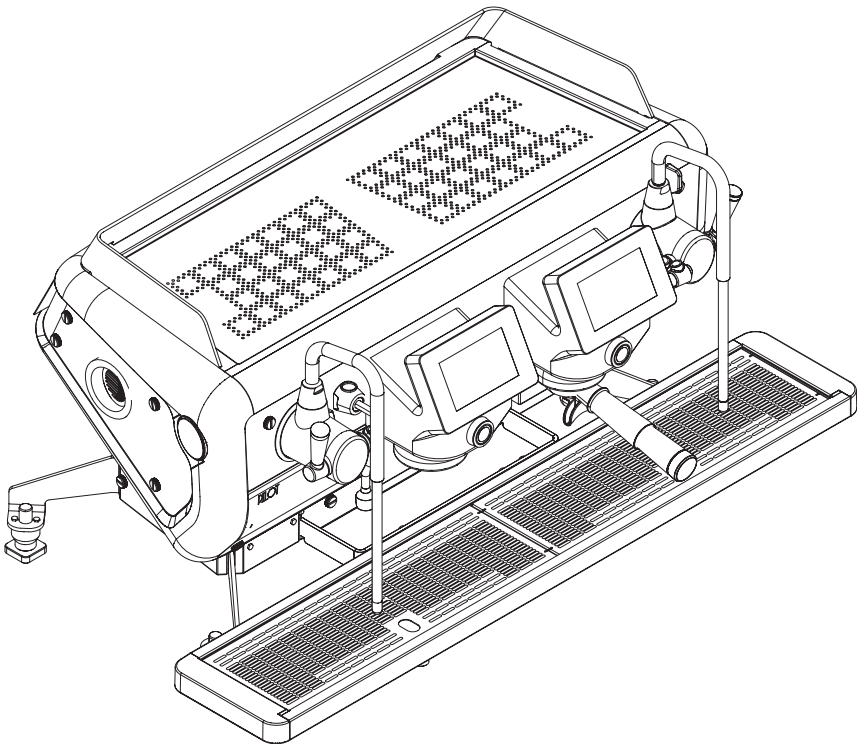
PILOT

BARISTA ATTITUDE

SAE



EN

ORIGINAL INSTRUCTIONS

ESPRESSO COFFEE MACHINE

Use and Maintenance Manual. TECHNICIAN'S Instructions.

IMPORTANT: Read carefully before use. Store for future reference

I. SAFETY PRECAUTIONS

I.I. LEVEL OF TRAINING AND KNOWLEDGE REQUIRED OF THE TECHNICIAN

The Technician is a specialised person that has been specially trained and authorised to carry out the following operations in accordance with current regulations: transport and handling, storage, installation, commissioning, maintenance, decommissioning, disassembling and disposal of the machine.
The Technician must be properly trained and informed regarding any residual risks present during these operations and while the machine is operating.
The Technician must be able to apply all the good practices in compliance with food hygiene principles.

Any unauthorised tampering with any parts of the machine renders the guarantee null and void and relieves the manufacturer of any liability should the machine malfunction or any user accidents occur.

I.II. SAFETY PRECAUTIONS

Even though the machine is provided with all safety devices required to eliminate possible risks for the Technician, there are still certain residual risks.
These so-called residual risks are related to machine parts that may pose a risk to the Technician, if used improperly, evaluated or deactivated incorrectly, because the prescriptions contained in this Manual were circumvented.
The machine is also equipped with appropriate signals placed on residual risk areas, which must be scrupulously observed.
Attention must be paid to the residual risks that are present during the operations described in the following paragraphs as they cannot be eliminated.
Compliance with the installation and machine's safety standards is dependent on the use, installation, maintenance and correct operation of the machine. These factors are the responsibility of the purchaser, Technician and Technician's employer.
The Technician's employer is responsible for hiring and training personnel to correctly install, run and perform maintenance work on the machine and its protection systems.

I.III. TRANSPORT AND HANDLING

Hand crushing risk

Handling operations must always and exclusively be performed by the Technician and in compliance with the current health and safety regulations.
Before starting the transport and/or handling manoeuvres, check the route, dimensions needed, safety distances, places suitable for placing the load down, and the appropriate equipment for the operation.
Handling operations must be carried out by at least 2 people, or with the help of special lifting equipment.
In view of the substantial weight of the equipment, exercise great caution during the handling operations.
The Manufacturer is not responsible for any injury or damage caused by clothing, lifting equipment and personal equipment which was not suitable for the type of intervention that the operator had to carry out.
The packaging material must not be left within the reach of children, since it is a potential source of danger.

I.IV. INSTALLATION

Electrical hazard

High temperature hazard

Risk of explosion

It is prohibited to perform maintenance on moving components

Installation operations must always and exclusively be performed by the Technician and in compliance with the current health and safety regulations.
The appliance's water supply must provide water which is suitable for human consumption, and must conform with the regulations in force in the place of installation.
The Technician must carry out the hydraulic connections in accordance with the hygiene and hydraulic safety standards regarding environmental protection which are in force in the place of installation.
To ensure electrical safety, the appliance must be connected to an effective earthing system, and the system in which it is installed must be equipped with a suitable differential circuit breaker, in compliance with the safety laws and standards.
The effectiveness of the earthing system and functionality of the differential circuit breaker - both of which are fundamental for guaranteeing the appliance's electrical safety - are the responsibility of the person in charge of the electrical system on which the equipment is installed.
The manufacturer cannot be considered responsible for any damage caused by an inadequate electrical system.
Make sure that the power of the electrical system is enough to supply the energy needed for the machine to correctly operate.
The appliance installation operations must be carried out with the electrical mains switched off. To make the electrical system safe and to be able to carry out operations when the machine is not powered, the Technician must apply the rules prescribed by current technical standards (disconnect the power supply, avoid re-closures, check that there is no voltage, etc.).

I.V. MAINTENANCE AND CLEANING

Electrical hazard

High temperature hazard

Risk of explosion

The only personnel authorised to access the service area are those who are knowledgeable about and have practical experience using the appliance, particularly in regards to safety and hygiene.

The maintenance and cleaning operations must always be performed exclusively by the Technician in conformity and with the frequency provided by the health and safety regulations in force in the country of installation.
The maintenance and cleaning operations must comply with the safety regulations:

- Do not carry out maintenance work when the machine is in operation.
- Do not immerse the machine in water.
- Do not spill liquids on the machine or use water jets when cleaning.
- Do not allow maintenance and cleaning operations to be carried out by children or persons who have not been properly trained.
- Do not perform maintenance and cleaning operations other than those described in this manual.

When cleaning, pay attention to the parts of the machine that can become hot:

- Avoid contact with the dispensing group, water spouts and steam nozzles.
- Do not place your hands or other body parts near the steam, hot water or milk dispensing nozzle tips.

Only perform the maintenance and cleaning operations indicated in this manual.
If the problem cannot be resolved, switch off the machine and contact the Manufacturer.
All maintenance operations must be carried out when the power supply has been turned off, the water mains have been closed off, and the machine has completely cooled down.
After maintenance and/or repair work, the components that are used must ensure that the hygiene and safety requirements initially provided for the appliance are still met. These are met by only using original spare parts. After repair or replacement of components related to parts in direct contact with water and food, a washing procedure has to be carried out, as in the case of first installation.

It is the task of the Technician to inform the User about the methods of periodic testing of the pressure equipment and safety devices in accordance with the legislation in force in the country of installation.

I.VI. EMERGENCY SITUATIONS

Should an emergency situation occur as a result of a machine malfunction, adopt the measures provided for in the emergency plan posted in the premises and in any case, proceed to immediately carry out the actions based on the type of problem.

SHORT CIRCUIT FIRE

In the event of a fire caused by the electrical system malfunctioning to which the machine is connected, adopt the following behaviours:

- Disconnect the machine from the power mains via the main switch.
- Call the fire and rescue service.
- Get everyone a safe distance away from the premises.
- Extinguish the flames using a CO_2 fire extinguisher.

General contents

1. INTRODUCTION

Read this manual carefully. It provides important safety information to the Technician regarding the operations indicated in this document.
Keep this Manual in a safe place. If you lose it, you can ask the Manufacturer for another copy.
The Manufacturer of the appliance cannot be held responsible for any damage caused due to the non-observance of the requirements listed in this manual.

Before carrying out operations on the machine, read the instructions contained in this publication and follow the guidelines carefully. Keep this manual and all attached publications in an accessible and secure place.

This document assumes that the machine is installed in a location where the current work safety and hygiene standards are observed.
The instructions, drawings and documentation contained in this Manual are technical and confidential. They are the sole property of the Manufacturer, and may not be fully or partially reproduced in any way.
The Manufacturer reserves the right to make any improvements and/or modifications to the product. We guarantee that this Manual reflects the technical state of the appliance at the time it was released to the market.
We encourage the Technicians to make any proposals in regards to improving both the product or its Manual.

1.1 Guidelines for reading the Manual

This Manual is divided into separate chapters. The chapter order is linked to the temporal logic of the life of the machine. Terms, abbreviations and pictograms are used to facilitate the immediate understanding of the text.
This Manual consists of a cover, index and series of chapters. Each chapter is sequentially numbered. The page number is shown in the footer.
The machine's nameplate is displayed on the machine's nameplate and the EU Declaration of Conformity, whilst the date and revision of the Instruction Manual is provided on the last page.

Abbreviations

Sec. = Section
Chap. = Chapter
Para. = Paragraph
P. = Page
Fig. = Figure
Tab. = Table

Units of measurement

The units of measurement are those provided by the International System (SI).

1.2 Storing the Manual

The Instruction Manual must be stored carefully. The manual should be stored, handled with care with clean hands and not placed on dirty surfaces. The Manual must be stored in an environment protected from moisture and heat.
Do not remove, tear or arbitrarily modify any of its parts.
At the Technician's request, the Manufacturer can provide additional copies of the machine's Instruction Manual.

1.3 Method for updating the Instruction Manual

The Manufacturer reserves the right to modify and make improvements to the machine without providing notice or updating the Manual that has already been received.

Should the Manual become illegible or otherwise hard to read, the Technicians must request a new copy from the Manufacturer before carrying out any operations on the machine.
It is absolutely forbidden to remove or rewrite parts of the Manual.
The instructions, drawings and documentation contained in this manual are confidential and the sole property of the Manufacturer. They may not be reproduced in any way, either in full or in part, without prior authorisation.
The Technician is responsible for complying with the instructions contained in this Manual.
Should any incident occur as a result of these recommendations being used incorrectly, the Manufacturer declines any liability.
This manual is also available on the manufacturer's website (indicated on the cover of the manual).

1.4 Recipients

This Manual is intended for the Technician who is responsible for carrying out the following operations on the machine:

- Transport and handling.
- Storage.
- Installation.
- Commissioning.
- Maintenance.
- Cleaning.
- Spare parts replacement.
- Emergency operations and breakdowns.
- Decommissioning.
- Disassembly.
- Disposal (refer to the retailer if not directly responsible).

RECIPIENT QUALIFICATIONS

The machine is intended for a professional non-generalised use, therefore the Technician must:

- Have attended the training courses organised by the Manufacturer relating to the type of machine.
- Be aged 18 and over.
- Be physically and mentally fit to use the machine.
- Be able to understand and interpret the Instruction Manual and the safety requirements.
- Know the safety procedures and how they are implemented.
- Be able to use the machine.
- Have understood the procedures of use as defined by the machine's Manufacturer.

1.5 Glossary and Pictograms

This paragraph lists uncommon terms or terms whose meanings are different than those most commonly used.
Abbreviations are explained below, as well as the meaning of pictograms describing the operator's qualification and the machine status; they are used to quickly and uniquely provide the information needed to correctly and safely use the machine.

1.5.1 *Glossary*

User

The person in charge of operating the machine and performing the routine cleaning operations indicated in this manual.

Technician

A specialised person who has been specially trained and authorised to carry out the following operations in accordance with current regulations: transport and handling, storage, installation, commissioning, maintenance, decommissioning, disassembling and disposal of the machine.

Danger

A potential source of injury or damage to health.

Dangerous area

Any area in the vicinity of the machine where the presence of a person constitutes a risk to the safety and health of that person.

Risk

Combination of the probability and severity of an injury or damage to health that can arise in a hazardous situation.

Guard

Machine component used specifically to provide protection by means of a physical barrier.

Personal protective equipment (PPE)

Clothing or equipment worn by someone to protect their health or safety.

Intended use

The use of the machine in accordance with the information provided in the instructions for use.

Machine status

The machine status includes the mode of operation and the condition of the machine's safety devices.

Residual risk

Risks that remain despite adopting the protective measures integrated into the machine's design and despite the guards and complementary protective measures that have been adopted.

Safety component:

- Designed to perform a safety function.
- Whose failure and/or malfunction endangers the safety of persons.

1.5.2 *Pictograms*

Descriptions preceded by these symbols contain very important information/requirements, particularly in regard to safety. Failure to comply with these may result in:

- A safety risk for those operating the machine.
- User injury, including serious injury (in some cases even death).
- The guarantee being rendered null and void.
- The Manufacturer waiving liability.

GENERAL DANGER symbol used when there is a risk of permanent serious injury that would require hospitalisation, or in extreme cases, even cause death.

ELECTRICAL HAZARD symbol used when there is a risk of permanent serious injury that would require hospitalisation, or in extreme cases, even cause death.

HIGH TEMPERATURE HAZARD symbol used when there is a risk of permanent serious injury that would require hospitalisation, or in extreme cases, even cause death.

HAND CRUSHING RISK symbol used when there is a risk of permanent serious injury that would require hospitalisation, or in extreme cases, even cause death.

RISK OF EXPLOSION symbol used when there is a risk of permanent serious injury that would require hospitalisation, or in extreme cases, even cause death.

ATTENTION symbol used when there is a risk of minor injury that could require medical attention.

WARNING symbol used when there is a risk of minor injury that could be treated with first-aid or similar measures.

NOTE symbol used to provide important information about the topic.

It is prohibited to perform maintenance on moving components due to the risk of permanent serious injury that could require hospitalisation.

Mandatory symbol indicating that safety gloves must be worn; used when there is a risk of permanent serious injury that would require hospitalisation.

Mandatory symbol indicating that eye protection must be used when there is a risk of permanent serious injury that would require hospitalisation.

Mandatory symbol indicating that safety shoes must be used when there is a risk of permanent serious injury that would require hospitalisation.

Mandatory symbol indicating that the documentation must be read, used to make the Technician aware of the importance of this action for their safety.

1.6 Guarantee

All of the machine's components are covered by a 12-month guarantee, except for electrical and electronic components and parts prone to wear and tear.
If any work is carried out on the machine electronics when the machine is still live, any guarantee will automatically be invalidated.

2. IDENTIFICATION OF THE MACHINE

2.1 Make and model designation

The machine and model ID information is found on the machine's NAMEPLATE and in the provided EU DECLARATION OF CONFORMITY.

2.2 General description

The machine described in this Manual consists of mechanical, electrical, and electronic components which, when used together, produce milk, coffee and water-based beverages. This product is manufactured in compliance with the EU Directives, Regulations and Standards indicated in the EU DECLARATION OF CONFORMITY provided with the machine.

2.3 The manufacturer's customer support service

CMA MACCHINE PER CAFFÈ S.R.L.
Via Condotti Bardini, 1
31058 SUSEGANA (TV) - ITALY
Tel. +39 0438 6615 - Fax +39 0438 60657
E-mail: ask@stormbaristaattitude.com
Web-site: www.barista-attitude.com

RCW GERMANY GMBH
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71723 GROSSBOTTWAR - GERMANY
Tel. +49 7148 1629-991 - Fax +49 7148 1629-992
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Web-site: www.barista-attitude.com

RCW INTERNATIONAL LIMITED
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300518 TIMISOARA TIMIS - ROMANIA
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E-mail: service@rcwromania.ro
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1597 Post Rd Fairfield
CONNECTICUT 06824 - USA
Web-site: www.barista-attitude.com

RCW RUS LLC
Business Center PORTPLAZA
Proektiruemy proezd 4062, 6/16
115432 MOSCOW - RUSSIA
Tel. +7(495) 925 75 56
Web-site: www.barista-attitude.com

2.4 Intended use

The espresso coffee machine has been designed to professionally prepare hot beverages such as tea, cappuccinos and long, strong and espresso coffee, etc. The appliance is not intended for domestic use, it is intended for professional purposes only.
The machine can be used under all the conditions set forth, contained or described in this document; any other conditions must be considered dangerous. The machine must be installed in a place where its access is restricted to qualified personnel only who have received suitable training (coffee shops, restaurants, etc.).

Permitted uses

Are all those uses which, complying with the technical characteristics, the operations and the uses described in these documents, do not endanger the safety of the User and/or cause damage to the machine or the surrounding environment.

All uses not specifically mentioned in this Manual are prohibited and must be expressly authorised by the Manufacturer.

Intended uses

The machine has been designed exclusively for professional use. The use of products/materials other than those specified by the Manufacturer, which can cause damage to the machine and be dangerous for the operator and/or those in close proximity to the Machine, is considered incorrect or improper.

Contraindications of use

The machine must not be used:

- For uses other than those indicated in this paragraph or for uses that differ from or are not mentioned in this Manual.
- With materials other than those listed in this Manual.
- With safety devices that have been disabled or are not working.

Incorrect use of the machine

The type of application and performance that this machine has been designed for, requires a number of operations and procedures that cannot be changed, unless previously agreed with the Manufacturer. All permitted behaviours are indicated in this document; any operation not listed and described herein is to be considered improper and therefore, hazardous.

Improper use

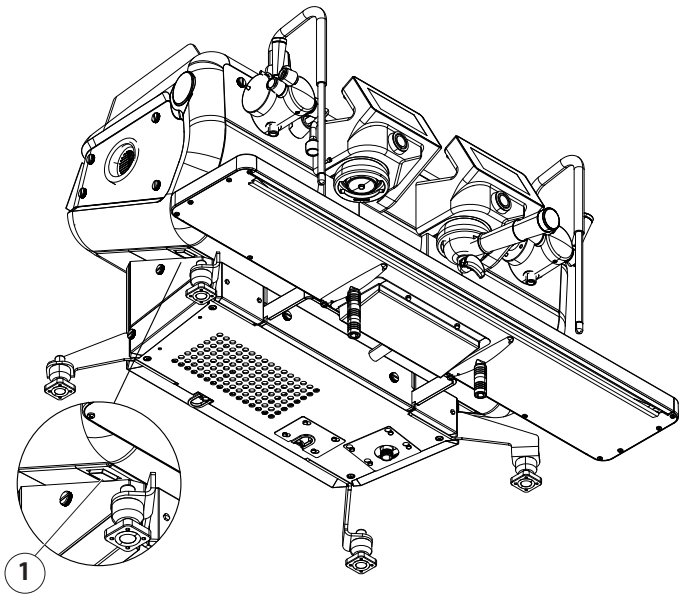
The only permitted uses are described in the Manual; any other use is considered improper and therefore, hazardous.

General safety features

The Technician must be aware of accident risks, safety devices and the general safety rules set forth in EU directives and by the legislation of the country where the machine is installed.
The Technician must know how all the machine's devices work. He must also have fully read and understood this Manual. Maintenance work must be performed by the Technician after the machine has been properly prepared. The tampering or unauthorised replacement of one or more machine components, the use of accessories which modify its use and the use of materials other than those recommended in this Manual, can cause accidents.

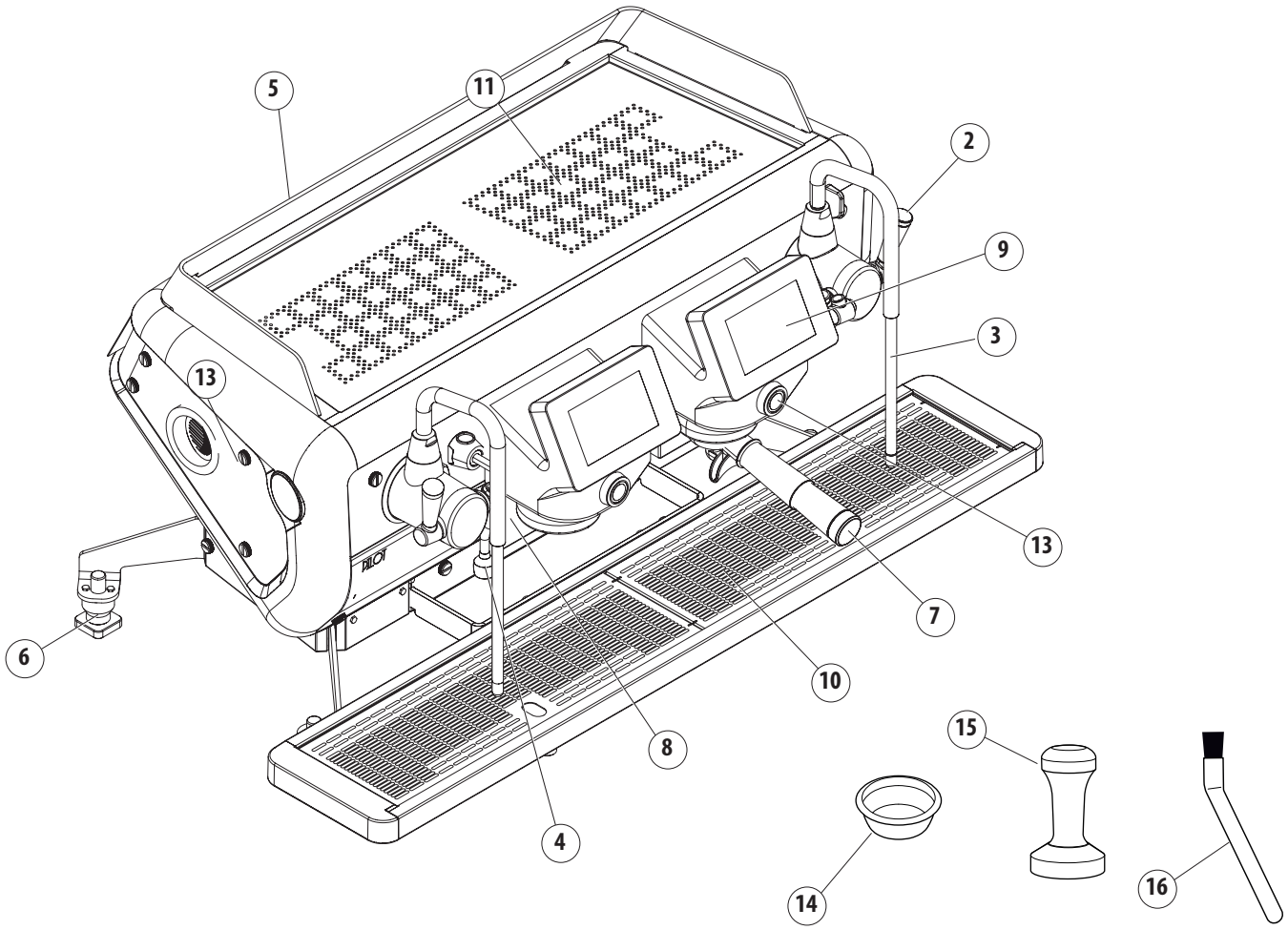
2.5 Machine diagram

1. Start-up light switch.
2. Steam lever.
3. Anti-scalding steam nozzle.
4. Hot water nozzle.
5. Logo back light.
6. Adjustable foot.
7. Filter holders.
8. Dispensing compartment LED light.
9. Display touchscreen.
10. Cup holder grille.
11. Cup warmer surface.
12. Manual coffee button.
13. USB SOCKET (*)
14. Blind filter.
15. Tamper.
16. Cleaning brush.



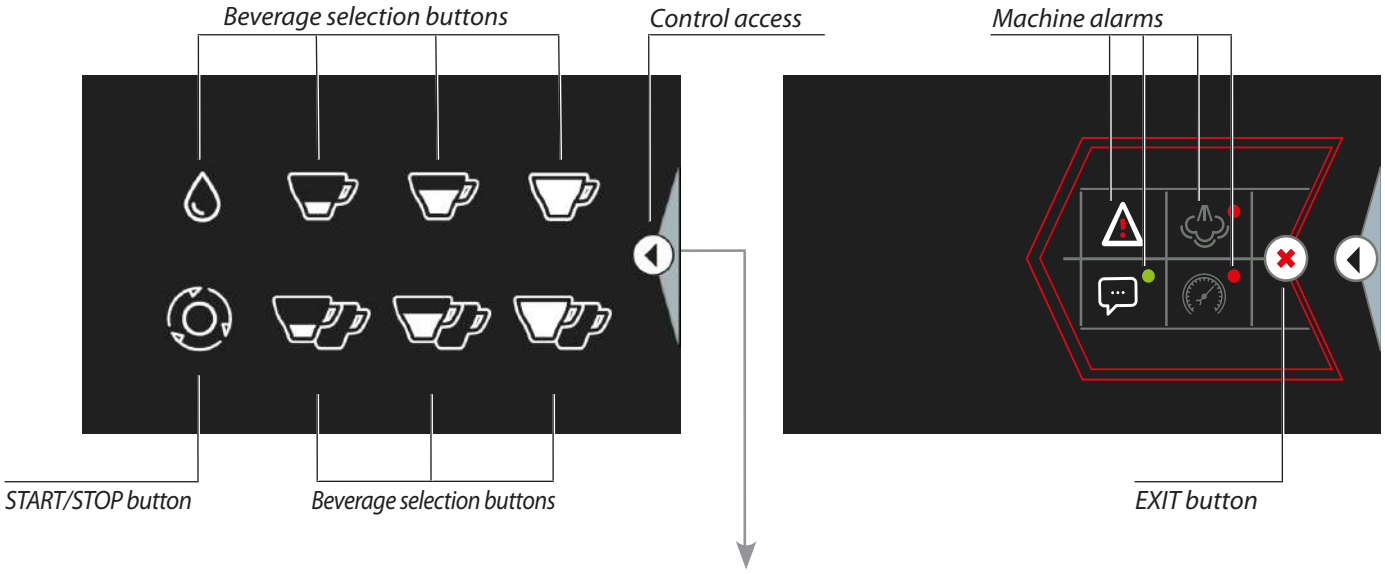
(*) To access the USB socket, it is necessary to remove the side panel.

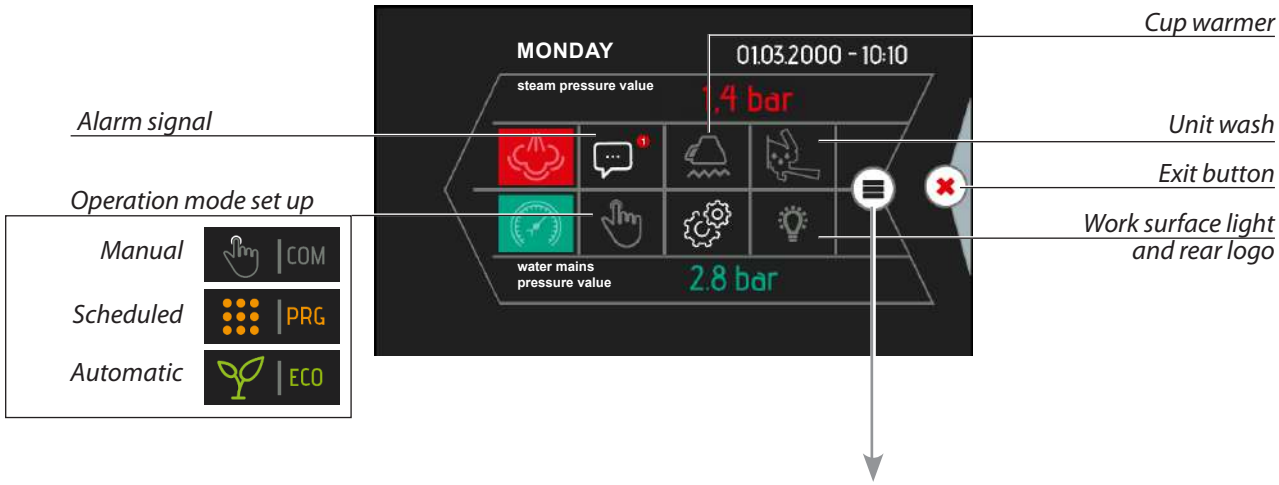
The USB socket (13) must only be used with specific key given to the Technician. Do not connect other devices to the USB socket because they could damage the electronic control unit.

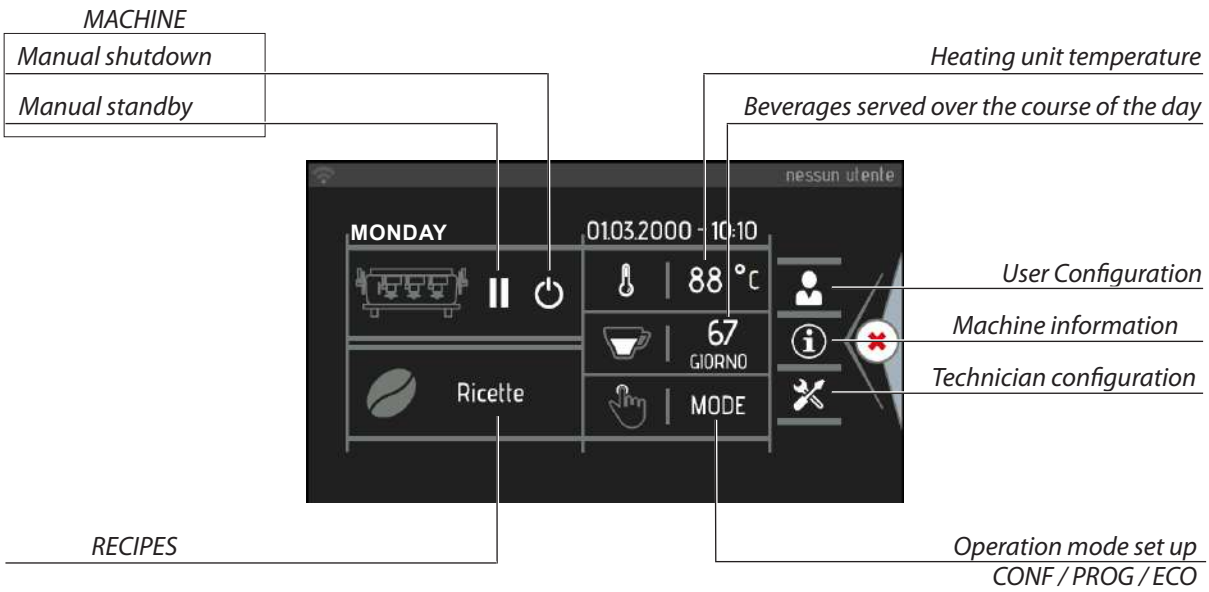


2.6 Control panel

The machine is completely controlled via the touchscreen display located on the front. In case of problems, the display will also show machine malfunctions, if any:

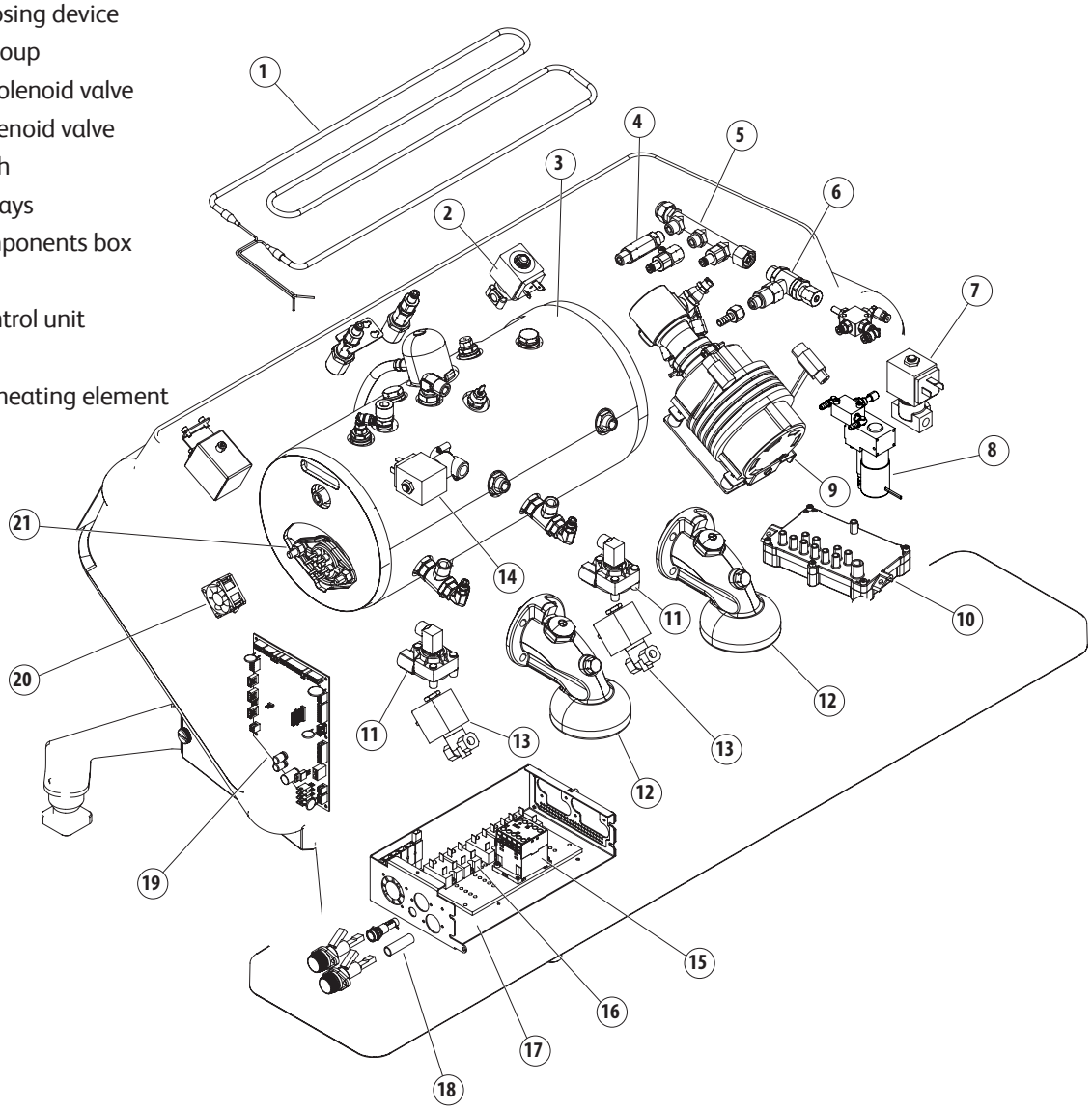






2.7 Internal components

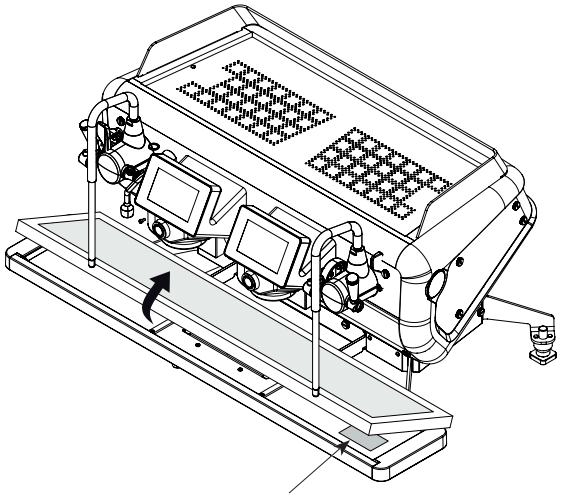
1. Cup warmer heating element
2. Water filling solenoid valve
3. Heating unit heating element
4. Double non-return valve
5. Dispenser
6. SCNR valve (expansion + non-return)
7. Hot water mix solenoid valve
8. Air suction pump
9. Motor pump
10. Discharge conveyor
11. Volumetric dosing device
12. Dispensing group
13. Pre-infusion solenoid valve
14. Hot water solenoid valve
15. Remote switch
16. Solid state relays
17. Electrical components box
18. Fuses
19. Electronic control unit
20. Fan
21. Heating unit heating element



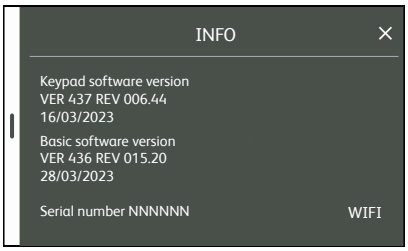
2.8 Data and marking

The machine's general technical data is provided in the following table:

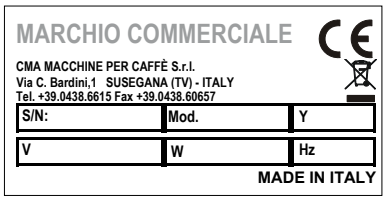
MODEL		2GR	3GR
Power	220-240 V	3.300 - 4.650 W	4.600 - 6.700 W
	380-415 V		
Frequency		50 - 60 Hz	50 - 60 Hz
Heating unit capacity		9 l	14.7 l
Width		1022 mm	1110 mm
Depth		630 mm	
Height		530 mm	
Net weight		117 kg	--- kg
Safety valve calibration		0.19 MPa (1.9 bar) +/- 0.015 MPa	
Steam heating unit operating pressure		0.08 - 0.14 MPa (0.8 - 1.4 bar)	
Mains water pressure		0.15 - 0.6 MPa MAX (1.5 - 6 bar MAX)	
Coffee dispensing pressure		0.8 - 0.9 MPa (8 - 9 bar)	
Working environment temperature		5 - 35°C 95° MAX. R.H.	
Sound pressure level		< 70 dB	



The nameplate is affixed under the drainage tray



In compliance with Directive 2006/42/EC, the machine is marked with the EC code with which the manufacturer declares under his responsibility that the machine is safe for persons and things.
Alternative markings can be affixed according to the target markets, provided they comply with current product regulations.
The nameplate which provides the appropriate markings, identification data and specific technical data, is affixed under the drain tray. An example of the nameplate is shown below:



Enter the "Menu" section (see the instructions in the following chapters) and select the button to view the machine's serial number.

When contacting the Manufacturer, always provide the following information:

- S/N - machine serial number.
- Mod. - machine model.
- Y - year of manufacture.

The appliance data can also be found on the label located on the machine's packaging.

It is forbidden to remove or modify the nameplate. Should it deteriorate or become illegible, contact the Manufacturer.

To correctly connect the machine to the electric mains, refer to Chap. 16.

2.8.1 *Energy Saving System*

The machine is equipped with software that manages the automatic standby system during breaks, the night energy-saving feature and the smart temperature adjustment.
This allows a considerable amount of energy to be saved during night breaks, whilst maintaining the machine in a condition that can quickly return to operating mode.

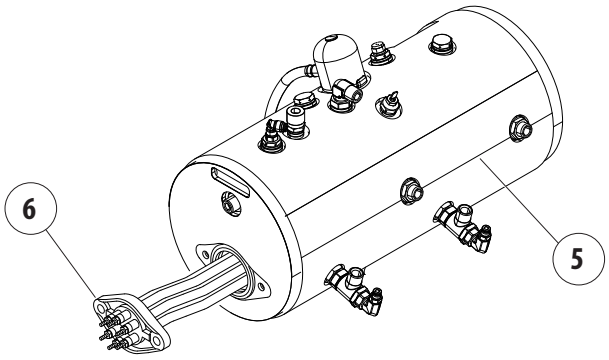
Three choices are provided:

- COM : manual Standby activation
- PRG : programmed operation
- ECO : self-learning management

To activate the Energy Saving mode, see para. 6.5.

2.8.2 *Heating unit*

The fully-insulated steam heating unit (5) is used to produce steam to dispense hot water or heat/froth hot beverages.
The heating unit's water is heated by an electric heating element (6).

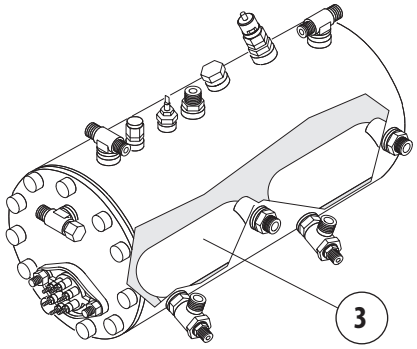


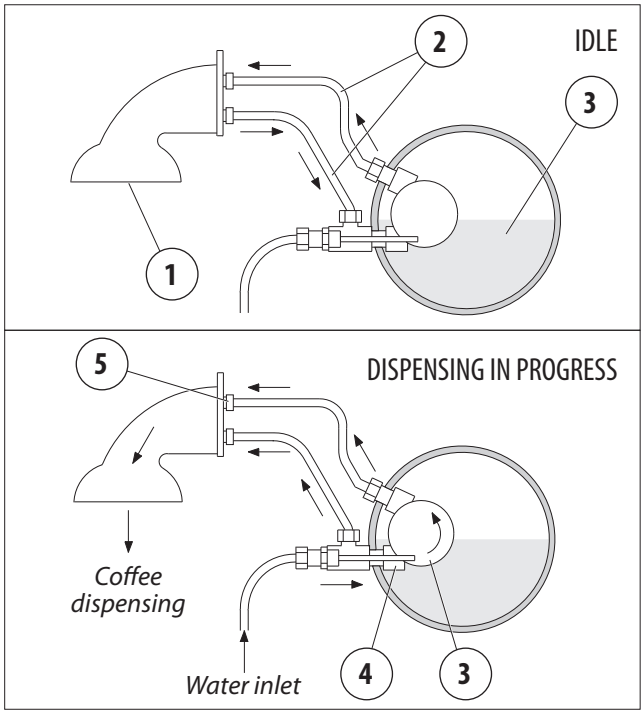
2.8.3 *Dispensing group*

The system anticipates the heating of the dispensing group (**1**) through a thermosiphon circuit (**2**) connected to the heat exchanger (**3**). The same water is used when dispensing coffee, thus ensuring that all coffees are the same temperature:

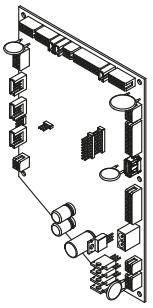
- The solenoid valve and the pump are activated in order to send cold water into the exchanger (**3**) through the injector (**4**).
- The heating unit water is carried from the exchanger (**3**) to the group (**4**) for dispensing.
- The pump allows the water flow pressure to increase to 8-9 bar for dispensing.

The injector (**4**) and the flow reducer (**5**) are important components for the dispensing group's operation. To increase the coffee extraction temperature, remove the flow reducer (**5**) or replace it with one that has a bigger diameter. To decrease the temperature, replace it with one that has a smaller diameter. If necessary, the exchangers can be replaced by removing the flange and disconnecting the relative hydraulic circuit pipes. These operations should be carried out when the machine has been switched off and has cooled down: always replace the seals.



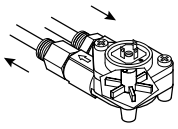


2.8.4 *Electronic control unit*



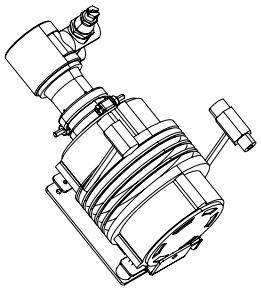
The electronic control unit is the machine's "brain", since it monitors and controls the appliance's full operation.
The information concerning the installed software (date and version) can be seen on the display when the machine is turned on.

2.8.5 *Volumetric dosing device*



The volumetric dosing device measures the quantity of water sent to the group in order to dispense coffee.
The dosing device generates electrical impulses that are sent to the control unit and counted during the dispensing of the coffee units.

2.8.6 *Motor pump*



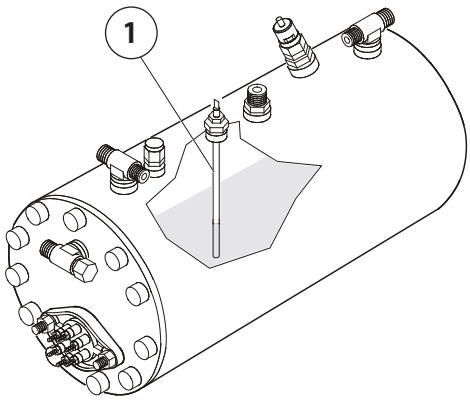
This is a component that feeds the machine, by raising the water pressure to 8 - 9 bar to dispense coffee, to automatically fill the heating unit and to dispense the tea mixture.

2.8.7 *Automatic Water Entry*

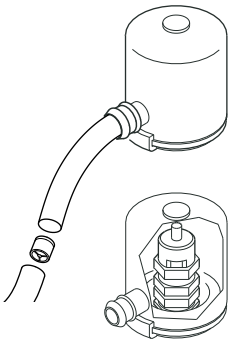
The Automatic Water Entry system is designed to check the heating unit level. It consists of:

- A probe inserted into the heating unit (**1**) consisting of a stainless steel rod.
- An electronic control unit.
- A hydraulic circuit with a motor pump and solenoid valve which are controlled by the electronic control unit.

If the water level drops while the machine is operating normally, the level probe (1) sends a signal to the electronic control unit, which activates the motor pump and the filling solenoid valve, which in turn restores the water level in the heating unit.
To prevent any flooding caused by machine malfunctions or leaks in the hydraulic circuit, the electronic control unit has a "Timeout" device which stops the automatic water filling operation after a maximum operating time.

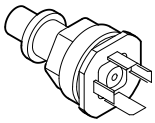


2.8.8 *Overflow device*



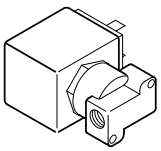
The cover installed on the pressure relief valve makes it possible to collect any water and steam which may leak from the heating unit due to a malfunction and channel it to the drain tray, via a special pipe.

2.8.9 *Pressure transducer*



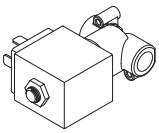
The pressure transducer converts the pressure into an electrical signal that can be managed remotely (e.g., from the display).

2.8.10 *Pre-infusion solenoid valve*



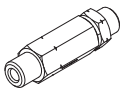
The pre-infusion solenoid valve is used to block the flow of water to the exchanger when it receives the activation command.

2.8.11 *Tea mixture solenoid valve*



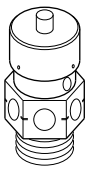
This solenoid valve has the function of adding cold water to that dispensed by the heating unit, with the possibility regulating its flow, and thus to obtain the desired temperature of the tea.

2.8.12 *Double non-return valve*



The double non-return valve is located at the entry of the supply water.
Has the function of satisfying the requirements of the EN 61770 regulation in other words to prevent the return of non potable water in the water network.

2.8.13 *Pressure relief safety valve*



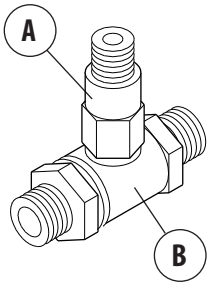
The pressure relief safety valve has a calibration of 0.19 MPa (1.9 bar) +/- 0.015 MPa in order to ensure that the pressure in the steam heating unit does not exceed 0.21 MPa (2.1 bar). Should a fault occur, the capacity of the valve is such as to be able to eliminate all the excess pressure in the heating unit.

The safety valve should be checked regularly as indicated in para. 10.3.5.

2.8.14 *Expansion valve + non-return valve*

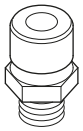
This is a valve consisting of an expansion valve and a check valve.

- **Expansion valve (A):**
  the cold water sent by the pump to the exchanger is heated. This heating causes an increase in the volume of water. To limit pressure increases in the hydraulic circuit, the valve limits the maximum internal pressure to 1.25 MPa (12.5 bar) ± 0.05 MPa (0.5 bar).
- **Non-return valve (B):**
  its function is to prevent the water back-flowing into the hydraulic circuit exchangers.



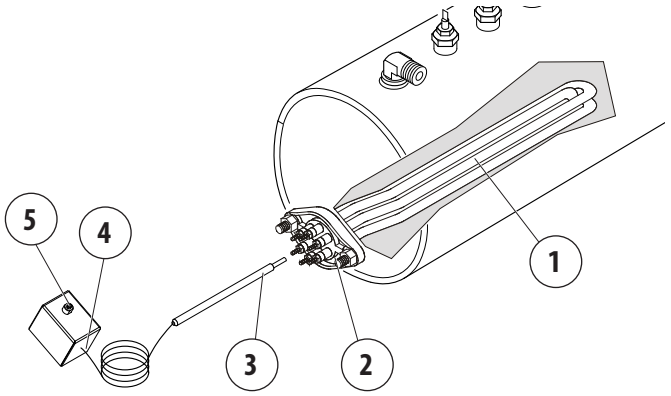
2.8.15 *Negative pressure valve*

The purpose of the negative pressure valve is to prevent liquids from back-flowing through the steam nozzle when they are being heated. Furthermore, the excess air inside the heating unit is removed during the machine's heating phase.



2.8.16 *Thermostat*

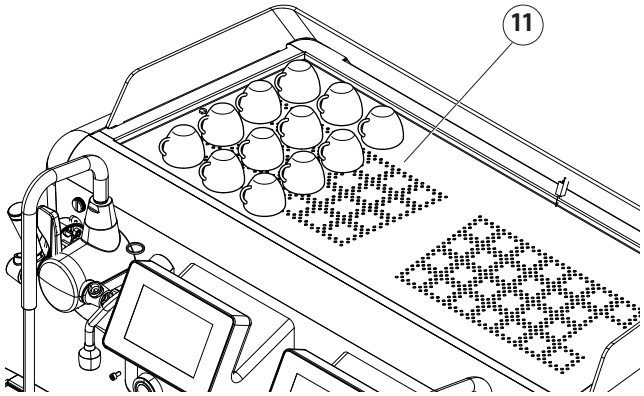
The thermostat prevents any damage occurring to the electric heating element if there is no water in the heating unit. The thermostat bulb (3) is located inside a sheath (1) in the middle of the heating elements. The thermostat contacts (4) are connected to the electric heating element (2). If the electric heating element is exposed due to a failure to fill the heating unit with water, the temperature of the heating element increases dramatically. At this points the intervention of the thermostat interrupts the supply to the remote switch which removes power from the heating element.



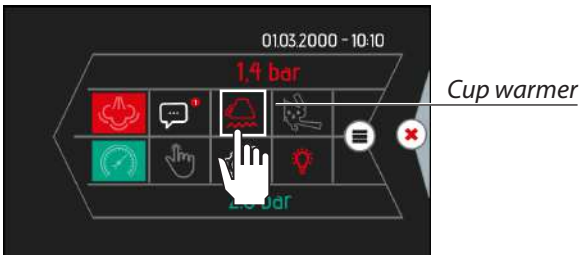
To reset the thermostat, press the central button (5). However, before starting the machine up again, identify what prevented the water from being fed into the heating unit.

2.8.17 *Cup warmer*

Place the cups to be heated on the specific shelf (11).



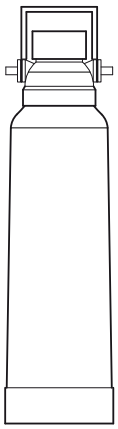
To activate the cup warmer, press the button.
When the button turns red, the cup warmer is on.



To change the cup warmer temperature, see para. 8.4.

2.8.18 *Water filter*

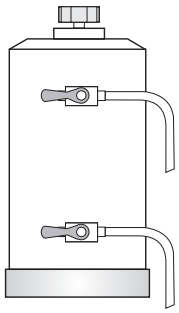
In the mains water, non-soluble salts are present which cause limescale to form in the heating unit and other parts of the machine.
Drinking water can also contain heavy metals and substances, such as chlorine which are harmful to health.
The filter makes it possible to eliminate or substantially reduce the presence of these mineral salts.
The cartridge contained in the water filter must be replaced at the frequency specified by the manufacturer.



To use and maintain the water filter, follow the instructions provided in para. 10.4.

2.8.19 *Water softener*

The resin water softener can be used as an alternative to the Water Filter.
This component has the property of retaining the calcium contained in the water. For this reason, the resins become saturated after a certain period and must be regenerated with coarse kitchen salt (NaCl, sodium chloride) or special water softening salt. It is very important to regenerate the water softener within the established times. However, in locations where the water is very hard, it will need to be regenerated more frequently. The same rule can be applied to locations where there is a large consumption of hot water for tea, etc.

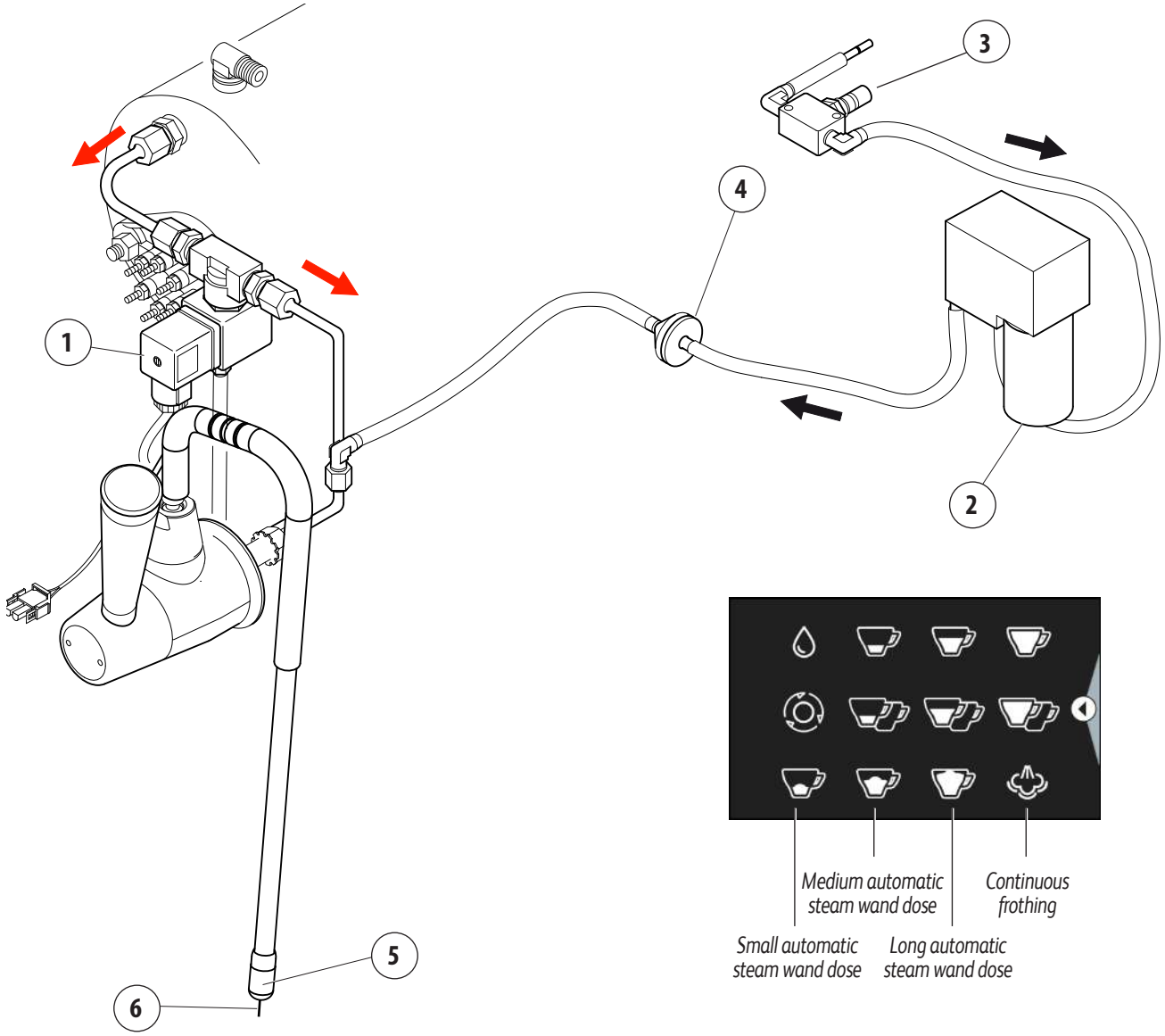


To use and regenerate the water softener, follow the instructions provided in para. 10.5.

2.8.20 *Automatic steam wand (optional)*

This system can be used for automatically heating and frothing milk at the programmed temperature.
The operating principle is listed below:

- Select the desired key on the display, e.g. the button.
- The solenoid valve opens (1) which consequently allows the steam to flow from the heating unit to the automatic steam wand.
- The system simultaneously activates the air suction pump (2) which is controlled by the electronic control unit. The milk froth can be adjusted by changing the amount of air intake when opening the valve (3).
- After the air has passed through the non-return valve (4), it mixes with the steam.
- Steam comes out of the nozzle (5).
- The probe (6) that is connected to the machine's electronic control unit, detects the temperature of the milk while it is being heated.
- Once the set milk temperature has been reached, the electronic system stops the air and steam from being dispensed.



3. TRANSPORT AND HANDLING

3.1 Safety precautions

Carefully read the instructions provided in the chapter I.

3.2 PPE features

When transporting the machine, the following PPE is required:

The use of protective gloves is mandatory against cuts and abrasions.

The use of safety shoes is mandatory.

3.3 Dimensions and weight

MODEL	2GR	3GR
Width (W)	1022 mm	1110 mm
Depth (D)	630 mm	630 mm
Height (H)	530 mm	530 mm
Net weight	117 kg	-

3.4 Handling the packed machine

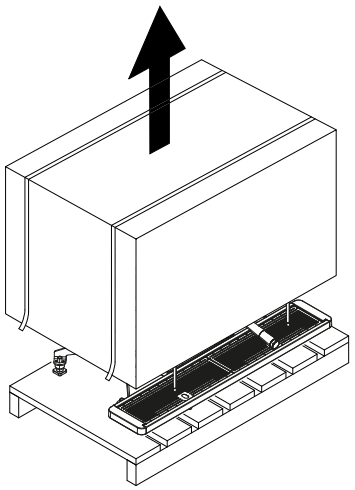
Upon arrival, the machine must be unloaded and handled with care, carefully following the instructions on the packaging, or those contained in this Manual.

It is very important to check that the maximum load capacity of each piece of lifting equipment, is at least equal to the weight of the loads to be lifted plus the safety margins which are required by current standards.

3.5 Unpacking the machine

Only remove the machine from its packaging when it is ready to be installed, in order to prevent accidental collisions which could damage it:

- Open the packaging, taking care not to damage the machine.
- Remove and take out the machine guards and equipment inside the packaging.
- Remove the machine.
- Dispose of the packaging in compliance with the current waste regulations.



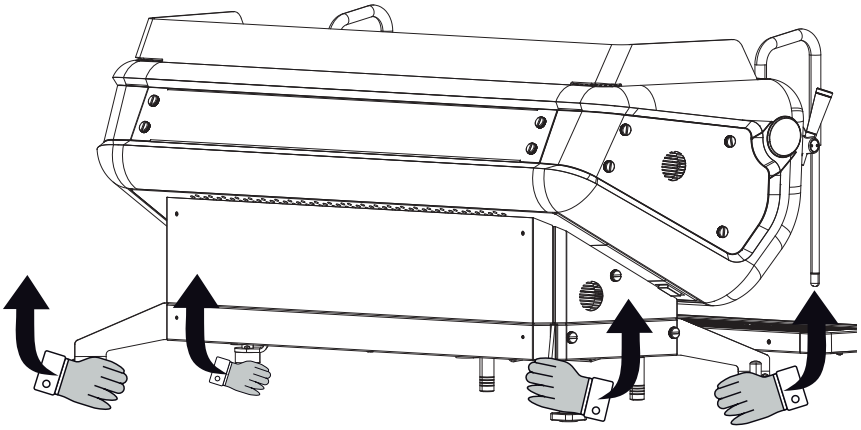
After having unpacked the machine check its condition, making sure that there are not any parts damaged during transport or missing parts. Should there be any, immediately inform (no later than 7 days after delivery) both the CARRIER and the MANUFACTURER, indicating the machine data and providing photographic evidence.
We recommend that you keep the packaging until the guarantee has expired.
Wood, nails, staples, cardboard: non-polluting material which must be recycled properly.
Plastic: polluting material that must not be burned (danger of toxic fumes), nor disposed of as normal waste; to be disposed of according to current regulations.

3.6 Lifting the machine

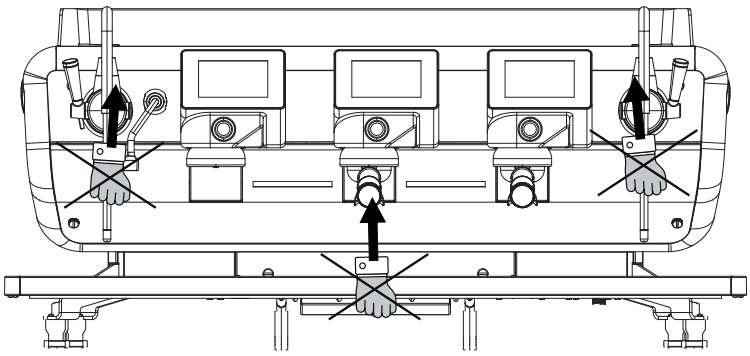
The machine can only be lifted by a solid grip of its legs or feet.

Do not move the machine by its other components (steam nozzles, filter holders, drain tray, etc.) as this could lead to the components becoming damaged and/or breaking, and potentially cause the machine to fall.

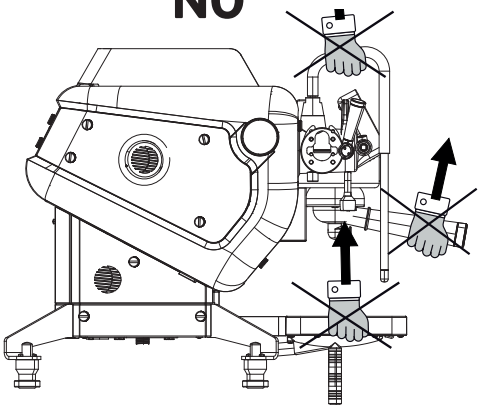
YES



NO



NO



4. STORAGE

4.1 Overview

In the waiting period prior to installation, the machine must be stored by the Manufacturer or an Authorised Distributor.

4.2 Storing the machine after operation

If the machine is not used after a certain period of time, store it in the following conditions:

- Disconnect the machine from the water and electrical mains.
- Empty all the internal circuits of water.

Store the machine taking the following precautions:

- Store in a closed environment.
- Protect it from shocks and stresses.
- Avoid contact with corrosive substances.

The machine was designed and built to operate in environments with the following characteristics:

- Room temperature: +5°C - +35°C
- Max. relative humidity: 50 % (at 40°C)

Any variation in these characteristics may decrease the average life of some of the machine's components. Typical examples:

- Room temperature: premature degrading of the motors.
- Relative humidity: premature degrading of seals and electronics.

If the environmental features are significantly different than those listed, contact the MANUFACTURER before they become a potential problem.

Before starting the machine up after it has been placed in storage, the equipment must be fully inspected.

5. INSTALLATION

5.1 Safety precautions

Carefully read the instructions provided in the chapter I.

If the machine is used before the technician has performed all the installation operations, this may result in serious damage to the appliance and people.

If any work is carried out on the machine electronics when the machine is still live, any guarantee will automatically be invalidated.

5.2 PPE features

When installing the machine, the following PPE is required:

The use of protective gloves is mandatory against cuts and abrasions.

The use of eye protection is mandatory.

The use of safety shoes is mandatory.

5.3 Environmental conditions

5.3.1 *Room temperature*

The electrical and electronic equipment that has been installed on the machine, has been designed and made to function properly in environments where the temperature is between +5°C and +35°C.

5.3.2 *Relative humidity*

The electrical and electronic equipment installed on the machine, has been designed and made to function properly in environments where the relative humidity does not exceed 50% at a temperature of 40°C, or 90% at a temperature of 20°C.

5.3.3 *Altitude*

The altitude of the installation site must not exceed 2000 m.

5.4 Installation and operation spaces

Before the machine arrives, a suitable environment must be prepared:

- The appliance is not suitable for installation in an area where a water jet may be used.
- The machine is not suitable for outdoor use.
- The machine must not be used inside kitchens.
- The room must be suited for the intended use with adequate space to comfortably use the machine.
- The lighting must be adequate and conform with current standards.
- The earthing system must comply with current standards.
- The electrical system must comply with current regulations.

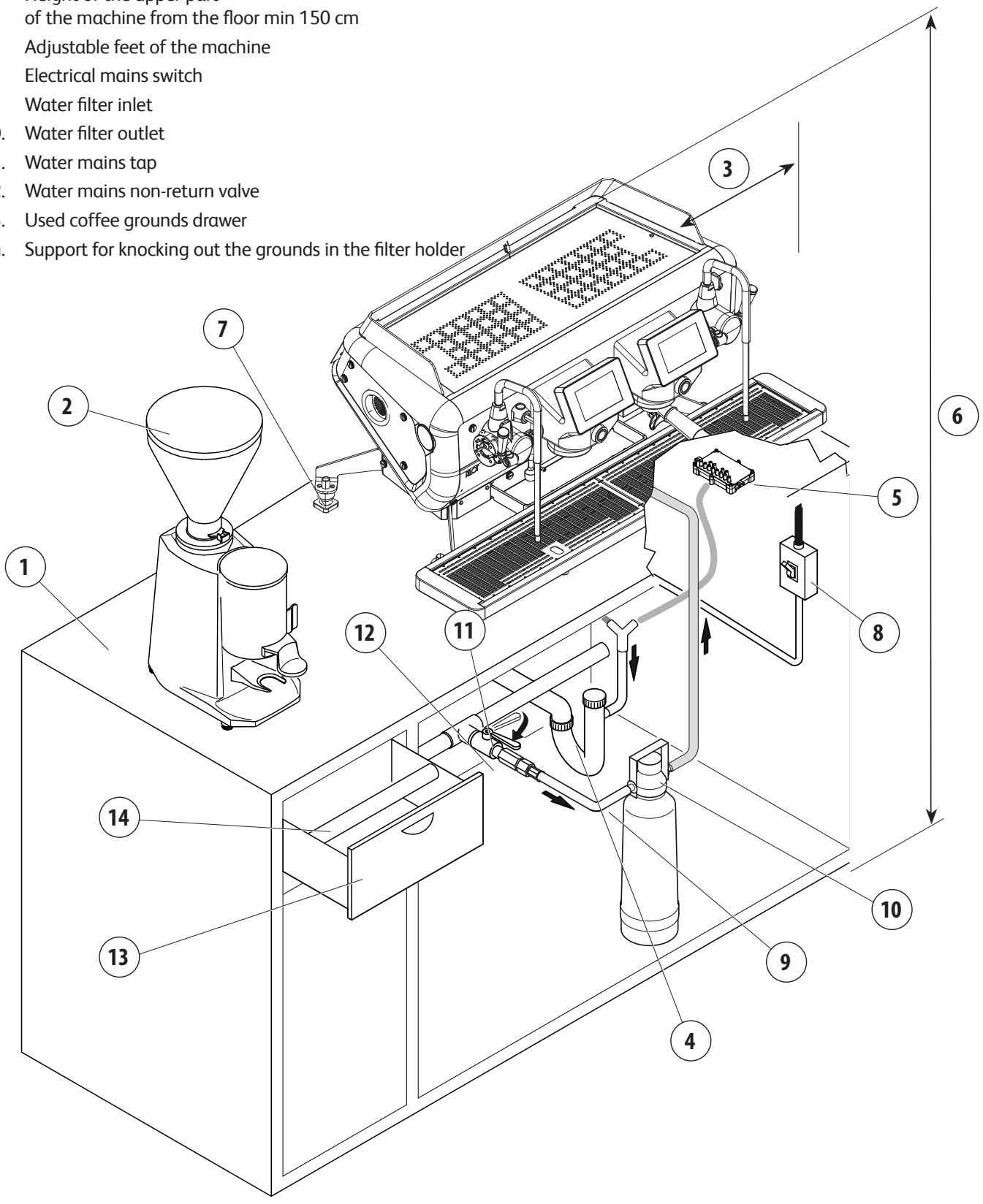
5.5 Support base

To ensure a sufficient degree of ergonomics and machine safety, a support base with the following features must be made available (reference drawings on the next page):

- Ensure that there is sufficient space for the machine to be positioned and used correctly.
- The worktop (**1**) must be comfortable and able to withstand the machine's weight. The height of the upper section of the machine (**15**) must be at least 150 cm from the floor.
- The base must be perfectly level and have no irregularities.
- The terminals for connecting to the water mains (**11**) and electrical mains (**8**) must be in the immediate vicinity of the support base.
- The machine can also be positioned against a wall, but please leave enough space - at least 50 cm (**3**) - on the right and left for easy access during cleaning operations.
- Fit a drawer under the worktop (**13**) which will be used to deposit used coffee grounds and if possible, fit a rubber support as well (**14**) to knock the filter holder against.

In order to work properly and ensure safety, the machine must rest on a perfectly horizontal surface. Any machine alignment adjustments must be done by adjusting the feet (7).

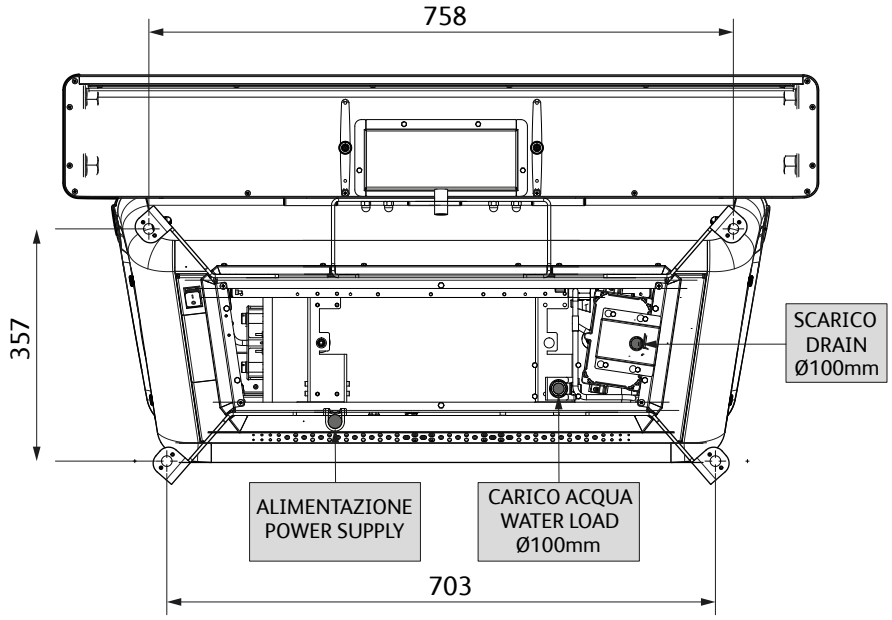
1. Support base
2. Grinder-dispenser
3. 50 cm minimum distance between the machine and the wall
4. Sewer drain
5. Discharge conveyor
6. Height of the upper part of the machine from the floor min 150 cm
7. Adjustable feet of the machine
8. Electrical mains switch
9. Water filter inlet
10. Water filter outlet
11. Water mains tap
12. Water mains non-return valve
13. Used coffee grounds drawer
14. Support for knocking out the grounds in the filter holder



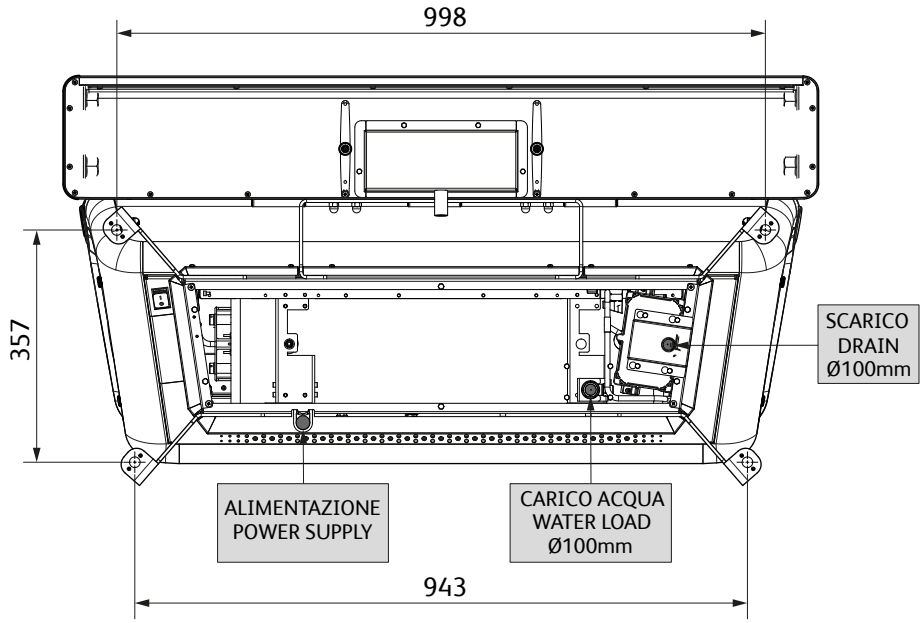
5.6 Drilling of the support bench

If holes need to be drilled into the support base to let the water inlet hoses, outlet hoses and power cables pass through, follow the directions given in the drawings below.

2 GROUPS



3 GROUPS



5.7 Hydraulic connection

Before connecting the hydraulic system, make sure that the appliance has been disconnected from the electrical mains.

5.7.1 *Water supply*

The appliance's water supply must provide water which is suitable for human consumption, and must conform with the regulations in force in the place of installation. The owner/manager of the system must provide the Technician with confirmation that the water meets the above requirements.

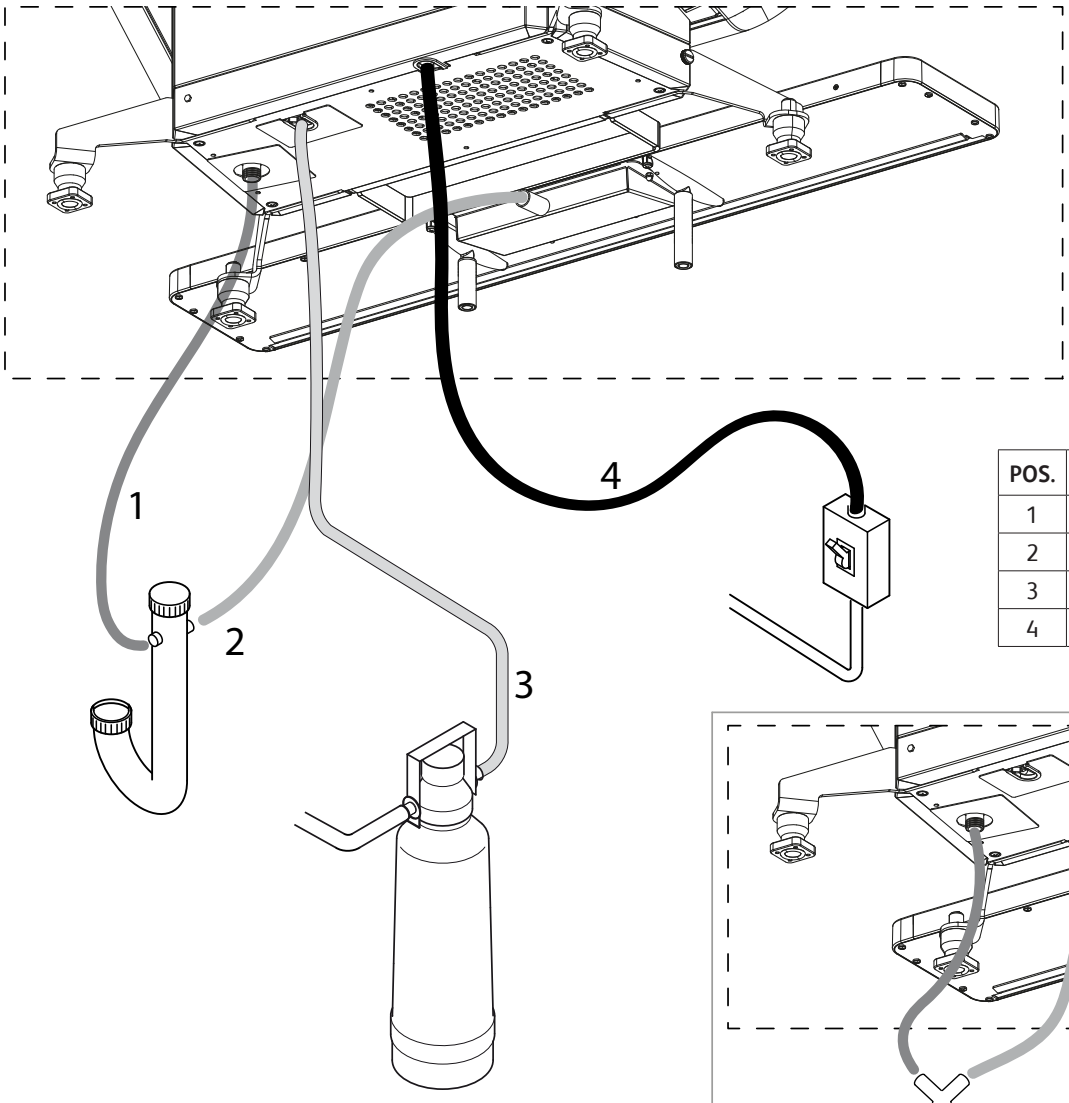
5.7.2 *Materials to be used*

When installing the appliance, only the components and materials supplied with the appliance are to be used. Should the use of other components be necessary, the Technician must verify that these are suitable for coming into contact with water used for human consumption.

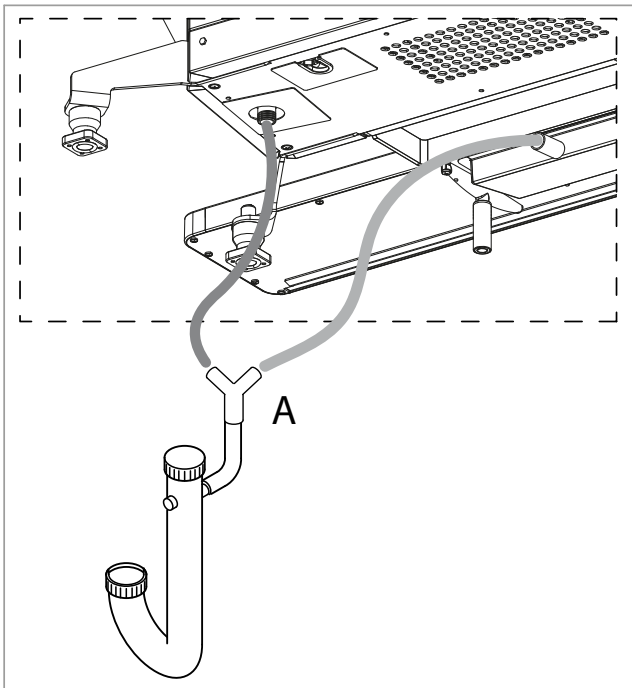
5.7.3 *Hydraulic connections*

The Technician must carry out the hydraulic connections in accordance with the hygiene and hydraulic safety standards regarding environmental protection which are in force in the place of installation.

- Add a valve to the water supply in order to stop water flowing to the machine.
- In order to prevent damage, it is advisable to install the water purification filter where it will be protected from accidental blows.
- The drain must be connected to a siphon that can be inspected and periodically cleaned, in order to prevent unpleasant odours from returning.
- To avoid oxidisation building up and damaging the machine over time, do not use iron fittings for the hydraulic system, even if they are galvanised.



POS.	DESCRIPTION
1	TRAY DRAIN
2	DISCHARGE TRAY
3	WATER LOADING
4	ELECTRICAL CABLE



5.7.4 *Water mains and drain connection*

- Place the machine in the position foreseen by the drilling pattern of the support bench
- insert the larger drainpipe through the hole of the bench and fasten the threaded sleeve to the front drain tray of the machine
- connect the two drain pipes to the sewer system making sure to avoid overly tight curves or kinks, and maintaining a sufficient inclination for water to flow out of the drain
- in exceptional cases, should it not be possible to connect the two pipes directly to the drain, connect the two pipes to the Y-connection and connect to its output one pipe to the network drain (see detail A). It is however always preferable the double drain configuration.

ATTENTION: avoid overly tight curves or kinks, and maintain a sufficient inclination for water to flow out of the drain.

- connect the water supply pipe to the water filter and then to the hydraulic network;
- connect the machine's power cable, as indicated in the electrical diagram in para.16;
- when connecting the machine to the sewer drain, avoid overly tight curves or kinks, and make sure that there is sufficient inclination for water to flow out of the drain;
- the drain must be connected to a siphon that can be inspected and periodically cleaned, in order to prevent unpleasant odours from returning.

After installation and before using the machine, the water in the hydraulic circuits must be replaced, as indicated in para. 6.4.

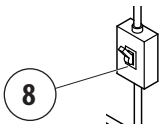
The water mains must supply cold water fit for human consumption (potable water) at a pressure between 0.15-0.6 Mpa (1.5 and 6 bar). If the pressure is higher than 0.6 MPa (6 bar), connect a pressure reducer before the pump.
All the filling couplings are 3/8 male gas types. The drain tray is connected to a pipe with an internal diameter of 20 mm. If an external tank is used, the connection pipe between the machine and the tank must not exceed 150 cm.

FOR THE EUROPEAN COMMUNITY: for both the connection to the water mains and for connection to an external tank, a non-return valve must be positioned upstream from the machine, as provided by the EN 1717 standards.

FOR THE USA - The water connections and drains must be made in accordance with the 2003 International Plumbing Code of the International Code Council (ICC), or the 2003 Uniformed Hydraulic Code of the IAPMO. The machine must be installed with a suitable non-return valve as provided by the national standards.

5.7.5 *Electrical connection*

- The conformity of the electrical system, effectiveness of the earthing system and functionality of the differential circuit breaker - all of which are fundamental for guaranteeing the appliance's electrical safety - are the responsibility of the person in charge of the electrical system on which the equipment is installed.
- Before installation, make sure that the electrical system is equipped with the protection device (**8**), as indicated in the safety notes.
- To perform the electrical connection of the machine refer to Chap. 16.
- Do not use extension leads or electrical adapters for multiple outlets.
- The access spaces to the machine and main switch must be left clear, in order to allow the user to intervene without any constrictions and leave the area immediately when needed.



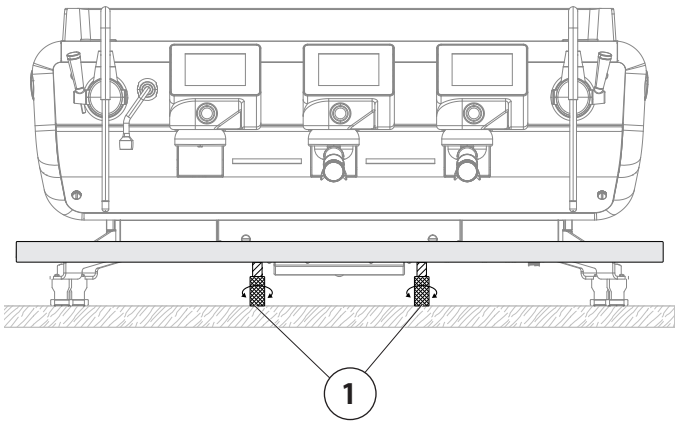
Every electrical connection operation must be carried out with the mains off and the power supply disconnected. The Technician must also check that there is no voltage present, by using a multimeter, for example.

The electrical system must be equipped with a protection device (8) that ensures an omnipolar disconnection from the mains with a contact opening distance in over-voltage category III conditions and which guarantees a suitable residual-current device, equal to 30 mA, in compliance with current laws and safety regulations.

We recommend that you promptly report any problems encountered during the appliance's installation to the Manufacturer.

5.7.6 *Cup holder grille*

To correctly align the tray to the work surface, use the 2 supports fastened under it (1).



6. COMMISSIONING

6.1 Safety precautions

Carefully read the instructions provided in chapter I.

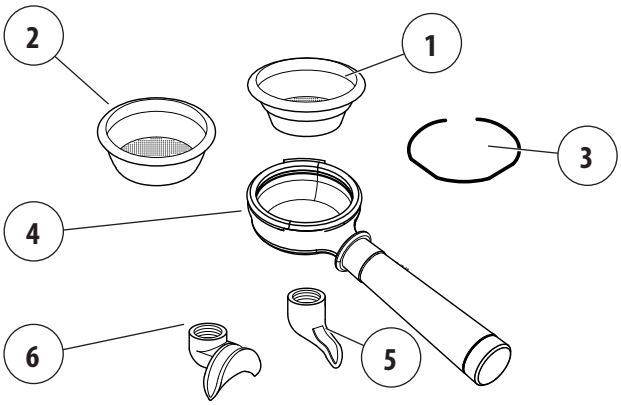
6.2 Preparing the filter holders

6.2.1 *Filter holders*

- Place the filter-holding spring (2) in the housing of the filter holder (4).
- Take the one-cup (1) or two-cup filter (2) and press it firmly into the filter holder.

6.2.2 *Spouts*

To finish preparing the filter holder, fit the one-cup (5) or two-cup (6) spouts.

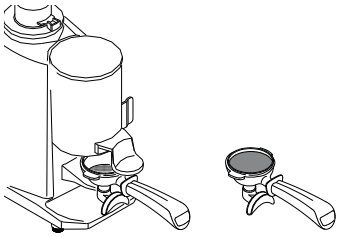


Properly connect the single filter with the single spout and the double filter with the double spout.

6.2.3 *Grinding and dosing coffee*

It is important to have a grinder-dispenser next to the machine so that the coffee can be ground on a daily basis.
To adjust the coarseness of the ground coffee, use the appropriate regulator located on the grinder-dispenser hopper.
The coffee must be ground and dispensed according to instructions provided by the manufacturer of the grinder-dispenser. The following points should also be kept in mind:

- To make a good espresso, we recommend that you do not store large amounts of coffee beans. Comply with the expiry date indicated by the producer.
- Never grind large volumes of coffee, it is advisable to prepare the amount that can be held in the dosing device and if possible, use it by the end of the day.
- Do not buy pre-ground coffee, as it deteriorates quickly. If necessary, buy coffee in small vacuum-sealed packs.



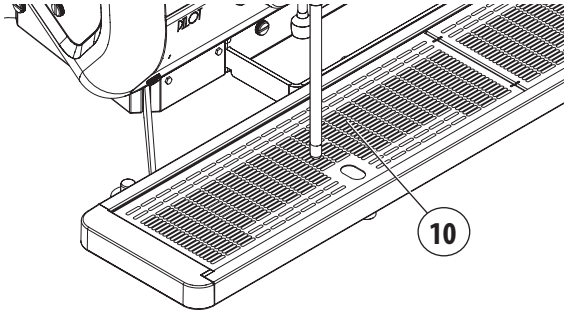
6.3 Turning the machine on and off

During the machine's heating-up phase, the negative pressure valve and the water nozzle will release steam for a few seconds until the valve closes.

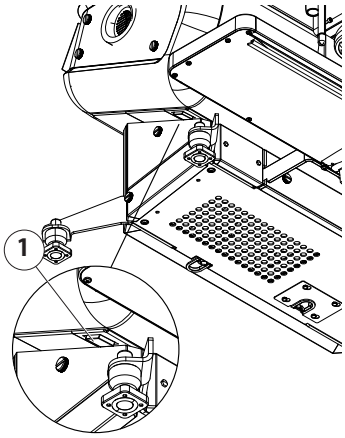
Every day the water in the machine must be replaced.

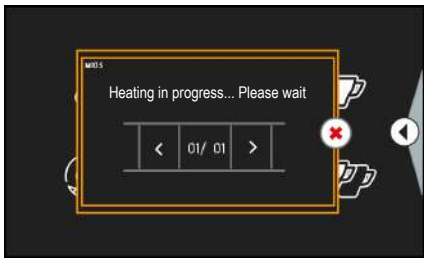
6.3.1 *Turning the machine on*

Before turning the machine on, make sure that the drain tray under the cup holder grille (10) is correctly connected to the drain.



Check that all the steam valves are closed.
Turn on the machine using the main switch (1) and follow the indications on the machine's display as indicated below.

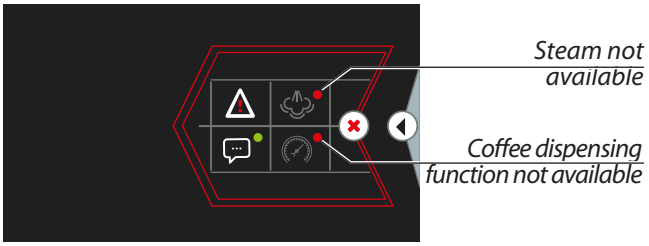




At the end of the start-up, the thermal regulation phase begins. The machine dispenses water/steam from the water nozzle to lead the hydraulic circuit.

When the warm-up phase has been completed, the machine will be ready to dispense coffee and the screen shown below will appear on the display.

It may sometimes take longer for the steam to be ready for dispensing than the coffee. If this occurs, wait a few minutes until the green steam icon appears on the display.
The green icon indicates that the machine is at the programmed pressure and steam is ready to be dispensed.



Before using the machine, carry out some empty dispensing cycles for a few seconds with the filter holders attached. This procedure releases any air inside the hydraulic circuit, allowing the dispensing groups to fully heat up.

it is sufficient to wait for a few seconds to allow the temperature to fully adjust: the display will return to its normal brightness and the machine will return to its active status.

6.3.2 *Turning off the machine*

Turn off the machine using the main switch.

6.4 Internal water replacement

The water in the internal hydraulic circuits must be replaced every day.

Using the various commands, proceed as follows:

GROUPS

- Hook a filter holder without a filter to the dispensing group.
- Place a jug under the spouts of the filter holder.
- Dispense at least **1 litre** of water.
- Repeat the operation for each unit.

HOT WATER NOZZLE

- Place a large enough jug under the hot water nozzle.
- Dispense hot water in the amount indicated in the table:

2GR	3GR
5 litres	**8 litres**

Should the machine experience a drop in pressure during the dispensing operation, wait the time necessary to reset the initial conditions and continue until the quantity of water indicated is completely dispensed.

STEAM NOZZLES

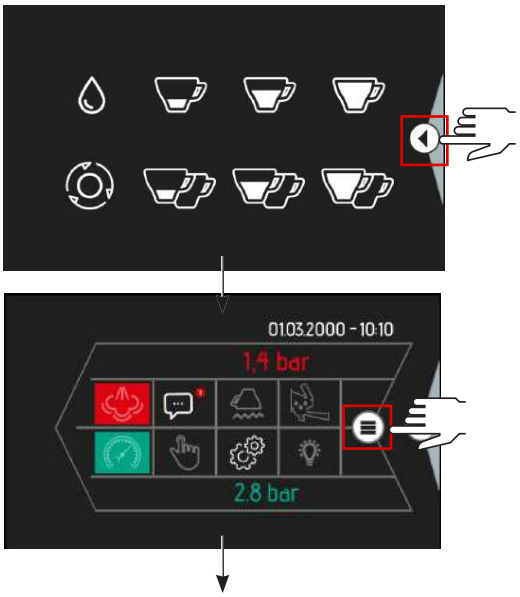
- Insert the steam nozzle into a jug.
- Release steam for at least **1 minute**.
- If present, repeat the operation with the other steam nozzle.

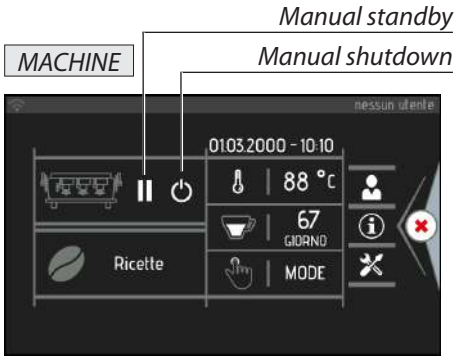
Danger of scalding. Do not direct the steam and hot water towards hands or other parts of the body. Do not touch the steam nozzle and the hot water nozzle with bare hands; use the appropriate PPE.

6.5 Energy Saving

To turn off the machine or activate the Energy Saving mode, proceed as follows:

- Select the ◀ button.
- Select the menu button ☰.
- Select the desired function.





If the machine is off or in "Energy saving" mode, simply tap the display to resume operation. The machine will return to full operation in approximately 1 minute.

In any case, the system will continue to follow the configured energy-saving settings.

Two "Energy Saving" types of system can be activated:

COM MANUAL

The Energy Saving functions can only be activated manually by selecting the ⏸ Stand-by and ⏻ Shutdown icon.

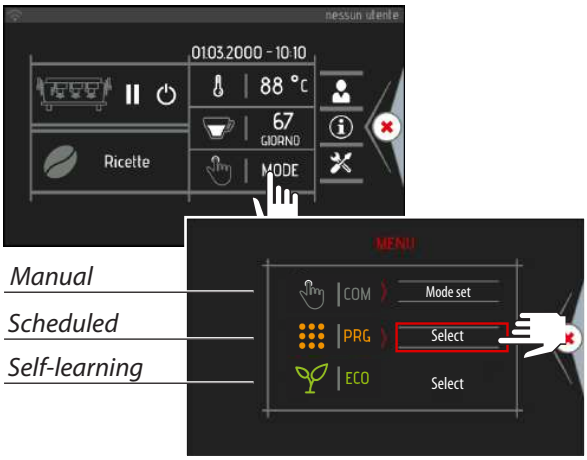
PRG PROGRAMMED

The Energy Saving functions are enabled according to the programming. The manual buttons ⏸ Stand-by and ⏻ Shutdown are enabled also in this status. To modify the programming see Paragraph 7.10.

ECO SELF-LEARNING

The Energy Saving functions are enabled in self-learning mode, the system autonomously operates the shutting of the machine based on the work performed during the preceding days and weeks.

To enable the "Energy Saving" system, press the MODE button and select the desired mode:



To programme the Energy Saving system, see para. 8.4.

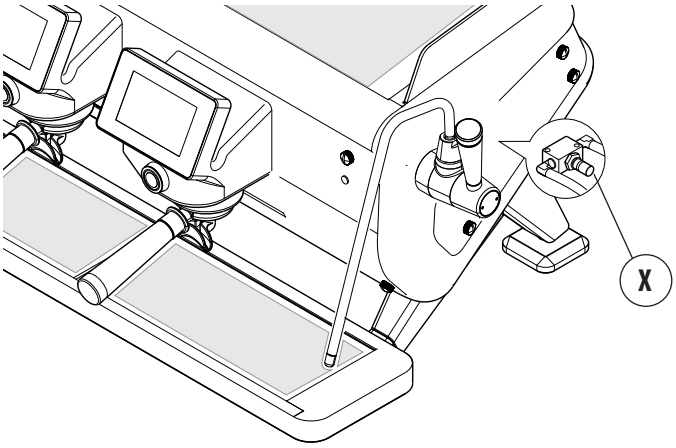
6.6 Automatic steam wand

6.6.1 *Adjusting the temperature*

To programme the temperature of the milk to be heated, see para. 8.4. However, we recommend that this does not exceed 65°C.

6.6.2 *Adjusting the milk froth*

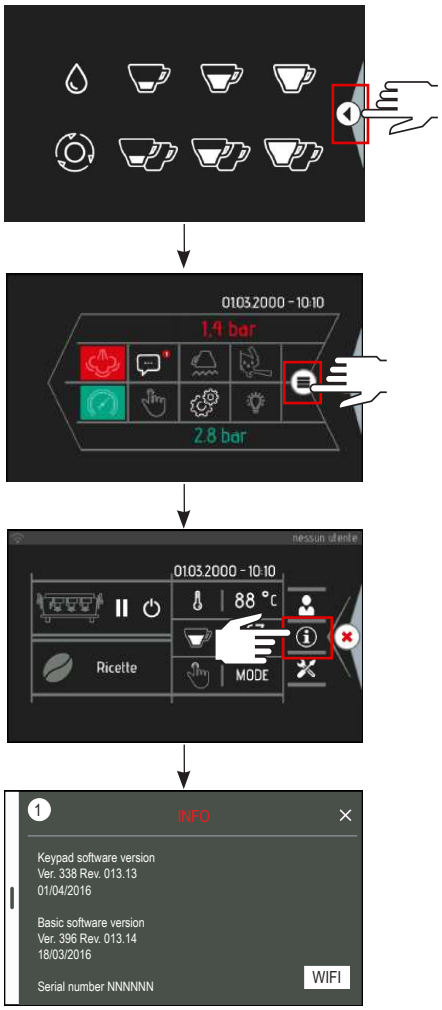
To increase or decrease the froth consistency, slightly turn the specific regulator (X).
Turning it clockwise will decrease the consistency, whilst turning it anti-clockwise will increase the amount of froth.



7. MACHINE INFORMATION

The machine information is available on the display:

- Select the ◀ button.
- Select the menu button ≡.
- Select the information button ⓘ.



8. PARAMETER PROGRAMMING

This paragraph shows all of the programming menus where the various machine functions can be set.

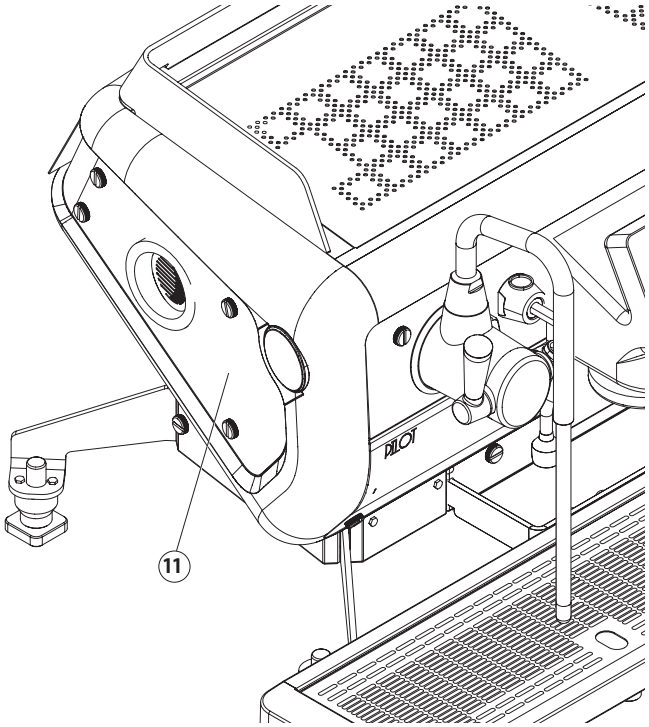
All these operations are carried out via the touchscreen display.

8.1 Access

It is possible to access the programming in two ways:

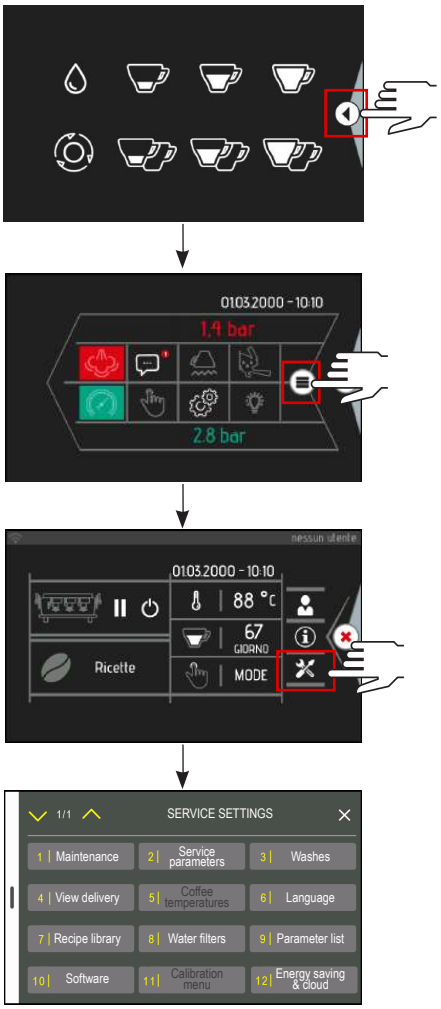
- with the USB key;
- with a password.

Some of the USB features cannot be performed if you access with a password, such as updates or uploading and saving data.



8.1.1 *Access via the USB Key*

- Remove the side panel.
- Insert the specific USB key into the reader (11).
- Select the ◀ button.
- Select the menu button ☰.
- Select the service settings button 🔧.



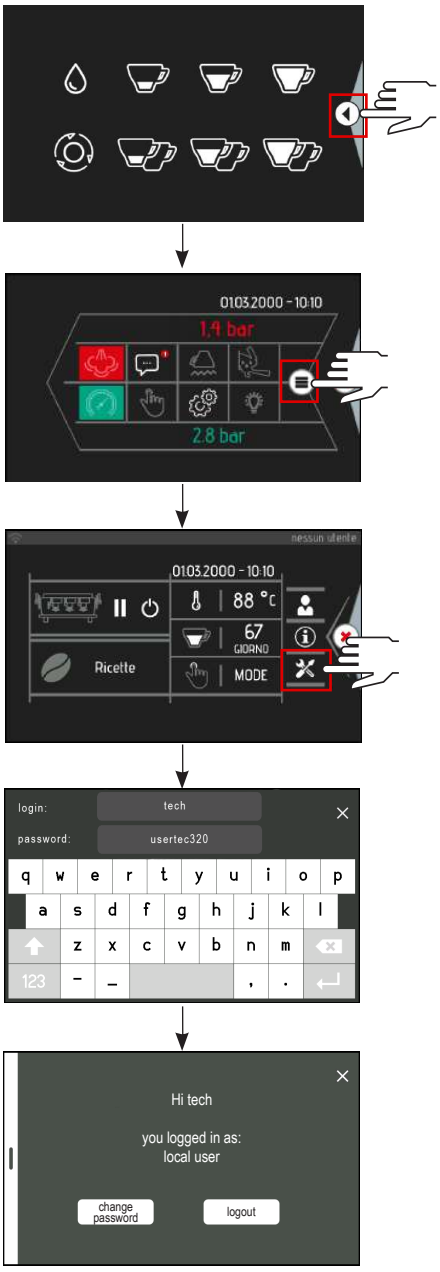
Do not connect other devices to the USB socket because they could damage the electronic control unit.

8.1.2 *Access with Password*

- Select the ◀ button.
- Select the menu button ☰.
- Select the service settings button 🔧.
- Type login and password.

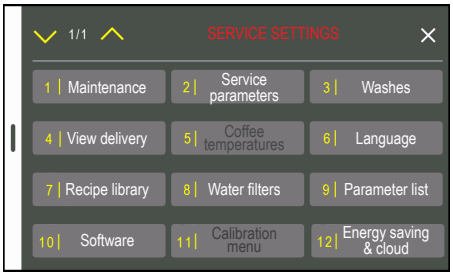
login: tech
password: usertec320

The list of modifiable parameters can be found in chapter 18.



8.2 Programming menu

You can access the machine's full programming mode from the two menu pages.
The following is a summary diagram of the programming sections, the parameters involved and the operations envisaged. All the operating functions are given in detail in the following paragraphs.



MAINTENANCE	Inspections	
	temperatures card	view
	pump-heating unit pressures	view
	heating unit levels	view
	steam temperature	view
	Counters	
	no. of dose dispenses	reset
	Enabling the user menu buttons	
	User menu button	enable
	Maintenance threshold	
	type A-B-C maintenance threshold	set no. of cycles
	cycles remaining until the A-B-C threshold	view
	date of next A-B-C threshold maint.	view
	days remaining until maintenance	view
	short-normal-long dose	set (g)
	short-normal-long double dose	set (g)
	continuous dispensing dose	set (g)
	burr threshold	set (kg)
	Maintenance report	
	maintenance cycles type A-B-C	reset
	date of next maintenance	set date
	water consumption (L)	reset
	Burr wear and tear (kg)	reset
	energy saved (kWh)	reset
	Alarm history	
	alarms by date	reset
	alarms by type	view
	Heating units efficiency	
MAINTENANCE	Restore parameters	
	restoring the user parameters	load
	restoring the technician parameters	load
	restoring the manufacturer parameters	load
SERVICE PARAMETERS	heating unit pressure	set (bar)
	heating unit temperature in energy saving	set (°C)
	cup warmer temperature	set (°C)
	heating unit boost setpoint	set (bar)
	heating unit boost duration	set (min)

WASHES	date of last wash	view
	enabling the automatic wash	enable
	wash at each start-up	enable
	number of wash cycles	set (no.)
	wash duration	set (min)
	rinse duration	set (sec)
	minimum interval between the start of 2 washes	set (hrs)
	automatic wash time	set time
	number of washes per-formed	reset
VIEW DISPENSING	view time	enable
	monitor flow	enable
	view the temperature	enable
COFFEE PARAMETERS	set group N	set (°C)
	group N heating unit setpoint	set (°C)
LANGUAGE	language	set language
LIBRARY RECIPES	recipe name	set name
	group heating unit setpoint	set (°C)
	group setpoint	set (°C)
	grinding fineness	set
WATER FILTERS	regeneration threshold	set (lt)
	water consumption	view
PARAMETER LIST	N parameters	set
SOFTWARE (USB)	update button panel	update
	update base	update
	upload slides	load
	set parameters	load
	save parameters	save
	import languages	import
	import recipes	import
	export recipes	save
ENERGY SAVING MODE & CLOUD	energy saving settings	set

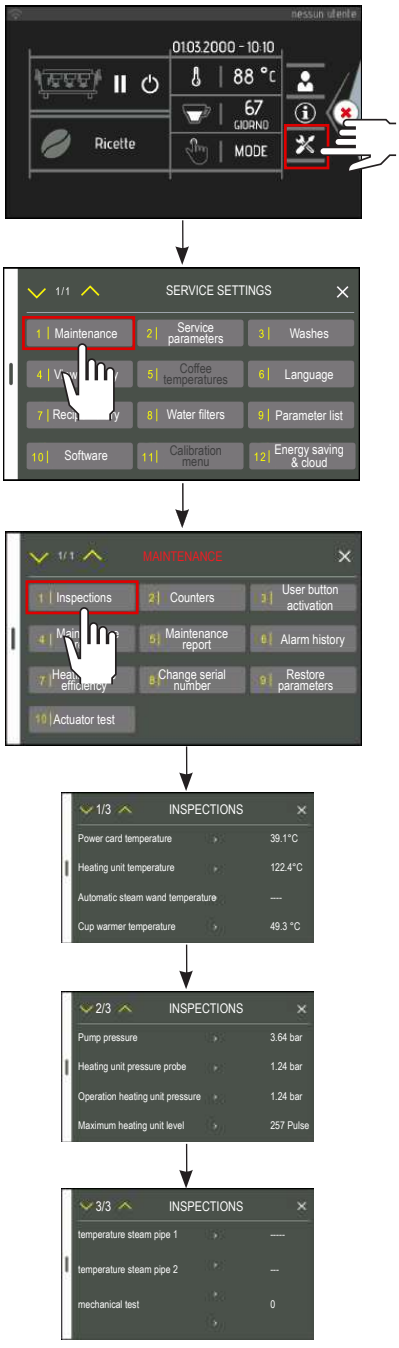
8.3 Maintenance

8.3.1 *Inspections*

In this section, you can monitor all of the machine's operating data in real time, such as:

- power card temperature;
- heating unit temperature;
- automatic steam wand temperature;
- cup warmer temperature;
- pump pressure;
- heating unit pressure probe;
- operating heating unit pressure;
- maximum level in the heating unit;
- temperature steam pipe 1;
- temperature steam pipe 2;
- mechanical button;
- power supply voltage card;
- temperature display card.

To go from one page to another, select the 1/2 button.



8.3.2 *Counter list*

All of the counts for the dispensed doses are available in this section, such as:

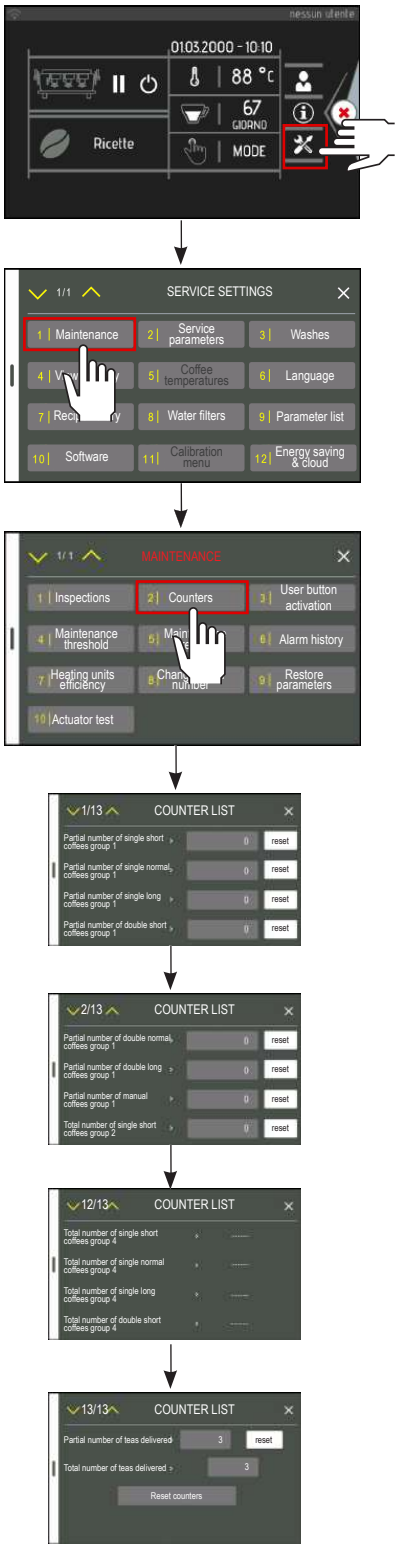
- the partial No. of single coffees dispensed since the last reset shown as: short, normal and long for each group
- the partial No. of double coffees dispensed since the last reset shown as: short, normal and long for each group;
- the total No. of single coffees dispensed throughout the life of the machine, shown as: short, normal and long for each group;
- the total No. of double coffees dispensed throughout the life of the machine, shown as: short, normal and long for each group;
- the partial No. of teas dispensed since the last reset;
- the total No. of teas dispensed throughout the life of the machine;
- total reset of all partial counters.

To reset each partial counter to zero, select the azzera button.

To fully reset all of the partial counters, press the Reset contatori button.

To go from one page to another, select the 12/13 button.

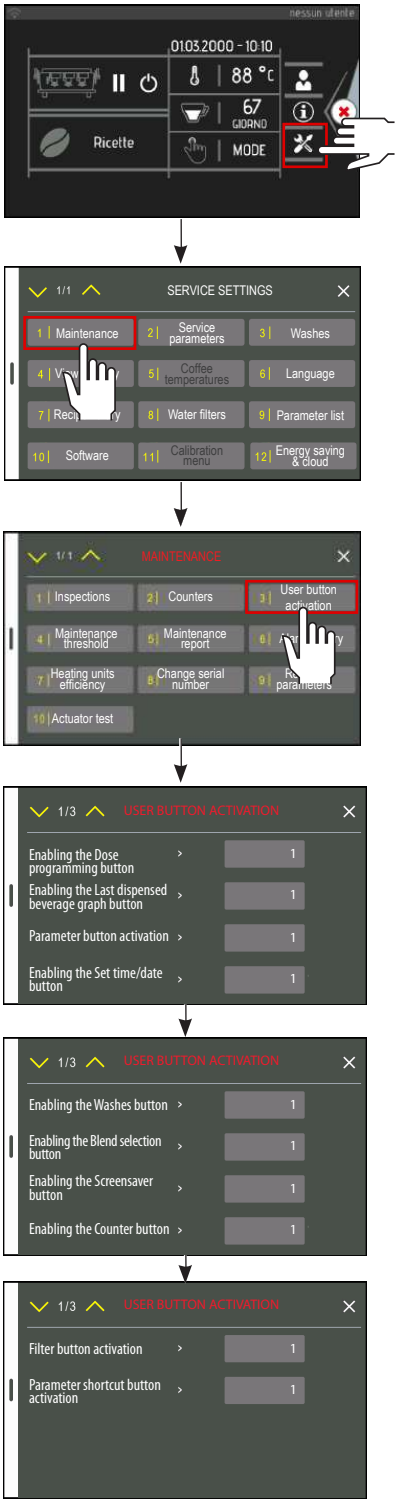
The total counters (life of the machine) cannot be reset.



8.3.3 *User button activation*

In this section, the technician can enable or disable the items in the user menu. With value 1, the button is enabled, with a value of 0, the button is deactivated.

The "Enable Shortcut Parameters button" item makes the icon available.



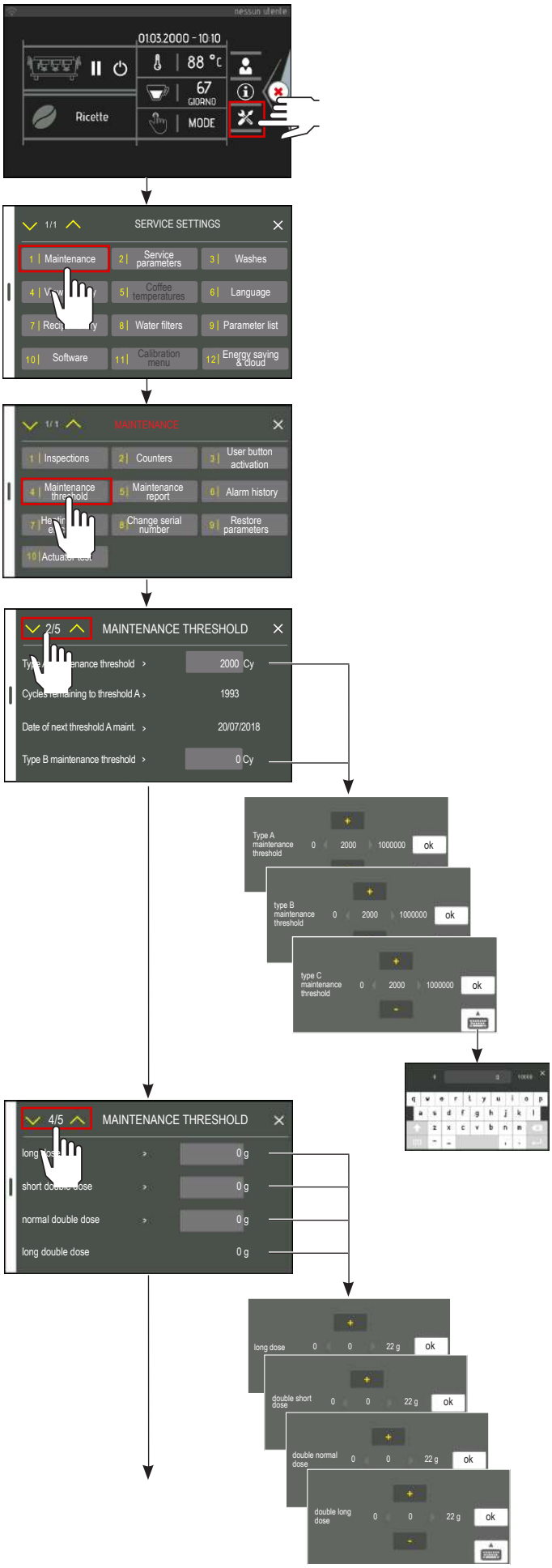
8.3.4 *Maintenance thresholds*

This section is dedicated to managing the machine's maintenance:

- A-B-C maintenance threshold;
- Viewing the remaining cycles until the A-B-C threshold;
- Viewing the next date for the A-B-C maintenance threshold;
- Days remaining until maintenance;
- Setting the short-normal-long single doses (in grams);
- Setting the short-normal-long double doses (in grams);
- Burr threshold (kg).

The + and - buttons, or the display keyboard can be used to edit the information.

To go from one page to another, select the 1/2 button.



8.3.5 *Maintenance report*

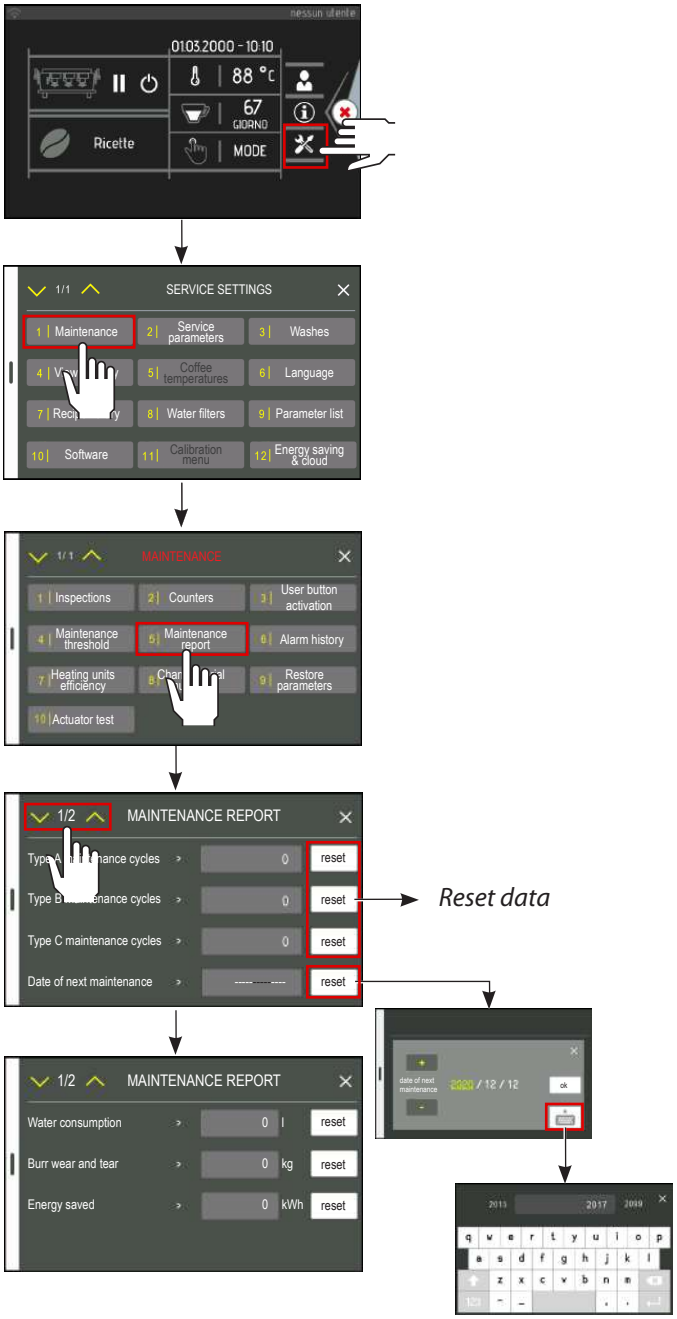
The following information can be viewed in this section:

- Type A maintenance cycles;
- Type B maintenance cycles;
- Type C maintenance cycles;
- Date of next maintenance;
- Water consumption (litres);
- Burr wear and tear (kg);
- Energy saved (kWh).

To reset the data to zero, select the azzera button.

To programme the date for machine assistance prompts, e.g. when the display notifies you that the scheduled maintenance must be performed, press the imposta button. Using the + and - buttons or the display keyboard , enter the desired date.

To go from one page to another, select the 1/2 button.

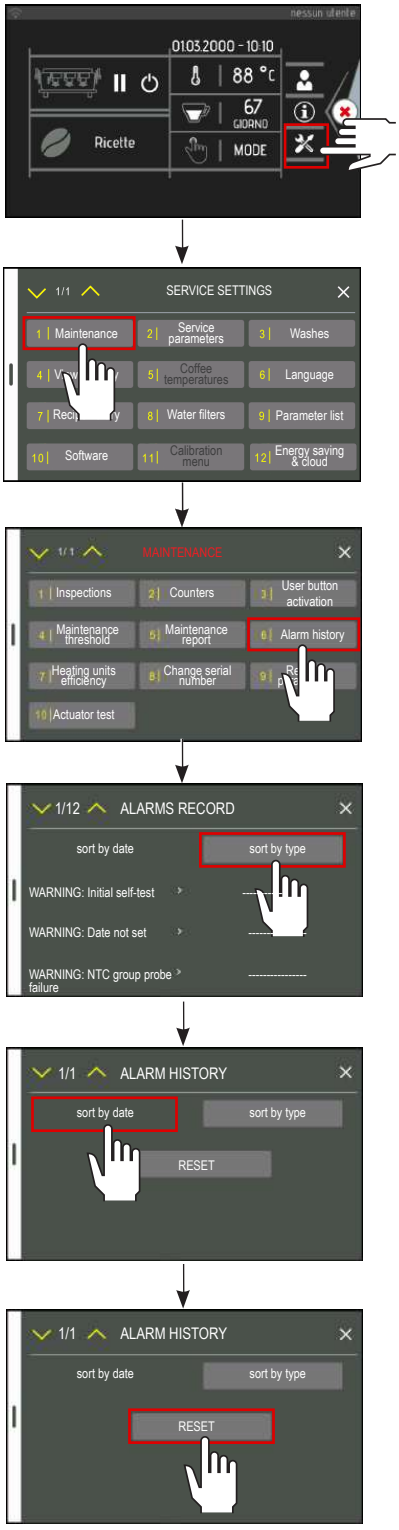


8.3.6 *Alarm history*

This section can be consulted to check all of the anomalies that have occurred on the machine over time.

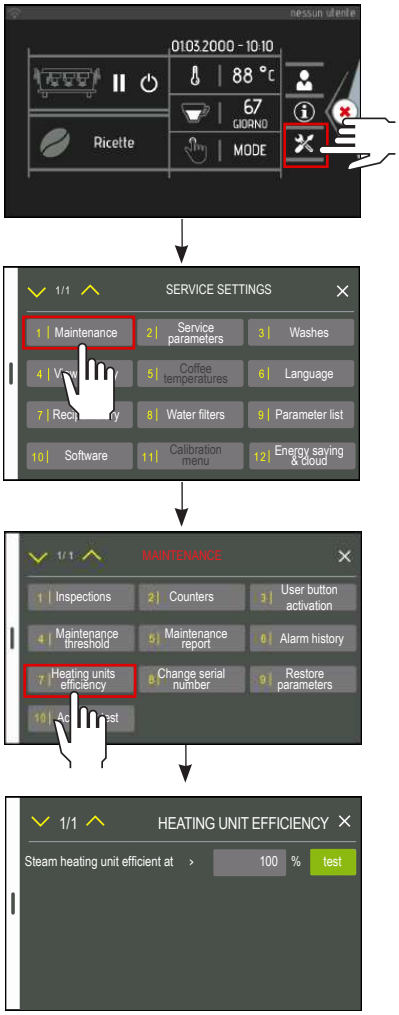
Select the ordina per data button and the system will display the warnings in chronological order. If you select the ordina per tipo button instead, the list will be shown by warning type.

To reset all the data, press the RESET button.



8.3.7 *Heating units efficiency*

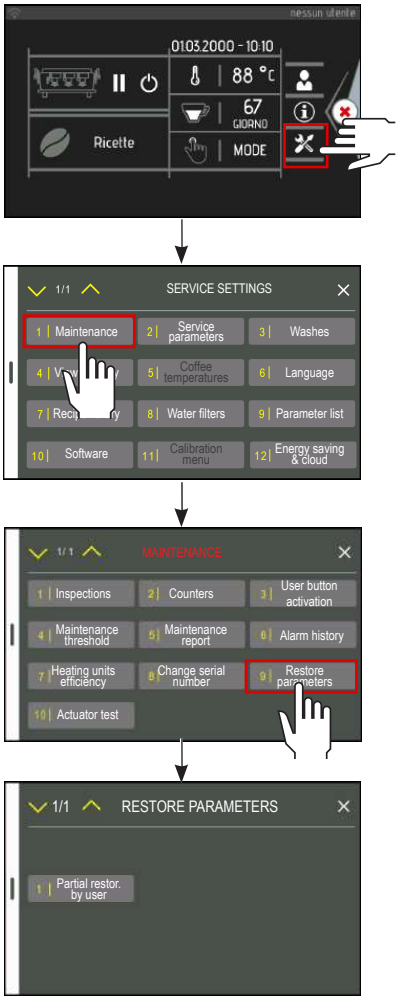
In this section it is possible to check the efficiency of the services heating unit. The comparison of the various parameters over time makes it possible to evaluate the operating status of the heating unit: Press the "test" button to reset the efficiency of heating unit while it was heating up.



8.3.8 *Restoring the parameters*

In this section, you can restore the initial programming data.

To activate the restore procedure, select the desired button 1 | Partial restor. by user.

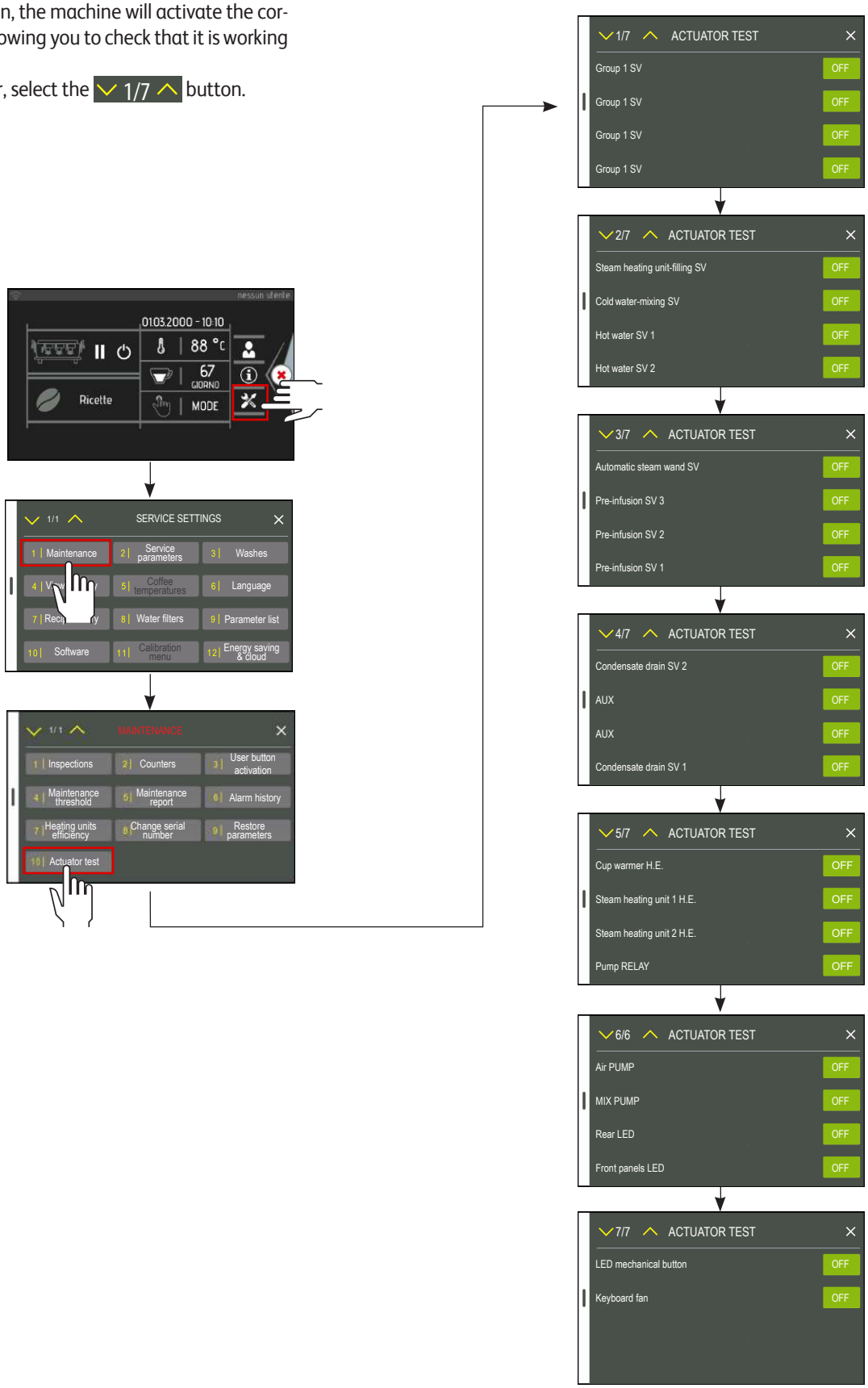


8.3.9 *Heating unit inspection*

In this section it is possible to test the operation of the safety valve of the heating unit.
The heating element is powered and thus the pressure of the heating unit increases until the safety valve opens.

8.3.10 *Actuator test*

This section can be used to test all the machine's main components. By pressing the respective button, the machine will activate the corresponding component, thus allowing you to check that it is working properly.
To go from one page to another, select the 1/7 button.

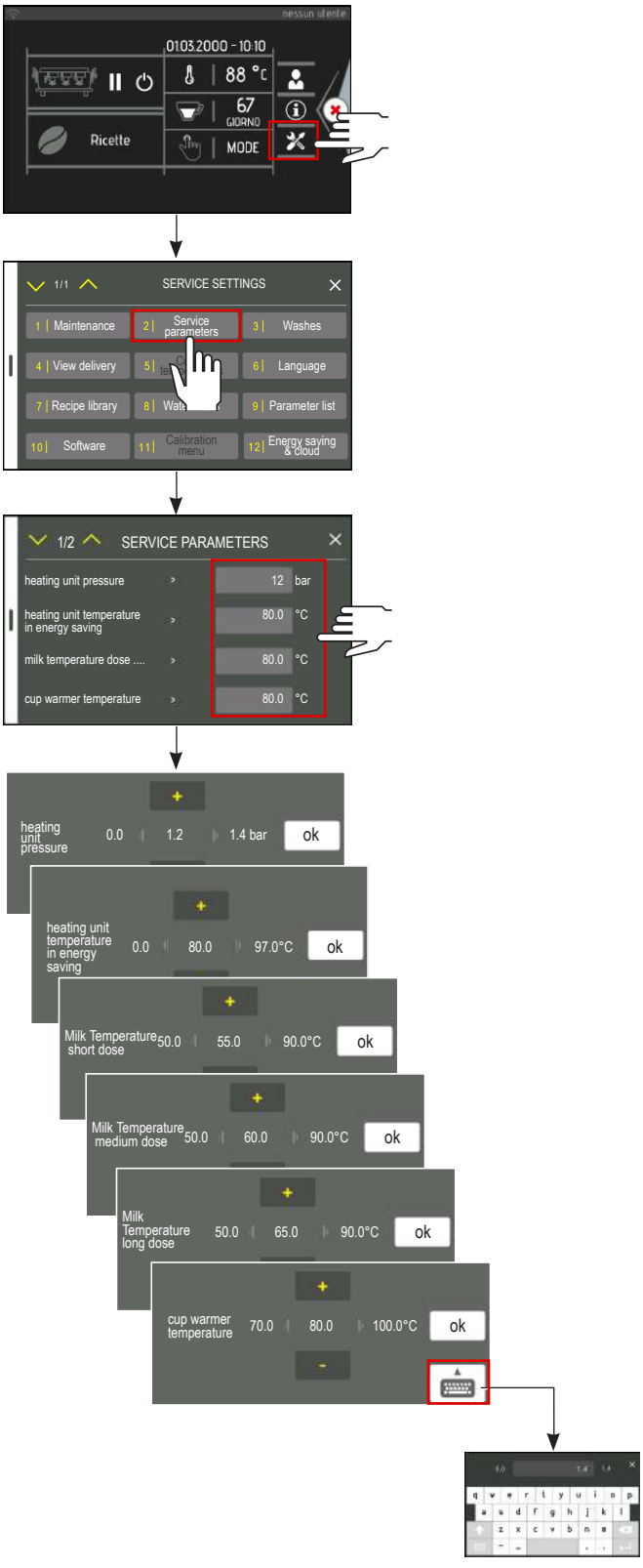


8.4 Service parameters

The parameters regarding machine services can be set up in this section, such as:

- heating unit pressure;
- temperature of the heating unit in energy saving mode;
- milk temperature short dose;
- milk temperature medium dose;
- milk temperature long dose;
- cup warmer temperature;

The + and - buttons, or the display keyboard can be used to edit the information.



8.5 Washes

In this section you can programme the automatic wash cycles and the management of the washes:

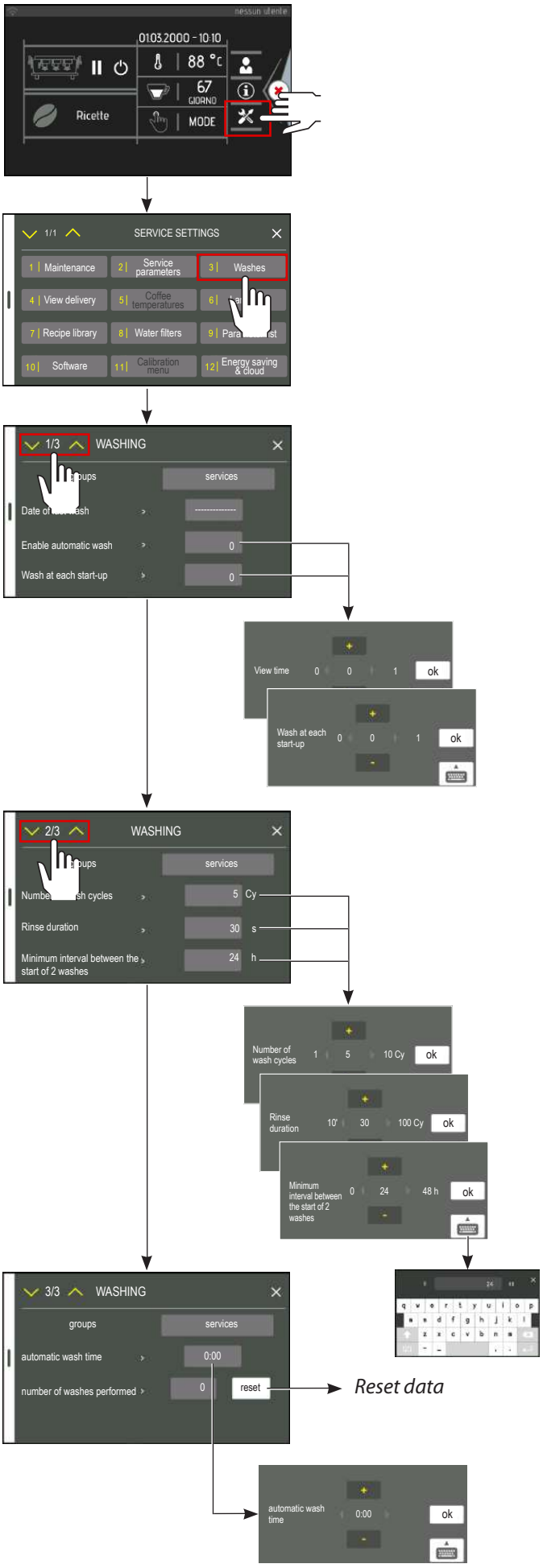
- See the date of the last wash;
- Enable the automatic wash;
- Enable the automatic wash at each start-up;
- Set the number of wash cycles;
- Set the wash duration (in minutes);
- Set the rinse duration (in seconds);
- Set the minimum interval between the start of 2 washes (in hours);
- Set the automatic wash time;
- View and reset the number of washes performed.

The + and - buttons, or the display keyboard can be used to edit the information.

To go from one page to another, select the 1/2 button.

0 = Function disabled

1 = Function enabled



8.6 View the dispensing cycle

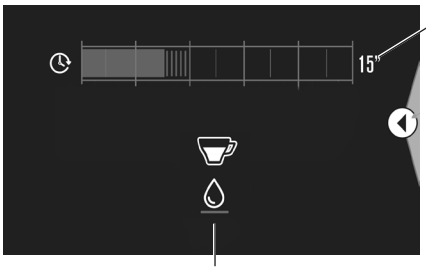
In this section of the programming mode, you can enable which information is displayed while doses are being dispensed:

- the time;
- the flow rate;
- the temperature.

Use the + and - buttons to enable or disable the function.

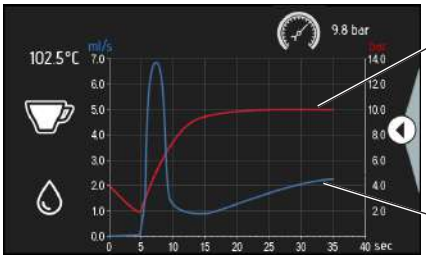
0 = Function disabled

1 = Function enabled



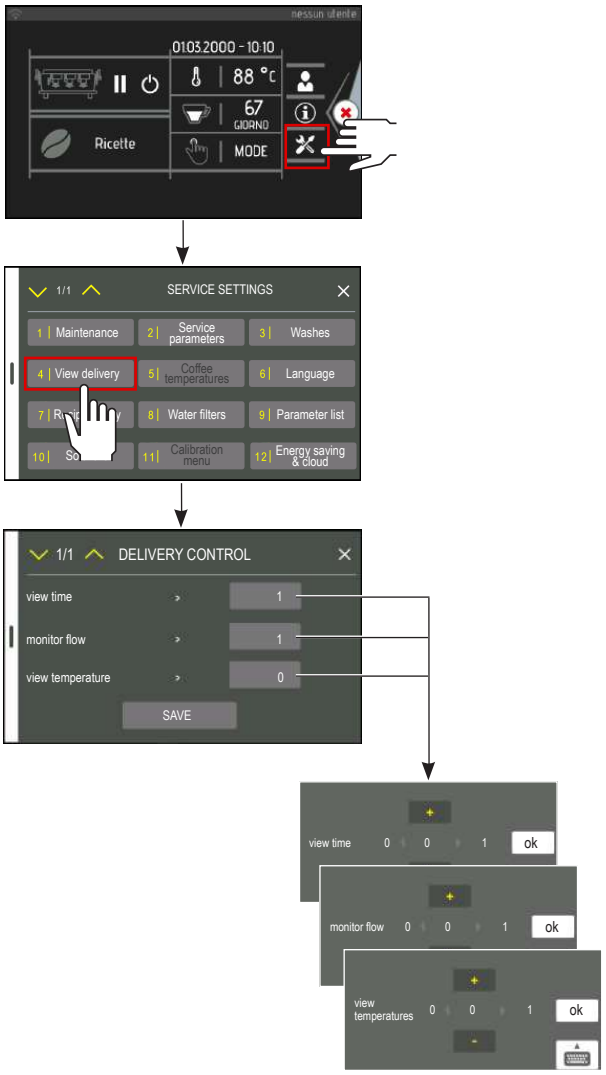
Dispensing time

Hot water dispensing enabled



Red chart: dispensing pressure

Blue chart: dispensing flow



The graph shows the exact trend of the pressure of the pump.

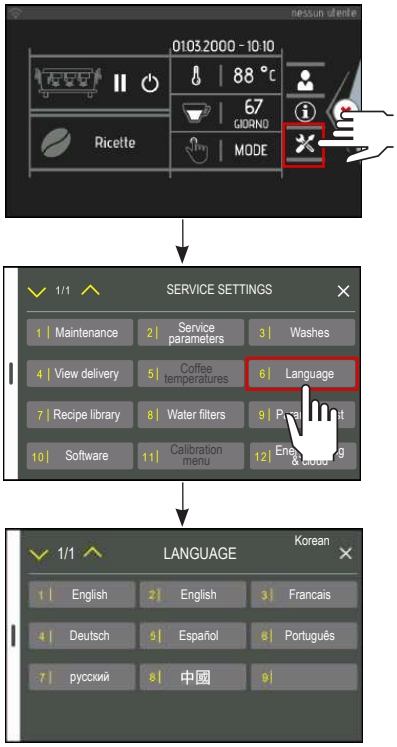
8.7 Coffee temperatures

This function is not available.

8.8 Language

In this section, the language used on the machine's display can be set.

To set the desired language, select the corresponding button.

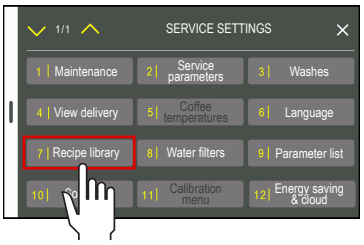


8.9 Recipe library

In this section, coffee recipes can be created and customised, as follows:

- recipe name;
- group temperature.

This will allow the user to recall the desired blend at any time without having to modify any parameters.

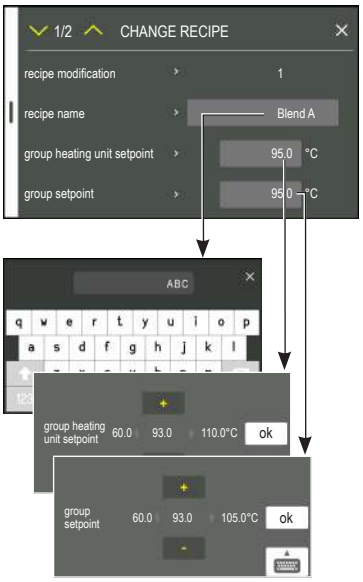


From the “service settings” menu, access “recipe library”.

Select or create the desired recipe; the following screen will appear:

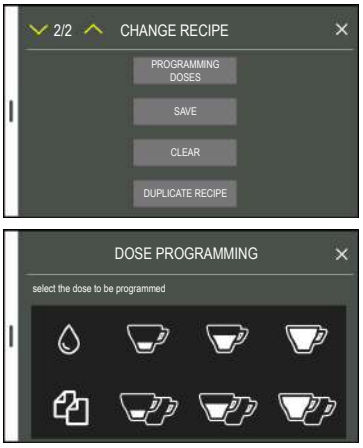
After the recipe has been thoroughly filled out (as per standard mode), you can access page 2.

By typing in “DOSE PROGRAMMING”, you will be sent to the appropriate page.



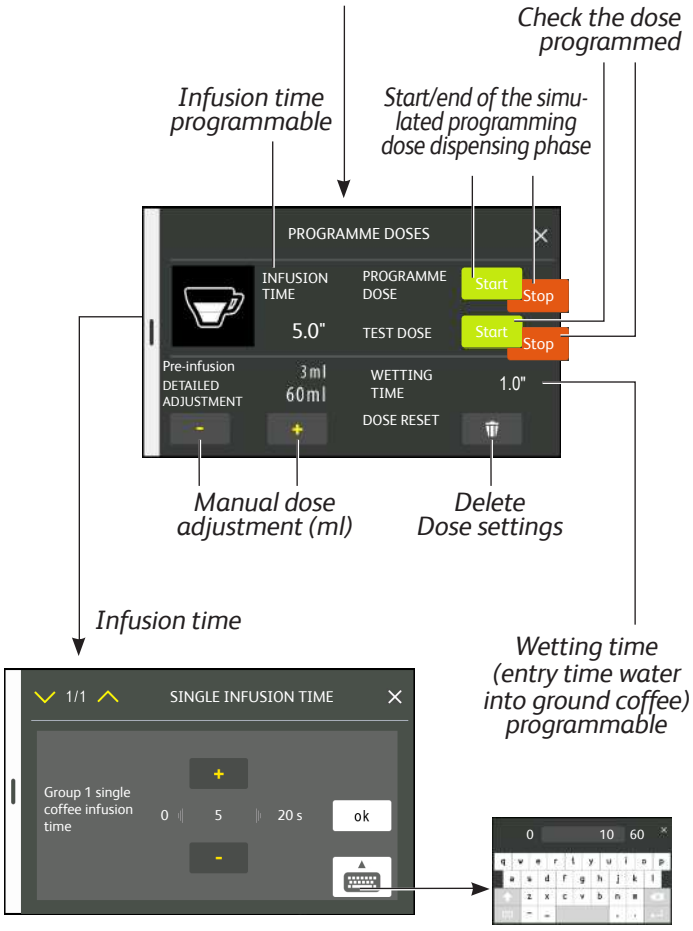
Select the cup icon for the dose to be programmed, for example .

You then access the menu to select the programming to be carried out.



8.9.1 *Programming doses on the standard model*

- Press the Start button to start dispensing.
- To confirm and stop the dose, press the Stop button.
- Repeat this operation for the other dose buttons.
- To check the dose, press the "Test the dose" button Start.
- To delete the dose settings, press the button.
- The dose can be manually adjusted via the + and - buttons.



To obtain a higher quality of coffee, it is possible to adjust the parameters of the pre-infusion composed of the following two phases and show in the graph provided below:

- **wetting time of the coffee**
- **infusion time**

The pre-infusion phase can be activated from the parameter list (see chap. 18).

COFFEE DOSE		
Pre-infusion phase		Dispensing
Wetting time (programmable)	Infusion time (programmable)	

By selecting the 2 buttons WETTING TIME 1.0" **and** INFUSION TIME **it is possible to change the pre-infusion; using the** + **and** - **buttons (or the numeric keyboard**) **change the parameters selected and confirm with the key** OK**.**

8.9.2 *Copy one dose to another*

To copy a scheduled dose to another, proceed as follows:

- Press the copy button ( ) on the dose selection screen.

- Select the source dose, which will be highlighted in green.

- Select the target dose, which will be highlighted in red.

- Confirm by pressing the button .

When all the doses have been programmed, exit the "DOSE PROGRAMMING" menu (X button), and once you have returned to the "EDIT RECIPE" screen, press the "SAVE" button.

The programmed doses refer to the currently selected recipe. The recipe in use can be viewed from the coffee dose selection page.
If no recipe is displayed, the "standard" recipe will be modified.

Do not remove the filter holder from the dispensing group when coffee is being dispensed.

Each dose must be programmed with ground coffee and not with previously-used coffee grounds.

8.9.3 *Delete recipe*

Press CANCEL to delete the recipe being modified.

8.9.4 *Duplicate*

Press DUPLICATE RECIPE to duplicate the recipe being edited on the first free slot available.

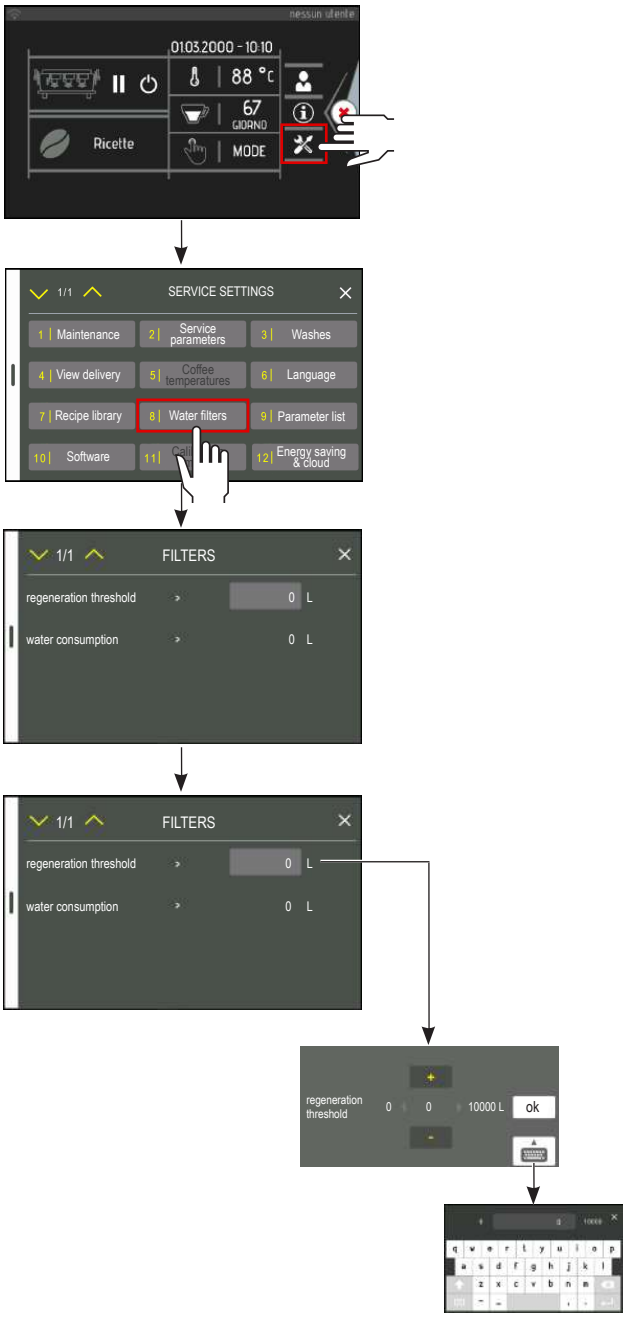
8.10 Water filters

This section is dedicated to water softener and filter management. With this system, you can:

- View the machine's water consumption.
- Programme when regeneration required message is enabled.

Use the + and - buttons or the display keyboard to set the value.

If the value is set to 0, the warning system will not be active.



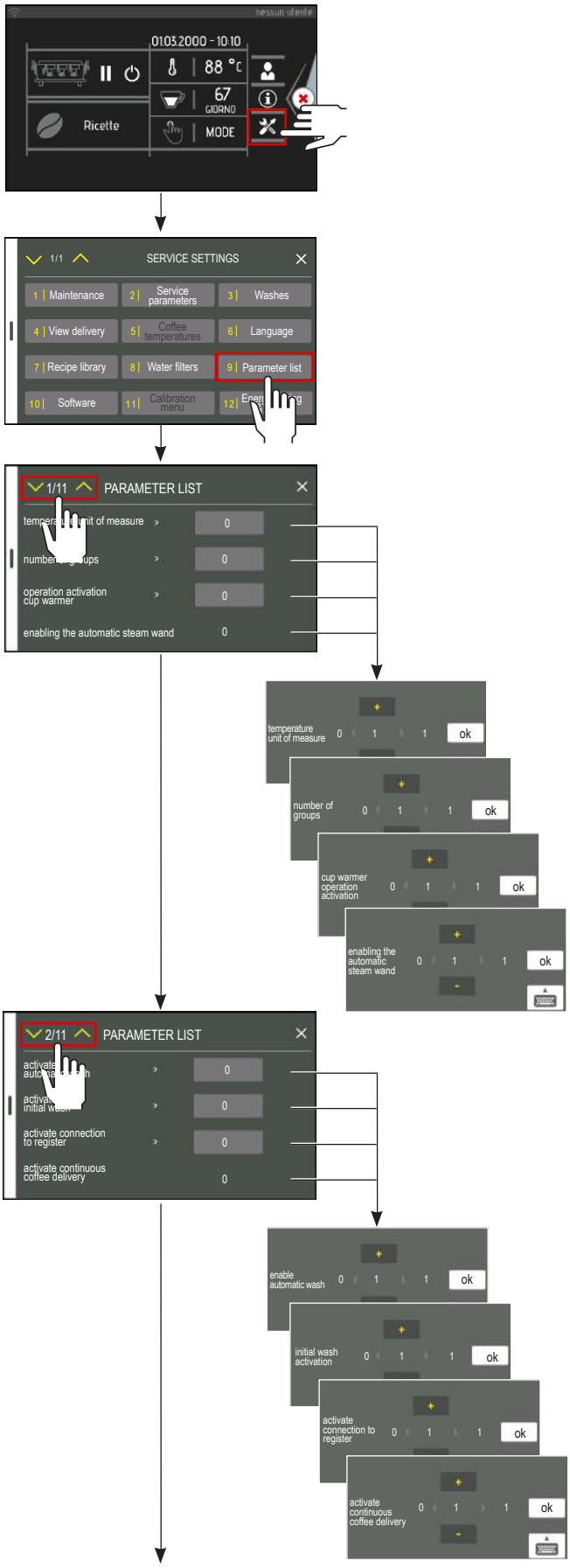
8.11 Parameter list

All the machine's parameters can be programmed in this section.

Use the + and - buttons or the display keyboard to edit the information.

To go from one page to another, select the 2/11 button.

The complete list of all parameters is provided in chap. 18 .

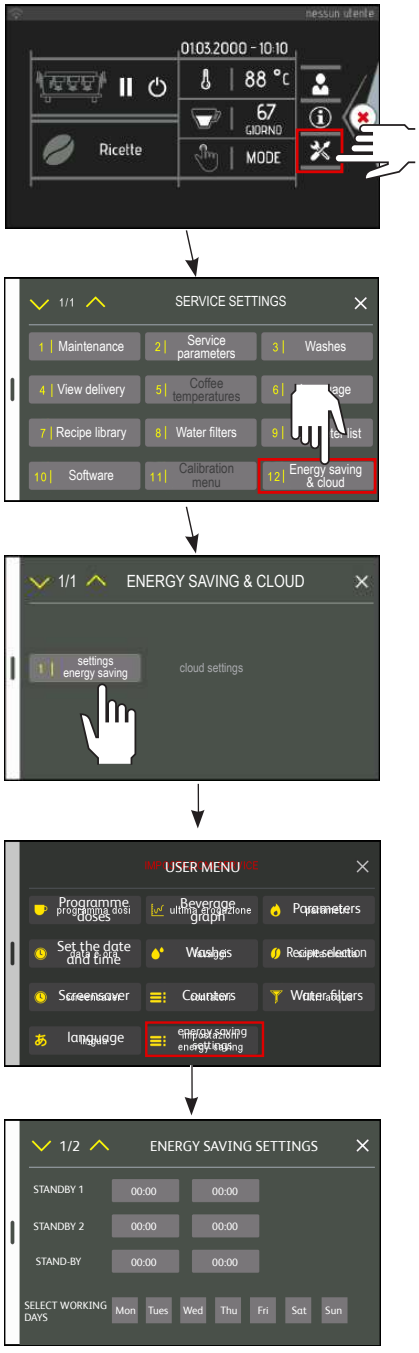


8.12 Energy saving & cloud

Through this section, it is possible to modify the stand-by parameters of the machine, and adjust working days and hours.

- Select the type of savings you want:
- select day
- using buttons + and -, or the display keyboard, set the desired time by confirming with the OK button
- Select the idle mode (Standby or completely switched OFF).
- confirm and save.

To awaken the machine from sleep mode, tap the touchscreen or press the manual dispensing button.

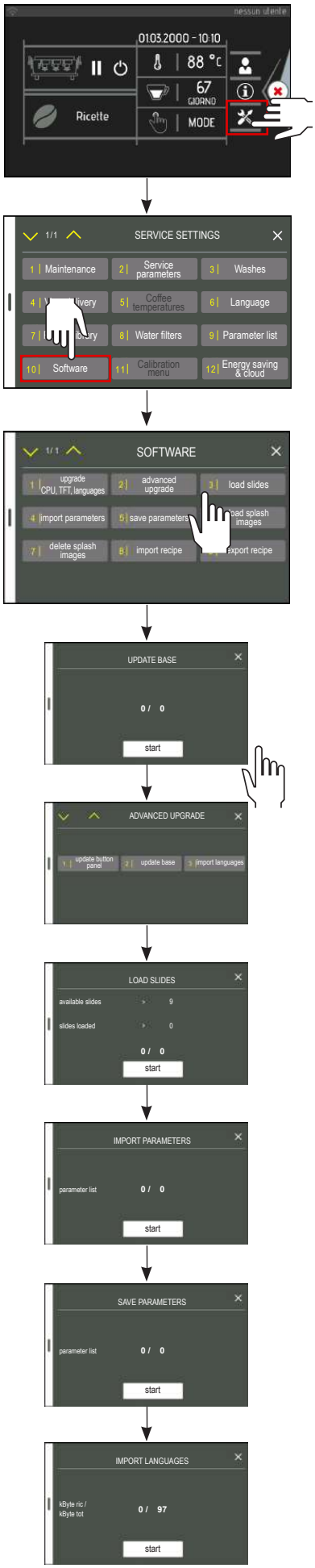


8.13 Software

Use the USB key to update the machine's software and upload useful information, in particular:

- CPU, TFT and language update;
- Advanced update;
- Upload slides;
- Import parameters;
- Save parameters;
- Importing languages;
- Importing recipes;
- Exporting recipes;
- To carry out the operation, select the avvia button.

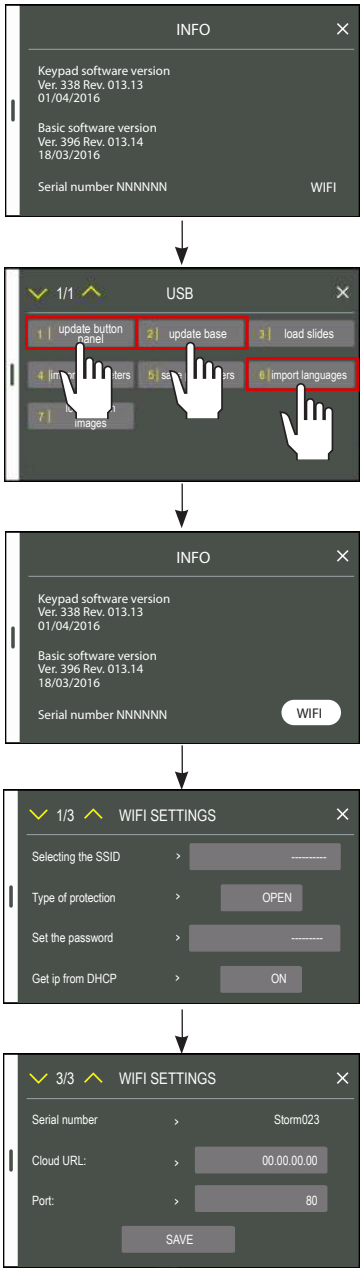
The Keypad Software and Basic Software versions can be seen on the display, as indicated in Chapter 7.

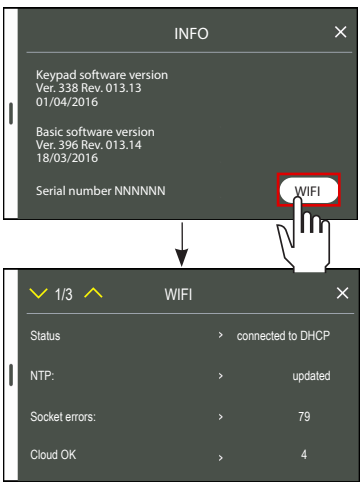


9. WI-FI CONNECTION

If WIFI service is set up on the machine (optional), it is possible to connect as follows:

- Check if the wording WIFI, which appears on the lower-right of the display, is inside a white rectangle.
- Choose the Wi-Fi network to connect to via the “SSID Choice” menu.
- Choose the type of Wi-Fi network protection via the “protection type” menu. The Wi-Fi network can provide password protection with different standards. Those supported are “open” (no protection), “WPA1” and “WPA2”.
- If the type of Wi-Fi network protection is not “OPEN”, enter the Wi-Fi network password in the “set password” field.
- A DHCP server can be installed on the selected Wi-Fi network to provide the machine with an IP address. If it is installed, you must select “ON” in the “obtain IP from DHCP” field, otherwise set it to “OFF”. In the latter case, the IP network configuration must be manually configured via the following fields:
  - “Set IP address” to set the IP address.
  - “Set subnet mask” to set the netmask.
  - “Set gateway” to set the network gateway IP address.
- Enter the IP address of a DNS server in the “set DNS” menu (e.g. 8.8.8.8).
- Press the “SAVE” button.
- Check whether the machine is connected.
- By accessing the machine’s INFO menu, and selecting the WIFI button it is possible to check the connection status. If the settings are correct, “Connected” will be displayed in the status field.





10. MAINTENANCE AND CLEANING

10.1 Safety precautions

Carefully read the instructions provided in the chapter I.

10.2 PPE features

When installing the machine, the following PPE is required:

It is mandatory that gloves be used to protect the user against cuts and abrasions and from all machine parts that become hot or come in contact with food (filter holders, filters, etc.).

10.3 Maintenance

10.3.1 *Scheduled maintenance*

Perform the following maintenance activities according to the specified frequency.
If the machine is used intensively, the checks need to be performed more frequently.

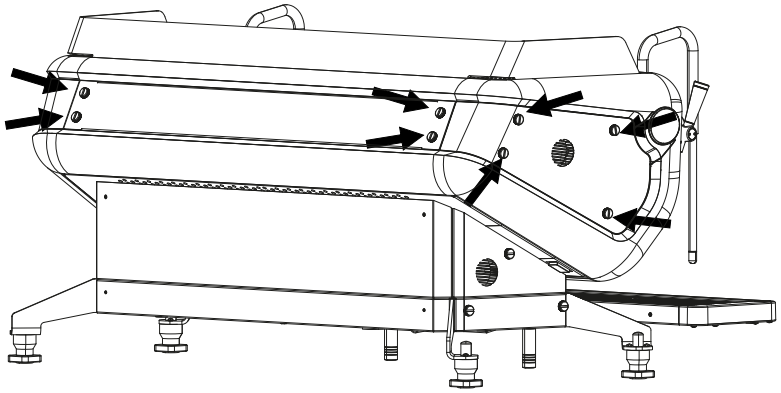
Component	Type of operation	3 months	1 Year	2 Years
PRESSURE TRANSDUCER	Check the heating unit pressure, which must be between 0.8 and 1.4 bar. Check the water pressure when coffee is being dispensed: check the pressure indicated on the gauge, which must be between 8 and 9 bar.	X		
FILTERS AND FILTER HOLDERS	Check the condition of the filters. Check for any damage on the edge of the filters and check whether any coffee grounds settle in the coffee cup, and replace the filters and/or filter holders, as required.	X		
DISPENSING GROUP	Replace the shower screen and group gasket as indicated in para. 10.8.6.	X		
WATER FILTER	Replace the water filter cartridge at the frequency indicated by the manufacturer. If limescale has formed in the hydraulic circuit, the filter will need to be replaced.	X		
WATER SOFTENER	Carry out the regeneration as instructed by the manufacturer. Take care in areas where the water is very hard. The water will need to be regenerated more frequently, especially if the machine is used intensively.	X		
GRINDER-DISPENSER	Check the ground coffee dose (around 7 grams each time) and check the degree of grinding. The burrs must always have sharp cutting edges. There will be too much powder in the grounds when they are deteriorating. We recommend calling out the Qualified Technician to replace the flat burrs after every 400/500 kg of coffee, or after every 800/900 kg for conical burrs. If the automatic burr wear and tear warning is enabled, follow the instructions in para. 8.3.5.	X		
HEATING UNIT	Replace the water in the heating unit as indicated in para. 6.4.	X		
HEATING UNIT	Replace the electric heating element if it becomes faulty or malfunctions. Do not replace the heating element with a more powerful one. Before making any changes, please contact the Manufacturer. If the thermostat of the electrical heating element is triggered, reset it by pressing the central button of the thermostat. However, before starting the machine up again, check what caused the problem. If the heating unit insulation needs to be removed, restore the insulation after the maintenance work has been completed. Remove and clean the heating unit level probes. Check whether there is any limescale build-up on the electric heating element. If there is a lot of limestone build-up, this indicates that the water filter has not been replaced, or that the softener has not been regenerated. When replacing any components, always replace the relative gasket as well.		X	

Component	Type of operation	3 months	1 Year	2 Years
SAFETY VALVE	Check that the safety valve is operating correctly as indicated in para.10.3.5 Should it become necessary to replace it, as a result of malfunctions, repeat the check of the new valve installed.		X	
	Replace the safety valve every 2 years.			X
SCNR VALVE	Check that the discharge-non-return valve is operating correctly as indicated in para. 10.3.7. Should it become necessary to replace it, as a result of malfunctions, repeat the check of the new valve installed.		X	
HYDRAULIC CIRCUIT	Check whether there is any lime-scale build-up in the hydraulic circuit. When replacing any components, always replace the relative gasket as well. If there is a lot of limestone build-up in the machine's hydraulic circuit, this indicates that the water filter has not been replaced, or that the softener has not been regenerated. Take care in areas where the water is very hard. The water filter will need to be replaced more frequently and the water softener will need to be regenerated more often, especially if the machine is used intensively.		X	
DRAIN	Check for any leaks on the water mains and sewer connections. Check the condition of the drain tray and the drain connection pipe.		X	
DISPENSING GROUP	Check the efficiency of the dispensing group's solenoid valve.		X	
WATER and STEAM NOZZLES	Check the condition of the nozzles and clean the sprayer.	X		
ELECTRIC SYSTEM/ VOLUMETRIC DOSING DEVICE	Check and clean the volumetric dosing device by removing any oxidation from the tips.		X	
TOUCH SCREEN	Check that the touch screen is working correctly and adjust the parameters if necessary. View the machine counts and check the performed work cycles.		X	
MOTOR PUMP	Check that the motor pump is working correctly and adjust if necessary.		X	

If any work is carried out on the machine electronics when the machine is still live, any guarantee will automatically be invalidated.

All original spare parts are available from the Manufacturer's website. The Manufacturer may provide the list of spare parts recommended for the maintaining the various versions of the machine.

Whenever you are repositioning the body panels, tighten the screws using a 3 Nm torque wrench.



10.3.2 *Maintenance after a short period of machine inactivity*

"Short period of machine inactivity" refers to a period of time exceeding one working week.
If the machine is switched back on after this period, all the water inside the hydraulic circuits must be replaced as indicated in para. 6.4.
Furthermore, all periodic maintenance operations must be carried out, see the previous paragraph.

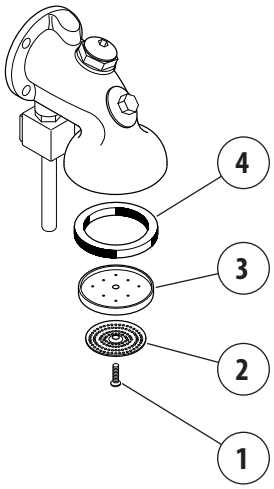
10.3.3 *Maintenance after a long period of inactivity*

If the machine is inactive for more than one month, all the water contained in the hydraulic circuits must be replaced, as indicated in para. 6.4 and the machine must be fully checked.

10.3.4 *Dispensing group maintenance*

Replace the dispensing group's shower screen (**2**) and group gasket (4) on a quarterly basis (we recommend only using original spare parts), by proceeding as follows:

- Loosen the screw (**1**).
- Remove the shower screen containment ring (**3**).
- Replace the group shower screen (**2**) and the rubber group gasket (**4**).
- Reassemble the components.



10.3.5 *SAFETY VALVE check*

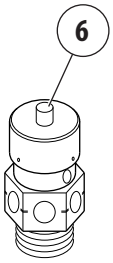
The pressure relief valve is one of the main components for machine safety. Therefore, it is important to carry out the following checks:

First check:

- Remove the machine's upper grid.
- Use pliers to pull the valve pin (**6**) upwards.
- If the pin will not budge, it probably means that the valve is encrusted with limestone and must be replaced.

Second check:

- Following par. 8.3.1, set a boiler pressure value above 0.20 MPa (2.0 bar).
- Turn the machine back on and wait for the pressure in the heating unit to rise.
- Check that the valve is working correctly at the maximum pressure of 0.19 bar (1.9 bar).



Should malfunctions be detected, it is mandatory to replace the safety valve.
<u>The Safety Valve must be replaced every 2 years.</u>
Only use the Manufacturer's original Safety Valves.

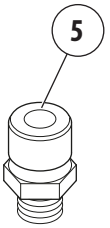
10.3.6 *NEGATIVE PRESSURE VALVE check*

First check:

- Remove the machine's upper grid.
- Use pliers to push the upper part of the valve pin (**5**) downwards.
- If the pin will not budge, it probably means that the valve is encrusted with limestone and must be replaced.

Second check:

- Turn the machine off.
- Open the steam valves and release all the pressure from inside the heating unit.
- Turn the machine back on and check that the valve is closing normally.

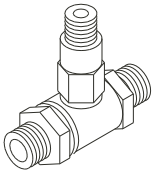


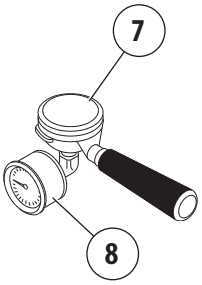
If any malfunctions are detected, the valve must be replaced.

10.3.7 *CHECK DRAIN -NON-RETURN VALVE*

The non-return drain valve is an important component for the correct operation of the machine. Perform the check as follows:

- Activate the dispensing groups for about 30 seconds.
- Attach a filter holder (**7**) with a pressure gauge (available on request) to the dispensing group.
- Activate the dispensing group, and use the pressure gauge (**8**) to monitor the pressure as it increases up to 0.8-0.9 MPa (8-9 bar).
- Check that the pressure is increasing due to the heated water expanding until it reaches approximately 1.2 MPa (12 bar): when this value is reached, it confirms that the valve is working correctly and the seals and solenoid valves are tight.
- Stop dispensing.
- Repeat the check on the other dispensing groups.





If any malfunctions are detected, the valve must be replaced.

10.4 Water filter maintenance

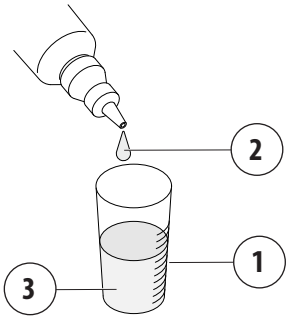
10.4.1 *Determining the water hardness*

As part of the filter maintenance, it is advisable to test the water beforehand.
To identify the carbonate hardness of the water use the special kit as follows:

- Put 10 ml of water to be tested in the test tube (**1**).
- Add a drop of reagent (**2**) and mix.
- Proceed in the same way by counting the number of drops until the solution (**3**) turns from Blue to Red.

1 DROP = 1°dKH

Example: 9 Drops ----> 9°dKH carbonate hardness



10.4.2 *Bypass configuration*

Depending on the hardness of the water, adjust the bypass of the water filter as shown in the table below. Example:

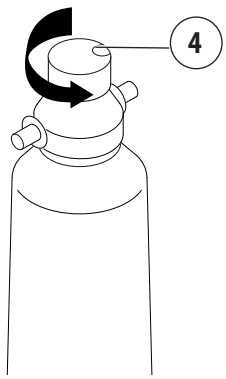
9°dKH water hardness

Bypass adjustment 2

Water hardness (°dKH)	Bypass Adjust.	Filter capacity (litres)			
		V	M	L	XL
4	3	6,250	9,500	13,000	17,000
5	3	5,000	7,600	10,400	13,600
6	3	4,165	6,330	8,665	11,330
7	3	3,570	5,425	7,425	9,710
8	2	3,125	4,750	6,500	8,500
9	2	2,775	4,220	5,775	7,555
10	2	2,500	3,800	5,200	6,800
12	1	1,865	2,835	3,885	5,080
14	1	1,600	2,430	3,330	4,355
16	0	1,185	1,800	2,465	3,220
20	0	945	1,440	1,970	2,575
24	0	790	1,200	1,640	2,145
≥ 25	0	≤ 755	≤ 1,150	≤ 1,575	≤ 2,060

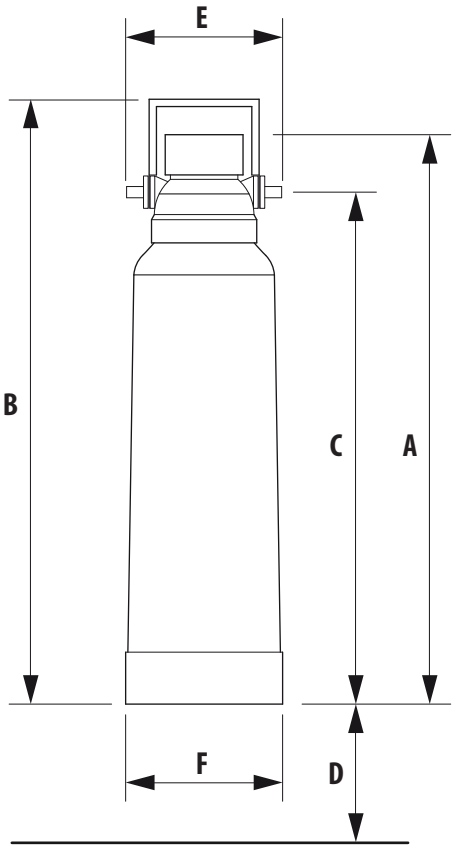
The values indicated in the table may vary, depending on the type of filter cartridge used.

To adjust the bypass, push the (**4**) button and turn.



10.4.3 *Technical data*

Model	V	M	L	XL
Connection coupling type	3/8"	3/8"	3/8"	3/8"
Min.- max. water supply pressure (bar)	2-8	2-8	2-8	2-8
Water temperature min. - max. (°C)	4-30	4-30	4-30	4-30
Room temperature min-max (°C)	4-40	4-40	4-40	4-40
Total height (A) without bracket (mm)	420	475	500	500
Total height (B) with bracket (mm)	445	500	530	530
Connection (C) height (mm)	370	425	450	450
Distance from the floor (D) (mm)	65	65	65	65
Filter head width (E) (mm)	125	125	125	125
Filter cartridge diameter (F) (mm)	115	130	145	145
Weight (kg) (empty/with water)	2.1/3.2	2.4/4.2	3.4/5.9	3.8/6.0



Replace the water filter cartridge at the frequency indicated by the manufacturer.

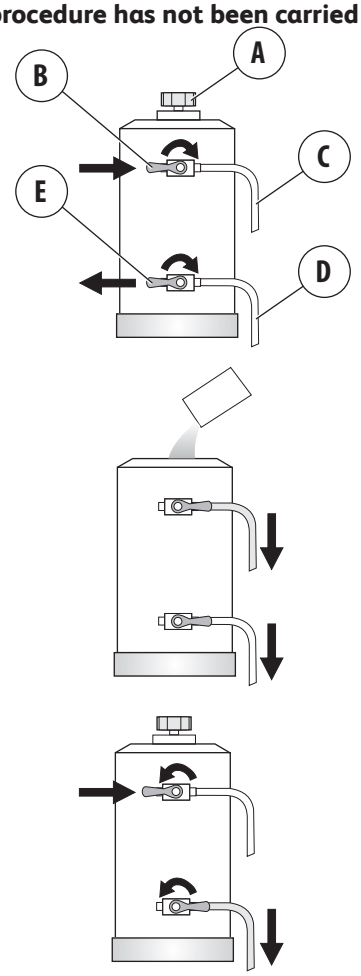
To use and maintain the water filter, follow the indications by the manufacturer.

10.5 Water softener regeneration

It is very important to regenerate the softener within the established times. The regeneration is to be carried out regularly: every 15 days. However, in locations where the water is very hard, it will be need to be regenerated more frequently. The same rule can be applied to locations where there is a large consumption of hot water (for tea, etc.).
Proceed as follows:

- Move the lever (**B**) and (**E**) from left to right.
- Remove the lid by unscrewing the knob (**A**).
- Release enough water through the pipe (**C**) to make room for the amount of salt required depending on the model (see table).
- Clean any salt or resin residues from the gasket located on the lid.
- Put the cover back on by securely screwing the knob (**A**) and move the lever (**B**) back from right to left.
- Let the salt water drain from the little hose (**D**) until the water is no longer salty (about 30-60 minutes). The salt allows the accumulated mineral salts to be released.
- Switch the lever (**E**) from right to left, back to its initial position.

The build-up of limescale in the hydraulic circuit and heating unit inhibits thermal exchange, which prevents the machine from working properly. Heavy incrustations in the heating unit may cause long machine shutdowns and in any case invalidate any guarantee, because this symptom indicates that the regeneration procedure has not been carried out.



In order to keep the water softener, and hence the machine, in perfect operating condition, it is necessary to regularly regenerate it, depending on the softener and hardness of the water used. The table below shows the quantity of softened water based on the hardness of the water in the various units of measurement:

- °f: French degree
- °d: German degree = 1.8°f
- mg CaCO3

For further information on softener installation, start-up and regeneration, refer to the instruction manual.

Amount of softened water based on hardness

°f	30	40	60	80	salt
°d	16.5	22	33	44	
mg CaCO3	30	40	60	80	
8 litres	1000 L	900 L	700 L	500 L	1.0 kg
12 litres	1500 L	1350 L	1050 L	750 L	1.5 kg
16 litres	2100 L	1800 L	1400 L	1000 L	2.0 kg

Softener model	Amount of salt
8 litres	1.0 kg
12 litres	1.5 kg
16 litres	2.0 kg

To use and regenerate the water softener, follow the instructions provided by the manufacturer.

10.6 Descaling

For all descaling operations of the machine components, only use the RUVECO ® CLEAN product supplied by the Manufacturer.

In cases where there is an excessive amount of limescale in the boiler and/or in the hydraulic circuit of the machine such as to hinder the correct operation of the equipment, it is necessary to carry out the descaling and possibly the replacement of the components concerned.

The RUVECO ® CLEAN product has been specially designed for descaling coffee machines.

The product is non-toxic and non-harmful, removes limescale and does not affect surfaces.

For how to use the product, carefully follow the instructions on the packaging or on the manufacturer's website.

10.7 Malfunctions and relative solutions

Problem	Cause	Action
NO POWER TO THE MACHINE	The main switch is in the OFF position. The machine switch is faulty. The mains switch is in the OFF position. The wiring is defective.	Turn the main switch to the ON position. Replace the main switch. Turn the mains switch to the ON position. Check for any faulty connections.
NO WATER IN THE HEATING UNIT	The water mains valve is shut off. The cut-off valve of the automatic level device is closed. The pump filter is clogged. The motor pump is disconnected or jammed. The water filling solenoid valve is faulty. The water inlet solenoid valve filter is clogged.	Open the water mains valve. Open the automatic level device valve. Replace the pump filter. Check the motor pump. Replace the water filling solenoid valve. Clean or replace the solenoid valve filter.
TOO MUCH WATER IN THE HEATING UNIT	The solenoid valve of the automatic level device is faulty. The level probe is out of order (clogged by limescale).	Replace the solenoid valve of the automatic level device. Replace the level probe.
WATER IS DISCHARGING FROM THE HEATING UNIT THROUGH THE SAFETY VALVE	The solenoid valve of the automatic level device is faulty. The level probe is out of order (clogged by limescale).	Replace the solenoid valve of the automatic level device. Replace the level probe. Replace the safety valve and check that it is working correctly.
WATER IS LEAKING FROM THE MACHINE	The tray is not draining. The drainpipe is broken, has detached, or the water flow is obstructed. Water is leaking from the hydraulic circuit.	Check the sewer drain. Check and restore the drainpipe connection to the tray. Restore the hydraulic seal by replacing the pipe, the gasket or the fitting as necessary.
WATER LEAKING FROM THE DISPENSING GROUP	The group gasket is worn. Damaged filter.	Replace the group gasket. Replace the filter holder filter.
THE DISPLAY INDICATES INCONSISTENT PRESSURE	The display is faulty. The motor pump has been calibrated incorrectly.	Replace the display. Adjust the motor pump calibration.
THE SAFETY VALVE IS IN OPERATION	The electronic control unit is faulty.	Check that the service heating unit system is working properly.
NO STEAM RELEASED FROM THE NOZZLES	The machine is switched off. The electric heating element is faulty. The temperature probe is faulty. The nozzle sprayer is clogged. The safety thermostat is deactivated or faulty.	Turn on the machine. Replace the electric heating element. Replace the temperature probe. Clean the steam nozzle sprayer. Reactivate or replace the thermostat.
WATER OR STEAM MIXED WITH WATER COMES OUT OF THE STEAM NOZZLES	The level of the heating unit is too high due to the level probe being incorrectly positioned inside the heating unit or the presence of limestone. The heating unit filling solenoid valve is leaking.	Check the condition of the level probe: check if it is positioned correctly and check for any surface lime-scale. Clean and replace the filling solenoid valve.
NO COFFEE IS DISPENSING	There is no water in the mains. The group solenoid valve is faulty. The pump is jammed. The group solenoid valve is clogged or dirty. The group filter is clogged. The volumetric dosing device is jammed. The inlet and outlet taps of the dosing device are closed. The inlet nozzle of the volumetric dosing device is dirty.	Check that there is water in the mains. Replace the group solenoid valve. Replace the pump. Clean or replace the solenoid valve. Clean or replace the filter. Check/replace the dosing device. Open the taps. Clean or replace the nozzle.
THE COFFEE GROUNDS ARE WET	The group solenoid valve drain is clogged. The dispensing group is too cold. The coffee has been ground too finely. There's not enough ground coffee.	Clean the group drain. Wait until the group has fully heated up. Adjust the coffee grinding. Increase the amount of ground coffee.

Problem	Cause	Action
GROUNDS FOUND IN CUPS	The filter holder is dirty. The filter holes are worn. The coffee has not been ground evenly. The group gasket is worn. The pump pressure is too high.	Clean the filter holder. Replace the filter. Replace the burrs. Replace the seal. Adjust the pump pressure.
THE CUP IS HIT BY COFFEE SPLASHES	There are steam pockets in the dispensing system. There are air pockets in the hydraulic circuit. The coffee has been ground too coarsely.	Reduce the water temperature. Check the cause and resolve the problem. Adjust the grinding as appropriate.
COFFEE TOO COLD	The wiring is faulty. There is limescale on the heating element. The safety thermostat has cut-in. Limescale has reduced the water circulation. The dispensing group is cold.	Check for any faulty connections. Clean the machine. Reset the safety heating element. Clean the exchanger connections, and clean or replace the two circulation pipes. Eliminate air pockets in the hydraulic circuit in the following manner: Disconnect the pump from the power supply. Close the softener's water valve. Perform a dry dispensing run for a few minutes. Reconnect the pump to the power supply. Open the water outlet tap of the softener. Dispense until water comes out. Wait a few minutes for it to heat up.
COFFEE DISPENSING TOO FAST	The coffee has been ground too coarsely. The ground coffee dose is insufficient.	Adjust the coffee grinding. Check the amount (grams) of ground coffee being used.
COFFEE DISPENSING TOO SLOWLY	The coffee has been ground too finely. The injector is clogged. The dispensing group is clogged. The filter holder is dirty.	Adjust the coffee grinding. Replace the injector. Check and clean the dispensing group. Clean and replace the filters, if necessary.
THE COFFEE DOSE IS NOT CONSISTENT WITH SET VALUES	The volumetric dosing device connection is faulty. The electronic control unit connection is faulty. The volumetric dosing device connector is wet. The volumetric dosing device is faulty: the LED does not flash during the dispensing process. The coffee has been ground too finely: there isn't enough water flow in the dosing device. The non-return valve is losing pressure (the dose is too small). The expansion valves are losing pressure (the dose is too small). Water is leaking from the group solenoid valve when coffee is being dispensed or when in standby. The volumetric dosing device is partially obstructed.	Check that the volumetric dosing device connector has been connected properly. Check that the connector has been connected correctly to the electronic control unit. Remove the volumetric dosing device connector and thoroughly dry the contacts. Replace the heads of the volumetric dosing device or replace the whole dosing device. Suitably adjust the grinding and check the burrs, if necessary. Check and replace the non-return valve, if necessary. Check and replace the expansion valves, if necessary. Clean and replace the solenoid valve, if necessary. Clean or replace the volumetric dosing device.

10.8 Cleaning operations

10.8.1 *General instructions*

A few simple cleaning tasks are required to have a perfectly sanitised and efficient appliance. The instructions provided here apply when the machine is being used on a regular basis. If the machine is used continuously, cleaning should be performed more frequently.

Do not use alkaline cleaners, solvents, alcohol or aggressive substance-based products (e.g. phosphoric, citric or sulfamic acids). The products/ cleaners used must be suitable for this purpose and not corrode the water circuit elements.
Use the chemical products according to the manufacturer's instructions.
Do not use abrasive cleaners which may scratch the bodywork's surface.
Always use clean and sanitised cloths when cleaning.
For all the cleaning operations of the machine components, only use the following detergents supplied by the Manufacturer:

- **EVO ® ESPRESSO MACHINE**
- **MFC ® BLUE MILK**

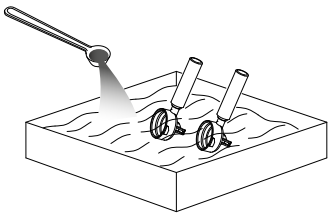
Cleaning	Daily	Weekly	3 months
Body and Grilles: Clean the panels of the body with a cloth dampened in lukewarm water. Remove the drip tray and cup holder grille and wash with hot water.	X		
Drip tray and internal parts: During periodic maintenance, clean the internal parts of the machine and the drip tray as indicated in par. 10.8.3.			X
Filters and Filter Holders: Wash the filters and filter holders on a daily and weekly basis, as indicated in para. 10.8.2. Perform the cleaning operations on a daily basis as indicated in para. 10.8.2 .	X	X	
Steam nozzle: Keep the nozzle clean at all times using a cloth dampened in lukewarm water. Check and clean the nozzle tips, by clearing the steam outlet holes with a small needle. Perform the wash on a weekly basis, as indicated in para. 10.8.7.	X	X	
Dispensing group: Wash the dispensing group as described in para. 10.8.4 Perform the cleaning operations on a daily basis as indicated in para. 10.8.5. Internally clean the group on a weekly basis, as indicated in para. 10.8.6.	X	X	
Grinder-dispenser and Hopper: Clean the hopper and the dispenser inside and out with a cloth dampened with warm water. When finished, dry all parts thoroughly.		X	

10.8.2 *Cleaning the filters and filter holders*

Caution: only immerse the filter holder cup in water and try not to get the handle wet.

Daily:

- Soak the filter and filter holder in hot water overnight so that the fatty coffee deposits can dissolve.
- rinse everything in cold water.

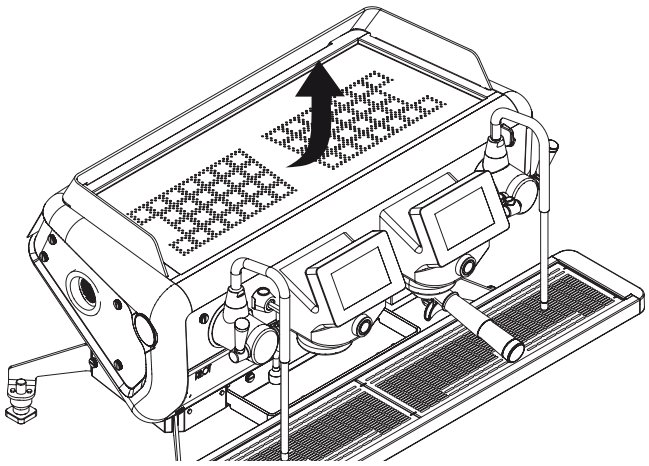


Weekly:

For the weekly cleaning of the filters and filter holders, use the EVO ® detergent diluted in water according to the procedures indicated on the packaging or on the manufacturer's website.

10.8.3 *Cleaning drip tray and internal parts*

During periodic maintenance, unscrew the screws and remove the cup warmer panel and clean the drip tray and internal parts of the machine using a cloth moistened in warm water.



10.8.4 *Scheduled dispensing group wash*

Use the EVO ® detergent according to the procedures indicated on the packaging or on the manufacturer's website.

If provided, the machine automatically requests that the dispensing groups be washed on a daily basis.
To begin the wash cycle, proceed as shown on the display. However you can also cancel the wash prompt and resume normal operation.

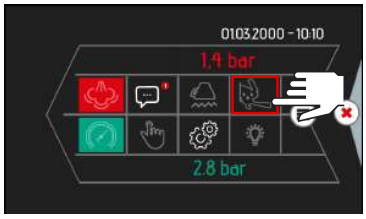
10.8.5 *Arbitrary dispensing group wash*

Use the EVO ® detergent according to the procedures indicated on the packaging or on the manufacturer's website.

If desired, it is possible to wash the groups at any time, proceeding as follows:

- Select the ◀ button.
- Press the menu button ☰.
- Select the configuration button.
- Press the Washes button.

Press the icon on the control panel to access the washing screen directly.

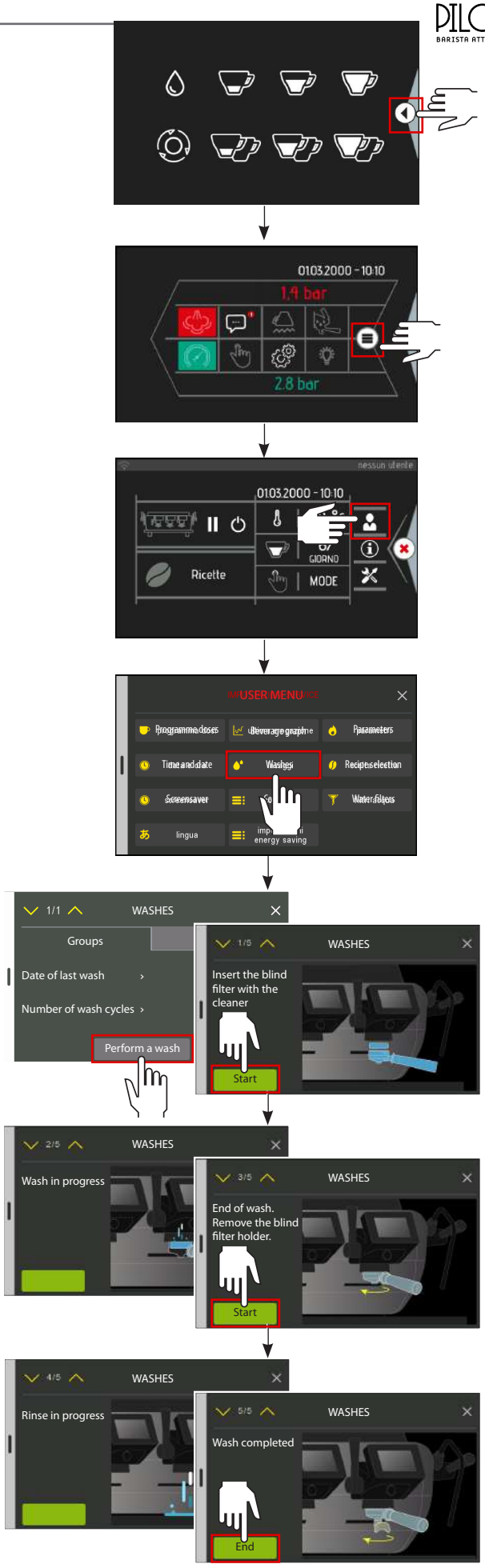


- The display will indicate the date of the last wash cycle and the number of wash cycles.
- To start the wash, press the Perform wash button.
- Insert a suitable detergent in the blind filter holder, secure it to the dispensing group and press the Start button.
- Wait for wash cycle to finish, then remove the filter holder from the dispensing group and press the Start button.
- When the rinse cycle has finished, remove the filter holder from the dispensing group and press the End button.

During the washing phase, all the coffee selections of that group are disabled.
Washes are interrupted if the machine is switched off; to resume the washes automatically, turn the machine on again.

If it has been programmed (P15 with value 2), it is possible to perform a brief rinsing of the group (about 3 seconds) by pressing the manual button or the START/STOP button on the display.

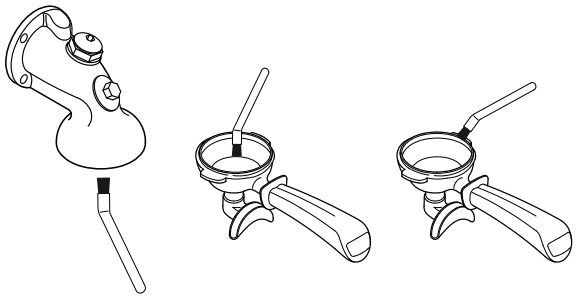
If a certain number of cycles has been programmed and such number is exceeded, the "Perform group wash now?" message appears on the display. Proceed with washing following the instructions on the display.



10.8.6 *Cleaning the unit spray heads, spray head holder and filter holder*

Daily

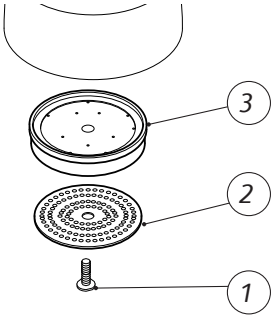
Clean the dispensing group and filter holder shower screens with the supplied brush on a daily basis.
Thoroughly clean the inside of the coupling ring and filter holder, as well as the edge and the wings of the filter holder, so as to eliminate any accumulated coffee residues.



Use the special brush supplied (see the Spare Parts Catalogue).

Weekly

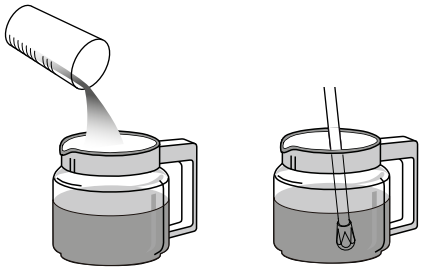
Clean the shower screen and shower screen containment ring as follows:



- Loosen the screw using a screwdriver (**1**).
- Remove the shower screen (**2**) and the shower screen containment ring (**3**).
- Wash the two components with hot water.
- Reposition the shower screen and shower screen containment ring in their original position and lock everything in place with the screw.

10.8.7 *Cleaning the steam nozzle*

For the weekly cleaning of the steam nozzle, use the MFC ® detergent diluted in water according to the procedures indicated on the packaging or on the manufacturer's website.



10.8.8 *Cleaning the counter*

Before cleaning the counter, remove the drip tray via the side grips.

11. SPARE PARTS

To replace machine components and/or parts, refer to the official documentation provided by the Manufacturer.

All original spare parts are available on the Manufacturer's website. The Manufacturer can provide a list of spare parts recommended for maintaining the various versions of the machine on request.

If non-original spare parts are used, the safety of the machine cannot be guaranteed. The Manufacturer reserves the right to void the machine guarantee.

12. DISPLAY WARNINGS

Code	Warning	Cause	Action
A001	INFO: Initial self-test	Negative initialisation cycle.	Check how many groups have been set in the machine. Switch the machine off and back on again..
A002	INFO: date not set	Date and time are missing.	Set the Date and Time.
A003	INFO: Control sensor on board	Board defective or open.	Switch the machine off and back on again. If necessary, replace the board.
A004	INFO: Control temperature sensor steam heating unit	The steam heating unit temperature probe is disconnected or faulty.	Check the connection of the steam heating unit probe. If necessary, replace the probe.
A005	INFO: Control temperature sensor cup warmer	The cup warmer temperature probe is disconnected. The temperature probe has short-circuited. The cup warmer has overheated.	Check the cup warmer probe connection. If necessary, replace the probe.
A006	INFO: Check temperature sensor automatic steam wand	Automatic steam wand temperature probe disconnected. The temperature probe has short-circuited.	Check the automatic steam wand probe connection. If necessary, replace the probe.
A007	INFO: High-temperature board pre-warning.	Board over the pre-warning temperature.	Switch the machine off and wait a few minutes.
A008	INFO: High board temperature	Board temperature over the safety threshold. Cooling fan disconnected or faulty.	Switch the machine off and wait a few minutes. Check and, if necessary, replace the cooling fan.
A009	INFO: Dosing device inlet	The volumetric dosing device is not counting the water. 6 seconds have passed since the dosing device received the last impulse.	Check the volumetric dosing device connection.
A010	INFO: Steam heating unit heating timeout	The steam heating unit heating circuit is disconnected. The safety thermostat is open. Fuse F9 has burned out. The static relays are faulty. Defective motherboard.	Check the steam heating unit heating circuit and if necessary, replace the burned parts.
A011	INFO: Steam heating unit safety level	The water in the steam heating unit has dropped below the minimum level.	Switch the machine off and back on again. Check that the probe is not clogged with limescale. Check that the minimum level probe has been connected correctly. Check that water is passing through the heating unit correctly.
A012	INFO: Steam heating unit initial heating timeout	During operation: The steam heating unit did not finish topping up the water within the maximum time (45 seconds).	Check the steam heating unit water filling hydraulic circuit: Switch the machine off and back on again. Check that there is water in the water mains. Check the filling solenoid valve / pump filter. Check fuse F1 in the control unit.
A013	INFO: Steam heating unit topping up timeout	During operation: The steam heating unit did not finish topping up the water within the maximum time (45 seconds).	Check the steam heating unit water filling hydraulic circuit: Switch the machine off and back on again. Check that there is water in the water mains. Check the filling solenoid valve / pump filter. Check fuse F1 in the control unit.
A015	INFO: Inconsistent water levels	The water in the steam heating unit has dropped below the minimum level.	Switch the machine off and back on again. Check that the probe is not clogged with limescale. Check that the minimum level probe has been connected correctly. Check that water is passing through the heating unit correctly.
A016	INFO: Till serial timeout	The communication with the till is interrupted.	Check the connection with the till.
A017	INFO: Check services heating unit pressure transducer	The steam heating unit pressure probe is disconnected or faulty.	Check the connection of the steam heating unit probe. If necessary, replace the probe.
A018	INFO: Control pressure transducer mains/pump	Pump pressure probe faulty or defective.	Check the pump pressure probe connection. If necessary, replace the probe.
A019	INFO: Inconsistent NTC values and services heating unit pressure sensor	The steam heating unit temperature probe is disconnected or faulty.	Check the connection of the steam heating unit probe. If necessary, replace the probe.

Code	Warning	Cause	Action
A020	INFO: Timeout communication between base card and expansion pumps	Communication error board - pumps	Switch the machine off and back on again.
A021	INFO: PWM expansion pump overcurrent	PWM expansion pump overcurrent	Switch the machine off and back on again.
A022	WARNING: Overpressure steam heating unit	Overpressure steam heating unit.	Check steam heating unit.
A023	WARNING: Filling solenoid valve steam heating unit	Problems of heating unit filling solenoid valve.	Check the filling solenoid valve of the steam heating unit.
A024	WARNING: Mixed water solenoid valve	Problems of the mixed water solenoid valve.	Check the mixed water solenoid valve.
A025	WARNING: Solenoid valve tea water 1	Problems of the solenoid valve of tea water 1.	Check the solenoid valve of tea water 1.
A026	WARNING: Solenoid valve of tea water 2	Problems of the solenoid valve of tea water 2.	Check the solenoid valve of tea water 2.
A027	WARNING: Automatic steam wand solenoid valve	Problems of the automatic steam wand solenoid valve.	Check the automatic steam wand solenoid valve.
A028	WARNING: Condensation solenoid valve 1	Problems of the condensation solenoid valve 1.	Check condensation solenoid valve 1.
A029	WARNING: Condensation solenoid valve 2	Problems of the condensation solenoid valve 2.	Check condensation solenoid valve 2.
A030	WARNING: Automatic steam wand solenoid valve	Problems of the automatic steam wand solenoid valve.	Check the automatic steam wand solenoid valve.
A031	WARNING: Failure power supply voltage 24 V	Problems on the low voltage power supply.	Check electrical system.
A033	INFO: Check group temperature sensor	Problems with the group temperature sensor.	Check group temperature sensor.
A034	INFO: Check group heating unit temperature sensor	Problems group heating unit temperature sensor.	Check group heating unit temperature sensor.
A036	INFO: Time-out heating group	Group heating circuit interrupted. Defective motherboard.	Check the group heating circuit, if necessary replace the burned out or defective components.
A038	INFO: Time-out heating group heating unit	The steam heating unit heating circuit is disconnected. The safety thermostat is open. Fuse F9 has burned out. The static relays are faulty. Defective motherboard.	Check the steam heating unit heating circuit and if necessary, replace the burned parts.
A039	INFO: Group dosing device	The volumetric dosing device is not counting the water. 6 seconds have passed since the dosing device received the last impulse.	Check the volumetric dosing device connection. Check that there is water in the water mains. Check the pump filter / volumetric dosing device filter. Check the 1 mm group nozzle. Check the 0.5 mm inlet nozzle of the volumetric dosing device.
A040	INFO: Group low pressure pre-warning	Problems on the dispensing group.	Check the dispensing group.
A041	INFO: Group low pressure	Problems on the dispensing group.	Check the dispensing group.
A042	INFO: No water in group pre-warning	No water in the hydraulic circuit.	Check the hydraulic circuit.
A043	INFO: Low pressure coffee heating unit	Problems with the coffee heating unit.	Check the coffee heating unit.
A044	WARNING: Group keyboard base communication timeout	Display - CPU board communication error.	Check how many groups have been set in the machine. Switch the machine off and back on again (but not whilst updating).
A045	INFO: Time-out initial filling up heating units coffee group	The coffee heating unit did not complete the filling in the maximum time.	Check the hydraulic circuit of the coffee heating unit: Switch the machine off and back on again. Check that there is water in the water mains.
A046	INFO: Block group pump	The pump is jammed.	Check the pump verify the hydraulic circuit
A047	INFO: Dispensing pressure excessive	The dispensing pressure is too high.	Adjust the pump pressure.
A048	INFO: Control heating unit pressure transducer coffee group	The coffee heating unit pressure probe is disconnected or defective.	Check connection pressure probe. If necessary, replace the probe.
A049	WARNING: Anomaly group pressure switch	Group pressure switch disconnected or defective.	Check connection of the pressure switch. If necessary replace the pressure switch.

Code	Warning	Cause	Action
A050	WARNING: Overpressure coffee group heating unit	The pressure of the coffee heating unit is too high.	Check the heating unit and the hydraulic circuit.
A051	WARNING: Group solenoid valve	Defective or disconnected group solenoid valve.	Check group solenoid valve. If necessary replace the solenoid valve.
A052	WARNING: Pre-infusion unit solenoid valve	Pre-infusion unit solenoid valve defective or disconnected.	Check the pre-infusion solenoid valve. If necessary replace the pre-infusion solenoid valve.
A053	WARNING: Leakage hydraulics unit	Leakage hydraulics of the group.	Check the hydraulic circuit.
M065	WARNING: Dispensing too quickly	Coffee is being dispensed too quickly.	Check the grinding and the dose.
M066	WARNING: Dispensing too slowly	Coffee is being dispensed too slowly.	Check the grinding and the dose.
M067	WARNING: Burr wear and tear	the programmed threshold for changing the burrs has been reached.	Replace the grinder-dispenser's burrs.
M068	WARNING: Water softener regeneration	the programmed threshold for regenerating the softener has been reached.	Perform the relative procedure.
M069	WARNING: Maintenance threshold A pre-warning	the programmed threshold for maintenance has been reached.	-
M070	WARNING: Maintenance threshold A	the programmed threshold for maintenance has been reached.	Perform scheduled maintenance.
M071	WARNING: Maintenance threshold B pre-warning	the programmed threshold for maintenance has been reached.	-
M072	WARNING: Maintenance threshold B	The programmed threshold for maintenance has been reached.	Perform scheduled maintenance.
M073	WARNING: Maintenance threshold C pre-warning	The programmed threshold for maintenance has been reached.	-
M074	WARNING: Maintenance threshold C	The programmed threshold for maintenance has been reached.	Perform scheduled maintenance.
M075	WARNING: Advance notice to perform maintenance	The programmed threshold for Service Plan maintenance has been almost reached.	-
M076	WARNING: Service Plan	The programmed threshold for Service Plan maintenance has been reached.	Perform scheduled maintenance.
M079	WARNING: It is advisable to manually empty the steam heating unit	The water in the heating unit needs to be regenerated.	Perform the relative procedure.
M081	WARNING: Group 1 dispensing too slowly	The dispensing of group 1 is too slow.	Check the grinding and the dose.
M082	WARNING: Group 2 dispensing too slowly	The dispensing of group 2 is too slow.	Check the grinding and the dose.
M083	WARNING: Group 3 dispensing too slowly	The dispensing of group 3 is too slow.	Check the grinding and the dose.
M084	WARNING: Group 4 dispensing too slowly	The dispensing of group 4 is too slow.	Check the grinding and the dose.
M085	WARNING: Group 1 dispensing too quickly	The dispensing of group 1 is too fast.	Check the grinding and the dose.
M086	WARNING: Group 2 dispensing too quickly	The dispensing of group 2 is too fast.	Check the grinding and the dose.
M087	WARNING: Group 3 dispensing too quickly	The dispensing of group 3 is too fast.	Check the grinding and the dose.
M088	WARNING: Group 4 dispensing too quickly	The dispensing of group 4 is too fast.	Check the grinding and the dose.
M089	ATTENTION: Start washing the automatic steam wand		Please wait until the end of the washing
M100	WARNING: Release water and steam	Release water and steam from the group to remove any air in the coffee heating unit.	Wait for the process to finish (10 seconds).
M101	WARNING: Steam outlet	Release steam from the tea nozzle to remove any air in the heating unit.	Wait for it to automatically close.
M102	WARNING: Coffee heating unit water replacement in progress	The water in the heating unit needs to be regenerated.	Perform the relative procedure.
M103	Heating in progress... wait		Wait for the end of the heating process
M130	WARNING: Problem communication on channel CAN 2	Communication error.	Check how many groups have been set in the machine. Switch the machine off and back on again.

13. DECOMMISSIONING

13.1 Short period of machine inactivity

"Short period of machine inactivity" refers to a period of time exceeding one working week.
If the machine is reactivated after this period, the Technician must replace all the water contained in the hydraulic circuits as indicated in para. 6.4.
All the scheduled maintenance operations must also be performed - see para. 10.3.1.

13.2 Long period of machine inactivity

"Long period of machine inactivity" refers to a period of time exceeding 30 working days.
In this case, the machine must be disconnected from the electric, hydraulic and gas mains if fitted, and all the internal circuits must be drained of water.
To connect the machine after this period, follow the initial installation procedure.

14. DISASSEMBLY

To disassemble the machine, follow the installation procedure in reverse order - see chap. 5.
All dismantled components must be divided by material to make identification easier and then disposed of at the authorised collection centres, as instructed in chap. 15.

15. DISPOSAL

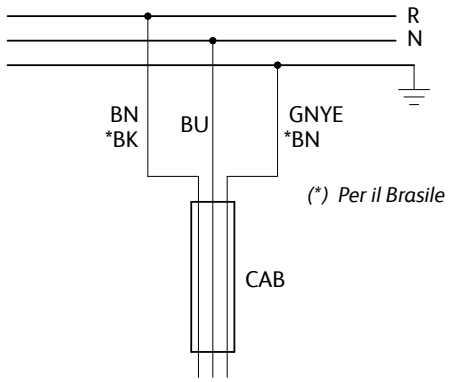
For the European Union and the European Economic Area only.

This symbol indicates that the product cannot be disposed of with household waste, pursuant to the WEEE Directive (2012/19/EC), the Battery Directive (2006/66/EC) and/or the national laws implementing those Directives.
The product should be handed over to a designated collection point, for example the dealer when purchasing a new product with similar features, or an authorised collection site that recycles electrical and electronic equipment waste (WEEE), as well as batteries and accumulators. Improper handling of this type of waste can have negative consequences on the environment and human health, due to the potentially hazardous substances which are usually found in this kind of waste.
Your cooperation in correctly disposing of this product will contribute to the effective use of natural resources and you will avoid incurring fines provided by law. For more information about recycling this product, contact either your local authority, the entity responsible for waste collection, an authorised dealer or your household waste disposal service.

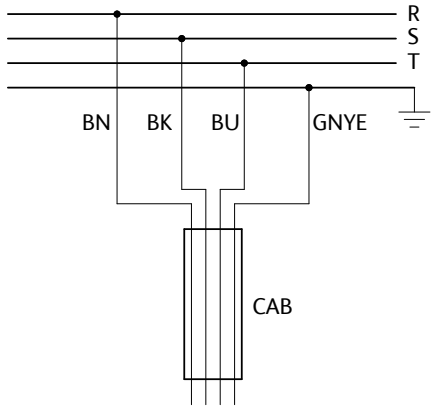
Before disposing of the machine, we recommend seeking advice from the Technician and/or the seller.

16. ELECTRICAL DIAGRAMS

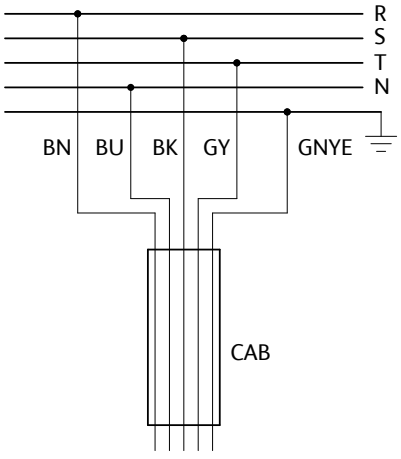
16.1 Connection to the POWER SUPPLY



CAVO A 3 CONDUTTORI (Fase+Neutro+Terra)



CAVO A 4 CONDUTTORI (3 Fasi+Terra)

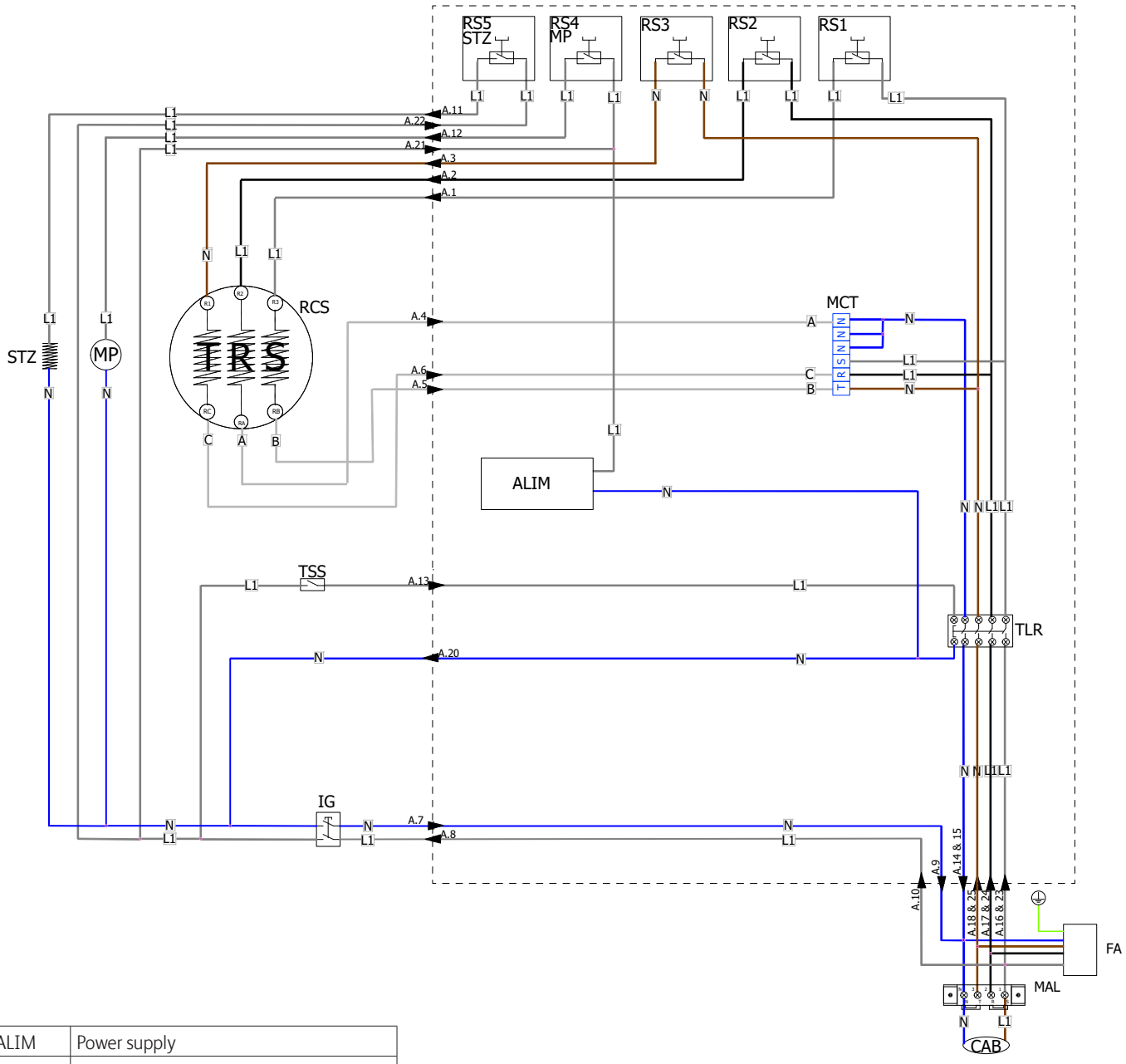


CAVO A 5 CONDUTTORI (3 Fasi+Neutro+Terra)

R	Phase
S	Phase
T	Phase
N	Neutral
⏚	Earth
BU	Blue
CAB	Power supply cable
GY	Grey
GNYE	Yellow-green
BN	Brown
BK	Black

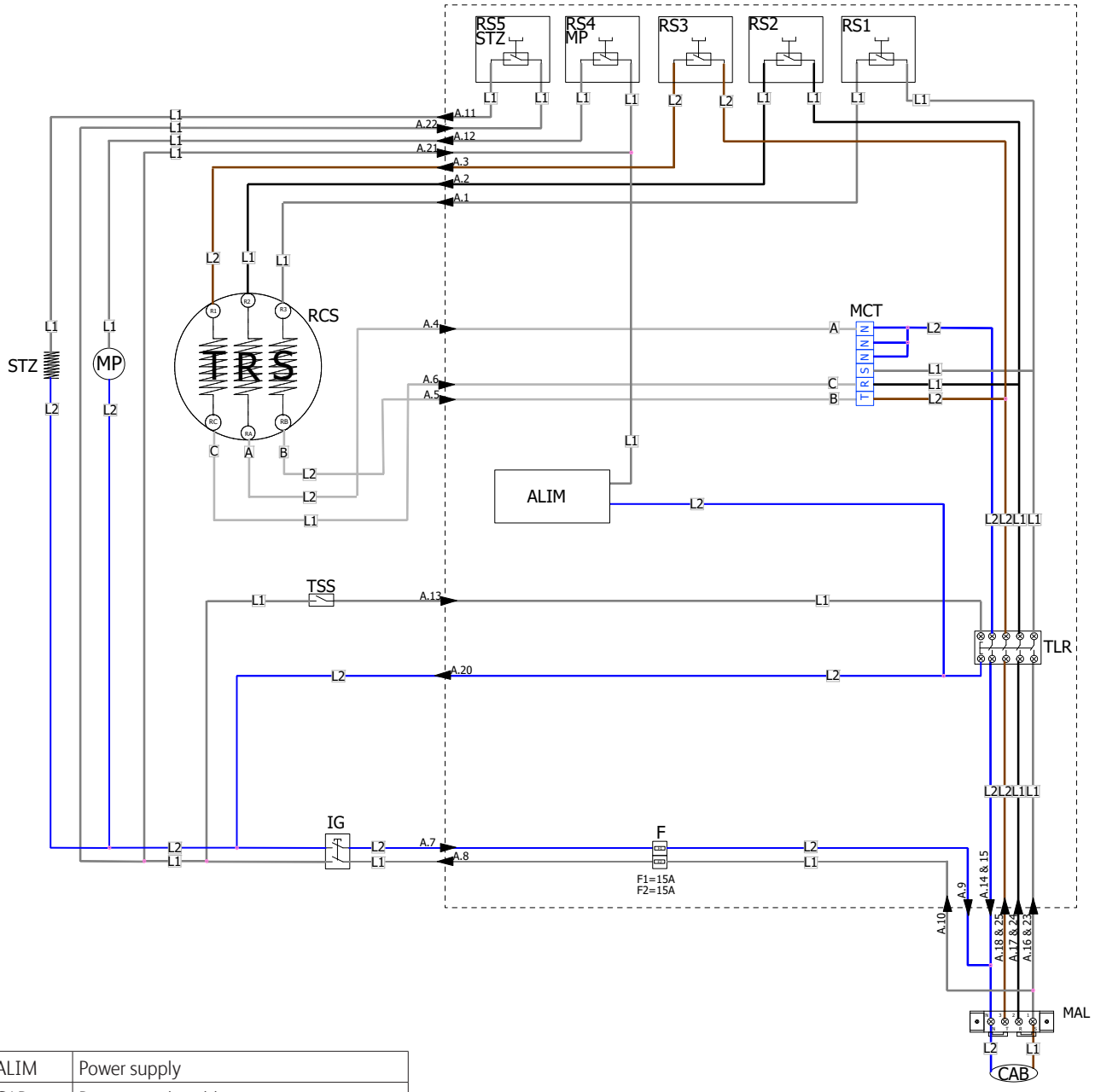
To correctly connect the machine to the electric mains, please refer to the information provided on the nameplate (see the example in paragraph 2.8).

16.2 Single-phase high voltage electrical diagram



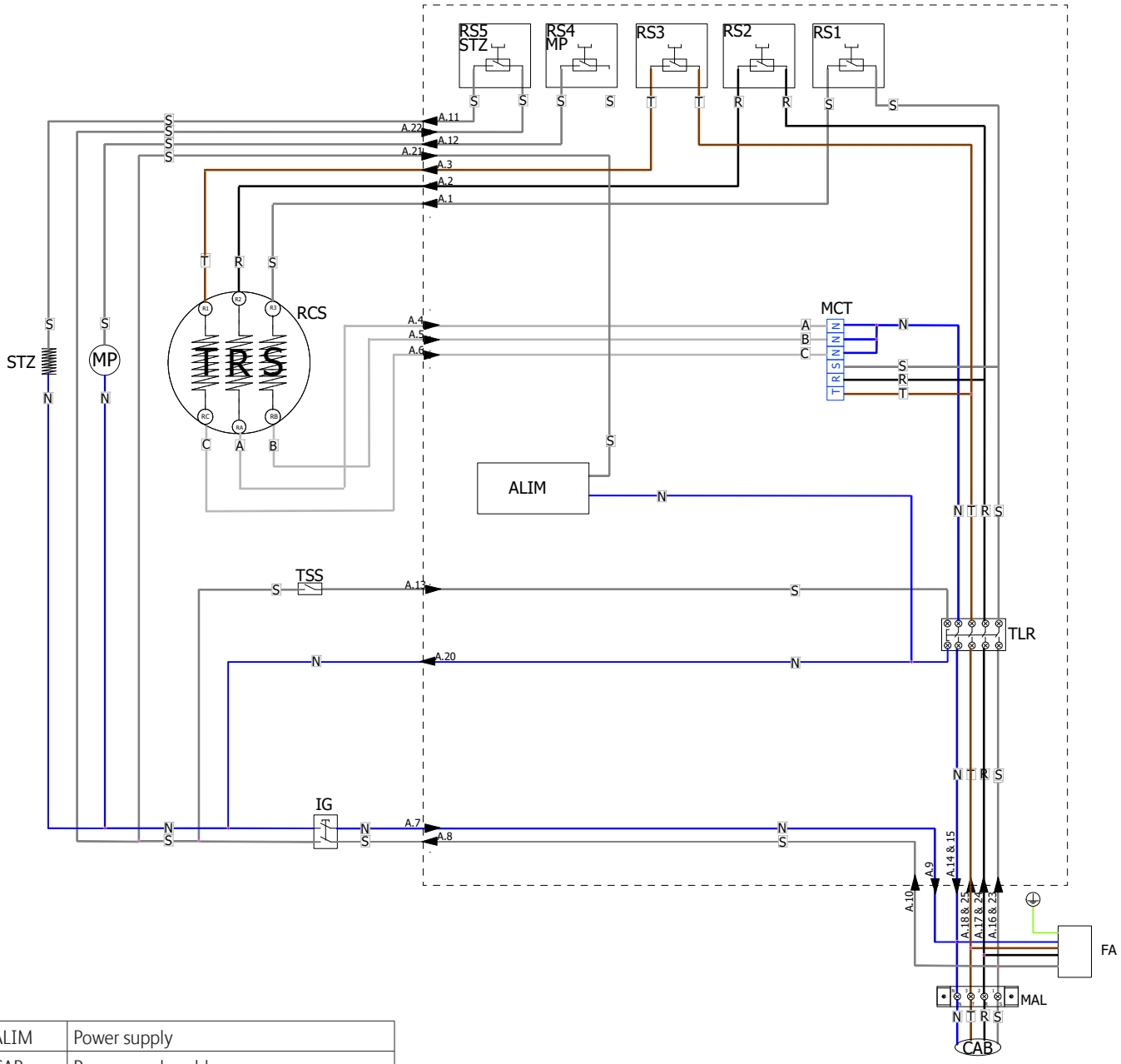
ALIM	Power supply
CAB	Power supply cable
FA	Power supply filter
IG	Main switch
MAL	Power supply terminal board
MCT	Voltage change terminal board
MP	Motor pump
RCS	Steam heating unit heating element
RS	Static relay
STZ	Cup warmer
TLR	Remote switch
TSS	Steam heating unit safety thermostat
R	Phase R
S	Phase S
T	Phase T
N	Neutral

16.3 UL single-phase high voltage electrical diagram



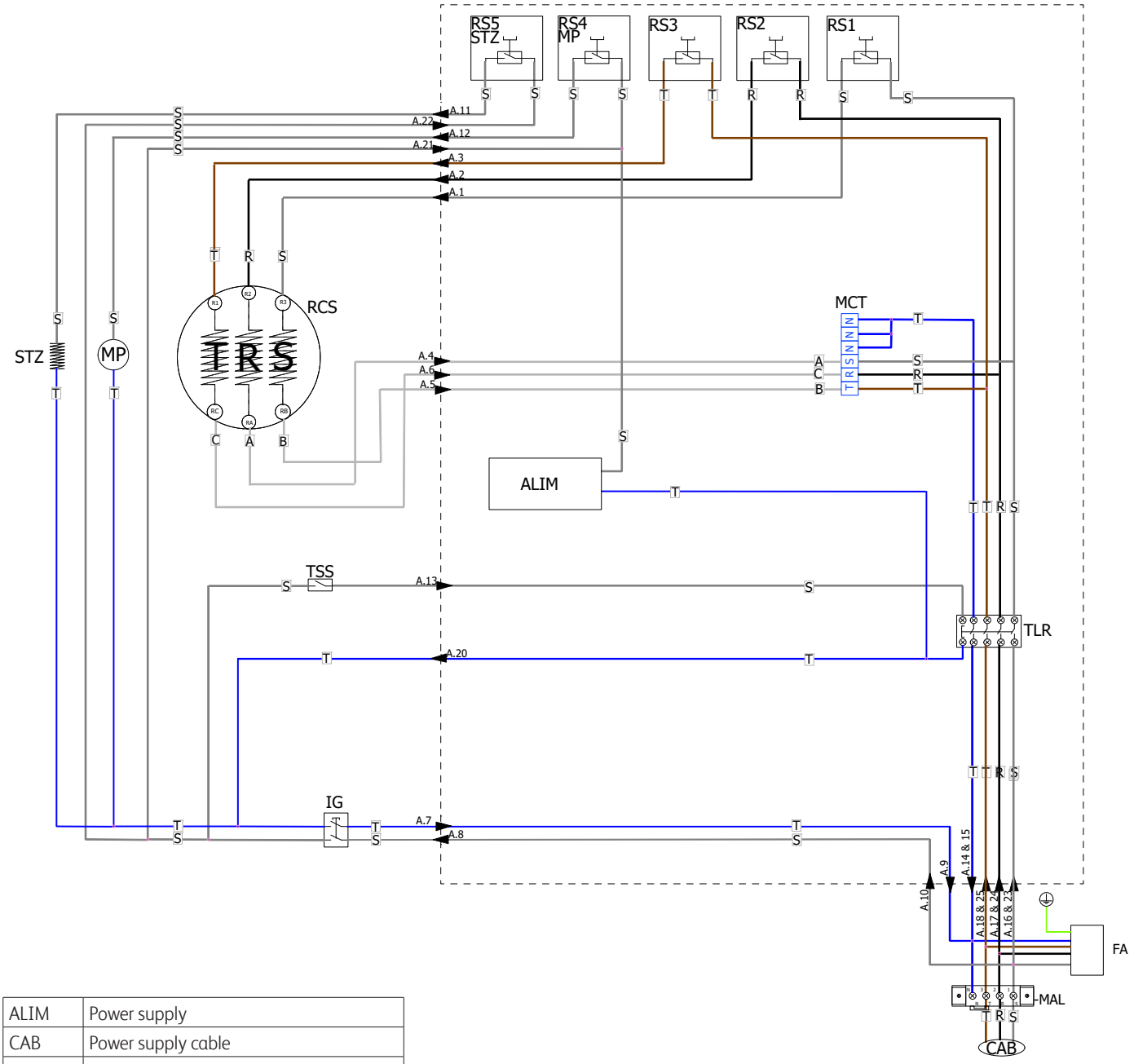
ALIM	Power supply
CAB	Power supply cable
F	Fuse 6.3 A
IG	Main switch
MAL	Power supply terminal board
MCT	Voltage change terminal board
MP	Motor pump
RCS	Steam heating unit heating element
RS	Static relay
STZ	Cup warmer
TLR	Remote switch
TSS	Steam heating unit safety thermostat
R	Phase R
S	Phase S
T	Phase T
L1	Phase 1
L2	Phase 2
N	Neutral

16.4 Three-phase star high voltage electrical diagram



ALIM	Power supply
CAB	Power supply cable
FA	Power supply filter
IG	Main switch
MAL	Power supply terminal board
MCT	Voltage change terminal board
MP	Motor pump
RCS	Steam heating unit heating element
RS	Static relay
STZ	Cup warmer
TLR	Remote switch
TSS	Steam heating unit safety thermostat
N	Neutral
R	Phase
S	Phase
T	Phase

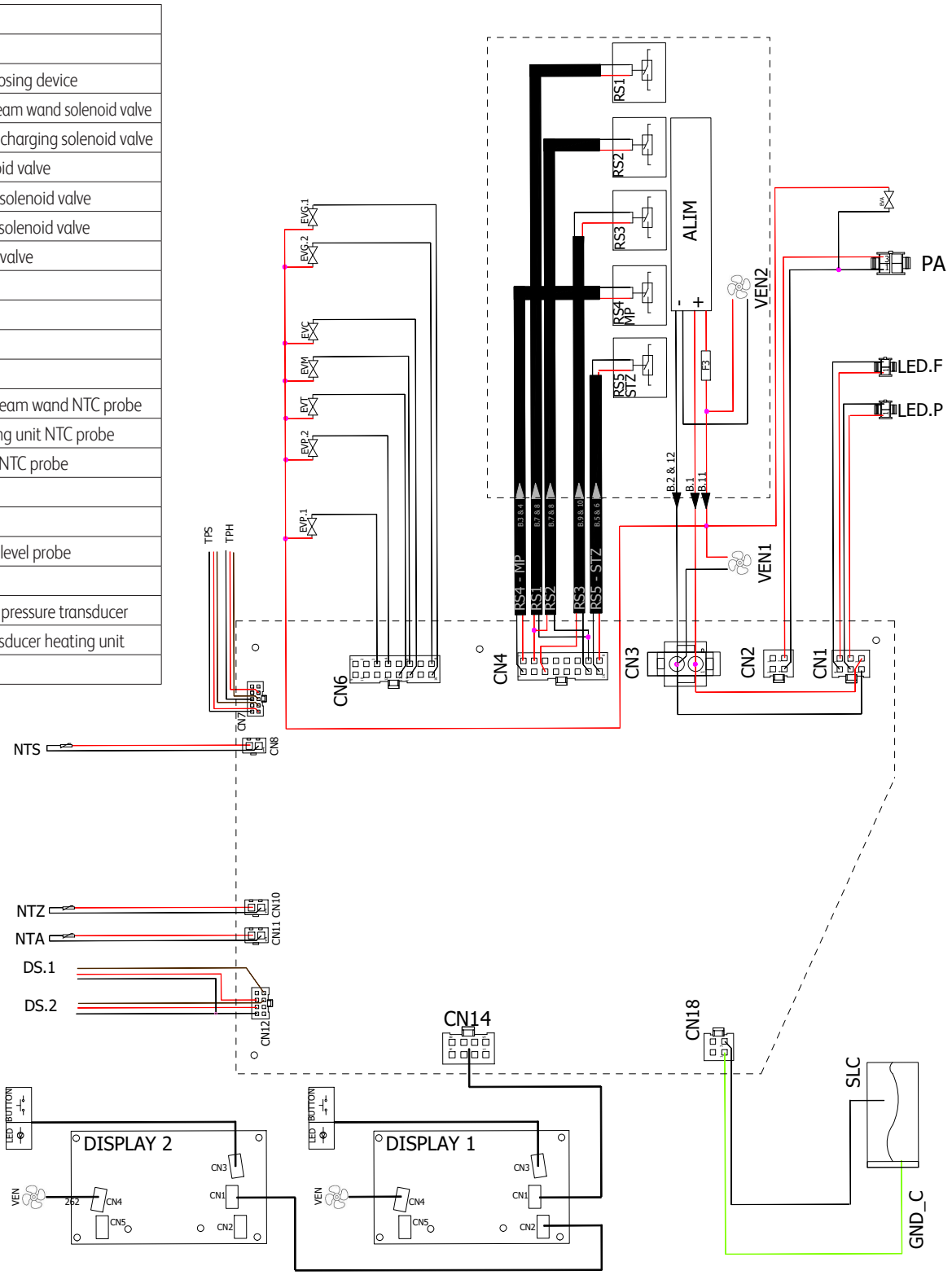
16.5 Three-phase triangle high voltage electrical diagram



ALIM	Power supply
CAB	Power supply cable
FA	Power supply filter
IG	Main switch
MAL	Power supply terminal board
MCT	Voltage change terminal board
MP	Motor pump
RCS	Steam heating unit heating element
RS	Static relay
STZ	Cup warmer
TLR	Remote switch
TSS	Steam heating unit safety thermostat
N	Neutral
R	Phase
S	Phase
T	Phase

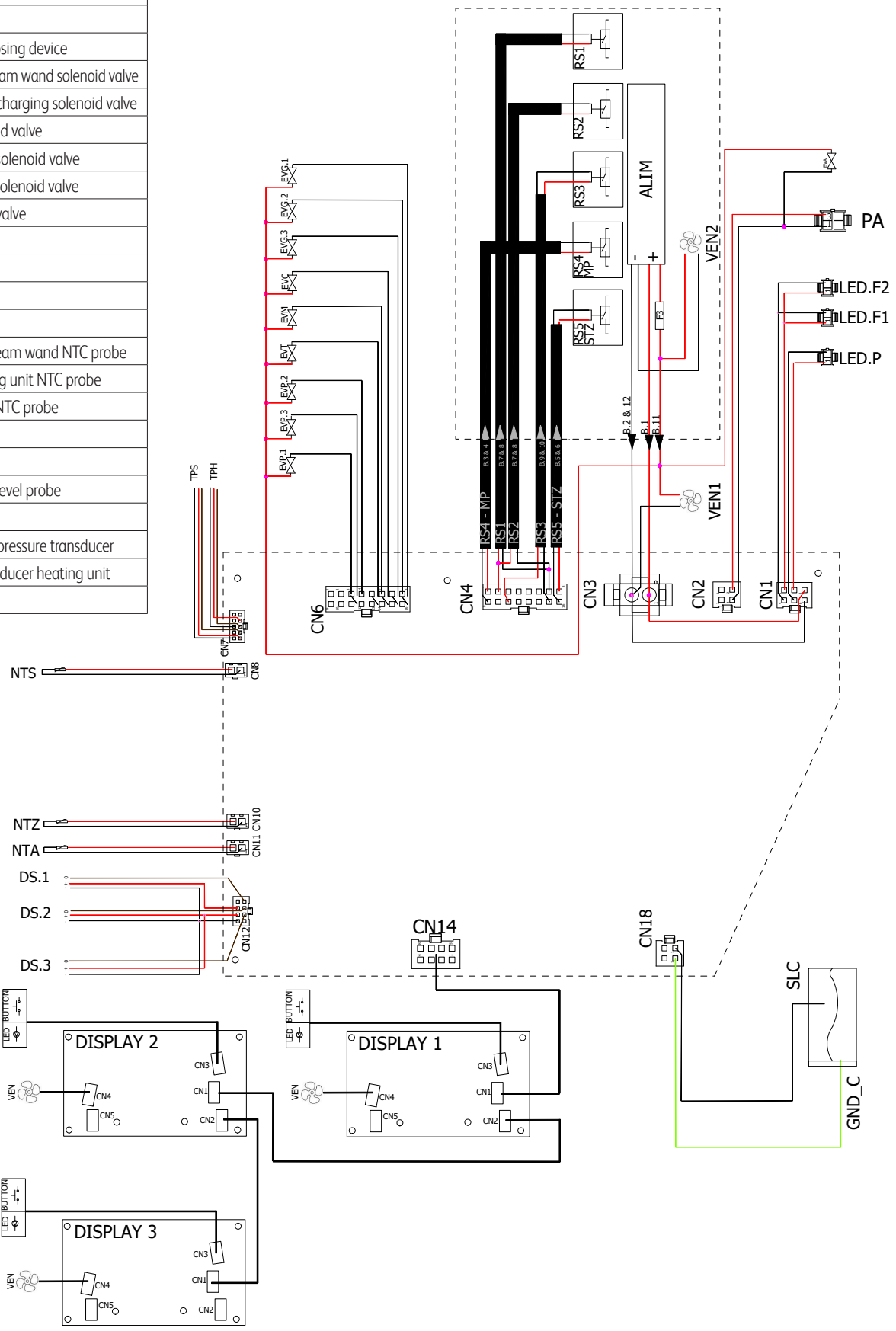
16.6 Low voltage electrical diagram 2GR

ALIM	Power supply
CN	Connector
DS	Volumetric dosing device
EVA	Automatic steam wand solenoid valve
EVC	Heating unit charging solenoid valve
EVG	Group solenoid valve
EVM	Mixed water solenoid valve
EVP	Proportional solenoid valve
EVT	Tea solenoid valve
F	Fuse
LED.F	Front LED
LED.R	Rear LED
MP	Motor pump
NTA	Automatic steam wand NTC probe
NTS	Steam heating unit NTC probe
NTZ	Cup warmer NTC probe
PA	Air pump
RS	Static relay
SLC	Heating unit level probe
STZ	Cup warmer
TPH	Water mains pressure transducer
TPS	Pressure transducer heating unit
FRI	Fan



16.7 Low voltage electrical diagram 3GR

ALIM	Power supply
CN	Connector
DS	Volumetric dosing device
EVA	Automatic steam wand solenoid valve
EVC	Heating unit charging solenoid valve
EVG	Group solenoid valve
EVM	Mixed water solenoid valve
EVP	Proportional solenoid valve
EVT	Tea solenoid valve
F	Fuse
LED.F	Front LED
LED.R	Rear LED
MP	Motor pump
NTA	Automatic steam wand NTC probe
NTS	Steam heating unit NTC probe
NTZ	Cup warmer NTC probe
PA	Air pump
RS	Static relay
SLC	Heating unit level probe
STZ	Cup warmer
TPH	Water mains pressure transducer
TPS	Pressure transducer heating unit
FRI	Fan



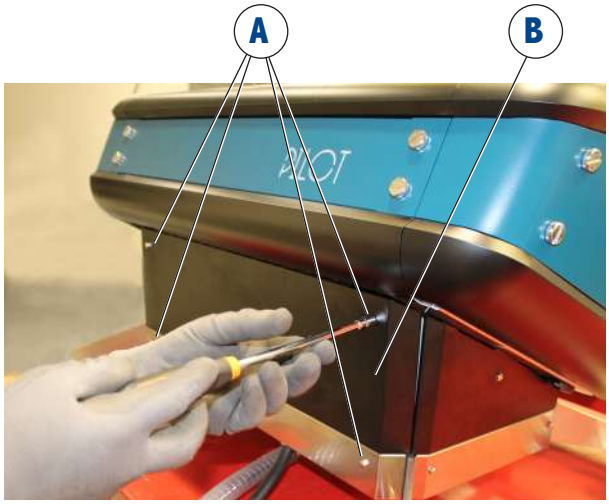
16.8 Change power supply

All the operations to change the power supply voltage of the machine must be carried out exclusively by a <u>Technician specifically qualified and authorised by the Manufacturer.</u>

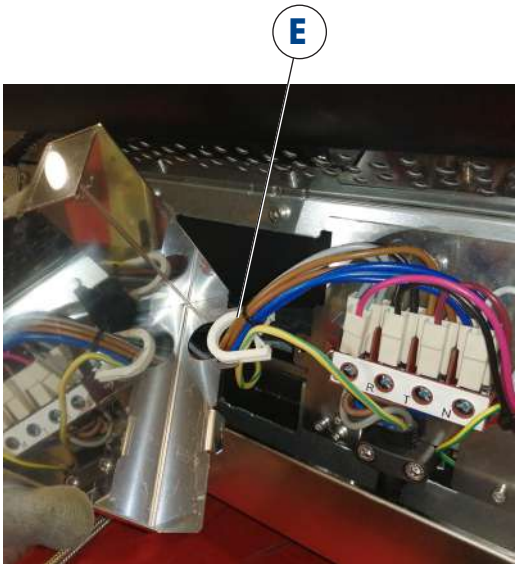
Here are the instructions for changing the connection from three-phase to neutral to single-phase.
For the three-phase gearbox without neutral, follow the same modes, but make the connections according to the Wiring Diagram on page 74.

1. Unplug the machine;

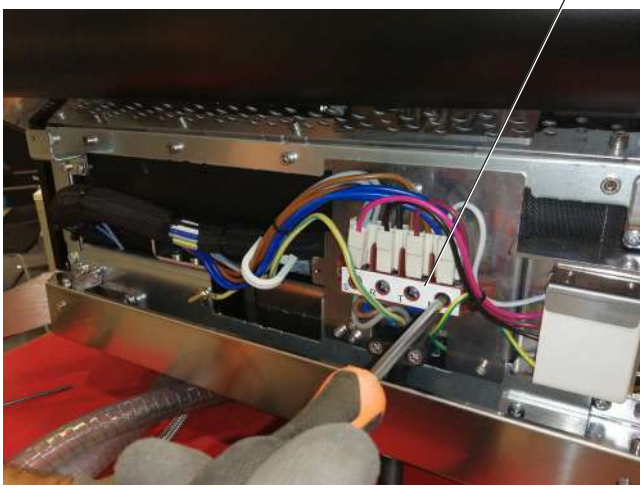
7. Loosening the screws (**A**), remove the rear panel of the body (**B**);

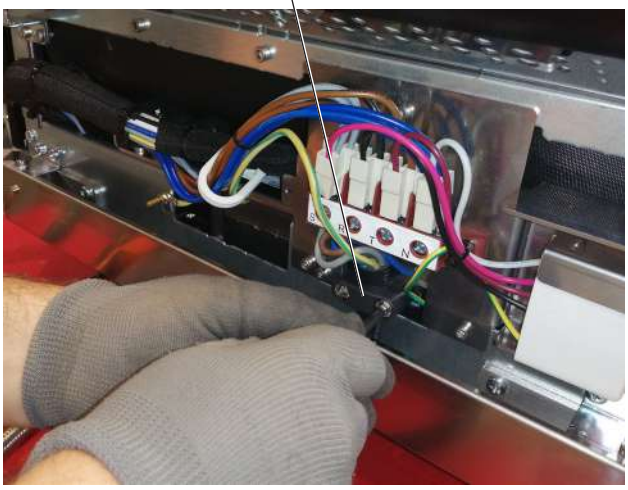


3. Loosen the screws(**C**) and remove the cover (**D**);
4. Remove the grommet (**E**) from the cover;

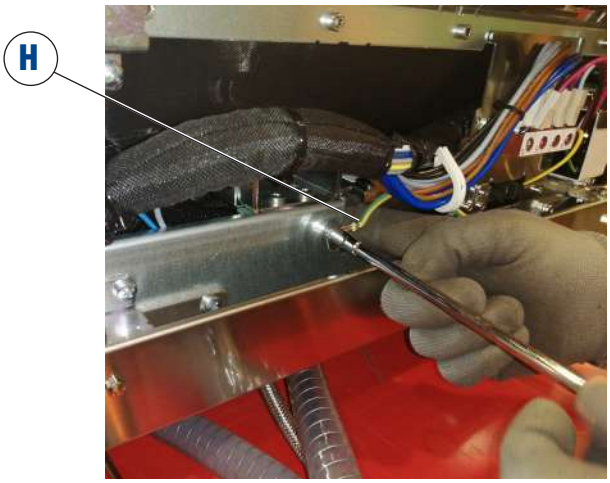


5. Loosen the screws of the terminal board (**F**);
6. Remove the two screws and the grommet (**G**);

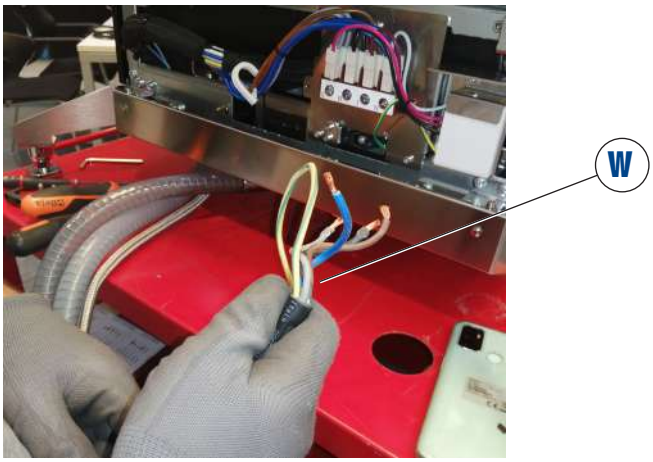


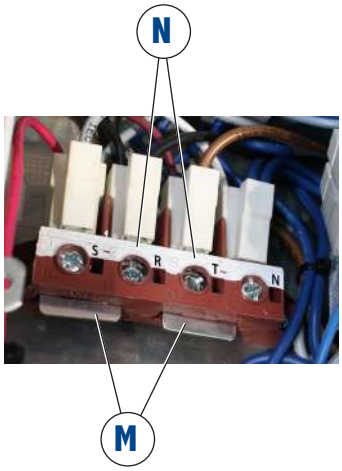


7. Remove the washer and the nut and earthing cable(**H**). Make sure not to low the screw fall behind, we recommend keeping it tight and immediately replacing the washer and nut in position;

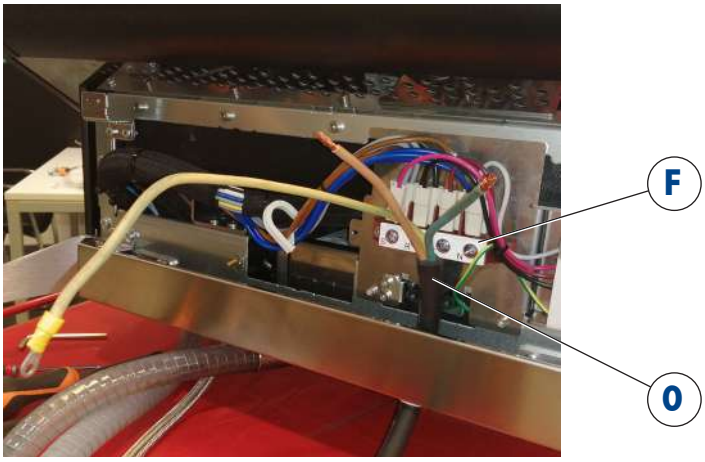


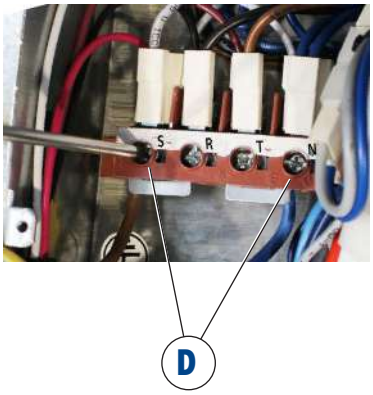
8. Remove the power supply cable (**L**);
9. Install on the terminal board the two metal jumpers (**M**) fastening them with the two central screws (**N**).





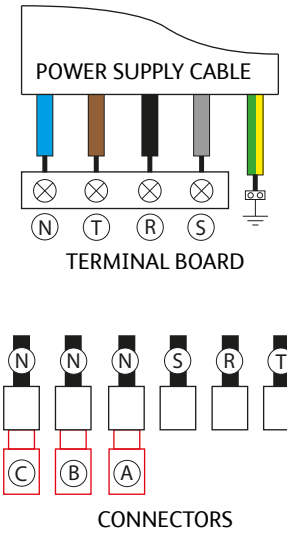
10. Connect the new cable (**O**) to the terminal board (**F**) as indicated in the Electrical Diagrams provided on page 74;
11. Connect the two terminals of the power supply cable to the exterior heads of the terminal board (**P**) fastening them under the metal jumpers (**M**). Make sure of their correct contact by twisting all the three hole before inserting them in the terminal board;



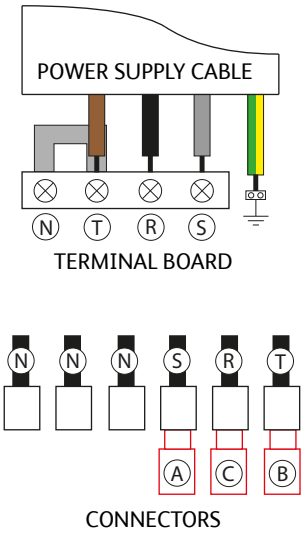


ELECTRICAL DIAGRAMS COUPLINGS

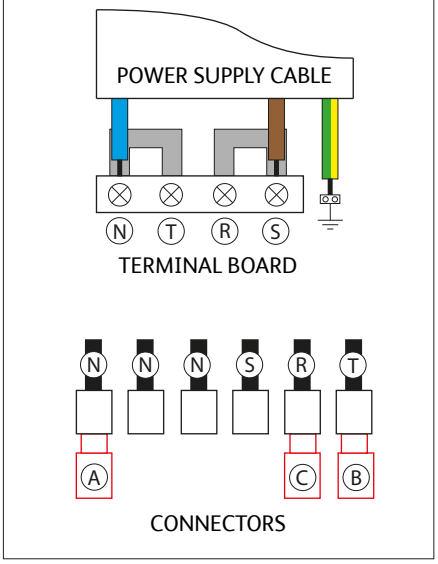
THREE-PHASE STAR TYPE COUPLING
(with neutral)



THREE-PHASE TRIANGLE TYPE COUPLING
(without neutral)



SINGLE-PHASE COUPLING

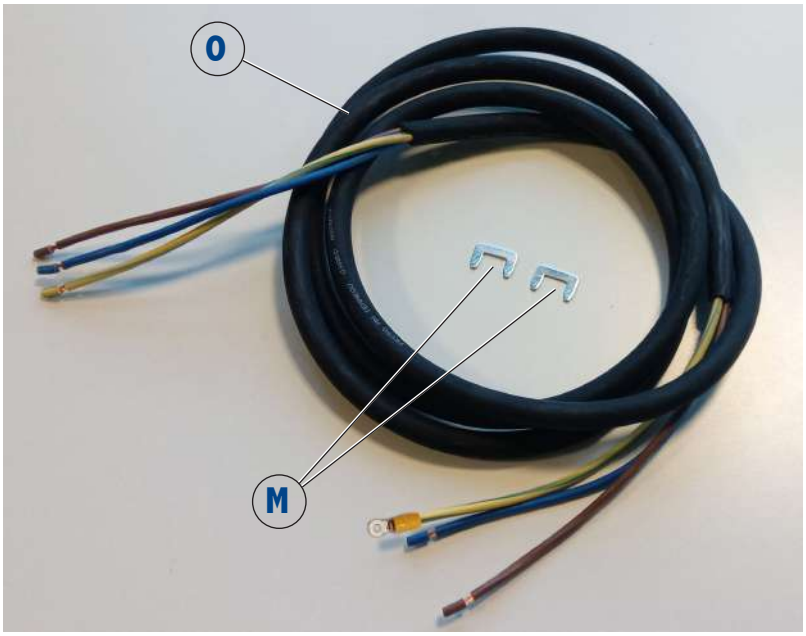


INSTRUCTIONS TO CHANGE POWER SUPPLY
FROM THREE-PHASE STAR SHAPED - TO SINGLE-PHASE

Kit for the coupling of single-phase:

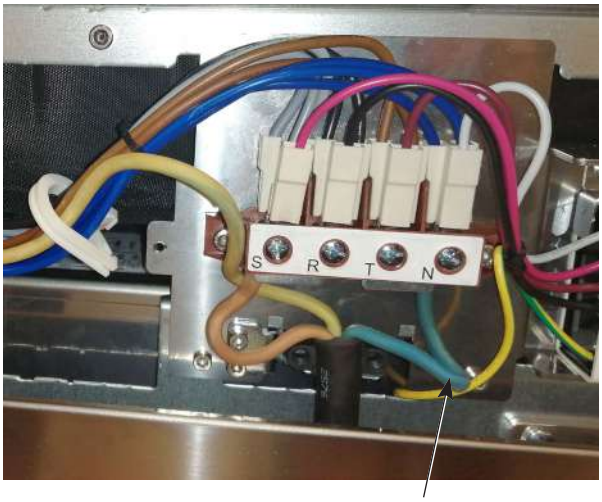
- N°1 power supply (**O**)
- N°2 jumpers (**M**)

CODE	KIT COUPLING
x	Single-phase 2GR
x	Single-phase 3GR
x	Three-phase 2GR
x	Three-phase 3GR



To perform the power supply change use only the Kit supplied by the manufacturer.

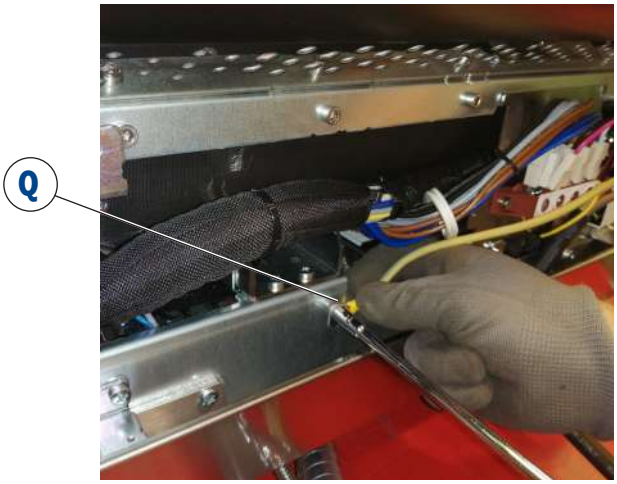
Attention: avoid creating curves that are too tight on the cables



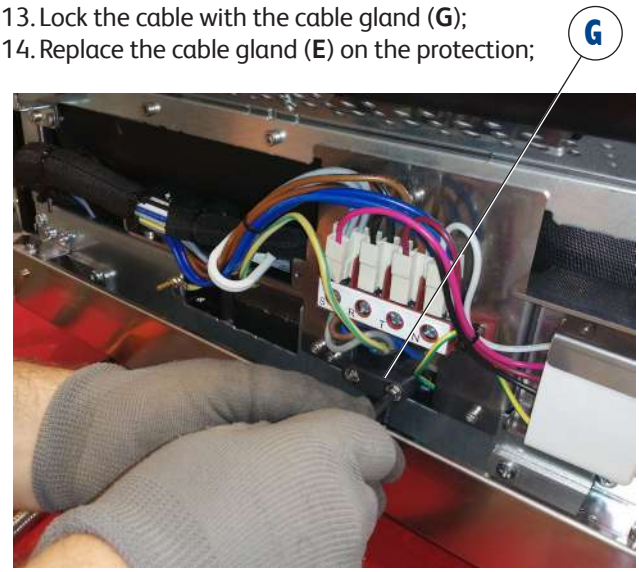
NO

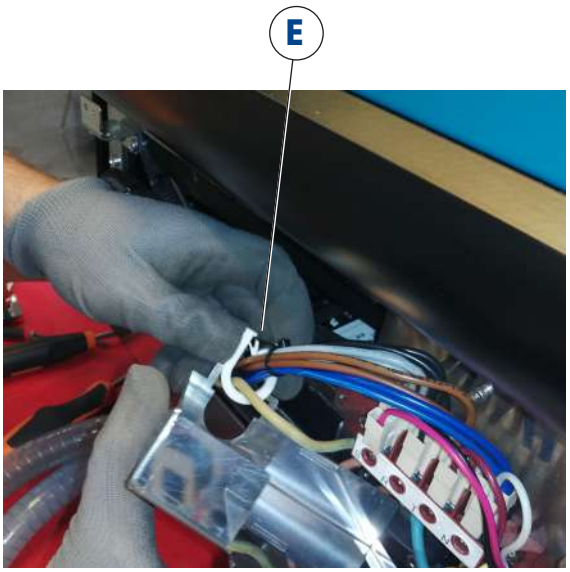
YES

12. Install the new earthing cable (**Q**) by fastening it with the washer and nut;

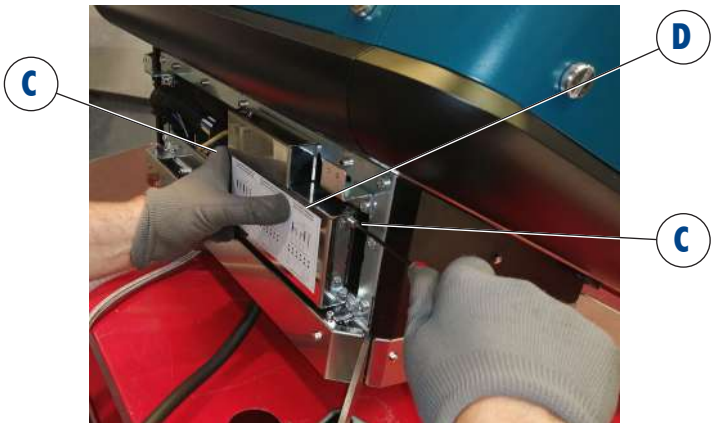


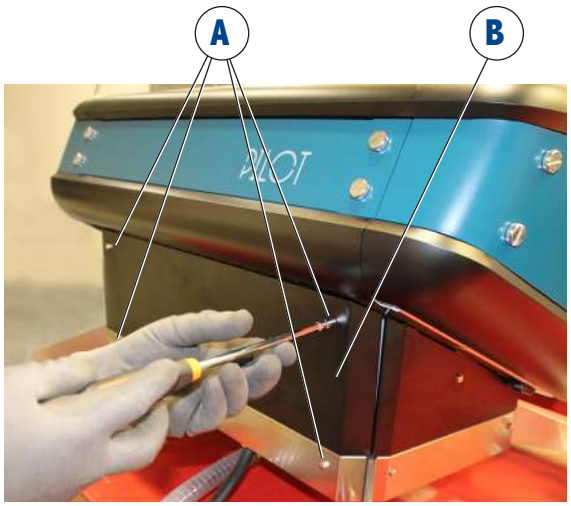
13. Lock the cable with the cable gland (**G**);
14. Replace the cable gland (**E**) on the protection;



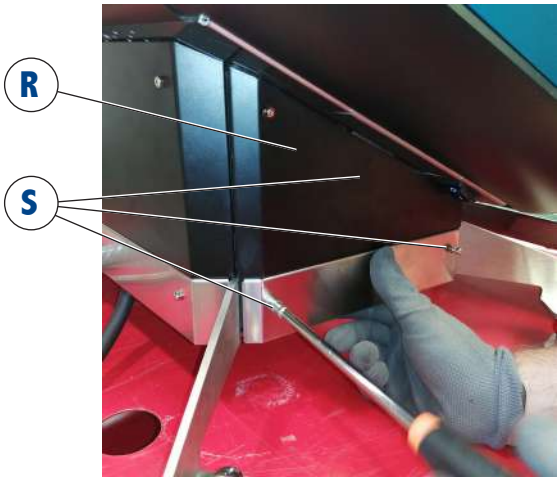


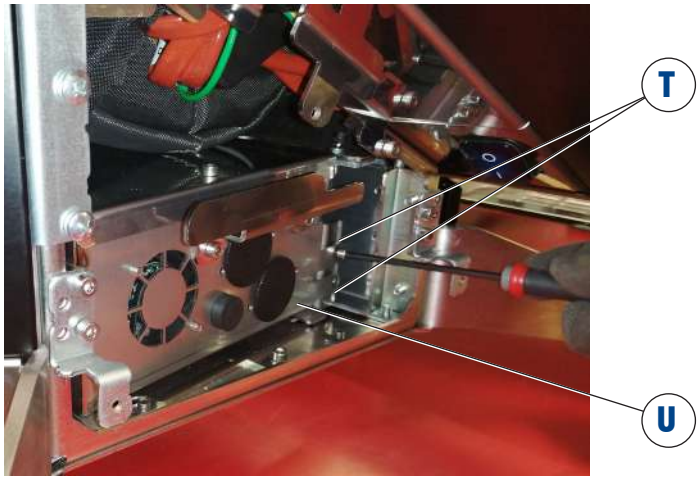
15. Install the cover (**D**) fastening with the screws (**C**);
16. Replace the rear panel on the body (**B**) locking it with the screws (**A**);



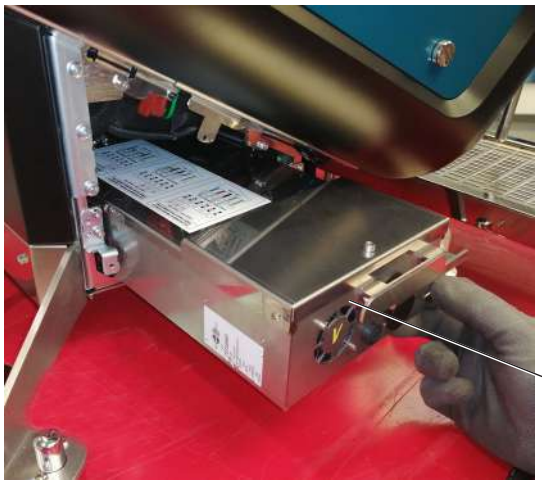


17. Loosen the screws (**S**) and remove the lower panel of the left side (**R**);
18. Remove fastening screws (**T**) of the electrical box (**U**);

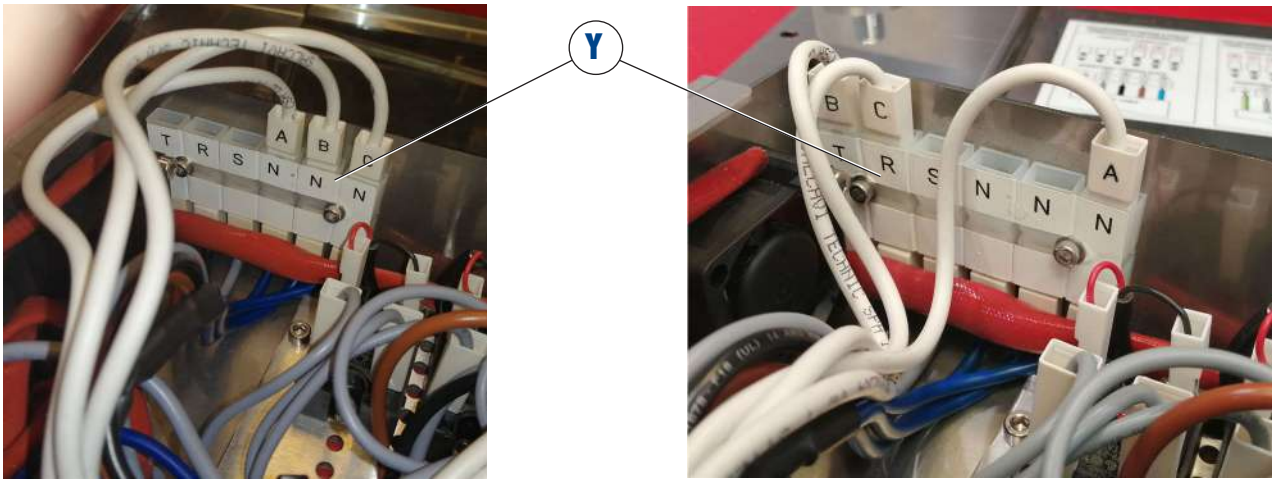




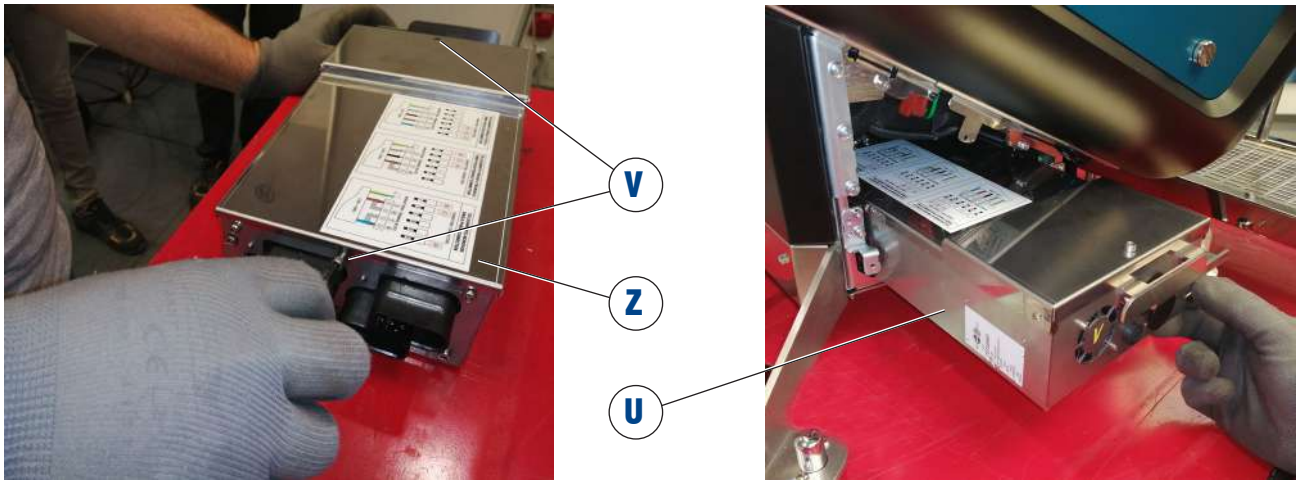
19. Remove the electrical box from the machine very carefully (**U**) - Always use safety gloves;
20. Remove the screws (**V**) and the cover (**Z**);



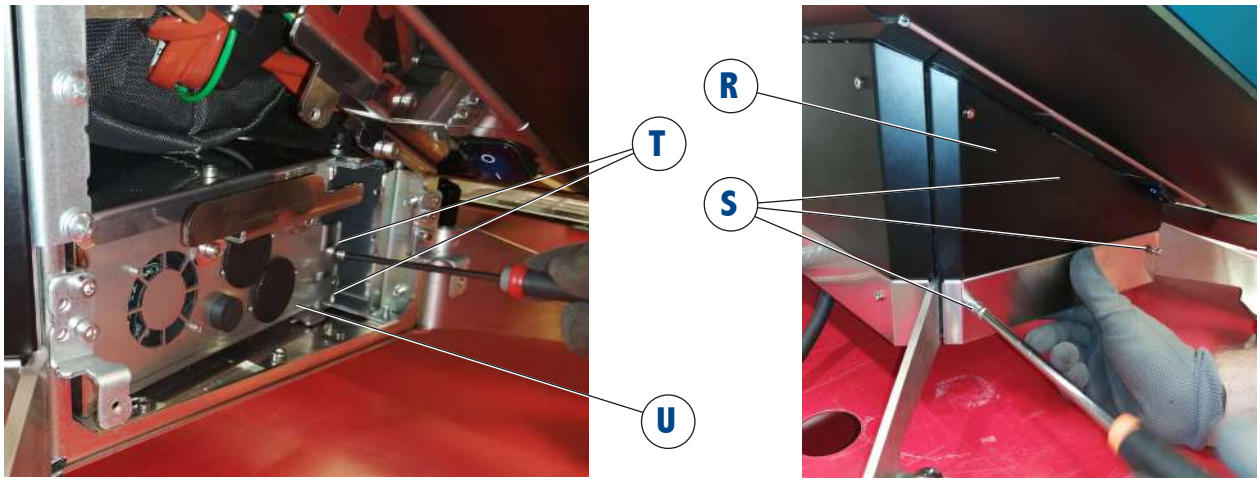
21. Change the position of the terminal board connectors (**Y**) as indicated in the Electrical Diagrams provided on page 74;



22. Fasten the cover (**Z**) of the electrical box with the screws (**V**);
23. Replace the electrical box (**U**) pushing it inside the machine;

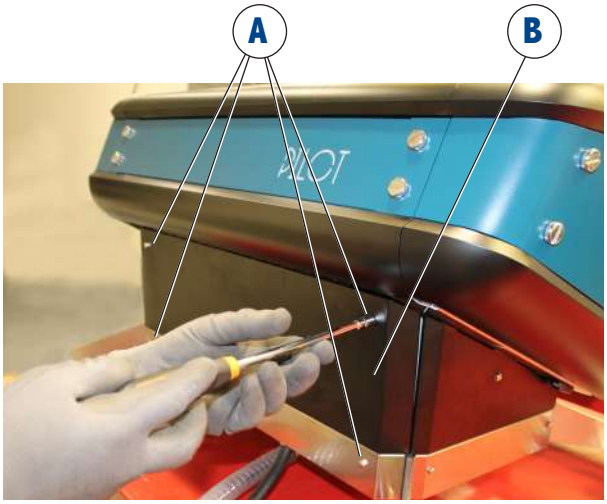


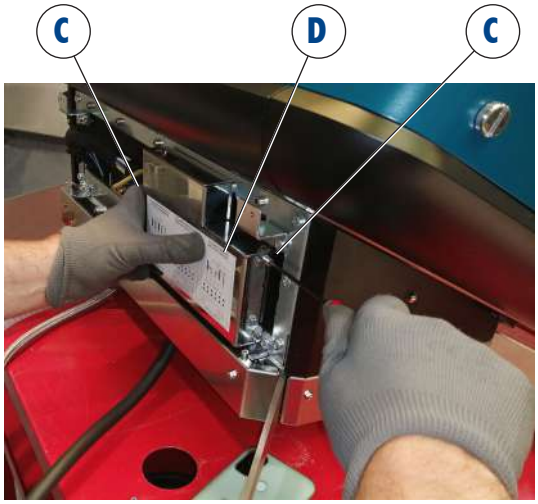
24. Lock the electrical box (**U**) with the screws (**T**);
25. Replace the lower panel of the left side (**R**) fastening it with the screws (**S**).



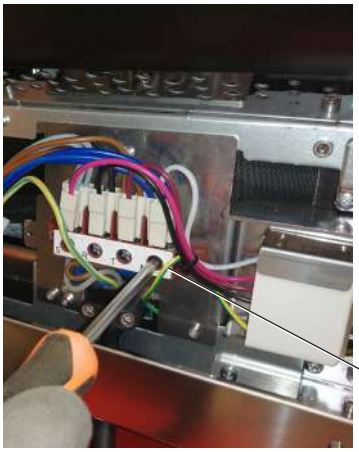
26. Connect the machine to the mains;
27. Turn on the machine and heat it for at least 1 hour;
28. Turn off the machine and disconnect it from the mains again;

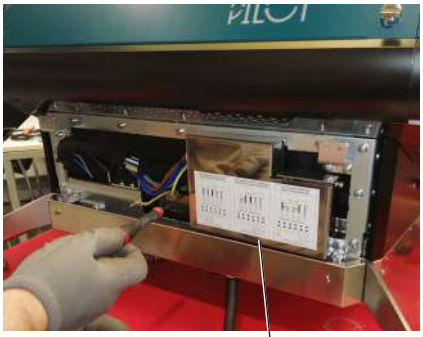
29. By acting on the screws (A), remove the rear body panel (B);
30. Unscrew the screws (C) and remove the cover (D);

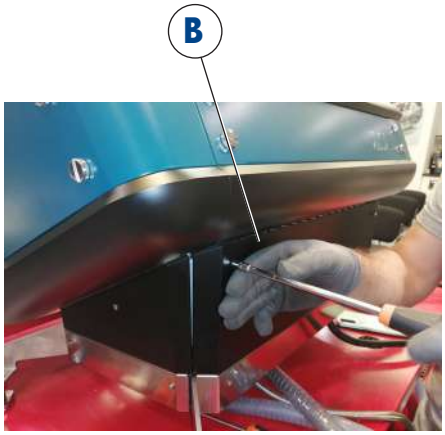




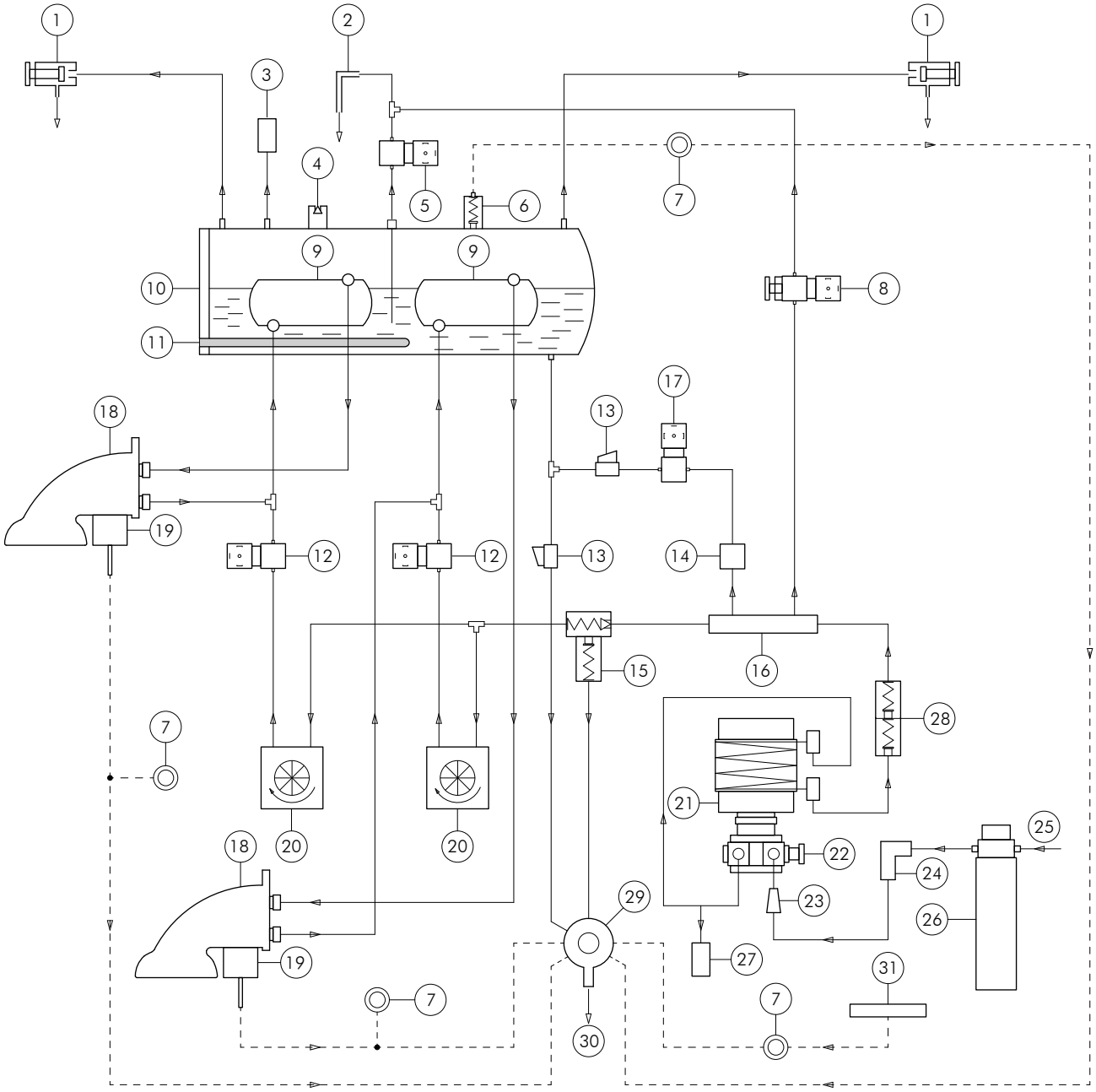
31. Tighten the screws of the terminal block (F) in order to eliminate any loosening;
32. Backward, first place the cover (D) and then the rear body panel (B);
33. Connect the machine to the mains and turn it on.







17. HYDRAULIC DIAGRAM



1	Steam valve
2	Nozzle hot water outlet
3	Heating unit pressure transducer
4	Negative pressure valve
5	Hot water solenoid valve
6	Safety valve
7	Non-return valve
8	Solenoid valve to regulate hot water mix
9	Heat exchanger
10	Heating unit
11	Heating unit electric heating element
12	Solenoid valve pre-infusion n.a.
13	Tap
14	Flow reducer
15	SCNR valve
16	Dispenser

17	Water filling solenoid valve
18	Dispensing group
19	Group solenoid valve
20	Volumetric dosing device
21	Motor pump
22	Pump pressure adjustment
23	Water inlet filter
24	Water inlet connection
25	Water inlet
26	Water filter / Water softener
27	Circuit pressure transducer
28	Double non-return valve
29	Drain tray
30	Drain
31	Drip collection tray

18. PARAMETERS TABLE

No. PARA.	DESCRIPTION	
1	TEMPERATURE MEASUREMENT UNIT	0 = °C 1 = °F
4	NUMBER OF GROUPS	1 - 4
6	ENABLING THE CUP WARMER	0 = Disabled 1 = Enabled
7	PRESENCE OF THE STEAM HEATING UNIT PRESSURE TRANSDUCER	0 = Absent. 1 = Present
10	ENABLING PRE-BREWING	0 = Disabled 1 = Enabled
11	ENABLING AUTOMATIC STEAM WAND	0 = Disabled 1 = Enabled
12	ENABLING THE WASH ECO.	0 = Disabled 1 = Enabled
13	ENABLING INITIAL WASH	0 = Disabled 1 = Enabled
14	ENABLING CONNECTION TO REGISTER	0 = Not connected to the till 1 = Pay first mode (credit - debit) 2 = Dispense first mode (debit - credit)
15	MANUAL KEY	0 = Disabled 1 = Continuous 2 = Purge
16	AUTOMATIC DAYLIGHT SAVING TIME MANAGEMENT	0 = Disabled 1 = Enabled
18	BUZZER CONFIGURATION	0 = Disabled 1 = always ON 2 = ON menu only
19	RELEVANT TIME ZONE	0 - 37
20	MINIMUM SETPOINT TEMPERATURE GROUP 1 DISPENSING	60 - 110°C
23	GROUP 1 SETPOINT TEMPERATURE IN STANDBY	-
24	MINIMUM SETPOINT TEMPERATURE GR1 HEATING UNIT DISPENSING	60 - 110°C
27	GR1 HEATING UNIT TEMPERATURE SETPOINT IN STANDBY	-
28	PURGE TIME WHILST DISPENSING	0 - 4 sec.
29	PURGE TIME MANUAL BUTTON	1 - 4 sec.
30	MINIMUM SETPOINT TEMPERATURE GR2 DISPENSING	60 - 110°C
33	GROUP 2 TEMPERATURE SETPOINT IN STANDBY	-
34	MINIMUM SETPOINT TEMPERATURE GR2 HEATING UNIT DISPENSING	60 - 110°C
37	GR2 HEATING UNIT TEMPERATURE SETPOINT IN STANDBY	-
40	MINIMUM SETPOINT TEMPERATURE GR3 DISPENSING	60 - 110°C
43	GROUP 3 TEMPERATURE SETPOINT IN STANDBY	-
44	MINIMUM SETPOINT TEMPERATURE GR3 HEATING UNIT DISPENSING	60 - 110°C
47	GR3 HEATING UNIT TEMPERATURE SETPOINT IN STANDBY	-
76	MAXIMUM FLOW VARIATION PERCENTAGE	5 - 100
89	STEAM SOLENOID VALVE OPENING PRESSURE WITH ENERGY S.	0,1 ÷ 0,2 bar
101	T1 SETPOINT TEMPERATURE AUTOMATIC STEAM WAND	50 - 80 °C
102	T2 SETPOINT TEMPERATURE AUTOMATIC STEAM WAND	50 - 80 °C
103	T3 SETPOINT TEMPERATURE AUTOMATIC STEAM WAND	50 - 80 °C
104	DISPENSING TIMEOUT AUTOMATIC STEAM WAND	0 - 600 sec.
111	CONDENSATE DRAIN TEMPERATURE	100 - 115°C
125	PRE-WARNING BOARD TEMPERATURE SETPOINT	0 - 90°C
133	DELAY OF LAST DELIVERY PERFORMED DUE TO STANDBY ACTIVATION (sec)	0 - 255 min
134	DELIVERY TIME THRESHOLD TO ACTIVATE STANDBY MODE	1 - 250
141	GR1 KEYBOARD LAYOUT	0 - 3
142	GR2 KEYBOARD LAYOUT	0 - 3
143	GR3 KEYBOARD LAYOUT	0 - 3
144	GR4 KEYBOARD LAYOUT	0 - 3
174	AUTOMATIC STEAM WAND WASH DELAY SINCE LAST DISPENSED BEVERAGE	0 - 240 min
175	SOLENOID VALVE ON TIME DURING AUTOMATIC STEAM WAND WASH	0 - 2 sec.
176	SOLENOID VALVE OFF TIME DURING THE AUTOMATIC STEAM WAND WASH	0 - 3 sec.
177	NUMBER OF ON/OFF CYCLES PER AUTOMATIC STEAM WAND WASH	1 - 10
178	ENABLING THE BUTTON: “Dose programming”	0 = Disabled 1 = Enabled
179	ENABLING THE BUTTON: “Last dispensed beverage graph”	0 = Disabled 1 = Enabled
180	ENABLING THE BUTTON: “Set services”	0 = Disabled 1 = Enabled
181	ENABLING THE BUTTON: “Set the date/time”	0 = Disabled 1 = Enabled
182	ENABLING THE BUTTON: “Washes”	0 = Disabled 1 = Enabled
183	ENABLING THE BUTTON: “Blend selection”	0 = Disabled 1 = Enabled
184	ENABLING THE BUTTON: “Theme”	0 = Disabled 1 = Enabled
185	ENABLING THE BUTTON: “Screensaver”	0 = Disabled 1 = Enabled

No. PARA.	DESCRIPTION	
186	ENABLING THE BUTTON: “Counter list”	0 = Disabled 1 = Enabled
187	ENABLING THE “FILTERS” BUTTON	0 = Disabled 1 = Enabled
188	ENABLING THE BUTTON: “Set services shortcut”	0 = Disabled 1 = Enabled
189	THE MACHINE’S IDLE MODE	0 = Energy saving 1 = OFF
190	MANUAL DISPENSING KEY	0 = single 1 = double
311	BAUD RATE FOR THE RS232 CN12 SERIAL (register)	0 = 1200 Baud 1 = 2400 Baud 2 = 4800 Baud 3 = 9600 Baud 4 = 19200 Baud 5 = 38400 Baud
312	PARITY FOR SERIAL PORT RS232 CN12 (register)	0 = None (with 2 stop bits) 1 = ODD (1 stop bit) 2 = EVEN (1 stop bit) 3 = NONE (1 stop bit)
313	COMMUNICATION TIMEOUT FOR RS232 CN12 (register)	0.1 - 60 sec
326	HOT WATER SOLENOID VALVE ENERGY SAVING	0 = Disabled 1 = Enabled
327	HOT WATER SOLENOID VALVE	0 = Disabled 1 = Enabled
350	TIMEOUT SCREENSAVER	5 ÷ 10 min
352	CONTROL DISPENSING TIME	0 = Disabled 1 = Enabled
354	DISPLAY BACKLIGHT BRIGHTNESS - GROUP 1	1 - 100%).
355	DISPLAY BACKLIGHT BRIGHTNESS - GROUP 2	1 - 100%).
356	DISPLAY BACKLIGHT BRIGHTNESS - GROUP 3	1 - 100%).
357	DISPLAY BACKLIGHT BRIGHTNESS - GROUP 4	1 - 100%).
370	DEMO MODE ACTIVATION	0 = Disabled 1 = Enabled
375	MAINS DISPENSING PRESSURE SETPOINT (FRC MACHINE ONLY)	0 - 15 bar
499	HYDRAULIC LOSS	0 = Disabled 1 = Enabled

Per all detailed information on the technical parameters of the machine, contact the Manufacturer.

PILOT

BARISTA ATTITUDE

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