

# INSTRUCTION MANUAL

# 191 STEEL



APPLY  
FEATURE  
PLATE



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- “Machinery” Directive 2006/42/EC,
- “Low Voltage” Directive 2014/35/EU,
- “EMC” Directive 2014/30/EU,
- “PED” Directive 2014/68/EU,
- Regulation 2004/1935/EC relating to “Materials and articles in contact with foodstuffs”
- Regulation 2023/2006/EC relating to “Good manufacturing practice for materials and articles intended to come into contact with food”

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## FOREWORD

### Instruction manual

The European Community directions on safety standards as well as on free circulation of industrial products within the E.C. were taken into due account when editing this manual.

### Purpose

This handbook was conceived taking machine users' needs into due account.

Topics relevant to a correct use of the machine have been analyzed in order to keep unchanged in the long run quality features characterizing Carpigiani machines all over the world.

A significant part of this manual refers to the conditions necessary for the machine use and to the necessary procedures during cleaning as well as routine and special maintenance.

Nevertheless, this manual cannot cover any possible need in detail. In case of doubts or missing information, please contact:



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### Structure of the manual

This manual is divided in sections, chapters and sub chapters for an easy reference.

#### 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.

#### Sub chapter

It is that part of a chapter detailing the specific component of a machine part.

**It is necessary that each person involved in the machine operation reads and understands those parts of the manual of his/her own concern, and particularly:**

- The operator must read the chapters concerning machine start-up, operation of machine components and safety;
- A skilled engineer 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:**

- Supplied spare parts: a list of spare parts delivered together with the machine for its routine maintenance.
- Wiring diagram: a diagram of wiring connections is provided with the machine.



#### NOTE



**Before using the machine read carefully the instruction manual.  
Carefully read safety instructions.**

## Conventional symbols


**ELECTRIC SHOCK HAZARD**


The staff involved is warned that the non-observance of safety rules in carrying out the operation described may cause an electric shock.


**DANGER FROM HIGH TEMPERATURES**


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


**DANGER FROM MOVING PARTS**


This warns the personnel involved about the presence of moving parts and the hazards of injuries if the safety norms are not complied with.


**CRUSHING HAZARD**


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


**GENERAL HAZARD**


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


**NOTE**


It points out significant information for the personnel involved.


**NOTE**


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


**PERSONAL PROTECTION DEVICES**


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

## Qualification of the personnel

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

### MACHINE OPERATOR

 Personnel without any specific technical qualifications, capable of carrying out simple jobs, such as: operating the machine using the commands available on the keyboard, loading and unloading of products used during production, loading of any consumable materials, basic maintenance operations (cleaning, simple blockages, inspections of the instrumentation, etc.).

### SKILLED ENGINEER

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

### CARPIGIANI ENGINEER

 He/she is a skilled engineer assigned by the manufacturer to carry out operations for complex jobs under particular conditions or in accordance with agreements made with the owner of the machine.

## Safety

When using industrial equipment and plants, one must be aware of the fact that moving parts (rotary motion), high voltage components, as well as parts subject to high temperatures may cause serious damage to persons and things.

### The persons in charge of safety must ensure that:

- an incorrect use or handling shall be avoided;
- the safety devices are neither removed nor tampered with;
- the machine is regularly serviced;
- only original spare parts are used, especially in the case of safety-related components (ex.: protection microswitches, thermostat);
- suitable personal protective equipment is used;
- high care must be paid during hot product cycling;
- high care must be paid to moving parts.

### To achieve the above, the following is necessary:

- the use and maintenance manual relating to the machine is available at the working place;
- such documentation must be carefully read and the instructions must be strictly followed;
- only suitably skilled personnel should be assigned to electrical equipment;

## IMPORTANT

Make sure that no technician will ever carry out operations outside his own knowledge and responsibility sphere.



## NOTE



According to the standard in force, a **SKILLED ENGINEER** is a person who, thanks to:

- training, experience and education;
- knowledge of rules, prescriptions and operations on accident prevention;
- knowledge of machine operating conditions;

is able to recognize and avoid any danger and has also been allowed by the person in charge of plant safety to carry out all kinds of operations.

## Warnings

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

- Never perform operations on the machine using your hands, both during production and cleaning. Before carrying out any maintenance operation, make sure that the machine is in Stop position and that the main switch has been cut out.
- It is forbidden to wash the machine by means of a jet of pressurized water.
- It is forbidden to remove panels in order to reach the machine internal parts before disconnecting the machine from the power supply.
- Carpigiani is not responsible for any accident that might happen during operation, cleaning and/or servicing of its units, if this warning has not been fully complied with.

# 1. GENERAL DATA

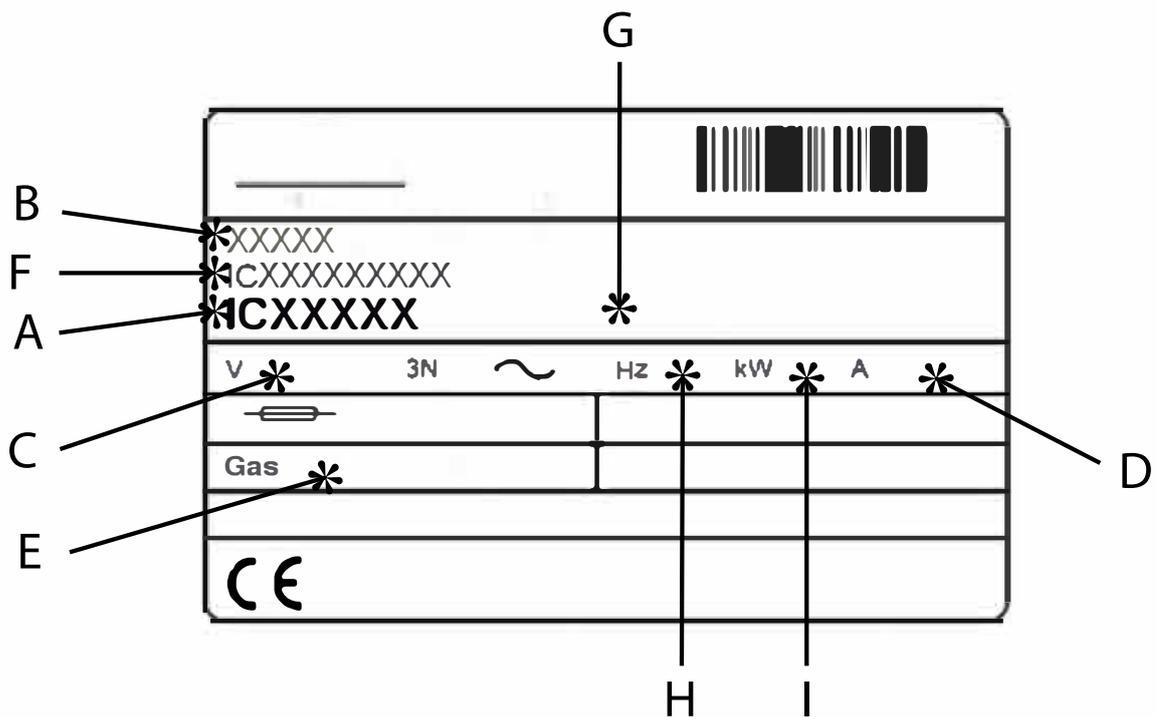
## 1.1 General information

### 1.1.1 Manufacturer identification data

The machine has a data plate carrying manufacturer data, machine type and serial number, assigned when it is manufactured.

Copy of machine data plate to be found on first page of this manual.

Fig. 01



- A** Serial number
- B** Machine type
- C** Voltage
- D** Fuse current
- E** Gas type and weight

- F** Machine code
- G** Condensation type (A= air - W= water)
- H** Frequency
- I** Power

### 1.1.2 Information on maintenance service

All operations of routine maintenance are here described in section "Maintenance"; any additional operation requiring technical operation on the machine must be agreed upon with the manufacturer, who will also examine the possibility of a factory technician field operation.

### 1.1.3 Information for users



- Carpigiani is at your disposal for any necessary explanation or further information concerning the machine operation or possible improving changes.

- In case of need, please call the local distributor or the manufacturer if no distributor is available.
- The customer service department is available for any information about operation and requests of spare parts and service.

## 1.2 Information about the machine

### 1.2.1 General information

Electronic machine to immediately produce and dispense soft ice cream with the following main characteristics:

- refrigerate upper hopper;
- electronic control of the product consistency through the "Hard-o-tronic" system;
- automatic product pasteurization system inside the hopper and in the cylinder during the periods of stopped production (for instance during the night) (only for "SP" machines).

When producing ice-cream and pastry products, Carpigiani recommends using always high-quality ingredients to meet the requirements even of the most demanding customers. Any saving made to the prejudice of quality will surely turn into a loss much bigger than the saving itself.

**Bearing in mind the above statements, please consider the following:**

- choose high quality natural ingredients and create your own mix or buy it from trustworthy suppliers;
- to prepare the mix, closely follow instructions given by your supplier;
- do not modify the recommended recipes without knowing the ingredient characteristics;
- taste your ice-cream before serving and start selling only if entirely satisfactory;
- make sure your staff always keeps the machine clean.

For any necessary repair, always contact the Carpigiani Technical Service.

### 1.2.2 Technical features

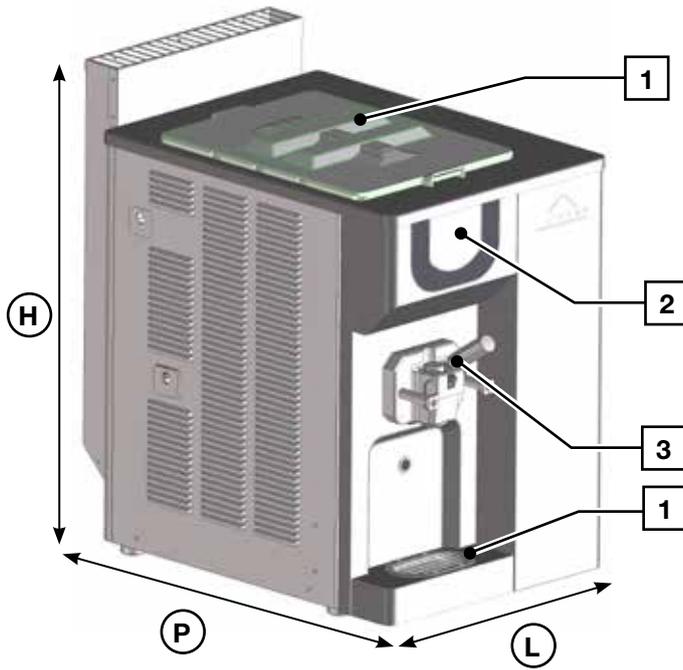
MODEL	CONES 75 g / HOUR *	HOPPER CAPACITY	PUMPS	FLAVORS	ELECTRICAL SUPPLY***			CONDENSATE	INSTALLED POWER	DIMENSIONS (maximum dimensions) mm			NET WEIGHT
					V	Phase	Hz			kW	L	P	
191 STEEL P	270	12	YES	1	400	3	50	AIR	2,4	505	755	830	140
								WATER		505	675	740	
191 STEEL G	230	18	NO	1	400	3	50	AIR	2,4	505	755	830	130
								WATER		505	675	740	
191 STEEL SP P	270	12	YES	1	400	3	50	AIR	2,4	505	755	830	140
								WATER		505	675	740	
191 S STEEL SP G	230	18	NO	1	400	3	50	AIR	2,4	505	755	830	130
								WATER		505	675	740	

\* The hourly production and the mix quantity for each ice cream can vary, according to the temperature and the type of mix used and the increase in volume (overrun) desired.

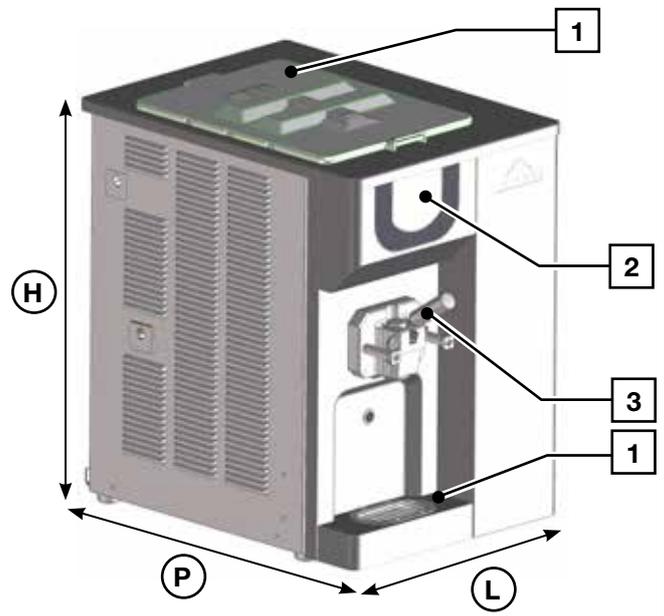
Performance refers to a 25 °C room temperature and 20 °C cooling water temperature.

**1.2.3 Machine unit location**

Fig. 02



191 STEEL vers. AIR



191 STEEL vers. WATER

- 1 Hopper lid
- 2 Control panel

- 3 Product spigot door
- 4 Drip tray



191 STEEL OY vers. AIR



191 STEEL OY vers. WATER

### 1.3 Intended use

The machine must be used solely for the purpose described in chapter 1.2.1 “General information” within the functional limits described below.

- Voltage:  $\pm 10\%$
- Min. air temperature:  $10^{\circ}\text{C}$
- Max. air temperature:  $43^{\circ}\text{C}$
- Min. water temperature:  $10^{\circ}\text{C}$
- Max. water temperature:  $30^{\circ}\text{C}$
- Min. water pressure:  $0.15\text{ MPa (1.5 bar)}$
- Max. water pressure:  $0.5\text{ MPa (5 bar)}$
- Max. air relative humidity:  $85\%$

This machine has been designed for use in rooms not subject to explosion-proof laws; its use is thus bound to complying rooms and normal atmosphere.

### 1.4 Noise

The equivalent continuous A-weighted sound pressure level in a workplace for water-cooled as well as air-cooled machines is less than  $70\text{ dB(A)}$ .

### 1.5 Machine storage

The machine must be stored in a dry and dump-free place.

Before storing the machine, wrap it in a cloth in order to protect it against dust or other impurities.

### 1.6 Disposal of packaging materials

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

NOTE

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

GENERAL HAZARD

**Keep packaging materials out of reach of children as they can pose a choking hazard.**

### 1.7 WEEE (Waste Electrical and Electronic Equipment)



In conformity with the European Directives 2006/66/EC, on batteries and accumulators and waste batteries and accumulators, and 2002/96/EC, also known as WEEE, the presence of the symbol on the side of the product or packaging means that the product must not be disposed of with normal urban waste. Instead, it is the user's responsibility to dispose of this product by returning it to a collection point designated for the recycling/treatment of electrical and electronic equipment waste. Separate collection of this waste helps to optimize the recovery and recycling of any reclaimable materials and also reduces the impact on human health and on 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 expert shall analyze at regular intervals some product samples to check the presence of bacteria. The detected levels of bacteria must be below the following values:

Standard Plate Count (SPC).....	50.000
Coliform bacteria .....	10

Should the level of bacteria exceed the values above, this indicates that there is a bacterial contamination source. Such source must be promptly identified and removed. A high level of bacteria indicates that the product is not suitable to be consumed. To avoid product bacterial contamination it is necessary to carefully clean and sanitize the machine.

NOTE

**Soft yogurt usually has a high level of bacteria but this is normal and it is a feature of this product. However, a contamination by coliform bacteria is NEVER ACCEPTABLE. The information below will help you avoiding coliform bacteria contaminations.**

The following list shows the possible bacterial contamination sources and how to avoid them.

SOURCE OF CONTAMINATION	PREVENTION
<b>Contact with operator</b>	<ul style="list-style-type: none"> <li>• Thoroughly wash your hands and forearms.</li> <li>• Wear rubber gloves in case of skin cuts or problems.</li> <li>• Wash your hands several times during the day.</li> </ul>
<b>Ingredient residues/deposits (milk lumps).</b>	<ul style="list-style-type: none"> <li>• Use suitable brushes.</li> <li>• Rub all parts and components to prevent the formation of milk lumps as they are the perfect place for the growth of bacteria that could contaminate fresh milk.</li> </ul>
<b>Worn or damaged parts</b>	<ul style="list-style-type: none"> <li>• Use a food grade lubricant to lubricate all rubber parts that come into contact with the mix.</li> <li>• Check for damaged O-rings and replace them with original spare parts.</li> <li>• Check at regular intervals the drip trays to avoid excessive dripping.</li> </ul>

SOURCE OF CONTAMINATION	PREVENTION
<b>Inappropriate cleaning and sanitization procedures</b>	<ul style="list-style-type: none"> <li>• The container where the parts shall be cleaned must be perfectly clean and contain enough solution (cleaning/sanitizing product) to cover also the biggest parts. Use brushes to clean and sanitize the machine at regular intervals.</li> <li>• Use suitable brushes and lubricants and, if possible, use disposable cloths.</li> <li>• Store and use the detergents as specified on their labels.</li> <li>• Have expert personnel performing the cleaning procedures. Make sure the personnel can complete the cleaning procedures without interruptions and in a correct way.</li> <li>• Leave the sanitizing solution in the cylinder and hopper at least for the time recommended by the product manufacturer.</li> <li>• Clean and sanitize the cleaning tools and the lubricant tube after each use. Place the tube cap back after the use.</li> <li>• The machine components and brushes must be left air-dry. Do not place them back in the machine when they are still wet.</li> <li>• Follow the daily cleaning procedures. Use a sanitized cloth to clean the machine outside and the dispensers at regular intervals.</li> </ul>

SOURCE OF CONTAMINATION	PREVENTION
<p><b>Mix stored in an wrong way</b></p>	<ul style="list-style-type: none"> <li>• First use the mix with the oldest date. Pay attention to the expiry date.</li> <li>• Store the mix directly in the fridge. Do not leave the mix outside or under the sunlight before storing it in the fridge.</li> <li>• Always leave 2-3 cm between the mix and other products in the fridge to allow air circulation.</li> <li>• The mix must not remain at ambient temperature for a long time.</li> <li>• The hopper storage temperature must remain at 4.4 °C (40° F). A storage temperature above 4.4 °C would allow the bacteria growth at dangerous levels in less than one hour.</li> <li>• Once the mix is poured in the hopper, the suitable lid must be used so as to keep it at the correct temperature and to minimize the risk of contamination</li> </ul>

## 2. INSTALLATION

### 2.1 Room necessary for machine use

Space to access the machine must be left free to allow the operator to operate without constraint and to immediately leave the working area, if need be.

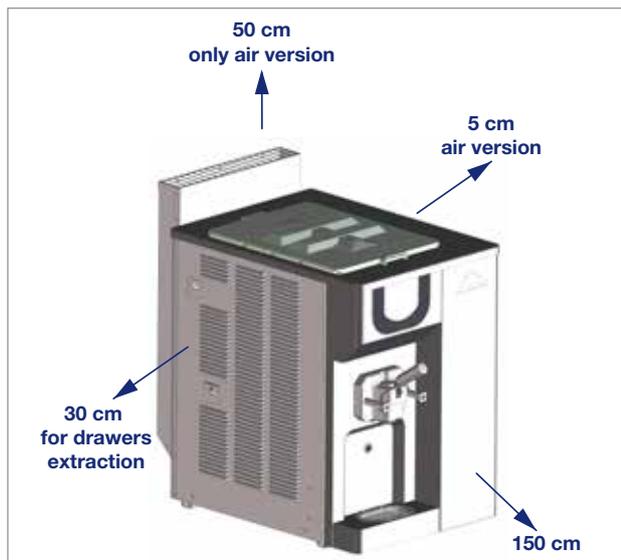
It is also necessary to have some room on the side required for pulling out drip trays.

The minimum room for accessing the working area should be at least 150 cm and about 30 cm are required on one side of the machine to allow for pulling out drip trays.

**NOTE**

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

Fig. 03



**NOTE**

**Machines with an air-cooled condenser must be installed leaving a minimum distance of at least 50 cm above the stack and of 5 cm on the machine sides in order to allow free air circulation around the condenser.**

### 2.2 Machine with air-cooled condenser



Machines with an air-cooled condenser must be installed leaving a minimum distance of at least 50 cm above the stack in order to allow free air circulation around the condenser.

**NOTE**

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

### 2.3 Machine with water-cooled condenser



Machines fitted with a water-cooled condenser need to be connected to running water supply or to a cooling tower.

Water must have a pressure ranging between 0.15 MPa and 0.5 MPa (1.5-5 bar), and a flow rate at least equal to the estimated hourly consumption.

Connect inlet pipe marked by plate "Water Inlet" to water supply installing a shut-off valve, and outlet pipe marked by plate "Water Outlet" to a drain pipe, installing a shut-off valve.

#### 2.3.1 Water valve adjustment

##### IMPORTANT



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

**NOTE**

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

**NOTE**

**Do not leave the machine in a room with temperature below 0 °C without draining water from the condenser.**

## 2.4 Electric connection



Before connecting the machine to the mains, check that machine voltage indicated on the identification plate corresponds to that of the mains.

Place between the machine and the mains a differential magnetothermal protection switch, class D, adequately sized to absorption capacity required and with contact opening of 3 mm at least. The machines are delivered with a 5 wire cable: blue wire must be connected to the neutral lead.

### IMPORTANT

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

### 2.4.1 Replacing the power cable



If machine main power cable is damaged, it must be replaced with a cable with similar features.

Replacement will have to be carried out by skilled technicians only.

## 2.5 Top-ups



Motor installed in the machine is of the type with lubrication for life; no action of checking/replacing or topping up is necessary.

Gas filling necessary to the refrigerating circuit operation is carried out at Carpigiani factory during the machine test; top-ups or filling are not required if the machine is new.

If any gas top-up or filling becomes necessary, this must be made solely by qualified engineers in safety conditions, able to determine the reason of such occurrence.

## 2.6 Machine testing



The machine is tested at the Carpigiani factory at the end of the assembly phase; it involves testing of the machine operating and production functions.

Machine test at the end user's premises must be carried out by authorized technical personnel or by a Carpigiani engineer. Once the machine has been positioned and connected to its supply lines, it is possible to carry out the operations required for machine functional check and operating test.

### 3. INSTRUCTIONS FOR USE

#### 3.1 Machine safety warnings

When using industrial equipment and plants, one must be aware of the fact that moving parts (rotary motion), high voltage components, as well as parts subject to high temperatures may cause serious damage to persons and things.

**The persons in charge of safety must ensure that:**

- an incorrect use or handling shall be avoided;
- the safety devices are neither removed nor tampered with;
- the machine is regularly serviced;
- only original spare parts are used, especially in the case of safety-related components (ex.: protection microswitches, thermostat);
- suitable personal protective equipment is used;
- high care must be paid during hot product cycling;

**To achieve the above, the following is necessary:**

- the use and maintenance manual relating to the machine is available at the working place;
- such documentation must be carefully read and the instructions must be strictly followed;
- only suitably skilled personnel should be assigned to electrical equipment;
- make sure that no technician carry out operations outside his/her own knowledge and responsibility sphere.

#### 3.2 Machine configuration

The machine has a motor to drive the beater, a cooling system with water or air condenser and an electronic system to manage the main functions.

**Soft ice cream is prepared by filling the hopper with cold mix (+4 °C) and starting the automatic production cycle, until the ideal ice cream consistency set through the relevant programs.**

The mix enters the cylinder already mixed with air. Ice cream is produced only when it needs to be served.

The ice cream dispensing handle allows a single portion of soft ice cream to be distributed.

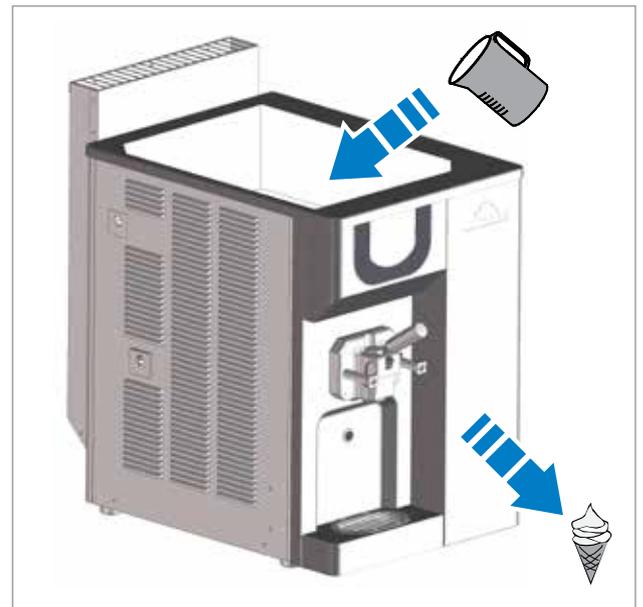
At the same time, the same amount of mix moves from the upper refrigerated hopper into the cylinder.

**DANGER FROM HIGH TEMPERATURES**




**Pay particular attention during the pasteurization phase as the contact with the mix may cause burns.**

Fig. 04

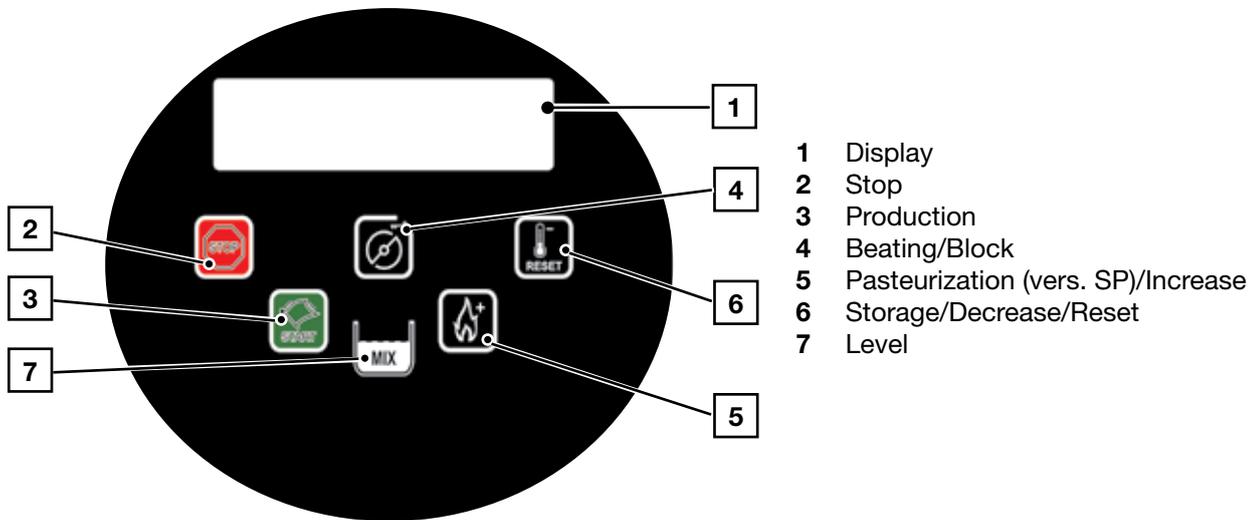


### 3.3 Controls

#### 3.3.1 Keyboard

The machine is provided with a keyboard located on the front side.

Fig. 05



NOTE

**The keyboard emits an acoustic signal when the pressed key has been acknowledged.**

#### 3.3.2 Functions

KEYS	FUNCTION DESCRIPTION				
<p><b>DISPLAY</b></p>	<p>When you switch the machine on, the display indicates the software version.</p> <p>E.g.:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th style="width: 50%;">DISPLAY</th> <th>COMMENTS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">191 ver. 191LCDJP03</td> <td style="text-align: center;">means sw version = 03</td> </tr> </tbody> </table> <p>When the LCD display backlighting flashes, an alarm has triggered.</p> <p>When the LCD display backlighting stays steady on, the previously triggered alarm has been automatically reset. The triggered alarm indication on the display can be deleted by pressing the RESET key.</p>	DISPLAY	COMMENTS	191 ver. 191LCDJP03	means sw version = 03
DISPLAY	COMMENTS				
191 ver. 191LCDJP03	means sw version = 03				
<p><b>STOP</b></p>	<p>By pressing this key during operation, machine stops (LED ON).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th style="width: 50%;">DISPLAY</th> <th>COMMENTS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10:33:21 Fri</td> <td style="text-align: center;">When the machine is in STOP mode, the display will show Time and Date</td> </tr> </tbody> </table> <p>If the machine is left in Stop position with mix above the minimum level, after 30" the message "Perchè in STOP?" (Why in STOP ??) will start flashing on the display and an intermittent beep will be emitted, so as to alert the user to set the machine to Production or Storage modes.</p>	DISPLAY	COMMENTS	10:33:21 Fri	When the machine is in STOP mode, the display will show Time and Date
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KEYS	FUNCTION DESCRIPTION																																				
<p><b>PRODUCTION</b></p> 	<p>Production is accessible only if the mix in the hopper is above the minimum level.                      The mix in the cylinder is cooled until the HOT 1 setting is reached (see programming table).                      Once Production is started, the display shows the following:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #0070C0; color: white;">DISPLAY</th> <th style="background-color: #0070C0; color: white;">COMMENTS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 </td> <td>DO NOT SERVE ! TEV +19°C W -03</td> <td>If the ice cream does not have the right consistency, the display will read: "DO NOT SERVE". The second line shows the temperature inside hopper and the days left until next cleaning.</td> </tr> <tr> <td></td> <td>Ready ! TEV +19°C W -03</td> <td>When ice cream has reached the right consistency, "Ready" will be displayed. The second line shows the temperature inside hopper and the days left until next cleaning.</td> </tr> <tr> <td></td> <td>DO NOT SERVE ! Beater overload</td> <td>In case of ALARM, it will be indicated on the second line of the display.</td> </tr> <tr> <td style="text-align: center;">2 </td> <td>Hopper ↓ +14°C Cylinder ↓ +13°C</td> <td>If PROD. is pressed for the second time, the display will show the temperature values inside hopper and cylinder.</td> </tr> <tr> <td style="text-align: center;">3 </td> <td>Set=090 Hot=085</td> <td>If PROD. is pressed again, the display will show the current consistency and the target SET.</td> </tr> <tr> <td style="text-align: center;">4 </td> <td>Daily cones 1543</td> <td>If PROD. is pressed once again, the display will show the number of cones dispensed in the day.</td> </tr> <tr> <td style="text-align: center;">5 </td> <td>Total cones 123456789</td> <td>If PROD. is pressed once again, the display will show the TOTAL number of cones dispensed by the machine.</td> </tr> <tr> <td style="text-align: center;">6 </td> <td>TEV=+10 TGV=-22 TEC=+13 TE1=-12</td> <td>If PROD. is pressed again, the display will show the temperature inside hopper and cylinder as well as other data.</td> </tr> <tr> <td style="text-align: center;">7 </td> <td>HOT MC 003 SET HOT MC 105</td> <td>If PROD. is pressed again, the display will show compressor absorption (for preset machines, only) and relevant SET</td> </tr> <tr> <td style="text-align: center;">8 </td> <td>DF Total: 00005</td> <td>If PROD. is pressed again, the display will show the number of Dry Filling operations carried out by the machine.</td> </tr> <tr> <td style="text-align: center;">9 </td> <td>Next H/C Cycle: 01 dd + 16 hours</td> <td>Pressing PROD again, if the Hot/Cold Cycle is disabled the display returns to the initial screen, otherwise it shows the time remaining until the next Hot/Cold Cycle.</td> </tr> </tbody> </table> <p>If PROD. is pressed again, you will go back to start page.</p>		DISPLAY	COMMENTS	1 	DO NOT SERVE ! TEV +19°C W -03	If the ice cream does not have the right consistency, the display will read: "DO NOT SERVE". The second line shows the temperature inside hopper and the days left until next cleaning.		Ready ! TEV +19°C W -03	When ice cream has reached the right consistency, "Ready" will be displayed. The second line shows the temperature inside hopper and the days left until next cleaning.		DO NOT SERVE ! Beater overload	In case of ALARM, it will be indicated on the second line of the display.	2 	Hopper ↓ +14°C Cylinder ↓ +13°C	If PROD. is pressed for the second time, the display will show the temperature values inside hopper and cylinder.	3 	Set=090 Hot=085	If PROD. is pressed again, the display will show the current consistency and the target SET.	4 	Daily cones 1543	If PROD. is pressed once again, the display will show the number of cones dispensed in the day.	5 	Total cones 123456789	If PROD. is pressed once again, the display will show the TOTAL number of cones dispensed by the machine.	6 	TEV=+10 TGV=-22 TEC=+13 TE1=-12	If PROD. is pressed again, the display will show the temperature inside hopper and cylinder as well as other data.	7 	HOT MC 003 SET HOT MC 105	If PROD. is pressed again, the display will show compressor absorption (for preset machines, only) and relevant SET	8 	DF Total: 00005	If PROD. is pressed again, the display will show the number of Dry Filling operations carried out by the machine.	9 	Next H/C Cycle: 01 dd + 16 hours	Pressing PROD again, if the Hot/Cold Cycle is disabled the display returns to the initial screen, otherwise it shows the time remaining until the next Hot/Cold Cycle.
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<p><b>PRODUCTION for vers. SINGLE PORTION</b></p> 	<p>Press PRODUCTION key to start production (LED ON). Keep PRODUCTION key pressed for 3". The display will show:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #0070C0; color: white;">DISPLAY</th> <th style="background-color: #0070C0; color: white;">COMMENTI</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 </td> <td>Single portion ON ! 100 Timer 15:00</td> <td>The display will show the active function on the first line, the product consistency on the second line to the left and the count-down to the right.</td> </tr> </tbody> </table> <p>It is possible to increase or decrease the timer setting by 15 minutes with buttons </p> <p>or .</p> <p>Press PRODUCTION again before the count-down is finished to stop the function.</p>		DISPLAY	COMMENTI	1 	Single portion ON ! 100 Timer 15:00	The display will show the active function on the first line, the product consistency on the second line to the left and the count-down to the right.																														
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KEYS	FUNCTION DESCRIPTION															
<p><b>BEATING</b></p> 	<p>If this key is pressed from STOP (LED ON), beater and pump will be enabled for 30 seconds, then the machine will automatically go back to Stop mode, so as to avoid cylinder excessive wear. When "Beating" key is pressed, the display will read:</p> <table border="1"> <thead> <tr> <th></th> <th>DISPLAY</th> <th>COMMENTS</th> </tr> </thead> <tbody> <tr> <td>1 </td> <td>HOT=058 TEC+14 Beat + Pump ON</td> <td>Press Beating key once to enable beater and pump.</td> </tr> <tr> <td>2 </td> <td>HOT=058 TEC+14 Pump ON</td> <td>If Beating key is pressed once again, beater motor will be disabled, while pump will not.</td> </tr> <tr> <td>3 </td> <td>HOT=058 TEC+14 Beater ON</td> <td>If Beating key is pressed for the third time, pump motor will be disabled, while beater motor will be re-enabled.</td> </tr> <tr> <td>4 </td> <td>HOT=058 TEC+014 Beat. + Heat.</td> <td>Press the key for the fourth time to enable also cylinder heating in order to make ice cream melting easier.</td> </tr> </tbody> </table> <p>Pushing agitation again, we move to the next page that is the first page.</p>		DISPLAY	COMMENTS	1 	HOT=058 TEC+14 Beat + Pump ON	Press Beating key once to enable beater and pump.	2 	HOT=058 TEC+14 Pump ON	If Beating key is pressed once again, beater motor will be disabled, while pump will not.	3 	HOT=058 TEC+14 Beater ON	If Beating key is pressed for the third time, pump motor will be disabled, while beater motor will be re-enabled.	4 	HOT=058 TEC+014 Beat. + Heat.	Press the key for the fourth time to enable also cylinder heating in order to make ice cream melting easier.
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4 	HOT=058 TEC+014 Beat. + Heat.	Press the key for the fourth time to enable also cylinder heating in order to make ice cream melting easier.														
<p><b>BLOCK</b></p> 	<p>In any function, press the Cleaning button for three seconds to disable the touchpad. The Cleaning LED will flash. It is now possible to clean the touchpad without accidentally executing any functions. The machine remains in the same mode it was in when the lock was activated.</p> <p>To unlock the touchpad, press the Cleaning button again for three seconds.</p>															
<p><b>PASTEURIZATION (only for vers. SP)</b></p> 	<p>The Pasteurization function can be activated only if the mix in the hopper is above the Medium level.</p> <p>The mix, both in the hopper and in the cylinder, is heated to 65° C where it remains for 30 minutes (fixed), and then cooled until the storage temperature.</p> <p>When the procedure is finished the display shows “- Pasto End -” along with the day and hour of completion, confirming that Pasteurization has been carried out successfully.</p> <p>Pasteurization is performed automatically every day at 2:00 (if the hour is programmed at step Ora Avvio Pasto - Start Pasto Time).</p> <p>Normally the machine is in Production; when it is time for Pasteurization, the machine switches automatically from Production to Pasteurization to perform the procedure.</p> <p>To start a manual pasteurization cycle, keep the Pasteurization key pressed for 5 seconds.</p> <p>If Pasteurization is not completed successfully, the machine will not be able to be set to Production until a pasteurization cycle has been completed correctly.</p>															
<p><b>HOT/COLD CYCLE (only for vers. SP)</b></p> 	<div style="background-color: red; color: white; text-align: center; padding: 5px;">  <b>DANGER FROM</b>  </div> <p><b>The Hot/Cold cycle does not replace Pasteurization. For Dairy products (milk-based) it is always necessary to carry out a daily Pasteurization cycle. User takes full responsibility for the manual control of the machine, complying with prevailing local regulations on mix handling in case mixes are not pasteurized. If pasteurization is disabled to enable Hot/Cold cycle and vice versa, a complete washing cycle must always be performed as described in paragraph 5.</b></p> <p>The Hot/Cold Cycle will run automatically at the time set in step U14 every number of days set in step U13 only if the Pasteurization time step (U09 "Start Pasto Time") is disabled (set to No) and if the cycle is enabled (U13 "Hot/Cold Cycle" not "No")</p> <p>This process cannot be started if the mix in the hopper is below the medium level.</p>															

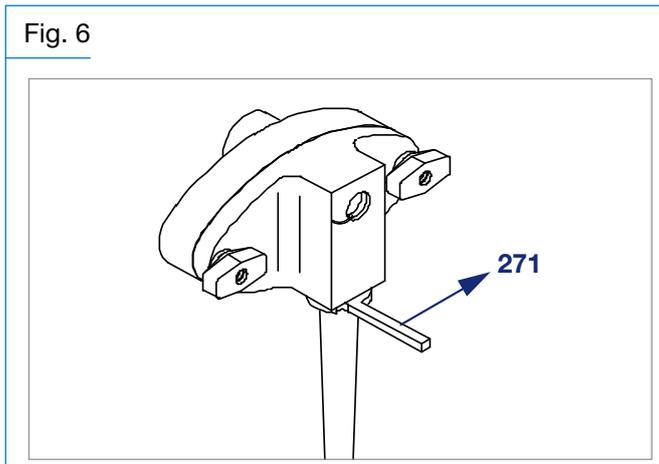
KEYS	FUNCTION DESCRIPTION									
<p><b>HOT/COLD CYCLE</b> (only for vers. SP)</p> 	<p>Warning: after the time scheduled for the start of the cycle, it is not possible to start Production until it has been completed.</p> <p>Completing the Hot/Cold Cycle or washing the machine (IMS), also resets the counter of the days until the next Hot/Cold Cycle.</p> <p>The product, both in the hopper and in the cylinder, is heated to 65°C (programmable in U15) and kept at this temperature for 30 minutes (programmable at step U19), and then cooled to the storage temperature.</p> <p>When the procedure is finished the display shows "Fine Ciclo H/C" "End H/C Cycle" along with the day and hour of completion, confirming that the H/C cycle has been carried out successfully.</p>									
<p><b>INCREASE</b></p> 	<p>This key is used to increase the "User Programming" values.</p>									
<p><b>STORAGE</b></p> 	<p>By pressing this button, the machine will store the mix both inside hopper and cylinder at a temperature of +4 °C. When "Storage" key is pressed, the display will read:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #0070C0; color: white; width: 10%;"></th> <th style="background-color: #0070C0; color: white; width: 40%;">DISPLAY</th> <th style="background-color: #0070C0; color: white; width: 50%;">COMMENTS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: middle;">1</td> <td style="text-align: center;">                       Hopper ↓ +15°C                      Cylinder ↓ +20°C                 </td> <td>If "Storage" key is pressed once, the display will show the temperature values inside hopper and cylinder.</td> </tr> <tr> <td style="text-align: center; vertical-align: middle;">2</td> <td style="text-align: center;">                       TEV=+10 TGV=-22                      TEC=+13 TE1=-12                 </td> <td>If "Storage" key is pressed again, the display will show the temperature inside hopper and cylinder as well as other data.</td> </tr> </tbody> </table> <p>Pushing STORAGE again, we move to the next page that is the first page.</p>		DISPLAY	COMMENTS	1	 Hopper ↓ +15°C Cylinder ↓ +20°C	If "Storage" key is pressed once, the display will show the temperature values inside hopper and cylinder.	2	 TEV=+10 TGV=-22 TEC=+13 TE1=-12	If "Storage" key is pressed again, the display will show the temperature inside hopper and cylinder as well as other data.
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<p><b>DECREASE</b></p> 	<p>This key is used to decrease the "User Programming" values.</p>									
<p><b>RESET</b></p> 	<p>This key is used to reset the displayed alarm messages.</p>									
<p><b>LEVEL</b></p> 	<p>Hopper features two low mix sensors: MEDIUM level and LOW level.</p> <ul style="list-style-type: none"> <li>When mix level indicator flashes, the mix inside hopper is under the medium value. When the mix falls below the Medium value an intermittent beep will be activated. The display shows "Add Mix".</li> <li>When mix level indicator is steady on, the mix inside hopper is under the low level. The display will show "Mix Out" and the number of cones that can be drawn before the machine goes into Storage mode.</li> </ul>									

### 3.4 pump feed machine - "R" pump

The pump allows the ratio between air and mix conveyed to the freezing cylinders; so, within certain limits, it allows overrun regulation depending on mix used.

Move the lever (pos. 271) to the central position. If, after dispensing a significant number of cones, ice cream is too heavy and wet, move the lever (pos. 271) by one notch at a time to the right. If, on the other hand, the ice cream dispensed from the spigot door features air bubbles, move the lever (pos. 271) by one notch at a time to the left.

Fig. 6



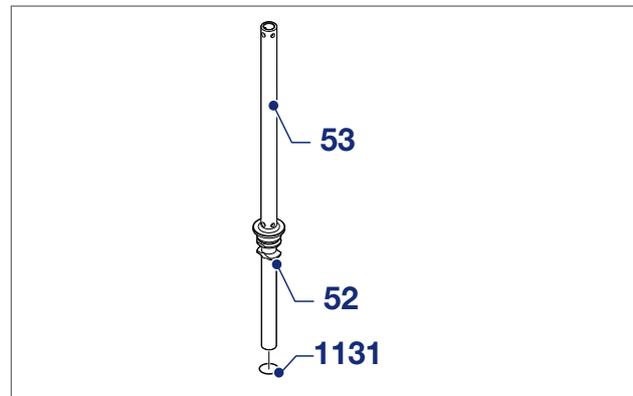
### 3.5 Machines fed by gravity - feeding needle

How to obtain and how to keep quality performances.

- Maintain a big mix level inside the hopper (above the half of the hopper itself). Mix temperature inside the hopper is +4°C both during production and storage
- During the day the mix must periodically be stirred by use of a plastic spatula to avoid separation, particularly when product has not been dispensed over a long period and the machine has been in "storage" mode for a long time.
- A fluid mix without particles has to be used. A very thick mix with big particles could close the slot of the feeding needle thus blocking mix from entering the cylinder.
- Keep the feeding needle slider (pos. 52) in a position as to allow for a smooth mix flow from the hopper to the cylinder. By rotating the slider slot to the whole with smaller diameter, the quantity of mix to the tank will decrease, and vice versa
- Set the feeding needle in such a way that inlet hole is turned towards the middle of the hopper.

- Never exceed production limit specified in paragraph 1.2.2 and dispense cones and cups in the most regular way.

Fig. 7



### 3.6 Preliminary operations, washing and sanitization

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

To disassemble and clean the machine, proceed as described in "Section 5" of this manual.



#### NOTE



**Cleaning and sanitization must be carried out as a habit and with utmost care in order to guarantee the production quality in the observance of necessary healthy rules.**

### 3.7 Machine start-up

After installing the machine according to the instructions given in the chapter "Installation", and after carefully cleaning and sanitizing the machine, proceed as follows:

Take pressure pipe from tray and plunge it into the cleaning/sanitizing solution for the time indicated by the manufacturer of the product used.

#### 3.7.1 Starting machines with pump

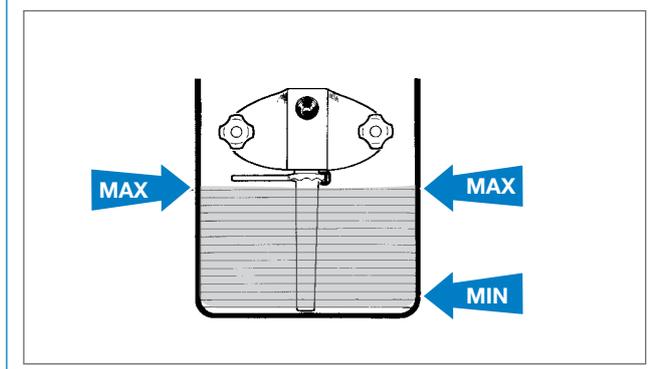
Take pressure pipe from tray and plunge it into the cleaning/sanitizing solution for the time indicated by the manufacturer of the product used.

#### Prime Hopper:

- Retrieve one bag of mix from the refrigerator.  
**NB.: Mix to be poured at a temperature of 4-5°C.**
- With the dispensing lever open, pour mix into the hopper allowing it to drain into the cylinder. Mix inside hopper shall never reach the pump (see the

picture); furthermore mix shall be added whenever level is 2 cm from hopper bottom.

Fig. 8

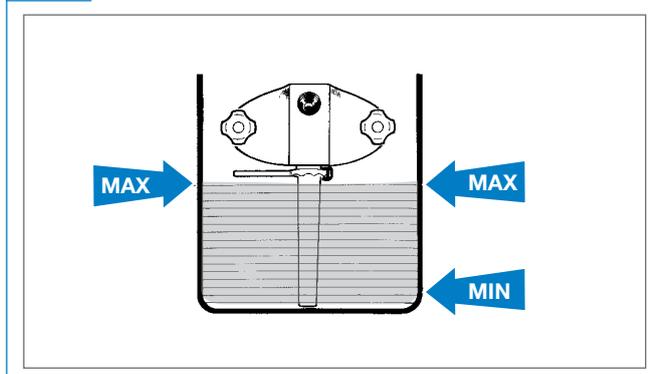


- Wait for a small quantity of mix (not sanitizer) to be dispensed from the spigot door and move the lever to the original position, i.e. close the spigot door lever.

**Connecting the pressure pipe:**

- Keep pouring the mix until the cylinder has been filled (bubbles shall be visible in the hopper while filling); with clean and sanitized hands, remove the pressure pipe from the sanitizing solution, and insert it into the bottom of the hopper.
- Connect the compression pipe to the pump.
- Pour mix in the tanks until filling them completely. Mix inside hopper shall never reach the pump (see the picture); furthermore mix shall be added whenever level is 2 cm from hopper bottom.

Fig. 9



- Refit hopper lid.
- Set the machine to Production mode.
- After a few minutes it will be possible to dispense ice cream.

**3.7.2 Starting machines by gravity**

Take the feeding needle from tray and plunge it into the cleaning/sanitizing solution for the time indicated by the manufacturer of the product used.

**Prime Hopper:**

- Retrieve one bag of mix from the refrigerator. **NB.: Mix to be poured at a temperature of 4-5°C.**
- Lower the dispensing lever and start pouring mix in the hopper to allow it to drain also into the cylinder. Mix level in the hopper must never exceed feeding needle height (see picture) and more mix must be added when level goes below about 2 cm from tank bottom.
- Wait for a small quantity of mix (not sanitizer) to be dispensed from the spigot door and move the lever to the original position, i.e. close the spigot door lever.

**Connect the feeding needle:**

- Keep pouring the mix until the cylinder has been filled (bubbles shall be visible in the hopper while filling); with clean and sanitized hands, remove the feeding needle from the sanitizing solution and insert it in the hopper bottom. Mix level in the hopper must never exceed feeding needle height and more mix must be added when level goes below about 2 cm from tank bottom.
- Refit hopper lid.
- Set the machine to Production mode.
- After a few minutes it will be possible to dispense ice cream.

**3.8 Production**

Dispense soft ice cream without exceeding the machine production speed, as specified in table in par. 1.2.2; complying with the specified speed and feeding the machine with fresh product will allow avoiding sale interruptions even during the peak hours.

Out of business hours, keep machine set at STORAGE. You will also save a lot of electricity because the compressor runs only when necessary in order to store the product at the right temperature. On reopening, just set the machine at DISTRIBUTION and within a few minutes the ice cream will be at the right serving consistency.

### 3.9 Ice cream dispensing



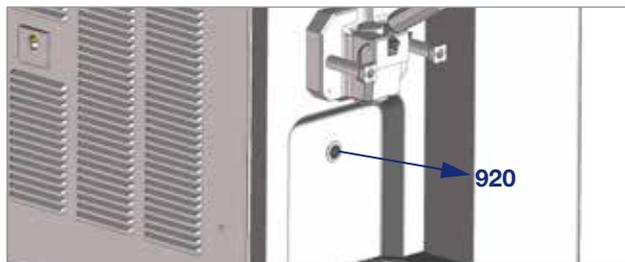
In order to dispense the product, place a cup or a cone under the dispensing spigot and, with the machine running, slowly pull down the dispensing lever.

As soon as the product comes out, twist the cup or the cone to form a cone-shaped serving.

When the portion has reached the desired size, close the dispensing lever and quickly pull the cone or the cup down in order to sharpen the tip.



Fig. 10



### 3.10 Pasteurization (only for vers. "SP")

When closing the premises, press STOP and then PASTEURIZATION to pasteurize the mix in the hopper and in the cylinder.

For gravity-fed machines, it is necessary to position the feeding needle so as to close the product inlet hole.

It is nevertheless necessary that the product level in the hopper is at least above half the hopper capacity (medium level covered).

The machine performs the heating and cooling cycle automatically and then stores the product at +4 °C.

In case of a power blackout during the pasteurization cycle, the machine automatically repeats the cycle. When opening the premises, make sure that the machine has performed the pasteurization cycle properly and that no alarm has been triggered. Press STOP and select the dispensing function; after a few minutes the ice-cream will reach the correct consistency to be sold.

In case of long power blackout, before resuming the production, it is necessary to check the mix temperature in the hopper and if it is above 6 °C, perform the pasteurization cycle. If the blackout lasts several hours, it is necessary to clean the machine and refill it with fresh mix.

### 3.11 Daily cleaning - cleaning procedures when starting and finishing using the machine

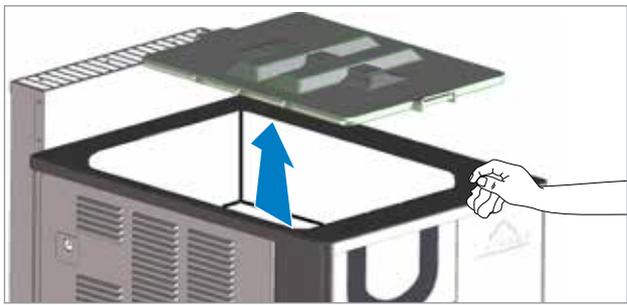
#### 3.11.1 Daily cleaning procedures at the end of the machine use

With clean and sanitized hands (or using disposable gloves), carry out the following procedures.

##### Component disassembly and cleaning:

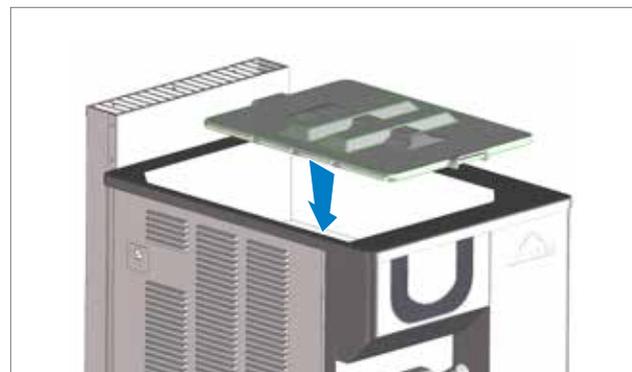
- Remove hopper lid, clean it, sanitize it and rinse it in a container.
- Using a clean and sanitized cloth, clean the hopper external side.

Fig. 13



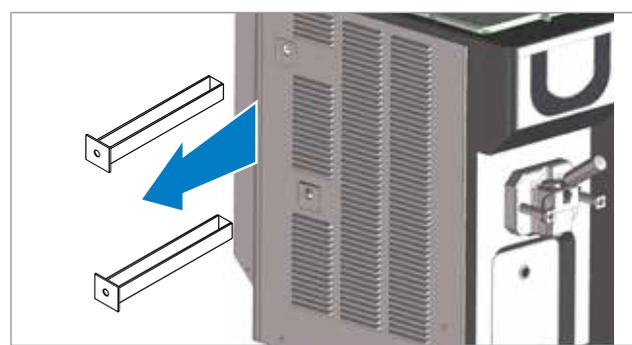
- Refit the hopper lid after sanitization.

Fig. 14



- Remove the drip trays on the machine side, wash and sanitize them, then rinse them.

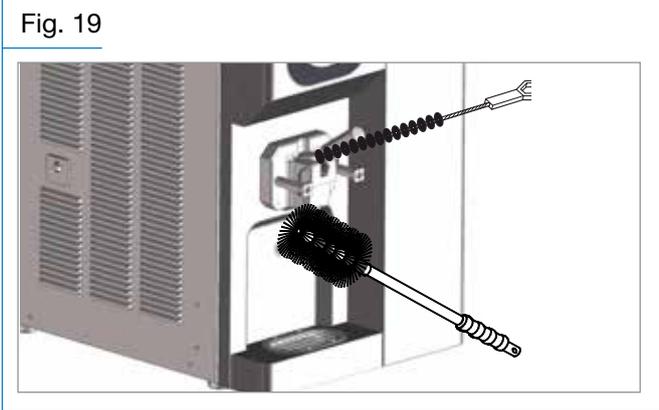
Fig. 15



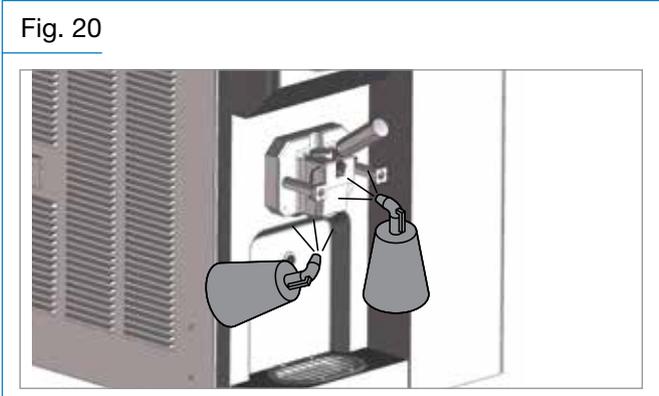
**NOTE**

Contact the authorized technician for any mix leak in the drip tray.

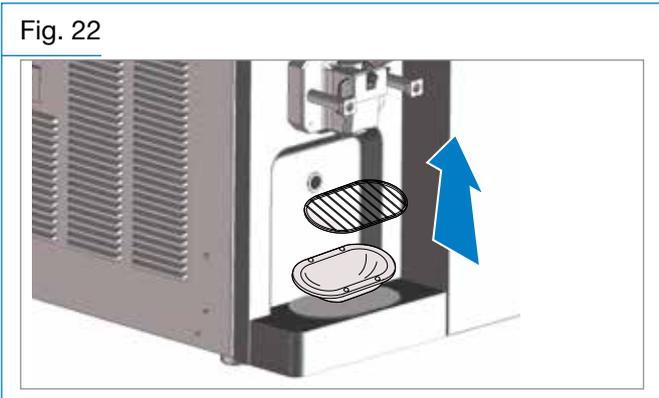
- Fit the drip trays back on the machine
- Fill a bucket with cleaning/sanitizing solution. Dip the supplied brush in the cleaning/sanitizing solution and clean the spigot door dispenser and the area around the spigot door piston several times.



- Spray the cleaning/sanitizing solution on the spigot door dispensing area and on the spigot door, especially in the piston area.



- Using a clean and sanitized cloth, clean spigot door area, the area underneath, machine front side and any other "splash" area, making sure to remove any humidity, product or cleaning/sanitizing solution residues.
- Remove the drip tray, clean and sanitize it and refit it on the machine.



**Prepare the machine for the night pasteurization cycle (for vers. "SP")**

- For gravity-fed machines, open the lid, position the feeding needle so as to close the product inlet hole and so the feeding pipe.
- Add mix if necessary. The hopper level indicator LED must be off. The mix level in the hopper must never reach the pump.
- Make sure that the machine is in PRODUCTION mode (the relevant LED must be ON).

**NOTE**

If the mix inside the hopper is below the medium level, the pasteurization cycle will not start.

The pasteurization cycle is automatic and is performed during the night at a set time.

**3.11.2 Daily cleaning procedures before the machine use**

For vers. "SP", when opening the premises, make sure that the display shows the "End" message. This message indicates that the pasteurization cycle has been performed correctly.

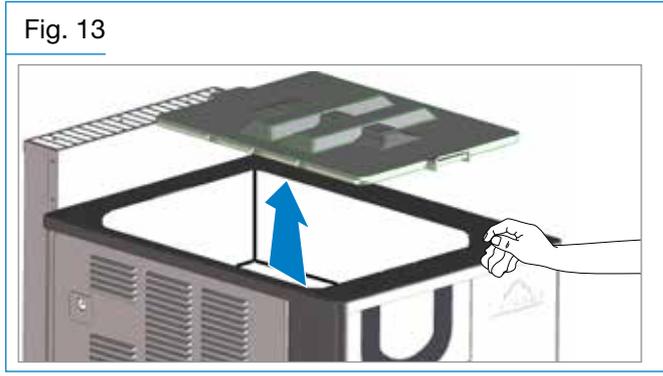
**NOTE**

If the pasteurization cycle has not been performed correctly, the display will show an alarm. **THE MIX WAS NOT PASTEURIZED CORRECTLY.** Call for service if necessary. After resetting the alarm, select the **DISTRIBUTION** function to resume the **PASTEURIZATION** cycle.

Make sure to have clean and sanitized hands (or use disposable gloves) before carrying out the following procedures.

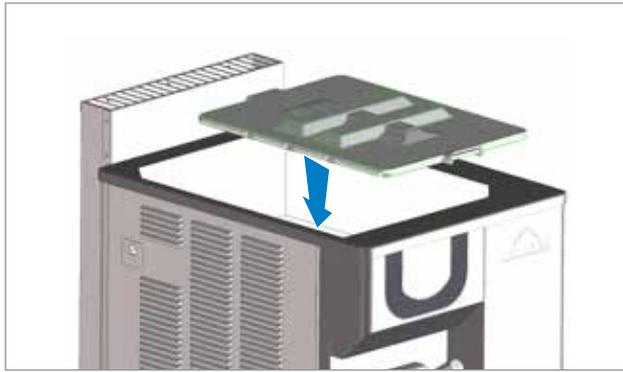
**Lid disassembly and cleaning:**

- Remove hopper lid, clean it, sanitize it and rinse it in a container.
- Using a clean and sanitized cloth, clean the hopper external side.



- Refit the hopper lid after sanitization.

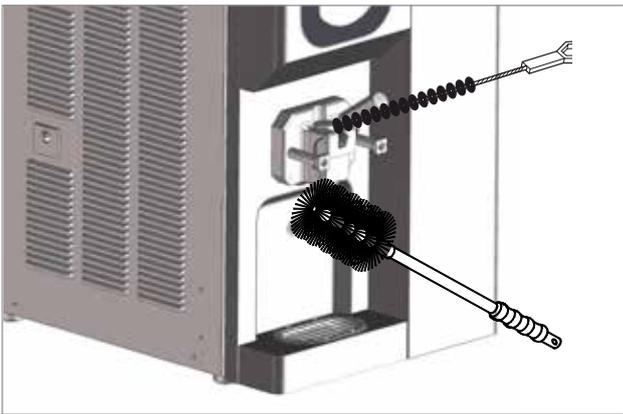
Fig. 14



#### Sanitization of the spigot door area:

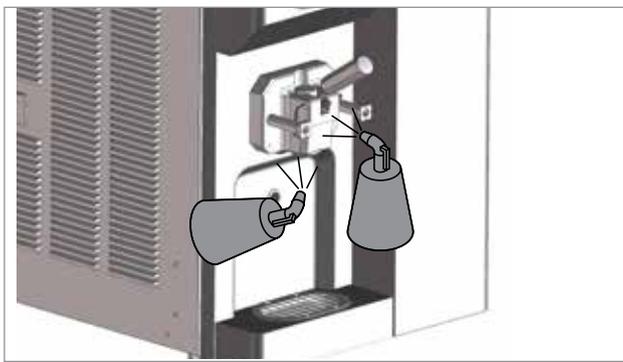
- Fill a bucket with cleaning/sanitizing solution. Dip the supplied brush in the cleaning/sanitizing solution and clean the spigot door dispenser and the area around the spigot door piston several times.

Fig. 19



- Spray the cleaning/sanitizing solution on the spigot door dispensing area and on the spigot door, especially in the piston area.

Fig. 20



- Using a clean and sanitized cloth, clean spigot

door area and machine front side, making sure to remove any humidity, product or cleaning/sanitizing solution residues.

- the machine is in Storage mode press  then  to start Production mode.

### 3.12 User programming

Press Stop and Storage keys simultaneously to access User Programming (sw version and "Manager Menu" are displayed) and release them immediately.

At this point, the display will show the first User programming step.

	DISPLAY	COMMENTS
	Hours Step U01      10	The first line shows the description and the second the number of the step (U=User) and the value.

Press Increase or Decrease keys to edit the value.

Stop to access the next step.

Hereinafter is a list of the parameters which can be edited from the "user programming":

STEP	DISPLAY	MIN	MX	DEFAULT
U01	Hour	00	23	
U02	Minutes	00	59	
U03	Day of the week	Sun	Sat	
U04	Day of the month	01	31	
U05	Month	Jan	Dec	
U06	Year	2000	2099	
U07	Language	Eng	Eng	Eng
U08	Prod. start time	00	23+no	08
U09	Pas./Stor. start time	00	23+no	02
U10	Lev. beep enable	No	Yes	Yes
U11	Displ. 12 hours	No	Yes	No
U12	Hopper Extra Beat.	No	Yes	Yes
U13	Hot/Cold Cycle	No	3	No
U14	Start H/C Cycle	0	23	02
U15	H/C Cycle Temp.	050	075	065
U16	HOT 1	000	120	100
U19	H/C Cycle Timer	000	060	30

**U08 Prod. start Time:** Set the time at which Production will automatically start.

**U09 Pas/Stor start Time:** Set the time at which Pasteurization/Storage will automatically start. If set to no Pasteurization will not start automatically (it is possible to set the steps for the automatic execution of the Hot/Cold Cycle, otherwise they are inactive).



#### DANGER FROM



User takes full responsibility for the manual control of the machine, complying with prevailing local regulations on mix handling in case mixes are not pasteurized.

**U10 Lev. Beep Enable:** If set, the machine will beep intermittently when the mix is below the medium level.

**U11 12 hours display:** Yes = it enables time display in 12 hour format, if set to No = it enables time display in 24 hour format.

**U12 Hopper Extra Beat.:** If set to YES, it enables hopper agitator periodical activation in Production and Storage functions.

**U13 Hot/Cold Cycle:**

Can be set to [No, 1, 2, 3]

Determines whether the Hot/Cold Cycle is disabled or if it is performed daily, every 2 or 3 days.

If step U09 is set, the Hot/Cold Cycle cannot be activated: the step shows “---” to indicate that the step is disabled and cannot be modified.

**U14 Start H/C Cycle:**

Can be set to [0, 1, 2, .... 23]

Indicates the time at which the Hot/Cold Cycle runs every U12 days (if U12 is set and if the time for automatic Pasteurization is set to No).

If step U09 is set, the Hot/Cold Cycle cannot be activated: the step shows “---” to indicate that the step is disabled and cannot be modified.

**U15 H/C Cycle Temp.:**

Indicates the set temperature to be reached for hopper and cylinder during the heating of the Hot/Cold Cycle.

If step U09 is set, the Hot/Cold Cycle cannot be activated: the step shows “---” to indicate that the step is disabled and cannot be modified.

**U16 HOT 1:** By increasing this value also ice cream hardness and beater motor absorption value will increase.

**U19 H/C Cycle Timer:** Indicates the duration of the stoppage at the end of the heating phase of the Hot/Cold Cycle.

To quit programming, avoid pressing any key for about 30 seconds, or press Production or Cleaning.

The machine will now return to STOP.

## 4. SAFETY DEVICES

### 4.1 Alarms

The machine signals possible alarms by showing them on the display and flashing the message.

If an alarm was triggered and then reset, the alarm remains visible on the display in a steady way (not flashing).

To reset the warning message, press Storage/Reset

The machine can be used in Production even when there is an alarm.

If it is a critical alarm the machine will not allow you to enter production mode; in this case, press STOP and do not use the machine until its repair.

The table below shows a list of possible alarms:

ALARM	DESCRIPTION
<b>Aggiungere Mix Add Mix</b>	The display indicates Add Mix when the mix is below the MEDIUM level. An intermittent beep will also be emitted (only if the Lev. Beep Enable step in the User Programming is set to Yes) and the machine is not in Stop mode.
<b>Al.Scambio Term. Al.Heat.Exchange (DELTA TGV-TEV)</b>	In Pasteurization Heating step, if the TGV temperature becomes > than TEV by the value set in step DELTA TGV-TEV, "Al.Heat.Exchange" is displayed and the machine remains in Heating mode. Check the driving belt or whether the agitator is in its seat. The alarm resets by pressing the Storage/Reset key. Warning: this alarm is not active if one of the two TEV or TGV probes is inhibited.
<b>All. Sonda Cilin Al. Cylind.Probe (TEC)</b>	Cylinder probe faulty. This is a critical alarm: consequently, the machine sets at Stop, from the Storage and Pasteurization modes; it stays in the same function when in Production mode, because consistency is controlled.
<b>All. Sonda Evap. Al. Evapor.Probe (TE1)</b>	Cylinder evaporator probe alarm. This alarm does not cause machine to stop (it remains in the running function). Pasteurization Heating step is eliminated.
<b>All.Sonda Gh.Vas Al. IceHop.Probe (TGV)</b>	Hopper evaporator probe faulty. This alarm does not cause machine to stop (it remains in the running function).
<b>All. Sonda Vasca Al. Hopper Probe (TEV)</b>	Hopper probe faulty. Since the alarm is critical the machine Stops during Production, Storage, and Pasteurization.
<b>All. Temp. Cilind. Al. Cylind.Temp.</b>	In Production mode, if the TEC drops below the temperature set in step T50 - TEC limit, the machine sets to Storage mode with alarm "Al. Cylind.Temp." It is not possible to access other functions (except Cleaning) if the alarm is not reset and MA is forced to disable. The alarm is reset only when the TEC rises again.
<b>Allarme HOT MC Alarm HOT MC  Single-phase machines only</b>	Active on single-phase machines ONLY If a compressor load higher than a preset threshold (100) is detected, MC is stopped for 5" and then re-started 10 times (EVRC is started for the last 5 attempts during the 5" with MC stopped). If absorption remains too high the machine enters Stop mode and the "Alarm HOT MC" is displayed.
<b>Coni esauriti No more Cones</b>	When the low level has been reached the machine can dispense the number of cones set at the Last Cones step in Production mode. After which the machine automatically sets to Storage displaying the message No more Cones (also saved in the events log). The alarm resets by pressing the Storage key.
<b>Ghiaccio Cilin. Ice Cylinder (ICE)</b>	Cylinder defrost read by probe TE1. This alarm may be due to insufficient mix feeding into the cylinder. Check pump efficiency. If the alarm appears when the machine is in Stop mode, check/replace the TE1 probe since the end of scale of the "readable" temperature is read by the CPU.

ALARM	DESCRIPTION
<b>Invertire Fasi Invert Phases!</b>	It is necessary to invert the 2 phases on the three-phase cable so that the beater turns in the correct direction. The alarm resets by switching power off and on again (after exchanging 2 phases). Check lasts 1 minute after turning machine on.
<b>Lavare oggi! Wash today!</b>	In Production mode, "TEV +19°C W -n" is displayed, meaning that there are still "n" days remaining until machine cleaning. When the scheduled wash day arrives, Production is inhibited and the machine will not accept that function. The display shows Wash today! A forced washing may be required if the machine is left in Stop mode for 24 hours with mix above the minimum level. See sec. 5.
<b>Mancata pasto Pasto not Done</b>	This is displayed if the machine is not in Pasteurization after 1 minute has passed since when automatic Pasteurization was set to start in user programming.
<b>Mancata tensione Power On</b>	Power return after a blackout. Power On table is checked if the machine was in Pasteurization or Production mode. The event is logged in any function, except for STOP.
<b>Mancato CicloH/C H/C CycleNotDone</b>	This is displayed if the machine is not in the Hot/Cold Cycle after 1 minute has passed since the scheduled start time (according to the settings of the steps U13 and U14 in user programming).
<b>Mix Esaurita Mix Out</b>	The display indicates Mix Out when the mix is below the LOW level. When the mix is below the minimum level and upon Production a number of cones same as/or higher than the value set in step Last Cones are dispensed, not only will Mix Out be displayed, but the machine will also set to Storage.
<b>Non Servire ! Do Not Serve !</b>	In Production mode, each time the consistency drops below the value programmed in step Hot Block, the message "Do Not Serve!" is displayed. If, in such a case, you try to dispense cones, all units stop (MA and MC) until the photocell is no longer busy. As soon as it is released, both MA and MC re-start in order to bring ice cream to its proper consistency.
<b>Pastorizzare ! Pasto needed !  only for vers. "SP"</b>	When the machine is set to Stop mode with the low level covered for more than 60', TEV temperature is checked and if it is 15°C or more, Pasteurization is needed. When Production is pressed, the machine will automatically start Pasteurization unless the spigot has been opened and closed. In this case, the test $TEV \geq 15^\circ C$ is inhibited for 60 minutes and Production is accepted. If for all these cases TEV remains below 15°C, all functions will be allowed with no time limits.
<b>Perchè in STOP? Why in STOP ?</b>	If the machine is left in the Stop position with mix above the minimum level, after 30 seconds the flashing message "Why in STOP?" will be displayed and an intermittent beep will be emitted. This warns the operator to set the machine either to Production, Pasteurization, or Storage mode. The above mentioned message will be deleted by entering in Production, having low mix level, or pressing Reset (Stor.) key. The same message will be back on the display if you first enter in Production, Storage or Pasteurization.
<b>Portello Aperto Spigot Opened (IMS)</b>	Magnetic Safety Switch (IMS).
<b>Pressostato Pressure Switch (PR)</b>	Pressure switch triggered. The machine Stops: - if it is triggered for the third time within 1 hour - if pressure switch contact is opened 2 minutes running If the machine was in Pasteurization mode, it is necessary to carry out the Pasteurization program again. Check cooling water flow.
<b>Pulire Filtro! Clean Filt. Need  For Japan, only</b>	The alarm refers to an additional pressure switch on the air filter with NC contact which is opened when it needs to be cleaned. When contact opens, the display flashes and shows the message: "Pulire Filtro!" or "Clean Filt. Need". When the alarm is reset, the flashing stops and the alarm is still displayed; it can be reset by pressing Storage.

ALARM	DESCRIPTION
<b>Temp. Cilind. Alta High Cylind. Temp.</b>	Triggered in Production, Storage and Pasteurization if the TEC reaches 85° (60° for non-pasteurizing machines). In case of alarm the machine is forced to Stop mode with flashing alarm on the keyboard and disabled keys, which allows access to the Cleaning mode alone. Once TEC falls below hysteresis (5° fixed below limit) the alarm is reset and the display stops flashing. Now the alarm can be reset by pressing the Storage/Reset button and normal access to functions is restored.
<b>Temp. Vasca Alta High Hopper Temp.</b>	Triggered in Production, Storage and Pasteurization if the TEV reaches 85° (60° for non-pasteurizing machines). In case of alarm the machine is forced to Stop mode with flashing alarm on the keyboard and disabled keys, which allows access to the Cleaning mode alone. Once TEV falls below hysteresis (5° fixed below limit) the alarm is reset and the display stops flashing. Now the alarm can be reset by pressing the Storage/Reset button and normal access to functions is restored.
<b>Term.Sicur.Cil Safety Therm.Cyl (TESC)</b>	Cylinder safety thermostat triggered. The machine Stops.
<b>Term.Sicur.Vasca Safety Therm.Hop (TESV)</b>	Hopper safety thermostat triggered. The machine Stops.
<b>Termico Agitator Overload Beater (PTMA)</b>	Overload beater motor (bimetallic) tripped. The machine Stops.
<b>Termico Compres. Overload Compres (PTMC)</b>	Overload Compressor Motor. The machine Stops.
<b>Timeout Prd. Timeout Prd.</b>	During Production the amount of time for which the beater motor runs is closely monitored. If the beater motor is ON for 6 minutes (Timeout Prd.) and Hot has not been reached, machine sets at a "reached-HOT state" with alarm "Timeout Prd." in the events. After triggering for 5 times, the alarm does not disappear from the display and the machine sets to Storage mode. Check the quantity of mix in the cylinder, the hopper pump, and the refrigeration system.

#### 4.1.1 Blackout

In case of power supply failure, the machine will set to STOP if it was in Cleaning.

If the machine was in Pasteurization Heating phase or Pause during Pasteurization, when power is supplied again, the machine will continue with the function it was performing when the blackout occurred (the display will show the message Power On).

If the machine was in H/C Heating phase or Thermostating during the H/C Cycle, when the power returns the machine will continue with the function it was performing when the blackout occurred (the display will show the message Power On).

If the machine was in Production or Storage phase (with Pasteurization hour set), Pasteurization Cooling, or Cooling of the Hot/Cold Cycle, 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 Pasteurization cycle (or the Hot/Cold Cycle if it was in the Cooling phase), memorizing the alarm "Mancata Tensione" or "Power On" in the event log.

Otherwise, if the time is less than that indicated in the table below, the machine will return to the function it was before the blackout.

TEV TEMPERATURE	TIME
68 °C ÷ 50 °C	30 minutes
49°C ÷ 15°C	10 minutes
14°C ÷ 10°C	20 minutes
9°C ÷ 4°C	2 Hour Clock

## 5. REMOVING, CLEANING AND REFITTING OF PARTS IN CONTACT WITH THE PRODUCT

### 5.1 General information



Cleaning and sanitization must be carried out at the end of every production as a habit and with utmost care in order to guarantee the production quality in the observance of necessary healthy rules.

If dirt is left enough time to dry out, this increases the risk of stains, marks and damage to surfaces.

Removing dirt is much easier if it is done immediately after use because some elements containing acid and saline substances might corrode the surfaces. A prolonged soaking is not recommended.

### 5.2 Washing conditions

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

Never use powder or abrasive cleaning products, scourers or pointed tools when cleaning by hand; there is a risk of leaving the surfaces opaque or of removing or weakening the protective film on the surface, scratching it.

Never use metal or synthetic scouring pads under any circumstances to prevent any abrasion or removal of ferrous parts leading to problems of surface oxidation or weakening.

Avoid using detergents containing chlorine and its compounds. The use of detergents such as bleach, ammonia, hydrochloric acid and limescale removers can attack the steel composition, marking and oxidizing it irreparably and causing damage to the parts made of "plastic" materials.

Do not use dishwashers and the relevant detergent products.

The use of a cleaning/sanitizing solution optimizes the washing and sanitizing procedures in that it eliminates two phases of the procedure (a rinse and a washing phase). Basically, the use of a cleaning/sanitizing solution saves time by facilitating and simplifying washing/ sanitizing procedures.

### 5.3 Tips

Use a non-aggressive cleaning solution to wash the parts.

(Manually) wash the parts in water (max 60 °C) using a non-aggressive detergent and the cleaning brushes supplied as standard.

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

To sanitize, leave the disassembled parts in sanitized lukewarm water for the time specified by the sanitizer manufacturer (**use the sanitizing product following the manufacturer indications**) and rinse them before reassembling.

When the washing procedure has been completed and before reassembly, dry each component thoroughly with a clean and soft cloth that is suitable for coming into contact with foodstuffs, to avoid leaving any humidity rich in mineral salts and chlorine that could attack the metal surfaces and leave opaque traces.

**Carpigiani recommends the use of a cleaning/sanitizing solution to wash the machine.** The use of a cleaning/sanitizing solution optimizes the washing and sanitizing procedures in that it eliminates two phases of the procedure (a rinse and a washing phase). Basically, the use of a cleaning/sanitizing solution saves time by facilitating and simplifying washing/ sanitizing procedures.

During the cleaning procedures, we recommend using the supplied brushes that must be cleaned and sanitized both before and after their use.



#### NOTE



**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 inspection of all the parts made in thermosetting, plastic, elastomer-based and silicon-based materials and metal (such as scraper blades, pump gears, beaters, etc.).**

**All parts must be integral and not worn, without cracks or splits, or opaque if originally polished/transparent. Carpigiani declines all responsibility for any damage caused by imperfections and/or undetected breakages and not promptly solved by the replacement with original spare parts. The manufacturer is available for consultation and for any specific requests made by the customer.**

## 5.4 How to use cleaning/sanitizing solution



To prepare the cleaning/sanitizing solution follow the instructions on the label of the product being used.

### Component cleaning/sanitizing by soaking

- Remove larger residues by hand or using the supplied brushes.
- Remove finer residues with a jet of water.
- Immerse the parts to be cleaned into the solution.
- Let the solution to work for the time indicated by the sanitizer manufacturer.
- Rinse the parts with care, using plenty of clean drinking water.

## 5.5 Daily cleaning

Cleaning and sanitation must be carried out every day when opening and closing the premises, with utmost care in order to guarantee the production quality in the full compliance with the healthy rules specified in sect. 3.11.

## 5.6 Scheduled cleaning

The machine is provided with an automatic system which calls for washing of the parts in contact with the product when the set time is out.

This system, called “WASH”, inhibits the distribution function at the end of the set time.



### NOTE

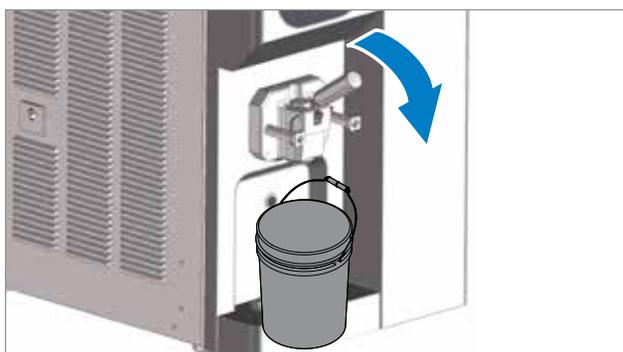


**Cleaning and sanitization must be carried out at the programmed date indicated on the display, as a habit and with utmost care, in order to guarantee quality of production in the observance of healthy rules.**

### 5.6.1 Machine drainage

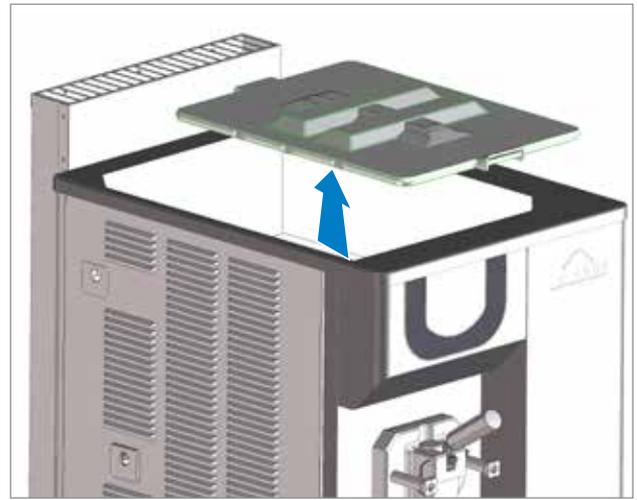
- Place an empty pail under the dispensing spigot.
- Press the STOP key.
- Pull the dispensing lever and drain all ice cream from the cylinder.

Fig. 11



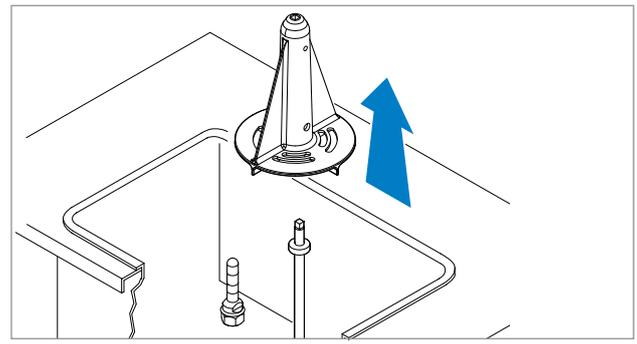
- Press the CLEANING key.
- When the product coming out becomes liquid, push STOP button and leave the dispensing lever open.
- Remove hopper cover.

Fig. 12



- Remove the hopper beater

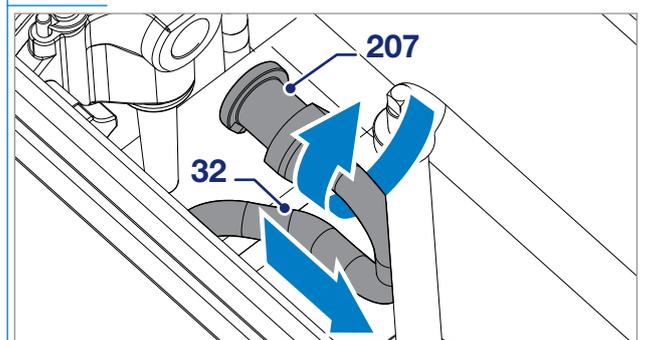
Fig. 13



### Pump-fed machines:

- Rotate the connection pipe (207) until aligning its notch with the pin on the pump, then pull it from the front side until disconnecting it from the pump.
- Remove pressure pipe (32) by turning it by 90° and sliding it out from its seat inside hopper. Continue draining the remaining mix by opening the dispensing handle.

Fig. 14



- Remove the pump by turning it 45° counterclockwise

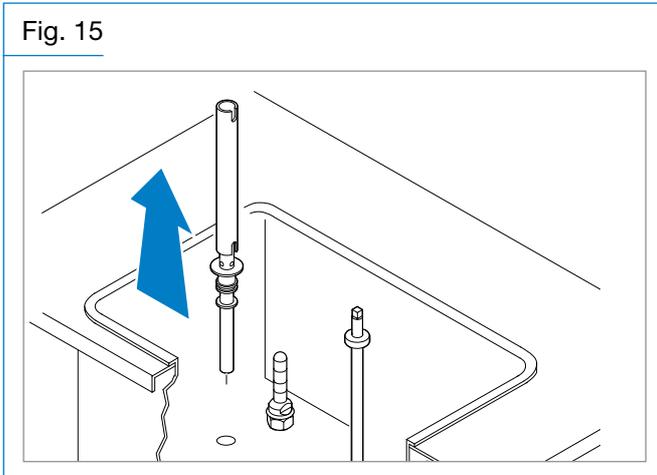
and slide it forwards.

- Remove pump shaft (96) and seal (243), sliding them out from machine front side.

#### Gravity-fed machines:

- Remove the feeding needle from the hopper.

Fig. 15



- Wait until the liquid mix flows out completely and then set the dispensing lever back to closing position.
- Pour clean warm water inside the hopper.



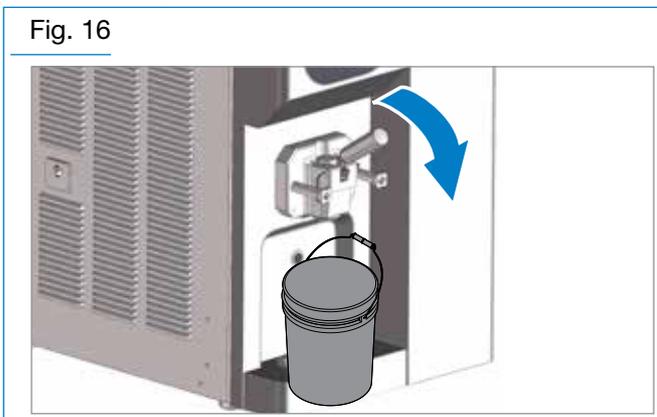
#### NOTE



**Never exceed the maximum level indicated on the hopper walls.**

- Use the supplied brushes to clean the hopper walls, the level sensor, the beater shaft and gap and the hopper. Using a smaller brush, clean the compression pipe seat at the hopper bottom. Drain the water from the hopper by working on the ice cream dispensing handle and repeat this operation several times until having clean water.
- Repeat the two previous operations using a cleaning/sanitizing solution.
- Place an empty pail under spigot door, lower dispensing handle and let water flow out.

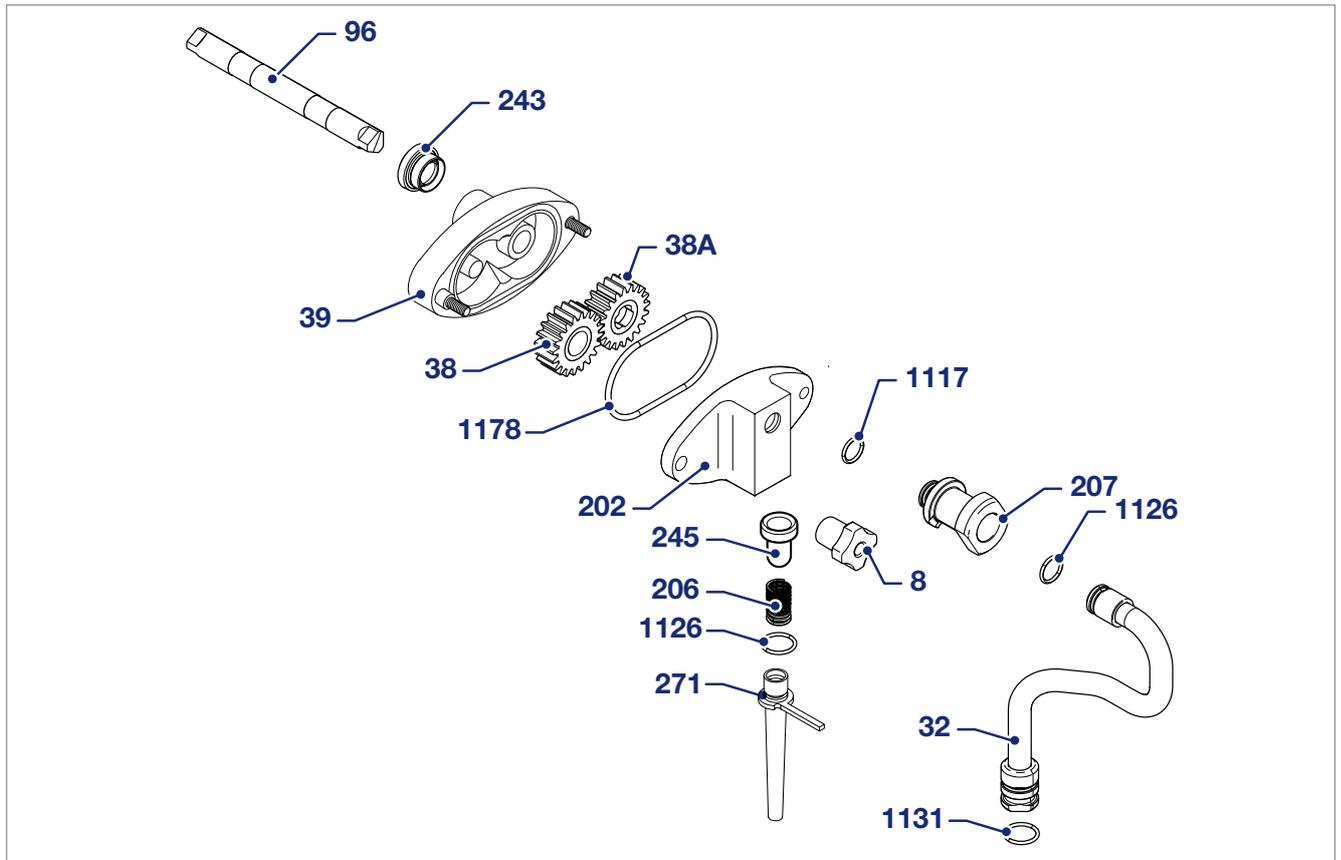
Fig. 16



- Rinse with hot water until clean water flows out.
- Press CLEANING and let the machine run about 10 seconds.
- Press STOP and drain all water out of machine.

5.6.2 Pump removal

Fig. 17



<b>8</b>	Pump knob	<b>207</b>	Connection pipe
<b>32</b>	Compression pipe	<b>243</b>	Pump body seal
<b>38</b>	Driven gear	<b>245</b>	Pump valve
<b>38A</b>	Driving gear	<b>271</b>	Priming pipe
<b>39</b>	Pump body	<b>1117</b>	O-ring
<b>96</b>	Pump shaft	<b>1126</b>	O-ring
<b>202</b>	Pump cover	<b>1131</b>	O-ring
<b>206</b>	Spring	<b>1178</b>	O-ring

- Keep the priming pipe (271) in vertical position, rotate it until aligning the notch with the pin on the pump.
- Use an O-ring puller to remove O-ring (1131) from the priming pipe (271).
- Remove spring (206) and the pump valve (245).

- Loosen the two knobs (8) and separate the pump cover (202) from the pump body (39).
- Use an O-ring puller to remove the O-ring (1178).
- Remove the gears (38-38a).

Fig. 18

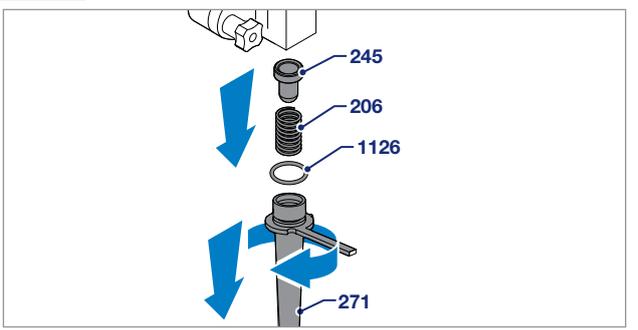
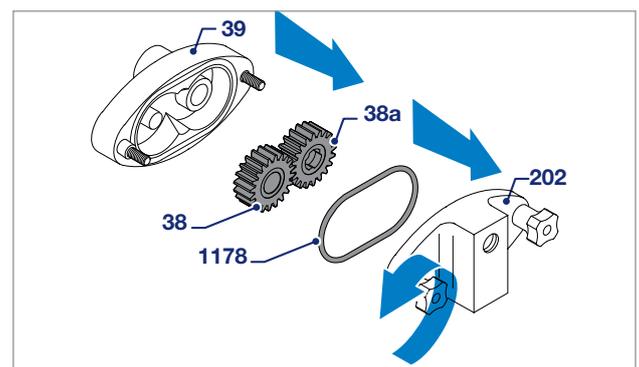
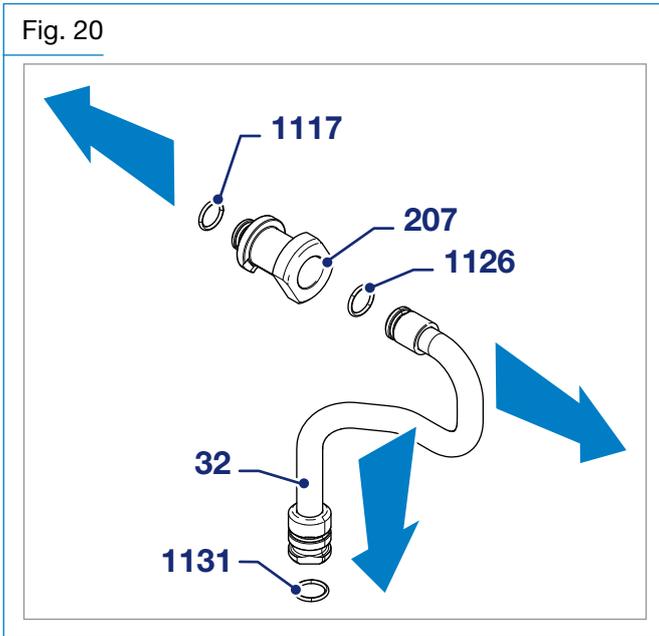


Fig. 19



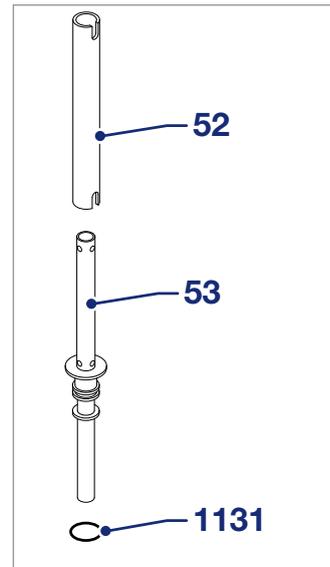
- Remove the connection pipe (207) from the compression pipe (32).
- Remove O-rings (1117), (1126) and (1131).

Fig. 20



### 5.6.3 Removing the feeding needle

Fig. 21

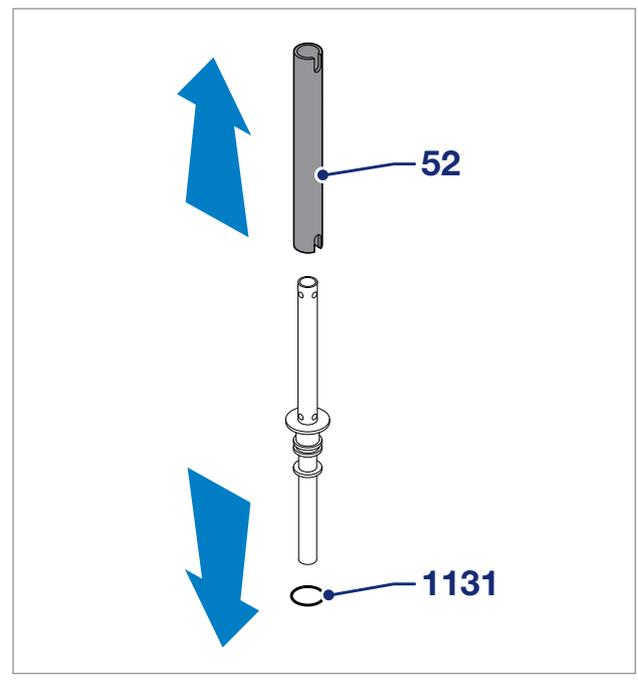


- 52** Feeding needle slider
- 53** Feeding needle
- 1131** O-ring

To disassemble the feeding needle proceed as follows:

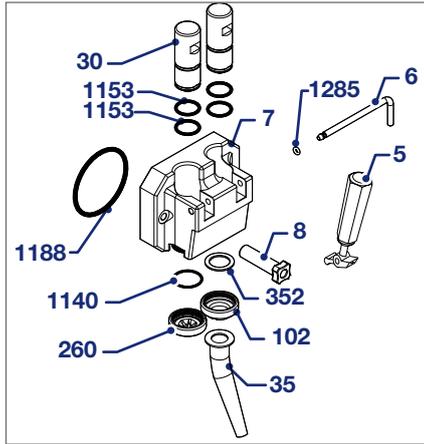
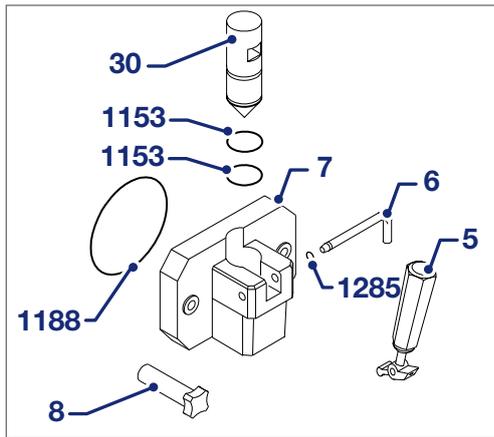
- Remove the feeding needle slider (52).
- Remove the O-ring from the needle (1131).

Fig. 22



5.6.4 Spigot door removal

Fig. 23



Standard spigot door

- 5 Ice cream dispensing handle
- 6 Pin
- 7 Spigot door
- 8 Knob
- 30 Piston
- 1153 O-ring
- 1188 O-ring
- 1285 O-ring

Single portion spigot door

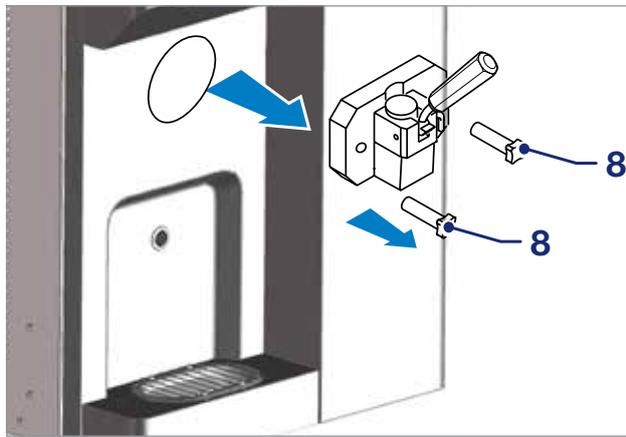
- 5 Ice cream dispensing handle
- 6 Pin
- 7 Spigot door
- 8 Knob
- 30 Piston
- 35 Extension
- 102 Ring nut
- 260 Nozzle unit
- 352 Seal
- 1140 O-ring
- 1153 O-ring
- 1188 O-ring
- 1285 O-ring

**NOTE**

**Before removing the dispensing spigot door, make sure that the hopper and the cylinder are empty and that the machine is in STOP mode.**

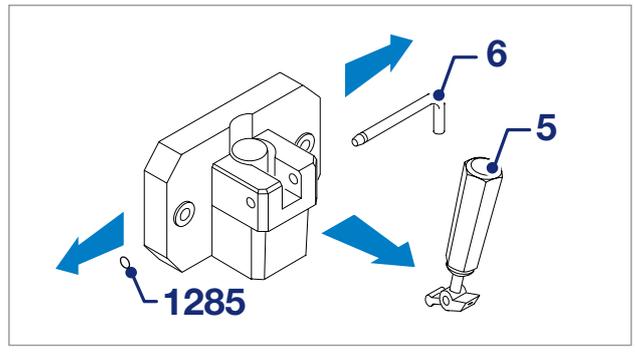
- Loosen the two knobs (8) and remove dispensing spigot door.

Fig. 24



- Use an O-ring puller to remove O-ring (1285) from the pin (6).
- Remove pin (6) from its seat to release handle (5).

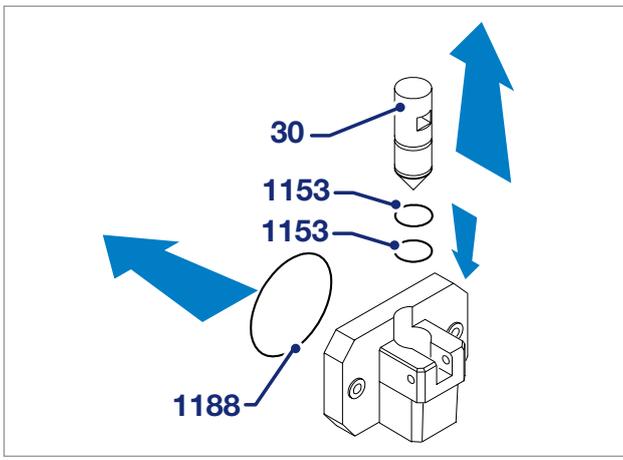
Fig. 25



Remove piston (30), if necessary use the dispensing handle.

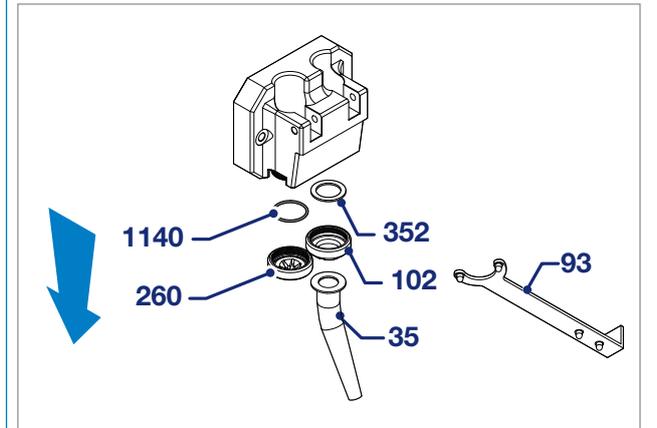
- Use an O-ring puller to remove:
  - O-rings (1153) of the piston;
  - the O-ring of the spigot door (1188).

Fig. 26



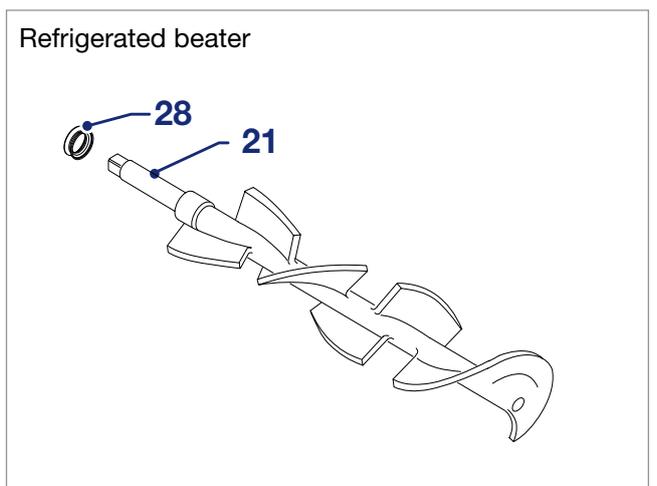
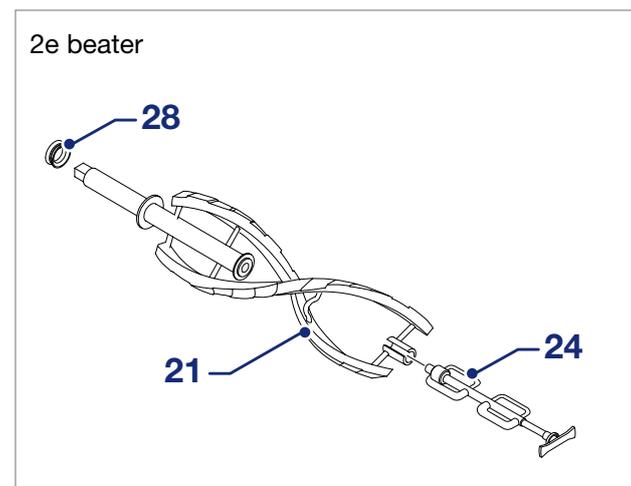
- For "single portion" versions, use the suitable supplied tool (93) to remove ring nut (102), seal (352), extension (35), nozzle unit (260) and O-Ring (1140).

Fig. 27



### 5.6.5 Beater removal

Fig. 28



- 21** Beater
- 24** Idler
- 28** Seal

- 21** Beater
- 28** Seal

- Remove beater (21) from the cylinder, having care not to hit the cylinder walls.

- Slide seal (28) along beater axis and remove it.

Fig. 29

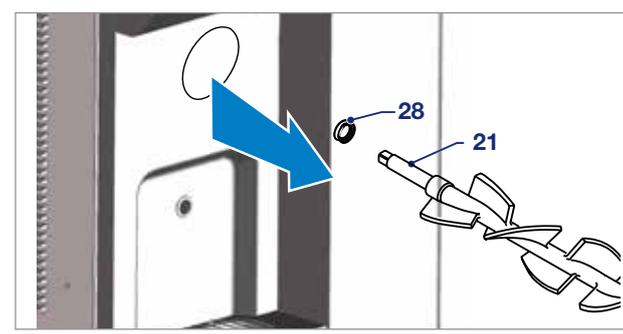
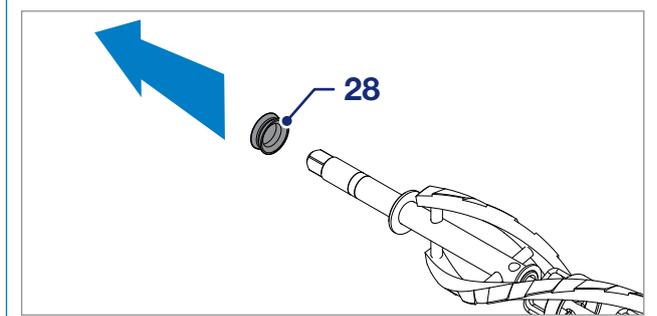


Fig. 30

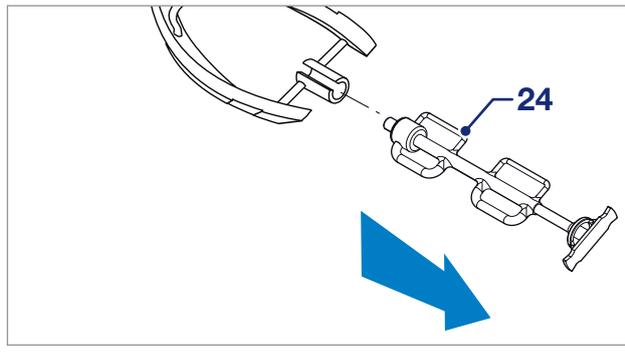


**NOTE**

The seal is very important to prevent cylinder leakages. The wear status must be checked at regular intervals according to the maintenance plan (see paragraph 6.1) and must always be lubricated correctly during the cleaning operations.

- Slide idler (24) out of the shaft.

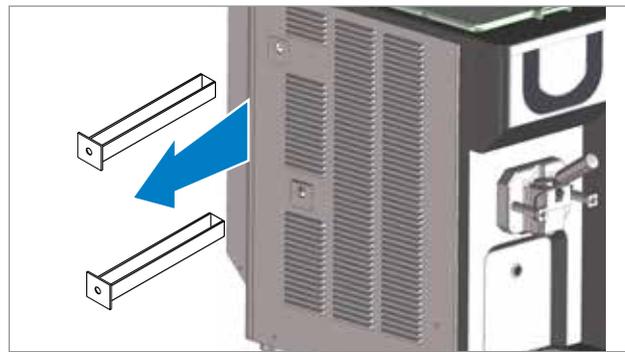
Fig. 31



### 5.6.6 Removing the drip drawers and tray

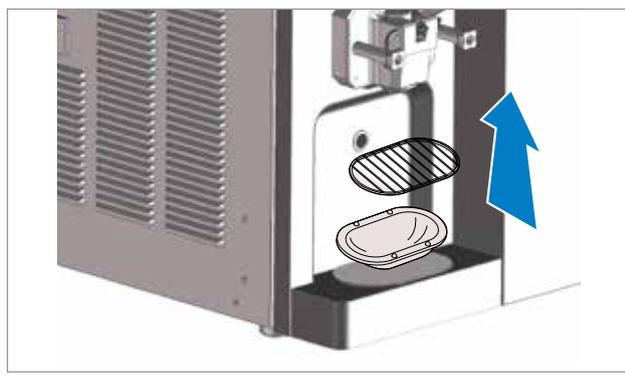
- Remove drip drawers from their seats on machine side.

Fig. 32



- Remove the drip tray and the relevant cover.

Fig. 33



### 5.6.7 Washing and sanitizing the components

**NOTE**

For the use of cleaning/sanitizing solutions, instructions on product label are to be followed.

**NOTE**

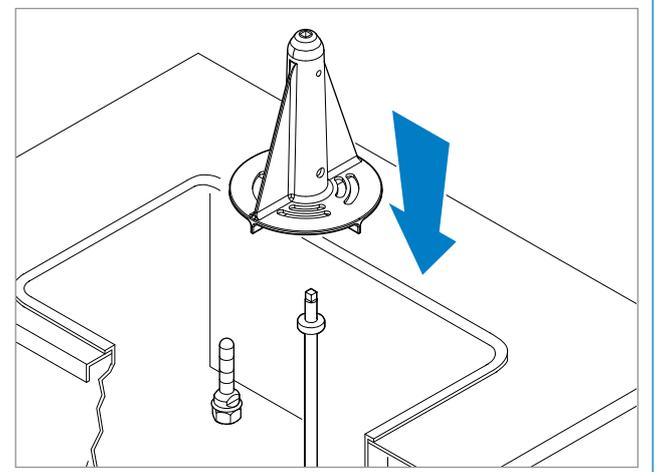
To perform the following operations it is necessary to have clean and sanitized hands or wear disposable gloves.

- Fill the sink with cleaning/sanitizing solution prepared following the producer instructions.
- Use the supplied brushes to strongly brush all components and relevant holes (all holes of pump, priming pipe, check valves, pump seal and gap etc.).
- Dip the parts in the cleaning/sanitizing solution and leave them there for the time specified by the manufacturer.
- Rinse the parts with care, using plenty of clean drinking water.
- Place the components on a clean and sanitized tray to air-dry.
- Soak the big brush in the cleaning/sanitizing solution and clean the cylinder.
- Dip a brush in the cleaning/sanitizing solution and clean the seat hole of pump, feeding needle, the compression pipe at the hopper bottom and the hopper walls.
- Spray cylinder bottom and hopper walls with the cleaning/sanitizing solution.
- Repeat the last three operations a few times.

### 5.6.8 Refitting the beater hopper

- Reposition the beater (pos. 162) in its seat ensuring it is properly in place.

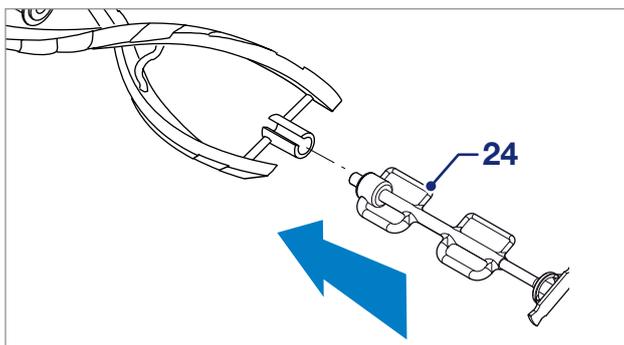
Fig. 34



### 5.6.9 Reassembling the beater

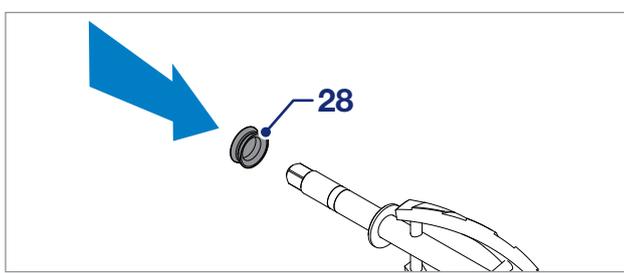
- Insert the idler (24) inside the beater.

Fig. 35



- Lubricate the internal side of seal (28) and its seat on the beater shaft. Install the seal on the shaft.

Fig. 36



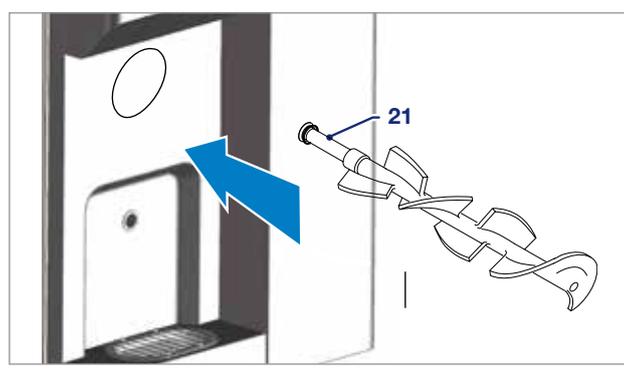
#### NOTE



**Check the seal status. Replace it if it is worn or damaged.  
Replace it according to the maintenance schedule.**

- Insert beater and cylinder, rotate and push until they engage in the rear hub.

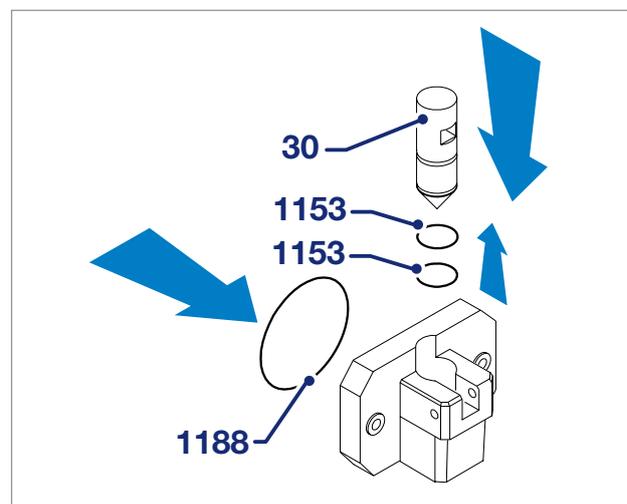
Fig. 37



### 5.6.10 Reassembling the spigot door

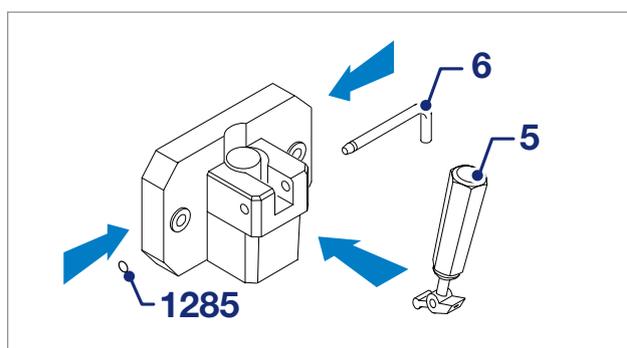
- Lubricate and fit piston O-rings (1153) .
- Lubricate piston (30) and insert it inside its seat on spigot door, making sure that piston square notch matches with spigot door front rectangular opening.
- Lubricate and fit O-ring (1188) onto spigot door.

Fig. 38



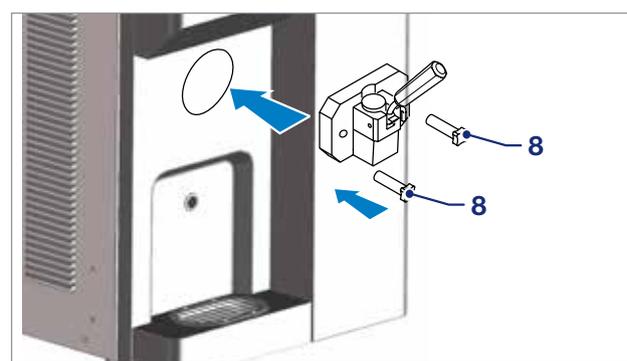
- Insert handle (5) and pin (6) in their seats.
- Fit O-ring (1285) on pin (6).

Fig. 39



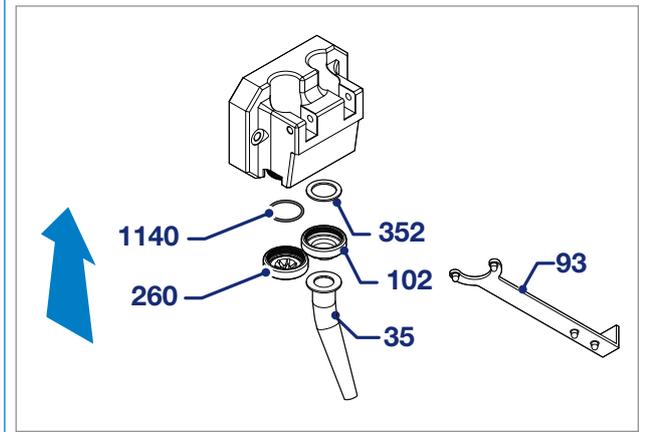
Fit the spigot door on the machine and tighten it well with knobs (8a).

Fig. 40



- For "single portion" versions, use the suitable supplied tool (93) to refit seal (352), ring nut (102), extension (35), O-Ring (1140) and nozzle unit (260).

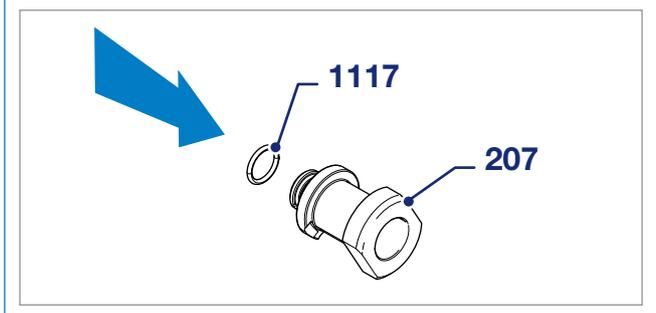
Fig. 41



### 5.6.11 Reassembling the pump

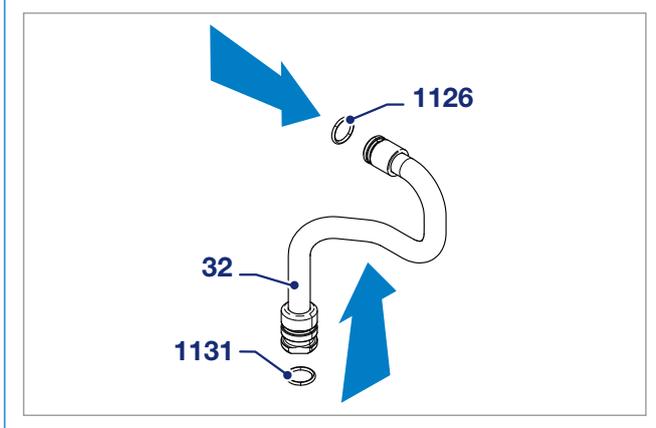
- Lubricate and fit O-ring (1117) on connection pipe (207).

Fig. 42



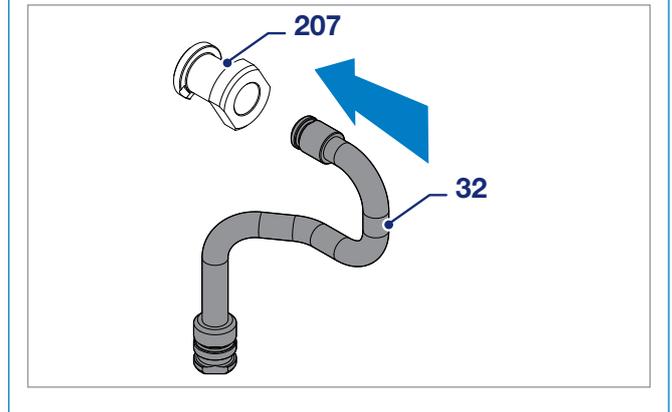
- Lubricate and fit O-rings (1126) and (1131) on compression pipe (32).

Fig. 43



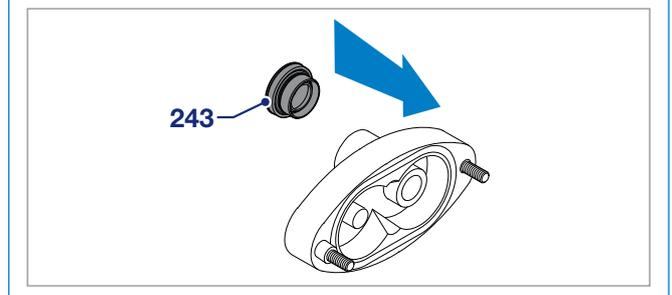
- Insert the complete connection pipe (207) inside compression pipe (32).

Fig. 44



- Leave the sanitized compression pipe on a clean tray. It will be sanitized and fitted during the "Mix preparation procedure".
- Lubricate and fit seal (243) on the pump body.

Fig. 45

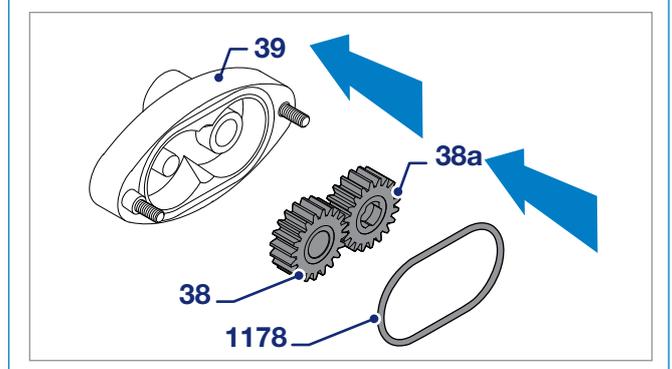


- Lubricate and fit O-ring (1178) in the pump body.
- Lubricate the pump gear surface (38-38A) and their seat on the pump body. Fit the gears.

**NOTE**

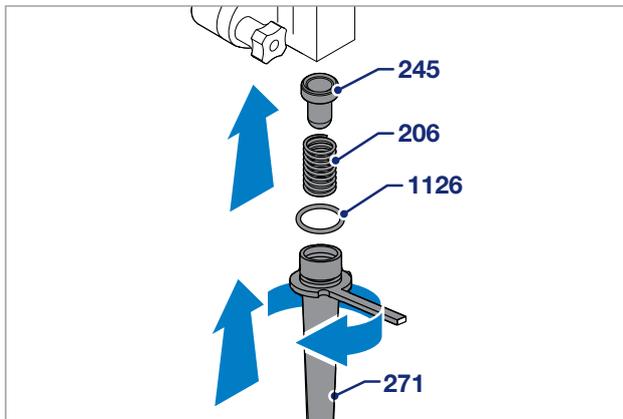
**Do not lubricate the gear teeth and perform wear checks as specified in par. 6.1.**

Fig. 46



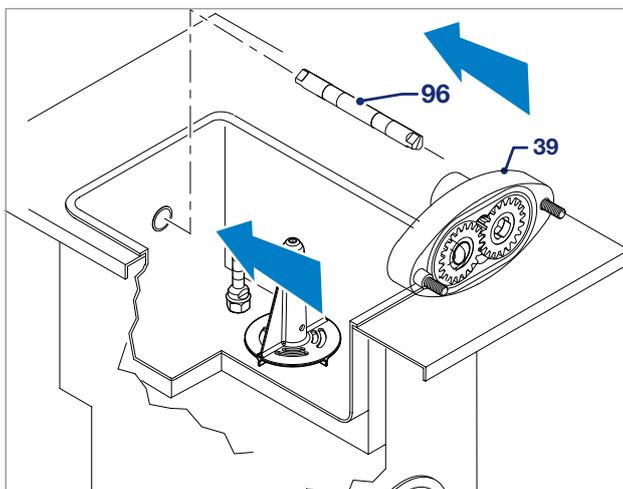
- Lubricate and fit O-ring (1126) on priming pipe (271).
- Fit pump valve (245) and spring (206).
- Keep the pump cover (202) in your hand and insert the priming pipe (271): press and rotate it counter-clockwise.

Fig. 47



- Make sure that machine is in Stop mode, and lubricate pump shaft (96). Fit shaft inside mix hopper rear hole, push it and slightly turn it so that it engages with driving hub. Hold pump body with locking pin hook on the right side and keep pump gears in their positions with your thumbs, then push and turn pump clockwise to align shaft with gears. Then turn pump counter-clockwise so as to lock it onto pin.

Fig. 48

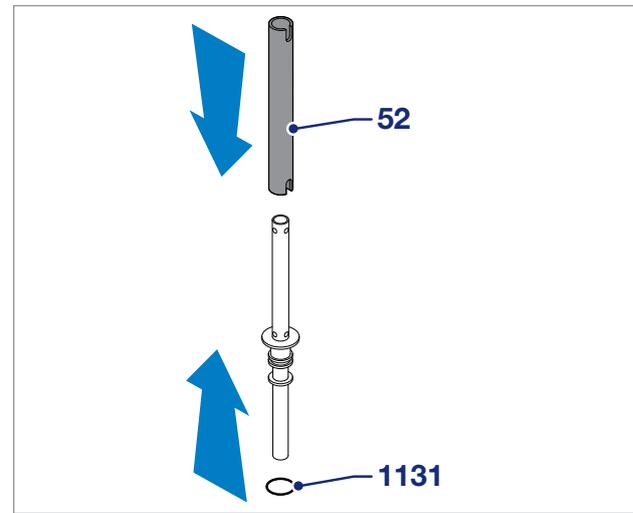


- Assemble the pump cover (202) with the priming pipe at the bottom of the pump body and tighten well with two knobs (8).

### 5.6.12 Reassembling the feeding needle

- Lubricate O-ring (1131).
- Reassemble the feeding needle.

Fig. 49

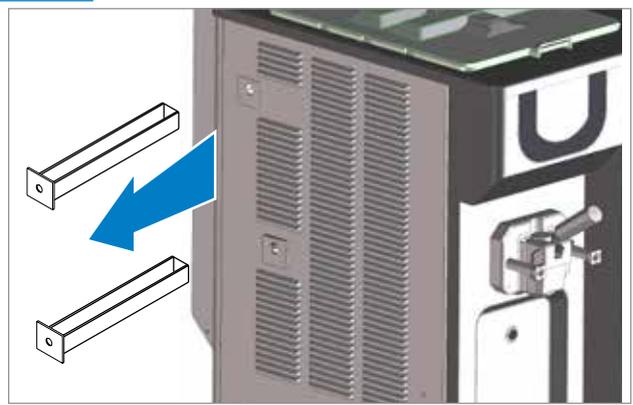


- Reposition the feeding needle in its seat at the bottom of the hopper.

### 5.6.13 Drip Drawer, Drip Tray and Hopper Cover Reassembly

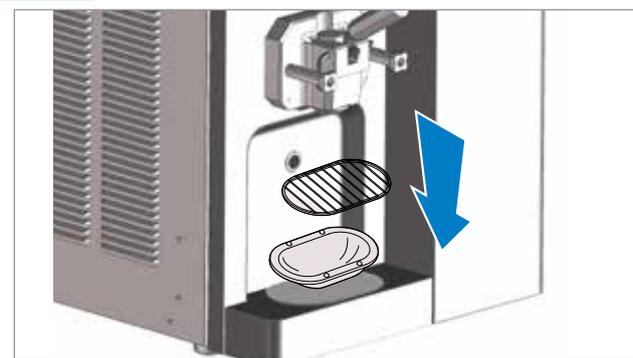
- Install drip drawers into their seats on machine side.

Fig. 50



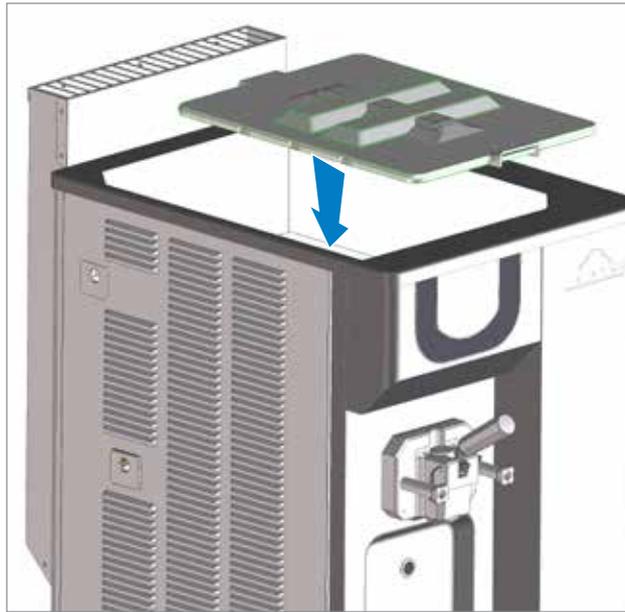
- Refit drip tray and cover.

Fig. 83



- Refit hopper cover.

Fig. 51



#### 5.6.14 Machine complete sanitization

Sanitize the machine before pouring the mix in the hopper.

- With the machine in Stop mode, pour the cleaning/sanitizing solution in the hopper until reaching the maximum level and leave it flow also into the cylinder.
- Use a brush to clean the mix level probe, the mix hopper surface, the mix pump surface or the feeding needle and the hopper beater external side.
- Press Cleaning and let the beater run about 5 seconds. Press Stop to stop the beating.
- Pour a bit of cleaning/sanitizing solution in a bucket.
- Dip the supplied brush in the cleaning/sanitizing solution and clean the spigot door delivery point. Repeat the operation twice.
- Wipe the exterior of machine with a clean sanitized cloth. Repeat the operation twice.
- Leave the cleaning/sanitizing solution in the hopper for the time indicated by the producer.

#### Let the cleaning/sanitizing solution drain.

- Place an empty pail under the spigot door and pull the ice cream dispensing handle.

Fig. 52



- Drain all cleaning/sanitizing solution, then press Clean to let also the last solution residues flow out of the machine. Do not leave beater enabled for more than 5 seconds, then press Stop.
- Fill hopper with drinkable water to thoroughly rinse it, then repeat the above-described drainage operation.



#### NOTE



**Do not let the beater operate for more than needed to complete the cleaning and sanitizing process. Without the lubrication of the fat contained in the mix, the beater scrapers get worn early.**

- To fill the hopper and start the production cycle, refer to paragraph 3.7 of this manual.

## 6. MAINTENANCE



### NOTE



**Never perform operations on the machine using your hands, both during production and cleaning. Before carrying out any maintenance operation, make sure that the machine is in "STOP" position and main switch has been cut out.**

### 6.1 Service type



### NOTE



**Any maintenance operation requiring opening of machine panels must be carried out with machine at standstill and disconnected from the power supply. It is forbidden to clean and lubricate moving parts! "Repairs to the wiring, mechanical, air supply or cooling systems, or to parts of same must be carried out by qualified and authorized personnel and if necessary, according to the routine and extraordinary maintenance schedules as envisaged by the customer with reference to specific operation methods, according to the use for which the machine is destined".**



Operations necessary for correct machine operation are such that most of routine maintenance operations are integrated into the production cycle.

Maintenance operations, such as cleaning of parts in contact with the product are usually to be carried out at the dates shown on the machine display, so as to speed up maintenance operations required.

**Below is a list of ordinary maintenance operations:**

- Seal cleaning and replacement  
Seal must be cleaned at the date shown on the machine display and replaced after a visual inspection and when product is found to be leaking inside drip drawer.
- Beater unit cleaning  
To be performed at the set date shown on the display.
- Spigot assembly cleaning  
To be performed at the set date shown on the display.
- Pump and feeding needle assembly cleaning  
To be performed at the set date shown on the display.

### How to check the gear conditions:

This check must be performed during the machine periodic cleaning.

Detach the compression pipe after having released the cylinder pressure. If the pump parts are fitted correctly and the gears are in good condition, the pump features a good mix delivery; if the pump parts are fitted correctly but the gears are worn out, the mix delivery will be slow.

### How to avoid gear wearing:

- Do not let the pump run idle (i.e. without mix inside of the hopper) or just with water for more than a few seconds: the mix fats act as lubricant for the gears (e.g. with car's oil). Without mix, the gears will wear down earlier.
- No foreign body must reach the internal side of the pump. Even a small plastic part, tomatoes peel or a straw yarn that has accidentally reached the hopper may block the supply and damage the gears.
- During the cleaning operations, handle the gears with the utmost care. Should they fall down, this may compromise their operation.
- Sheet, drip drawer and tray shelf cleaning.

To be carried out daily with neutral soap, seeing to it that cleansing solution never reaches beater unit at its inside.

- Cleaning and sanitization.

To be carried out at the set date shown on the machine display, according to procedures described in section 5 of this manual.



### NOTE



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

### 6.2 Water cooling



By machines with water-cooled condenser, water must be drained from condenser at the end of selling season in order to avoid troubles in the event that the machine is stored in rooms where temperature may fall under 0 °C.

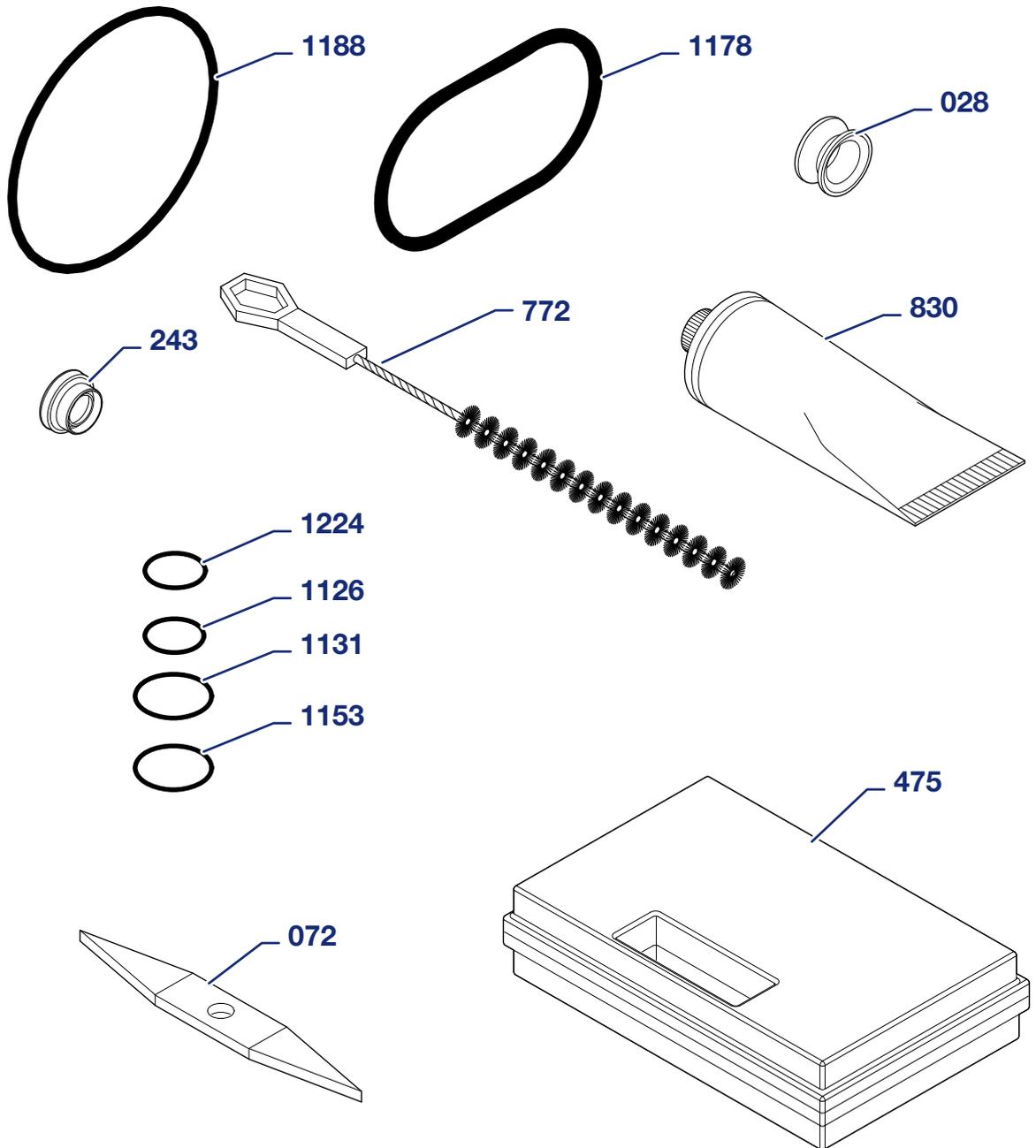
After closing water inlet pipe, disconnect the drain pipe from its seat and let the water flow out from the circuit.

### 6.3 Ordering spare parts

If one or several parts are worn or broken, refer to your dealer to order all necessary spare parts.

**6.4 Supplied accessories**

Fig. 53



**Legend:**

- 28 Beater seal
- 72 Puller
- 243 Pump body seal
- 475 Supplied box
- 772 Brushes
- 830 Carpilube / Lubrifilm tube

- 1126 O-ring
- 1131 O-ring
- 1153 O-ring
- 1178 O-ring
- 1188 O-ring
- 1224 O-ring

## 7. TROUBLESHOOTING

IRREGULARITY	CAUSE	PROCEDURE TO FOLLOW
<b>Compressor starts and then stops after a few seconds.</b>	<ul style="list-style-type: none"> <li>In case of water-cooled machine: water does not circulate.</li> </ul>	<ul style="list-style-type: none"> <li>Open water inlet cock and check that pipe is not squashed nor bent.</li> </ul>
	<ul style="list-style-type: none"> <li>In case of air-cooled machine: air does not circulate.</li> </ul>	<ul style="list-style-type: none"> <li>Check that the machine is positioned in such a way to allow air to circulate from the bottom to the top (at least 50-cm space above the stack).</li> </ul>
		<ul style="list-style-type: none"> <li>Check that the condenser is not clogged by dust or other elements and if necessary call a technician to have it cleaned.</li> <li>Call for service if necessary.</li> </ul>
<b>Mix or ice cream come out above or below piston even though the spigot door is closed.</b>	<ul style="list-style-type: none"> <li>Piston without O-ring or O-ring is worn-out.</li> </ul>	<ul style="list-style-type: none"> <li>Stop the machine and insert or replace it with a new one if worn-out.</li> </ul>
<b>Mix coming out of drip tray.</b>	<ul style="list-style-type: none"> <li>Stuffing box missing or worn-out.</li> </ul>	<ul style="list-style-type: none"> <li>Stop the machine and install it if missing. If worn-out, replace it with a new one.</li> </ul>
<b>The ice cream dispensing handle is hard to move.</b>	<ul style="list-style-type: none"> <li>Dry sugar on piston.</li> </ul>	<ul style="list-style-type: none"> <li>Stop the machine and wash thoroughly and grease piston and O-rings with edible fat.</li> </ul>
<b>Ice cream comes out from spigot door.</b>	<ul style="list-style-type: none"> <li>O-ring missing or not properly fit.</li> </ul>	<ul style="list-style-type: none"> <li>Stop the machine and check and put remedy.</li> </ul>
	<ul style="list-style-type: none"> <li>Front lid knobs not tightened evenly.</li> </ul>	<ul style="list-style-type: none"> <li>Stop machine. loosen and tighten them again.</li> </ul>
<b>Low ice cream overrun.</b>	<ul style="list-style-type: none"> <li>Pump not properly adjusted.</li> </ul>	<ul style="list-style-type: none"> <li>Change the position of the pump central knob.</li> </ul>



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