with machine in stop position 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 production cycle. Servicing operations, such as cleaning of parts in contact with the product, replacing of stuffing box, disassembling of beater assembly are to be carried out at the end of a working day, so as to speed up serving operations required.
Herebelow you can find a list of routine servicing operations:

- **Cleanout and replacement of stuffing box**
  Cleaning should be carried out at the end of a working day, whilst replacement only after checking of stuffing box and in the event product drips inside drip drawer.
- **Cleanout of beater assembly**
  At the end of a working day
- **Cleanout of sliding shoes**
  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 sanitization**
  At the end of every working day, according to procedures described in section 6 of this manual.

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

7.2 WATERCOOLING

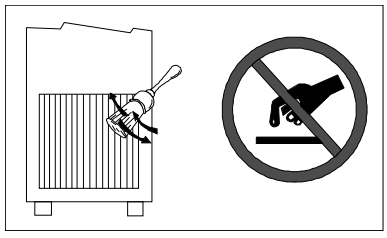
By machines with watercooled condenser, water must be drained from condenser at the end of selling season in order to avoid troubles in the event that the machine is stored in rooms where temperature may fall under 0°C. After closing water inlet pipe, withdraw drain pipe from its seat and let water flow out from the water system (use a bolt of compressed air or set the machine at DISTRIBUTION, without connecting the beater for a while).

7.3 AIRCOOLING

Clean the condenser, periodically, so as to remove dust, paper and what can prevent air from circulating. For cleanout, 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!

CAUTION
Never use sharp metal objects to carry out this operation; a good working of the freezing plant mostly depends on how often the condenser is cleaned.



7.4 PREVENTIVE MAINTENANCE

In order to get the best performances from your machine, we recommend to carry out checkings and maintenance operations herebelow described on beginning of selling season.

CAUTION

Operations herebelow described must be carried out by skilled personnel properly trained on machine functionalities, and able to service the machine under safety conditions.

- Check freezing plant tightness;
- Check and tension again the driving belt, if need be;
- Replace beater stuffing box;
- Replace scraping blades;
- By machines with aircooled condenser, clean with a long bristles brush or a bolt of compressed air;
- Check all gaskets and replace in case they look worn.

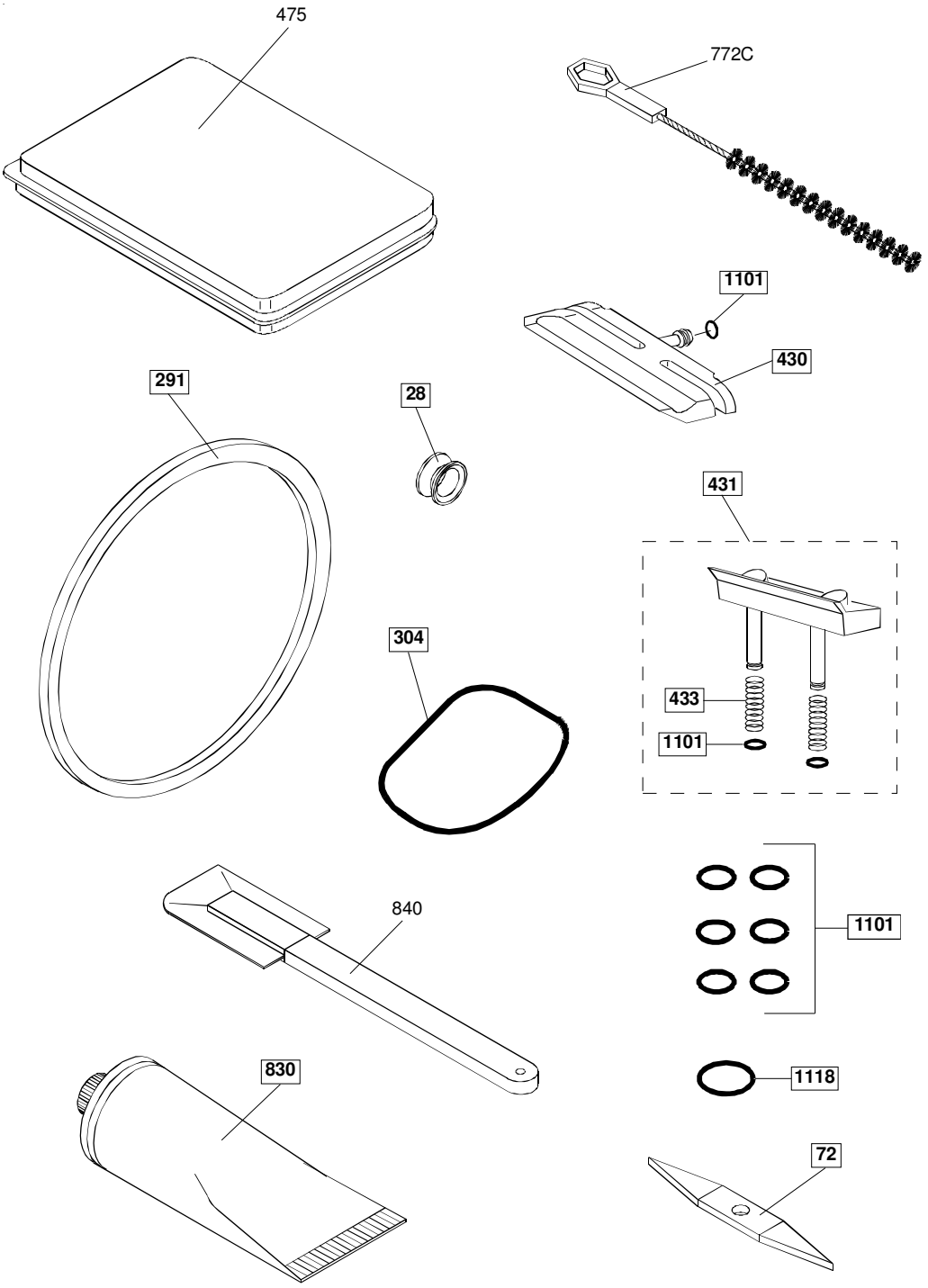
7.5 ORDERING SPARE PARTS

When one or more parts wear out or break, get in touch with your local Distributor who will provide for replacing and testing the part replaced.
For further information or need, please get in touch with our head office:

CATTABRIGA-ALIS.p.A

Via Emilia 45/A - 40011 Anzola Emilia - Bologna - Italy
Tel. 051/6505330 - Fax. 051/6505331

7.6 TABLE OF SPARE PARTS EQUIPMENT



Q.ty	Description	Position Nr
	Beater stuffing box	28
	OR extractor	72
	Front lid gasket	291
	OR	304
	Scraper	430
	Scraper	431 (Mantematic kel 60 S-G only)
	Spring	433 (Mantematic kel 60 S-G only)
	Accessories	475
	Brush	772C
	"Foodgrade" tube	830
	Ice cream spatula	840
	OR	1101
	OR	1118

8. TROUBLESHOOT GUIDE

TROUBLE	CAUSE	CURE
Compressor starts and then stops after a few seconds without ice cream being thick	Watercooled machine: water does not circulate	Open water tap
		Check that hose is neither squashed nor doubled up.
	Aircooled machine: air does not circulate	Check that the rear of machine is at least 50 cm from wall
		Clean the condenser
After 15 minutes batching mix has not frozen and machine returns to Stop	No gas	Check leakage, weld and charge again
Machine works but no ice cream comes out from ice cream door	No sugar in the mix	Allow ice cream in the cylinder to thaw, then change or replace the mix
Machine runs but ice cream is too soft	Too much sugar in the mix	Modify or replace the mix
Mix in the drip drawer	Stuffing box missing or worn out	Install if missing. If worn out, replace.
Ice cream comes out from behind ice cream door	Gasket missing or not properly installed	Check and put remedy
Bacteria tests show too high bacteria charge	Too high bacteria charge in the mix	Improve preparation procedure, by sanitizing all containers, spoons, etc., and have mix analyzed before pouring it into the machine.
	Machine not clean enough, nor sanitized	Empty and thoroughly wash the machine. Carry out sanitization as per chapter 6.