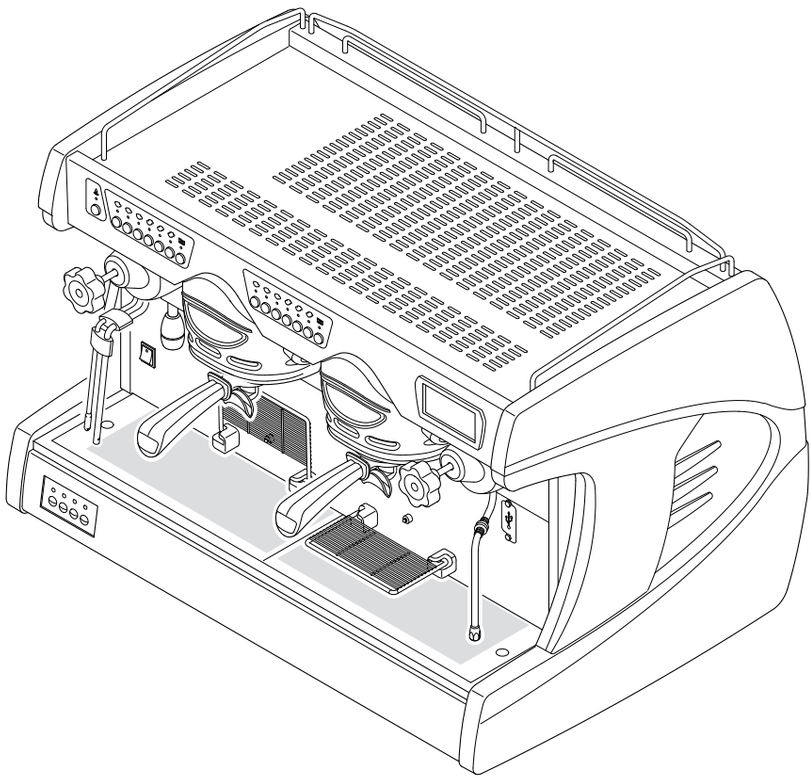
Astoria®

Think espresso

Vintage TFT

SAEP



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ESPRESSO COFFEE MACHINE

Use and Maintenance Manual. TECHNICIANS' 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, dismantling 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 warnings 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 hazard

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.

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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 electric system.
Make sure that the electric mains power 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 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 reclosures, 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.

Maintenance and cleaning operations must always and exclusively be performed by the Technician and in compliance with the current health and safety regulations.
The maintenance and cleaning operations must comply with the safety regulations:

- Do not carry out maintenance work when the machine in operation.
- Do not immerse the machine in water.
- Do not pour liquids onto the machine or use water jets when cleaning.
- Do not allow maintenance and cleaning operations to be carried out by children or incompetent people.
- 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.

If gas is used (where applicable), take special care with the following:

- When indoors, always provide air vents.
- Check for any gas leaks.
- Do not under any circumstances attempt to light the gas without first installing the proper injector.
- Do not start up the gas burners when the heating unit is empty.

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 has 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. When components which come into contact with water or food are repaired or replaced, a washing procedure has to be carried out, as if it were the first installation.

The Technician must inform the User about the methods of periodic testing of 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 machine's electrical system malfunctioning, 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 CO2 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 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 cover, index and series of chapters. Each chapter is sequentially numbered. The page number is shown in the footer.
The machine identification data 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.
On the Technician's request, the manufacturer can provide additional copies of the machine's Instruction Manual.

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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 shown 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 part replacement;
- Emergency operations and faults;
- 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, dismantling 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 regards 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.

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

CAUTION 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 as there is a 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.

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2. MACHINE IDENTIFICATION

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 service

2.4 Intended use

The espresso coffee machine has been designed to professionally prepare hot beverages such as tea, cappuccinos and weak, 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

All uses compatible with the technical features, operations and applications described in this document which do not endanger the safety of users or can cause damage to the machine or its 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

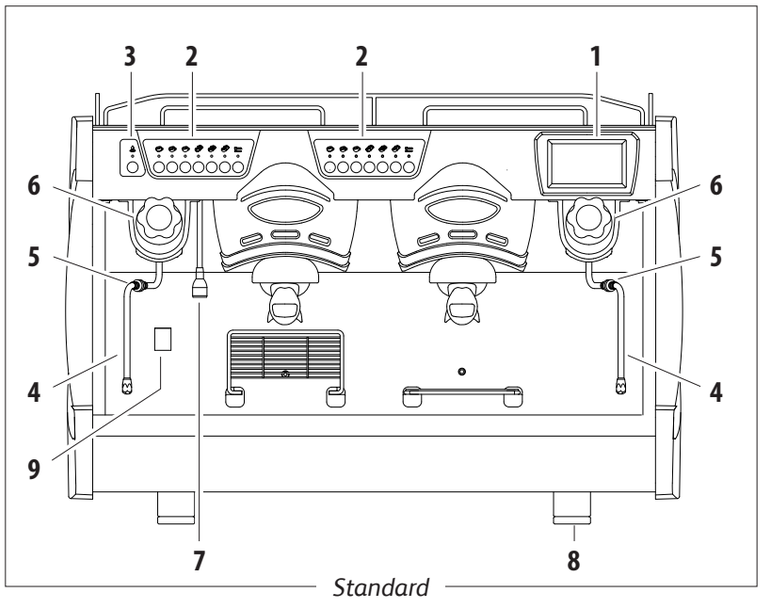
The only permitted uses are described in the Manual; any other use is considered improper and therefore, hazardous.

General safety features

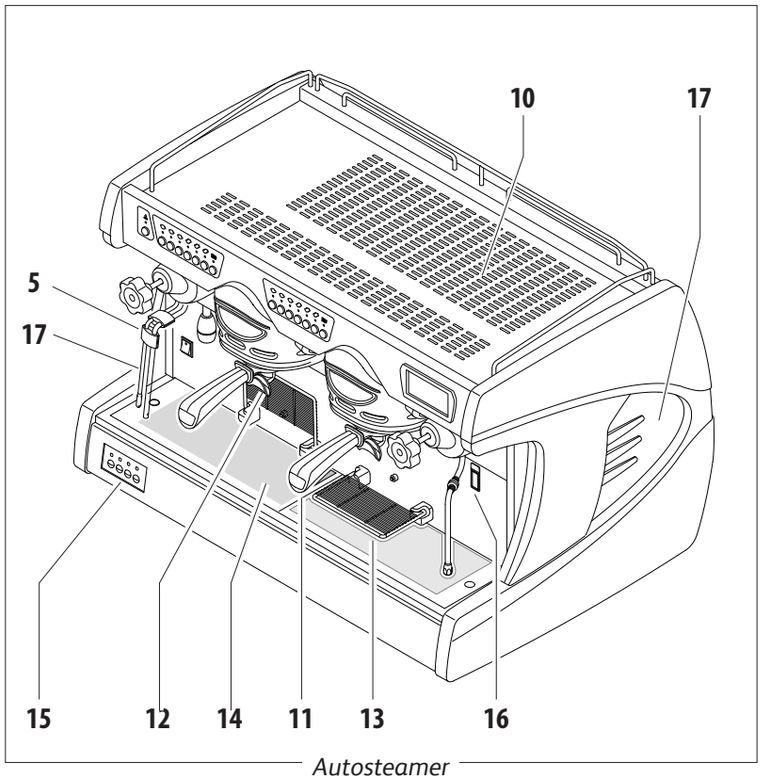
The Technician must be aware of accident risks, safety devices and the general safety rules set forth in EU directives and by the legislation of the country where the machine is installed.
The Technician must know how all the machine's devices work. They must also have fully read and understood this 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. Display Touchscreen.
2. Pushbutton panel.
3. Water dispensing buttons.
4. Steam nozzle.
5. Scald protection.
6. Steam knob.
7. Hot water nozzle.
8. Adjustable foot.
9. Power switch.
10. Cup warmer shelf.
11. Filter holder.
12. Dispensing spouts.
13. Removable support grid.
14. Cup holder grille.
15. Autosteamer pushbutton panel.
16. USB socket.
17. Automatic steam wand nozzle (optional).



Standard



Autosteamer

The USB stick exclusively provided to the Qualified Technicians is the only stick that can be used in the USB socket (16). Do not connect external devices (iPhones, iPads, PCs, etc.) to the USB socket because it could create serious machine software problems.

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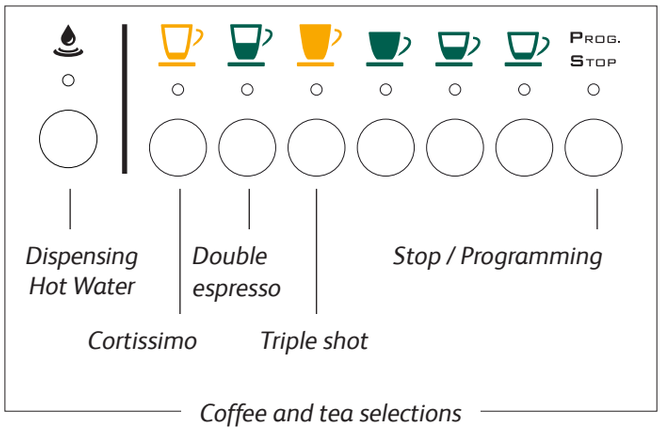
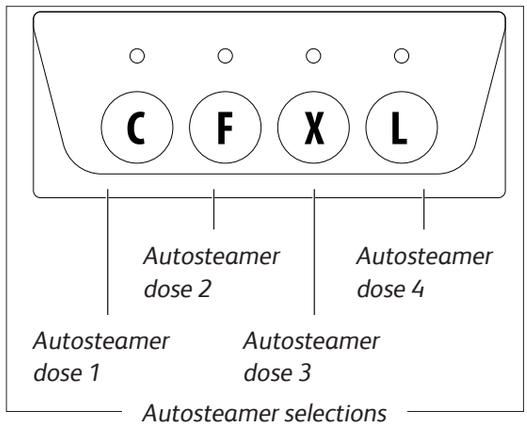
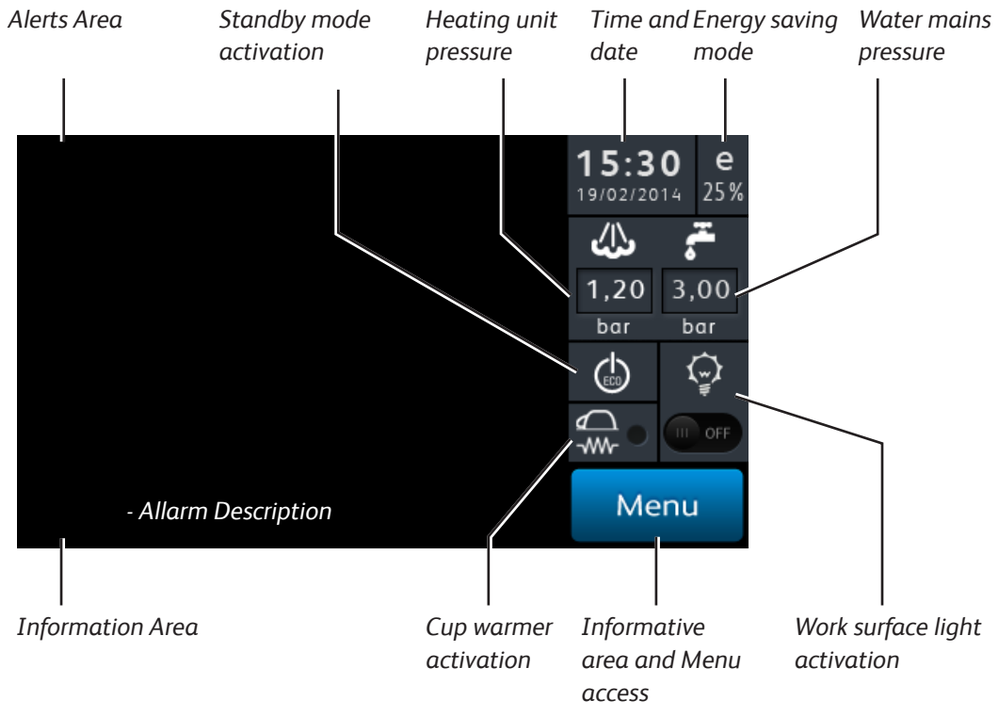
2.6 Pushbutton panels





2.7 Display touch



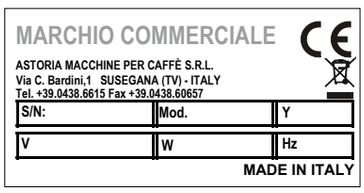
Indicator	Description	Indicator	Description
	Machine in OFF.		Request for Filter Regeneration.
	One or more delivery groups are in standby.		Group Washing Request.
	Warming-up.		Request to replace grinders.
	Request for Technical Assistance.		Generic alarm.

2.8 Data and marking

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

		2Gr			3Gr		
Voltage	V	200	220	240	200	220	240
		Monofase	Monofase / Trifase		Monofase	Monofase / Trifase	
Max Power	W	4.000	4.900	5.900	4.700	5.500	7.000
Group Power	W	113x2	137x2	165x2	113x3	137x3	165x3
Coffee heating unit Power	W	765x2	914x2	1.090x2	765x3	914x3	1.090x3
Service heating unit Power	W	3.400	4.100	4.900	3.400	4.100	4.900
Service heating unit capacity	lt / UK gal	8 / 1,76			13 / 2.86		
Coffee heating unit capacity	lt / UK gal	(1,2/ 0,26)x2			(1,2/ 0,26)x3		
Width	mm / in	835 / 32,9			1075 / 42,3		
Depth	mm / in	585 / 23			585 / 23		
Height	mm / in	590 / 23			590 / 23		
Net weight	kg / lb	72 / 209			88 / 257		
Safety valve calibration	0,19 MPa (1,9 bar) +/- 0,015 MPa						
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° U.R.MAX						
Sound pressure level	< 70 dB						

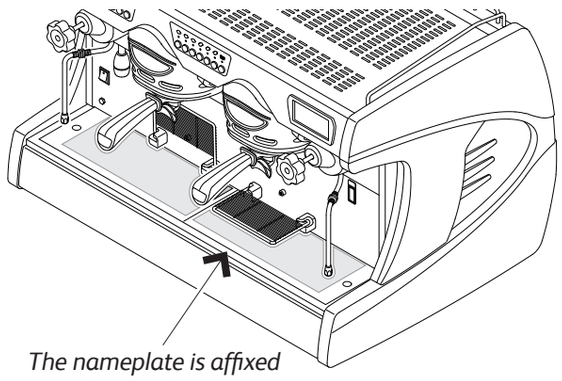
In compliance with directive 2006/42/CE, the machine is marked with the CE code with which the manufacturer declares under his responsibility that the machine is safe for persons and things.
Alternative markings can be affixed according to the target markets, provided they comply with current product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



By entering the "Menu" section (see instructions in the following chapters) and selecting the key , it is possible to view the serial number of the machine
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.



The nameplate is affixed under the drain tray

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. 14 on page 64 .

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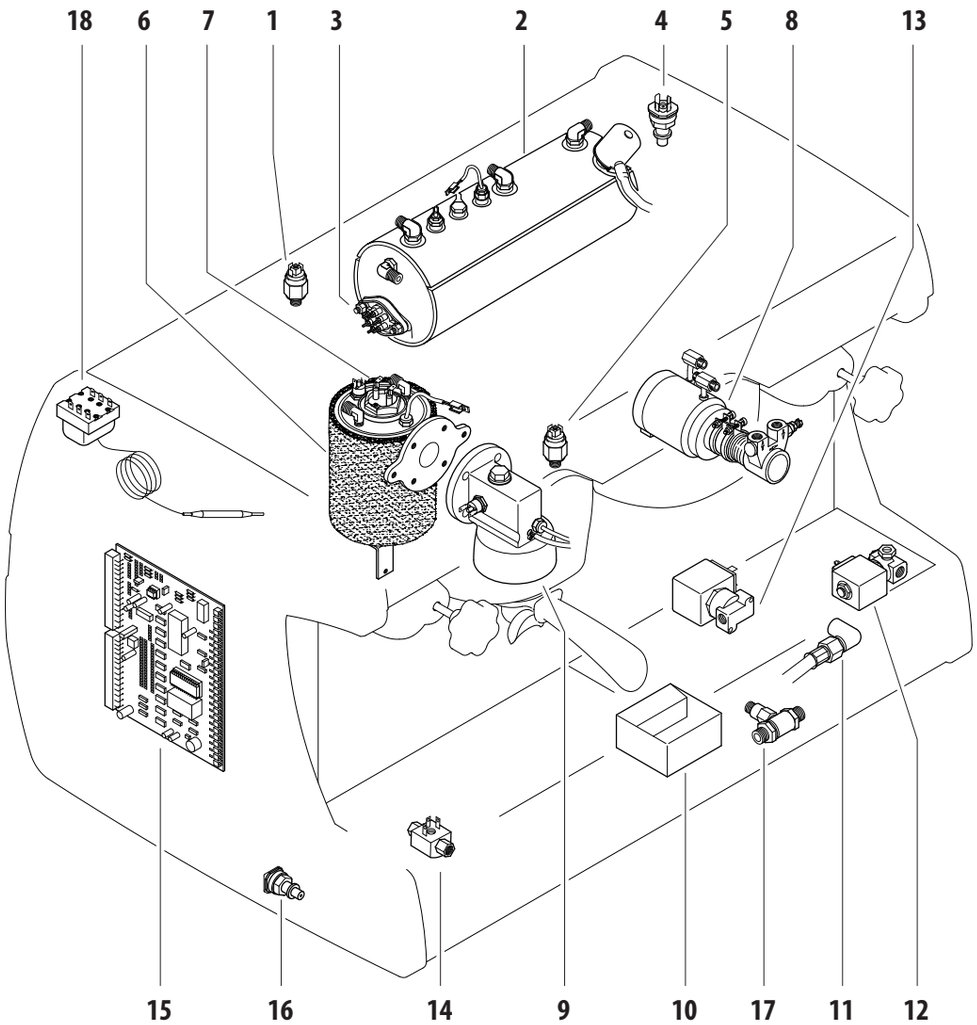
2.9 ENERGY SAVING MODE

The machine is provided with a software that manages the automatic standby system during breaks, the night energy saving feature and the intelligent adjustment of the temperature.
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 operate mode.
Moreover, the software only distributes the power where and when it is needed, thus allowing energy to also be saved during its normal working activity.
When programmed, it automatically puts one or more groups into standby mode when the workload decreases and prepares them for full capacity when needed.

To programme the Energy Saving system, see para 7.2.1 on page 29

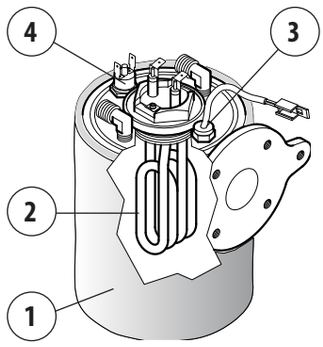
2.10 Internal components

1. Services boiler pressure switch.
2. Services boiler.
3. Services boiler heating element.
4. Services boiler pressure transducer.
5. Coffee boiler pressure switch.
6. Coffee boiler.
7. Coffee boiler heating element.
8. Internal motor pump.
9. Dispensing group.
10. Drain pad.
11. Water inlet connection.
12. Hot water mixing system.
13. Automatic Water Refill.
14. Volumetric dosing device.
15. Electronic control unit.
16. Water inlet pressure transducer.
17. Expansion + non-return valve.
18. Safety thermostat.



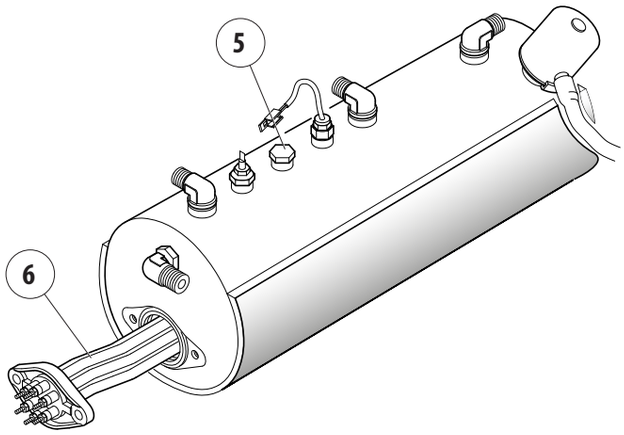
2.10.1 *Coffee heating unit*

Each dispensing group is fitted with a thermally-insulated coffee heating unit **(1)** for dispensing hot water for coffees.
Heat is provided by an electric heating element **(2)**. The heating unit includes a temperature sensor **(3)** and a safety thermostat **(4)**.
The temperature sensor **(3)** regulates and stabilises the water temperature inside the coffee heating unit. The safety thermostat **(4)** intervenes in the event of a heating system malfunction. If the temperature reaches 150°C, the safety thermostat intervenes by disabling the heating element and reporting the problem on the display.



2.10.2 *Steam heating unit*

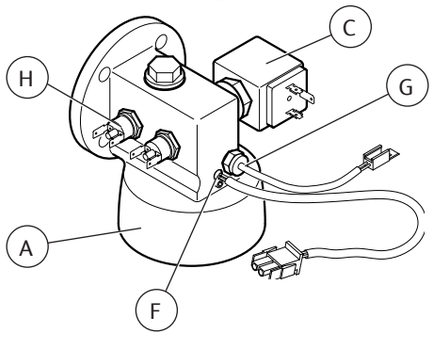
The fully-insulated steam heating unit **(5)** is used to produce steam for dispensing hot water, frothing milk via the cappuccino maker or steam wand (optional), and for heating/ frothing beverages.
The heating unit's water is heated by an electric heating element **(6)**.

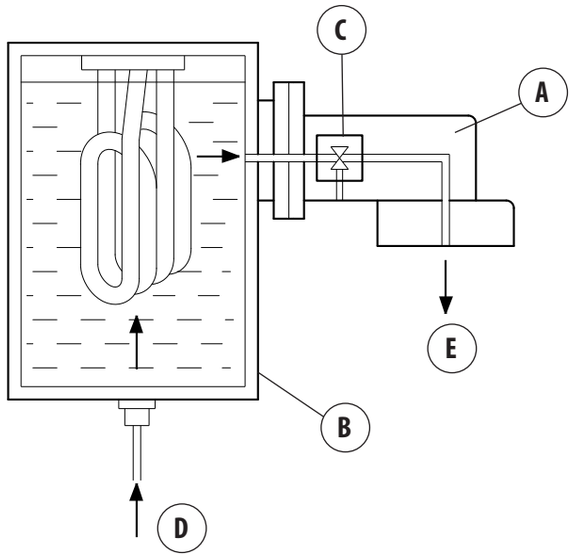


2.10.3 *Dispensing group*

The dispensing group **(A)** is made up of a metallic block which is hooked onto the coffee heating unit **(B)**.
The functions of the group are summarised as follows:

- When the motor pump and solenoid valve **(C)** are activated, which are located on the side of the group, this allows cold water to enter the heating unit **(D)**, and consequently the hot water in the heating unit is carried towards the group to be dispensed **(E)**;
- The electric cartridge heating element **(F)** which is installed inside the group, is controlled by the electronic control unit and heats the group at a programmed temperature;
- The temperature sensor **(G)** detects the group's temperature and sends it to the electronic control unit;
- The safety thermostat **(H)** cuts in to prevent any risks if there is a failure in the electronic system.





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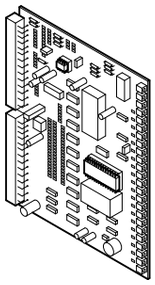
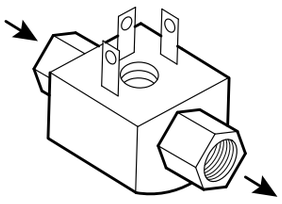
2.10.4 *Electronic control unit*



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. The monitoring and control of 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.

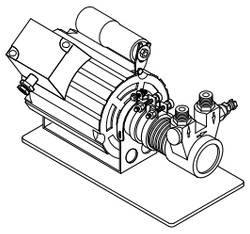
FUNCTIONAL TEST
EVPRO XX/XX/XXXX RX

2.10.5 *Volumetric dosing*



The volumetric dosing device that is installed on the SAE versions, measures the quantity of water sent to the group in order to dispense coffee.
The dispenser generates electrical impulses which are sent to the electronic control unit.
These impulses are read by the control unit and counted while the dose is being programmed.

2.10.6 *Motor pump*



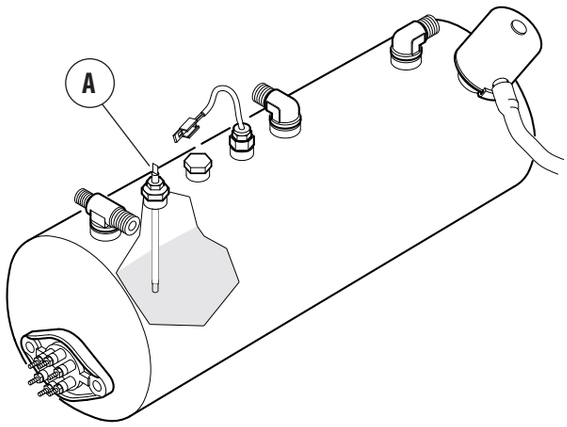
This component feeds the machine by increasing the water pressure to 0.8-0.9 MPa (8-9 bar) in order to dispense coffee and automatically fill the heating unit.

2.10.7 *Automatic Water Entry*

The Automatic Water Entry system is designed to check the water level in the boiler. It consists of:

- A probe inserted into the boiler **(A)** 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 **(A)** sends a signal to the electronic control unit, which activates the motor pump and the charging solenoid valve, which in turn restores the water level in the boiler.
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.
When installing machines with 3 groups, the initial water filling time may exceed the established timeout limit. Should this occur, simply turn the machine off and then back on to restore normal operating conditions.

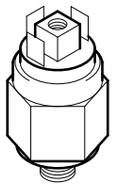


2.10.8 *Pressure switch*

The machine has two types of pressure switches:

COFFEE HEATING UNIT PRESSURE SWITCH

Each coffee heating unit is equipped with a pressure switch to adjust the pressure. The calibration is set to 2 bar.

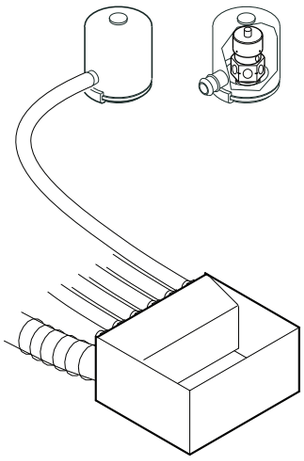


STEAM HEATING UNIT PRESSURE SWITCH

The steam heating unit is instead fitted with a safety pressure switch which prevents the calibration value from being exceeded. The calibration is set to 1.5 bar.

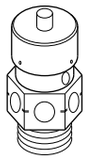
2.10.9 *Overflow device*

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 hose.



2.10.10 *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.

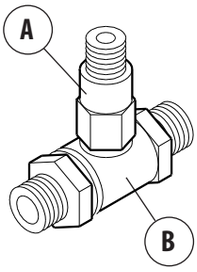


The safety valve should be checked regularly as indicated in Chap. 8.3.4 on page 50".

Two safety valves are installed on all machines with 4 groups.

2.10.11 *Expansion valve + check valve*

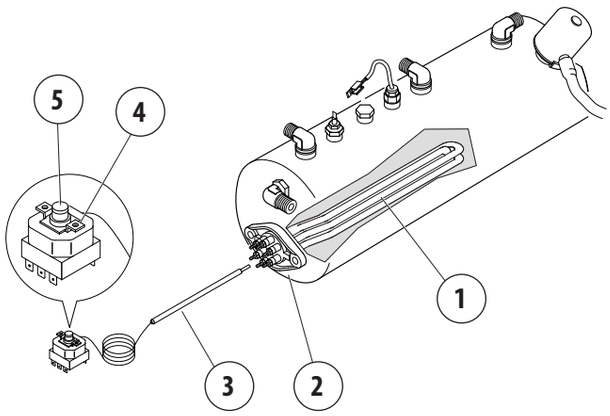
This is a valve consisting of an expansion valve and a check valve.



- **Expansion valve (A):** the cold water sent from the pump to the heat exchangers 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 of the circuit to 1.2 MPa (12 bar).
- **Check valve (B):**its function is to prevent the water from back-flowing into the hydraulic circuit exchangers.

2.10.12 *Safety thermostat*

The thermostat prevents any damage occurring to the electrical 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 point, the thermostat cuts the power supply to the heating element in order to prevent damage occurring.



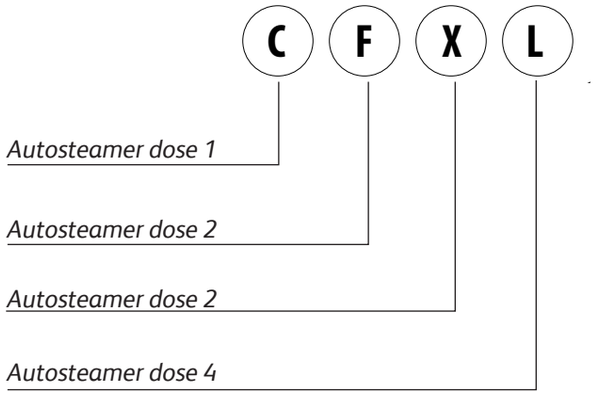
To reset the thermostat, press the centre button (5). However, before starting the machine up again, identify what prevented the water from being fed into the heating unit.

ENGLISH

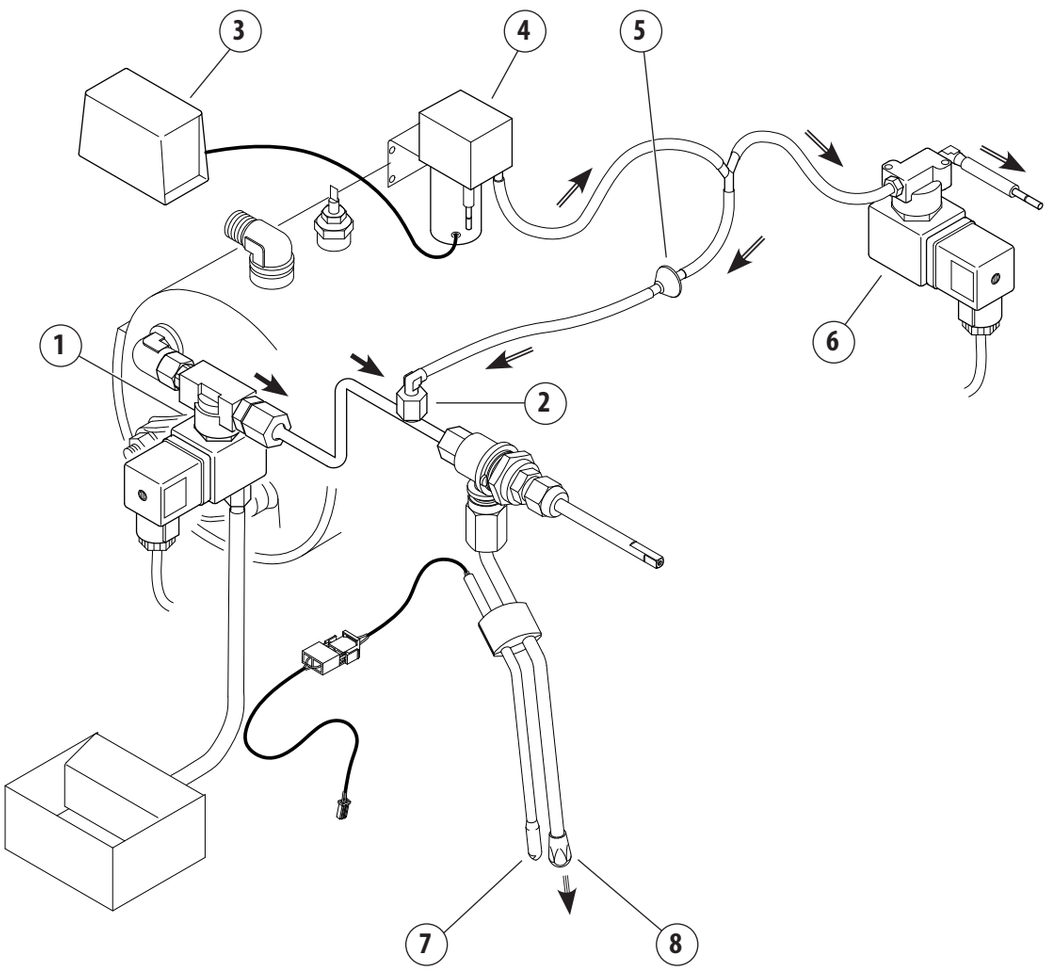
2.10.13 *Autosteamer (optional)*

The “Autosteamer” system - fitted on some versions with a display - enables milk to be automatically frothed at the programmed temperature. The operating principle of the automatic steam wand is listed below:

- Press the specific button, e.g. **(C)**, located on the left side of the machine’s base.
- The solenoid valve opens **(1)** which consequently allows the steam to flow from the heating unit to the automatic steam wand nozzle **(8)**.
- The system simultaneously activates the air suction pump **(4)** which is controlled by the control unit **(3)**.
- The milk froth adjustment can be made via the touch display (vedere par.7.3.7 on page 34). The amount of air that comes out of the solenoid valve **(6)** will be adjusted according to the percentage of foaming.
- After passing through the non-return valve **(5)**, the air mixes with the steam in the connection with the steam tube **(2)**.
- Steam comes out of the nozzle **(8)**.
- The probe **(7)** 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

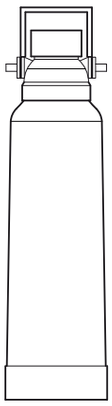


To adjust the temperature and milk froth, see para. 7.3.7 on page 34.



2.10.14 *Water filter*

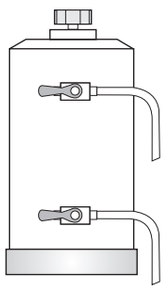
In the mains water, non-soluble salts are present which cause limestone to form in the heating unit and other parts of the machine.
Drinking water can also contain heavy metals and substances, such as chlorine which are harmful to health.
The filter makes it possible to eliminate or substantially reduce 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. 8.4 on page 54.

2.10.15 *Water softener*

The resin 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 softener within the established times. 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.).



To use and regenerate the water softener, follow the instructions provided in para 8.5 on page 56.

3. TRANSPORT AND HANDLING

3.1 Safety precautions

Carefully read the instructions provided in chapterI on page 3.

3.2 PPE features

When installing the machine, the following PPE is required:

The use of protective gloves is mandatory.

The use of safety shoes is mandatory.

3.3 Dimensions and weight

MODEL	2GR	3GR
Widht (W)	830 mm	1077 mm
Depth (D)	580 mm	580 mm
Height (H)	575 mm	575 mm
Maximum gross weight	97 kg	119 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.

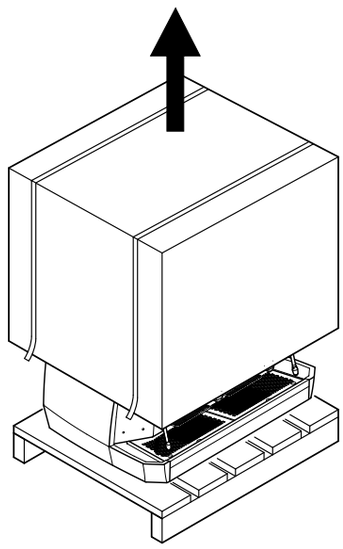
It is very important to check that the maximum load capacity of each piece of lifting equipment, is at least equal to the weight of the loads to be lifted plus the safety margins which are required by current standards.

ENGLISH

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 unpacking the machine, check that there are no damaged parts due to transport or missing parts. Should there be any, immediately inform (no later than 7 days after delivery) both the CARRIER and the MANUFACTURER, by 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.

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 power 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 chapter "I. SAFETY PRECAUTIONS" on page 3.

If the technician has not performed all the installation operations and the machine is then used, 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.

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 and +35°C.

5.3.2 *Relative humidity*

The electrical and electronic equipment that has been 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:

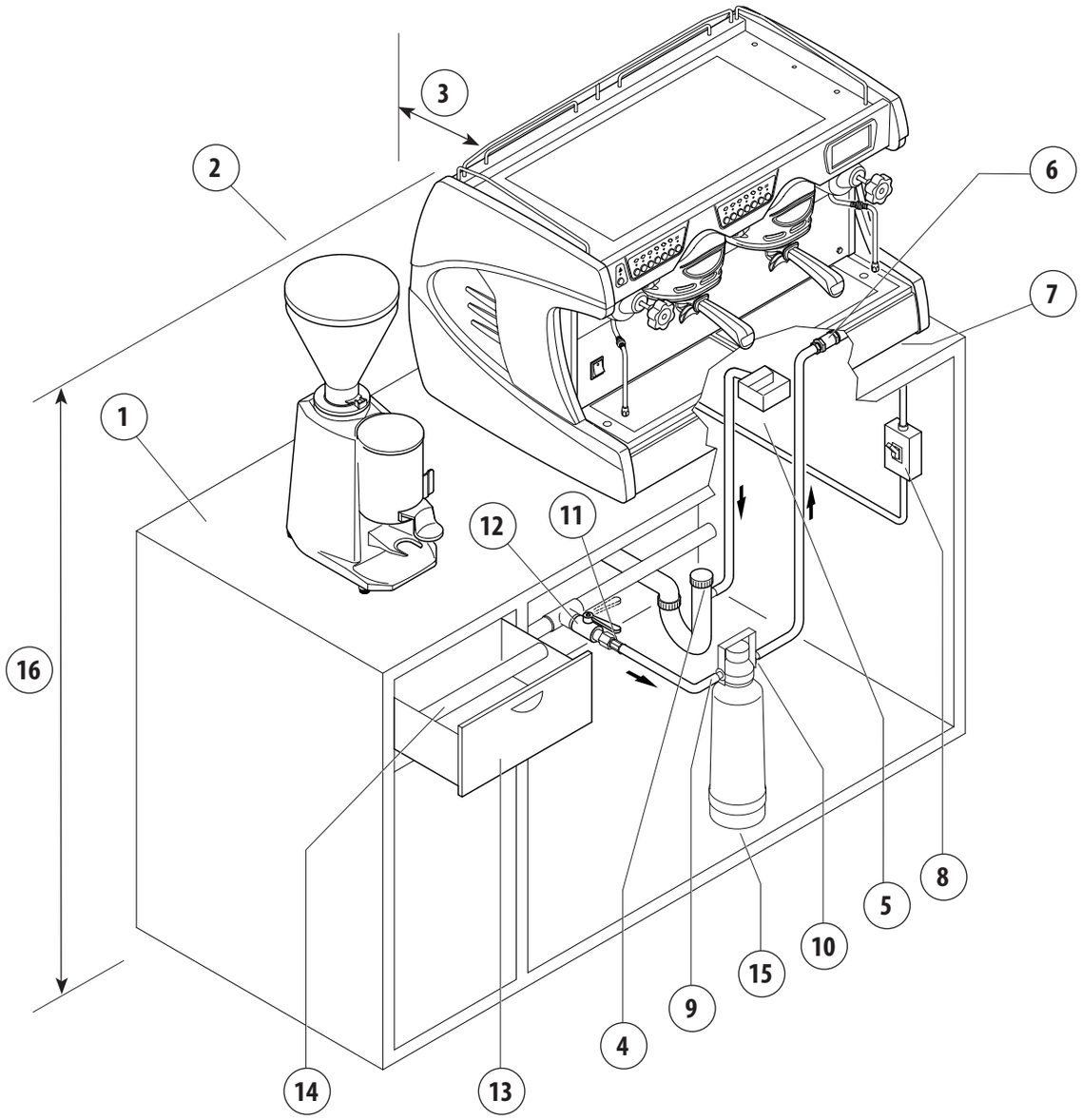
- The appliance is not suitable for installation in an area where a water jet may be used.
- The machine is not suitable for outdoor use.
- The machine must not be used inside kitchens.
- The room must be suited for the intended use with adequate space to comfortably use the machine.
- The lighting must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

ENGLISH

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 (**30**) must be comfortable and able to withstand the machine's weight. The height of the upper section of the machine (**44**) 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 (**35**) and electrical mains (**37**) 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 (**42**) which will be used to deposit used coffee grounds and if possible, also fit a rubber support (**43**) to knock the filter holder against.



1. Support base.
2. Grinder-dispenser.
3. 50 cm minimum distance between the machine and the wall.
4. Sewer drain.
5. Drain tray.
6. Water mains inlet.
7. Adjustable feet of the machine.
8. Electrical mains switch.
9. Water filter inlet.
10. Water filter outlet.
11. Water mains valve
12. Water mains check valve
13. Used coffee grounds drawer.
14. Support for knocking out the grounds in the filter holder.
15. Water filter.
16. The minimum height of the machine top from the floor must be 150 cm.

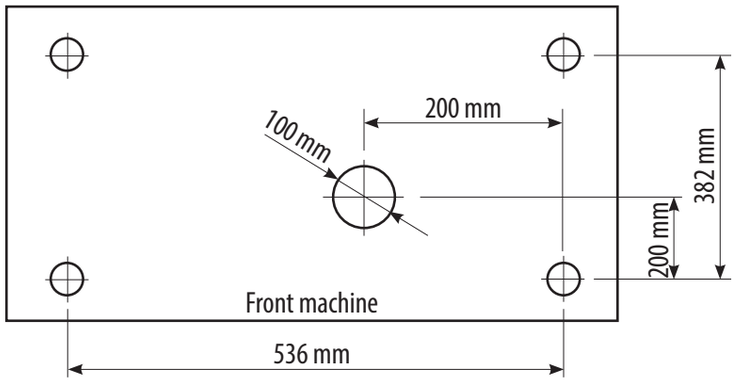
FOR THE USA: Replace the machine's feet (7) with the raised ones supplied.
The new feet must be firmly fastened to the machine by means of the specific nut.

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

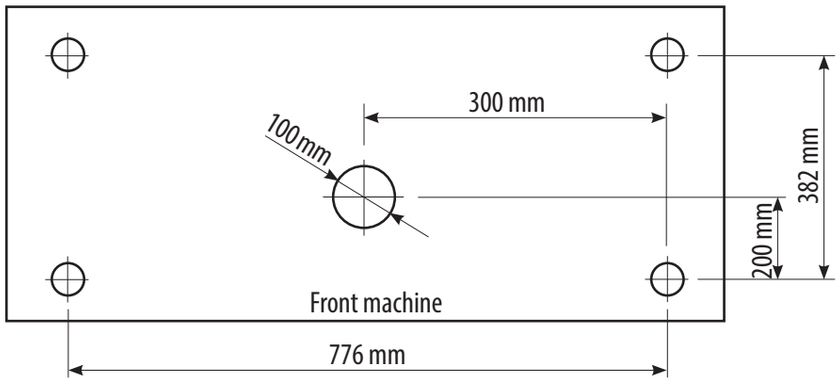
5.6 Drilling the support base

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



ENGLISH

5.7 Hydraulic connection

Before connecting the hydraulic system, make sure 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*

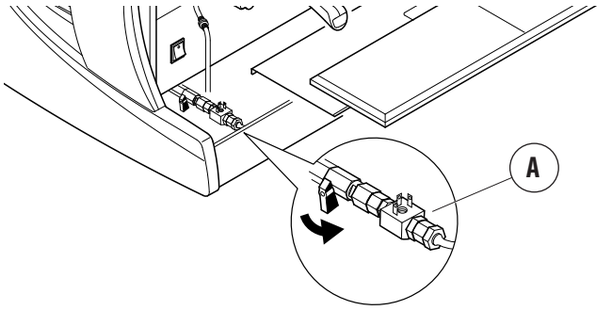
The Technician must carry out the hydraulic connections in accordance with the hygiene and hydraulic safety standards regarding environmental protection which are in force in the place of installation.

1. Add a valve to the water supply in order to stop water flowing to the machine;
2. In order to prevent damage, it is advisable to install the water purification filter where it will be protected from accidental blows;
3. If there is no water purification filter (**15**), connect the water mains (**11**) directly to the machine's water inlet **(6)**;
4. When connecting the machine's tray **(5)** to the sewer drain **(4)**, avoid overly tight curves or kinks, and make sure that there is a sufficient slope for water to flow to the drain;
5. The drain must be connected to a siphon that can be inspected and periodically cleaned, in order to prevent unpleasant odours returning.
6. To avoid oxidisation building up and damage to the machine over time, do not use iron connections for the hydraulic system, even if they are galvanised.

After installation and before using the machine, the water in the hydraulic circuits must be replaced, as indicated in para. "6.7 Water renewal" on page 27.

New connecting pipes must be used every time that the machine is newly installed. Do not use old connecting pipes.

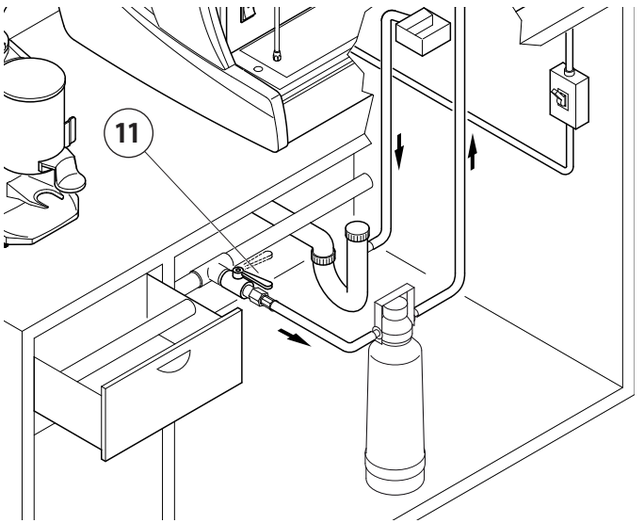
Before connecting the machine, open the tap of each volumetric dispenser (A).



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.
The machines are fitted with a "Timeout" device which allows the heating unit to be filled up with water within a maximum time. This function prevents water from flowing out of the heating unit's valve (flooding) and keeps the motor pump from overheating.

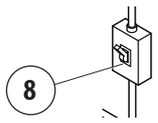
FOR THE EUROPEAN COMMUNITY: when connecting to a water mains or an external tank, a non-return valve (16) must be positioned upstream from the machine, as set forth by the EN 1717 standard.

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 set forth by the national standards.



5.7.4 *Electrical connection*

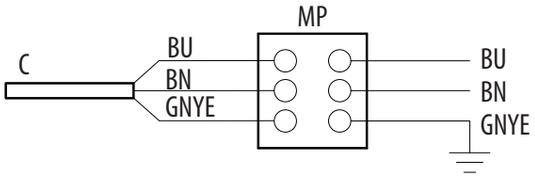
- The conformity of the electrical system, effectiveness of the earthing system and functionality of the differential circuit breaker - all of which are fundamental for guaranteeing the appliance's electrical safety - are the responsibility of the person in charge of the electrical system on which the equipment is installed.
- Before installation, make sure that the electrical system is equipped with the protection device **(8)**, as indicated in the safety notes at end of this paragraph..



- To connect the machine to the electric mains, refer to Chap. 14 on page 64.
- 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.

If an external motor pump is being used, proceed as follows:

- Connect the motor pump cable (with the smaller cross-section) to the connector of the external motor as shown in the diagram below.
- Connect the machine power cable (with the larger cross-section) as indicated in Chap.14 on page 64 .



BU	Blue
C	Motor pump power cable
GNYE	Yellow-green
BN	Brown
MP	Motor pump terminal

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 overvoltage category III conditions and which guarantees a suitable residual-current device, equal to 30 mA, in compliance with current laws and safety regulations.

Always connect the motor pump cable before the machine power supply cable, by following the diagram provided. Failure to comply with the instructions given above may cause serious damage to the machine and/or motor pump and will invalidate any guarantee. We recommend that you promptly report any problems encountered during the appliance's installation to the Manufacturer.

6. COMMISSIONING

6.1 Safety precautions

Carefully read the instructions provided in chapter I on page 3.

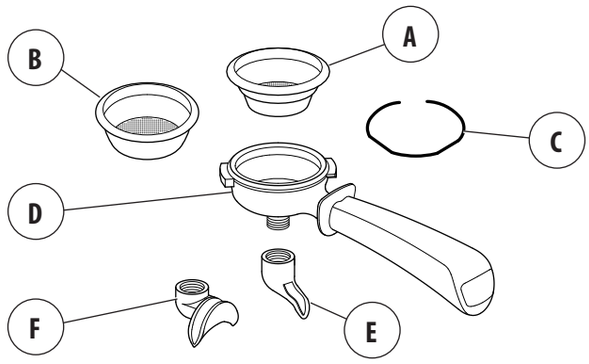
6.2 Preparing the filter holders

6.2.1 *Filter holders*

- Place the filter-holding spring **(D)** in the housing of the filter holder **(C)**.
- Take the **(A)** or **(B)** one-cup filter and press it firmly into the filter holder.

6.2.2 *Spouts*

- Finish preparing the filter holder by fitting the spout for one cup **(E)** or two cups **(F)**.



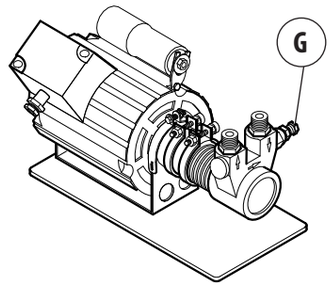
Properly connect the single filter with the single spout and the double filter with the double spout.

6.3 Grinding and dosing coffee

To adjust the graininess of the ground coffee, refer to the instructions in para. 7.3.18 on page 42.

6.4 *External motor pump adjustment*

To adjust the operating pressure, proceed as follows:

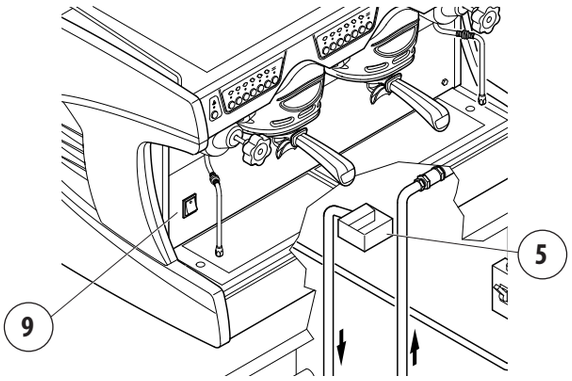


- Press a coffee dispensing switch:
- Adjust the pressure by turning the screw located on the pump **(G)** so as to obtain a value between 0.8 and 0.9 Mpa (8 and 9 bar): tightening the screw increases the pressure, and loosening it reduces the pressure.
- Check the pressure by means at the display.
- Switch off the dispensing switch.

ENGLISH

6.5 Turning the machine ON and OFF

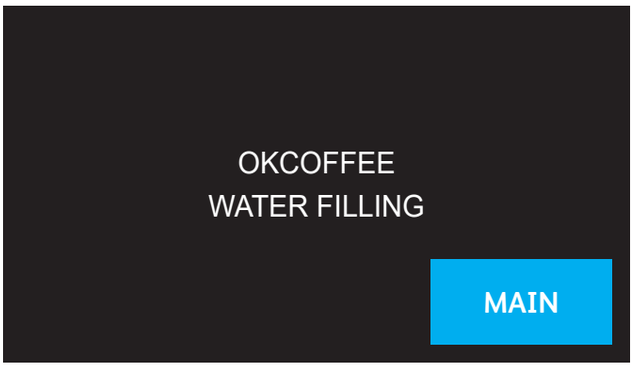
6.5.1 *Turning ON*



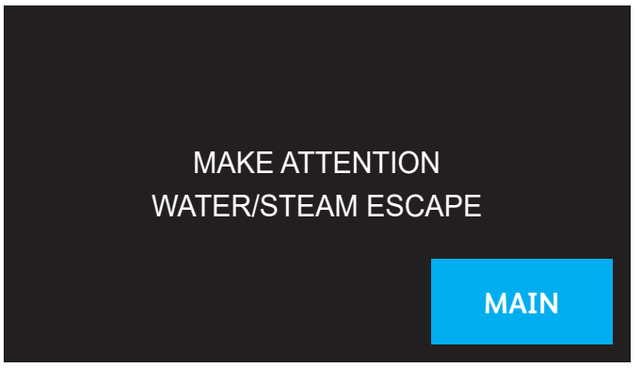
After the hydraulic and electrical mains have been connected, make sure that the drain tray **(5)** under the cup support grille is correctly connected to the drain.
Check that all the steam valves are closed. Turn on the machine using the main switch **(9)** and follow the indications on the machine's display.
When the machine turns on, it performs a functional test and reports information regarding the installed software.

- OK indicates that the machine is working correctly. If there is a negative result, check the warning on the display;

- When the machine is turned on, the motor pump is activated which starts to fill the steam heating unit and the water heaters for the coffee (there are the same amount of these as there are dispensing groups in the machine);

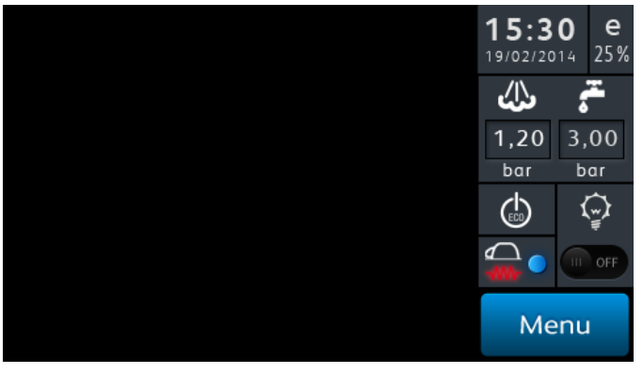


- In order to remove the air from the heaters, each time the machine is turned on, the group solenoid valves are activated, making water and steam come out of the shower screen of each group for around 10 seconds;



- When the heating phase of the dispensing groups has finished (after about 10 minutes), signalled by the "PLEASE WAIT" warning disappearing, it will be possible to make coffee selections. The steam heating unit needs to fully heat up before hot water or steam can be dispensed;

- During the heating phase of the steam heating unit (from 95°C to 98°C), the machine will dispense a small amount of water and steam from the water spout;
- Steam and water can only be dispensed, i.e. the machine can only be fully functional, if the pressure of the machine ( ) is higher than 0.6 bar.



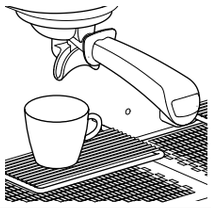
During the steam heating unit heating phase, the temperature instead of the pressure will be shown on the display in °C, until it reaches 100°C.
Then the value will be converted into bars (pressure).

6.5.2 *Turning OFF*

Turn off the machine using the main switch or power switch **(9)**.

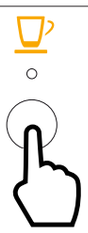
6.6 Simulated coffee dose programming

- Place a cup/demitasse under the group's dispensing spout;



- Press the PROG./STOP button for at least 5 seconds, until all the dose button LEDs are lit;

- Press the dose button that you would like to programme, e.g. ☕ ;



- To confirm the dose, press the button again ☕ ;

- If desired, repeat this operation for the other dose buttons;

- When the programming is complete, press the PROG./STOP button until all of the LEDs on the pushbutton panel go off.

Each dose must be programmed with freshly ground coffee and not with previously-used coffee grounds.
The system automatically exits the programming phase after about 20 seconds from the last operation performed.

Do not remove the filter holder from the dispensing group when coffee is being dispensed.
Do not insert your fingers or any other object into the filter holder.

To copy the dosages to the other coffee groups, see para. 7.3.6 on page 34.

6.7 Water renewal

When the machine is being installed, the Technician must replace the water inside the hydraulic circuits by following these steps:

- When the installation is complete, the appliance must be started, brought to the nominal working condition and left in the "ready-to-operate" status for 30 minutes.
- Next, the appliance has to be turned off and fully emptied of the first water introduced into the entire hydraulic circuit, in order to eliminate any initial impurities.
- The appliance must then be filled again with water and brought to nominal working conditions.
- Upon reaching the "ready-to-operate" status, the following dispensing operations must be performed:
  - Continually dispense from each coffee group, in order to empty at least 0.5 litres from the coffee circuit. If there are several dispensing points attached to the same exchanger/coffee heating unit, divide the volume by the number of dispensing points.
  - Empty the heating unit of all its hot water by continuously dispensing through the specific spout. If there are multiple dispensing points, divide the volume by the number of dispensing points.
  - Continuously release steam for at least 1 minute from each steam dispensing point.

If the machine remains inactive for longer than a week, the Technician must renew 100% of the water inside the hydraulic circuits, as indicated above.

Before using the machine, run a few empty dispensing cycles with the filter holder attached for a few seconds to release any air inside the circuit and in turn, allow the dispensing groups to fully heat up.

Before using the machine, dispense a few coffees to test the grind fineness and to check the operating pressure of the machine.

ENGLISH

7. PROGRAMMING

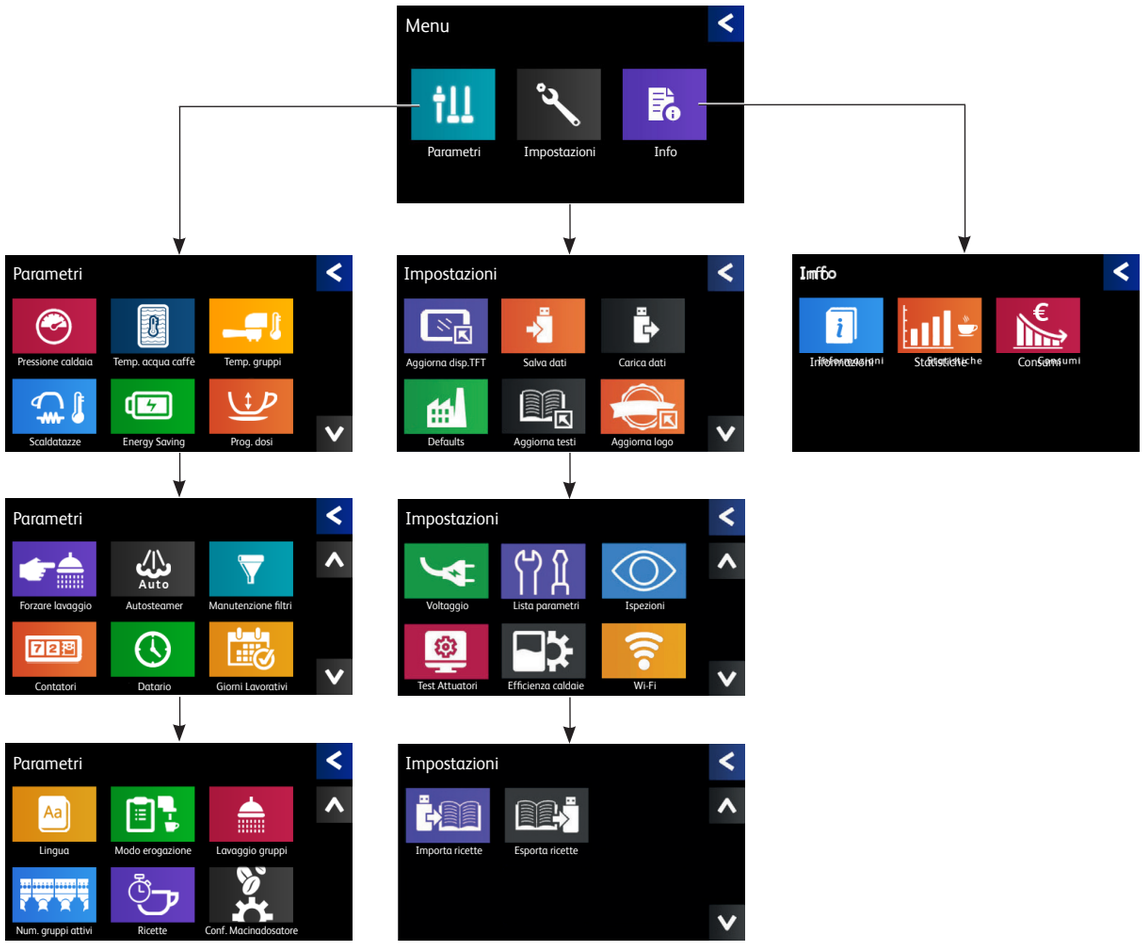
7.1 Accessing the menu

This paragraph shows all of the programming menus where the various machine functions can be set.
The user can access the menus in two ways:

- with a special USB pen;
- with password..

To exit the menu, or return to the previous screen press the (<) button.

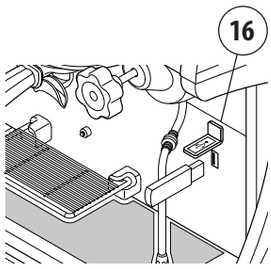
OUTLINE OF THE MACHINE'S
PROGRAMMING MODE



7.1.1 *Access with USB pen*

- Insert the USB stick into the programming reader (**16**);
- Pressing the "Menu" button displays 

;



The USB stick exclusively provided to the Qualified Technicians is the only stick that can be used in the USB port. Do not connect external devices (iPhones, iPads, PCs, etc.) to the USB port because it could create serious machine software problems.

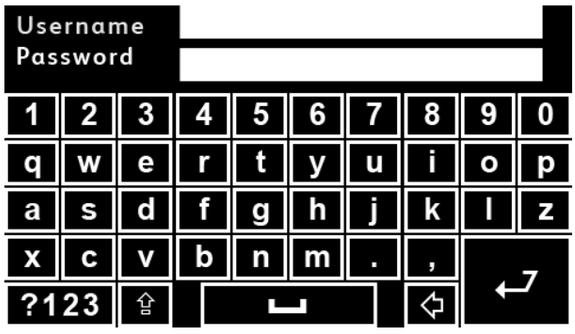
7.1.2 *Access with Password*

- Pressing the "Menu" button displays 

;
- Enter login and password;

  login: tech

  password: usertec320



With access via password, some USB functions are not possible, i.e. updates, loading and / or saving of data.

7.2 Energy Saving Management

A series of technical innovations allows the energy consumption to be substantially reduced.

- Heat loss is reduced as the heating units are insulated;
- The power is distributed between the groups according to the working needs, via an electronic control;
- The machine can be programmed to have a reduced consumption or night-time shutdown;
- A self-learning daytime working routine;
- The operating temperature of the groups and heating unit can be programmed.

7.2.1 *Energy saving mode programming*

To achieve substantial energy savings, you can activate the Energy Saving function when the machine is not in use (e.g. at night).
In this phase the machine is not turned off, but is brought down to a lower temperature (this can be programmed).
To program the machine's energy saving function, refer to para. 7.3.5 on page 32.

7.2.2 *Programming the group standby mode*

The system lets you achieve further energy savings by setting two or more periods, during the days the machine is in use, when the functions of one or more dispensing groups are reduced (standby).
These periods can be configured in two ways:

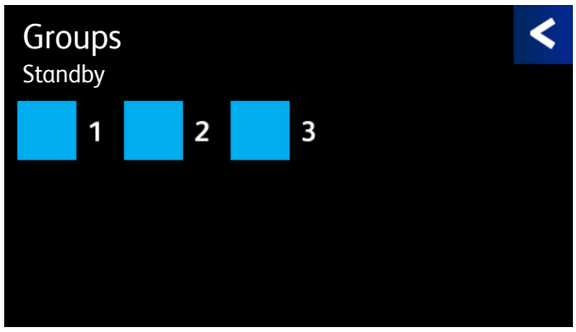
- Manual programming: setting the start and end standby times for the dispensing groups in question, but only for 2 periods;
- Self-learning: during the first week that the machine is in use, the system monitors the use of the machine and then automatically processes and sets the times and the groups in question to be put in standby mode (only if enabled).

To program the group standby mode, please refer to chapter. 7.3.5 on page 32.

ENGLISH

7.2.3 *Dispensing group standby mode*

When desired, one or multiple dispensing groups can be manually put in standby mode.
To force the groups into standby mode::

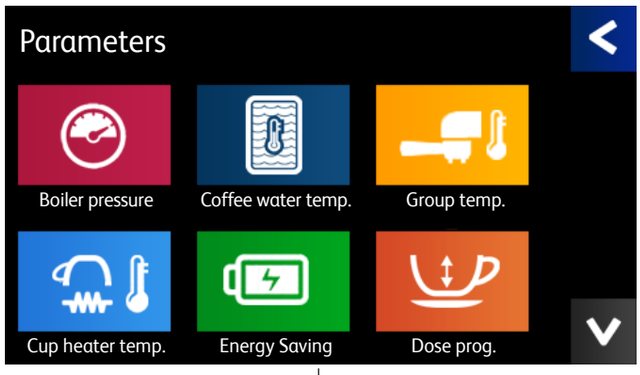


- Press the button on the touchscreen display;
- On the next screen, activate the groups that you would like to put in standby mode;
- Return to the main screen via the button.

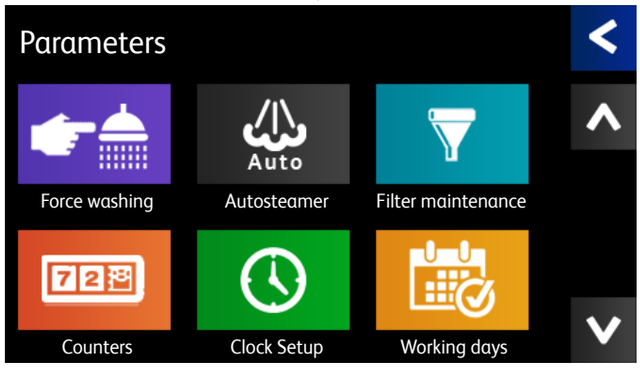
When the group has been put into standby mode, this will be indicated by the beverage selection LEDs turning off.
To bring a dispensing group out of the standby mode, press “PROG/STOP” button.

7.3 Parameters

Press the button on the main menu to access the screens shown below..



P. 1



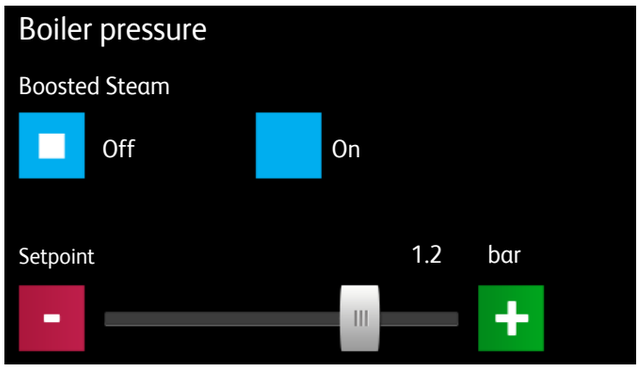
P. 2

P. 3

7.3.1 *Boiler pressure adjustment*

To change the pressure in the steam heating unit (hot water/steam), proceed as follows:

- Press the  button;
- Adjust the parameters via the scroll bar until it approaches the desired value;



- Use the + and - buttons for greater precision;
- Select "On" to enable the Boosted Steam function: this system is used when large amounts of hot water and steam are used. Priority is given to the steam heating unit's heating element, which allows more hot water and steam to be produced;

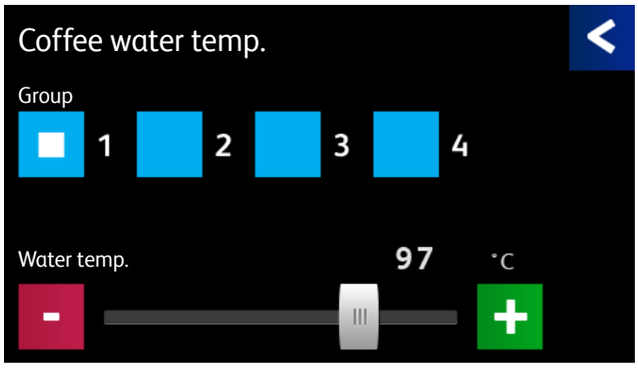
The default pressure of the machine is 1.2 bar, which is perfect for a normal workload. Depending on how the machine is used, the pressure can be increased or decreased. Coffee dispensing is not affected by this parameter;

If the "steam wand" device has been installed, we recommend that you leave the pressure at 1.2 bar.

7.3.2 *Adjustment of coffee water temperature*

To modify the outlet temperature of the water leaving the group to dispense coffees, proceed as follows:

- Press the  button;



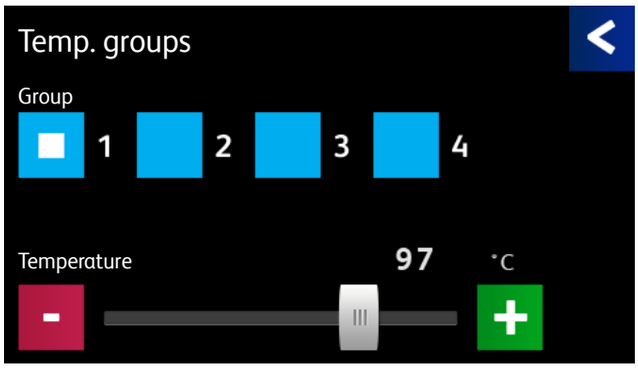
- Adjust the parameters via the scroll bar until it approaches the desired value;
- Use the + and - buttons for greater precision;

Group	Select the group of the heating unit that is to be adjusted.
Water Temp.	Water temperature for coffees.

7.3.3 *Adjusting the temperature of the groups*

To modify the temperature of the single dispensing groups, proceed as follows:

- Press the  button;



- Adjust the parameters via the scroll bar until it approaches the desired value;
- Use the + and - buttons for greater precision;

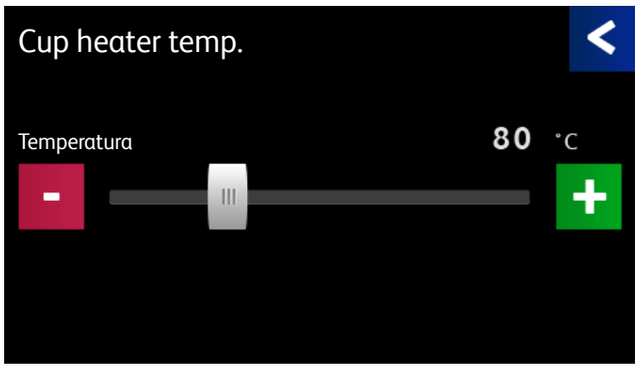
Group	Select the group to be modified
Temperature	Temperature of the dispensing group

ENGLISH

7.3.4 *Adjusting the cup warmer temperature*

To change the cup warmer temperature, proceed as follows:

- Press the  button;
- Adjust the parameters via the scroll bar until it approaches the desired value;
- Use the + and - buttons for greater precision;



Temperature	Cup warmer temperature.

If a temperature above 114°C is set, the "ON" warning will appear on the display, resulting in the cup warmer's continuous operation function being enabled.

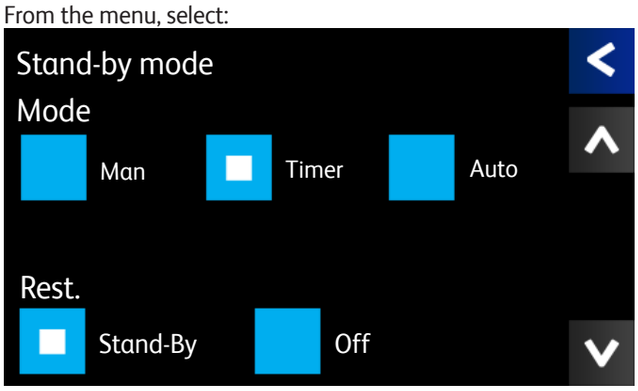
If a temperature less than 70°C is set, the "---" warning will appear on the display, resulting in the cup warmer being deactivated. If the cup warmer is deactivated by the technician, the user will not be able to activate it via the ( ) button on the main screen.

7.3.5 *Programming the Energy Saving and group standby modes*

To program the Energy Saving and Standby modes, proceed as follows:

- Press the  button;
- Select the desired mode;

From the menu, select:



1. the **programming/activation** mode of Standby:

Man	Manual mode, accessible by pressing the button on the main screen.
Timer	Operates according to the programmed time periods.
Auto	Machine self-learning: during the first week that the machine is used, the system records all the dispenses that have been carried out on each group and during each hour. After the machine has been used for one week, the system places the preset groups in standby, (see the previous paragraph), by referring to the minimum programmable number of beverages made per hour (automatic standby threshold).

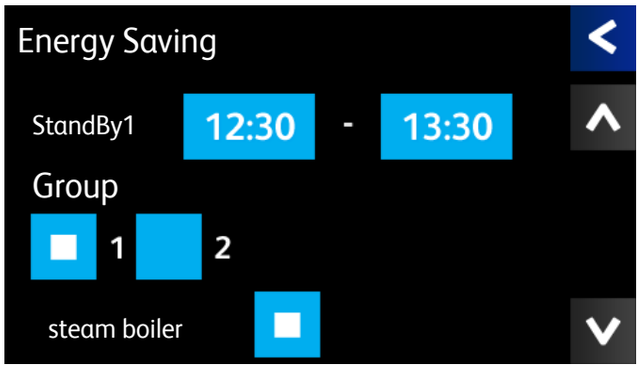
2. **Rest Mode** – choose your preferred option among the following:

Stand-By	Partial machine shutdown, with reduced power consumption of the heating elements.
OFF	Complete shutdown of the heating elements.

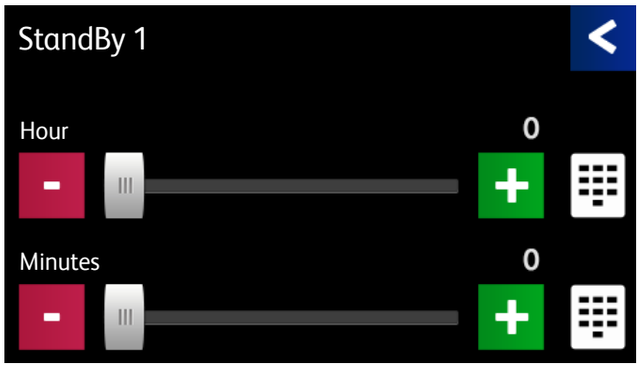
TIMER SETTING

Upon selecting the "**Timer**" Standby mode, time slots must be configured accordingly:

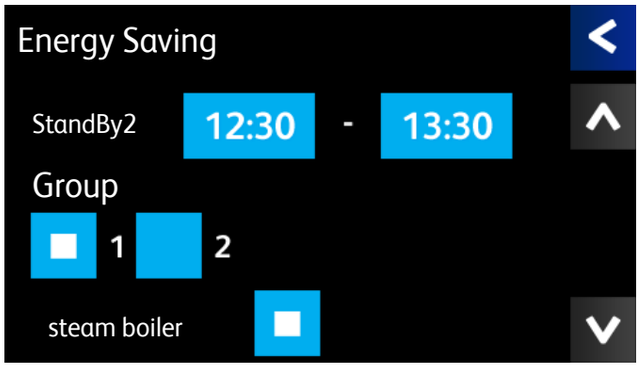
- In the Energy Saving menu, navigate using the arrow keys / to select the time slot for programming;

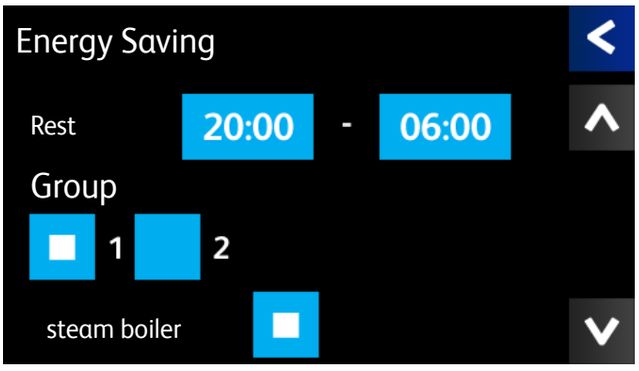


- to set the time, select the field to be modified and use buttons and located on either side of the adjustment bar. For greater accuracy, the value can be entered manually using button , then confirmed by pressing button ;



- Continue through the next screens using the arrow keys / to configure the remaining time slots:





- For each time slot, it is possible to configure the elements to be shut down or set to reduced consumption using the fields available in the "group" and "steam boiler" sections.

In standby mode (indicated by the flashing STOP/PROG LED), it is possible to exit this state by pressing the STOP/PROG button. The unit will then return to its operating temperature (approximately 2 minutes).

When the machine is in Standby or Rest mode, the corresponding status will be indicated on the main screen by the appropriate symbol or .

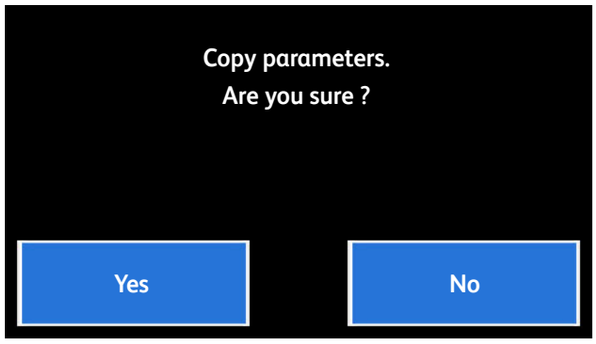
ENGLISH

7.3.6 *Programming doses*

To change or reprogramme the beverage doses, proceed as follows.

- Press the  button;

- Press the desired dose on the keypad (e.g. 1 espresso coffee  on group 1).
- The set value will be displayed on the screen (e.g. 21 ml). To modify the dose with greater precision, use the + and - buttons.
- Use the same procedure to programme the other dose buttons.
- Once one keypad has been programmed, select the  button and all of the parameters can be copied onto the other keypads.



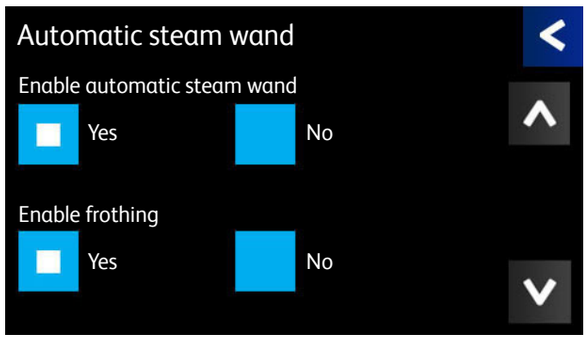
For coffee selections, the set quantity is in ml (milliliters), while for tea selection, in seconds.

Once the value in ml of the coffee doses has been set or changed, it is necessary to exit the programming menu and dispense coffee for each dose button. In this way the machine memorizes the correct dispensing time for each dose. Only then do the copying of the parameters to the other groups.
If the programming has been carried out through simulation (vedi par. 6.6 on page 27), Do not modify any dosage but immediately copy to the other groups.
The parameter copy command must not be used if you are programming within a recipe. In this case, in fact, the dosages are distributed to the various groups within the Recipes menu (vedi par. 7.3.17 on page 41)

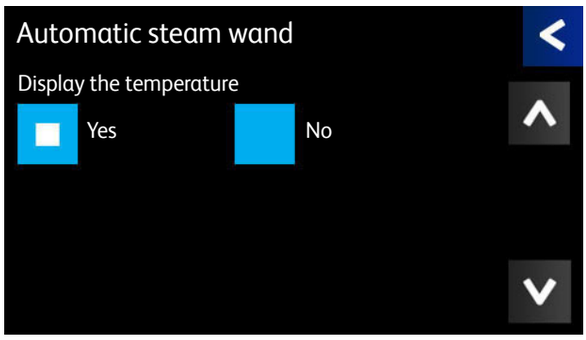
7.3.7 *Autosteamer option*

To enable or disable the automatic steam wand and adjust its temperature, proceed as follows:

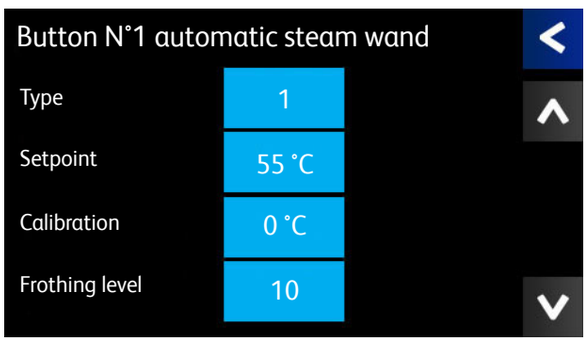
- Press the  button.



- Enable or disable the automatic steam wand.

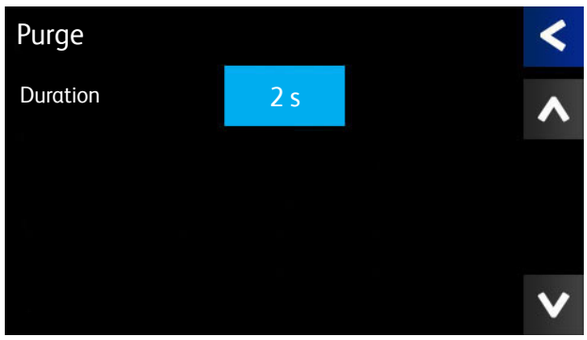


- In the next screen it will be possible to enable the display of the temperature when using the automatic steam wand.



In the following screens it will be possible, for each button of the automatic steam wand pushbutton panel, to perform the following operations:

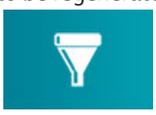
- Configure the type of automatic steam wand (1 standard, 2 for the frothing).
- Set the desired temperature (50 ÷ 80 °C).
- Calibrate the temperature to make the correction between the value read on the display and the real value.
- Increase or decrease the consistency of the froth (0 ÷ 100).

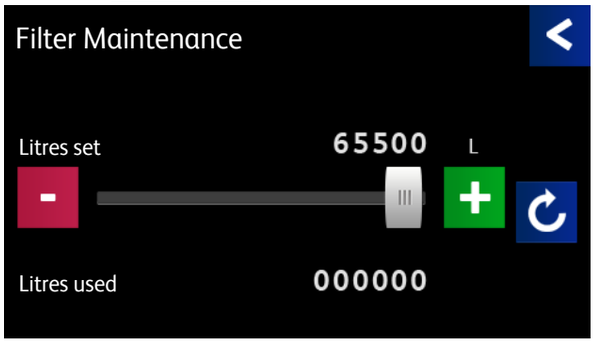


- In the last configuration, it will be possible to regulate the length (in seconds) of the short dispensing of steam after using the automatic steam wand to clean the nozzle.

7.3.8 *Water softener regeneration*

To automatically display the message indicating that the softener needs to be regenerated, proceed as follows:

- Press the  button;

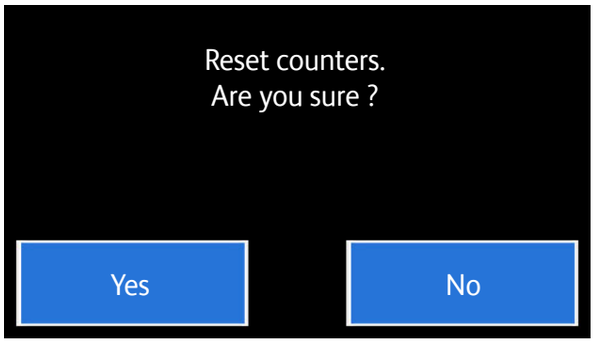


Set the number of litres used by the machine after which the message indicating that the softener should be regenerated will be shown:

Set litres:
How many litres of water can be consumed before the softener regeneration message appears.

Litres used:
How many litres of water have been used since the last reset.
After the regeneration has been performed, set the litres to "000000" in order to cancel the warning as follows:

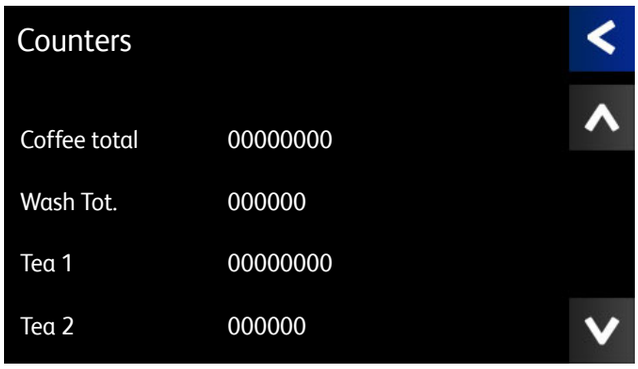
- Press the reset button ( );
- In the next screen answer "Yes";
- The “Litres used" counter is reset to 0, and the "Filter Maintenance" message will disappear from the main screen.



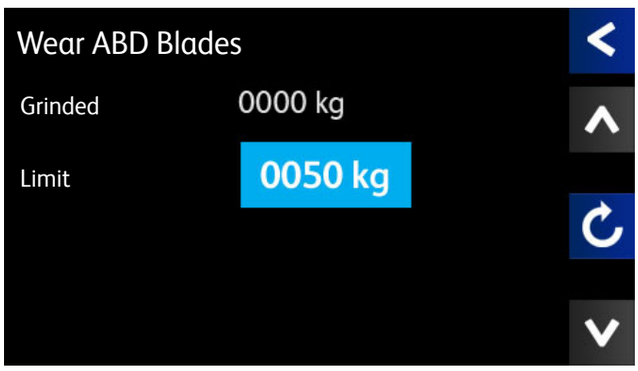
7.3.9 *Viewing the counters*

This menu option allows you to view the different information, which is useful for the technician to correctly identify any anomalies.
It also is a valuable tool for the user when carrying out scheduled maintenance.
Below is a list of the screens in this menu and a brief description of each of them:

- Press the  button;

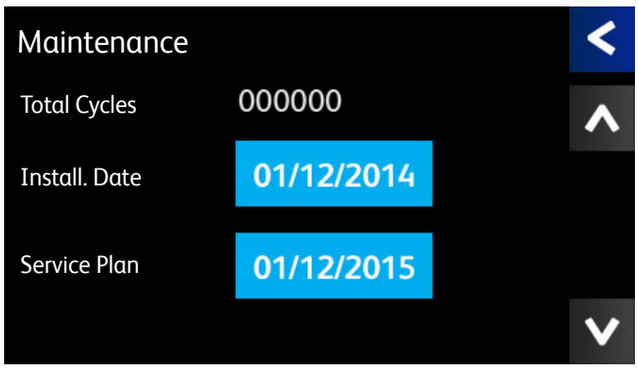


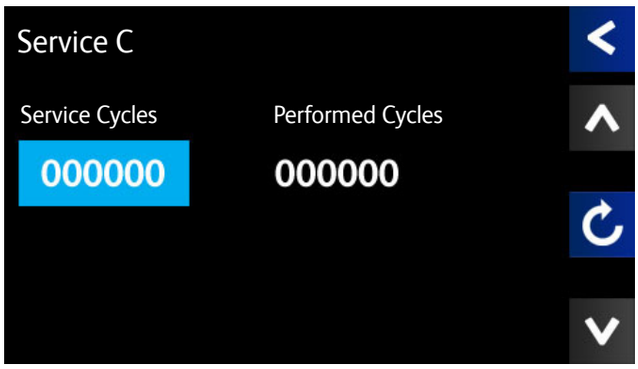
The first screen shows the total number of coffee selections and washes performed by the machine.

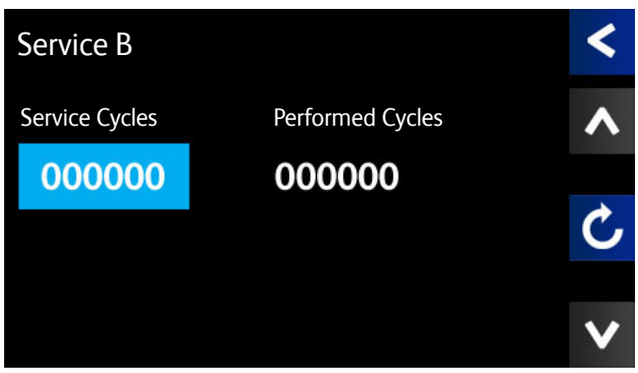


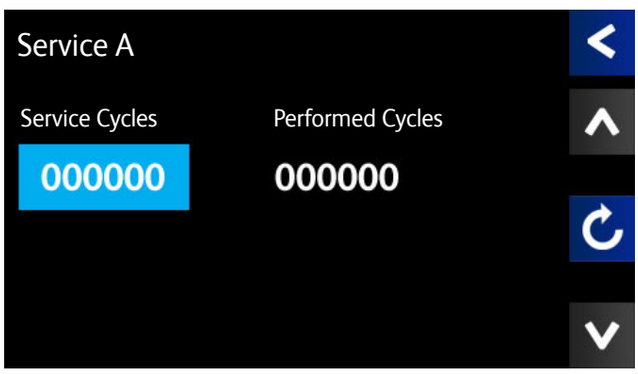
The second and third screen allow you to check the wear and tear of the grinder-dispenser’s grinders, and to act accordingly.

ENGLISH

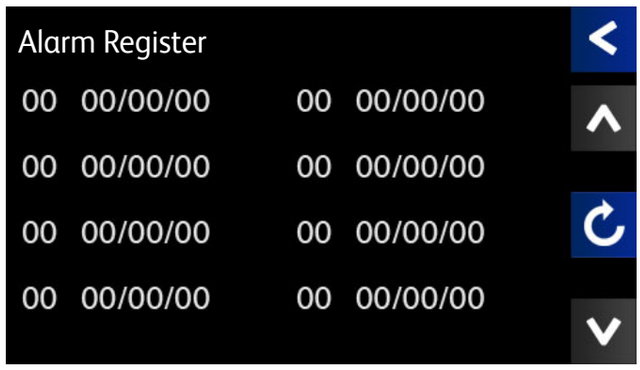






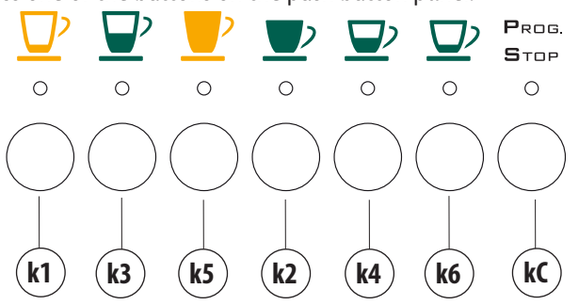


Le schermate qui sopra, permettono di controllare gli avvisi per la manutenzione programmata. Per maggiori informazioni consultare il capitolo "Manutenzione programmata".
Nella schermata successiva vengono proposti gli ultimi 8 allarmi memorizzati dalla macchina. Per maggiori informazioni consultare il capitolo "Menù impostazioni.

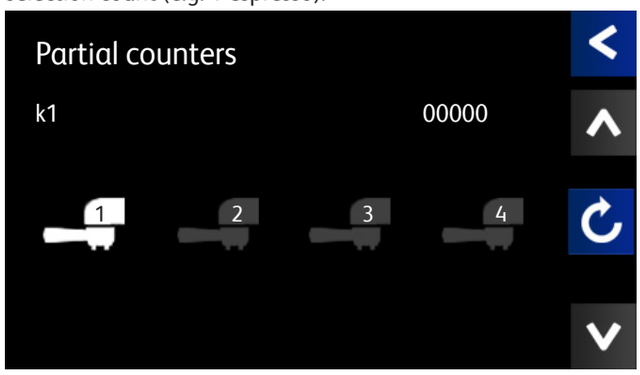


In the next screen, the last 8 warnings stored by the machine are shown. For further information, refer to the “Settings menu" chapter.
On this screen, the partial counters for every dispensed beverage can be viewed.

Press one of the buttons on the push button panel.



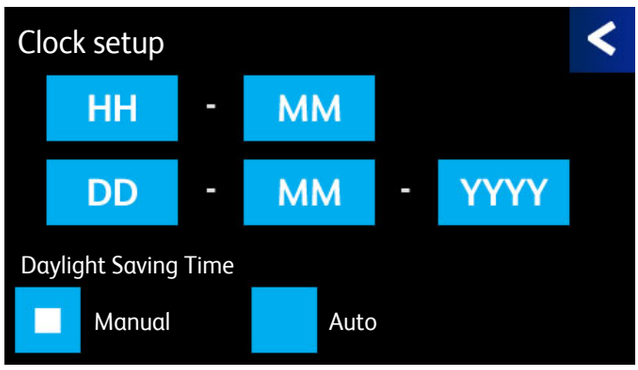
and the dispensing group in question will be shown and the selection count (e.g. 1 espresso).



7.3.10 *Setting the date*

To set the time and date shown on the display, proceed as follows:

- Press the  button;



Press the desired field to adjust the time and date.

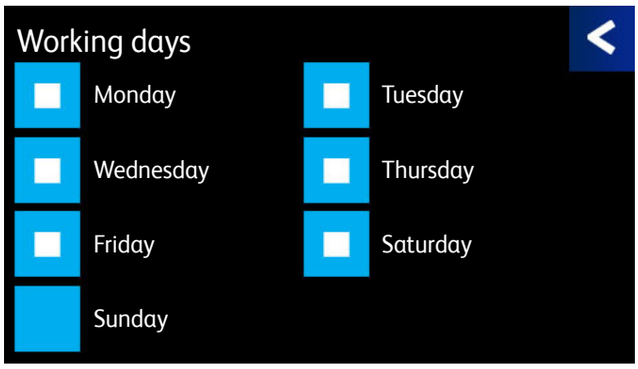
HH	hours
MM	minutes
DD	day
MM	month
YYYY	year

Auto	The clock automatically switches from standard time to daylight saving time and vice versa
Manual	The time does not change from standard time to daylight saving time and vice versa

7.3.11 *Setting the working days*

To programme when the machine turns on and off, proceed as follows:

- Press the  button;



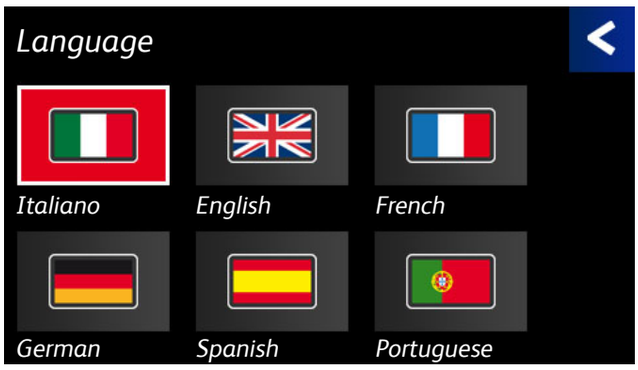
An example of the machine being switched off on a Sunday is provided above.

The machine remains switched off or in energy saving mode in correspondence with the days of the week that have been disabled.

7.3.12 *Setting the language*

To set the language shown on the display, proceed as follows:

- Press the  button;



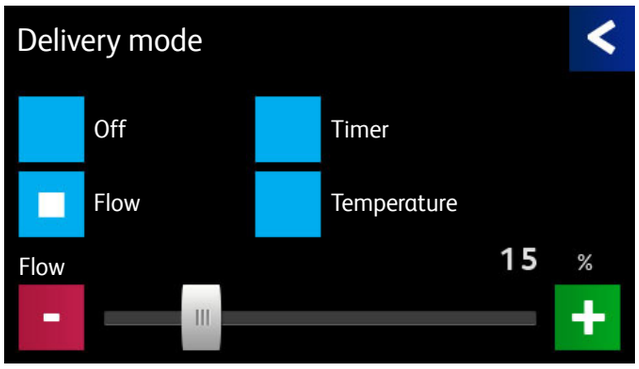
Select the language to use.

ENGLISH

7.3.13 *Dispensing check*

To programme the type of delivery control, proceed as follows:

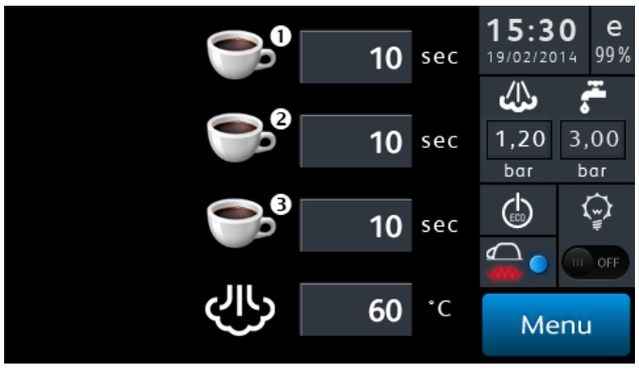
- Press the  button;



Select the mode you would like to appear on the screen while the coffee is being dispensed:

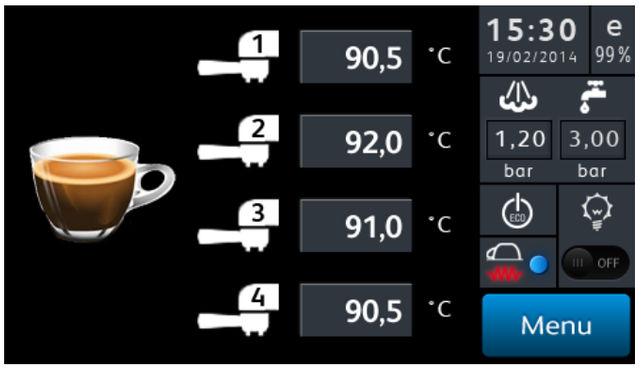
Off:

By setting "Off", the machine doesn't perform any checks whilst the machine is dispensing.



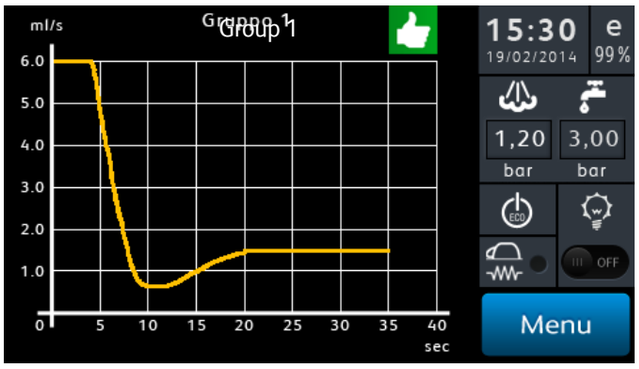
Timer:

During the dispensing process, the display will start scanning the time (in seconds) group by group.



Temperature:

During the dispensing process, the temperature of the water inside the dispensing groups that are been used is displayed.



Flow:

When the coffee doses were last programmed, the system memorised the water flow during the dispensing process.

If the "flow mode" is activated, the dispenses are controlled by the system and are considered valid when the dispensing speed falls within the tolerance setting. If the dispensing speed is too fast or too slow, the system will display a message suggesting that the fineness of the coffee grind is increased or decreased (see table below). The adjustment bar allows the tolerance value to be **set (Range: 0 - 50%).**

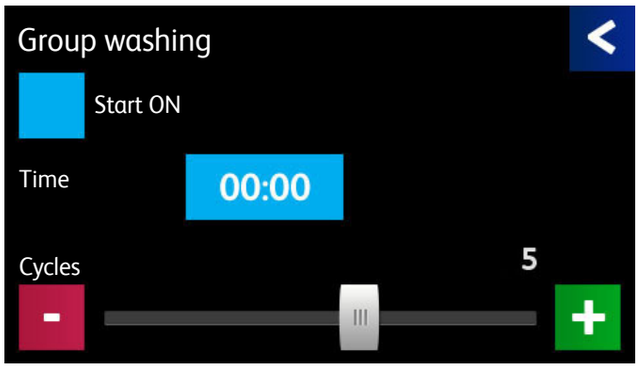
WARNING LIGHT	DESCRIPTION
	The dispensing flow is too slow.
	The dispensing flow is within the tolerance parameters.
	The dispensing flow is too fast.

By setting the "FLOW" mode, the machine will only check the coffee dose buttons. The flow of the "STOP/PROG" button, if used for dispensing, will not be checked.

7.3.14 *Programming the group wash*

To programme the automatic prompt that the dispensing groups should be washed, proceed as follows::

- Press the  button;



Start On:
Enable or disable the automatic prompt for the group wash when the machine turns on.

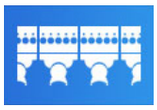
Time:
Sets the time when the prompt for the group wash **will be sent**.

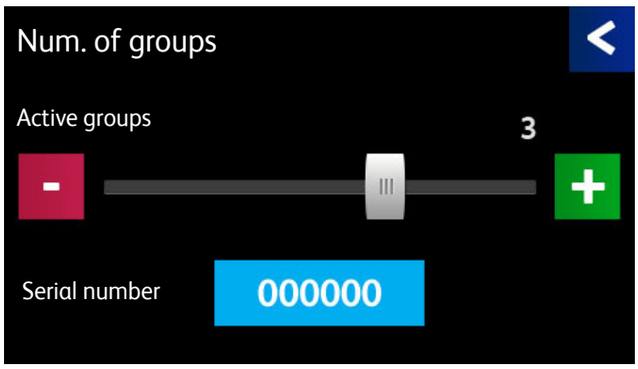
Cycles:
This parameter controls the number of water dispensing cycles when the wash is performed.
When the set wash cycles have been performed, the display will prompt for the filter holders to be rinsed.

To perform the cleaning operations, proceed as indicated in para. 8.8 on page 59. When the machine is turned on, after the temperatures reach operating levels, if set to YES, the display will show the wash prompt. To disable the wash prompt, set the time to 00:00.

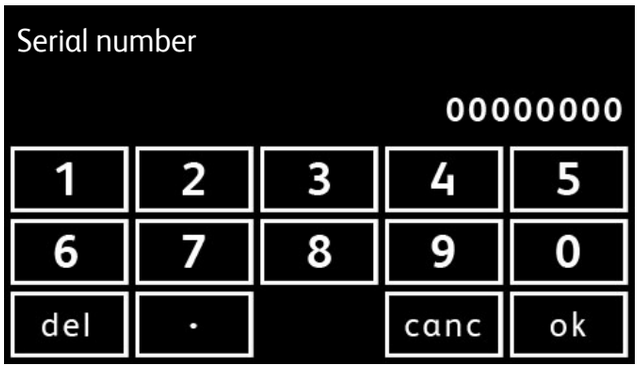
7.3.15 *Setting the number of active groups*

This item lets you set the number of active groups that have been installed on the machine, as well as the serial number.

- Press the  button;



Set the number of groups installed on the machine.



Press the serial number button to open the screen where the new number can be entered.
Enter the machine's serial number using the numbers on the touchscreen. If you entered an incorrect number, you can use the (**del**) button to delete the last digit.
After the number has been entered, press (**ok**) to confirm and return to the previous screen.
Press the (**canc**) button to return to the previous screen without making any changes.

The machine's serial number can only be programmed by a technician. The serial number can be reprogrammed at a later date..

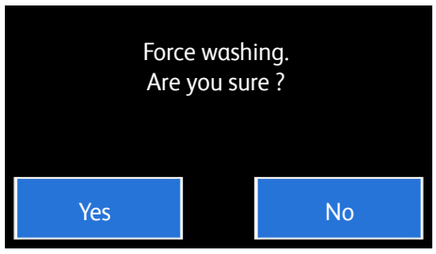
ENGLISH

7.3.16 *Group wash*

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

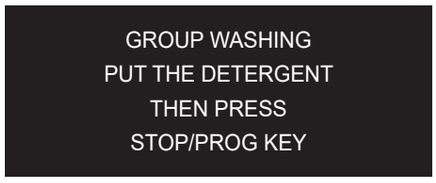
This item enables the automatic group wash:

- Press the  button;
- To enable the washing procedure, select the “Yes” button:

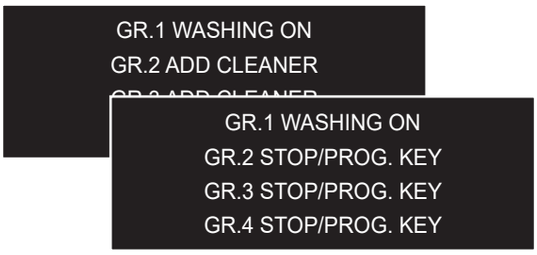


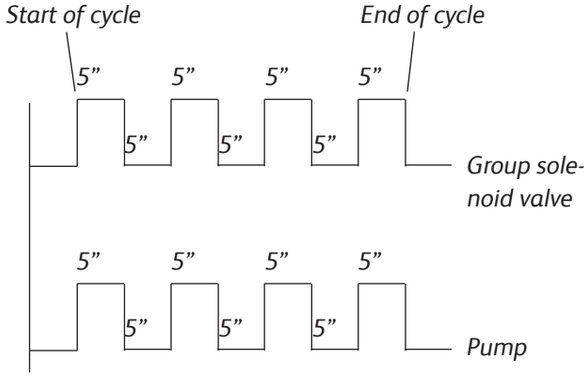
Please note: during this phase, all the coffee selections are disabled until the washing procedure has been completed. Follow the indications provided on the display:

- Remove the filter from the filter holder and fit a blind filter (see the standard supplied parts);
- Pour 1 level scoop of EVO ® detergent into the blind filters and hook the filter holders to the dispensing units;
- Attach the filter holder to dispensing group 1;
- Press the "PROG/STOP" button to start the washing phase;



- The following messages will appear on the display in an alternating sequence:

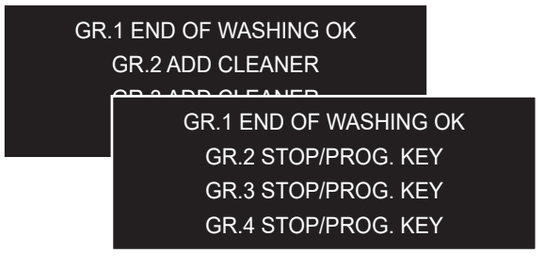




- Wait for the washing procedure to finish, the following messages will appear on the display when it has:

- Remove the filter holder from dispensing group 1 and press the “PROG/STOP” button;
- Wait for the rinse cycle to be performed (this takes roughly 30 seconds), and the following messages will appear on the display:

- When the rinse cycle has finished, the following messages will appear on the display:



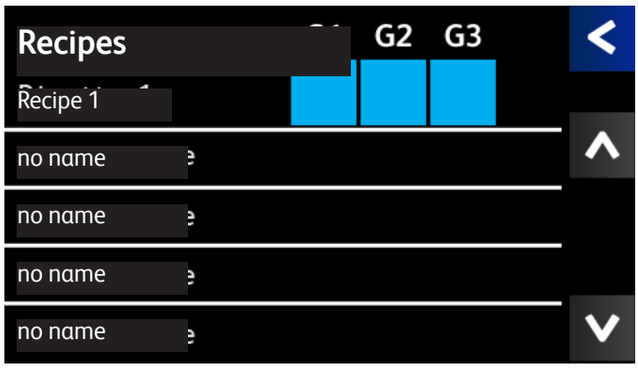
Carry out the washing operations on the other groups, following the same procedures indicated above.

The washing operations can also be carried out simultaneously on multiple dispensing groups. To exit the washing phase, the washing procedure must have been completed on all groups;

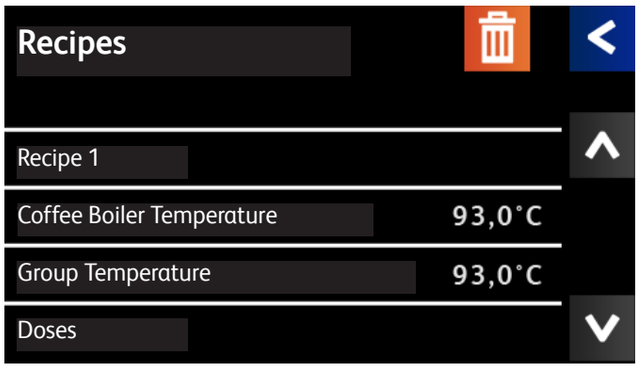
To disable the automatic wash warning indicated on the display or to change the time when the message is activated, see para. 7.3.14 on page 39.

7.3.17 *Recipes*

In this section, you can create and customize the various coffee brewing parameters, based on the coffee blend used and save them in a recipe:
This will allow the user to change the desired mixture at any time without having to change any parameters, but simply by recalling the desired recipe.



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



Assign the name to the recipe, and set the temperature values of the coffee boiler and brew group.
Pressing "Doses" will appear the next page, where you can make the assignment of each individual dose to the various dose keys of the grinder (T1, T2, T3):

Press the button to return to the main screen, and assign the recipe to the desired groups by pressing the keys G1, G2, etc...

Once the various dose keys have been combined, proceed as follows to dispense coffee:

- unhook the filter holder from the group and attach it to the grinder;
- select the desired blend button on the grinder and wait for the dispensing of ground coffee. Once the filter holder is filled, the grinder will tell the machine which dose keys to enable, and which are not;;
- hook the filter holder to the dispenser group and press the desired dose key to make the dispensing.

To delete a recipe, press the .

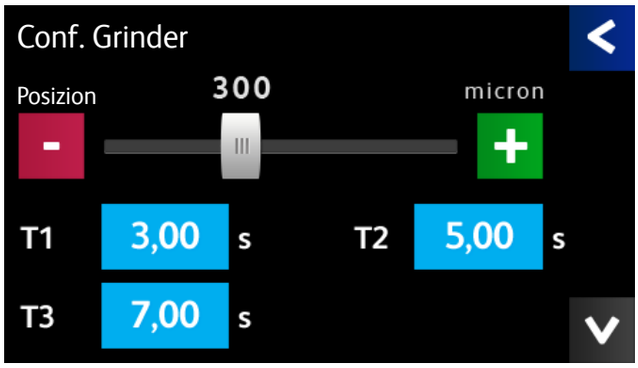
Program the single doses normally, as shown in the paragraphs. 6.6 and 7.3.6.
Do not use the copy doses command, but assign the recipe to the desired groups using the appropriate function.

ENGLISH

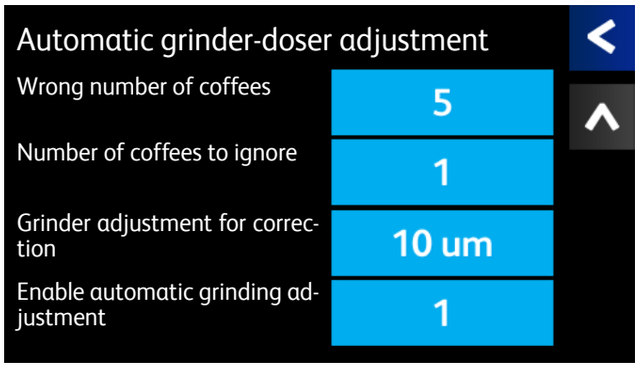
7.3.18 *Conf. Grinder*

This menu allows you to set the grinding times for each dose key of the grinder.
You can also set the distance (in microns) of the millstones.

- Press the  button;



Press the T1, T2, and T3 keys to set the respective grinding times.



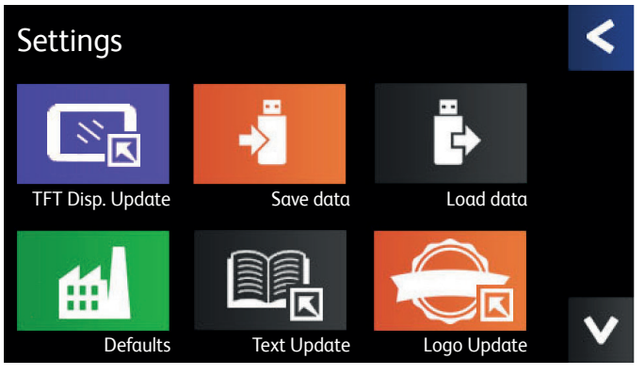
The next screen allows you to set the following variables:

- Incorrect number of coffees: this is the number of non-compliant coffees delivered consecutively, which must be taken into account before the grinder-doser automatically adjusts the grind.
- Number of coffees to ignore: this is the number of coffees dispensed not to be taken into consideration after adjusting the grind. This parameter allows the machine to perform a calibration after the grinder-doser has adjusted the distance between the grinders.
- Grinder adjustment for correction: it is the stroke with which the grinder-doser adjusts the distance between the grinders (expressed in micrometers µm).
- Enable grinder adjustment: this parameter tells the grinder-doser whether or not to adjust the distance between the grinders (0 = no, 1 = yes).

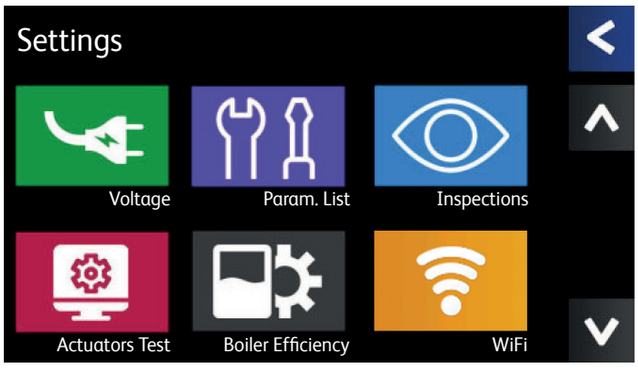
Consult the coffee grinder manual for the calibration of the grinders and its maintenance.

7.4 Settings

Press the  button on the main menu to access the screens shown below.



P. 1



P. 2

P. 3

7.4.1 *Update TFT display*

This item allows the software that manages the touchscreen display to be updated (via a USB stick), which is located in the display board.
To update, press this command, then the machine will load the new version of the display management software off the USB stick; once finished, check that the new version of the software has been installed.

7.4.2 Save data

With the supplied USB stick, all the settings that have been changed on the machine (temperatures, pressures, energy saving, etc.) can be saved.
Press the "Save data" button and wait for the data to be saved.

7.4.3 Load data

It is possible to load the previously saved data from the USB stick, and automatically reset all the machine's parameters.

- Press the "Load data" button and wait for the data to be loaded;
- When it has finished, the machine will automatically be set up with the loaded data.

If no data has been saved on the USB stick, "Load data" will not appear in the Menu;

Do not remove the USB stick while the data is being transferred.

7.4.4 *Default*

Through this menu, you can restore the machine's factory (default) settings.
Press the "Default" button to restore the data.

7.4.5 *Update text*

With this command you can update the text used in the display menu, in the various languages that are available.
To update, press this command, then the machine will load the new menu text.

Do not remove the USB stick while the update is in progress. If the operation fails, manually turn the machine off and back on and insert the USB stick that was supplied by the manufacturer.

7.4.6 Update Logo

With this command, you can customise your logo and the display screensaver.
Proceed as follows:

- On a USB stick, store up to 11 images, type "jpg" file, with maximum size of 64 kb each named "slideXX.jpg";
- Insert the USB pen into the socket of the machine;
- Press the key "Update Logo" and wait the procedure of update.

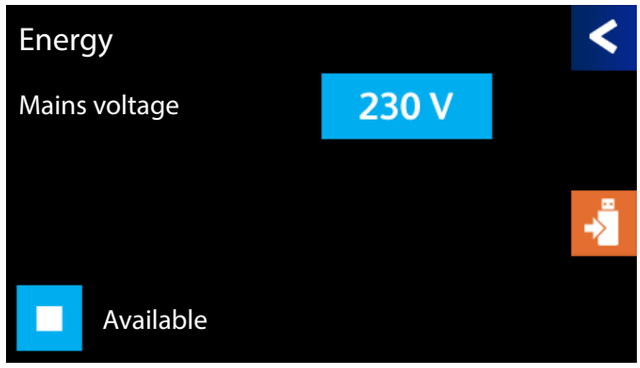
Refer to the table below for the format and name of the images. The images will be placed in the main folder of the USB memory stick (not in a subfolder).

Name	File	Type	Resolution	MAX dim
slide01.jpg	jpeg	Logo	360x272 pixels 72 dpi	64 kb
slideXX.jpg	jpeg	Screen Saver	234x65 pixels 72 dpi	64 kb

Do not use the provided USB stick to download updates, always use a new USB pen.

7.4.7 *Voltage*

This item allows you to set the machine's correct mains voltage.
The data will then be used in the estimated consumption statistics chart, underneath the information menu.



- **Mains voltage**: press and set the machine's voltage
- **Available**: when enabled, it allows you to view the "Consumption" item in the "Info" menu.

Press the  button to copy the current settings to the USB stick.

ENGLISH

7.4.8 *Parameter list*

This section provides the complete list of all editable parameters.
To modify or view a specific parameter, scroll the list using the keys on the display.

For the complete list of parameters see chap. 17 on page 77

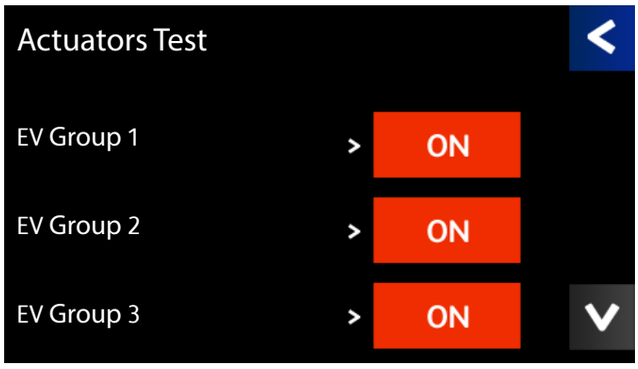
7.4.9 *Inspections*

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

- The temperature of the control unit board;
- The heating unit temperature;
- The cup warmer temperature;
- The pump pressure;
- The heating unit pressure probe;
- The heating unit pressure;
- The flow meter inlet;
- The minimum level in the heating unit;
- The maximum level in the heating unit;
- The ambient humidity;
- The temperature of the group heating units;
- The temperature of the groups;
- The flow rate of the groups;
- The pressure switch of the groups.

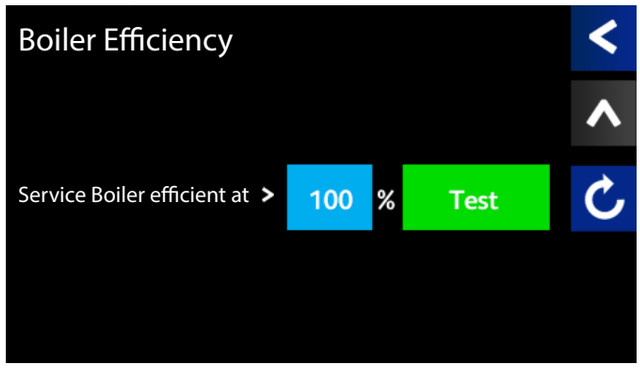
7.4.10 *Actuators Test*

In This section, all the main components of the machine are tested.
By pressing on the respective key, the machine will activate the corresponding component, thus allowing to control its correct operation.



7.4.11 *Boiler Efficiency*

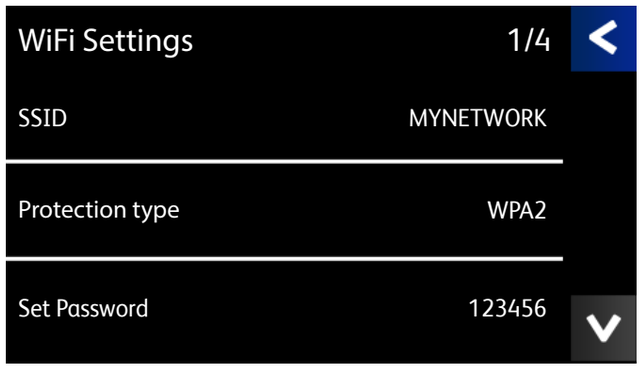
The efficiency of the heating units can be checked in this section. Comparing the various parameters over time, allows you to evaluate the operating status of the heating units.



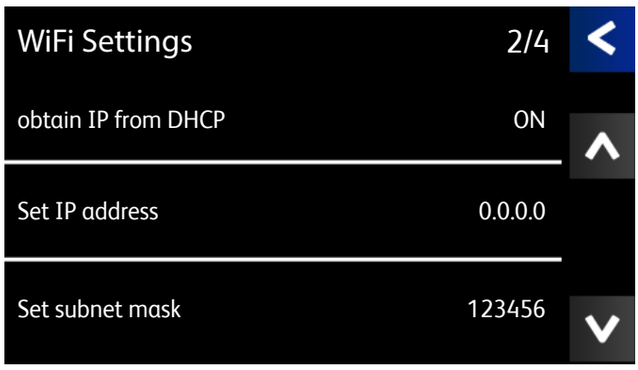
7.4.12 *WiFi*

If the Wi-Fi service is set up on the machine, it can be connected as follows:

- 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 by Storm 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);

- Specify the cloud server to which the machine must be connected, specifying its IP address in the "URL Cloud" menu (e.g. 52.17.80.13) and the port in the "Port" menu (e.g. 80);

- To save the settings, exit the menu with the (<) key and confirm at the next request.

7.4.13 *Import Recipes*

It is possible to load the Recipes saved in the USB stick.
Press the "Import Recipes" button and wait for the Recipes to be loaded.

7.4.14 *Export Recipes*

With the supplied USB stick, all the Recipes can be saved.
Press the "Export Recipes" button and wait for the data to be saved.

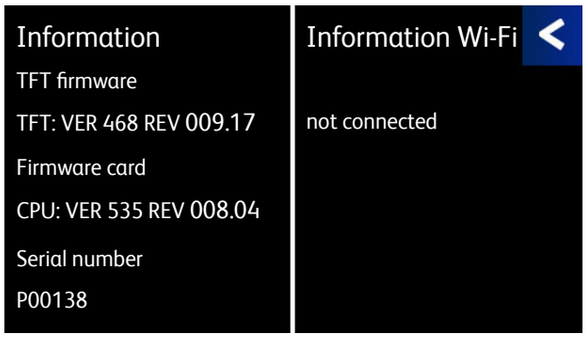
7.5 Info

Press the button from the main menu to access the screen shown below.

ENGLISH

7.5.1 *Information*

To view the specifications of the software that has been installed on the machine, press the indicated button.



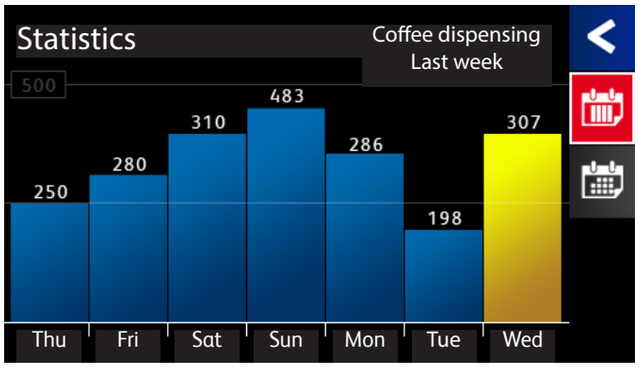
This information is provided:

- **TFT firmware**: shows the firmware version of the display card installed.
- **Firmware card**: shows the motherboard firmware version which is identified by a date and revision number.

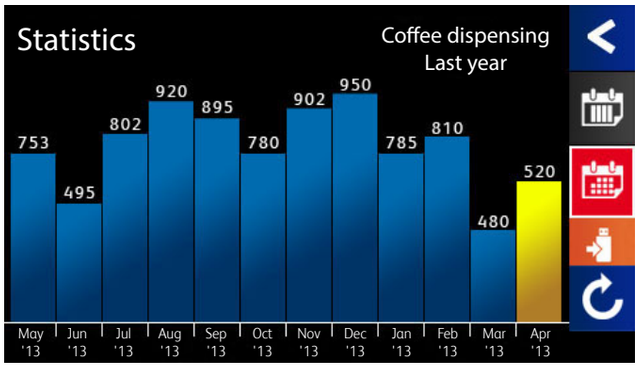
7.5.2 *Statistiche*

To view all the information regarding the beverages that have been made over a given period, proceed as follows:

- Press the  button;



By accessing this menu, the screen shows the vertical bar chart of the coffee dispensing trends in the past week:

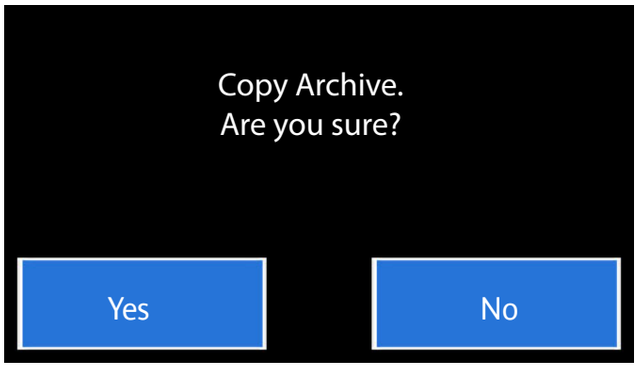


Press the () button to switch to show the monthly view instead. The coffee dispenses in the last year will be shown and divided by month.

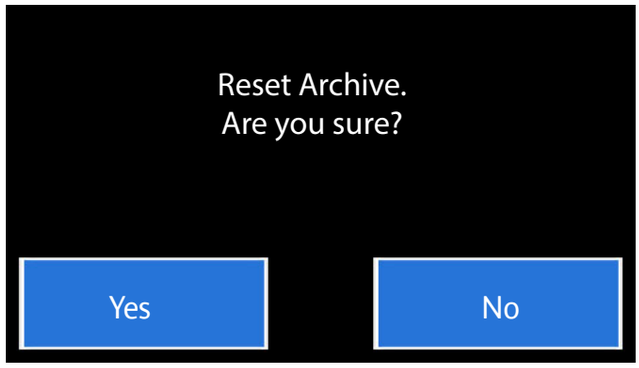
To return to the weekly view, press the () button.

The yellow bar indicates the current day / month.

Select the  button and confirm "Yes" when the "Copy Archive" request appears, in order to save all of the data onto the provided USB stick:



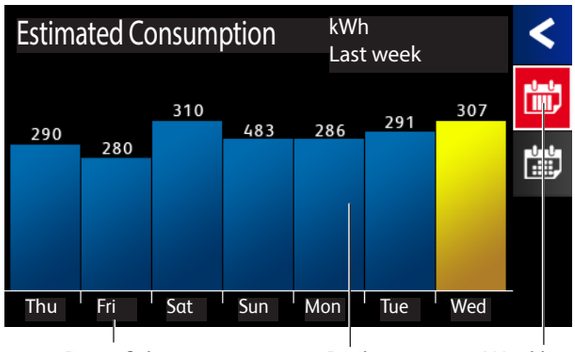
Select the  button and confirm "Yes" when the "Reset Archive" request appears, in order to delete all of the stored data:



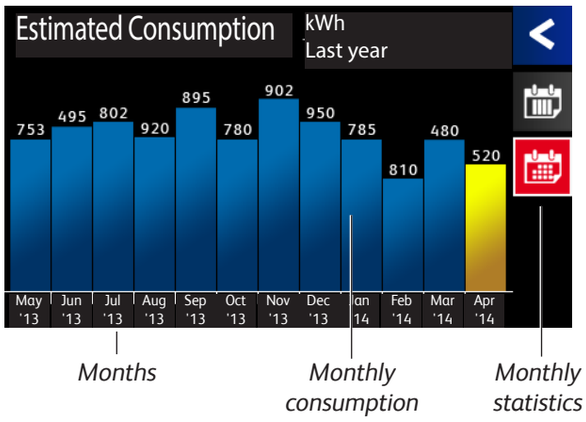
7.5.3 *Consumption*

This item allows the estimated power consumption graph to be viewed when the machine is being used:

- Press the  button;



When accessing the menu, the screen shows the vertical bar chart of the energy consumption trends in the last week in kWh:

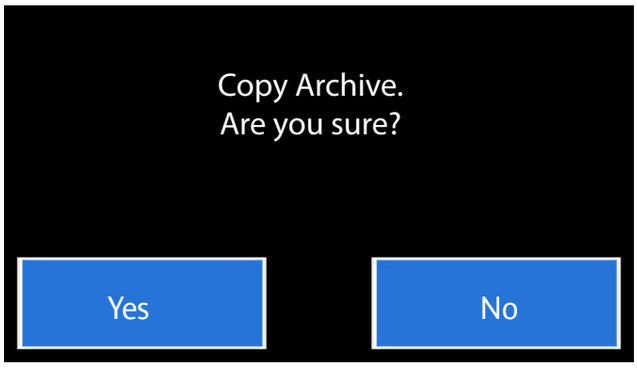


Press the ( ) button to switch to show the monthly view instead. The energy consumption in kWh in the last year will be shown and divided by month.

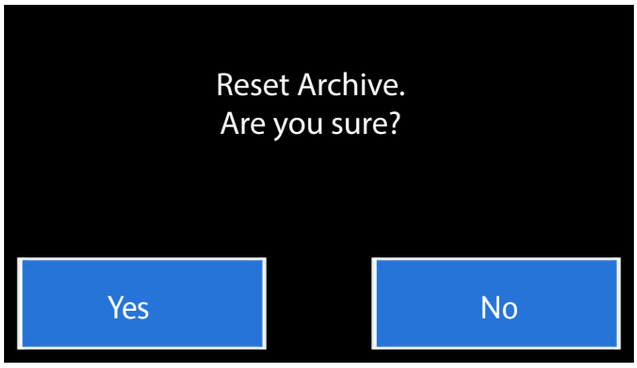
To return to the weekly view, press the ( ) button.

The yellow bar indicates the current day / month.

Select the button and confirm "Yes" when the "Copy Archive" request appears, in order to save all of the data onto the provided USB stick:



Select the button and confirm "Yes" when the "Reset Archive" request appears, in order to delete all of the stored data.



If "Consumption" does not appear in the "Information" menu, activate the "Available" flag in the mains voltage settings, see para. 7.4.7 on page 43

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8. MAINTENANCE AND CLEANING

8.1 Safety precautions

Carefully read the instructions provided in chapter I on page 3.

8.2 PPE features

When installing the machine, the following PPE is required:

The use of protective gloves is mandatory.

8.3 Maintenance

8.3.1 *Scheduled maintenance*

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

Component	Type of operation	Quarterly	Yearly
PRESSURE TRANSDUCER	Check the heating unit pressure which must be between 0.08 and 0.14 MPa (0.8 and 1.4 bar). Periodically check the water pressure when coffee is being dispensed: check the pressure indicated on the gauge, which must be in the range of 0.8 to 0.9 MPa (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. 8.8.7 on page 60.	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 procedure 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. Grinders must always have sharp cutting edges. Too much powder in the grounds is an indication that the coffee is deteriorating. We recommend contacting the Technician to replace the flat burrs after every 400/500 kg of coffee, or after every 800/900 kg for conical burrs. If the grinder automatic wear warning is enabled, follow the instructions in para. 8.3.3 on page 50.	X	
HEATING UNIT	Replace the water in the heating unit as indicated in para. 6.7 on page 27.	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 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 for lime scale deposits on the heating element, on the exchanger (inside and out). 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
SAFETY VALVE SCNR VALVE NEGATIVE PRESSURE VALVE	Check that the safety valves, non-return drain valves and negative pressure valves are operating properly, as indicated in para. 8.3.4 on page 50 and 8.3.5 on page 50. If these need to be replaced due to malfunction, repeat the check with the newly-installed valve.		X

Component	Type of operation	Quarterly	Yearly
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 tube.		X
DISPENSING GROUP	Check the efficiency of the dispensing group's solenoid valve.		X
GAS SYSTEM	Check for any gas leaks with a suitable gas detection instrument, or by wiping a soapy solution over all the gas system fittings.		X
WATER and STEAM NOZZLES	Check the condition of the nozzles and clean the sprayer.		X
DOSING DEVICE	Check and clean the volumetric dosing device by removing any oxidation from the tips.		X
TOUCHSCREEN	Check that the touchscreen is working correctly and adjust the parameters if necessary. View the machine counts and check the performed work cycles.		X
MOTOR PUMP	Visually inspect the condition of the machine's wires.		X

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

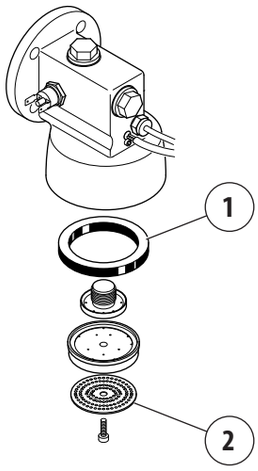
All original spare parts are available from the Manufacturer's website. The Manufacturer may provide the list of spare parts recommended for the maintaining the various versions of the machine.

8.3.2 *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. 6.7 on page 27.
Furthermore, all periodic maintenance operations must be carried out, see the previous paragraph.

8.3.3 *Dispensing group maintenance*

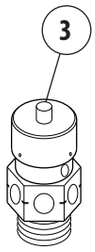
Replace the dispensing group's shower screen **(2)** and group gasket **(1)** on a quarterly basis (we recommend only using original spare parts).



8.3.4 *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:

- Remove the machine's upper grille;
- Use pliers to pull the valve pin **(3)** upwards;
- If the pin will not budge, it probably means that the valve is encrusted with limestone and must be replaced.

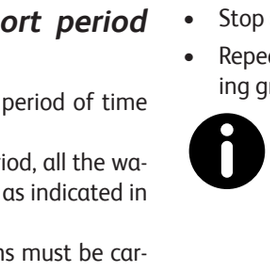


If any malfunctions are detected, the valve must be replaced. Only use the Manufacturer's original Safety Valves.

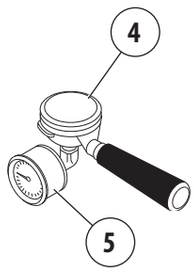
8.3.5 *NON-RETURN DRAIN VALVE check*

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 **(4)** with a pressure gauge (available on request) to the dispensing group.
- Activate the dispensing group, and use the pressure gauge **(5)** 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.

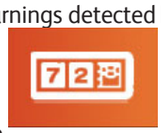


If any malfunctions are detected, the valve must be replaced.

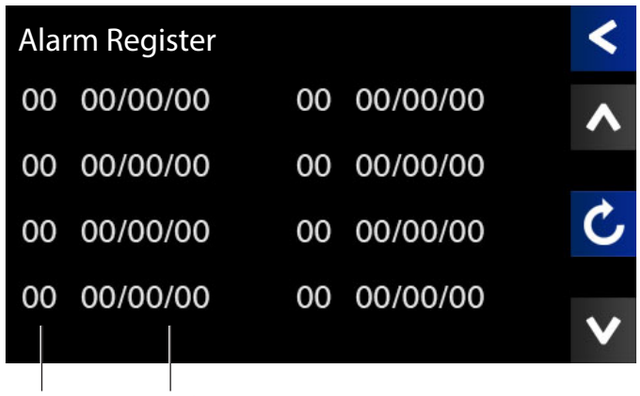


8.3.6 *Viewing the warnings*

The last 8 warnings detected by the machine can be viewed.

- Select the  *Counters* button;

- Scroll through the various screens with the arrows (▲) or (▼), until you see the screen below:

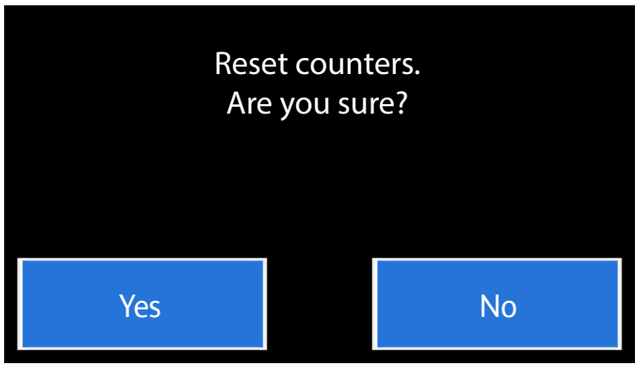


The screen shows the last eight warnings stored by the machine. The alongside table below shows the description of each warning code.

ALARMS	
A001	INFO: Autotest Home
A002	INFO: Date not set
A003	INFO: Check NTC sensor on board
A004	INFO: Check steam boiler NTC probe
A005	INFO: Check cup warmer NTC probe
A006	INFO: Check NTC autosteamer probe
A007	INFO: Critical board temperature
A008	INFO: Board temperature too high
A009	INFO: Dispenser input
A010	INFO: Time-out heating steam boiler
A012	INFO: Time-out initial filling steam boiler
A013	INFO: Time-out refill steam boiler
A014	INFO: Communication timeout with grinder
A015	INFO: Water Levels inconsistent
A016	INFO: Time-out serial cash
A017	INFO: Check boiler pressure sensor
A018	INFO: Check pump pressure probe
A019	INFO: NTC inconsistent values & service boiler pressure sensor
A020	INFO: Burrs position not reached
A021	INFO: Service boiler overpressure
A022	INFO: Communication time-out with autosteamer keyboard
ALARMS GR1	
A033	INFO: Check group NTC probe
A034	INFO: Check group boiler NTC probe
A035	INFO: Time-out preheating group
A036	INFO: Time-out heating group
A037	INFO: Time-out preheating group boiler
A038	INFO: Time-out heating boiler group
A039	INFO: Check group doser
A040	INFO: Critical group pressure
A041	INFO: Low group pressure
A042	INFO: Group water shortage warning
A043	INFO: Lack of water in group
A044	INFO: Time-out keyboard-based communication group
A045	INFO: Time-out initial filling coffee boilers group
A046	INFO: Communication time-out with group keyboard
A047	INFO: Group hydraulic leakage
ALARMS GR2	
A065	INFO: Check group NTC probe
A066	INFO: Check group boiler NTC probe
A067	INFO: Time-out preheating group
A068	INFO: Time-out heating group
A069	INFO: Time-out preheating group boiler
A070	INFO: Time-out heating boiler group
A071	INFO: Check group doser
A072	INFO: Critical group pressure
A073	INFO: Low group pressure
A074	INFO: Group water shortage warning
A075	INFO: Lack of water in group
A076	INFO: Time-out keyboard-based communication group
A077	INFO: Time-out initial filling coffee boilers group
A078	INFO: Communication time-out with group keyboard
A079	INFO: Group hydraulic leakage
ALARMS GR3	
A097	INFO: Check group NTC probe
A098	INFO: Check group boiler NTC probe
A099	INFO: Time-out preheating group
A100	INFO: Time-out heating group
A101	INFO: Time-out preheating group boiler
A102	INFO: Time-out heating boiler group
A103	INFO: Check group doser
A104	INFO: Critical group pressure
A105	INFO: Low group pressure
A106	INFO: Group water shortage warning
A107	INFO: Lack of water in group
A108	INFO: Time-out keyboard-based communication group
A109	INFO: Time-out initial filling coffee boilers group
A110	INFO: Communication time-out with group keyboard
A111	INFO: Group hydraulic leakage
MESSAGES	
M065	NOTICE: Modified grinding
M066	NOTICE: Delivery too slow
M067	NOTICE: Burrs worn
M068	NOTICE: softener regeneration
M069	NOTICE: Threshold A maintenance notice
M070	NOTICE: Threshold A maintenance
M071	NOTICE: Threshold maintenance notice B
M072	NOTICE: Threshold maintenance B
M073	NOTICE: Threshold C maintenance notice
M074	NOTICE: Threshold C maintenance
M075	NOTICE: Plan service notice
M076	NOTICE: Plan Service
M079	NOTICE: It is recommended to empty the service boiler manually
M081	NOTICE: Group 1 delivery too slow
M082	NOTICE: Group 2 dispensing too slow
M083	NOTICE: Group 3 dispensing too slow
M084	NOTICE: Group 4 dispensing too slow
M085	NOTICE: Group 1 delivery too fast
M086	NOTICE: Group 2 delivery too fast
M087	NOTICE: Group 3 delivery too fast
M088	NOTICE: Group 4 delivery too fast
M089	NOTICE: Autosteamer automatic cleaning
M090	NOTICE: Grinder remote control disabled
M091	NOTICE: Auto-purge autosteamer in progress ...
M092	NOTICE: Remove the jug and perform manual purge
M093	NOTICE: Burrs positioning in progress...grind to continue
M098	NOTICE: Machine or groups in OFF state
M099	NOTICE: Machine or groups in Energy saving state
M100	NOTICE: Groups heating in progress
M101	NOTICE: Water and steam output from group
M102	NOTICE: Water and steam output from service boiler
M103	NOTICE: Coffee boiler water change in progress
M104	ALARM: Time-out communication, base not found

To reset the warnings on the display, proceed as follows:

- Press the reset button ( );
- In the next screen answer "Yes";
- All warnings will be reset.

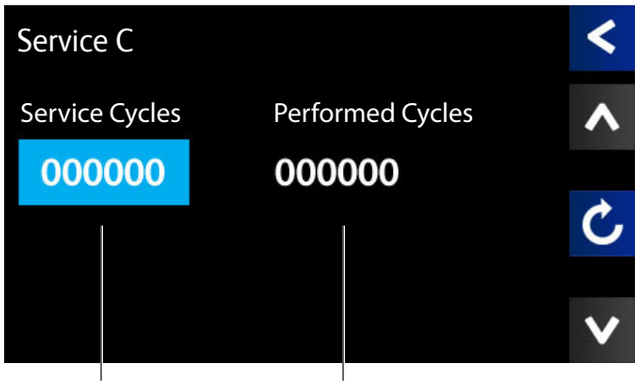


The warnings can ONLY be viewed and reset by the technician.

8.3.7 *Scheduled assistance*

This function concerns the request for machine assistance and notifies when to proceed with scheduled maintenance.
The request for assistance appears when the number of coffee, tea, heating unit filling cycles, or the number of days passed since the machine was installed, has reached a value equal to the thresholds set by the technician.

- Select the button;
- Scroll through the various screens with the arrows (▲) or (▼), until you see the screen below:

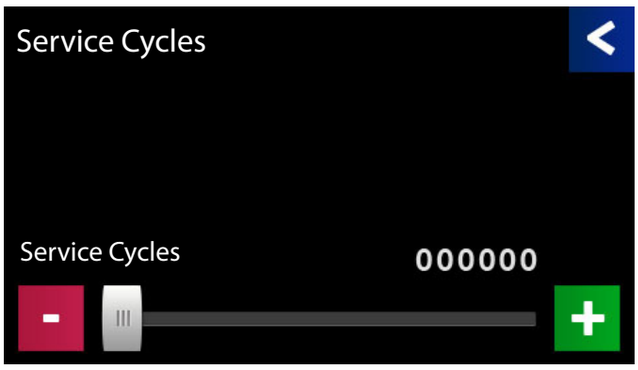


Assistance required threshold.

Number of cycles performed since the last reset.

There are three thresholds (A-B-C) available for requesting intervention, which can be programmed separately.
To modify the assistance thresholds, proceed as follows:

- Select the desired maintenance threshold;
- Press the "Service Cycles" button and select the threshold limit for the service cycles which require the maintenance service:



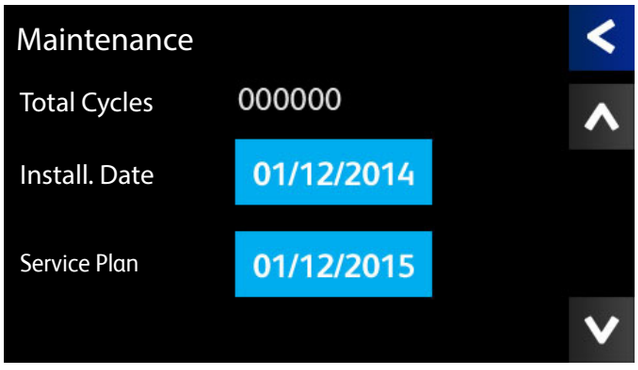
The system displays a warning when there are less than 1000 cycles left before the programmed threshold is reached.
To reset the number of cycles performed, proceed as follows:

- Press the reset button ( );
- In the next screen answer "Yes";
- The performed cycles count will restart from 0.

If a value of 000000 is set, the scheduled assistance service is excluded.

To view and change timed assistance thresholds, follow these steps:

- scroll through the various screens with the arrows (▲) or (▼), funtil the screen below appears:



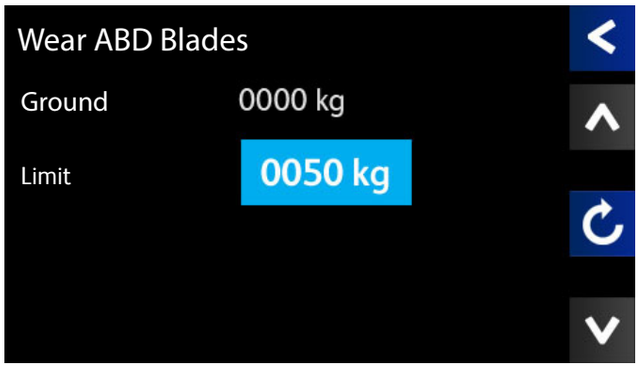
Total Cycles	Total number of cycles performed by the machine (the life of the machine).
Install. Date	The date the machine was installed or the timed service was activated.
Service Plan	Scheduled date of required assistance.

Only the technician can set the scheduled assistance and reset the cycle counters.

8.3.8 *Grinders wear and tear warning*

With this function, the machine displays a warning to the user in regards to the wear and tear and replacement of the grinder-dispenser grinders, based on how many kilogrammes of coffee have been used.

- Select the  button;
- Scroll through the various screens with the arrows (▲) or (▼), until you see the screen below:



Ground	Total weight of coffee used (in kg) since the last reset.
Limit	Threshold to be reached in kilogrammes of coffee, for the grinder wear and tear warning to be triggered.

To change the amount in kg, press the "Limit" button and set the desired value. The available range is: 0 - 2000 kg.

If the "GRINDER WEAR AND TEAR" threshold is set to 0, the system will not provide any warnings.

After the coffee threshold limit has been set in kg, you must set each beverage button and give them the correct weight of ground coffee to be used.
Press the (▲) button and move to the screen below.
Select the "K1" dose button, and in the following screen, enter the quantity of ground coffee (in kg) for the dose being programmed.
Repeat the previous step until all of the dose buttons have been programmed.
The available range is: 0 - 22 g.
After this operation has been completed, the counter will be incremented by the dose set for each beverage, every time a coffee is dispensed.

Example of a setting:					
k1	7 g	Single espresso	k4	14 g	Medium single
k2	14 g	Double espresso	k5	7 g	Large single
k3	7 g	Medium single	k6	14 g	Large double
kC	7 g	Continuous			

When the amount of kilograms set as the threshold is reached, the system will display a message, reminding the user to replace the grinder-dispenser grinders.
RESET
To reset the number of cycles performed, proceed as follows:
Move to the "Grinders Wear and Tear" screen;

- Press the reset button ( );
- In the next screen answer "Yes"; The performed cycles count will restart from 0.

The system only operates if the machine is paired with a single grinder;

If one or several dose buttons are set to 0, those buttons will not be counted.

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8.4 Water filter maintenance

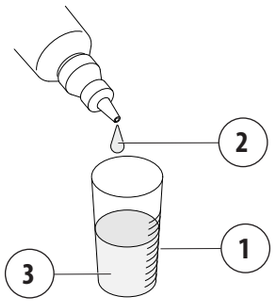
8.4.1 *Determining the water hardness*

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 **(1)** in the test tube.
- 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



8.4.2 *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

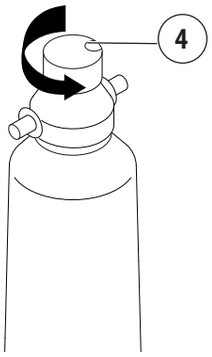
↓

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

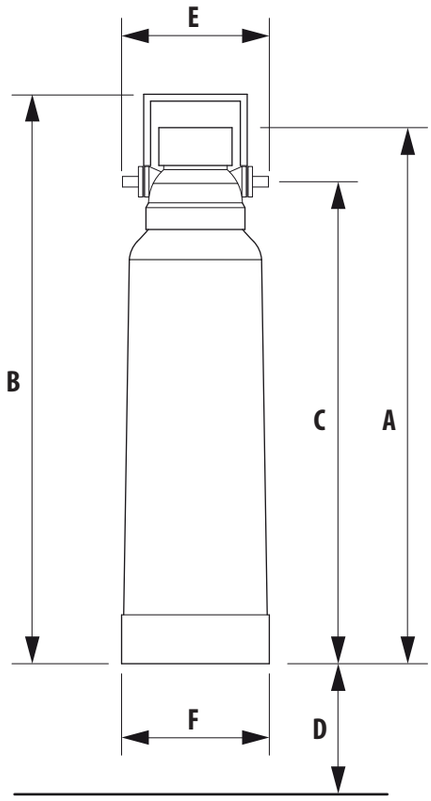
The values indicated in the table may vary, depending on the type of filter cartridge used.

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



8.4.3 *Technical data*

Model	V	M	L	XL
Connection type	3/8"	3/8"	3/8"	3/8"
Min.-max. water supply pressure (bar)	2-8	2-8	2-8	2-8
Min. - max. water temperature (°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 the 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.

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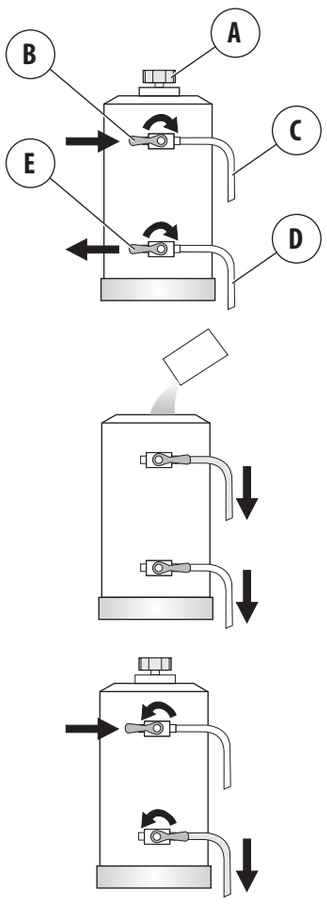
8.5 Water softener regeneration

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.

8.6 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.

8.7 Malfunctions and solutions

Problem	Cause	Action
NO MACHINE POWER	• 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 tap is shut off. • The cut-off tap 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 tap. • Open the automatic level device tap. • 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 lime-scale).	• Replace the solenoid valve of the automatic level device. • Replace the level probe.
WATER LEAKS FROM THE MACHINE	• The tray does not drain. • The drain pipe 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 drain pipe connection to the tray. • Restore the hydraulic seal by replacing the pipe, the gasket or the fitting as necessary.
WATER LEAKS FROM THE DISPENSING GROUP	• The group gasket is worn.	• Replace the group gasket.
THE GAUGE INDICATES A NON-CONFORMING PRESSURE	• The display is faulty. • The motor pump has been calibrated incorrectly.	• Replace the display. • Adjust the motor pump calibration.
THE SAFETY VALVE HAS CUT-IN	• The electronic control unit is faulty.	• Check that the electronic system is working properly.
STEAM DOES NOT COME OUT OF THE NOZZLES	• The machine is switched off. • The electrical 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 electrical heating element. • Replace the temperature probe. • Clean the steam nozzle sprayer. • Reactivate the thermostat or replace it.
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 lime-stone. • 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 limescale. • 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 outlet 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 grinder. • Increase the amount of ground coffee.
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 grinders. • Replace the seal. • Adjust the pump pressure.

Problem	Cause	Action
THE CUP IS DIRTY WITH SPLASHES OF COFFEE	• 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 grinder as appropriate.
THE COFFEE IS TOO COLD	• The heating element of the coffee heating unit is faulty. • The wiring is faulty. • There is limescale on the heating element. • The heating element protection thermostat has cut-in. • Limescale has reduced the water circulation. • The dispensing group is cold.	• Replace the electrical heating element. • Check for any faulty connections. • Clean the machine. • Reset the heating element protection. • 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 water tap; • 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.
THE COFFEE IS TOO HOT	• The heating unit temperature is too high.	• Reduce the pressure in the heating unit.
COFFEE IS BEING DISPENSED TOO QUICKLY	• The coffee has been ground too coarsely. • The diameter of the injector is too big. • The ground coffee dose is too small.	• Adjust the coffee grinder. • Replace the injector with one that has a smaller diameter. • Check the amount (grams) of ground coffee being used.
COFFEE IS BEING DISPENSED 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 grinder. • Replace the injector. • Check and clean the dispensing group. • Clean and replace the filters, if necessary.
THE ELECTRONIC SYSTEM HAS SHUTDOWN	• The control unit main fuse has burned out. • One of the volumetric dosing device's contacts is grounded.	• Replace the main fuse. • Check the volumetric dosing device connection.
COFFEE IS BEING DISPENSED INCORRECTLY THE COFFEE DOSE IS NOT CORRECT	• 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 grind and check the grinders, 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.

If the problem cannot be solved, turn the machine off and contact.

8.8 Cleaning operations

8.8.1 *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 consistently, 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.
Do not use abrasive cleaners which may scratch the body'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**

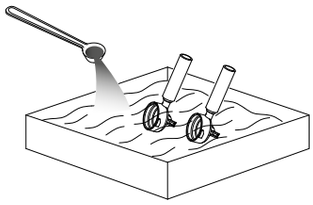
Cleaning	Daily	Weekly
Body and Grilles: Clean the panels of the body with a cloth dampened in lukewarm water. Remove the drip tray and cup holder grille and wash with hot water.	X	
Filters and Filter Holders: Wash the filters and filter holders on a daily and weekly basis, as indicated in para. 8.8.4 on page 59. Perform the cleaning operations on a daily basis as indicated in para: 8.8.6.	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. Wash these on a weekly basis, as indicated in para. 8.8.8.	X	X
Gruppo erogazione: Wash the dispensing group as described in para. 8.8.5, 8.8.6 and 8.8.7. Perform the cleaning operations on a daily basis as indicated in para: 8.8.7	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

8.8.2 *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.



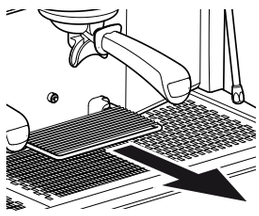
Weekly:

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.

8.8.3 *Cup trays cleaning:*

Daily cleaning of the cups trays as follows:

- Disconnect the trays from their housing by positioning them horizontally and pulling them outwards.
- Clean with a cloth dampened in lukewarm water.
- Reinsert the trays in their housing.



8.8.4 *Dispensing group scheduled wash*

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

If provided for, the machine prompts that the dispensing groups require washing, and this is indicated by the specific ( ) icon appearing.
To start the wash cycle, proceed as shown on the display and also refer to the instructions in para. 7.3.16 on page 40.

8.8.5 *Dispensing group manual wash*

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

If desired, the groups can be washed at any time, by following the instructions in para. 7.3.16 on page 40:

During the washing stage, all the coffee selections of that group are disabled.
If the wash is interrupted because the machine was switched off, the washing will be reactivated automatically when the machine restarts.

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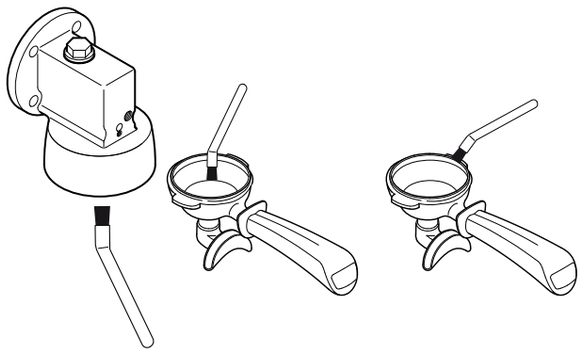
8.8.6 *Cleaning the group shower screen, shower screen containment ring and filter holder*

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.

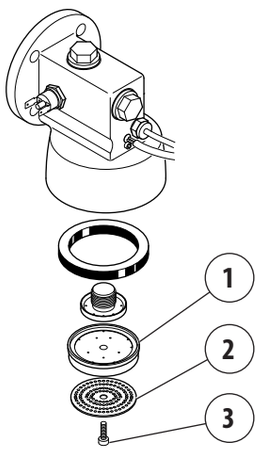


Use the special toothbrush supplied (see the Spare Parts Catalogue).

8.8.7 *Cleaning the shower screen and shower screen containment ring*

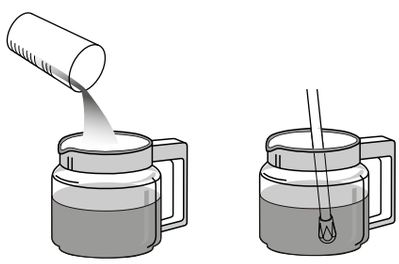
Weekly, clean the shower screen and shower screen containment ring as follows:

- Loosen the screw using a screwdriver **(3)**;
- remove the shower screen **(2)** and the shower screen containment ring **(1)**;
- 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.



8.8.8 *Cleaning the steam nozzle*

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



9. SPARE PARTS

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

All original spare parts are available from 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 parts are used, the safety of the machine cannot be guaranteed. The Manufacturer reserves the right to void the machine guarantee.

10. DISPLAY WARNINGS

Warning	Cause	Action
GROUP HEATING PROBE IS OPEN ON GROUP #	• Group temperature probe is disconnected or faulty.	• Check the probe connection and replace it, if necessary.
CHECK THE GROUP HEATING CIRCUIT ON GROUP #	• The group heat circuit is open. • The group heating element has stopped. • The safety thermostat is open. • Fuse F5/F6 has burned out. • The Triac is faulty.	• Check the group heating circuit: group heating element; safety thermostat; fuse and triac in the control unit; main switch; connection of the phases for the 380 V version. • If necessary, replace the faulty components.
THE WATER HEATING PROBE IS OPEN ON GROUP #	• The group temperature probe is disconnected or faulty.	• Check the connection and if necessary replace the probe.
CHECK THE WATER HEATING PROBE ON GROUP #	• The group water heating circuit is open. • The group water heating element has stopped. • The safety thermostat is open. • Fuse F2/F3 has burned out. • The Triac is faulty.	• Check the group heating circuit: group heating element; safety thermostat; fuse and triac in the control unit; main switch; connection of the phases for the 380 V version. • If necessary, replace the faulty components.
THE STEAM HEATING UNIT SENSOR IS OPEN	• The steam heating unit temperature probe is disconnected or faulty.	• Check the connection of the steam heating unit probe and if necessary, replace it.
STEAM HEATING UNIT HEATING CIRCUIT	• The steam heating unit heating circuit is disconnected. • Fuse F7 has burned out. • The static relays are faulty. • The heating element is faulty.	• Check the steam heating unit heating circuit and if necessary, replace the faulty parts.
CUP WARMER SENSOR	• The cup warmer temperature probe is disconnected. • The temperature probe has short-circuited. • The cup warmer has overheated.	• Check the cup warmer probe connection and if necessary, replace it.
STEAM WAND SENSOR	• The steam wand temperature probe is disconnected. • The steam wand probe has short-circuited. • The steam wand probe has overheated.	• Check the steam wand probe connection and if necessary, replace it.
STEAM HEATING UNIT HEATING TIMEOUT	• The steam heating unit heating circuit is disconnected. • The safety thermostat is open. • Fuse F7 has burned out.	• Check the steam heating unit heating circuit and if necessary, replace the burned parts.
GROUP HEATING TIMEOUT ON GROUP #	• The group heating circuit is disconnected. • The group heating element has stopped. • The safety thermostat is open. • Both fuses F6 & F5 are burned out, or maybe just one.	• Check the group heating circuit: group heating element; safety thermostat; fuse and triac in the control unit; main switch; connection of the phases for the 380 V version. • If necessary, replace the faulty components.
GROUP HEATING IS OUT OF SERVICE ON GROUP #	• The group heating circuit is disconnected. • The group heating element has stopped. • The safety thermostat is open. • Both fuses F6 & F5 are burned out, or maybe just one.	• Check the group heating circuit: group heating element; safety thermostat; fuse and triac in the control unit; main switch; connection of the phases for the 380 V version. • If necessary, replace the faulty components.
COFFEE WATER HEATING TIMEOUT ON GROUP #	• The group water heating unit heating circuit is disconnected. • The group water heating unit heating element has stopped. • The safety thermostat is open. • Fuses F2, F3, F8 & F9 have burned out or maybe just one or some of them.	• Check the group water heating unit heating: heating element; safety thermostat; fuses and triacs in the control unit; main switch; connection of the phases for the 380 V version. • If necessary, replace the faulty components.

Warning	Cause	Action
COFFEE WATER HEATING OUT OF ORDER ON GROUP #	• The group water heating unit heating circuit is disconnected. • The group water heating unit heating element has stopped. • The safety thermostat is open. • Fuses F2, F3, F8 & F9 have burned out or maybe just one or some of them.	• Check the group water heating unit heating: heating element; safety thermostat; fuses and triacs in the control unit; main switch; connection of the phases for the 380 V version. • If necessary, replace the faulty components.
FILLINGUP TIMEOUT	• FIRST INSTALLATION. • The steam heating unit did not finish the filling procedure within the maximum time (255 seconds). • The level probe does not detect any water.	• Check the steam heating unit water filling hydraulic circuit. • Check that there is water in the water mains. • Check the filling solenoid valve / pump filter. • Check fuse F3 in the control unit.
FILLINGUP TIMEOUT	• DURING OPERATION. • The steam heating unit did not finish the filling procedure within the maximum time (90 seconds).	• Check the steam heating unit water filling hydraulic circuit. • Check that there is water in the water mains. • Check the filling solenoid valve / pump filter. • Check fuse F3 in the control unit.
COFFEE WATER PRESSURE IN GROUP #	• The coffee heating unit has did not reach the filling pressure within the maximum time (60 seconds).	• Check the hydraulic circuit of the coffee heating unit: • Check that there is water in the water mains. • Check the solenoid valve / pump filter. • Check the volumetric dosing device (filter inlet / 0.5 mm nozzle outlet).
VOLUMETRIC DOSING DEVICE	• The volumetric dosing device is not counting the water.	• 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 volumetric dosing nozzle.

If the problem cannot be resolved, switch off the machine and contact the Manufacturer.

11. DECOMMISSIONING

11.1 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.6.7 on page 27.
All the scheduled maintenance operations must also be performed - see para.: "8.3.1 Scheduled maintenance" on page 48.

11.2 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.

12. DISASSEMBLY

To disassemble the machine, follow the installation procedure in reverse order - see chap.5 on page 21.
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.13 on page 63.

13. DISPOSAL

13.1 Disposal information

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.

13.2 Environmental information

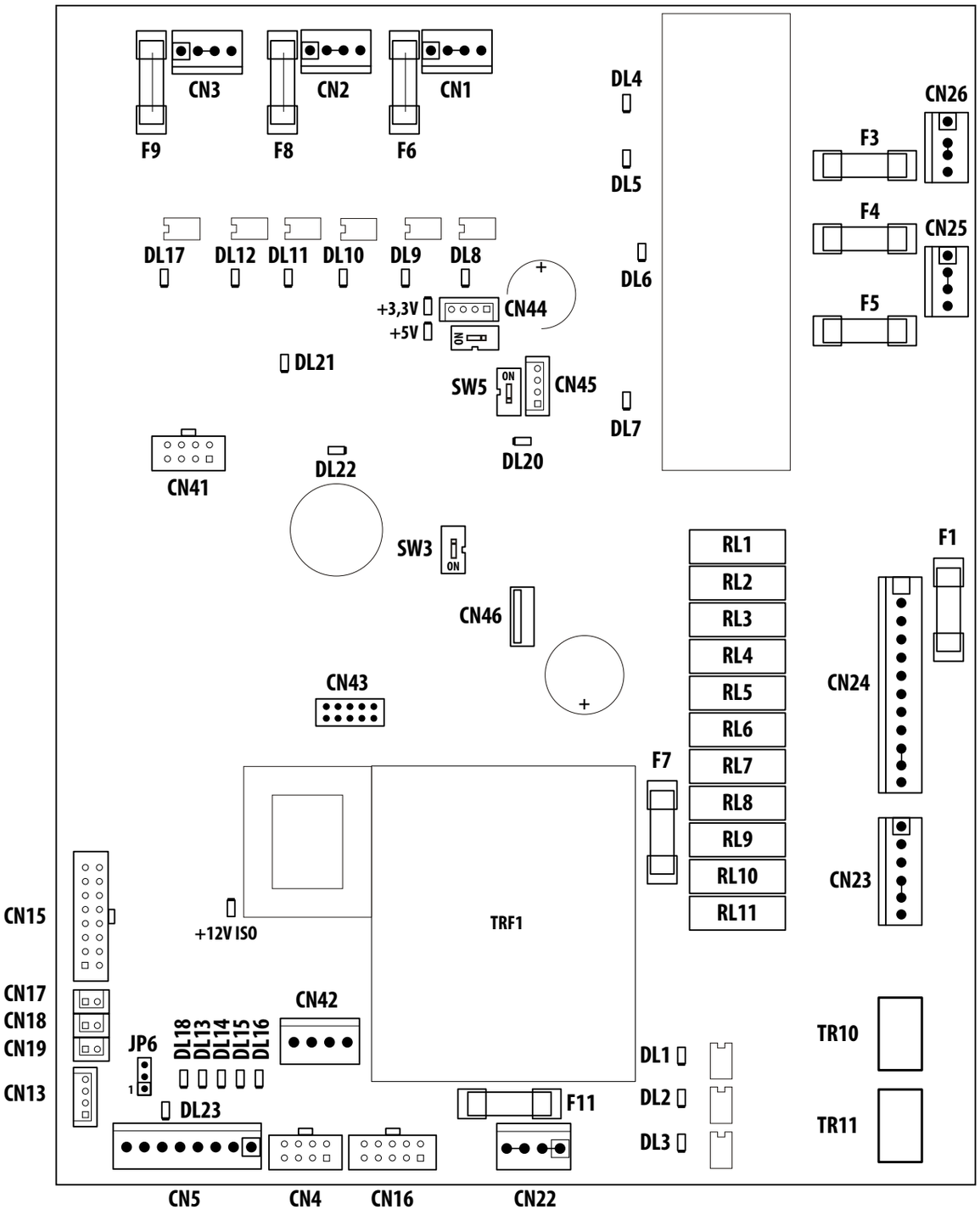
The machine features an internal lithium button battery, which is located in the circuit board and ensures data storage.
Dispose of the battery in accordance with current national regulations.

ENGLISH

14. WIRING DIAGRAMS

14.1 Electronic Control Unit diagram

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 on page 13)



Fuse		Description
F1	5x20 time-delay fuse, 6.3 A	Protects: from RL1 to RL13
F3	5x20 FF super fast fuse 10 A	Protects: the group 2 coffee heating unit heating element
F4	5x20 FF super fast fuse 10 A	Protects: the group 3 coffee heating unit heating element
F5	5x20 FF super fast fuse 10 A	Protects: the group 1 coffee heating unit heating element
F6	5x20 FF super fast fuse 10 A	Protects: the coffee heating unit heating elements of groups 1 and 3
F7	5x20 time-delay fuse, 1 A	Protects: the transformer's double winding
F8	5x20 FF super fast fuse 10 A	Protects: the coffee heating unit heating elements of groups 2 and 4
F9	5x20 time-delay fuse, 1 A	Protects: the steam heating unit heating elements of groups 1 and 2
F11	5x20 time-delay fuse T 200 mA	Protects: +24V power supply

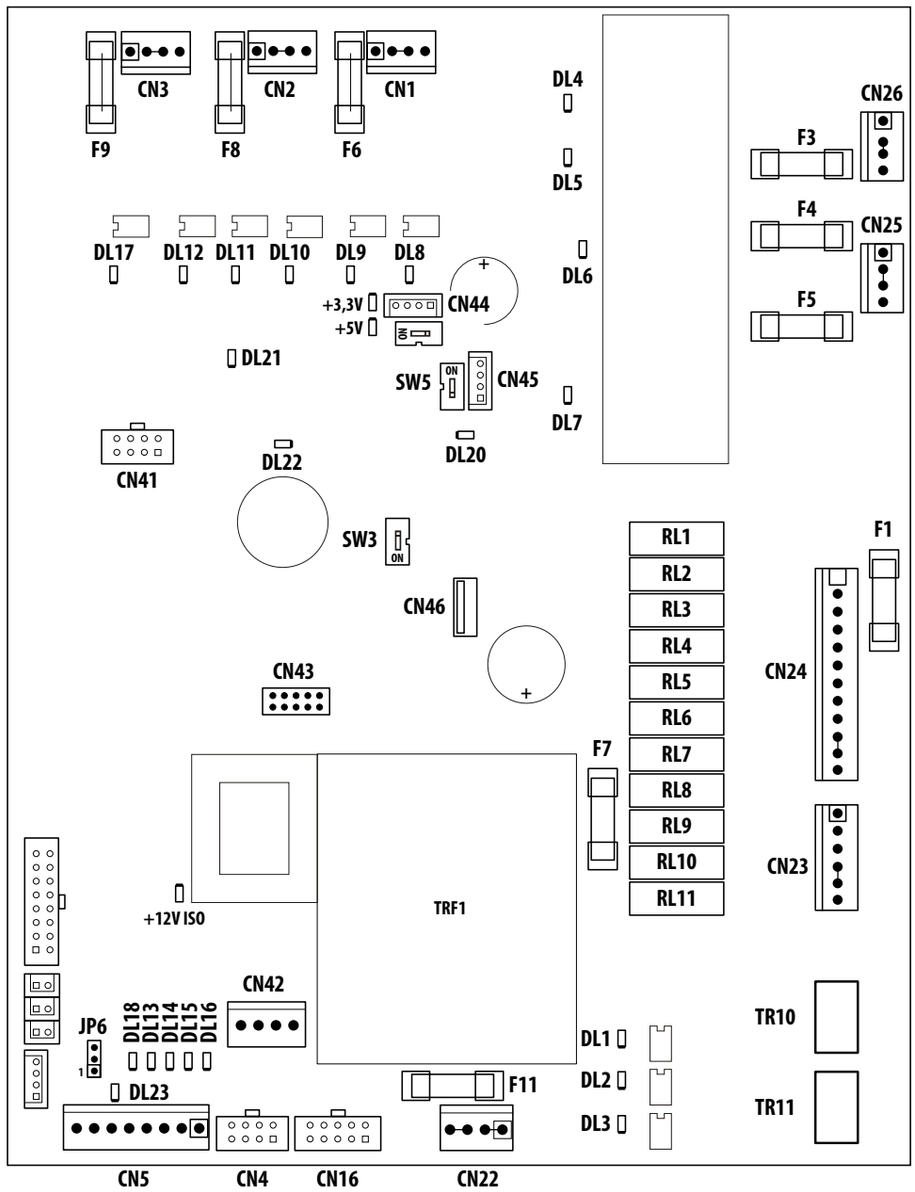
Led	Description
DL1	Front LEDs
DL2	Sides LEDs
DL3	Cup warmer
DL4	-
DL5	Group 2 coffee heating unit heating element
DL6	Group 3 coffee heating unit heating element
DL7	Group 1 coffee heating unit heating element
DL8	Group 1 heating element
DL9	Group 3 heating element
DL10	Group 2 heating element
DL11	-
DL12	Steam heating unit 1 heating element
DL13	-
DL14	Group 3 volumetric counter
DL15	Group 2 volumetric counter
DL16	Group 1 volumetric counter
DL17	Steam heating unit 2 heating element
DL18	-
DL19	-
DL20	-
DL21	-
DL22	-
DL23	RS232 (RX)
+3,3V	Stabilized power supply +3,3V
+5V	Stabilized power supply +5V
+12V	Stabilized power supply +12V
+12V ISO	Stabilized power supply +12V level control
+18Vradd	Stabilized power supply +18V

Relay	Description
RL1	Pump
RL2	Group 1 solenoid valve
RL3	Group 3 solenoid valve
RL4	Group 2 solenoid valve
RL5	-
RL6	Heating unit filling solenoid valve
RL7	Mixed hot water solenoid valve
RL8	Tea 1 solenoid valve
RL9	Steam wand steam solenoid valve
RL10	Air solenoid valve
RL11	-
TR10	Sides LED control
TR11	Front LED control

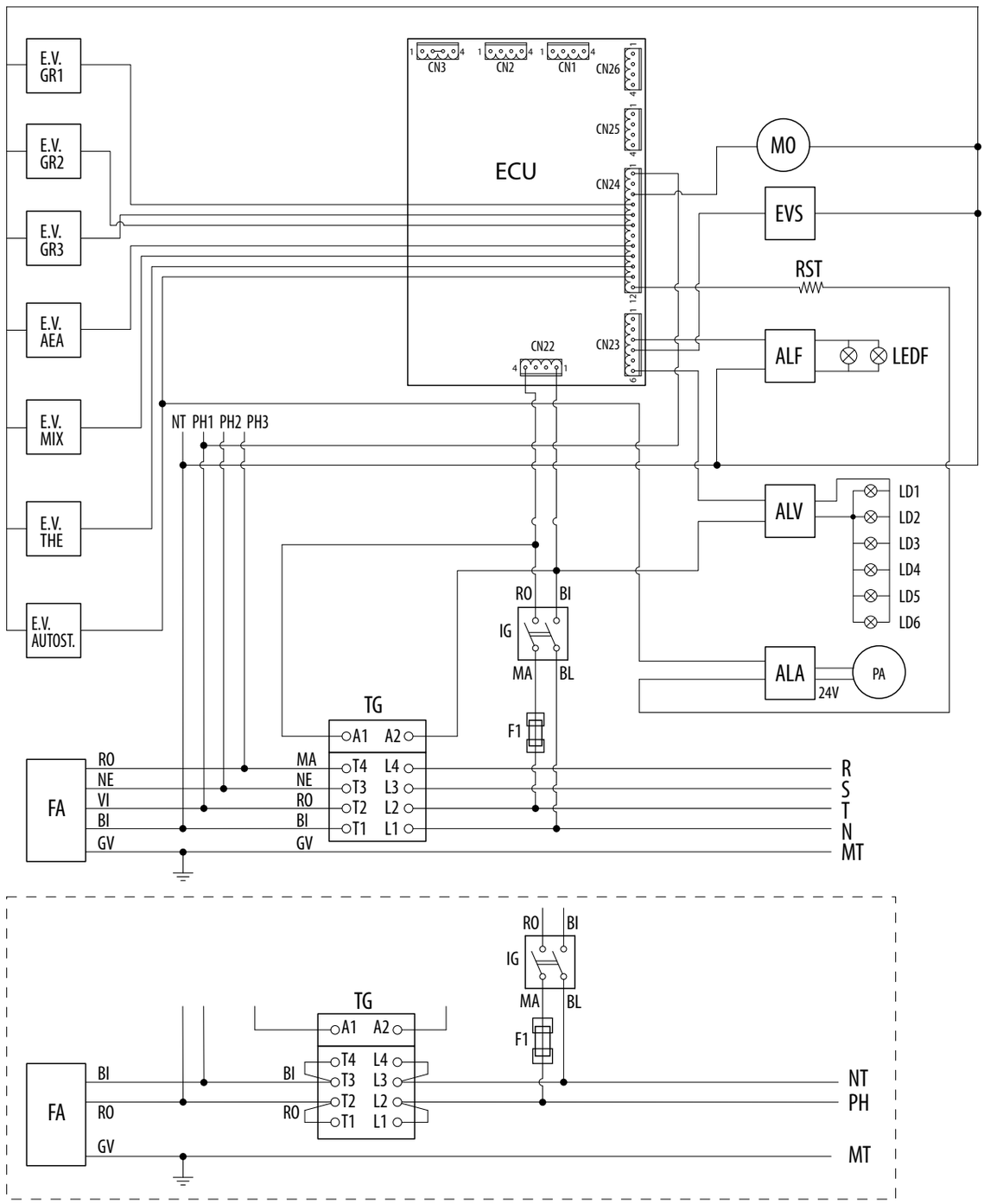
14.2 Connectors list

CN1	Heating element connection for groups 1 and 3
CN2	Heating element connection for groups 2 and 4
CN3	Heating element connection for the steam heating unit
CN4	Connection of the coffee heating unit pressure switches
CN5	Connection of the volumetric dosing devices and steam heating unit levels
CN13	Not used
CN15	RS232 serial socket connection
CN16	Not used
CN17	Connection of the NTC temperature sensors

CN18	Mains press. trans. power supply, humidity sens. & heating unit press.
CN19	NTC steam heating unit connection
CN22	Wiring of the circuit board
CN23	Connection of 230 VAC outputs
CN24	Connection of 230 VAC outputs
CN25	Connection of heating elements for hot water containers 1 and 3
CN26	Connection of heating elements for hot water containers 2 and 4
CN41	Display / CPU connection
CN44	Connection Grinder 485
CN45	Connection 485 AUX



14.3 Wiring diagram of connectors



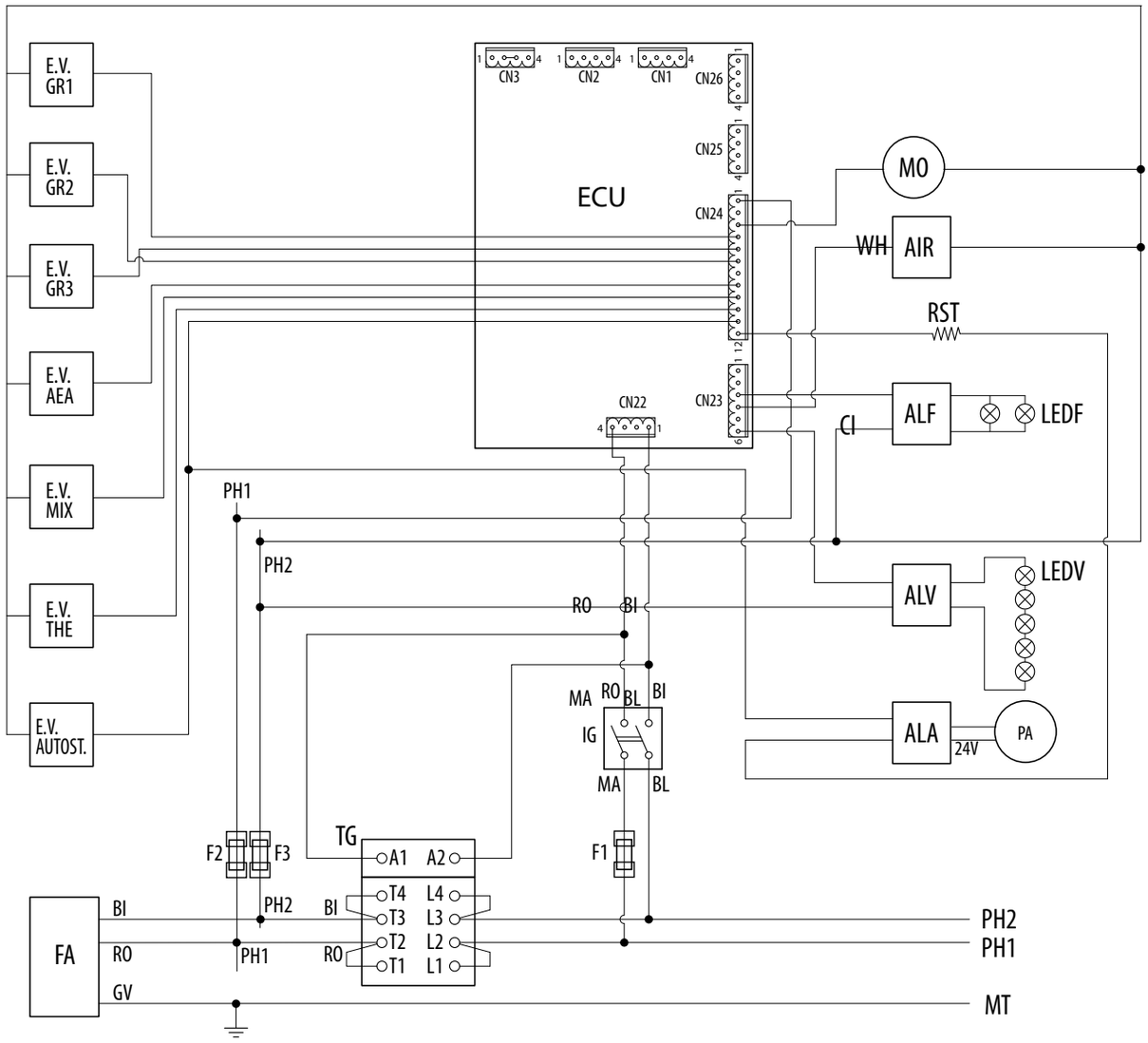
For voltage 200 V, connect only in single phase.

ALA	Air Pump Power Supply
ALV	Delivery compartment LED power supply
ALF	Side LED power supply
BI	White
BL	Blue
CN22	Wiring of circuit board
ECU	Electronic Control Unit
EV	Solenoid valve
F1	Fuse T 10 A

FA	Power filter
IG	Main switch
LD1-2-..	LED work plan
LEDF	LED side
MA	Brown
MO	Motor pump
MT	Chassis ground
N	Neutral
NE	Black

NT	Neutral
PA	Air pump
PH	Phase
RO	Red
RST	Heating Element
TG	Remote switch
VI	Violet

14.4 Wiring diagram of connectors -UL-

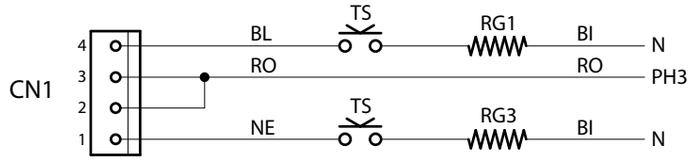


ALA	Air Pump Power Supply
ALV	Delivery compartment LED power supply
ALF	Side LED power supply
BI	White
BL	Blue
CN22	Wiring of circuit board
ECU	Electronic Control Unit
EV	Solenoid valve
F1	Fuse T 10 A
F2	Fuse 1 A

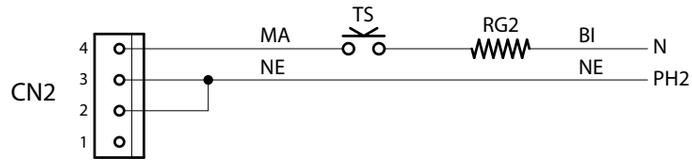
F3	Fuse 1 A
F4	Fuse 15 A Class C
F5	Fuse 15 A Class C
FA	Power filter
IG	Main switch
LD1-2-..	LED work plan
LEDF	LED side
MA	Brown
MO	Motor pump
MT	Chassis ground

N	Neutral
NE	Black
NT	Neutral
PA	Air pump
PH	Phase
RO	Red
RST	Heating Element
TG	Remote switch
VI	Violet

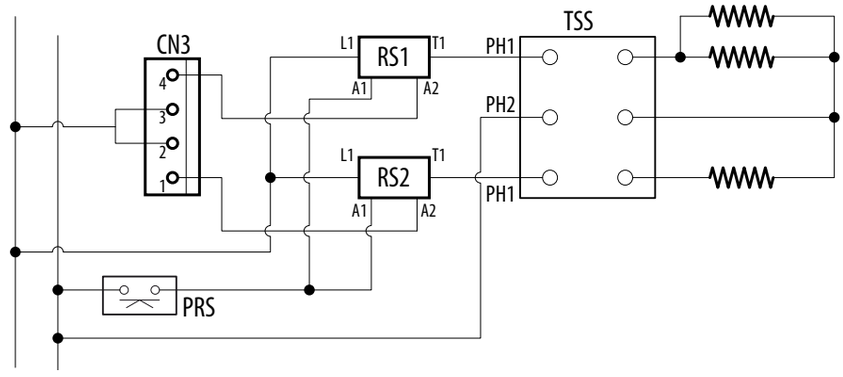
CN1 - connection of heating elements groups 1 and 3



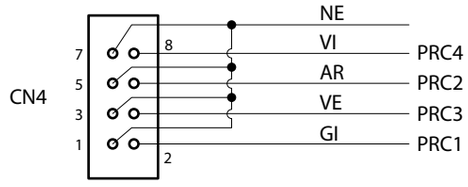
CN2 - connection of heating element group 2



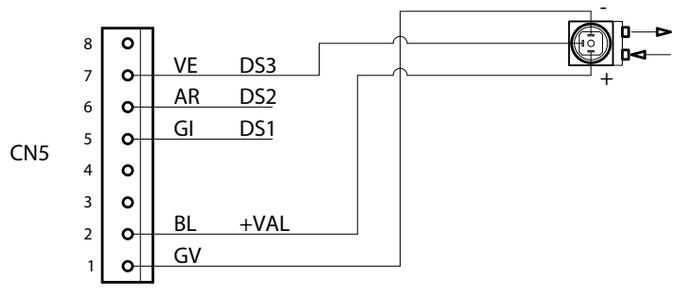
CN3 - connection of SERVICES BOILER heating elements



CN4 - Connection of coffee boilers pressure transducer



CN5 - connection of volumetric dosers and services boiler levels



AR	Orange
BB	White / Blu
BI	White
BL	Blu
BM	White / Brown
Bn	White / Black
DS	Volumetric doser
EVa	Autosteamer solenoid valve
EVgr	Group solenoid valve
EVc	Boiler filling solenoid valve
EVt1	Water solenoid valve
EVS	Water solenoid valve 2
EVm	Water mix solenoid valve
GI	Yellow
GR	Grey
GV	Yellow / Grey
LC	Boiler level
LF	Sides Led
LPL	Delivery compartment LED
LS	Security level
MA	Brown
N	Neutral
NE	Black
NTa	NTC autosteamer probe
NTb	NTC services boiler probe
NTc	NTC coffee boiler probe
NTg	NTC group probe
NTs	NTC cup heater probe
PH	Phase
PO	Pump
PRC	Press. transducer coffee boiler
PRS	Security press. transducer
RG	Group heating element
RH	Water heating element
RO	Red
RR	Heating element
RS	Static relay
TP	Coffee boiler Pressure transducer
TPR	Pressure transducer
TS	Safety thermostat
STZ	Cup heater
SUR	Humidity sensor
VE	Green
VI	Violet

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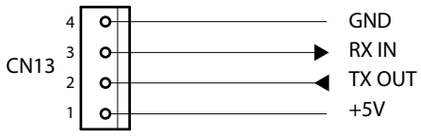
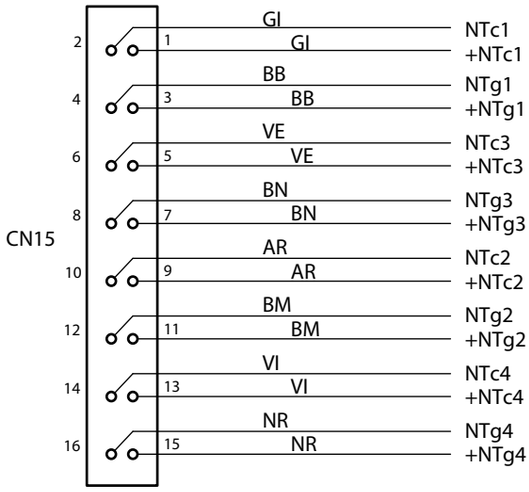
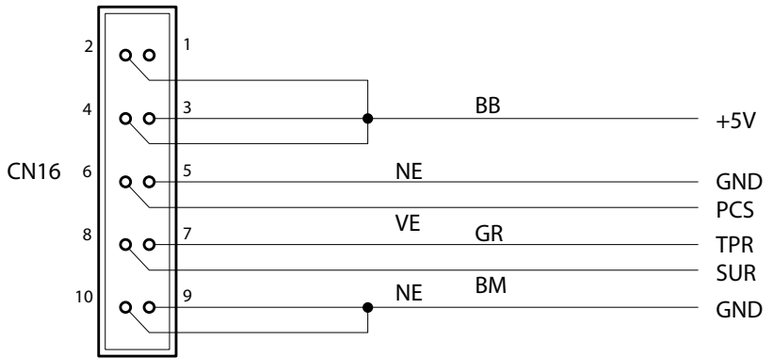
CN13 - connection of RS 232 serial socket



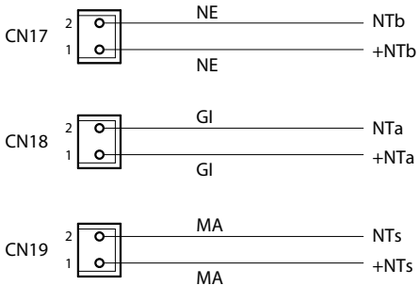
CN15 - connection of NTC temperature sensors



CN16 - connection coffee boiler pressure transducer



CN17 - Connect. NTC services boiler
CN18 - Connect. NTC autosteamer
CN19 - Connect. NTC cup heater



AR	Orange
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BI	White
BL	Blu
BM	White / Brown
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DS	Volumetric doser
EVa	Autosteamer solenoid valve
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EVt1	Water solenoid valve
EVS	Water solenoid valve 2
EVm	Water mix solenoid valve
GI	Yellow
GR	Grey
GV	Yellow / Grey
LC	Boiler level
LF	Sides Led
LPL	Delivery compartment LED
LS	Security level
MA	Brown
N	Neutral
NE	Black
NTa	NTC autosteamer probe
NTb	NTC services boiler probe
NTc	NTC coffee boiler probe
NTg	NTC group probe
NTs	NTC cup heater probe
PH	Phase
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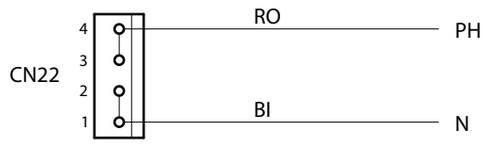
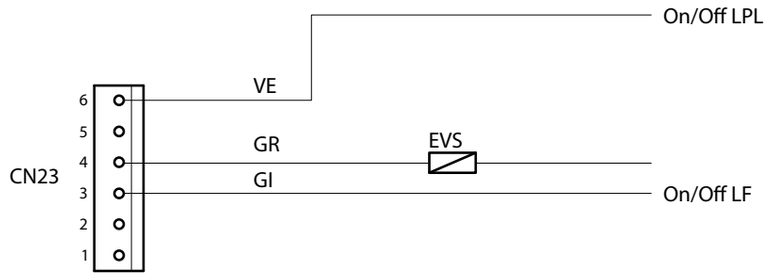
PRS	Security press. transducer
RG	Group heating element
RH	Water heating element
RO	Red
RR	Heating element
RS	Static relay
TP	Coffee boiler Pressure transducer
TPR	Pressure transducer
TS	Safety thermostat
STZ	Cup heater
SUR	Humidity sensor
VE	Green
VI	Violet

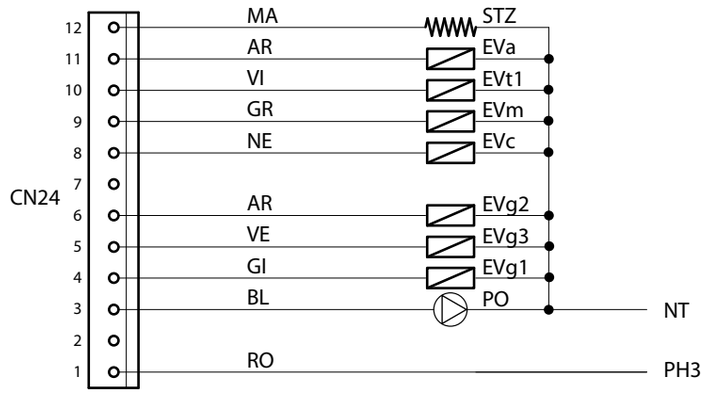
CN22 - connection of electronic card power supply



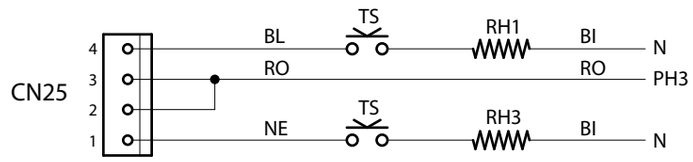
CN23 - connection for 230V AC outputs



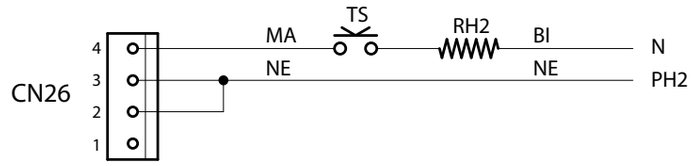
CN24 - connection for 230V AC outputs



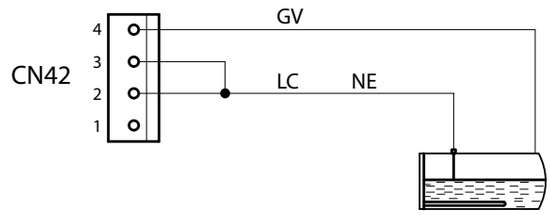
CN25 - connection for heating elements for hot water containers 1 and 3



CN26 - connection for heating element for hot water container 2



CN42 - connection for services boiler levels



AR	Orange
BB	White / Blu
BI	White
BL	Blu
BM	White / Brown
Bn	White / Black
DS	Volumetric doser
EVa	Autosteamer solenoid valve
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EVm	Water mix solenoid valve
GI	Yellow
GR	Grey
GV	Yellow / Grey
LC	Boiler level
LF	Sides Led
LPL	Delivery compartment LED
MA	Brown
N	Neutral
NE	Black
NTa	NTC autosteamer probe
NTb	NTC services boiler probe
NTc	NTC coffee boiler probe
NTg	NTC group probe
NTs	NTC cup heater probe
PH	Phase
PO	Pump
PRC	Press. transducer coffee boiler
PRS	Security press. transducer
RG	Group heating element
RH	Water heating element
RO	Red
RR	Heating element
RS	Static relay
TP	Coffee boiler Pressure transducer
TPR	Pressure transducer
TS	Safety thermostat
STZ	Cup heater
SUR	Humidity sensor
VE	Green
VI	Violet

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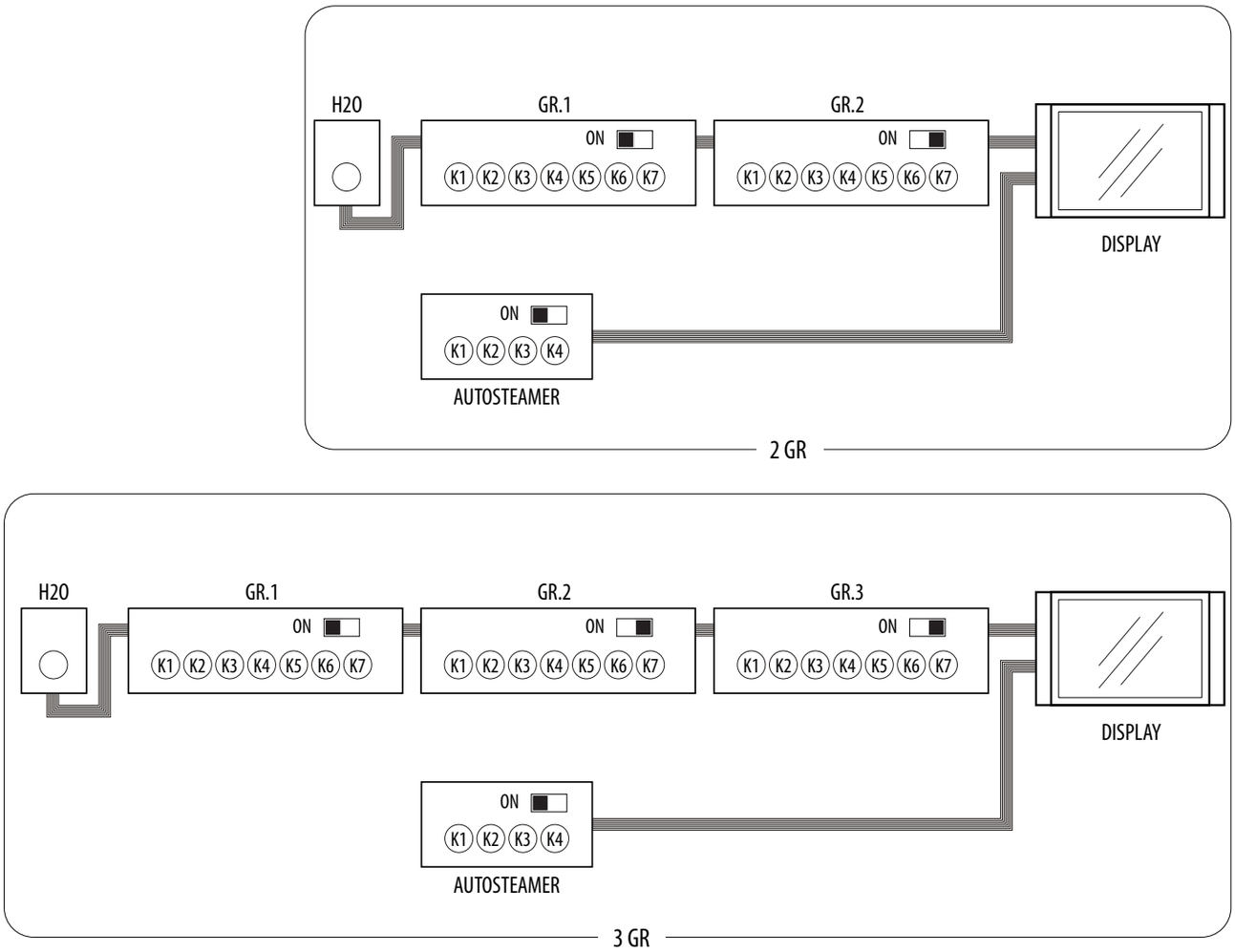
14.5 DISPLAY Control Diagram



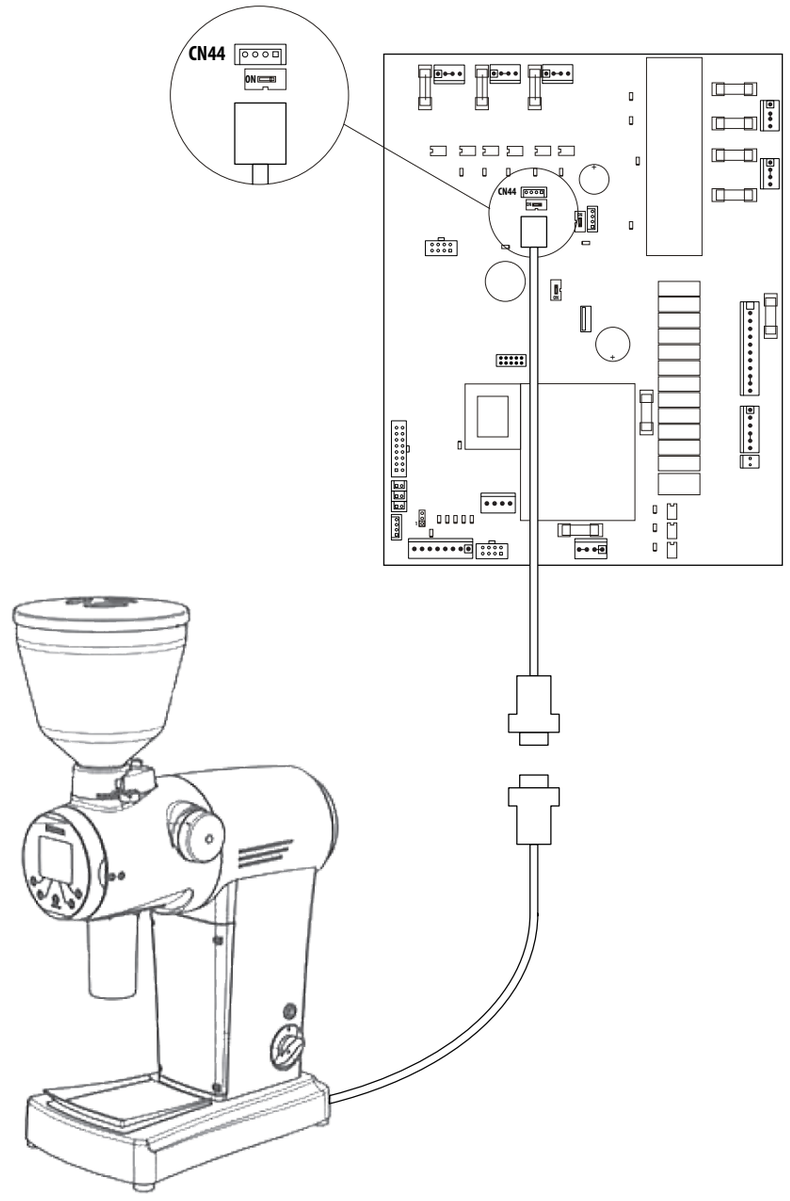
14.5.1 *Keyboard configuration*

Whenever you replace a keyboard, pay attention to the position of the switch according to its position, as shown in the diagram above.
It is also necessary to reprogram the keyboard by carrying out the procedure below:

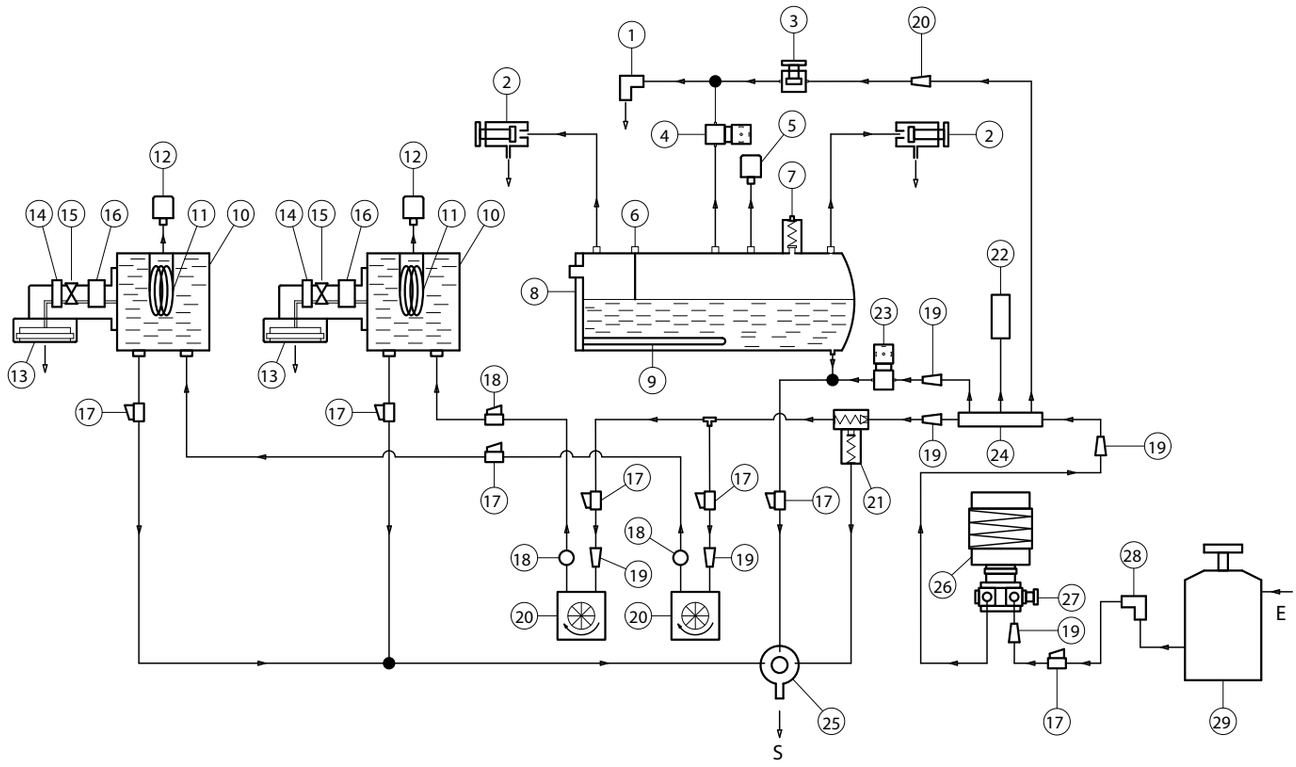
1. With the machine on, press and hold the K4, K5, K6 and K7 keys on the new keyboard installed, until all the LEDs flash;
2. press the key corresponding to the number of the group on which the push-button panel is installed (K1, K2, K3). The LEDs return to fixed;
3. To replace the Autosteamer keyboard, perform step 1 as above, then press the K1 key.

GR1 keyboard programming example

14.6 Grinder-doser connection diagram



15. HYDRAULIC DIAGRAMS



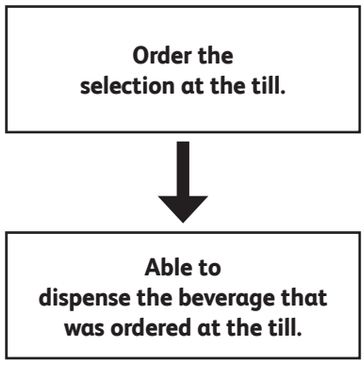
1	TEA release
2	STEAM release
3	TEA MIX adjustment solenoid valve
4	HOT WATER solenoid valve
5	STEAM boiler safety pressure switch
6	BOILER LEVEL probe
7	SAFETY valve
8	STEAM boiler
9	STEAM boiler heating element
10	COFFEE boiler
11	COFFEE water heating element
12	COFFEE water pressure switch
13	DELIVERY group
14	GROUP filter
15	GROUP Gigleur
16	GROUP solenoid valve
17	MANUAL tap

18	COLD Gigleur
19	MAINS filter
20	VOLUMETRIC doser
21	SCNR valve
22	PUMP pressure transducer
23	BOILER FILLING solenoid valve
24	MAINS dispenser
25	DRAIN pad
26	BUILT-IN motor pump
27	MOTOR PUMP pressure adjustment
28	WATER INLET connection
29	Softener
E	Water inlet
S	Water discharge

16. CREDIT-DEBIT and DEBIT-CREDIT SYSTEMS

16.1 CREDIT-DEBIT system with direct connection to the till

The CREDIT-DEBIT system allows coffees to be dispensed from the machine only after the beverages have been paid for at the till.
The system is structured as follows:



The physical connection between the machine and the till is via RS232 serial communication.
When activating, proceed as follows:

- set the enable parameter P14 = 1.
- set the enable parameter P312 = 3.

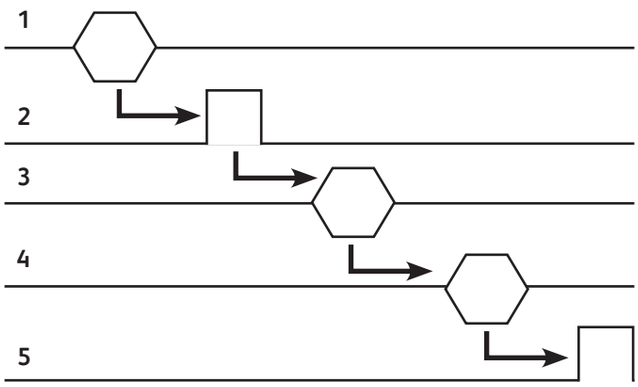
The till management software and the standard CS serial cable is not the responsibility of the manufacturer.

16.1.1 *Communication protocol*

Description of the operating principle with reference to the diagram shown below:

1. Order the beverage at the till;
2. Select the ordered dose on the coffee machine;
3. The code that corresponds to the selection is sent to the till (see the code table);
4. The till replies with **ACK=06H**, thus enabling the beverage to be dispensed;
5. The coffee machine dispenses the beverage.

If the till does not identify the code, the machine is not enabled, the selection is not dispensed and the till sends the **NACK=15H** code.



- **Baud rade: 1200**
- **8 bit**
- **1 bit Stop**
- **Parity N (none)**

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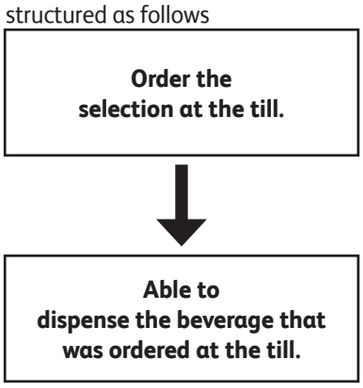
16.2 DEBIT-CREDIT system with direct connection to the till

The DEBIT-CREDIT system allows beverages to be paid for after they have been dispensed, as the doses are registered by the coffee machine's till.
The system is structured as follows



The physical connection between the machine and the till is via RS232 serial communication.
When activating, proceed as follows:

- set the enable parameter P14 = 2.
- set the enable parameter P312 = 2.

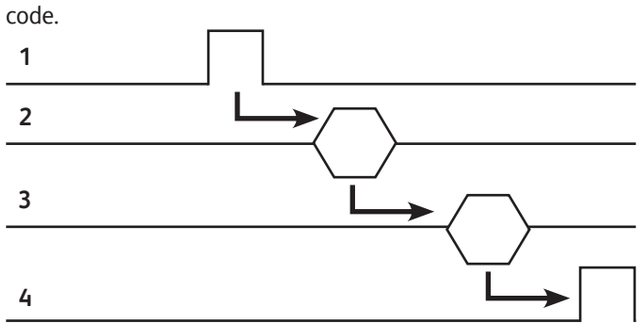
The till management software and the standard CS serial cable is not the responsibility of the manufacturer.

16.2.1 *Communication protocol*

Description of the operating principle with reference to the diagram shown below:

1. Order the beverage at the till;
2. Select the ordered dose on the coffee machine;
3. The code that corresponds to the selection is sent to the till (see the code table);
4. The till replies with ACK=06H, thus enabling the beverage to be dispensed;
5. The coffee machine dispenses the beverage.

If the till does not identify the code, the machine is not enabled, the selection is not dispensed and the till sends the **NACK=15H** code.



- **Baud rade: 1200**
- **8 bit**
- **1 bit Stop**
- **Parity E (even)**

16.3 Beverage selection code table

Descrizione	Segnale
1 Espresso GR1	011 h
1 Long GR1	013 h
2 Espresso GR1	014 h
2 Longs GR1	016 h
1 Espresso GR2	021 h
1 Long GR2	023 h
2 Espresso GR2	024 h
2 Longs GR2	026 h
1 Espresso GR3	031 h
1 Long GR3	033 h
2 Espresso GR3	034 h
2 Longs GR3	036 h
Tea 1	051 h

17. PARAMETER TABLE

Par.	Descrizione	min	Def	MAX	Um
P1	Temperature unit of measurement (0 = °C, 1 = °F)	°C	°C	°F	-
P2	Pressure unit of measurement (0 = bar, 1 = Atm, 2 = kPa)	0	0	2	
P3	Volume unit of measurement (0 = litres, 1 = gallons)	0	0	1	
P4	Number of groups	1	3	4	-
P5	User interface language	0	0	50	n.a.
P6	Cup warmer ON 0 = disabled. 1 = enabled.	0	1	1	
P7	Presence of the steam heating unit pressure transducer 0 = Absent. 1 = Present.	0	1	1	n.a.
P8	Enabling hot water to be dispensed simultaneously with coffee. 0 = disabled. 1 = enabled.	0	1	1	n.a.
P9	Enabling long coffee selections. 0 = disabled. 1 = enabled.	0	1	1	n.a.
P10	Enabling prebrewing. 0 = disabled. 1 = enabled.	0	0	1	n.a.
P11	Enabling the steam wand. 0 = disabled. 1 = enabled. 2 = enabled with automatic cleaning	0	0	1	n.a.
P12	Enabling the automatic wash 0 = disabled. 1 = enabled.	0	0	1	n.a.
P13	Enabling the pre-wash 0 = disabled. 1 = enabled.	0	0	1	n.a.
P14	Enabling the connection with the till 0 = Not connected to the till 1 = Pay first mode (CREDIT - DEBIT) 2 = Dispense first mode (DEBIT - CREDIT)	0	0	2	n.a.
P15	Enabling continuous coffee dispensing 0 = Start Stop button disabled 1 = Start Stop button enabled 2 = Start Stop button ON for 3 secs. (Purge)	0	1	2	n.a.
P16	Automatic daylight saving time management 0 = Manual management 1 = Changing to standard time with European rules 2 = Changing to standard time with US rules	0	1	2	n.a.
P17	User interface theme	0	1	3	n.a.
P18	Buzzer sound disabled when LCD keypad buttons are pressed 0 = Buzzer works normally 1 = Buzzer OFF	0	0	1	n.a.
P19	Relevant time zone	0	2	37	n.a.
P20	Minimum group 1 dispensing temperature	60	80	105	°C
P21	Minimum coffee heating unit temperature for dispensing from group 1	60	80	110	°C
P22	Group 1 setpoint temperature	P62	93	P63	°C
P23	Group 1 coffee heating unit setpoint temperature	P60	93	P61	°C
P29	Control type grinder (0=485; 1=232)	0	0	1	-
P30	Group 2 minimum dispensing temperature	60	80	105	°C
P31	Group 2 minimum coffee heating unit dispensing temperature	60	80	110	°C
P32	Group 2 setpoint temperature	P62	93	P63	°C
P33	Group 2 coffee heating unit setpoint temperature	P60	93	P61	°C
P40	Group 3 minimum dispensing temperature	60	80	105	°C
P41	Group 3 minimum coffee heating unit dispensing temperature	60	80	110	°C
P42	Group 3 setpoint temperature	P62	93	P63	°C
P43	Group 3 coffee heating unit setpoint temperature	P60	93	P61	°C
P50	Group 4 minimum dispensing temperature	60	80	105	°C
P51	Group 4 minimum coffee heating unit dispensing temperature	60	80	110	°C
P52	Group 4 setpoint temperature	P62	93	P63	°C
P53	Group 4 coffee heating unit setpoint temperature	P60	93	P61	°C
P76	Maximum flow variation percentage	5	15	40	
P101	Steam wand T1 Setpoint Temperature	50	55	80	°C
P102	Steam wand T2 Setpoint Temperature	50	65	80	°C
P103	Steam wand T3 Setpoint Temperature	50	65	80	°C
P104	Steam wand dispensing timeout.	0	240	600	s
P125	Board setpoint temperature pre-warning	0	65	90	°C
P126	Board setpoint temperature	0	70	90	°C
P127	Temperature differential for the alarm to resume	10	15	30	°C
P128	Steam wand T4 Setpoint Temperature	50	65	80	°C
P134	Hourly dispensing threshold for automatic entry into standby mode	1	5	250	
P135	Energy saving type 0 = Only manual group is OFF 1 = Timer management 2 = Automatic self-learning mode	0	0	2	
P169	Serial address 485 grinder	0	1	4	-
P197	Show/Hide the parameters menu 0 = Parameters menu is visible 1 = The parameters menu is hidden	n.a.	0	n.a.	n.a.
P311	Baud rate for the RS232 CN12 serial (till) 0 = 1200 Baud 1 = 2400 Baud 2 = 4800 Baud 3 = 9600 Baud 4 = 19200 Baud 5 = 38400 Baud	0	0	5	
P312	Parity for the RS232 CN12 serial (till) 0 = None (with 2 stop bits) 1 = ODD (1 stop bit) 2 = EVEN (1 stop bit) 3 = NONE (1 stop bit)	0	2	3	
P313	Communication timeout for RS232 CN12 (till)	0.1	1.0	60.0	s
P368	Keypad brightness	10	55	100	%
P370	DEMO Mode	0	0	1	

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Cod. 02000911 - Rev. 07 - 09/2025