We wish to thank you for purchasing one of Carpigiani's machines.
Since 1993, Carpigiani manufactures utilising the Quality Control Management System that is today certified according to UNI-EN-ISO 9001-2008.

Carpigiani’s machines conform to the requirements of the 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”.

This manual contains the ORIGINAL INSTRUCTIONS and can be reproduced, transmitted, copied and filed in a retrieval system or translated in other languages ONLY by prior written agreement with Carpigiani.

The purchaser has the right to make copies only for his/her own use.

Carpigiani’s policy pursues constant research and development and therefore it reserves the right to make changes and revisions whenever deemed necessary and without being bound to the purchaser for any previous statements.

<table>
<thead>
<tr>
<th>EDITION</th>
<th>DATE</th>
<th>MODIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>2013/09</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EDITOR</th>
<th>VERIFIED</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>AS</td>
<td>RV</td>
</tr>
</tbody>
</table>
GENERAL INDEX

FOREWORD .................................................................................................................. 6

Instruction manual ........................................................................................................ 6
Purpose ............................................................................................................................ 6
Manual structure ............................................................................................................ 6
Additional documentation ............................................................................................. 6
Standard symbols .......................................................................................................... 7
Qualification of the personnel ......................................................................................... 7
Safety ............................................................................................................................. 8
Warning ......................................................................................................................... 8

1. GENERAL INFORMATION .................................................................................. 9

1.1 General information ............................................................................................. 9
1.1.1 Manufacturer's identification data ................................................................... 9
1.1.2 Maintenance information ............................................................................... 9
1.1.3 Information for the user ................................................................................. 10

1.2 Information about the machine ............................................................................ 10
1.2.1 General information ...................................................................................... 10
1.2.2 Technical features ......................................................................................... 10
1.2.3 Location of machine groups .......................................................................... 11

1.3 Intended use ......................................................................................................... 11

1.4 Noise .................................................................................................................. 11

1.5 Machine storage .................................................................................................. 12

1.6 Disposal of packing materials ............................................................................. 12

1.7 WEEE (Waste Electrical and Electronic Equipment) ........................................ 12

1.8 Bacterial contamination detection ....................................................................... 12

2. INSTALLATION ................................................................................................. 14

2.1 Space necessary to use the machine .................................................................... 14
2.2 Water supply connection ..................................................................................... 14
2.3 Machine with air-cooled condenser .................................................................... 14
2.4 Machines with water-cooled condenser ............................................................. 14
2.4.1 Water pressure valve adjustment ..................................................................... 14
2.5 Electrical connection ........................................................................................... 15
2.5.1 Replacing the power cable ............................................................................. 15
2.6 Location ................................................................................................ 15
2.7 Refilling ................................................................................................. 15
2.8 Machine testing.................................................................................... 15

3. INSTRUCTIONS FOR USE .................................................................. 16
3.1 Machine safety warnings .................................................................... 16
3.2 Machine configuration ........................................................................ 16
3.3 Commands ........................................................................................... 17
  3.3.1 Touchpad........................................................................................... 17
3.4 Dispenser levers .................................................................................. 30
  3.4.1 Modifying the quantity of product dispensed................................. 30
  3.4.2 Self closing......................................................................................... 30
3.5 Machines fed by pump and semi-submersible pump ......................... 30
3.6 Gravity-fed machines – feed needle ................................................... 31
3.7 Preliminary operations, washing and sanitising ............................... 31
3.8 Commissioning the machine .............................................................. 31
  3.8.1 Starting the machine that has a pump ............................................ 31
  3.8.2 Starting a gravity-fed machine ....................................................... 32
  3.8.3 Dry filling (if present) ....................................................................... 32
3.9 Production ............................................................................................ 33
3.10 Pasteurisation (for the “SP” machines) ............................................. 34
3.11 Daily cleaning – Opening and closing procedures ......................... 34
  3.11.1 Daily closing procedures ............................................................... 34
  3.11.2 Daily opening procedure ............................................................... 36

4. SAFETY DEVICES .............................................................................. 38
4.1 Alarms ................................................................................................... 38
  4.1.1 Blackout .......................................................................................... 40

5. DISASSEMBLY, CLEANING AND REASSEMBLY OF THE
   PARTS IN CONTACT WITH THE PRODUCT ...................................... 41
5.1 General information ........................................................................... 41
5.2 Washing conditions ............................................................................ 41
5.3 Suggestions ......................................................................................... 41
5.4 How to use cleaning/sanitising solution ............................................ 41
5.5 Daily cleaning ....................................................................................... 42
5.6 Scheduled cleaning ........................................................................................................ 42
  5.6.1 Mix emptying ........................................................................................................ 42
  5.6.2 Pump-fed machines - Removing the pumps from the hoppers ...................... 42
  5.6.3 Gravity-fed machines ......................................................................................... 43
  5.6.4 Remove hopper beaters ..................................................................................... 43
  5.6.5 Hopper cleaning ............................................................................................... 43
  5.6.6 Machine with pump – pump removal .............................................................. 45
  5.6.7 Gravity-fed machines – removal of the feed needle .................................. 47
  5.6.8 Disassembly of the spigot door ...................................................................... 48
  5.6.9 Disassembly of beaters .................................................................................... 50
  5.6.10 Disassembly of the drip drawer, the drip tray and the hopper lid ............. 51
  5.6.11 Cleaning and sanitising of the components .............................................. 51
  5.6.12 Reassembly of the hopper beater ................................................................. 51
  5.6.13 Reassembly of the beater ............................................................................. 52
  5.6.14 Reassembly of the dispensing spigot door .................................................. 52
  5.6.15 Machine with pump – reassembling the pump ........................................... 53
  5.6.16 Gravity-fed machines – reassembly of the feed needle ......................... 55
  5.6.17 Reassembling drip trays, drip drawer and hopper lid ................................ 55
  5.6.18 Complete sanitisation of the machine .......................................................... 56

  Draining the cleaning/sanitising solution ................................................................ 56

6. MAINTENANCE ........................................................................................................... 57
  6.1 Type of intervention ............................................................................................. 57
  6.2 Water-cooling ....................................................................................................... 58
  6.3 Ordering spare parts ............................................................................................. 58
  6.4 Supplied accessories ............................................................................................. 59

7. TROUBLESHOOTING GUIDE ............................................................................... 60
FOREWORD

Instruction manual
In writing this manual, the European Community directives on safety standards as well as on free circulation of industrial products within the E.C. were taken into due account.

Purpose
This manual was conceived taking machine users’ needs into due account.

Issues regarding the correct use of the machine have been analysed in order to keep the longstanding quality features characterising CARPIGIANI’s machines all over the world unchanged.

A significant part of this manual refers to the conditions required for using the machine and, above all, to the necessary procedures to follow while cleaning and during routine and special maintenance.

Nevertheless, this manual cannot meet all demands in detail. In case of doubts or missing information, please apply to:

Via Emilia, 45
40011 Anzola dell’Emilia (BO)
ITALY
✆ +39 051 6505111
⇚ +39 051 732178
✉ carpigiani.com

Manual structure
This manual is divided in sections, chapters and sub-chapters in order to be consulted more easily.

Section
A section is the part of the manual 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.

Any person in charge of using the machine must have first read and fully understood the parts of the manual that refer to his/her competence and in particular:

• the Operator must have read the chapters regarding machine start-up, the functioning of the machine units and the prescribed safety precautions;
• a skilled technician involved in the installation, maintenance, repair, etc., of the machine must read all parts of this manual.

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

• Spare parts list: a list of spare parts provided with the machine for its routine maintenance.
• Wiring diagram: a diagram of wiring connections placed in the machine.

WARNING
Before using the machine read the instruction manual carefully.
Pay attention to the safety instructions.
Standard symbols

**ELECTRIC SHOCK**

DANGER

This warns personnel concerned that the operation described could cause electric shock if not carried out while respecting safety norms.

**DANGER FROM HIGH TEMPERATURES**

This warns personnel concerned that the operation described could cause burns and scalds if not carried out while respecting safety norms.

**DANGER MOVING PARTS**

This warns personnel concerned about the presence of moving organs and the risk of physical injury if safety norms are not respected.

**CRUSHING HAZARD**

This warns personnel concerned about the risk of having a finger, hand or other body part crushed if the described operation is not carried out while respecting safety norms.

**GENERAL HAZARD**

This warns personnel concerned that the operation described may cause injury if not carried out respecting safety norms.

**NOTE**

This points out significant information for the personnel concerned.

**WARNING**

This warns personnel concerned that the non-observance of warning may cause loss of data and damage to the machine.

**PROTECTION**

This symbol located next to description means that the operator must use personal protection against an implicit risk of accident.

Qualification of the personnel

Personnel using/working on the machine can be differentiated according to training and responsibility as follows:

**OPERATOR**

This term identifies unqualified personnel who have no specific technical qualifications and who can carry out only simple tasks such as operating the machine using the controls on the keyboard, loading and unloading product used during production, loading of any consumable materials, basic maintenance operations (cleaning, removing simple obstruction, controlling 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.

**CARPIGIANI ENGINEER**

He/she is a skilled engineer that the manufacturer has assigned to field interventions for complex operations under particular conditions or in accordance with agreements made with the machine’s owner.
Safety
When using the machine be aware that drive mechanisms (rotary motion), high voltage components and parts subject to high temperatures may cause serious injury/damage to persons and things.

The person in charge of plant safety must check that:
- any incorrect use or handling is avoided;
- safety devices are not removed or tampered with;
- the machine undergoes regular maintenance;
- only original spare parts are used especially with regards to those components with safety functions (e.g., protection microswitches, thermostats, etc.);
- suitable personal protective equipment is worn;
- great care is taken during hot product cycles;
- particular attention is paid to moving parts.

To achieve the above, the following is necessary:
- at the work station an instruction manual relevant to the machine must be available;
- the documentation must be carefully read and requirements must consequently be met;
- only adequately skilled personnel should be assigned to electrical equipment and machinery.

IMPORTANT
Ensure that technical personnel does not carry out operations that are not within their capabilities, knowledge and responsibility.

NOTE
According to the norms in force, a SKILLED ENGINEER is a person who, thanks to his/her:
- training, experience and education;
- knowledge of rules, prescriptions and interventions on accident prevention;
- knowledge of machine operating conditions
is able to recognize and avoid any danger and has also been authorised by the person in charge of plant safety to carry out all types of interventions.

Warning
When installing the machine, insert a differential thermomagnetic circuit breaker 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 during production and cleaning operations. Before carrying out any maintenance operation, make sure that the machine is in the Stop position and the main switch has been switched OFF.
- Using a jet of pressurized water to wash the machine is forbidden.
- Removing panels in order to reach the machine inside before the machine has been disconnected from the power supply is forbidden.
- Carpigiani will not respond to accidents that might happen during use, cleaning and/or maintenance of its machines if the specified safety norms have not been complied with.
1. GENERAL INFORMATION

1.1 General information

1.1.1 Manufacturer’s identification data

The machine has a data plate that was assigned to the machine when it was manufactured, showing the manufacturer's data, machine type and serial number.

A copy of the machine data plate can be found on the first page of this manual.

1.1.2 Maintenance information

All operations of routine maintenance are hereby described in the “Maintenance” section. Any additional operation requiring a radical intervention on the machine must be cleared with the manufacturer who will also examine the possibility of a factory technician field intervention.
1.1.3 Information for the user

- Carpigiani is at the disposal of the user for any clarification or necessary/integrative information regarding the functioning of the machine or any improvement modifications to the machine.
- Contact the area distributor in the event of any problems or the manufacturer if a distributor is not available.
- Customer Service is available at any time to respond to customer requirements regarding the functioning of the machine, requests for spare parts or technical assistance that may eventually be necessary.

1.2 Information about the machine

1.2.1 General information

It is an electronic machine for the production and instant distribution of soft ice cream that has the following main characteristics:
- refrigerated upper hopper;
- electronic control of product consistency via the “Hard-o-tronic” system;
- automatic pasteurisation system of the product contained in the hopper and cylinder during non-production periods (e.g., at night) (only for “SP” machines);
- Dry Filling (only for “DF” machines);
- Mixer (only for “M” machines).

1.2.2 Technical features

<table>
<thead>
<tr>
<th>MODEL</th>
<th>75g CONES/HOUR **</th>
<th>HOPPER CAPACITY</th>
<th>FLAVOURS</th>
<th>ELECTRICAL POWER SUPPLY ***</th>
<th>CONDENSER ***</th>
<th>INSTALLED POWER OUTPUT</th>
<th>NET WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVL 3 USA</td>
<td>666</td>
<td>13 + 13</td>
<td>2+1</td>
<td>208230</td>
<td>3</td>
<td>60</td>
<td>Air</td>
</tr>
</tbody>
</table>

* Available in the following models:
  - XVL 3 SP (with an automatic pasteurising system);
  - XVL 3 DF (with a Dry Filling system).
  - XVL 3 M (with mixer)

** The hourly production and mix quantity for each ice cream can vary depending on the temperature and type of mix used and on the increase in volume (overrun) required.

*** Also available with a water-cooled condenser and other types of electrical power supply.

Performances refer to room temperature of 25°C at a water temperature of 20°C in the condenser.
1.2.3 Location of machine groups

Fig. 02

1.3 Intended use

The machine must only be used for the production of ice cream and patisserie products, in compliance with what has been stated in paragraph 1.2.1 “General information”, and within the operating limits indicated here below.

- Supply voltage: ±10%
- Min. air temperature: 10°C
- Max. air temperature: 43°C
- Min. water temperature: 10°C
- Max. water temperature: 30°C
- Min. water pressure: 0.15 MPa (1.5 bar)
- Max. water pressure: 0.8 MPa (8 bar)
- Max. relative humidity: 85%

This machine has been designed for use in rooms not subject to explosion-proof laws and therefore it can only be used in rooms that conform to a normal atmosphere.

1.4 Noise

Equivalent continuous A-weighted sound pressure in the working place is less than 70 dB(A) for both water-cooled and air-cooled machines.
1.5 Machine storage
The machine must be stored in a dry and damp-free environment.

Before storing the machine, cover it with a sheet to protect it against dust and dirt.

1.6 Disposal of packing materials
When removing the machine from its packaging, subdivide the packing materials into the various types and dispose of them in accordance with the norms in force in the destination country.

**WARNING**
It is forbidden to dispose of packaging materials in the environment.

**GENERAL HAZARD**
Do not leave packaging materials within reach of children because they could cause suffocation.

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 this symbol on the side of the product or packaging means that the product must not be disposed of with solid 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 optimise 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.

1.8 Bacterial contamination detection
A qualified bacteriologist must periodically analyse product samples to check for the presence of bacteria. The bacteria count in the samples should be below the following figures:

- Standard Plate Count (SPC) ................. 50,000
- Coliforms .................................................. 10

If the bacteria count exceeds the above-mentioned figures, there is a source of bacterial contamination. This source must be immediately identified and eliminated. A high bacteria count means that the product is not fit for consumption and a correct cleaning and sanitization of the machine must be carried out to eliminate the continued bacterial contamination of the product.

**NOTE**
Soft yogurt normally has a high bacteria count. In any case, coliform bacteria contamination IS NOT ACCEPTABLE in any type of product. The following information will help you prevent coliform bacteria contamination problems.

The following list indicates the possible sources of bacterial contamination and the methods to prevent it.

<table>
<thead>
<tr>
<th>SOURCES OF CONTAMINATION</th>
<th>HOW TO PREVENT CONTAMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator contact.</td>
<td>• Wash hands and forearms thoroughly.</td>
</tr>
<tr>
<td></td>
<td>• Wear rubber gloves in case of skin cuts or other skin conditions.</td>
</tr>
<tr>
<td></td>
<td>• Wash hands several times a day.</td>
</tr>
<tr>
<td>Residues / deposits of material (milk clots).</td>
<td>• Use the appropriate brushes.</td>
</tr>
<tr>
<td></td>
<td>• To clean thoroughly, scrub parts and components to prevent the formation of milk clots because milk clots are fertile material for the proliferation of bacteria that could contaminate the fresh milk.</td>
</tr>
<tr>
<td>SOURCES OF CONTAMINATION</td>
<td>HOW TO PREVENT CONTAMINATION</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Worn or damaged parts.</td>
<td>- Lubricate all rubber parts that come into contact with the mix using a food-grade lubricant.</td>
</tr>
<tr>
<td></td>
<td>- Replace damaged O-rings only with original spare parts.</td>
</tr>
<tr>
<td></td>
<td>- Systematically check the drip drawers to avoid excessive dripping.</td>
</tr>
<tr>
<td>Cleaning and wrong hygienic procedures.</td>
<td>- The container in which the parts are washed must be perfectly clean and contain enough detergent/sanitising solution to completely cover even the largest components. Use the brushes to clean and sanitise the machine regularly.</td>
</tr>
<tr>
<td></td>
<td>- Use the appropriate brushes, lubricants and disposable cloths.</td>
</tr>
<tr>
<td></td>
<td>- Store and use the detergents as per the manufacturer’s instructions.</td>
</tr>
<tr>
<td></td>
<td>- Have expert personnel clean the machine. Ensure the personnel can complete cleaning procedures coherently, correctly and without interruption.</td>
</tr>
<tr>
<td></td>
<td>- Leave the sanitising solution in the cylinder and hopper at least for the time suggested by the manufacturer of the sanitising solution.</td>
</tr>
<tr>
<td></td>
<td>- Each time after use, wash and sanitise the utensils used for cleaning and the tube containing the lubricant. Always replace the cap on the tube.</td>
</tr>
<tr>
<td></td>
<td>- Machine components and brushes must be left to air-dry. Do not put them back into the machine whilst they are wet or damp.</td>
</tr>
<tr>
<td></td>
<td>- Always carry out the daily cleaning procedure. Regularly clean the outside of the machine and the dispenser with a sanitised cloth.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCES OF CONTAMINATION</th>
<th>HOW TO PREVENT CONTAMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong method of storing the mix.</td>
<td>- Use leftovers of mixes with the oldest date first. Be careful of the expiry date.</td>
</tr>
<tr>
<td></td>
<td>- Put the mix directly in the fridge. Do not accumulate mix outside in direct sunlight before putting it in the fridge.</td>
</tr>
<tr>
<td></td>
<td>- In the fridge, leave at least 2-3 cm of space between the mix and other products to allow air to circulate.</td>
</tr>
<tr>
<td></td>
<td>- The mix must not be left at ambient temperature for long periods of time.</td>
</tr>
<tr>
<td></td>
<td>- The storage temperature of the hopper must be maintained at 4.4°C (40°F). Storage temperatures above 4.4°C would permit the multiplication of bacteria to dangerous levels within less than one hour.</td>
</tr>
<tr>
<td></td>
<td>- Once the mix has been placed inside the hopper, place the lid on the hopper to store the mix at the correct temperature and minimise the possibility of contamination.</td>
</tr>
</tbody>
</table>
2. INSTALLATION

2.1 Space necessary to use the machine

The machine must be positioned so that there is enough space for air to freely circulate. Also make sure that the air vent on the top of the machine remains free of any objects.

Space for access to the machine must be left free in order to enable the operator to act without constraint and also to immediately leave the working area if necessary.

The machine also requires free space on the side to extract the drip trays.

It is also advisable to have a minimum access to the operating area of the machine of at least 150 cm, and about 45 cm. of space on the side of the machine to allow for extracting drip trays.

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

2.2 Water supply connection

Connect the machine to a drinking water supply that has a pressure of no more than 0.8 MPa (8 bar).

2.3 Machine with air-cooled condenser

Machines with an air-cooled condenser must be installed leaving a minimum distance (at least 50 cms) above the chimney for the free circulation of the condensate air.

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

2.4 Machines with water-cooled condenser

A water-cooled machine must be connected to a mains water supply or to a cooling tower to operate it.

The water must have a pressure of between 0.15 MPa and 0.8 MPa (1.5-8 bar) and a flow rate at least equal to the estimated hourly consumption.

Connect the inlet pipe marked by the “Water Inlet” plate to the water supply by installing a shut-off valve and the outlet pipe marked by the “Water Outlet” plate to a drainage pipe by installing a shut-off valve.

2.4.1 Water pressure valve adjustment

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

NOTE
Water consumption increases if the temperature of the inlet water is above 20°C.

WARNING
Machines with water-cooled condenser must have 10 cm. of free space along the sides. Machines with an air-cooled condenser must be installed leaving a minimum distance (at least 50 cms) above the chimney for the free circulation of the condensate air.

WARNING
Do not leave the machine in a room with a temperature below 0°C without first draining the water from the condenser system.
2.5 **Electrical connection**

Before connecting the machine to the mains supply, check that the machine voltage indicated on the data plate corresponds with the mains supply voltage.

Position a class D section thermomagnetic circuit breaker switch correctly rated to the absorption power required and with a contact opening of at least 3 mm. The machines are delivered with a 5 wire cable: the blue wire must be connected to the neutral lead.

**IMPORTANT**
The yellow/green ground wire must be connected to an adequate ground plate.

2.5.1 **Replacing the power cable**

Should the machine’s power cable become damaged, it must be replaced immediately with one with similar characteristics.

The replacement must be carried out only by a skilled technician.

2.6 **Location**

The machine is equipped with wheels to facilitate its positioning. There are mechanical brakes that once engaged stop the machine from being moved about and ensure that it is maintained in a safe position.

2.7 **Refilling**

The type of motor installed in the machine is a lubricated-for-life motor. No checking/replacing or topping up is necessary.

The correct quantity of gas for the refrigeration circuit is put in by Carpigiani when testing the machine. A new machine does not need any topping up or refilling.

If it becomes necessary to top up or fill the system with gas, the procedure must be carried out in conditions of safety and by a qualified technician capable of establishing the cause of the anomaly prior to topping up.

2.8 **Machine testing**

The machine is tested by Carpigiani at the end of the assembly procedure. The foreseen operational and production functions are checked.

Machine testing on the end user’s premises must be carried out by skilled technicians or by one of Carpigiani’s engineers.

After positioning the machine and making the correct connections, carry out all operations necessary for functionality check and operational testing of the machine.

---

![Fig. 04](image-url)
3. INSTRUCTIONS FOR USE

3.1 Machine safety warnings

When using industrial equipment and plant, be aware that drive mechanisms (rotary motion), high voltage components, as well as parts subject to high temperatures may cause serious injury/damage to persons and things.

The person/s in charge of plant safety must check that:

- any incorrect use or handling is avoided;
- safety devices are not removed or tampered with;
- the machine undergoes regular maintenance;
- only original spare parts are used especially with regards to those components with safety functions (e.g., protection microswitches, thermostats, etc.);
- suitable personal protective equipment is worn;
- great care is taken during hot product cycles.

To achieve the above, the following is necessary:

- at the work station an instruction manual relevant to the machine must be available;
- the documentation must be carefully read and requirements must consequently be met;
- only adequately skilled personnel should be assigned to electrical equipment and machinery;
- ensure that technical personnel do not carry out operations that are not within their capabilities, knowledge and responsibilities.

3.2 Machine configuration

The machine is composed of a motor for operating the beater unit, a cooling system with a water-cooled or air-cooled condenser and electronic management of the main functions.

The preparation of soft ice cream occurs by placing the cold mix (+4°C) inside the hoppers and starting an automatic production cycle until the set programmed optimum consistency of the ice cream is reached.

The mix enters into the whipping cylinders already mixed with air. The ice cream is produced only at the moment in which it is served.

By using the ice cream dispenser levers positioned on the front of the machine, a portion of soft ice cream requested will be dispensed.

Simultaneously, an equal quantity of mix passes from the upper refrigerated hoppers to the whipping cylinder.

**DANGER FROM HIGH TEMPERATURES**

Be extremely careful during pasteurisation phase; contact could cause burns.
3.3 Commands

3.3.1 Touchpad

The machine is equipped with a keypad fitted on the front panel; each button is marked by an explanatory symbol of the assigned function.

![Diagram showing the touchpad and its buttons]

1. Stop the machine from functioning
2. Production
3. Information
4. Touch screen display
5. Increment/Decrement
6. Confirm
7. Cleaning
8. Storage/Alarm Reset
9. Pasteurisation (if applicable)

**NOTE**

The display is touch screen with 7 sensitive zones:

![Diagram showing the touch screen]

**NOTE**

When the touchpad accepts a command it will produce a beeping sound.
### 3.3.2 Functions

<table>
<thead>
<tr>
<th>BUTTONS</th>
<th>DESCRIPTION OF FUNCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOP</td>
<td>In this mode the machine is Stopped and the corresponding LED is turned on. From Stop it is possible to access any machine function. To change function, it is ALWAYS NECESSARY to first Stop the machine. The display shows date and time, and the indication of the hopper mix level.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="XVL Display" /></td>
</tr>
</tbody>
</table>

**WHY IN STOP ??**  
With the machine in Stop mode for more than 30 seconds.  
If the machine is Stopped with mix in the hopper, after 30 seconds the display will show the message “*Why in STOP?*” to alert the operator to activate Production, Pasteurisation, or Storage mode.  
To reset the alarm press ![Reset Alarm](image). See alarms.

**WASH TODAY!**  
With the machine in Stop mode for more than 24 hours.  
A time starts running if Stop is activated with mix in the hopper.  
If the timer runs for more than 24 hours the display will show the message “*Wash Today!*”.  
The user must carry out machine washing procedure before restarting Production.  
Press the ![Reset Alarm](image) key to cancel the alarm message from the display. See alarms.
### BUTTONS | DESCRIPTION OF FUNCTIONS
--- | ---
INFO whilst in Stop mode | Pressing the Info key whilst in Stop mode, the display visualises the following functions that can be selected directly on the touch screen:
- Pasteurisation history (only past. version)
- Events history
- Key locking
- Settings

Functions that can be selected from INFO whilst the machine is in Stop mode:
- Pasteurisation history (only past. version)
- Event history
- Key locking
- Settings

Press the key to go back to the previous page.

#### INFO – PASTEURISATION HISTORY

Pressing Pasteurisation Log the display shows the list of successful Pasteurisations.

To browse through the events use the Up and Down keys.

#### INFO – EVENT HISTORY

Pressing Event Log the display shows a list of events, including function changes, alarms and Pasteurisation phases.

To browse through the events use the Up and Down keys.

#### NOTE

The maximum number of logged events is 1000.

Once this number is reached, every new event causes the cancellation of the oldest. Once this number is reached, every new event causes the cancellation of the oldest event is removed.
### BUTTONS

**INFO – KEY LOCKING**

- **STOP**

With the machine in Stop mode press:

- INFO
- KEY LOCKING

The key locking button is present in all functions of the machine. Pressing and holding the Lock icon for about 10 seconds (wait for the visualisation of the display to return to the current function) will lock the touchpad, except for those inside the display, so that it can be cleaned without accidentally activating a different function.

To unlock the touchpad, press any key. The Lock icon will reappear. Press and hold it for 10 seconds to reactivate the touchpad.

### INFO - SETTINGS

- **STOP**

With the machine in Stop mode press:

- INFO
- SETTINGS

Functions that can be selected from SETTINGS mode:

- Setting the time
- Display
- Setting the machine

Pressing the Settings key, the display visualises the following functions that can be selected directly on the touch screen:

- Setting the time
- Display
- Setting the machine

### INFO – SETTING THE TIME

- **STOP**

With the machine in Stop mode press:

- INFO
- SETTINGS
- SETTING THE TIME

Pressing the Setting the time key, the display visualises:

Pressing the hour the key background turns grey and the Up and Down keys activate so that the hour can be changed. To confirm press the button on the display to deselect it.

Follow the same procedure to update the minutes and the date.
<table>
<thead>
<tr>
<th>BUTTONS</th>
<th>DESCRIPTION OF FUNCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INFO - DISPLAY</strong></td>
<td>Pressing the Display key, the display visualises:</td>
</tr>
<tr>
<td></td>
<td>Pressing the display key activates the display brightness bar (intensity of the backlighting) and the Up and Down keys activate to change the current value.</td>
</tr>
<tr>
<td></td>
<td>Confirm with OK.</td>
</tr>
</tbody>
</table>
### Buttons Description of Functions

Press Settings to access the first step in operator programming.

<table>
<thead>
<tr>
<th>Step</th>
<th>Display ITA</th>
<th>Display ENG</th>
<th>Min</th>
<th>Max</th>
<th>Default</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>U07</td>
<td>Linguaggio</td>
<td>Language</td>
<td>Ita</td>
<td>Esp</td>
<td>Ita</td>
<td></td>
</tr>
<tr>
<td>U08</td>
<td>Ora Avvio Prod.</td>
<td>Start Prod. Time</td>
<td>00</td>
<td>23+no+auto</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>U09</td>
<td>Ora Avv. Pas-Con</td>
<td>Start Past. Stor.</td>
<td>00</td>
<td>23+no</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>U10</td>
<td>Abilita Beep Liv</td>
<td>Lev. Beep Enable</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>U13</td>
<td>Extra Agitaz. Vas</td>
<td>Extra Hop. Agit.</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>U14</td>
<td>Tempo Mixer</td>
<td>Mixer Time</td>
<td>0</td>
<td>20</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>U15</td>
<td>Lato Attivo</td>
<td>Active Side</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**U07 - Language**: Setting the language in Italian, English, German or Spanish.

**U08 - Start Prod. Time**: Setting of the start hour of automatic Production. If set at “No” automatic Production will not start. If set at “auto” automatic Production starts as soon as the Pasteurisation cycle has been completed.

**U09 - Start Past. Stor.**:

For pasteurising machines: Setting of the start hour of automatic Pasteurisation. If set at “No” automatic Pasteurisation will not start.

For non-pasteurising machines: Setting of the start hour of automatic Storage. If set at “No” automatic Storage will not start.

**U10 - Lev. Beep Enable**: If set at “Yes” an intermittent acoustic beep sounds when the medium level is uncovered, except when the machine is in Stop mode.

**U13 - Hopper Extra Beat.**: Enable/disable hopper rotor periodical activation in Production and Storage functions (0 = not enabled, 1 = enabled only for left side, 2 = enabled only for right side, 3 = enables both sides).

**U14 - Mixer Time**: The length of time the mixer will run in seconds when its button has been pressed.

**U15 - Active Side**: There are three settings (1, 2 or 3). Set the side on which to operate.

1= Left side
2= Right side
3= Both sides

To browse through the steps, use the Up and Down keys. The display shows the first operator programming step, i.e., U07 - Language: Eng. The value can be changed using the left and right arrows on the screen. See programming table.

To exit programming, simply do not press any key for about 1 minute or press on the display. The machine will return to the previous menu. If any changes have been made, when leaving the programming section the display will show the message “Table Updated M.”.
### BUTTONS

**INFO from Production mode**

Functions that can be selected from INFO whilst the machine is in Production mode:
- Cones and Software Versions
- Setting
- Modify Set Hot
- Key locking

Pressing the key whilst in Production mode, the display visualises the following functions that can be selected directly on the touch screen:
- Cones and Software Versions
- Setting (if present)
- Modify Set Hot
- Key locking

Use the key to return to the previous page.

### INFO – CONES AND SOFTWARE VERSIONS

With the machine in production mode press:
- INFO
- CONES AND SOFTWARE VERSIONS

Pressing the Cones and software versions key, the display visualises the read-only page that reports the following data:
- Daily cones
- Total cones
- SW versions

To return to the previous function press the key.

### INFO - SETTING (if present)

With the machine in production mode press:
- INFO
- SETTING

Press to access the freezing cycle menu (if present).

To return to the previous function press the key or wait 15 seconds.
<table>
<thead>
<tr>
<th>BUTTONS</th>
<th>DESCRIPTION OF FUNCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INFO - MODIFY SET HOT</strong></td>
<td>When is pressed its background turns grey and the Up and Down keys activate so that the HOT setting can be changed.</td>
</tr>
<tr>
<td><img src="image1" alt="Info" /> <img src="image2" alt="Modify" /> <img src="image3" alt="Set" /> <img src="image4" alt="Hot" /></td>
<td>After setting the desired value, to confirm press the button on the display to deselect it. If is pressed again, the new value will not be saved.</td>
</tr>
<tr>
<td>With the machine in production mode press:</td>
<td></td>
</tr>
<tr>
<td>• INFO</td>
<td></td>
</tr>
<tr>
<td>• MODIFY SET HOT</td>
<td></td>
</tr>
<tr>
<td><strong>INFO - KEY LOCKING</strong></td>
<td>Pressing and holding the Lock icon for about 10 seconds will lock the touchpad, except for the keys inside the display. To permit the front panel to be cleaned without accidentally activating functions, the machine returns to the previous function.</td>
</tr>
<tr>
<td><img src="image1" alt="Info" /> <img src="image5" alt="Key Locking" /> <img src="image3" alt="Set" /> <img src="image4" alt="Hot" /></td>
<td>To unlock the touchpad, press any key. The Lock icon will reappear. Press and hold it for 10 seconds to reactivate the touchpad.</td>
</tr>
<tr>
<td>With the machine in production mode press:</td>
<td></td>
</tr>
<tr>
<td>• INFO</td>
<td></td>
</tr>
<tr>
<td>• KEY LOCKING</td>
<td></td>
</tr>
<tr>
<td><strong>INFO whilst in Cleaning mode</strong></td>
<td>Pressing the key whilst in Cleaning mode, the display visualises the following functions that can be selected directly on the touch screen:</td>
</tr>
<tr>
<td><img src="image1" alt="Info" /> <img src="image6" alt="Cleaning" /> <img src="image5" alt="Key Locking" /> <img src="image3" alt="Set" /> <img src="image4" alt="Hot" /></td>
<td>Functions that can be selected whilst in INFO mode with the machine in Cleaning mode: • Key locking</td>
</tr>
<tr>
<td>Functions that can be selected whilst in</td>
<td>Pressing and holding the Lock icon for about 10 seconds will lock the touchpad, except for the keys inside the display. To permit the front panel to be cleaned without accidentally activating functions, the machine returns to the previous function. To re-enable the keys, press any key and the window with the lock appears. Pressing the Key locking key for 10 seconds, all keys are re-enabled. Use the Back key to return to the previous menu.</td>
</tr>
<tr>
<td>INFO mode with the machine in Cleaning mode:</td>
<td></td>
</tr>
</tbody>
</table>
### BUTTONS

<table>
<thead>
<tr>
<th>Description of Functions</th>
<th>INFO whilst in Pasteurisation mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressing the key whilst in Pasteurisation mode, the display visualises the following functions that can be selected directly on the touch screen:</td>
<td>Functions that can be selected whilst in INFO mode with the machine in Pasteurisation mode:</td>
</tr>
<tr>
<td>• Key locking</td>
<td>• Key locking</td>
</tr>
<tr>
<td>Pressing and holding the Lock icon for about 10 seconds will lock the touchpad, except for the keys inside the display. To permit the front panel to be cleaned without accidentally activating functions, the machine returns to the previous function. To unlock the touchpad, press any key. The Lock icon will reappear. Press and hold it for 10 seconds to reactivate the touchpad.</td>
<td>Use the Back key to return to the previous menu.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Functions</th>
<th>INFO whilst in Storage mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressing the key whilst in Storage mode, the display visualises the following functions that can be selected directly on the touch screen:</td>
<td>Functions that can be selected whilst in INFO mode with the machine in Storage mode:</td>
</tr>
<tr>
<td>• Key locking</td>
<td>• Key locking</td>
</tr>
<tr>
<td>Pressing and holding the Lock icon for about 10 seconds will lock the touchpad, except for the keys inside the display. To permit the front panel to be cleaned without accidentally activating functions, the machine returns to the previous function. To unlock the touchpad, press any key. The Lock icon will reappear. Press and hold it for 10 seconds to reactivate the touchpad.</td>
<td>Use the Back key to return to the previous menu.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Functions</th>
<th>CLEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressing the Cleaning key the display visualises the following functions that can be selected directly on the touch screen:</td>
<td>Functions that can be selected whilst in Cleaning mode:</td>
</tr>
</tbody>
</table>
| • Beating | • Beating  
• Heated beating  
• Pump |
<p>| The keys that can be activated have a coloured icon (blue or red) and once pressed the background becomes grey. The keys that cannot be activated have a grey icon. Refer to the key on the above display. The two functions and can run at the same time. | |</p>
<table>
<thead>
<tr>
<th>BUTTONS</th>
<th>DESCRIPTION OF FUNCTIONS</th>
</tr>
</thead>
</table>
| **CLEANING – BEATING** | Press Beating 🔄 to start/stop the beater motor.  
When the motor is functioning, the background of the relative function becomes grey.  
After 3 minutes the symbol returns to a white background and the motor switches off.  
The Beating function is used to wash the cylinder and facilitate the emptying of the product from the cylinder. |
| **CLEANING – PUMP** | Pressing the Pump 💦 key (only machines with a pump), the pump motor is activated/deactivated.  
When the motor is functioning, the background of the relative function becomes grey.  
After 30 seconds the symbol returns to a white background and the pump switches off.  
The function is used to load the mix from the hopper to the cylinder and to pressurize the cylinder to facilitate the dispensing of the product. |
| **CLEANING - HEATED BEATING** | Pressing Heated Beating 🔄 🔥 the beater motor with heating is activated/deactivated.  
When Heated Beating is activated the background of the function becomes grey.  
The cylinder is heated until a set temperature is reached.  
On reaching this temperature the symbol changes back to the white background and Heated Beating is deactivated. |
### Buttons Description of Functions

<table>
<thead>
<tr>
<th>Buttons</th>
<th>Description of Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production</strong></td>
<td>Production can be accessed only if there is a minimum level of mix in the hopper.</td>
</tr>
<tr>
<td></td>
<td>Press 🍦 key, to access the following menu:</td>
</tr>
<tr>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
</tbody>
</table>

Where:

- 🍦 The hopper level.
  - : more than half full, : less than half full, : less than minimum.

- Number of cones that can be dispensed with less than minimum mix. It appears only when mix falls below minimum level required.

- **4°C** Hopper temperature. If <40°C the temperature color is blue. If >=40°C the temperature color is red.

- **4°C ↓** Arrow visible if the hopper is cooling.

- **100** Set consistency to be reached.

- 🍦 Mix not ready for dispensing. When consistency is reached the icon will change to 🍦.

- **100%** Current consistency.

- **100% ↓** Arrow visible if the cylinder is cooling.

- **14** Days left until washing is required

The machine brings the ice cream in the cylinder to the right consistency every 10 minutes. Press the 🍦 key to force this time. The consistency will conform to the set value.

### Production – Change of Flavour

**Flavor Change Procedure**

Pressing the 🍦 key for 10 seconds the icon will turn grey and cooling on the corresponding side will be stopped. Beating is activated and the pump operates for one minute to empty the cylinder and the hopper. If after one minute the hopper and cylinder are not empty, press the cone button 🍦 again to reactivate the function for a further minute.

At this point it is possible to fill the empty hopper with a different flavour.

To exit the emptying procedure, press the 🍦 key for 10 seconds. The icon will turn blue again.
### PRODUCTION

<table>
<thead>
<tr>
<th>VERSIONS WITH MIXER AND WATER DISPENSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>The third line of the display shows the information indicated as follows on the third line of the display:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard machine.</th>
<th>The cone indicates machine in Production mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key not active.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine with water dispensing</th>
</tr>
</thead>
<tbody>
<tr>
<td>The cone indicates machine in Production mode.</td>
</tr>
<tr>
<td>Key not active.</td>
</tr>
<tr>
<td>The sprayer key is a non active key (grey).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine with a mixer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The cone indicates machine in Production mode.</td>
</tr>
<tr>
<td>Grey key not active.</td>
</tr>
<tr>
<td>The mixer key is active (blue).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machine with mixer and water dispensing</th>
</tr>
</thead>
<tbody>
<tr>
<td>The cone indicates machine in Production mode.</td>
</tr>
<tr>
<td>Key not active.</td>
</tr>
<tr>
<td>The mixer key is active (blue), acting as a toggle.</td>
</tr>
<tr>
<td>The mixer stops automatically after a programmed timer expires or by pressing the mixer key.</td>
</tr>
<tr>
<td>The sprayer key is a non active key (grey).</td>
</tr>
</tbody>
</table>

### STORAGE/ALARM

<table>
<thead>
<tr>
<th>RESET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage mode starts automatically every day at an established time.</td>
</tr>
<tr>
<td>Storage has the function of bringing the mix in the hopper and cylinder to 4°C.</td>
</tr>
<tr>
<td>Once Storage mode is activated the display shows the following:</td>
</tr>
</tbody>
</table>

- [Temperature](#) 4°C
- [Temperature](#) 4°C
- [Sprayer](#)
- [Sprayer](#)

To start manually Storage press the key. |

The button also allows to reset the alarms that might be shown on the display.
# Pasteurisation

Pasteurisation can only be done if the hopper is more than half full.

Press and hold the Pasteurisation button for 5 seconds, the display will show the following:

<table>
<thead>
<tr>
<th>Hopper mix level.</th>
<th>: more than half full, : less than half full, : less than minimum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hopper temperature.</td>
<td>If &lt;40°C then the temperature is blue. If &gt;=40°C then it is red.</td>
</tr>
<tr>
<td>Arrows next to the temperature: Up if heating and Down if cooling.</td>
<td></td>
</tr>
<tr>
<td>Cylinder temperature.</td>
<td>If &lt;40°C then the temperature is blue. If &gt;=40°C then it is red.</td>
</tr>
<tr>
<td>Active function: heating. Do not dispense product.</td>
<td></td>
</tr>
</tbody>
</table>

If the machine pasteurises, the Pasteurisation cycle occurs automatically every day at a predetermined time (if set in User Programming).

When the machine is in Production or Storage mode at the time set for pasteurisation, it automatically goes into Pasteurisation mode.

To start Pasteurisation manually, press and hold the Pasteurisation button for 5 seconds.

If Pasteurisation is not completed successfully, the machine will NOT be able to be set to Production until a Pasteurisation cycle has been completed correctly.

During the Pasteurisation cycle, the product in the hopper or in the cylinder is heated to 65°C, maintained at this temperature for 30 minutes (fixed) and then cooled until the storage temperature is reached.

When the procedure is finished, the display shows along with the hour and the day of the week, confirming that Pasteurisation cycle has been completed correctly.
3.4 Dispenser levers

To dispense the product, place a cup or a cone underneath the spigot door and, with the machine in production mode, slowly lower the dispenser lever.

As soon as the product starts to come out, move the cup or cone with a circular motion to give the ice cream a conical shape.

Once a sufficient amount of product has been dispensed, close the dispenser lever and move the cup or cone quickly downwards to give the portion a pointed tip.

The product dispenser lever can also be easily removed by lifting it upwards.

In this way it can also be used as a key to stop the machine from being used.

3.4.1 Modifying the quantity of product dispensed

To modify the quantity of product dispensed by the various levers, carry out the following procedure:

- Remove the ice cream dispenser levers (5).
- Open the spigot door cover panel.
- Adjust the three knobs. Rotating them in a counter-clockwise direction the quantity of product dispensed is reduced. Rotating them in a clockwise direction increases the quantity.

3.4.2 Self closing

The machine is equipped with an automatic return system that brings the ice cream dispenser lever to rest automatically.

This occurs via a spring system connected to the dispensing piston.

**NOTE**

When the symbol is visualised in Production mode, remove a cone by lowering the dispenser lever until it stops. Re-position the lever in the closed position.

3.5 Machines fed by pump and semi-submersible pump

The pump allows a variation in the proportion of air/mix sent to the cooling cylinders. Therefore, within certain limits, it allows to adjust the volume increase (overrun) suitable to the type of mix used. By turning the middle lever counter-clockwise the overrun is increased.
3.6 Gravity-fed machines – feed needle

Instructions for achieving and maintaining the good functioning of the machine.

- Always keep the level of the mix in the hopper high (at least more than half). The mix in the hopper is stored at 4°C whether in Production mode or Storage mode.
- During the day periodically stir the mix in the hopper using a spatula to avoid the separation of the mix, especially after the machine has been stopped for long periods in Storage mode.
- Always use a fluid mix free of large lumps. A very dense mix with large lumps could block the slot of the feed needle thereby stopping the loading of the whipping cylinder.
- Keep the cursor of the feed needle (pos. 52) in a position that permits the mix to fall correctly from the hopper into the whipping cylinder. Rotating the slot of the cursor so that it is aligned with the lower diameter hole, the quantity of mix that drops into the hopper is reduced. Rotating the slot of the cursor in correspondence to the upper hole diameter, the quantity of mix is increased that drops into the cylinder.
- Position the feed needle in such a way that the entry hole of the product is turned towards the centre of the hopper.
- Do not exceed the production parameters indicated in paragraph 1.2.2 and maintain regularity in the distribution of cones and tubs. Exceeding the limits of production capacity indicated could block the machine. In this case the alarm message “ICE” could appear on the display. If this occurs, reset the functionality of the machine as follows:
  - Place the machine in Stop mode.
  - Remove the feed needle to allow a free fall of mix into the cylinder.
  - Place the machine in Cleaning mode for a few minutes.
  - Ensure that a liquid product pours out from dispensing tap.
  - Replace the feed needle checking that the cursor is sufficiently open.
  - Switch on the machine again and put it into Production mode. Wait for it to stop and then commence distribution again.

3.7 Preliminary operations, washing and sanitising

Before using the machine for the first time, thoroughly clean all components as well as sanitising the parts that come into contact with the ice cream.

Refer to section 5 of this manual for machine disassembly and cleaning procedures.

NOTE

Cleaning and sanitisation are operations that must be carried out with maximum care to ensure production quality and compliance with required hygienic norms.

3.8 Commissioning the machine

After installing the machine in compliance with the instructions contained in the “Installation” chapter of this manual and after thoroughly washing and sanitising the machine, proceed as follows:

3.8.1 Starting the machine that has a pump

Take the compression hose from the tray and plunge it into the cleaning/sanitising solution for the amount of time indicated by the manufacturer of the product used.

Loading the hopper:

- Take a tub of mix from the refrigerator.

  NOTE: Load a mix that has a temperature of 4-5°C.

- Place a bucket under the spigot door and pour a small quantity of mix (approximately 100 ml) into the hoppers, lower the ice cream dispenser levers and let the mix flow completely out so as to eliminate any residues of water and detergent/sanitising solution.

- Bring the ice cream dispenser levers back to the original position and continue to pour the mix so that it fills the cylinder by gravity.

- When the cylinder is full and the hopper almost empty, press the key and then press the key to verify the correct operation of the pump (the flow of the mix must be a good jet). In the event of fault, refer to paragraph 6.1. To deactivate the function press the key again.
Assembling the compression hose:
- With clean, sanitised hands (or wearing disposable gloves) take the compression hose from the detergent/sanitising solution, ensure that the solution does not remain into the tube and place it onto the bottom of the hopper.
- Rotate the compression hose counter-clockwise in order to align it with the pump. Insert the connecting pipe into the pump and rotate it until it is fastened.
- Pour the mixture into the hoppers until they are full.

**NOTE**

The level of mix in the hoppers must not exceed the maximum level indicated on the hopper walls.

3.8.2 Starting a gravity-fed machine

Take the feed needle from the tray and immerse it in the detergent/sanitising solution for the amount of time indicated by the manufacturer of the product used.

Loading the hopper:
- Take a tub of mix from the refrigerator. **NOTE:** Use a mix that has a temperature of 4°C/5°C.
- Place a bucket under the spigot door and pour a small quantity of mix (approximately 100 ml) into the hoppers, lower the ice cream dispenser levers and let the mix flow completely out so as to eliminate any residues of water and detergent/sanitising solution. Bring the ice cream dispenser levers back to their original positions and continue to pour the mix so that it fills the cylinder by gravity.
- **WARNING**
  - Turn the tap on the top of the machine and point it towards the inside of hopper.
  - The machine is in Stop mode. Press the **key.**
  - After few minutes the product can be dispensed.

Assembly of the feed needle:
- With clean and sanitised hands (or wearing disposable gloves), remove the feed needle from the sanitising solution ensure that the solution does not remain into the tube, and insert it into the bottom of the hopper.
- Pour the mixture into the hoppers until they are full.

3.8.3 Dry filling (if present)

**WARNING**

All machines preset for the dry filling function must be connected to the drinking water mains system. If the microbiological characteristics of the water are not periodically checked and/or the powder food preparations used are not sterile, CARRYING OUT PASTEURISATION HEAT TREATMENT IS HIGHLY RECOMMENDED each time they are loaded and topped up.

LOADING THE MIX - How to carry out a Dry Filling after cleaning and sanitising machine

Carrying out a DF procedure must take place only once the machine has been cleaned. The DF procedure is enabled if the Medium level or the Minimum level is uncovered (and consequently the Medium level).

With clean, sanitised hands (or wearing disposable gloves) proceed as described below.
- Turn the tap on the top of the machine and point it towards the inside of hopper.
- The machine is in Stop mode. Press the **key.**

- By pressing the **key the display shows:**

If no key is pressed within ten seconds the display returns to the standard view.
By pressing the \( \text{key} \) the display shows:

- The Up \( \uparrow \) and Down \( \downarrow \) keys are activated so that the operator can change the liter quantity.

- The quantity can be modified by using the arrow keys in steps of 0.1 l. If no key is pressed for ten seconds the visualisation returns to the standard display.
- To start the DF procedure, press the \( \text{OK} \) key.
- At this point add the powder mix. In the meantime, clean the upper part of the machine with a sanitised cloth and close the lid of the hopper (Refer to paragraph 3.7).
- If the DF procedure is carried out with the minimum level uncovered (and the previous function was Stop), after completing the DF procedure, the mixing and the loading for 30" with pump, the display visualised as follows:

To indicate to de-pressurise the cylinder by pulling the relevant lever.

- After pulling the lever, on the display is shown:

To indicate to de-pressurise the cylinder by pulling the relevant lever.

- After a few minutes the beating stops and the machine is ready for production.

---

### 3.9 Production

Production can be accessed only if there is a minimum level of mix in the hopper.

Pressing the key \( \text{the key} \) the display visualises:

Where:

<table>
<thead>
<tr>
<th>Hopper mix level.</th>
<th>( \text{H} ): more than half full, ( \text{L} ): less than half full, ( \text{M} ): less than minimum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cones that can be dispensed with less than minimum mix. It appears only when mix falls below minimum level required.</td>
<td></td>
</tr>
<tr>
<td>Hopper temperature. If &lt;40°C the temperature color is blue. If &gt;=40°C the temperature color is red.</td>
<td></td>
</tr>
<tr>
<td>Arrow visible if the hopper is cooling.</td>
<td></td>
</tr>
<tr>
<td>Set consistency to be reached.</td>
<td></td>
</tr>
<tr>
<td>Mix not ready for dispensing. When consistency is reached the icon will change to</td>
<td></td>
</tr>
<tr>
<td>Actual consistency (HOT).</td>
<td></td>
</tr>
<tr>
<td>Arrow visible if the cylinder is cooling.</td>
<td></td>
</tr>
<tr>
<td>Days left until washing is required.</td>
<td></td>
</tr>
</tbody>
</table>
### Versions with mixer and water dispensing

The three keys are visualised as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The cone indicates machine in Production mode. Key not active.</td>
<td>The cone indicates machine in Production mode. Key not active. The sprayer key is a non active key (grey).</td>
<td>The cone indicates machine in Production mode. Grey key not active. The mixer is an active (blue) key.</td>
<td>The cone indicates machine in Production mode. Key not active. The mixer key is active (blue), acting as a toggle. The mixer stops automatically after a programmed timer expires or by pressing the mixer key. The sprayer key is a non active key (grey).</td>
</tr>
</tbody>
</table>

### 3.10 Pasteurisation (for the “SP” machines)

The machine is equipped with a function that allows to carry out Pasteurisation automatically every day at an established time.

Pasteurisation can also be activated manually by pressing the pasteurisation key.

The product, whether in the hopper or the cylinder, is heated to 65°C and maintained at this temperature for 30 minutes. Then it is cooled until the storage temperature has been reached.

At the end of the cycle the display visualises “Pasto End” which means that the pasteurisation process has been carried out correctly.

Pasteurisation cannot be started if the hopper is less than half full.

### 3.11 Daily cleaning – Opening and closing procedures

#### 3.11.1 Daily closing procedures

With clean, sanitised hands (or wearing disposable gloves) carry out the following procedures:

- Keep the machine in Production mode.
- **Disassembly and cleaning of the components:**
  - Remove the hopper cover, wash, sanitise and rinse it in a container.
  - Clean the outside part of the hoppers by using a clean, sanitised cloth.

---

**Fig. 15**

---

**NOTE**

During the production phase it is recommended to activate the “Key locking” function described in paragraph 3.3.2 of this manual.

**NOTE**

When the level indicator lights up, only a pre-set number of portions can be dispensed after which the dispensing keys are locked until the hopper is filled with mix.

**NOTE**

When the symbol is visualised in Production mode, remove a cone by lowering the dispenser lever until it stops. Re-position the lever in the closed position.
Reposition the lid onto the hopper after sanitization.

Fig. 16

Reposition the drip drawers onto the machine.

Fig. 17

Remove the drip drawers on the side of the machine, wash, sanitise and rinse them.

Fig. 18

NOTE

Notify an authorised technician if any mix leaks in the drip drawers.

- Reposition the drip drawers onto the machine.
- Remove the dispenser levers (5).
- Using both hands, grip the upper part of the spigot door cover panel and pull forward.

Fig. 19

Grab the panel with your hands at the pins a pull outwards, so as to have the slots stick out and remove the panel completely.

Fig. 20

Wash and sanitise the spigot door cover panel and the ice cream dispenser levers.

Fig. 21

Fill a bucket with cleaning/sanitising solution. Dip the provided brush into the cleaning/sanitising solution and clean the spigot door dispenser and the spigot door itself (especially the piston area) several times.
Spray the sanitising solution on the spigot door’s dispensing point and on the spigot door, particularly in the area of the piston.

Clean the spigot door area, the steel part underneath it, the machine front and all “splash” areas with a clean, sanitised cloth, carefully removing any kind of dampness and product or cleaning/sanitising solution residues.

Re-assemble the spigot door cover panel and the ice cream dispenser levers.

Remove the drip tray and its cover; wash, sanitise, rinse it and then reassemble on the machine.

Prepare the machine for the pasteurisation night cycle (for “SP” machines)
- Open the lid of the hoppers to check the level of the mix.
- Fill the hoppers with mix at least up to the medium level.
- Keep the machine in Production mode.

**WARNING**

If the mix in the hopper is below the medium level the Pasteurisation cycle will not start.

The Pasteurisation cycle is automatic and occurs overnight at the set time.

### 3.11.2 Daily opening procedure

With clean, sanitised hands (or wearing disposable gloves) carry out the following procedures.

**Disassembly and cleaning of the lid:**
- Remove the hopper lid, wash, sanitise and rinse it in a container.
- Clean the outside part of the hopper by using a clean, sanitised cloth.

Reposition the lid onto the hopper after sanitization.
Spigot door area sanitising:
- Extract the dispenser levers (5).
- Using both hands, grip the upper part of the spigot door cover panel and pull forward.

Fig. 27

- Grab the panel with your hands at the pins and pull outwards, so as to have the slots stick out and remove the panel completely.

Fig. 19

- Wash and sanitise the spigot door cover panel and the ice cream dispenser levers.
- Fill a bucket with cleaning/sanitising solution. Immmerse the supplied brush into the cleaning/sanitising solution and clean the spigot door dispenser and the area of the spigot door piston several times.

Fig. 30

- Spray the cleaning/sanitising solution on the spigot door dispenser and the spigot door itself, particularly in the piston area.

Fig. 31

- Clean the spigot door area, and the machine front with a clean, sanitised cloth, carefully removing any kind of dampness and product or cleaning/sanitising solution residues.
- Re-assemble the spigot door cover panel and the ice cream dispenser levers.

Fig. 32

- Make sure the machine is in Production mode and ready to serve.
4. SAFETY DEVICES

4.1 Alarms

The machine communicates possible alarms by showing messages on the display and flashing the warning triangle. If an alarm is triggered but then correct functioning is restored, the alarm remains visible on the display without flashing.

To reset the warning message press Storage/Reset.

The machine can be used in Production even if there is an alarm, except in the case of critical alarms. In this latter case, press Stop and do not use the machine until the machine is repaired.

Below is a list of possible alarms:

<table>
<thead>
<tr>
<th>ALARM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix Out</td>
<td>The display shows ![alarm icon] when the mix falls below the minimum level.</td>
</tr>
<tr>
<td>Add Mix</td>
<td>When the hopper mid-level sensor is uncovered the display shows the corre-</td>
</tr>
<tr>
<td></td>
<td>sponding symbol ![sensor icon].</td>
</tr>
<tr>
<td>Safety Therm.C.1 (TESC1)</td>
<td>Left cylinder safety thermostat triggered.</td>
</tr>
<tr>
<td>Safety Therm.C.2 (TESC2)</td>
<td>Right cylinder safety thermostat triggered.</td>
</tr>
<tr>
<td>Safety Therm. Hop (TESV)</td>
<td>Hopper safety thermostat triggered.</td>
</tr>
<tr>
<td>Overload Beat.1 (PTMA1)</td>
<td>Left beater motor bimetal thermal protector triggered.</td>
</tr>
<tr>
<td>Overload Beat.2 (PTMA2)</td>
<td>Right beater motor bimetal thermal protector triggered.</td>
</tr>
<tr>
<td>Pressure Switch (PR)</td>
<td>Pressure switch triggered. The machine Stops:</td>
</tr>
<tr>
<td></td>
<td>• after the number of occurrences programmed;</td>
</tr>
<tr>
<td></td>
<td>• if the pressure switch remains open for 3 consecutive minutes.</td>
</tr>
<tr>
<td></td>
<td>If the machine was Pasteurizing, the Pasteurisation must be repeated.</td>
</tr>
<tr>
<td>Overload Compress (RTC)</td>
<td>Compressor motor thermal relay. The machine Stops.</td>
</tr>
<tr>
<td>Overload MP1/MP2 (ptmp1/2)</td>
<td>Pump motors 1 and 2 thermal protector. The machine Stops.</td>
</tr>
<tr>
<td>Al. Hopper Probe1 (TEV1)</td>
<td>Left hopper probe malfunction. Since the alarm is critical, the machine</td>
</tr>
<tr>
<td></td>
<td>Stops during Production, Storage and Pasteurisation.</td>
</tr>
<tr>
<td>ALARM</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Al. Hopper Probe2</strong> (TEV2)</td>
<td>Right hopper probe malfunction. Since the alarm is critical the machine Stops during Production, Storage, and Pasteurisation.</td>
</tr>
<tr>
<td><strong>Al. Cyl.1 Probe</strong> (TEC1)</td>
<td>Cylinder 1 probe malfunction. Since the alarm is critical the machine Stops in Storage and Pasteurisation. Since consistency can be controlled during Production the machine does not Stop if in Production mode.</td>
</tr>
<tr>
<td><strong>Al. Cyl.2 Probe</strong> (TEC2)</td>
<td>Cylinder 2 probe malfunction. Since the alarm is critical the machine Stops in Storage and Pasteurisation. Since consistency can be controlled during Production the machine does not Stop if in Production mode.</td>
</tr>
<tr>
<td><strong>Al. IceHop. Probe</strong> (TGV)</td>
<td>Hopper evaporator probe malfunction. The alarm Stops the machine.</td>
</tr>
<tr>
<td><strong>Spigot Opened</strong> (IMS)</td>
<td>Magnetic Safety Switch (IMS)</td>
</tr>
<tr>
<td><strong>Al. Evap. Probe</strong> (TE1)</td>
<td>Left cylinder evaporator probe alarm. The alarm Stops the machine.</td>
</tr>
<tr>
<td><strong>Al. Evap. Probe</strong> (TE2)</td>
<td>Right cylinder evaporator probe alarm. The alarm Stops the machine.</td>
</tr>
<tr>
<td><strong>Power On</strong></td>
<td>Power supply returns after power loss. Blackout table is checked if the machine was in Pasteurisation or Production mode. The event is logged in any function.</td>
</tr>
<tr>
<td><strong>IceCylinder</strong> (ICE)</td>
<td>Cylinder anti-ice. This alarm may be due to insufficient mix feeding into the cylinder.</td>
</tr>
<tr>
<td><strong>Timeout Prd.</strong></td>
<td>Refrigeration problems; the product does not harden. Check the quantity of mix in the cylinder, the hopper pump, and the refrigeration apparatus.</td>
</tr>
<tr>
<td><strong>Belt alarm</strong> (DELTA TGV-TEV)</td>
<td>The hopper beater does not rotate. Check the insertion of beater in its seat.</td>
</tr>
<tr>
<td><strong>Wash in n days</strong> (Wash)</td>
<td>During Production, the display shows “14”, meaning that there are N days (14 in the example) before the machine must be washed. A forced washing may be required if the machine is left in Stop mode for 24 hours with mix in the hopper. See WEEKLY CLEANING. In the case of a “Wash today!” alarm, the alarm must be first reset by pressing the Storage key, to open the piston for cleaning the machine.</td>
</tr>
<tr>
<td><strong>Do Not Serve !</strong></td>
<td>In Production, each time the consistency drops below the programmed value, the icon appears on the display</td>
</tr>
<tr>
<td><strong>Switch Phases</strong></td>
<td>It is necessary to invert the two phases on the three-phase cable so that the beater turns in the correct direction.</td>
</tr>
<tr>
<td><strong>Pasto Needed!</strong></td>
<td>When the machine is Stopped with mix in the hopper for more than 60 minutes, the TEV temperature is checked to see if it is equal or greater than 15°C. If this is the case, Pasteurisation is required. In this situation, when Production is pressed the machine will automatically start Pasteurisation.</td>
</tr>
</tbody>
</table>
If the machine is left in Stop with mix in the hopper, after 30 seconds the flashing message “Why in STOP ??” will appear on the display, accompanied by a periodic beeping sound. This alerts the operator to select either Production, Pasteurization, or Storage mode. The message disappears when Storage is pressed.

Table Updated M.  Message shown every time the programming table is changed.
Table Updated R.  Message shown every time the programming table is changed remotely.
Communic.Error P  Communication errors with the touchpad.

When this symbol is visualised in Production mode, extract a cone and lower the dispenser lever until it stops. Re-position the lever in the closed position.

4.1.1 Blackout
In the case of a power loss, if the machine was in Cleaning mode, when power returns the machine shifts to Stop.

If the machine was in Pasteurisation heating phase or pause, when power returns the machine will continue with the function it was performing when power was lost. The display will show the message Power On.

If the machine was in Pasteurisation cooling phase, when the power returns the machine will check the TEV temperature and the duration of the blackout. If the length of time is greater than the duration indicated in the table, the machine will completely repeat the Pasteurisation cycle, memorizing the alarm “Mancata Tensione” or “Power On” in the event log.

If the duration is less than the table values, the machine will continue from the point it was at when the power loss occurred.

<table>
<thead>
<tr>
<th>TEV TEMPERATURE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>68°C + 50°C</td>
<td>30 minutes</td>
</tr>
<tr>
<td>49°C + 15°C</td>
<td>10 minutes</td>
</tr>
<tr>
<td>14°C + 10°C</td>
<td>20 minutes</td>
</tr>
<tr>
<td>9°C + 4°C</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

If the machine was in Production or Storage, when power returns the machine will check the TEV temperature. If it is below a level set by the manufacturer then the machine will continue with the same function as before, showing the Power On alarm on the display. If TEV is greater than this value and the time exceeds the values in the table above, the Pasteurisation cycle will be repeated.
5. DISASSEMBLY, CLEANING AND REASSEMBLY OF THE PARTS IN CONTACT WITH THE PRODUCT

5.1 General information

Cleaning and sanitisation are operations that must be carried out with utmost care on a regular basis and at the end of each production run to guarantee production quality and compliance with required hygienic norms.

Letting dirt dry out can greatly increase the risk of ring marks, spots and damage to surfaces.

Removing dirt is much easier if it is done immediately after use as some elements containing acid and saline substances could corrode the surfaces. Prolonged soaking is not recommended.

5.2 Washing conditions

Avoid using solvents, alcohol or detergents that could damage machine components or pollute the functional production parts.

When manually washing never use powder or abrasive products, abrasive sponges or pointed utensils which can dull surfaces, remove or deteriorate the protective film that is present on the surface thus scoring the surface.

Never ever use metal scouring pads or synthetic abrasives whose scouring action could remove ferrous parts and risk causing oxidisation or making the surfaces vulnerable.

Avoid using detergents that contain chlorine and its components. The use of these detergents such as bleach, ammoniac, hydrochloric acid and decalcifiers can attack the composition of the steel, marking it and oxidising it irreparably and damaging the “plastic” parts.

Do not use dishwashers and their detergent products.

The use of a cleaning/sanitising solution allows to optimise the washing and sanitising process since it avoids two procedure phases (i.e. a rinse and a washing phase); basically the use of a cleaning/sanitising solution saves time by facilitating and simplifying washing/sanitising procedures.

5.3 Suggestions

Use a mild detergent solution to wash parts.

Manually wash parts in water (max 60°C) using a mild detergent and the supplied cleaning brushes.

Use drinking water (bacteriologically pure) to rinse the parts.

To sanitise leave the disassembled parts in sanitised lukewarm water for the time recommended by the manufacturer (use the sanitising product following the instructions of the manufacturer) and rinse them before reassembling.

When the washing procedure has been completed and before reassembling components, dry each one thoroughly with a clean, soft cloth suitable for use with foodstuffs, in order to remove any traces of 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). Basically the use of a cleaning/sanitising solution saves time by facilitating and simplifying washing/sanitising procedures.

During the cleaning procedures, Carpigiani recommends to use the supplied brushes that must be washed and sanitized before and after use.

5.4 How to use cleaning/sanitising solution

Follow the instructions on the label of the product used to prepare the cleaning/sanitising solution.

Washing/sanitisation by immersion of components

- Manually remove the bulk residues using the supplied brushes.
- Remove finer residues with a jet of water.

WARNING

Every time the machine is washed and the parts that come into contact with the ice cream mix are disassembled, it is essential to carry out a visual control of all its parts made of thermosetting materials; plastics, elastomers, silicone and metal (for example, scrapers, pump gears, beaters, etc...). All parts must be whole, not worn, without cracks or splits, or opaque if originally polished/ transparent. Carpigiani declines all responsibility for any damage caused by imperfection and/or undetected breakages and not promptly solved by the replacement with genuine spare parts and is available for consultation and for any specific request made by the customer.
5.5 Daily cleaning
Cleaning and sanitisation operations must be carried out daily with the utmost care and attention every time the machine is switched on and switched off to guarantee the quality of the product. Respect hygienic standards by scrupulously following the instructions provided in paragraph 3.11.

5.6 Scheduled cleaning
The machine is equipped with an automatic system which activates cleaning of the parts in contact with the product at scheduled times.

Such system, called “WASH”, inhibits the dispensing function when the scheduled time comes.

**WARNING**

Cleaning and sanitising procedures have to be carried out with the utmost care on a regular basis according to the scheduled date shown on the machine display to ensure production quality and the compliance with the necessary hygienic rules.

During Production the display shows the number of days until the next required washing:

When the schedules wash day arrives, Production is inhibited and the machine will not accept that function. The display shows:

To reset the machine to the number of days programmed in Wash Days, the machine must first be washed.

5.6.1 Mix emptying
- Place a bucket under the dispenser spigot door.
- Press the button.
- Lower the dispenser lever and drain out all the product from the cylinder.

**NOTE**

It is recommended to select the Heated Beating to make emptying the cylinder easier if ice cream is still inside.

- When the mix becomes liquid, press the key and continues to drain out the mix.
- Remove the hopper lid.

5.6.2 Pump-fed machines - Removing the pumps from the hoppers
- Rotate the connection hose (207) until its notch is aligned with the pin on the pump, pull it forward so as to disconnect it from the pump.
- Remove the compression hose (32) by rotating it 90° and removing it from its seat in the hopper. At this point open the dispenser lever and continue to drain out the mix.
• Disassemble the pump by rotating it 45° clockwise and by taking it out frontally.
• Remove the pump shaft (96) and the seal by taking it out frontally.

Fig. 35

• Repeat the previous operations on the second hopper.
• Insert the O-ring in the supplied plug and insert it into the pump housing hole so as to close the hopper.

Fig. 36

5.6.3 Gravity-fed machines - Removing the feed needles.

• Remove the feed needles from the bottom of the hopper.

Fig. 38

5.6.4 Remove hopper beaters

• Remove the beaters in the hopper by pulling them upwards.

Fig. 37

5.6.5 Hopper cleaning

• Pour clean warm water into the hopper.

WARNING

Never exceed the maximum level indicated on the hopper walls.

• Use the supplied brushes to clean the sides of the hopper, the level sensors, the beater shafts and interstice (A) and the hopper. Using the smallest brush, clean the seat of the compression hose or the feed needle on the bottom of the hopper. Discharge water from the hoppers using the dispenser levers and repeat many times the operation until clean water is obtained.
• Repeat the two previous procedures by using a cleaning/sanitising solution.

Fig. 39
• Position a bucket underneath the spigot door, lower the dispenser levers and allow the solution to flow.

Fig. 40

• Select the function and then select . Let the machine operate for 10 seconds.

• Press the button and discharge the water completely.

• Rinse with warm water until clean water comes out.

• Remove the plug from the pump housing hole.

Fig. 41

• Spray the cleaning/sanitising solution around the pump housing hole. Immerse a fine brush in the cleaning/sanitising solution and clean the pump housing hole several times.

NOTE

The plug and its O-ring must be washed and sanitised.
5.6.6 Machine with pump – Pump disassembling

Fig. 42

8  Pump knob
31  Membrane valve
32  Compression hose
38  Driven gear
38A Driving gear
39  Pump body
96  Pump shaft
99  Suction pipe
99A  Air inlet pipe
202  Pump cover
206  Spring
207  Connection pipe

236  Plug
243  Pump body seal
245  Pump valve
271  Pump regulator
1107  O-ring
1117  O-ring
1126  O-ring
1131  O-ring
1138  O-ring
1178  O-ring
1270  O-ring
- Remove the seal (243) and the two O-rings (1138).

Fig. 43

- Remove the pump regulator (271) from the pump cover (202) by rotating it clockwise until the notch located on the regulator is aligned with the pin on the pump cover and pull it out. Use the O-ring extractor (1131) to remove the two O-rings located on the pump regulator.
- Remove the spring (206) and the pump valve (245).

Fig. 44

- Remove the two air inlet pipes (99A) from the pump cover (202), pushing and rotating them until the notches positioned on the pipes are aligned with the pins situated on the pump cover.
- Remove the plugs (236) and the O-ring (1270) from the air inlet pipes (99A).
- Remove the O-rings (1107) from the air inlet pipes (99A).

Fig. 45

- Keep the suction pipe (99) vertical, rotate it until the notch is aligned with the pin situated on the pump.
- Use an O-ring extractor to take the O-ring (1131) out from the suction pipe (99).

Fig. 46

- Unscrew the two knobs and separate the pump cover (202) from the pump body (39).
• Use an O-ring extractor to remove the O-ring (1178).
• Remove the gears (38-38A).

5.6.7 Gravity-fed machines – removal of the feed needle

Proceed as follows to remove the feed needle:
• Remove the cursor of the feed needle (52).
• Remove the needle O-ring (1131).
5.6.8 Disassembly of the spigot door

**WARNING**

Before disassembling the dispensing spigot door, make sure the hoppers and the cylinders are empty, and the machine is in stop mode.

- Remove the dispenser levers (5).
- Using both hands, grip the upper part of the spigot door cover panel and pull forward.

- Grab the panel with your hands at the pins a pull outwards, so as to have the slots stick out and remove the panel completely.

---

### Fig. 50

7 Dispensing door
8 Knob
5 Dispenser levers
30A Piston
214 Adjusting screw
303 O-ring
1147 O-ring
1188 O-ring

---

**Fig. 51**

---

**Fig. 19**
**Fig. 53**

- With the help of a dispenser lever (5), push the adjusting screw (214) upwards to free the ring from its position on the piston (302) and to completely remove the screw.

**Fig. 54**

- Unscrew the knobs (8) and remove the dispensing spigot door.

**Fig. 55**

- Take the piston out (if necessary, use a dispenser lever (5) to do this operation).
- Use an O-ring extractor to take out:
  - The O-rings (1147, 303) of the piston.
  - The O-rings of the dispensing spigot door (1188).
5.6.9 Disassembly of beaters

- Remove the beaters (21) from its seat in the cylinder, being careful not to knock the walls of the cylinder.

- Let the seal (28) slide on the beater axle and remove it.

- Remove the idler (24) the scraper blades (430) and the end pusher (25) from the shaft.

- For sliding scraper blades beater, remove the scraper blades (430) from the shaft, by sliding along the agitator guide.

**WARNING**

The seal is very important for cylinder tightness. Check its wear on a regular basis according to the maintenance plan (Refer to paragraph 6.1). Furthermore always lubricate the seal properly during washing operations.
5.6.10 Disassembly of the drip drawer, the drip tray and the hopper lid

- Take the drip drawers out from their seats on the side of the machine.

![Disassembly of the drip drawer](Fig. 62)

- Remove the drip tray and relevant cover.

![Disassembly of the drip tray](Fig. 63)

- Disassemble the hopper lid.

![Disassembly of the hopper lid](Fig. 64)

5.6.11 Cleaning and sanitising of the components

**WARNING**

For the use of cleaning/sanitising solution, refer to the manufacturer's instructions on the label of the product used.

![Cleaning and sanitising of the components](Fig. 65)

5.6.12 Reassembly of the hopper beater

- Replace the beater in its seat, ensuring that it is engaged correctly.

![Reassembly of the hopper beater](Fig. 66)

5.6.13 Reassembly of the beater

- For sliding scraper blades beater, replace the six scraper blades (430) on the shaft.
- Replace the end pusher (25) - see picture - so that it engages correctly in the seat of the beater.
- Insert the idler (24) into the beater through the end pusher. Insert the scraper blades (430).

![Fig. 67](image1)

- Lubricate the inner sides of the seal (28) and its seat on the beater shaft. Let the seal slide onto the beater shaft.

![Fig. 68](image2)

**NOTE**

Check the beater seal for integrity. Replace if worn or damaged. Refer to the maintenance plan to carry out the replacement.

- Insert the beater assemblies into the cylinders, turning and pushing them until they engage in rear hub.

![Fig. 69](image3)

5.6.14 Reassembly of the dispensing spigot door

- Lubricate and replace the piston O-rings (1147, 303).
- Lubricate the pistons (30) and insert them into their seat in the dispensing spigot door, making sure the piston square notch is aligned with the rectangular opening on the front of the spigot door.
- Lubricate and replace the two O-rings (1188).

![Fig. 70](image4)

- Insert the dispensing spigot door on the front panel and tighten it using the knobs (8) properly.

![Fig. 71](image5)

- With the help of a dispenser lever (5), reassemble the adjusting screw (214), to reposition the ring in its seat on the piston.

![Fig. 72](image6)
5.6.15 Reassembling the pump

- Replace the spigot door cover panel.
- Reassemble the dispenser levers (5) onto the spigot door.

![Fig. 72](image)

- Insert the connection pipe (207) assembly in the compression hose (32).

![Fig. 75](image)

- Leave the sanitized compression hoses on the tray. They will be mounted during the "mix preparation procedure".
- Lubricate and insert the O-rings (1138) onto the pump body.
- Lubricate and insert the seals (243) in the pump body.

![Fig. 76](image)

- Lubricate and insert the O-ring (1178) on the pump body.
- Lubricate the surface of the pump gears (38-38A) and their seat in the pump body and insert them into the pump body (39).

**WARNING**

Do not lubricate the teeth of the gears. Carry out checks on wear as instructed in paragraph 6.1.
• Lubricate and insert the two O-rings (1131) on the pump regulator (271).

Fig. 78

• Lubricate and insert the O-ring (1131) on the suction pipe (99).
• Holding the pump cover insert the suction pipe (99) by pushing and turning it counterclockwise.

Fig. 79

• Insert the spring (206) and the valve (245) into the pump cover.

Fig. 80

• Insert the pump regulator (271) on the pump cover aligning the pump regulator notch to the pin on the pump cover and turning to lock it.

Fig. 81

• Lubricate and insert the O-rings (1107) onto the air inlet pipes (99A).
• Insert the O-rings (1270) into the two plugs (236) on the air inlet pipes (99A).
• Insert the two air inlet pipes (99A) on the pump cover aligning the pipe notch with the pin on the pump cover and turning the pipes until they are locked.

Fig. 82
• Make sure the machine is in Stop mode and lubricate the pump shaft (96). Position it in the rear hole of mix hopper, pushing it and rotating it slightly until it engages the drive hub. Hold the pump body assembly, with the blocking pin hook on the right. Keeping your thumbs over the pump gears so that they remain in place, push and turn the pump clockwise until the shaft is aligned with the driving gear. Now turn the pump counterclockwise until it locks into the blocking pin.

5.6.16 Gravity-fed machines – reassembly of the feed needle
• Lubricate the O-ring (1131).
• Reassemble the feed needle.

• Assemble the pump cover with the feeding pipe downwards onto the pump body and turn the two knobs tightly.

5.6.17 Reassembling drip trays, drip drawer and hopper lid
• Insert the drip trays into their slots in the side of the machine.

• Leave the sanitized feed needle on the tray. They will be mounted during the “mix preparation procedure”.

• Position the front drip drawer and its cover.
Cover the hopper with lid.

5.6.18 Complete sanitisation of the machine

The machine must be sanitised before the mix is poured into the hopper.

NOTE

After cleaning and sanitised the machine and, more precisely, after closing the front spigot door of the machine, operate the machine in Production mode (by pressing the key) within 60 minutes. After 60 minutes, the machine no longer accepts the key and automatically passes to the pasteurisation function. In other words, carry out the “Complete sanitisation of the machine“ and “Mix Preparation“ within 60 minutes, then push the key.

- With the machine in Stop mode, pour the detergent/sanitising solution into the hopper up to the maximum level and leave it to drain into the cylinder.
- Using the brush, clean the mix level sensor, the whole surface of the mix hopper, the surface of the mix pump and the outside of the hopper beater.
- Press the key and then press and let the beater operate for approximately 5 seconds. Press the key.
- Pour a little cleaning/sanitising solution into a bucket.
- Open the spigot door cover panel, immerse the supplied brush in the detergent/sanitising solution and brush the dispensing point of the spigot door. Repeat the operation twice.
- Wipe the exterior of machine with a sanitised cloth. Repeat the operation twice and close the spigot door cover panel.
- Leave the cleaning/sanitising solution in the hopper for the time indicated by the manufacturer.

Draining the cleaning/sanitising solution

- Place an empty bucket underneath the door and lower the dispensing handles.
- Drain all of the cleaning/sanitising solution, press the key then press to remove the last residues of solution. The beater must not work for more then 5 seconds, then press .
- Fill the tank with drinking water to rinse it out thoroughly and repeat the previous operation.

WARNING

Do not keep the beater running for more than the time strictly needed to complete washing and sanitisation. Mix butterfat lubricates beater blades; without this lubrication the beater blades wear out quickly.

- Refer to the paragraph 3.8 of this manual for filling the tank and starting production.
6. MAINTENANCE

WARNING
Never put your hands into the machine while it is in Production or Cleaning mode. Before performing any maintenance, make sure the machine has been placed in Stop mode and the main switch has been switched OFF.

6.1 Type of intervention

WARNING
Any maintenance operation requiring that the machine protective panels be opened, must be performed with the machine in Stop mode and with machine disconnected from the electrical power supply. The cleaning or lubricating of moving parts is forbidden. Repairs on the machine or its electrical, mechanical, pneumatic or refrigeration system must be performed by authorised, qualified personnel and in accordance with routine and extraordinary maintenance as agreed with the customer with regards to specific service methods on the basis of destination of use of the machine.

Procedures necessary for the good operation of the machine are such that most maintenance is completed during the Production cycle.

Maintenance operations, such as the cleaning of parts coming into contact with the product and disassembling the beater, are to be normally carried out at the end of each work shift, thereby keeping maintenance effort at a minimum.

Below is a list of normal maintenance operations:
- Cleaning and replacement of beater seal
  Cleaning must be carried out on the set date indicated on the display. The part should be replaced if it is noticeably worn and mix is leaking into drip drawer.
- Cleaning of the beater assembly
  Cleaning must be carried out on the set date indicated on the display.
- Cleaning of the dispensing head
  Cleaning must be carried out on the set date indicated on the display.
- Cleaning of the pump unit
  Cleaning must be carried out on the set date indicated on the display.

How to check condition of gears:
This check must be carried out during the periodical cleaning of the machine.

Disconnect the compression hose after depressurising the cylinder. If all parts of the pump are correctly assembled and the gears are OK the pump produces a strong stream of mix (fig. 90). If all parts of the pump are correctly assembled but the gears are worn the stream of mix is very weak (fig. 91).

How to avoid wear of the gears:
- Do not operate the pump without mix inside the hopper or only with water for more than a few seconds: the fat/grease content of the mix acts as a lubricant for the gears (like the oil of a car). Without the mix the gears would wear much more quickly.
• No foreign object must enter the pump, not even a little piece of plastic, a tomato skin, a piece of straw that may have accidentally fallen into the hopper; they could block the feed and damage the gears.
• During cleaning operations handle the gears with care. Their correct operation could be jeopardised if they are accidentally dropped.
• Cleaning of blades, drip drawer and tray support shelf.
   It must be performed daily with neutral soaps and ensuring that detergents are never used inside the beater unit.
• Cleaning and sanitisation:
   It must be carried out on the set date indicated on the display according to the procedures indicated in section 5 of the manual.

**WARNING**

To clean the machine and its parts never use abrasive sponges which could scratch the surfaces.

### 6.2 Water-cooling

For those machines equipped with a water-cooled condenser, all water must be drained out of the condenser at the end of selling season to avoid any trouble should the machine be stored in an environment where the temperature may drop below 0°C.

After closing the water inlet pipe, withdraw drain pipe from its seat and let water flow out from circuit.

### 6.3 Ordering spare parts

When one or more parts are worn out or broken, place the order through your local distributor.
6.4 Supplied accessories

![Diagram of supplied accessories with key numbers and descriptions]

**Key:**
- 28 Beater shaft seal
- 31 Membrane valve
- 72 O-ring extractor
- 236 Blanking plug for pump hole
- 236A Plug
- 243 Body pump seal
- 303 O-ring
- 475 Kit case
- 772 Brushes
- 830 Carpolube tube
- 830A Lubrifilm tube
- 840 Cleaning spatula

**Parts:**
- 1103 O-ring
- 1107 O-ring
- 1117 O-ring
- 1126 O-ring
- 1131 O-ring
- 1138 O-ring
- 1147 O-ring
- 1178 O-ring
- 1188 O-ring
- 1270 O-ring
- 1287 O-ring
## 7. TROUBLESHOOTING GUIDE

<table>
<thead>
<tr>
<th>IRREGULARITY</th>
<th>CAUSE</th>
<th>PROCEDURE TO FOLLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor starts and then stops after a few seconds.</td>
<td>• If it’s a water-cooled machine: the water is not circulating. • If it’s an air-cooled machine: the air is not circulating.</td>
<td>• Open water inlet cock and check that pipe is not squashed or bent. • Check that the machine is positioned so that there is enough space for air to circulate freely from the bottom upwards (leave at least 50 cm clearance above the chimney). • Check the condenser is not blocked by dust or other things and eventually call the customer service for cleaning. • Call customer service if necessary.</td>
</tr>
<tr>
<td>Mix or ice cream leaks out from above and below the piston even though the spigot door is closed.</td>
<td>• Piston without O-ring or the O-ring is worn out.</td>
<td>• Stop the machine and install or replace it with a new one if worn out.</td>
</tr>
<tr>
<td>Mix leaks out of the drip drawer.</td>
<td>• Seal missing or worn out.</td>
<td>• Stop the machine and install it if missing. If worn out, replace it with a new one.</td>
</tr>
<tr>
<td>The dispenser lever is hard to operate.</td>
<td>• Dry sugar on piston.</td>
<td>• Stop the machine and wash thoroughly and grease the pistons and the O-ring with edible fat.</td>
</tr>
<tr>
<td>Ice cream comes out from front lid.</td>
<td>• O-ring missing or not properly fitted. • Front lid knobs not tightened evenly.</td>
<td>• Stop the machine and check then act accordingly. • Stop machine, loosen and tighten them again.</td>
</tr>
<tr>
<td>Low ice cream overrun.</td>
<td>• Pump not adjusted correctly.</td>
<td>• Adjust the position of the central knob of the pump.</td>
</tr>
</tbody>
</table>