Plus4YouTS

ESPRESSO COFFEE MAKER

Use and maintenance manual for the TECHNICIAN

- ENGLISH -

Astoria®

Think espresso.

English

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A General warnings

The manufacturer reserves the right to make any improvements to the product. We guarantee that this booklet reflects the technical state of the appliance at the time it is marketed.

We take the opportunity to invite technicians to make any proposals for improvement of the product or the manual.

Keep this manual in a safe place. If you lose it you can ask the manufacturer for another copy.

The manufacturer of the equipment cannot be held responsible for damage caused by failure to oblige to the requirements below.

This appliance is to be considered completely safe only when it is connected to an efficient earthing system which is in compliance with safety standards.

The electric system must be equipped with a suitable differential circuit breaker. It is important to have these requirements checked. If in doubt, have the system carefully checked by qualified personnel. The manufacturer cannot be considered responsible for any damage caused by an inadequate electric system.

Make sure that the supply power is enough to supply the necessary energy for the operation of the machine.

B Warnings for the installer

- Read this manual carefully. It provides important information on safe installation, operation and maintenance of the equipment;
- Identify the model of the equipment. The model is shown on the packaging and on the nameplate of the machine;
- Install the equipment only on sites where there is good ventilation;
- Do not obstruct the ventilation and exhaust holes on the machine;
- Do not tamper with the equipment components.
- After removing the packaging, check the condition of the appliance. If in doubt, do not use it but contact the retailer directly.
- The packaging material must not be left within the reach of children, since it is a potential source of danger. It is advisable to keep the packaging until after the warranty has expired.
- Identify the model of the equipment. The model is shown on the packaging and on the nameplate of the machine;
- Before using the appliance, make sure that the mains voltage corresponds to the information on the data plate of the appliance.
- Installation must be done in accordance with the safety standards in force and by qualified and prepared personnel. Incorrect installation may be harmful to people, property or animals.
- During installation of the machine, a main switch must be installed as required by current safety regulations, with a contact opening distance of at least 3 mm.
- It is not advisable to use extensions or electrical adapters for multiple outlets. If their use is absolutely necessary, use only simple adapters and extensions complying with current safety standards. Never exceed the capacity value indicated on the adapter and the extension cord, and that the maximum power indicated on the adapter.
- The espresso coffee appliance is intended for the preparation of hot beverages such as coffee, tea or warm milk. This appliance is to be used only for its intended use. Any other use is considered improper and therefore dangerous. The manufacturer cannot be held responsible for any damage caused by an incorrect and unreasonable use.
- To ensure good efficiency of the machine and its correct operation, it is essential to follow the manufacturer's directions, performing periodic maintenance and checks of all the safety devices.
- When using the electrical appliance, several safety standards must be observed:
  - do not touch the appliance with wet or damp hands or feet;
  - do not use the appliance if barefooted;
  - do not use extensions in rooms where there are showers or baths;
  - do not pull the power cord to disconnect the appliance;
  - do not leave the appliance exposed to atmospheric agents (rain, sun, etc...);
  - do not access the inside of the machine;
  - do not spill liquids on the machine.
  - do not allow the appliance to be used by children or incapacitated people.

- Make sure that the machine is used in a sufficiently lit, aerated, and hygienic premise.
- 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 be able to leave the area immediately in case of necessity.
- Do not spray water on the machine to clean it. Clean daily following the instructions given in this manual.
- Before any maintenance, disconnect the appliance from the electrical mains through the main switch.
- For daily cleaning, follow the instructions in this manual.
- The technician must inform the dealer or the manufacturer in a timely manner of any problems in the use or installation of the equipment.
- Any repairs must be done only by the manufacturer or an authorized service center, using original spare parts only. If this standard is not observed the safety of the appliance is compromised and the guarantee may be void.
- Inside the device is a lithium button battery to prevent programming data loss.
- The power cord of the appliance must not be replaced by the user. If the cord is damaged, turn the appliance off and contact professionally qualified personnel only.
- If you decide you are not going to use the appliance any more it must be disconnected from the power supply and emptied of water.
- Do not expose your hands or other body parts to the coffee, steam, or hot water spouts. The steam and water that exit the nozzles can cause burns.
- When in operation, the steam and hot water nozzles and the filter-holder cups are extremely hot and should be handled with care only in the indicated parts.
- Cups must be placed on the special cup-heating surface only after being thoroughly dried.
- The dishes belonging to the machine itself are to be placed on the cup-heating surface. It is incorrect to place any other object on this surface.
- The appliance must not be used by people (including children) with reduced physical, sensory or mental capacities, or by people without experience or knowledge, unless they can be supervised or receive instructions for appliance use from a person responsible for their safety.
- Children must be supervised, to make sure they do not play with the appliance.
- The coffee maker must be used at a temperature between 5°C and 40°C.
- Any unauthorized tampering with any parts of the machine renders any warranty null and void.

B.1 Water supply

The water supply of the appliance must be carried out with water which is suitable for human consumption, in compliance with the regulations in force in the place of installation. The owner/manager of the system must confirm to the installer that the water meets the requirements above.

B.2 Materials to be used

During the installation of the appliance, only the components and materials supplied with the appliance are to be used. Should the use of other components be necessary, the installer must verify their suitability to be used in contact with water used for human consumption.

B.3 Hydraulic connections

The installer must carry out the hydraulic connections in accordance with the hygiene norms and the hydraulic safety norms for environmental protection in force in the place of installation.

B.4 Activation

When installation is complete, the appliance has to be started, brought to the nominal working condition and left in the "ready to operate" condition for 30 minutes.

Afterwards, the appliance has to be turned off and emptied of the first water introduced in the whole hydraulic circuit, to eliminate possible initial impurities.

Then, the appliance must be once again loaded and brought to the nominal working conditions.

After reaching the "ready to operate" condition, the following has to be performed:

1. for each coffee unit, carry out a continuous delivery, in order to release the whole volume of water contained in each associated coffee tank;
2. release the entire volume of the hot water from the boiler by continuous delivery through the specific spout. In the case of several dispensing points, divide the volume on the base of the number of the dispensing points;
3. continuously release steam for at least 1 minute for each steam dispensing point.

B.5 Maintenance and repairs

After maintenance and/or repair intervention, the components used must ensure that the hygiene and safety requirements initially provided for the appliance are still met. These are met by using original spare parts only.

After repair or replacement of components related to parts in direct contact with water and food, a washing procedure has to be carried out, as in the case of first installation.

If the machine remains inactive longer than 1 week, it is necessary to perform the changing of the 100% of the water contained in the hydraulic circuits of the machine, by using the appropriate dispensing points, as described in paragraph "Activation".

The user must be sufficiently informed to correctly operate the machine. It is recommended not to carry out any operations on the appliance which may modify or alter its operation. WHEN THE MACHINE IS OPERATIVE THE BOILER CONTAINS STEAM AND HOT WATER THAT ARE UNDER PRESSURE.

The installation and maintenance operations of the machine can only be carried out by qualified technical personnel. The qualification can be supplied by the manufacturer through participation in specific training courses.

Installation and maintenance of the machine must be carried out only by qualified technical personnel with knowledge and practical experience of the appliance, paying particular attention to the aspects of safety and hygiene.

C Presentation

This product is manufactured in compliance with EU Directives, Regulations and Standards indicated in the EC Declaration of Conformity provided with the machine.

The espresso coffee machine is strictly for professional use only. It is designed for the preparation of hot drinks such as tea, cappuccinos and long, short and espresso coffee, etc.

The instructions for a proper use of the machine are provided below.

D Warranty

12 months on all components, except for electrical and electronic components and expendable pieces.

E Typographical conventions

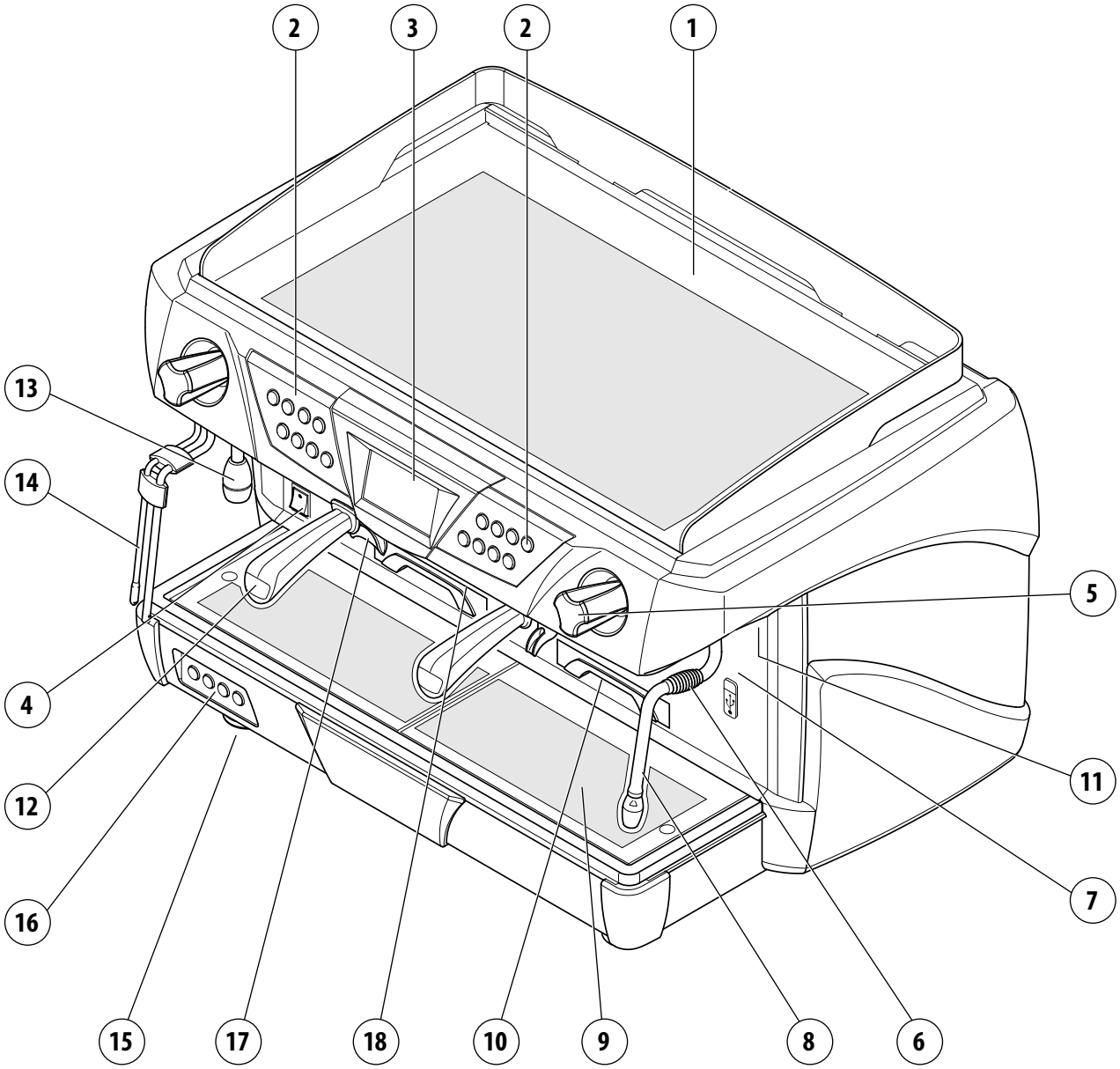
This symbol indicates that you must strictly follow the instructions it refers to, in order to avoid damage to the appliance or injury.

This symbol provides additional information on the operation of the machine and its components.

Section I - OVERVIEW

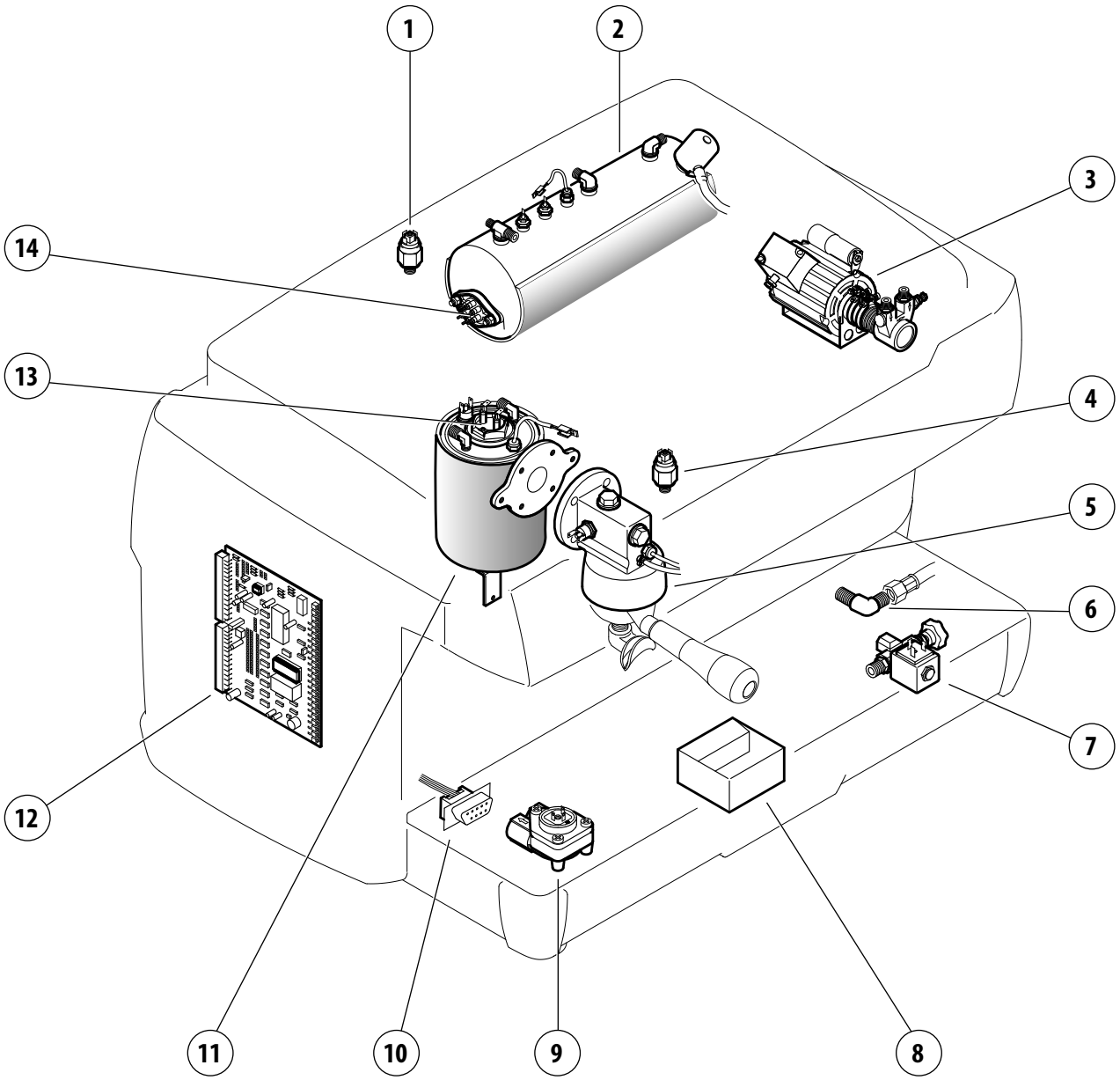
1 Technical characteristics

1.1 External components



1. Cup heater surface.
2. Push-button panel for coffee and tea selections.
3. Touchscreen display.
4. Machine power switch.
5. Steam knob.
6. Anti-burn seal.
7. USB socket.
8. Steam nozzle.
9. Tray and cup support grille.
10. Pull-out cup support grille.
11. Autosteamer air regulator.
12. Filter holder.
13. Hot water delivery nozzle.
14. Autosteamer nozzle.
15. Adjustable foot.
16. Autosteamer push-button panel.
17. Dispensing spouts.
18. Dispensing compartment light.

1.2 Internal components

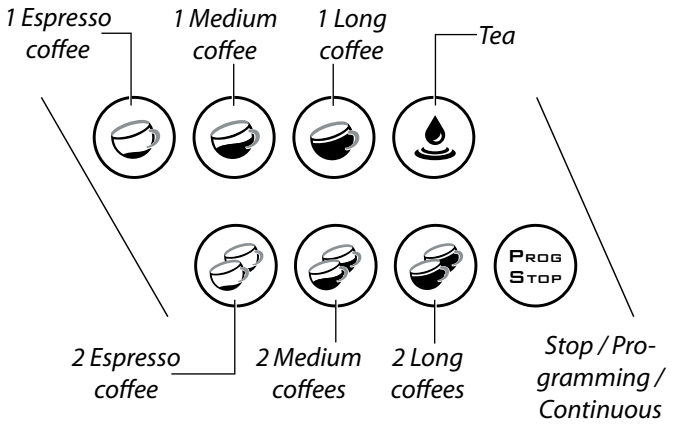


1. Service boiler safety pressure switch.
2. Services boiler.
3. Internal motor pump (if included).
4. Coffee boiler pressure switch.
5. Dispensing group.
6. Water inlet connection.
7. Hot water mixer.
8. Drain pad.
9. Volumetric dosing device.
10. RS232 socket.
11. Coffee water container.
12. Electronic control unit.
13. Coffee water heating element.
14. Services boiler heating element.

1.3 Push-buttons panels

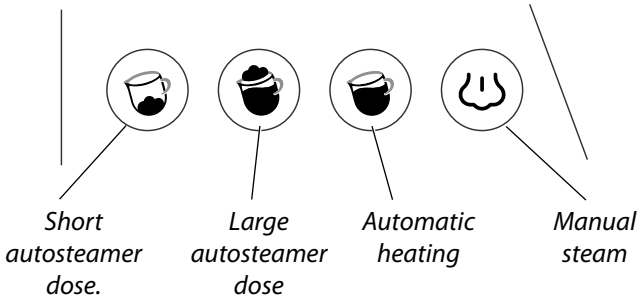
Push-button panel for coffee and tea selections.

The push button panel is connected to the electronic control unit, and allows selection and programming of the doses of coffee and tea.



Autosteamer push-button panel.

the autosteamer push-button is connected to the electronic unit, and allows selection and programming of the milk-based bevarages.



1.4 Touch screen display.

All programming operations of the machine are made using the touchscreen display as described in the chapter "Programming".

The figure below provides a description of the "Idle" screen.

Alarms and display indications

LIGHT	DESCRIPTION
	Periodic maintenance required warning.
	One or more delivery groups are in stand-by.
	It warns that there is the need to perform the regeneration of the resins of the water softener device.
	The machine is OFF
	Machine warming up
	It warns that there is the need to wash the dispensin units.
	Reports an error or a machine failure (see text on the screen).

1.5 Specifications

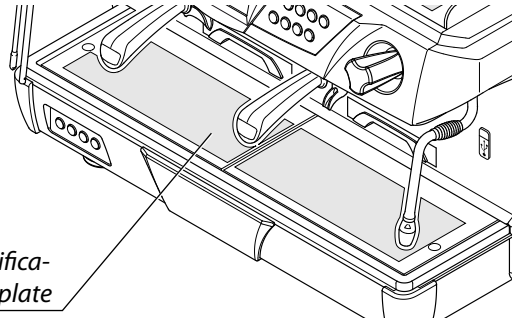
The machine is identified by the identification plate affixed on the base of the frame under the drain tray, on which are listed the identification data and the CE marking attesting compliance.

For the following information, always refer to the nameplate of the machine:

- type and model of the machine (to be reported in every communication);
- machine serial number (required to be reported in every communication);
- date of manufacture (month and year);
- indication on power and pressure type on the mains.

The data of the appliance can be seen also on the label located on the package of the machine.

! It is forbidden to remove or damage the plates. If necessary, replace urgently, contacting the manufacturer always and exclusively.



specification plate

1.6 Intended use

The machine object of this Manual consists of mechanical, electrical, and electronic components whose combined action allows to make milk, coffee and water-based beverages.

This machine must be used exclusively for its intended use.

This machine is designed and constructed to operate only after being properly connected to a hydraulic and electrical network and placed so as to be sheltered from atmospheric agents.

! The overview constitutes the use for which it was designed, created and protected. Non-compliance with and/or non-adherence to the technical parameters described below, their tampering with and/or generic variation, are strictly prohibited. Any other use is considered improper and therefore dangerous.

ENGLISH

Groups		**2**		**3**		**4**	
Power supply voltage	V	230/400	240/415	230/400	240/415	230/400	240/415
Total power	W	4,400	4,700	5,500	6,100	7,100	7,700
Power x group	W	150x2	165x2	150x3	165x3	150x4	165x4
Coffee water tank heating element power per group	W	1,000x2	1,090x2	1,000x3	1,090x3	1,000x4	1,090x4
Steam boiler power	W	3,000	3,270	3,000	3,270	5,000	5,445
Steam boiler capacity	lt / UK gal	8 / 1.76		13 / 2.86		13 / 2.86	
Coffee water tank capacity	lt / UK gal	(1.2/ 0.26)x2		(1.2/ 0.26)x3		(1.2/ 0.26)x4	
Width	mm / in	830 / 32.7		1070 / 42.1		1310 / 51.8	
Depth	mm / in	580 / 22.8		580 / 22.8		580 / 22.8	
Height	mm / in	575 / 22.6		575 / 22.6		575 / 22.6	
Net weight	kg / lb	74 / 163		94 / 207		110 / 243	
Operating conditions	°C / °F	5 ÷ 40 / 41 ÷ 104					

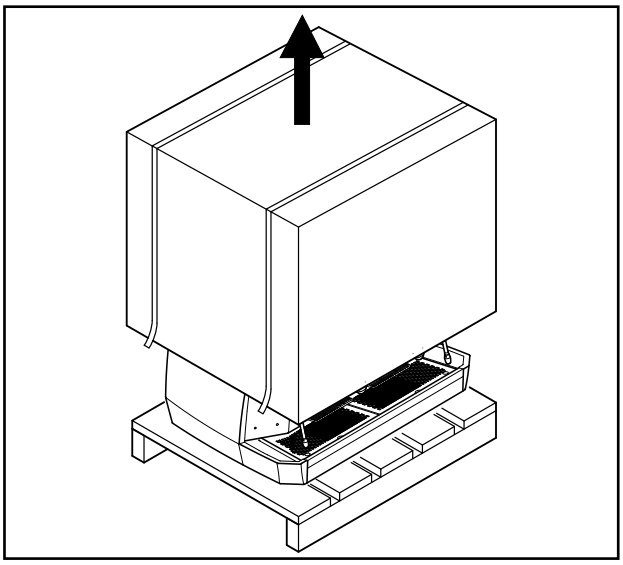
2 Preparation

2.1 Unpacking the machine

Upon receipt of the machine, make sure that it has not been damaged during transport and that the package has not been tampered with, resulting in removal of parts from the inside.

If there are damages or missing parts, inform the carrier and the manufacturer immediately, producing photographic documentation.

If there is an external motor pump (optional), the motor and the pump are provided in a separate package.



Remove the machine from its packaging only at the moment of installation to prevent accidental collisions that can damage it.

- Open the packaging, taking care not to damage the machine;
- remove and take out the protections of the machine and equipment contained in the package.
- take the machine out;
- dispose of the packaging in compliance with waste regulations.

Wood, nails, staples, cardboard: non-polluting material but to be recycled properly.

Plastic: polluting material neither to be burned (danger of toxic fumes), nor dispersed in the environment; to be disposed of according to current regulations.

Handling operations must always and exclusively be performed by qualified personnel and in compliance with applicable safety and health regulations.

Before starting transport and/or handling, verify the route, dimensions needed, safety distances, places suitable for placement, and appropriate means to the operation.

Handling operations must be carried out by at least 2 people, or with the help of special lifting accessories.

In view of the substantial weight of the equipment, take great care in handling and use suitable protective gloves.

2.2 Storage

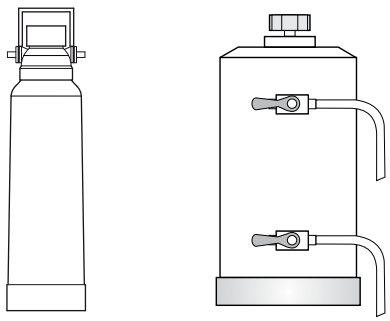
If the machine is not going to be used for a long period, we recommend to render it inoperative disconnecting the power cord from the supply and emptying it of the water.

2.3 Equipment preparation

Water purification filter or Softener

The water purification filter or resin softener are available on request.

For more information see the chapters "Water purification filter" and "Softeners".

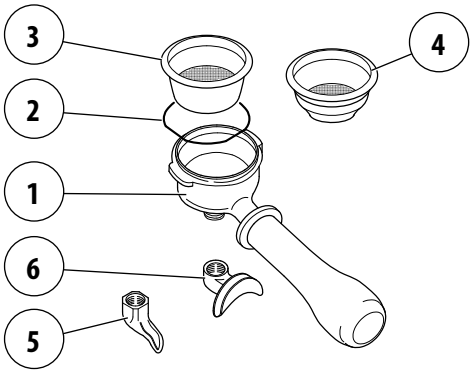


Filter holder

In the housing of the filter holder**(1)**, place the spring to stop the filter **(2)**. Take the two cups **(3)** or one-cup **(4)** filter and press it firmly into the filter holder.

Spouts

Complete the filter holder by installing the two-cup **(6)** or one-cup **(5)** spout.



Install the spout with related filter: 1 cup spout on 1 cup filter filter holder, etc.

Motor pump

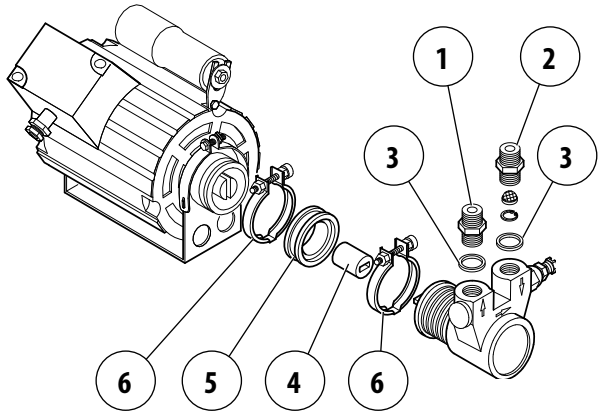
For machines with an external motor, it is necessary to prepare the pump and motor.

Fit the 3/8 gas connection with filter **(2)** at the pump inlet (arrow ⬇) and the plain 3/8 connection **(1)** at the pump outlet (arrow ⬆).

Use the special washers **(3)** provided for sealing purposes.

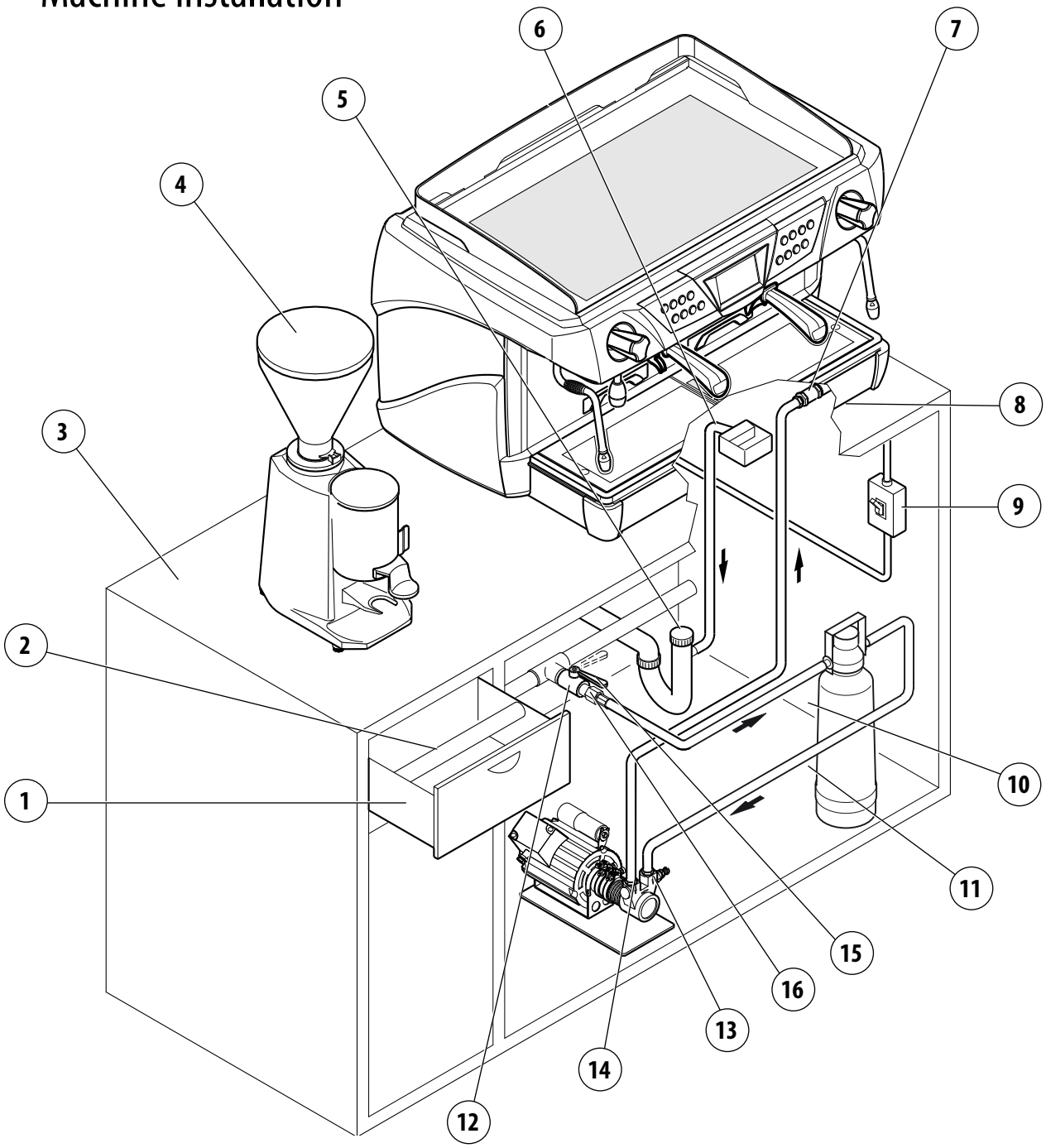
To correctly couple the pump and motor, use the appropriate joint **(4)** and the spacer ring **(5)**, lock everything with the two clamps **(6)**.

The pump and motor joint has to be installed also on the machines with an internal motor pump.



Install the connection with the inlet filter (2) of the pump (arrow ⬇).

3 Machine installation



3.1 Positioning

Prepare an ample support base for the machine that is suitable to support its weight **(3)**. It is important for all terminals of connections to the water mains **(12)** and to the electrical mains **(9)** to be easily reachable and in any case in the immediate vicinity of the machine.

Make sure that there is sufficient space for placing and correctly using the appliance. The grinding-dosing machine **(4)** must be placed in the immediate vicinity of the appliance in order to allow for comfortable use of the machine.

Place the motor pump **(13)** in a protected area without humidity and far from accidental contact with the operator. It is advisable to equip the working base of the machine with a drawer **(1)** for used coffee grounds, preferably with a rubber device **(2)** for tapping the filter holder.

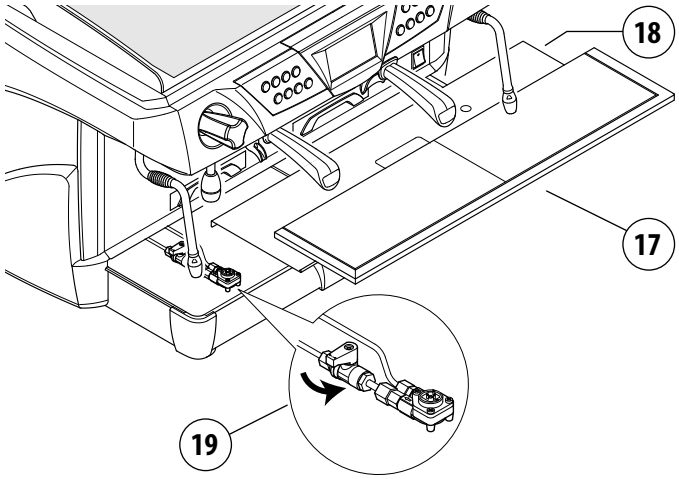
! In case of installation of the machine within moving environments (trains, ships, etc.) it is necessary to use special anchor pins, which can be bought from the manufacturer, to the base.

! For correct operation, the machine must rest on a perfectly horizontal surface. Any alignment of the machine must be done by adjusting the feet (8).

3.2 Hydraulic connection

1. Remove the grids and drain pad **(17)**;
2. remove the protection under the pad **(18)**;
3. connect the water supply **(12)** to the water purification filter inlet **(10)** using the provided flexible hose;
4. connect the water filter outlet **(11)** to the external motor pump inlet **(13)**;
5. connect the outlet of the motor pump **(14)** to the inlet of the machine **(7)**;
6. connect the drain pad of the machine **(6)** to the sewer discharge **(5)** using the special hose provided, avoiding overly tight bends or kinks, and making sure that there is sufficient inclination for water to drain.

Before install the machine please open the valve of each flow meter (19).



Warnings

1. The water supply must provide cold water for human consumption (potable water) at a pressure between 1,5 and 5 bars If the pressure is higher than 5 bar, connect a pressure reducer before the pump.
2. add a tap **(15)** to the water supply so as to stop water from flowing to the machine;
3. in order to prevent damage, it is advisable to install the water purification filter where it will be protected from accidental blows;
4. to prevent water from freezing, install the water purification filter inside a premise with a room temperature higher than 5°C;
5. if there is no water purification filter, connect the water supply **(12)** directly to the inlet of the external motor pump **(13)**;
6. if there is an internal motor pump, connect the outlet of the softener **(11)** (if there is one) or the water supply **(12)** directly to the machine inlet **(7)**;
7. when connecting the pad of the machine to the sewer drain, avoid overly tight curves or kinks, and make sure that there is sufficient inclination for water to flow out of the drain.
8. the drain must be connected to an inspectionable syphon that can be periodically cleaned in order to avoid the return of bad odours;
9. to avoid oxidization and damage to the machine over time, do not use iron connections for the hydraulic system, even if galvanized.

All filling connections are 3/8 male gas type. The drain pan is connected to a tube with an internal diameter of 16 mm.

In all machines equipped with automatic water filling, there is an automatic time control device which allows the boiler to be filled with water within a maximum period of time. This function keeps water from coming out of the valve of the boiler (flooding) and keeps the motor pump from overheating. If the maximum time is not enough for the boiler to fill up completely (machines installed with 3 or 4 groups), turn the machine off and then back on, and repeat the operations shown above.

The water supply of the appliance must be carried out with water which is suitable for human consumption, in compliance with the regulations in force in the place of installation. The installer must receive, from the owner/ manager of the system, confirmation that the water meets the above listed requirements.
In case of supply from the tank, do not use carbonated water or other liquids.

The hydraulic connection must be made in compliance with local national standards. On lever machines, the hydraulic connection should be made only to the water supply with a minimum pressure of 1.5 bar. If an external tank is used, the connection pipe between the machine and the tank must not exceed 150 cm. For the European Community: for the hydraulic connection to the water mains and also for connection to an external tank, it is necessary to place a non-return valve (16) up the line from the machine as set forth by standards EN 1717.

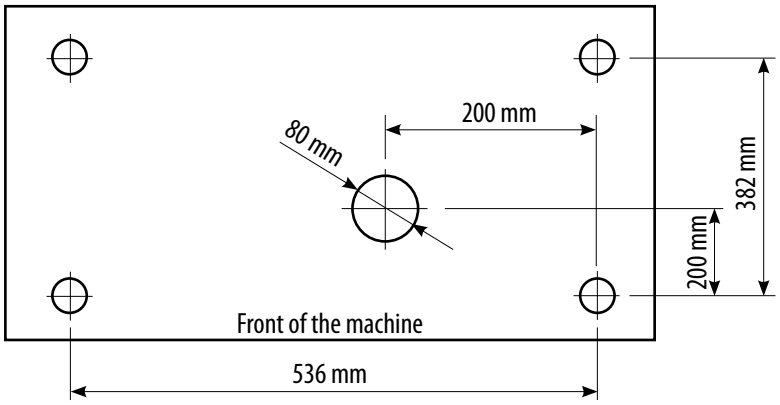
FOR THE U.S.A.
The water connections and discharges must be made in accordance with the 2003 International Plumbing Code of the International Code Council (ICC), or with the 2003 Uniformed Hydraulic Code of the IAPMO. The machine must be installed together with an adequate non-return valve, as required by national regulations.

During the installation of the appliance, only the components and materials supplied with the appliance are to be used. Should the use of other components be necessary, the installer must verify their suitability to be used in contact with water used for human consumption. The installer must carry out the hydraulic connections in accordance with the hygiene norms and the hydraulic safety norms for environmental protection in force in the place of installation.

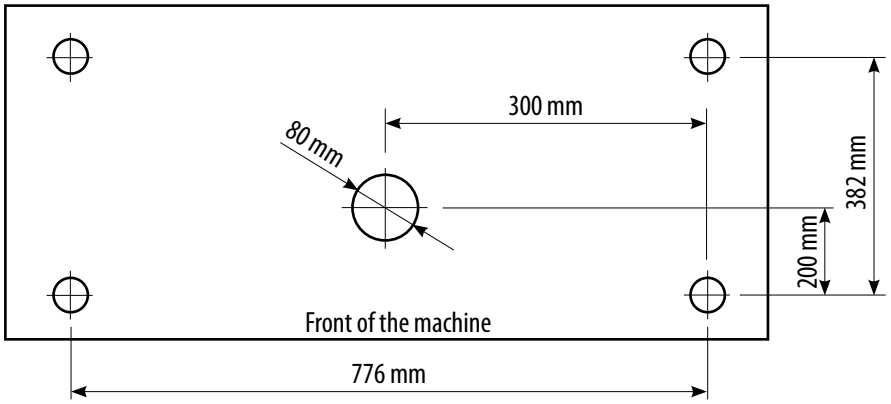
3.3 Drilling holes on the support bench

In the case where it is necessary to drill holes on the support bench for passing the water inlet and outlet hoses, as well as the electrical and gas supply cables, follow the directions in the drawings below.

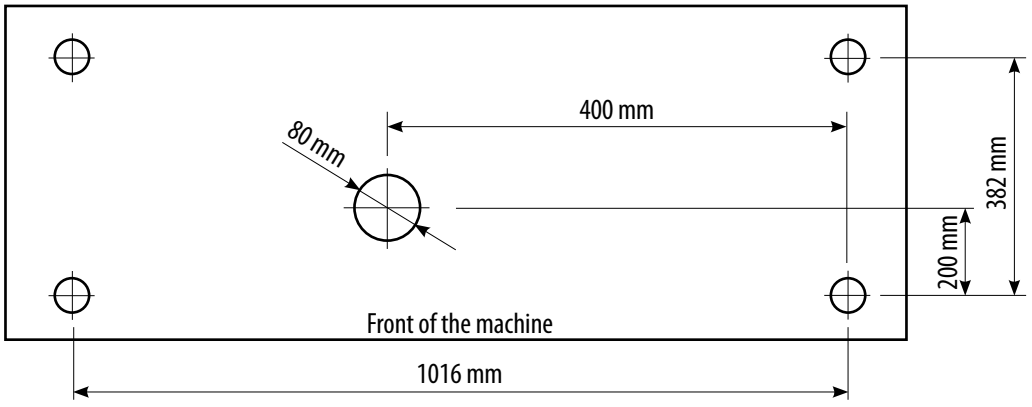
2 GROUPS



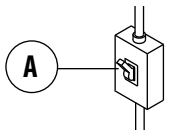
3 GROUPS



4 GROUPS



3.4 Wiring



It is necessary to link a safety main switch **(A)** on the electric panel, as required by standard regulations.

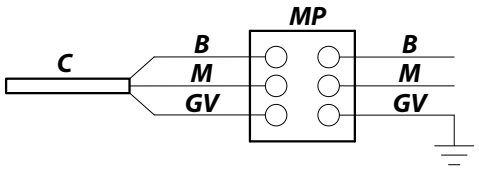
Machine with INTERNAL MOTOR PUMP

In case of internal motor pump connect the power cable as set forth in the chapter "Electrical diagrams" (the cable has a cross-section and number of wires based on the power and voltage of the machine).

Machine with EXTERNAL MOTOR PUMP

In case of external motor pump, proceed as follows:

1. Connect the motor pump cable (with smaller cross section) to the connector of the external motor as shown in the diagram below.
2. Connect the machine power cable (with larger cross section) as set forth in the "Wiring diagrams" chapter.



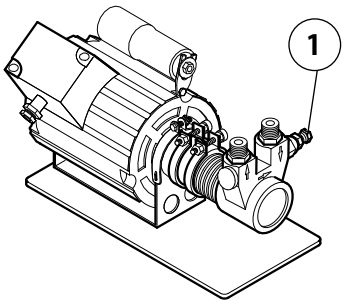
C Motor pump power cable
MP Motor pump terminal
B Blue
M Brown
GV Yellow-green

Always connect the motor pump cable before the machine power supply cable, in accordance with 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 the warranty. Carry out the electrical connections only when the machine is disconnected from the power supply.

3.5 External motor pump adjustment

To adjust operating pressure proceed as follows:

- Operate a coffee delivery switch;
- adjust the pressure by turning the screw located on the pump **(1)** so as to obtain a value between 8 and 9 bar: tightening the screw increases the pressure, and loosening it reduces the pressure. Check the pressure on the display (☕) ;



- turn off the delivery switch;

3.6 Machine tune-up

When installation is complete, the appliance has to be started, brought to the nominal working condition and left for 30 minutes in the "ready to operate" condition.

Afterwards, the appliance has to be turned off and emptied of the first water introduced in the whole hydraulic circuit, to eliminate possible initial impurities.

Then, the appliance must be once again loaded and brought to the nominal working conditions.

After reaching the "ready to operate" condition, the following has to be performed:

1. for each coffee unit, carry out a continuous delivery, in order to release the whole volume of water contained in each associated coffee tank;
2. release the entire volume of the hot water from the boiler by continuous delivery through the specific spout. In the case of several dispensing points, divide the volume on the base of the number of the dispensing points;
3. continuously release steam for at least 1 minute for each steam dispensing point.

4 Main components

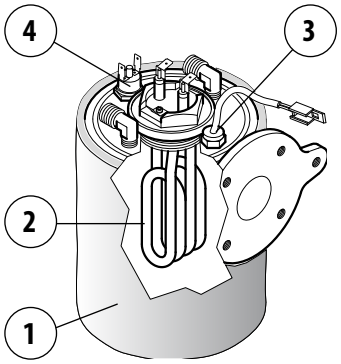
4.1 Coffee boiler

Each delivery group is equipped with a coffee boiler **(1)** of limited capacity (1,2 litres).

These boilers provide hot water for the coffee.

Heat is provided by an electric heating element **(2)**.

The boilers include a temperature sensor **(3)** and a safety thermostat **(4)**.



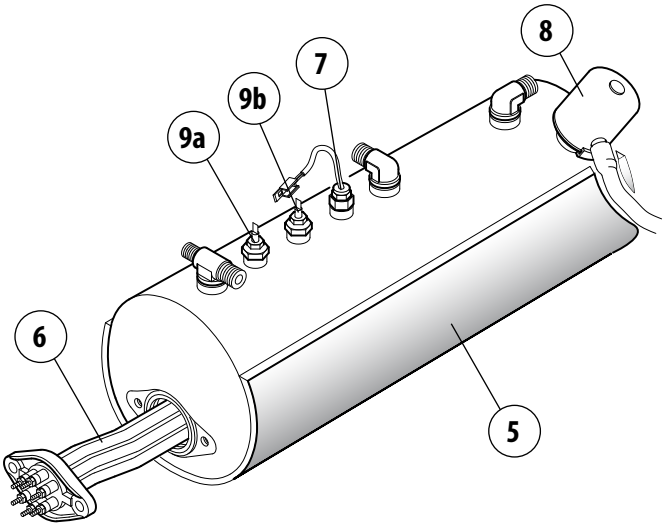
4.2 Services boiler

Inside the coffee machine, there is a services boiler **(5)**.

This boiler provides steam and hot water for tea.

Heat is provided by an electric heating element **(6)**.

The boiler includes a temperature sensor **(7)**, a safety valve **(8)**, a level probe **(9a)** and a safety probe **(9b)**.

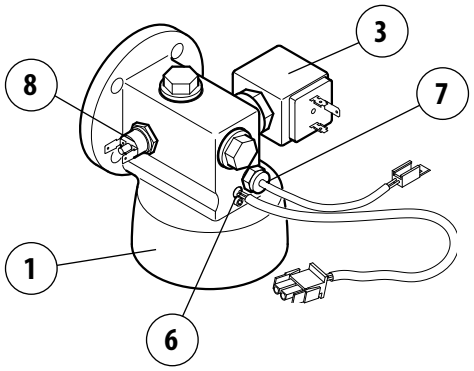


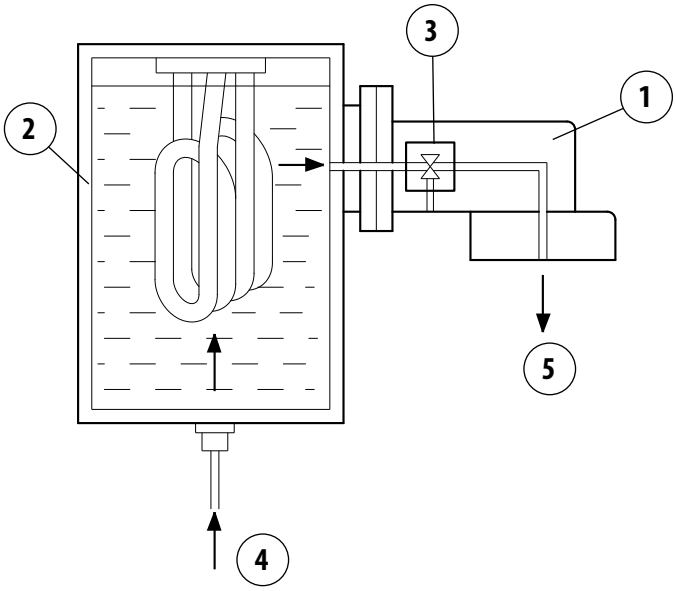
! Do not replace the heating element with a more powerful one. Before making any modifications, contact the manufacturer.

4.3 Dispensing group

The dispensing group is composed as follows:

- the group body **(1)** is made up of a metallic block which is hooked onto the coffee boiler **(2)**;
- the activation of the motor pump and solenoid valve **(3)** located on the side of the group allows the cold water to enter the boiler **(4)**, consequently the hot water in the boiler is carried towards the delivery group **(5)**;
- the electrical cartridge heating element **(6)** installed in the group is controlled by an electronic control unit and allows the group to be heated at a programmed temperature;
- the temperature sensor **(7)** detects the value of the temperature of the group and sends it to the electronic control unit;
- the activation of the safety thermostat **(8)** prevents risks if there is a failure in the electronic system

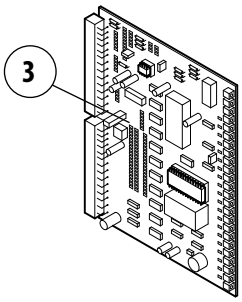




4.4 Automatic Water Entry

The Automatic Water Entry system is for checking the boiler level. It is composed of:

- level probe (short) **(1)** and safety probe (long) **(2)** inserted in the boiler, composed of a stainless steel rod;
- electronic control unit **(3)**;
- hydraulic circuit controlled by a motor pump and solenoid valve controlled by the electronic control unit.



When, during the normal operation of the machine, the water level drops down, the level probe **(1)** sends a signal to the electronic control unit **(3)**, which activates the motor pump and the filling solenoid valve, thus restoring the level of water in the boiler.

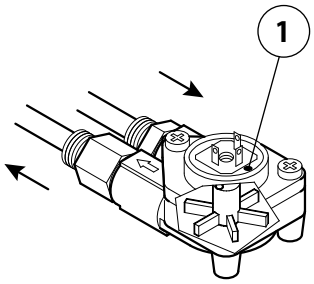
If the level is very low or there is no water in the boiler (during the machine's installation or due to a failure), the safety probe **(2)** sends a signal to the control unit which deactivates the heating element to keep it from overheating and activates the motor pump and the solenoid valve to restore the level of water in the boiler.

To avoid possible flooding due to machine malfunctions or leaks in the hydraulic circuit, the electronic control unit includes a timing device that cuts off automatic filling after a maximum operating time (roughly 30 seconds). During the installation of machines with three or four groups the initial water filling time may exceed the established time limit. In this event, just switch the machine off and then back on to restore normal operating conditions.

4.5 Volumetric dosing

The volumetric dosing device serves the purpose of measuring the quantity of water sent to the group of espresso delivery.

The dosing device generates an electrical impulse which is sent to the electronic control unit.



This impulse is read by the control unit and memorized during the programming of the dose.

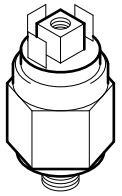
The flashing of the LED **(1)** indicates that the electrical impulse has been sent from the dosing device to the control unit.

ENGLISH

4.6 Pressure switch

The machine includes two types of pressure switches:

COFFEE BOILER PRESSURE SWITCH



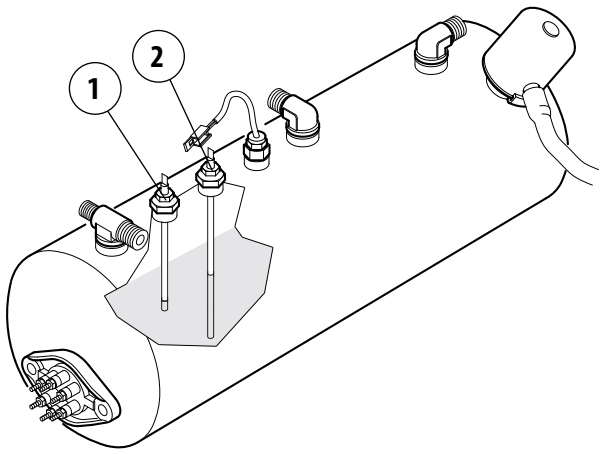
Each coffee boiler is equipped with a pressure switch to control the pressure.

Calibration is set to 2 bar and can be distinguished by the green seal.

SERVICES BOILER PRESSURE SWITCH

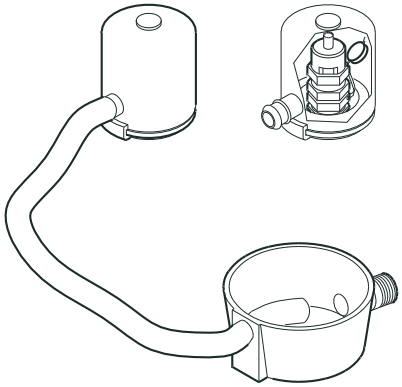
The services boiler is provided with a pressure safety switch which prevents exceeding the calibration value.

Calibration is set to 1.5 bar and can be distinguished by the RED seal.



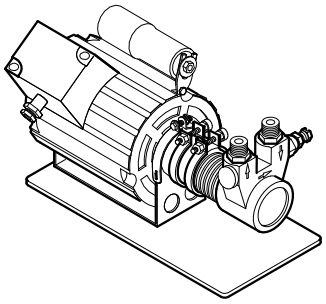
4.7 Anti-flooding device

The cover installed on the pressure relief valve makes it possible to collect any water which may leak from the boiler due to malfunction and channel it to the drain pad, by means of a special hose.



4.8 Pumping system

This is a component that feeds the machine, raising the water pressure to 8-9 bar for coffee delivery and automatic filling of the boiler.

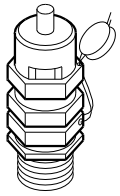


4.9 Valve group

The valves are devices whose purpose is to ensure the safety and proper operation of the machine.

4.9.1 Pressure limitation safety valve

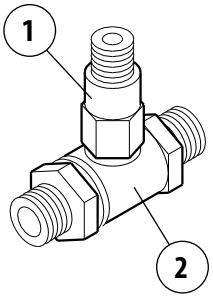
The pressure relief valve guarantees that the pressure in the boiler does not go above 2 bar. If there is a malfunction, the valve can eliminate all the excess pressure from the boiler.



4.9.2 Expansion - non-return valve

This is a valve consisting of an expansion valve and a non-return valve.

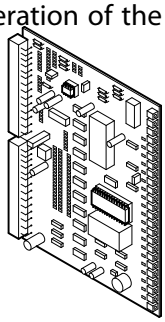
- **Expansion valve (1)**: the cold water sent from the pump to the heat exchangers is heated. This heating causes an increase in the volume of water. To limit pressure increases in the hydraulic circuit, the valve limits the maximum internal pressure of the circuit to 12 bar.
- **non-return valve (2):** Its function is that of preventing the back flow of water from the exchangers in the hydraulic circuit.



! The valves must be checked on a regular basis as described in the chapter "Controls and maintenance".

4.10 Electric control unit

The electronic control unit is the nerve center of the machine. It monitors and controls all operation of the unit.



The information related to the installed software (date and version) can be seen on the display when the machine is turned on. the monitoring and control of the entire functioning of the machine.

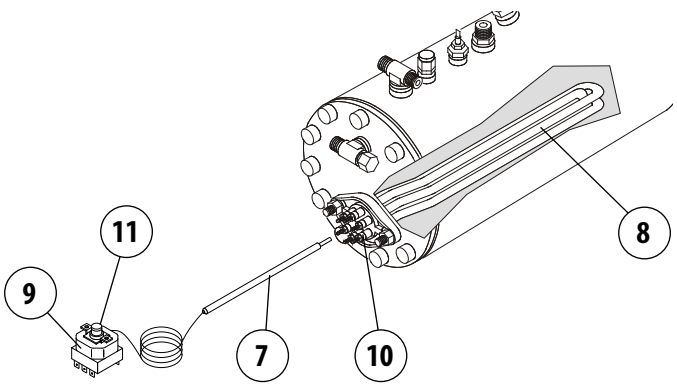
The information concerning the installed software (date and version) can be seen on the display when the machine is turned on.

DATA
REGISTER RESET

! When the software is updated, as soon as the machine is started the system loads the default data. In this case you will need to set the machine parameters again.

4.11 Thermostat

The thermostat allows you to avoid damage to the electrical resistance in case of lack of water in the boiler. The thermostat bulb **(7)** is located inside a sheath **(8)** placed at the center of resistance. The contacts of the thermostat **(9)** are connected to the electrical resistance **(10)**. If the electrical resistance is exposed due to failure to load water to the boiler, the temperature of the resistance increases dramatically. At this point, the thermostat interrupts the power supply to the resistance thus preventing damage.



! To reset the thermostat, press the center button (11). However, before trying to operate the machine, verify the causes of the blockade of the water feeding the boiler.

4.12 Cup heater

The cup heater is for heating cups before they are used.

Place the cups to be heated on the appropriate surface **(1)**.

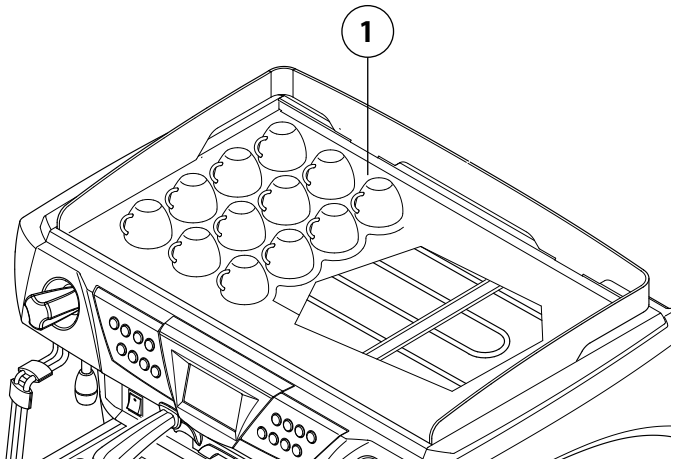
To activate the cup heater, press the button ( ) on display.

To turn it off, press the button ( ) again.

The cup heater light is red when it is warming up.

to change the temperature of the cup heater, proceed as listed in chapter "27-Programming".

Cup heater ON/OFF



! For safety reasons, it is advisable not to place cloths or other objects on the cup heater (1).

! If the cup heater is set to a temperature lower than 70 °C in the adjustment menu, it will remain off, even if switched ON.

4.13 Cappuccino maker

The cappuccino maker allows to:

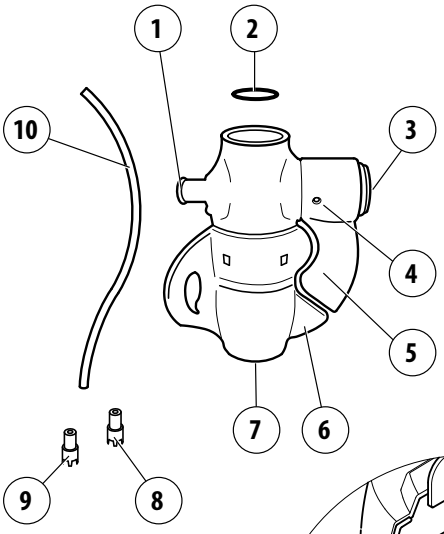
- foam the milk, obtaining a soft and silky cream
- simply heat up the milk;
- carry out the automatic sterilization.

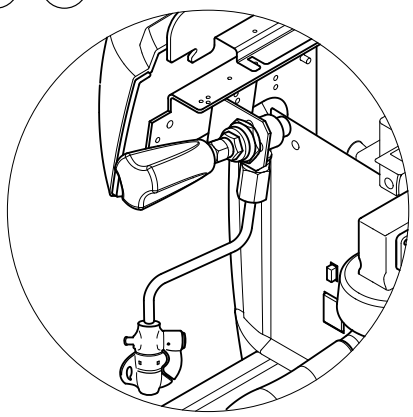
Apply the cappuccino maker, using the appropriate fitting, directly to the steam spout, by replacing the original sprayer, or through the appropriate hose, directly to the steam knob of the machine.

Ensure that seal **(2)** is present and/or use Teflon tape in order to avoid steam loss which may compromise the cappuccino maker's operation.

Insert the milk drawing hose **(10)** into the appropriate connection **(1)** of the cappuccino maker.

To change the temperature of the milk apply the adaptors as shown in the table below.





Milk temperature	Without use of adaptor	With WHITE adaptor Ø 1,9mm	With RED adaptor Ø 1,8mm
Room temperature 16°C	55 - 60 °C	60 - 68 °C	68 - 75 °C
Chilled milk 6°C	48 - 56 °C	58 - 63 °C	63 - 70 °C

table of temperatures with and without reductions (temperatures measured in a pre-heated cup)

ENGLISH

4.14 Water purification filter

4.14.1 Description

Mains water contains insoluble salts, which cause the build-up of lime scale deposits in the boiler and in other parts of the machine.

Drinking water can also contain heavy metals and substances, such as chlorine, harmful to health.

The water filter makes it possible to eliminate or substantially reduce the presence of these components and improve the coffee quality.

The cartridge contained in the water filter must be replaced at the frequency specified by the manufacturer.

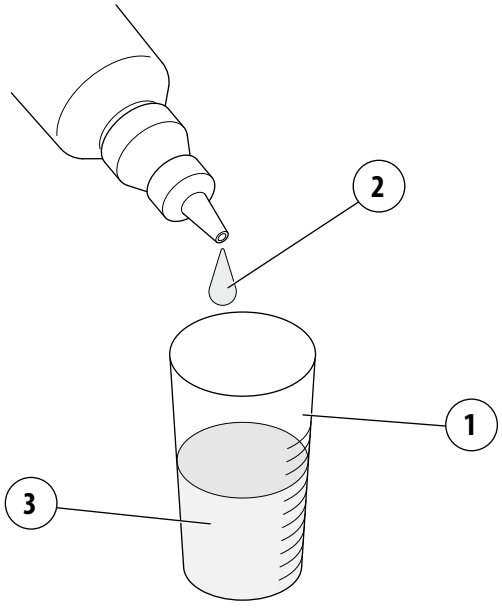
4.14.2 Water hardness detection

Before using the filter you must check the characteristics of the water. To identify the carbonate hardness of the water use the kit specified as follows:

1. Put 10ml of water to be tested in the test tube **(1)**;
2. add a drop of reagent **(2)** and mix;
3. proceed in the same way by counting the number of drops until the solution **(3)** changes color from blue to red.

1 DROP = 1°dKH

Example: 9 drops ⟶ carbonate hardness 9°dKH



4.14.3 By-pass configuration

Depending on the hardness of the water, adjust the by-pass of the water filter as shown in the table below.

Example:

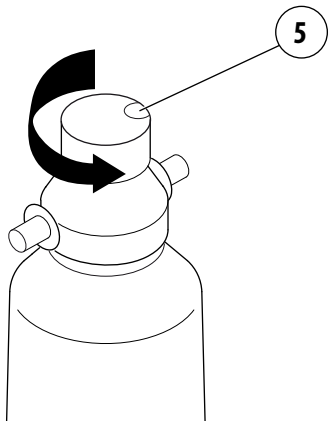
Water hardness 9°dKH

↓

By-pass 2 adjustment

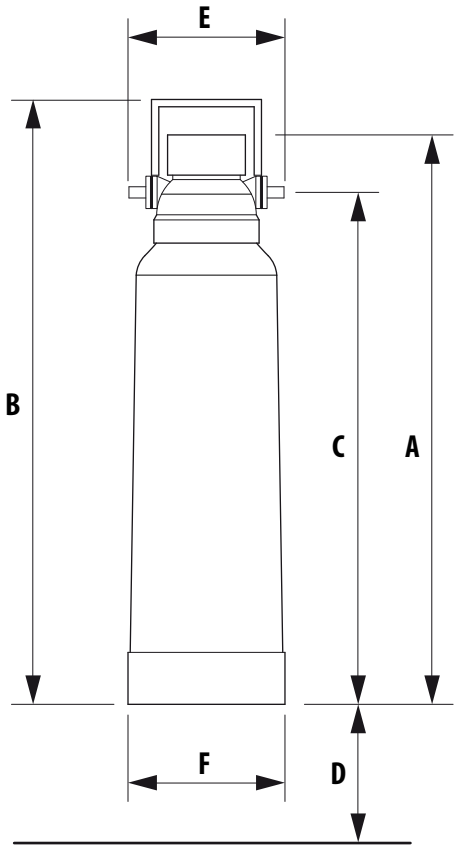
Water hardness (°dKH)	Bypass adjust-ment	Filter capacity (liters)			
		V	M	L	XL
4	3	6,250	9,500	13,000	17,000
5	3	5,000	7,600	10,400	13,600
6	3	4,165	6,330	8,665	11,330
7	3	3,570	5,425	7,425	9,710
8	2	3,125	4,750	6,500	8,500
9	2	2,775	4,220	5,775	7,555
10	2	2,500	3,800	5,200	6,800
12	1	1,865	2,835	3,885	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

To adjust the by-pass, push the button **(5)** and turn.



4.14.4 Specifications

Model	V	M	L	XL
Connection type	3/8"	3/8"	3/8"	3/8"
Water supply pressure min.-max (bar)	2-8	2-8	2-8	2-8
Water temperature min.-max. (°C)	4-30	4-30	4-30	4-30
Ambient 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



4.15 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. The regeneration is to be done regularly every 15 days. However, in locations with very hard water, it will be necessary to regenerate more frequently. The same is true of places in which there is a large consumption of hot water for tea or other uses.

Softener regeneration

Proceed as follows:

- Move levers **(B)** and **(E)** from left to right;
- remove the lid by loosening the knob **(A)**;
- release enough water through the pipe **(C)** to make room for the amount of salt as required depending on the model (see table);
- clean any salt or resin residue from the gasket located on the lid;
- put the cover back in place by screwing the knob **(A)** down securely 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 lime scale in the hydraulic circuit and boiler inhibit thermal exchange, thus compromising proper operation of the machine. Heavy incrustations in the boiler may cause long machine shutdowns and in any case invalidate any guarantee, because this symptom indicates that regeneration has been neglected.

In order to keep the softener and hence the machine in perfect operating condition, it is necessary to perform regeneration periodically based on the use of the softener and the hardness of the water that is used. The table below shows the quantity of softened water based on the hardness of the water in the various units of measure:

- °f: French degree
- d°: German degree = 1.8 °f
- mg $CaCO_3$

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

Amount of softened water based on hardness

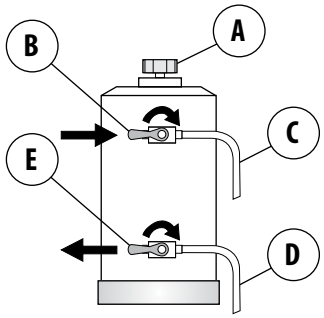
°f	30	40	60	80	
°d	16.5	22	33	44	salt
mg $CaCO_3$	30	40	60	80	
8 litres	1000 liters	900 liters	700 liters	500 liters	1.0 kg
12 litres	1500 liters	1350 liters	1050 liters	750 liters	1.5 kg
16 litres	2100 liters	1800 liters	1400 liters	1000 liters	2.0 kg

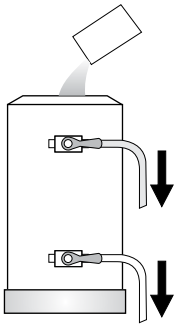
Softener model	Amount of salt
8 litres	1.0 kg
12 litres	1.5 kg
16 litres	2.0 kg

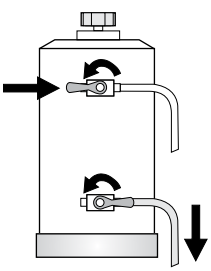
4.16 Regeneration request

If the function has been enabled during the programming, the system measures the amount of water used by the machine and prompts the user for regeneration ( ) when the set amount has been exceeded.

Once the regeneration has been carried out, the counter must be reset (see chapter 28).







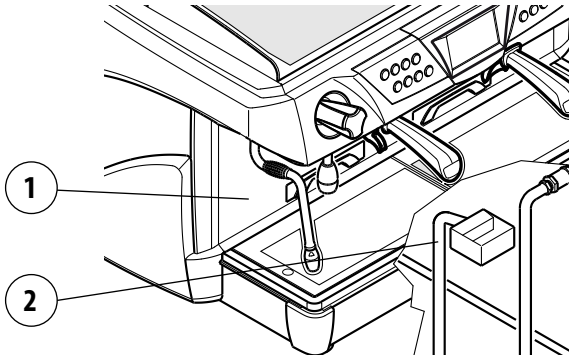
Section II - OPERATION

5. Turning the machine on

5.1 First time on

Before turning on the machine, make sure the drain pad **(2)** located under the cup support grid is correctly connected to the sewer.

Turn on the machine using the main switch **(1)** and follow the indications on the display of the machine.



When the machine is turned on, it performs the functional test and reports information regarding the software installed.

FUNCTIONAL TEST
EVPLUS XX/XX/XXXX RX

- XX.XX.XXXX : revision date
- RY : revision number

O.K. indicates that the machine is working correctly.

In case of negative result, check the message on the display.

TEST
-O.K.-

When the machine is turned on, it will activate the motor pump installed and begin to fill the services boiler and the water heaters for the coffee (present in a number equal to the number of delivery groups installed on the machine.)

COFFEE
WATER FILLING

In order to bleed any air present in the heaters, each time the machine is turned on the solenoid valves of the groups will be activated, making water and steam come out from the perforated disk of each group for about 10 seconds.

MAKE ATTENTION
WATER/STEAM ESCAPE

When the heating phase of the delivery groups has finished (after about 10 minutes), signaled by the disappearance of the "**PLEASE WAIT**" indication, it will be possible to make the coffee selections. For the delivery of hot water and steam, it will be necessary to wait for the complete heating of the services boiler.

During the heating phase of the services boiler (from 95°C to 98°C), the machine will execute a light delivery of water and steam from the hot water nozzle.

The delivery of steam and hot water, and thus the full operation of the machine, will be possible only at a pressure ( ) higher than 0.6 bar.

5.2 Machine tune-up

When installation is complete, the appliance has to be started, brought to the nominal working condition and left for 30 minutes in the "ready to operate" condition.

Afterwards, the appliance has to be turned off and emptied of the first water introduced in the whole hydraulic circuit, to eliminate possible initial impurities.

Then, the appliance must be once again loaded and brought to the nominal working conditions.

After reaching the "ready to operate" condition, the following has to be performed:

1. for each coffee unit, carry out a continuous delivery, in order to release the whole volume of water contained in each associated coffee tank;
2. release the entire volume of the hot water from the boiler by continuous delivery through the specific spout. In the case of several dispensing points, divide the volume on the base of the number of the dispensing points;
3. continuously release steam for at least 1 minute for each steam dispensing point.

5.3 Water replacement

If the machine remains inactive longer than 1 week, it is necessary to perform the changing of the 100% of the water contained in the hydraulic circuits of the machine, by using the appropriate dispensing points, as described in the chapter "Warnings for the installer".

- **Before using the machine, run dry deliveries with the filter holder attached for a few seconds to release any air which may be in the circuit, so that the delivery groups are completely heated;**
- **before using the machine, dispense a few servings of coffee to test the grinding and to check the operating pressure of the machine;**
- **during dispensing of coffee, do not remove the filter holder from the brewing.**

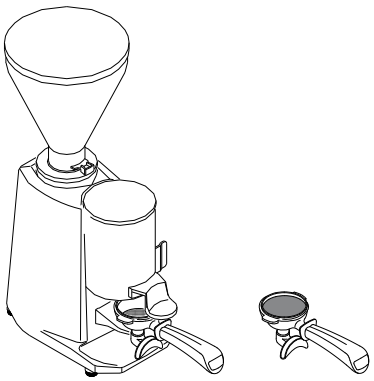
6 Preparing the components

6.1 Grinding and dosing

It is important to have a dosing-grinding device next to the machine with which to grind the coffee to use daily.

The grinding and the dosing of the coffee must be done according to that indicated by the manufacturer of the dosing-grinding device. The following points are also to be kept in mind:

- to obtain a good espresso it is recommended not to keep large stocks of coffee grains. Observe the expiry date indicated by the producer;
- never grind large volumes of coffee, it is advisable would be to have the quantity contained in the dosing device and use it if possible by the end of the day.
- never to buy (if possible) already ground coffee, as it expires quickly. If necessary, buy it in small vacuum-sealed packages.



6.2 Preparing the filter holder

- Fill the filter with a dose of ground coffee (circa 6-7 gr.) and press it with the press;
- hook the filter-holder to the unit without closing it too tightly in order to avoid excessive wear of the gasket;
- for the same reason it is recommended to clean the edge of the filter before attaching the filter holder to the dispensing unit;
- follow the procedures specified by the manufacturer of the grinder.

To prevent the seal from wearing too soon, clean the edge of the filter before engaging the filter holder on the dispensing unit. Do not excessively tighten the filter holder to the dispensing group.

6.3 Dispensing compartment light

To turn the appliance compartment light on and off, press the (💡) switch.

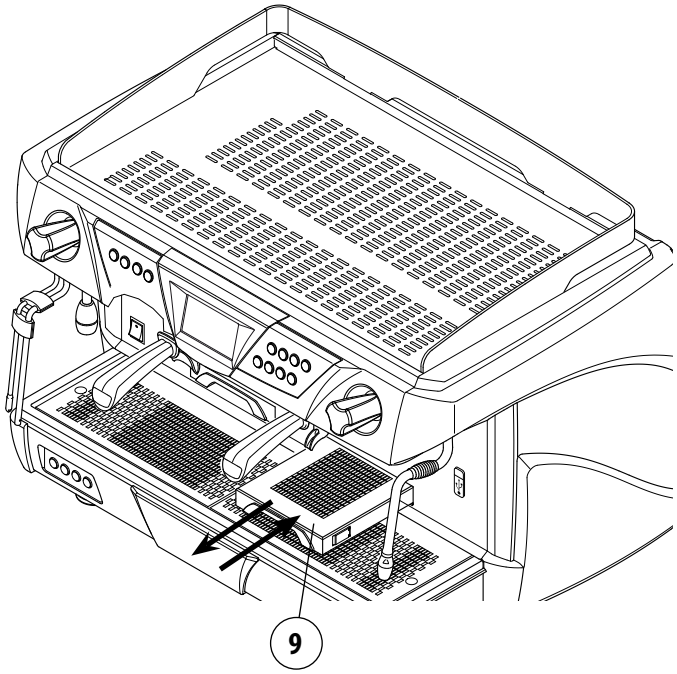
ON/OFF Dispensing compartment light

6.4 Cup raising grilles

When using cups of different heights, you can use the special concealed grilles **(9)** which the machine is equipped with.

To use the pull-out grille, extract it from its seat by pulling it outwards until it is fully blocked in position.

When finished using the grille, push it towards the machine until it disappears completely into its seat.



6.5 Cup heater

Place the cups to be heated on the appropriate cup heater **(1)**.

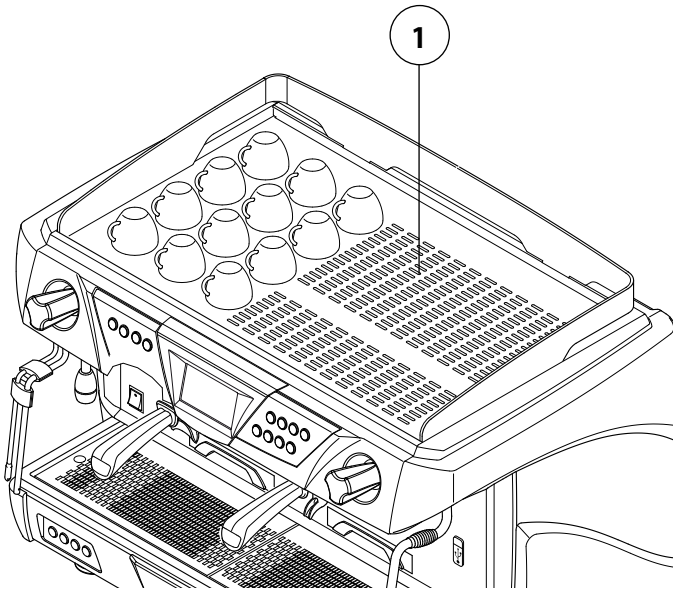
To activate the cup heater, press the button (♨).

The activation of the cup heater is signalled on the display in the following ways:

Cup heater on

Cup heater on and heating

To adjust the temperature of the cup heater, refer to the "Programming" section.



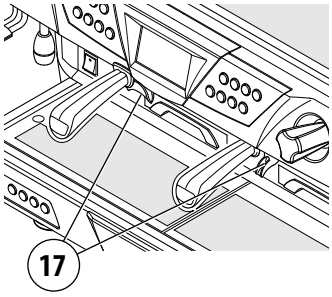
For safety reasons, it is advisable not to place cloths or other objects on the cup heater surface (1).

7 Preparation of beverages

7.1 Programming the coffee doses

To program the dose keys, proceed as follows:

- press and hold the "***PROG/STOP***" key down for 5 seconds: the "***PROG/STOP***" key will flash and all keys on the push-button panel being programmed will turn on;
- fill the filter with a dose of ground coffee and press it with the coffee press;
- attach the filter holder to the delivery group;
- place the coffee cup under the delivery spout **(17)**;
- press the desired dose key (e.g.: "*1 Espresso*");
- all the leds will turn off, except for the dose key being programmed, and the one on the "***PROG/STOP***" key;
- wait for dispensing; to confirm the dose press the dose key or the "***PROG/STOP***" key again;
- repeat this operation for the other dose buttons;
- upon completion of the programming, press the "***PROG/STOP***" key to exit dose programming.



After 30 seconds of idle time, the machine will exit from the dose programming mode.

The programming of each dose must be carried out with ground coffee and not with previously used grounds.

It is possible to program all machine push button panels simultaneously using only the right push button panel. To obtain different doses for the various groups, perform the programming starting with the left push button panel and then all the others.

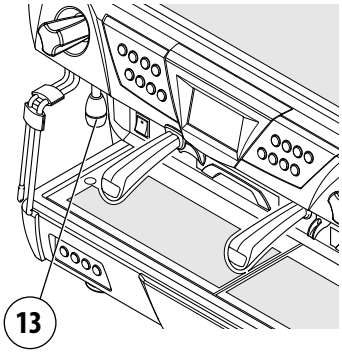
7.2 Preparation of coffee

- Fill the filter with a dose of ground coffee and press it with the coffee press;
- attach the filter holder to the delivery group;
- put the coffee cup under the dispensing spout;
- press the desired dose key (e.g.:"*1 Espresso*") and wait for coffee to be delivered (the LED of the selected key will go out).
- to stop delivery of coffee in advance, press the delivery key again or press the "***PROG/STOP***" key.

During the coffee brewing, do not remove the filter holder from the dispensing group.

7.3 Programming the hot water doses

To programme the hot water key, proceed as follows:



- place the cup under the hot water nozzle **(13)**;
- press and hold down the "***PROG/STOP***" key on the left push-button panel until all dose key LEDs are switched on;
- press the hot water button ;
- when the desired dose has been reached, confirm by pressing the hot water key again;
- upon completion of the programming, press the "***PROG/STOP***" *key*.

The tea key is present on each keypad of each group. These can be programmed individually and supply doses which are independent from one another.

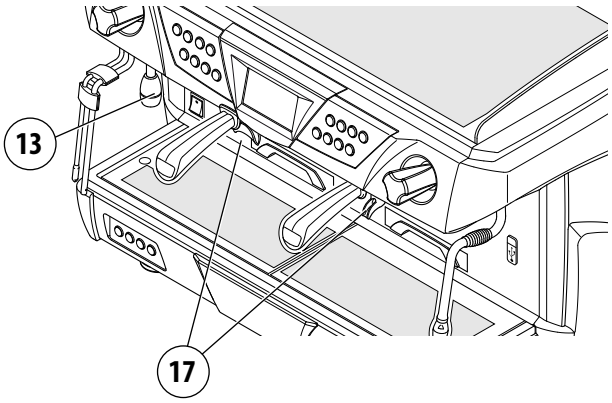
The 4GR version has 2 hot water nozzles. The 2 keypads on the left control the left hot water nozzle, while the 2 keypads on the right control the right hot water nozzle.

ENGLISH

7.4 Hot water delivery

- Place the cup under the hot water nozzle;
- press the hot water key , and wait for the delivery of water;
- To stop delivery in advance, press the hot water key again .

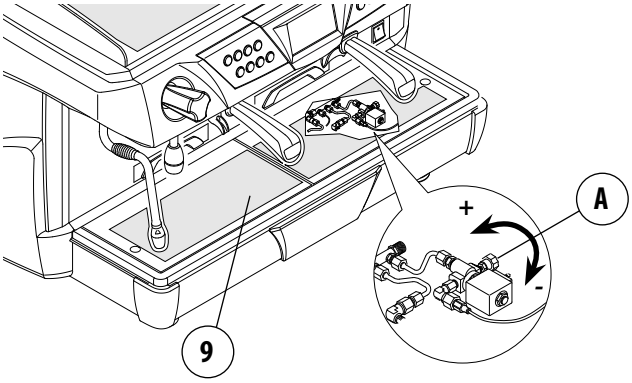
When the machine is cool (pressure below 0,6 bar) the delivery of hot water is not active.



7.5 Regulation of the hot water temperature

To change the temperature of the outlet hot water, proceed as follows:

- remove the grilles and the drain tub **(9)**;
- rotate the nozzle **(A)**:
  - to increase the temperature turn clockwise
  - to decrease the temperature turn counter-clockwise

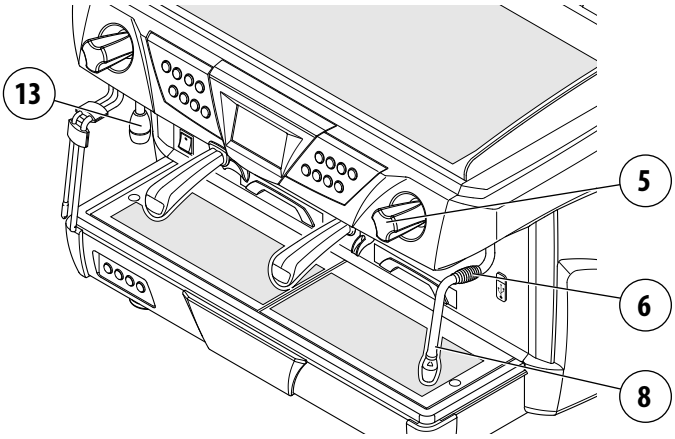


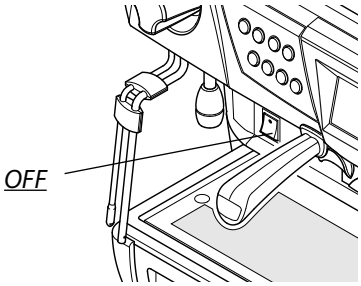
By completely turning the knob clockwise, only steam will come out of the hot water dispenser.

Do not touch the hot water nozzle: contact with the hot water may be harmful to people, animals or property.

7.6 Steam delivery

Immerge the steam nozzle into the beverage to be heated and turn the tap knob **(5)** counterclockwise: the steam coming out of the nozzle **(8)** will be proportional to the opening of the tap.





The use of the steam dispensing point (steam nozzle) must always be preceded by the performance of the condensation draining operation for at least 2 seconds.

Leave the steam nozzle immerged in the milk only for the time required for heating.
Do not open the steam tap with the steam spout immersed in milk while the machine is off.

Carefully operate the steam nozzle using the anti-burn rubber (6): contact with the steam may be harmful to people, animals or property.

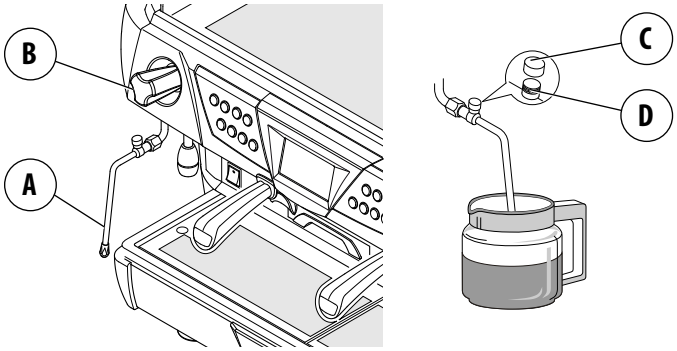
To keep the steam nozzle tips in perfect working order, it is advisable to carry out a brief dry delivery after each use. Keep the tips clean at all times using a cloth dampened in lukewarm water. Handle the nozzle with utmost caution due to the hazard resulting from the presence of high-temperature steam.

7.7 Milk foaming nozzle

The milk foaming nozzle lets you foam and heat milk.

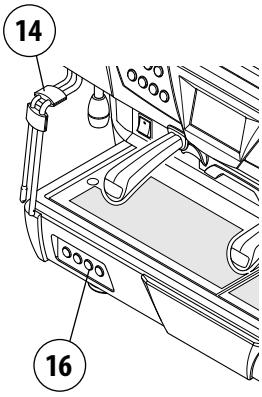
- Insert the nozzle **(A)** in the milk so that the sprayer is completely covered;
- turn the steam tap **(B)** counterclockwise;
- wait for the milk to heat and foam;
- upon reaching the desired temperature and foaming, turn the steam tap **(B)** clockwise.

To adjust the foaming of the milk: unscrew the cap **(C)** of the regulator and use a screwdriver on the screw **(D)**. To increase foaming, turn counterclockwise; to reduce foaming, turn clockwise.



! To keep the milk foaming nozzle in perfect working order, it is advisable to carry out a delivery dry run after each use. Keep the ends of the of the nozzle clean at all times by means of a cloth dampened in lukewarm water. Handle the nozzle with utmost caution due to the hazard resulting from the presence of high-temperature steam.

7.8 Autosteamer



The "Autosteamer" system can be used for automatically heating and foaming milk at the programmed temperature.

It can be controlled using the keypad **(16)** located on the left base of the machine.

There are 4 different selections available:

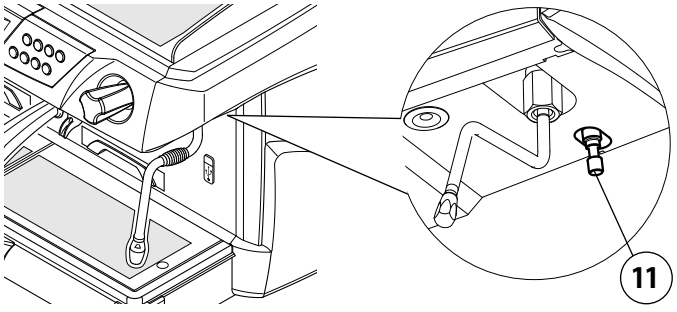
- Short autosteamer dose.
- Long autosteamer dose.
- Heating.
- Manual steam + foaming.

! Before using the steam to heat beverages or to foam milk, you should first let some steam off until all the condensation water is released.

7.8.1 Autosteamer operation

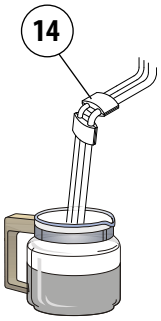
Proceed as follows:

- Immerge the tips of the autosteamer **(14)** into the beverage;
- press the or key, depending on the dose of milk in the jug;
- wait until the delivery is finished;
- when the delivery is finished, the milk will be foamed and heated at the preset temperature.
- To stop delivery in advance, press the same key again;
- to prolong steam delivery, hold down the selected dose key.
- for more or less foam, adjust the special regulator **(11)**. Turning it clockwise will decrease the consistency, while turning it counter-clockwise will increase it.



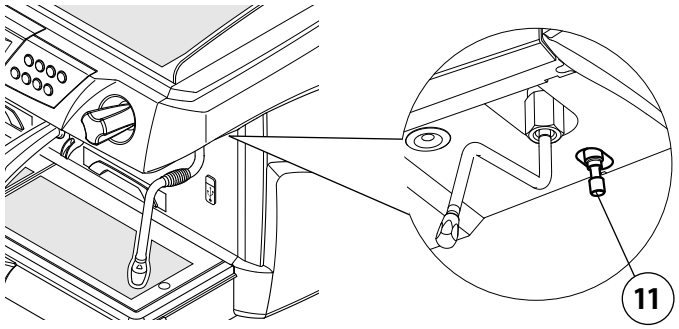
ENGLISH

7.8.2 Autosteamer operation



Proceed as follows:

- Immerge the tips of the autosteamer **(14)** into the beverage;
- press the or key, depending on the dose of milk in the jug;
- wait until the delivery is finished;
- when the delivery is finished, the milk will be foamed and heated at the preset temperature.
- To stop delivery in advance, press the same key again;
- to prolong steam delivery, hold down the selected dose key.
- for more or less foam, adjust the special regulator **(11)**. Turning it clockwise will decrease the consistency, while turning it counter-clockwise will increase it.



7.8.3 Heating function

Proceed as follows:

- Immerge the tips of the autosteamer **(14)** into the beverage;
- press the key;
- wait until the delivery is finished;
- once the delivery is finished, the milk will be heated at the programmed temperature, but not foamed.
- To stop delivery in advance, press the same key again;
- to prolong steam delivery, hold down the selected dose key.

7.8.4 Manual steam function

This control allows the user to use the autosteamer nozzle manually like a normal steam nozzle.

Proceed as follows:

- Immerge the tips of the autosteamer **(14)** into the beverage;
- press the key;
- To stop delivery, press the same key again.

7.8.5 Automatic autosteamer nozzle cleaning

After idling for 120 minutes the automatic cleaning of the nozzle starts, lasting 15 seconds.

The following message appears on the display: "STEAM CLEAN. CYCLE"

A minimum amount of steam will come out of the nozzle.

The system includes a time limit of a maximum of 4 minutes for autosteamer operation.

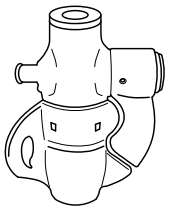
to change the temperature of the autosteamer, and enable or disable the functioning, refer to chapter "Programming".

To keep the steam dispensers in perfect working order, it is advisable to carry out a brief dry delivery after each use. Keep the tips of the auto steamer clean at all times using a cloth dampened in lukewarm water. Handle the autosteamer with utmost caution due to the hazard resulting from the presence of high-temperature steam.

7.9 Cappuccino

make sure that the cappuccino maker is in position **A**. Turn on the steam and adjust the air intake turning the screw **(3)** counter-clockwise until the milk starts to spray: this means there is an excess of air.

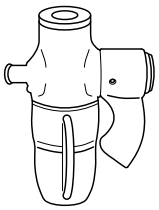
Slightly close the air intake by turning the screw clockwise. As soon as the milk stops spraying and the flow becomes steady, the cappuccino maker is properly adjusted for producing a soft, dense cream without macro-bubbles.



*Pos.**A***

The adjustments are maintained also for subsequent cappuccinos, always guaranteeing perfect cream.

This operation should be performed carefully because excessive air, which occurs when the milk sprays, does not allow you to get the best possible performance: the cream will have rather large bubbles in it, and there will be more, but it will be less dense!



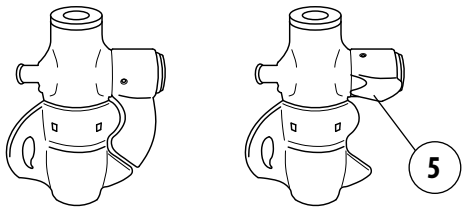
*Pos.**B***

A good cappuccino should be served with a dense, compact and silky cream, at a temperature between 60°C and 65°C.

7.9.1 Warm milk

Without modifying the air adjustment, lift the tab **(5)** upwards from position **A** .

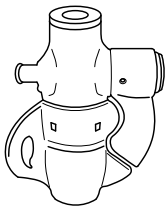
Turning on the steam on your machine will give you warm milk without foam.



7.9.2 Cleaning

The first time you use the cappuccino maker, it is important to clean it: turn the rotating body **(6)** by 90° and place the cappuccino maker in position B. Doing this closes the milk outlet conduit.

While holding the silicone hose **(10)**, turn on the steam of the machine: the steam will flow through all of internal cavities of the cappuccino maker. A small amount comes out of the air intake hole **(4)** and is discharged from the hose **(10)**, cleaning and sterilizing it. Thorough cleaning only takes about 15-20 seconds.

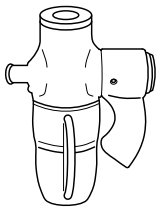


*Pos.**A***

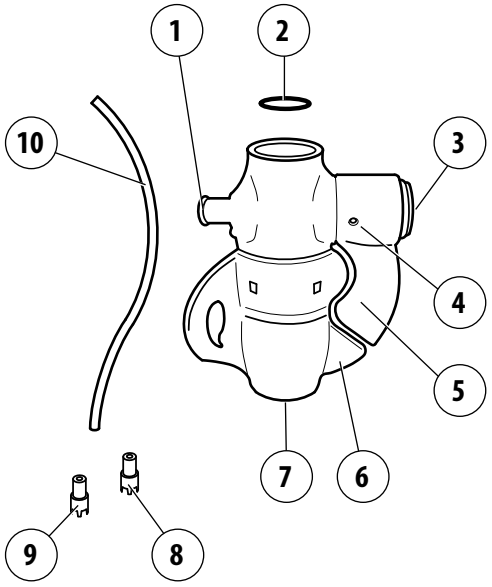
Turn off the steam and restore position **A** of the cappuccino maker.

It is a good idea to clean the machine after each use: you will prevent yellowing of the hose **(10)**and clogging of the cappuccino maker.

Make sure the hole **(4)** is clear: otherwise, clean it delicately with a pin.



*Pos.**B***



After opening the package the milk can be kept in the refrigerator for a maximum of 3-4 days.

8 Energy Saving

8.1 Description

A series of technical innovations allows a substantial reduction in energy consumption.

- reduction of heat loss through insulation of the boilers;
- distribution of power among the groups based on operation via electronic control;
- possibility to program reduced consumption or night-time shutdown of the machine;
- self-learning of daytime working routine
- possibility to program the operating temperature of the groups and boiler.

8.2 Energy savings programming

To achieve substantial energy savings, you can activate the Energy Saving function when the machine is not in use, for example at night.

In this phase the machine is not turned off, but is placed at a lower temperature (programmable).

To program the machine's energy saving function, refer to chapter "Programming".

8.3 Programming of group stand-by

The system lets you achieve further energy savings setting two or more periods, during the days of operation, when the functions of one or more delivery groups are reduced (stand-by).

The configuration of these periods can be carried out in two ways:

- manual programming: setting of stand-by start and end time of the delivery groups involved only in 2 periods;
- self-learning: the system, during the first week of work, carries out monitoring in the use of the machine and then automatically processes and sets the times and the groups involved in the stand-by (only if enabled as shown in chapter "Programming");

To program the stand-by of the groups, please refer to chapter "Programming".

9 Group washing

If provided for in the programming, the machine requests that the washing of the delivery groups be carried out, indicated by the special icon ( ).

To activate or deactivate the washing, see the chapter "Programming".

10 Suggestions on how to obtain a good cup of coffee

To obtain high-quality coffee, it is important for the hardness of the water used to not exceed 4-5 °f (French degrees). If the water hardness exceeds these values, it is advisable to use a water softener.

Avoid using a water softener if the water hardness is less than 4 °f.

If the taste of chlorine in the water is particularly strong, a special filter should be installed.

It is not advisable to keep large stores of coffee beans. Never grind large amounts of coffee. Use the amount the doser holds and if possible use it by the end of the day. Never purchase ground coffee as it expires quickly.

After the machine has not been used for a period of time (2-3 hours) make a few dry runs.

Be sure to carry out regular cleaning and maintenance.

If the type of coffee is changed, we recommended you to contact the Technical Support Service for the water temperature adjustment.

Adjust the grinding of the coffee according to the degree of humidity in the environment.

Section III - PROGRAMMING

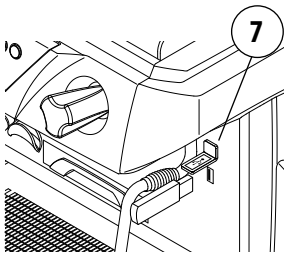
11 Programming

This paragraph deals with the programming menu that allows the user to program the various functions of the machine.

It also explains how to reset the machine by reloading the default manufacturer's data to the memory.

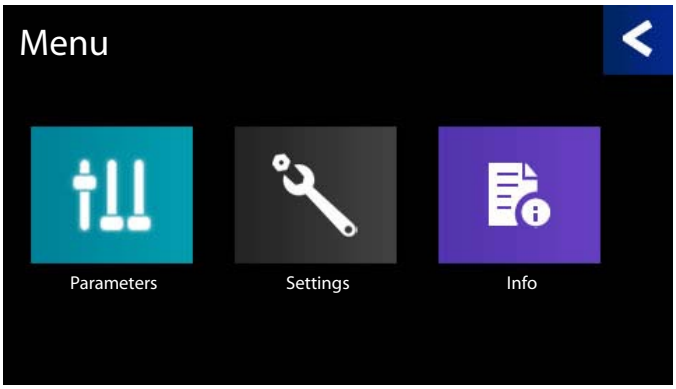
To access machine programming, proceed as follows:

- insert the USB drive in the program reader **(7)**, the browser key will light up:



- you can now access the programming menu.

Pressing the "Menu" button displays the main programming menu.

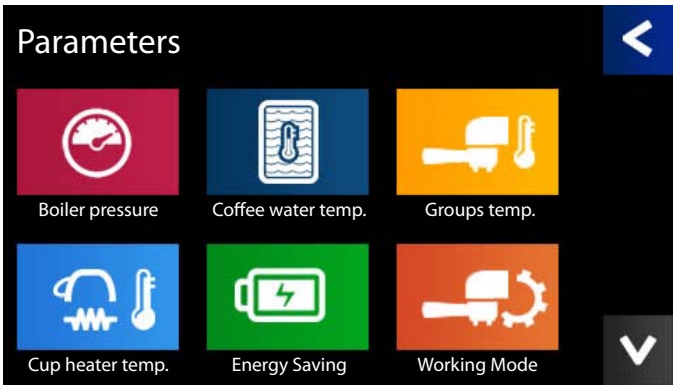


All the machine programming operations carried out using the touchscreen display.

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

12 Parameters Menu

From the main menu, pressing the "Parameters" button, gives access to the screens below.



page 1

page 2

page 3

12.1 Boiler pressure adjustment.

Boiler pressure

To modify the pressure in the services boiler (hot water/steam) proceed as follows:

- Pressing "Boiler pressure", displays the adjustment screen.

- Adjust the parameters via the slider close to the desired value, then use "-" and "+" for higher accuracy.

setpoint *Boiler pressure.*

The machine has a default pressure value of 1.2 Bar, which allows for optimal use of normal workload services. It is possible to increase or decrease this value, depending on the frequency of use of the hot water and steam services. The delivery of coffee is not influenced by this parameter.

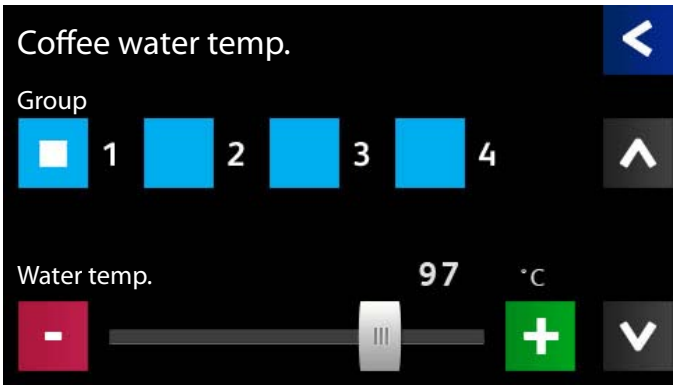
If the machine is provided with an "autosteamer" device, it is advisable to leave the pressure of the services boiler at 1.2 Bar (optimal value for the correct operation of the autosteamer). The delivery of coffee is not influenced by this parameter.

12.2 Adjustment of coffee water temperature.

Coffee water temp

To modify the outlet water temperature from the coffee delivery group proceed as follows:

- Pressing the "Coffee water temp.", displays the adjustment screen.



- Adjust the parameters via the slider close to the desired value, then use "-" and "+" for higher accuracy.

Group *Select the group of the boiler to be adjusted.*
Water temp. *Coffee water temperature.*

ENGLISH

12.3 Adjustment of the groups temperature

Groups temp

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

- Pressing "Groups temp.", displays the adjustment screen.
- Adjust the parameters via the slider close to the desired value, then use "-" and "+" for higher accuracy.

Group *Select the group to be operated.*
Temperature *Dispensing unit temperature.*

12.4 Adjusting the cup heater temperature

To modify the cup heater temperature, proceed as follows:

Cup heater temp

- Pressing "Cup heater", displays the adjustment screen.
- Adjust the parameters via the slider close to the desired value, then use "-" and "+" for higher accuracy.

If a temperature above 114°C is set, the indication "CUP HEATER ON" appears on the display and the cup heater's continuous operation is enabled.

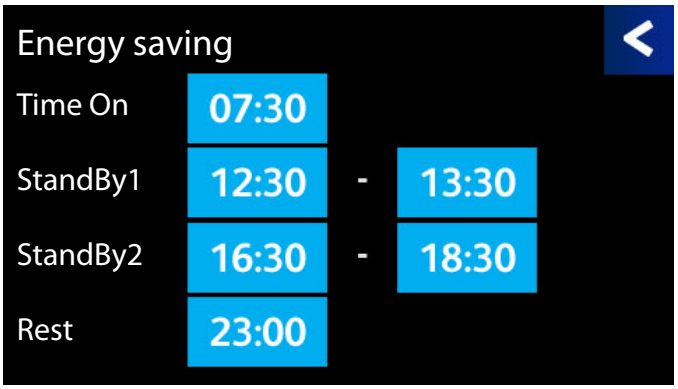
When setting a temperature below 70°C, the indication "--" appears on display and the cup heater is disabled. Deactivation of the cup heater by a technician does not allow the user to activate the cup heater with the ( ) button on the main screen.

12.5 Programming of Energy Saving time and groups stand-by

Energy Saving

To program the machine (Energy Saving) and groups (stand-by) start-up and operating times at reduced temperature, proceed as follows.

• Pressing "Energy Saving" displays the screen below.



Where:

Time On *controls the turn-on time of the machine.*
Stand By 1 *controls the first time frame of the machine in stand-by.*
Stand By 2 *controls the second time frame of the machine in stand-by.*
Rest *controls the turn-off time of the machine.*

You can change the time frames by pressing the required boxes and adjusting the hour and minute.

If you want to program the stand-by and/or inactivity time of the machine, set the hour to 00:00.

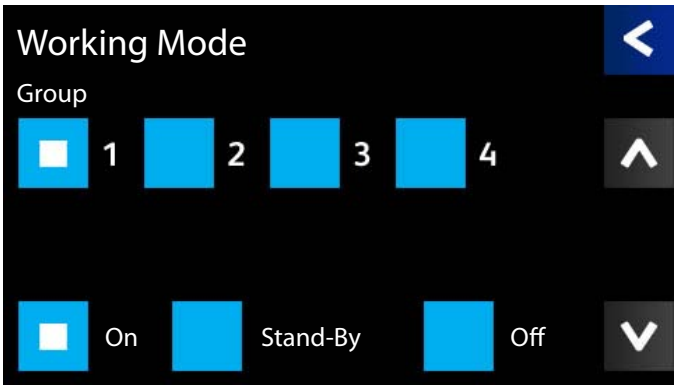
If the machine is in stand-by or idle, it will be reported on the main screen with the symbol or respectively.

12.6 Configuration of groups proper use

To configure proper use of the single delivery groups, proceed as follows:

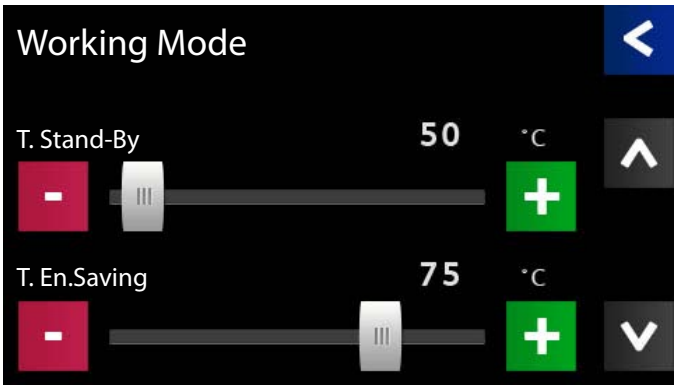
Working Mode

- Pressing "Working Mode" displays the screen below.



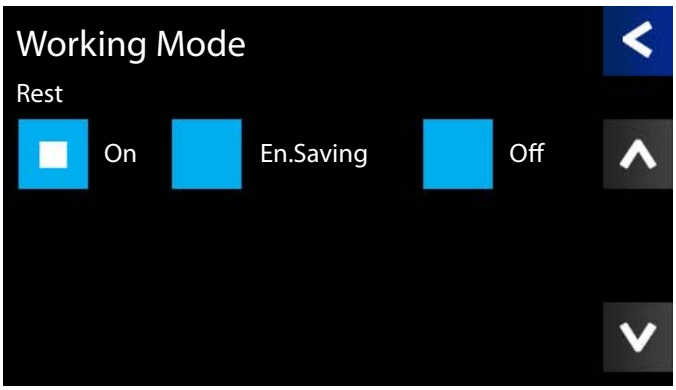
Set the mode of operation of the selected group.

Group	*Select the group to be operated.*
On	*Always active.*
Stand-By	*stand-by mode.*
Off	*Always disabled.*



Then go to the next screen to adjust the Stand-By and Energy Saving temperatures.

T. Stand-By	*temperature of the groups in the stand-by phase*
T. En.Saving	*temperature of the entire machine in the energy saving phase*



In the third screen, set the "Idle" mode of of the machine:

On	*machine always on.*
En.Saving	*set on Energy Saving.*
Off	*total shutdown.*

To program the single delivery groups stand-by time and the machine energy saving time, refer to previous paragraph.

12.7 Standby mode

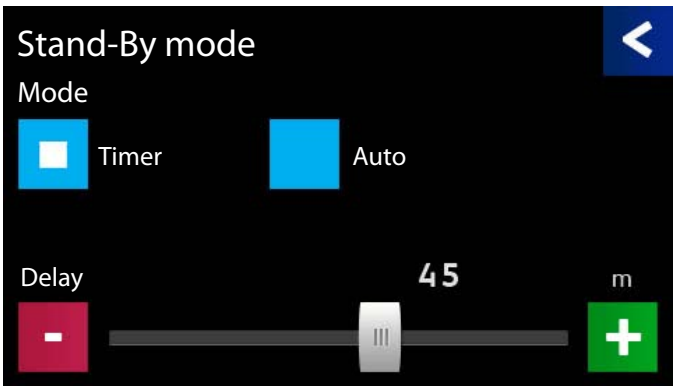
Standby mode

This option lets you use the daytime energy savings mode:

- Pressing "Standby mode", displays the adjustment screen.
- Select the desired mode.

Timer *Operation according to the programmed time periods.*

Auto *Self-learning of the machine: during the first week of operation, the system records all deliveries provided on each group at each hour. After a week of operation, the system places the preset groups in standby, (see previous chapter), referring to the minimum programmable number of servings/hour (automatic stand-by threshold).*



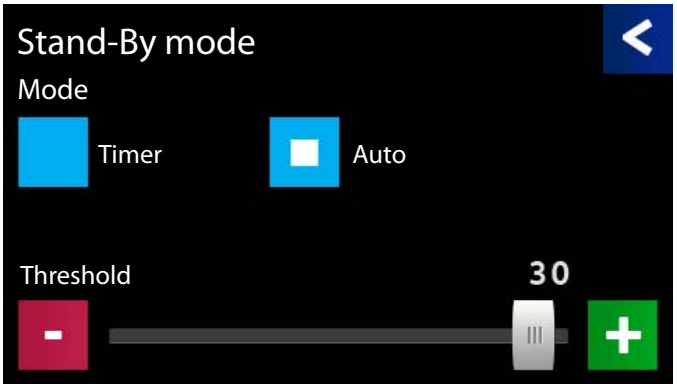
Depending on the mode, the display shows the option to be adjusted:

TIMER

When the group is in stand-by mode (***STOP/PROG*** LED flashes), if you press the ***STOP/PROG*** key for 3 seconds, you can reset the group to its ideal temperature (this takes about 2 minutes) and dispense doses.

If doses are not dispensed within the programmed time (Delay), the system will go back to stand-by.

To program the time, select "Timer" and set the desired "Delay" in minutes.



AUTO

With this mode you can set the number of dispensed beverages in one hour (Threshold); below that value the system places each delivery group in stand-by (little work).

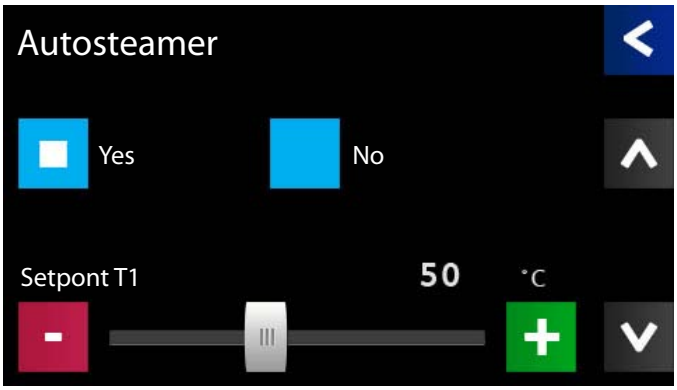
Select "Auto" and set the required "Threshold".

12.8 Autosteamer option

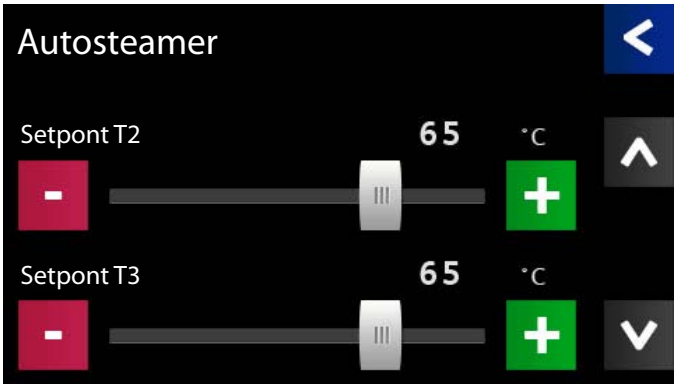
Autosteamer

To enable or disable the autosteamer and adjust its temperature, proceed as follows:

- Pressing "Autosteamer", displays the adjustment screen.
- Set the desired temperature.

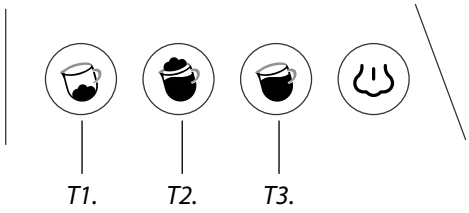


Enable or disable the autosteamer (if you select NO, the "Autosteamer" keyboard will be excluded).



If enabled, you can set the desired temperature (50 to 80 °C) for each button.

The 3 temperature values (T1,T2 e T3) can be programmed singularly and refer to the 3 functions on the autosteamer keyboard:

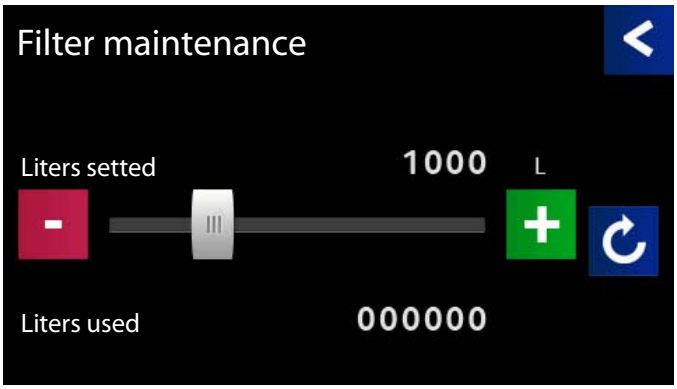


12.9 Softener regeneration

Filter maintenance

To automatically display the message indicating the need to regenerate the softener, proceed as follows:

- Pressing "Filters Maintenance", displays the adjustment screen.
- Set the number of litres used by the machine after which the message indicating the need for regeneration will be shown

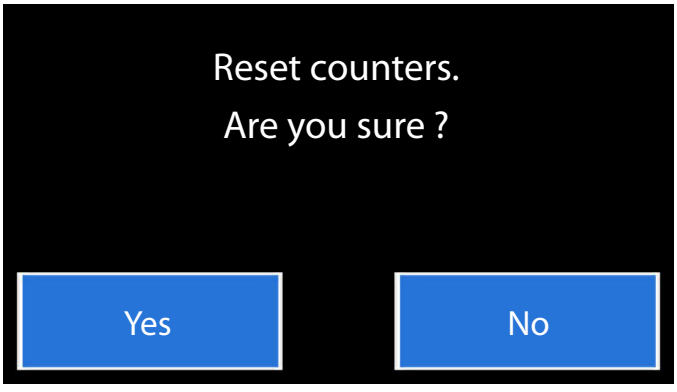


Liters set:
Amount of water in liters, to be consumed before the softener regeneration message appears.

Liters used:
Amount of water in liters used since the last reset.

After the regeneration, to eliminate the warning set the liters to "000000" as follows:

- press the reset key ( );
- in the next screen answer "Yes";
- the "Liters used" counter is reset to 0, and the "Filters Maintenance" message will disappear from the main screen.



12.10 Display of the counters

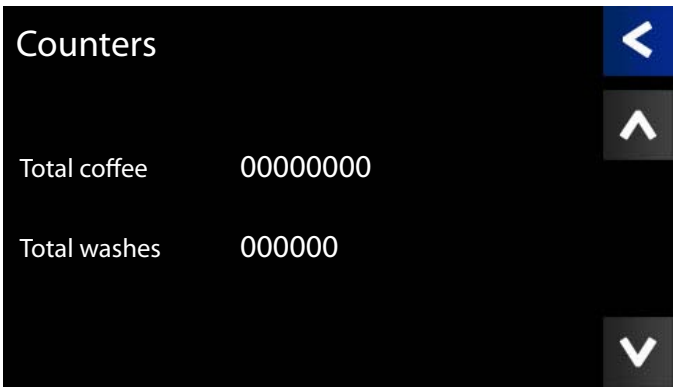
Counters

This option allows to view different information, useful to the technician for the proper identification of any anomalies.

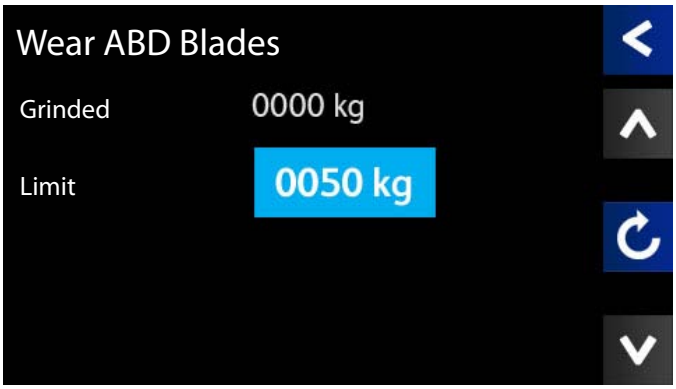
It also provides a valuable tool to the user in carrying out scheduled maintenance.

Below is a list of the screens within this menu with a brief description.

- Press "Counters"; after a short time the main screen appears.

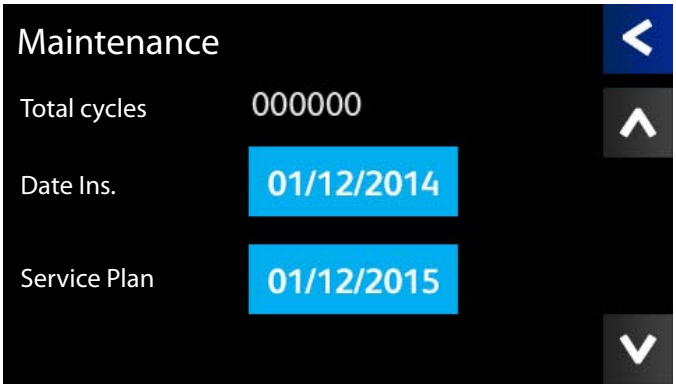


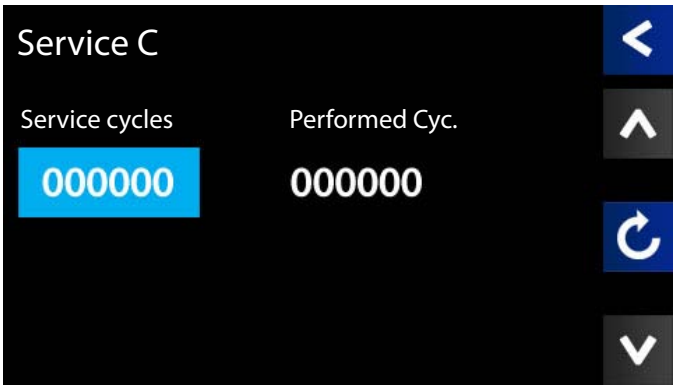
The first screen shows the number of total coffee selections and washes performed by the machine.



The second and third screen allow to control the wear of the grinders of grinder doser, and to act accordingly.

ENGLISH





The screens above allow to control the alerts for scheduled maintenance. For further information, refer to the "Scheduled maintenance" chapter.

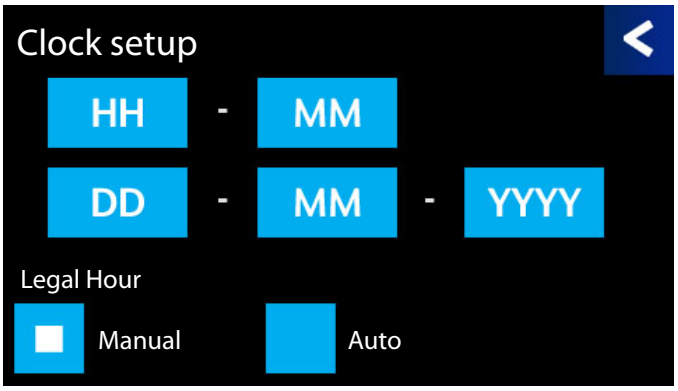
Finally, the last screen shows the last eight alarms stored by the machine. For further information, refer to the "Settings menu" chapter.

12.11 Setting the date

Clock setup

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

- Pressing "Clock setup", displays the date and time adjustment screen.



Press the desired option to adjust the time and date.

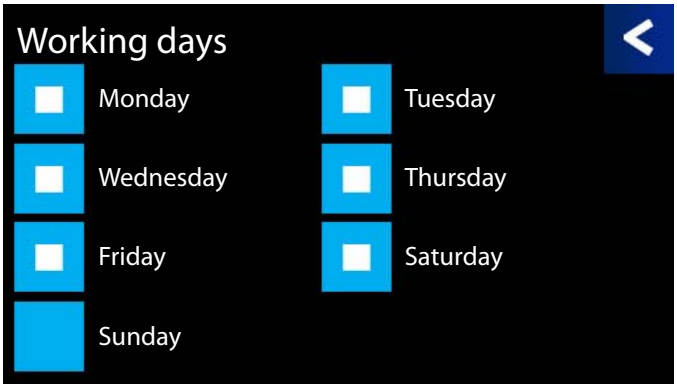
HH	hours
MM	minutes
DD	day
MM	month
YYYY	year

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.

12.12 Setting the working days


Working days

To program the start-up and shutdown of the machine, proceed as follows:
• Pressing "Working days" displays the screen below.



Example of machine off on Sunday.

The machine is off or in energy saving mode in correspondence of the disabled days of the week.

12.13 Setting the language

Language

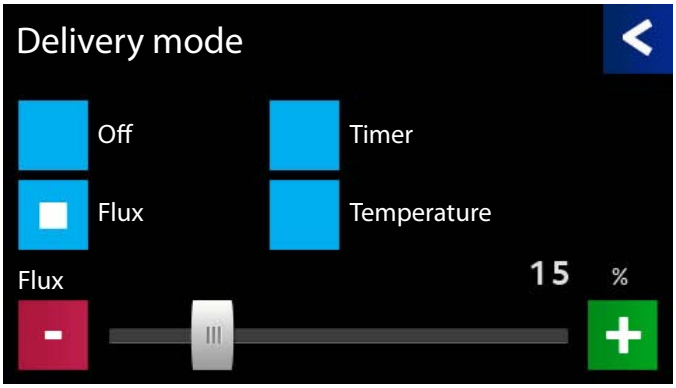
To set the displayed language, proceed as follows:
• Pressing "Language" displays the screen below.

Select the language to use

12.14 Dispensing check


Delivery mode

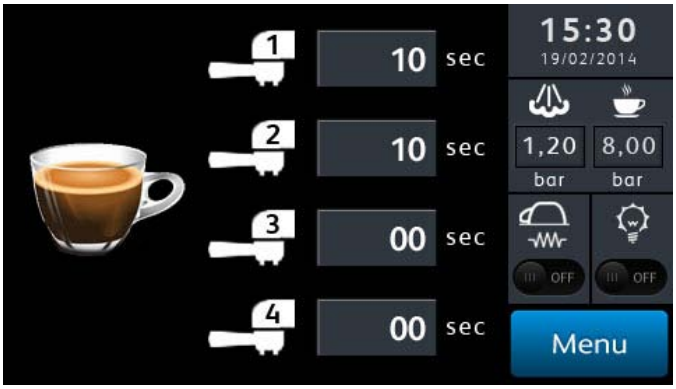
To set the type of delivery check, proceed as follows:
• Pressing "Delivery mode" displays the screen below.



Select the mode to be displayed on the screen during the dispensing of coffee:

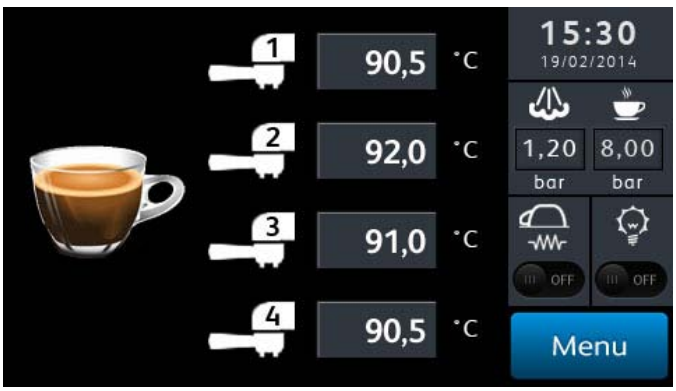
Off:

By setting "Off", the machine doesn't perform any check during dispensing time.



Timer:

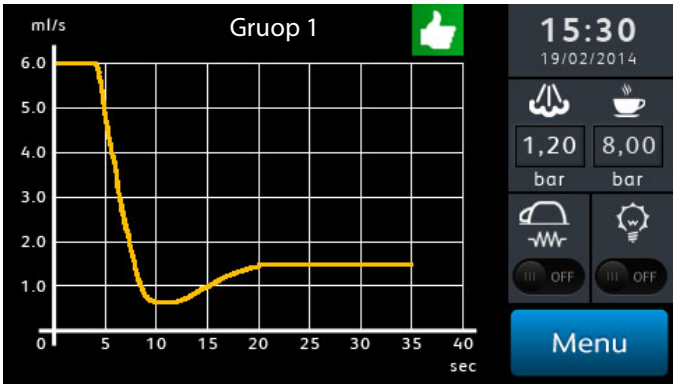
During the delivery, time scanning (10 seconds) is displayed for each group.



Temperature:

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

ENGLISH



Flux:

In the last programming of coffee doses, the system memorizes the flow speed of the water during delivery.

If "flux mode" is activated, the deliveries are controlled by the system and are considered valid when the speed of delivery is within the tolerance set. If the delivery speed is too fast or too slow, the system will display a message suggesting to increase or decrease the grind of the coffee (see table below).

The adjustment bar, allows to set the tolerance value (Range: 0 ÷ 50%).

LIGHT	DESCRIPTION
	Dispensing too slow.
	Dispensing within the tolerance parameters
	Dispensing too fast

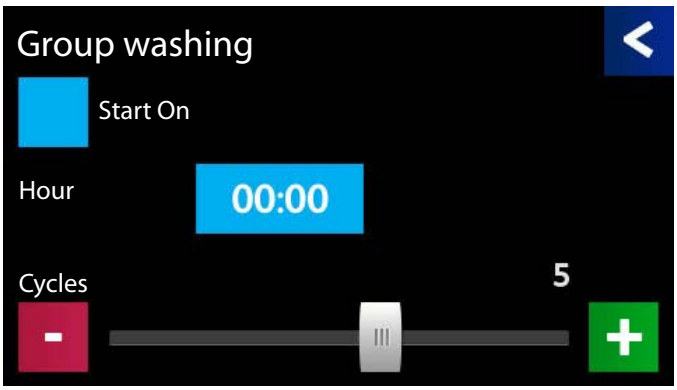
By setting the "FLUX" mode, the machine will only check the coffee dose keys. The "STOP/PROG" key, if used for delivery, will not be subject to flux verification.

12.15 Programming group washing

Group washing

To program the automatic notification of delivery group washing request proceed as follows:

• Pressing "Group washing" displays the screen below.



Start On:

Enable or disable the request for automatic washing of the groups at machine start-up.

Hour:

Sets the time at which the request is sent for washing groups.

Cycles:

This parameter controls the number of cycles of water supply during the washing.

On completion of the wash cycle set, the display will request the rinsing of the filter holder.

To perform cleaning operations, proceed as indicated in chapter "Group washing". When the machine is turned on, after the temperature raises to operating levels, if set to YES, the display shows the washing request. to disable the washing request, set time to 00:00.

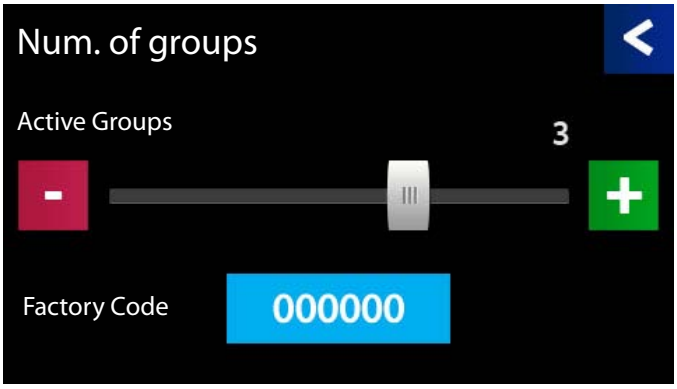
12.16 Setting the number of active groups

This item allows to set the number of active groups installed on the machine, as well as to set the serial number of the same.

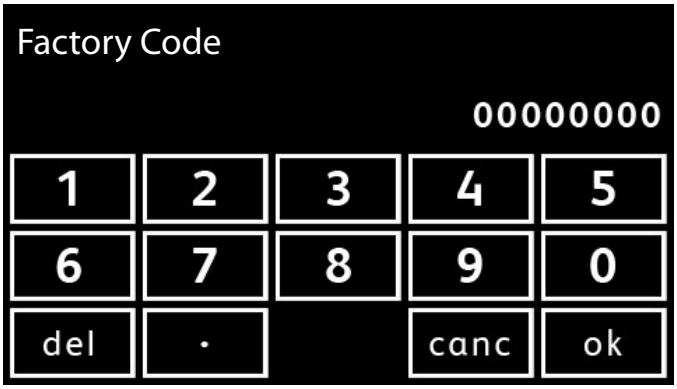

Num. of groups

Proceed as follows:

• Pressing "Num. of groups" displays the screen below.



Set the number of groups installed on the machine.



Pressing the serial number displays the screen to type the new number.

Type the serial number of the machine using the numbers of the touchscreen, if you type an incorrect value, you can use the (**del**) key to delete the last digit.

After typing in the number, press (**ok**) to confirm and return to the previous screen.

Pressing (**canc**), the system returns to the previous screen without making any changes.

Programming of the machine serial number is activated only for a technician. The serial number can be reprogrammed later.

12.17 Setting the number of active groups

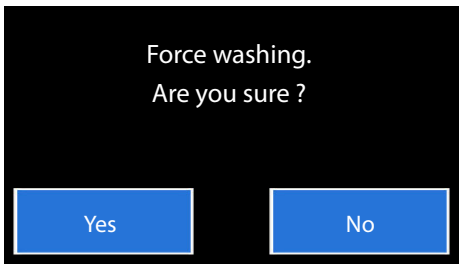
To activate the washing procedure, press "Force washing", then "Yes" on the next screen when asked for confirmation.

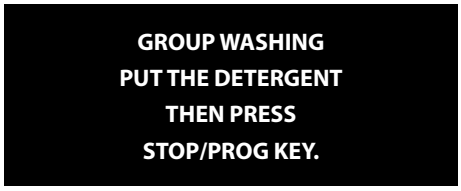

Force washing

Attention: during this phase, all the coffee selections are disabled until the washing has been completed.

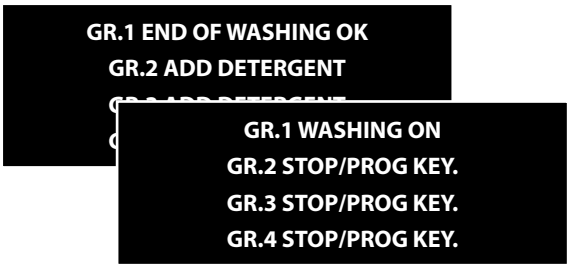
Follow the indications provided on the display:

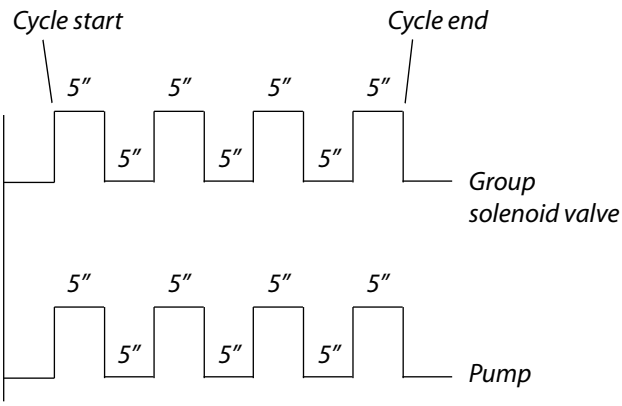
- Use the solid filter;
- insert the detergent tab into the filter;
- attach filter holder to delivery group 1;
- press the "***PROG/STOP***" key to start the washing phase;





the following messages appear on the display in alternating sequence:



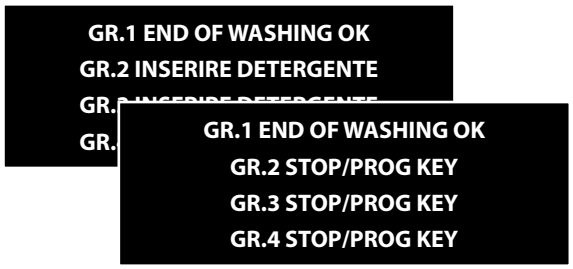


ENGLISH

- wait for the washing to be carried out until the following messages appear on the display:

- remove the filter holder from delivery group 1 and press the "***PROG/STOP***" key.
- wait for the rinse cycle to be carried out (this takes roughly 30 seconds), and the following messages will appear on the display:

- at the end of the rinse cycle, the following messages will appear on the display:



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

If you wish, you can force the washing, see chapter "Programming".

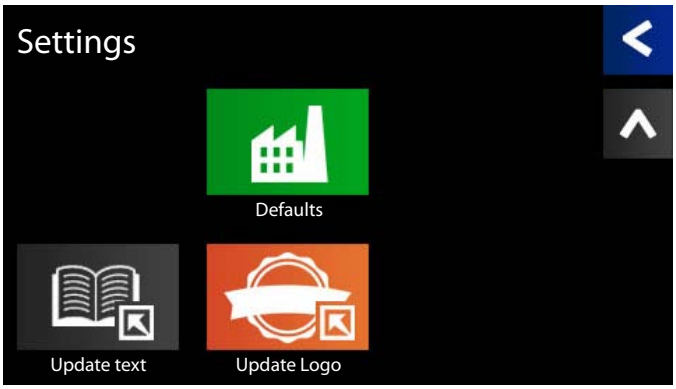
The washing operations can also be carried out simultaneously on several delivery groups. To exit the washing phase, the washing must be completed on all the groups.

To disable automatic display of the wash request or to modify the time of activation of the message, see the chapter "Programming".

13 Settings Menu

From the main menu, pressing the "Settings" button, gives access to the screens below.

page 1



page 2

13.1 Update firmware


Update firmware

This command allows you to upgrade the machine automation software, located in the electronic control unit

To update, press this command, then the machine will load the new version of the automation software, located on the USB stick; once finished, check the new version of the software installed.

13.2 Update resources


Update resources

This item is used to update the graphic resources that make up the menu of the display.

To update, press "Update Resources", then wait while the new graphics is being loaded.

13.3 Update TFT display


Update TFT Disp.

This item allows to update (via USB stick) the software that manages the touch screen display, located in the display tab.

To update, press this command, then the machine will load the new version of the display management software, located on the USB stick; once finished, check the new version of the software installed.

13.4 Save data


Save data

With the supplied USB stick, you can save all the machine settings (temperatures, pressures, energy saving, etc.).

press the "Save data" key and wait for the data to be completely saved;

13.5 Load data


Load data

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

• press the "Load data" key and wait for the data to be completely loaded;

- in the end, the machine is automatically set with the loaded data.

If there is no data in the USB stick, "Load data" will not appear in the Menu.

Do not remove the USB drive during data transfer.

13.6 Default


Default

Through this menu, you can restore the factory (default) settings of the machine.

Press "Default" to restore the data.

13.7 Update text


Update text

With this command you can update the text used in the menu, in the various languages used.

To update, press this command, then the machine will load the new menu texts.

Do not remove the USB drive during update. If the operation fails, it will be necessary to manually turn the machine off and back on, inserting the USB drive supplied by the manufacturer.

13.8 Update logo


Update logo

With this command, you can customize your logo and the screen saver on the display.

Once you press the button, the software will load the new logo prepared beforehand, which located is on the USB stick.

Below are the instructions for the preparation of the logo and the screen saver.

Preparation of the logo

For the installation of the new logo on the display of the machine, you must replace the file "custom.bin" located on the USB stick supplied, in the CUSTOM folder, with the new one containing the custom graphics.

To generate this file, a special tool is supplied, which can be installed on any PC compatible with Windows XP, 7 or 8.

Let's see how to proceed:

- If not already done so, install the build tool " Custom-Builder-Setup-v1-0-0-0.exe" on a PC;

ENGLISH

- Once installed, launch the software called "Custom-Builder"; the screen below will appear:

- click on "browse"  under the left screen to load the new logo, then click "browse" again under the right screen to load the screen saver;

- after loading both graphics, the button to export to file will appear  . Click on the button and save the file "custom.bin", in the CUSTOM folder on the USB stick.
- Then insert the USB stick into the machine and update the logo.

Once uploaded, the images will be resized. You should not use images that are too large.

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

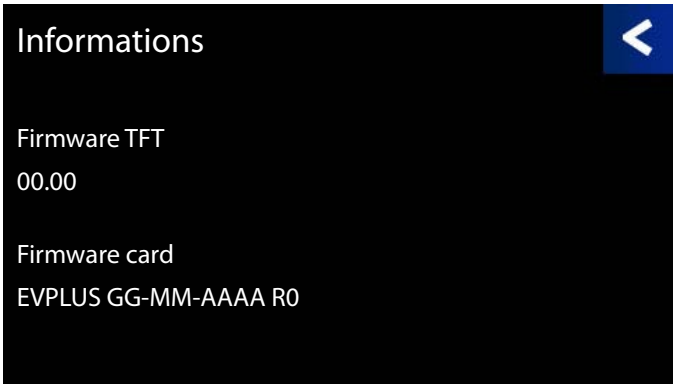
14 Info Menu

From the main menu, pressing the "Info" button, gives access to the screen below.

14.1 Information


Informazioni

Selecting this item displays useful information on current versions of the software installed on the machine.



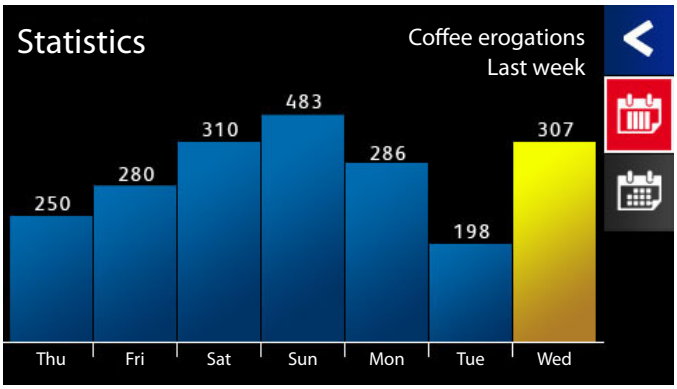
This is the information listed:

- TFT firmware: shows the firmware version of the installed display adapter;
- Firmware card: shows the motherboard firmware version identified by date and revision number.

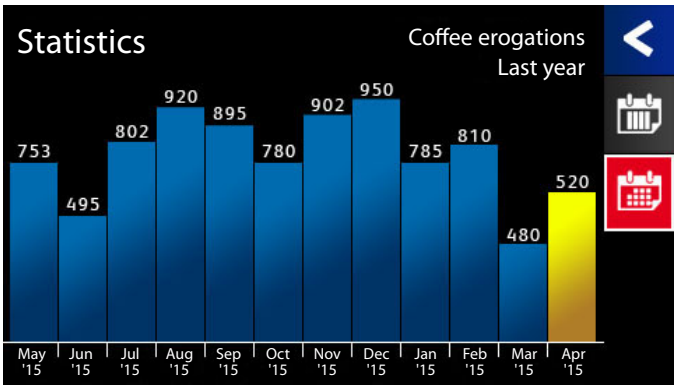
14.2 Statistics


Statistics

The "Statistics" menu provides an overview of the consumption of beverages over a given period.



By accessing this menu, the screen shows the vertical bar graph of the coffee deliveries trend in the past week.



Pressing ( ), changes the mode of display by month, and shows the last year of coffee deliveries divided by month.

To return to the weekly view, press ( ).

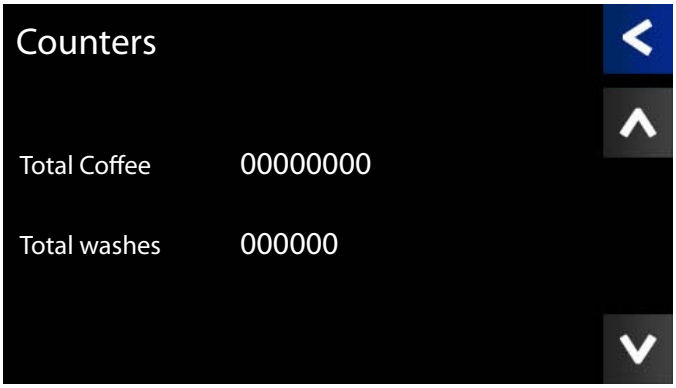
The yellow bar indicates the current day / month.

15 Scheduled maintenance

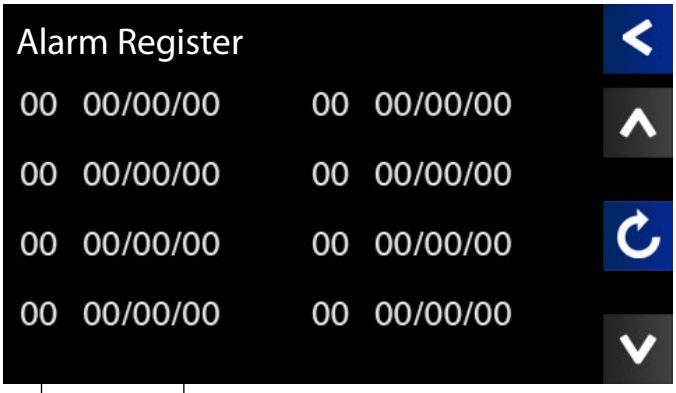
15.1 Alarm display


Counters

This function permits verification of the last 8 alarms detected by the machine
• Press "Counters"; after a short time the main screen appears.



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



Alarm code *Last event date*

The last shows the last eight alarms stored by the machine. The table below provides the correspondence of the alarm code with its description.

Alarms code table:

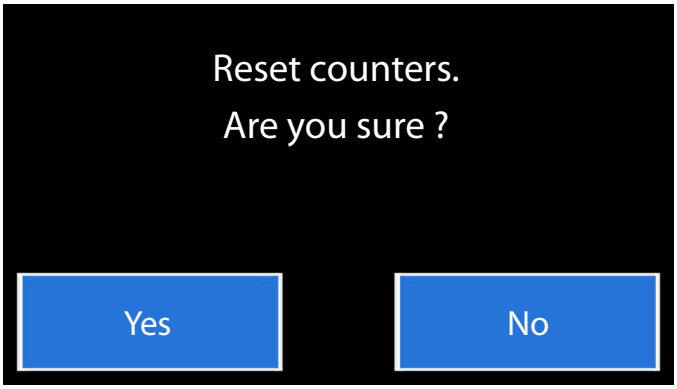
Code	Alarm description
1	Heat sensor group open on group 1
2	Heat sensor group open on group 2
3	Heat sensor group open on group 3
4	Heat sensor group open on group 4
5	Check heating circuit group on group 1
6	Check heating circuit group on group 2
7	Check heating circuit group on group 3
8	Check heating circuit group on group 4

ENGLISH

Code	Alarm description
9	Water heat sensor open on group 1
10	Water heat sensor open on group 2
11	Water heat sensor open on group 3
12	Water heat sensor open on group 4
13	Check water heat sensor on group 1
14	Check water heat sensor on group 2
15	Check water heat sensor on group 3
16	Check water heat sensor on group 4
17	Steam boiler sensor open
18	Steam boiler heat circuit
19	Cup heater: sensor disconnected
20	Cup heater: sensor short circuit or excessive temperature
21	Autosteamer: sensor disconnected
22	Cup heater: sensor short circuit or excessive temperature
23	Steam boiler heating timeout
24	Heating group timeout on group 1 - Machine start
25	Heating group timeout on group 2 - Machine start
26	Heating group timeout on group 3 - Machine start
27	Heating group timeout on group 4 - Machine start
28	Heating group out of service on group 1 - Machine running
29	Heating group out of service on group 2 - Machine running
30	Heating group out of service on group 3 - Machine running
31	Heating group out of service on group 4 - Machine running
32	Coffee water heater timeout on group 1 - Machine start
33	Coffee water heater timeout on group 2 - Machine start
34	Coffee water heater timeout on group 3 - Machine start
35	Coffee water heater timeout on group 4 - Machine start
36	Coffee water heating out of service on group 1 - Machine running
37	Coffee water heating out of service on group 2 - Machine running
38	Coffee water heating out of service on group 3 - Machine running
39	Coffee water heating out of service on group 4 - Machine running
40	Filling timeout. First coffee boiler/steam filling 255"
41	Filling timeout. Top off steam boiler level 90"(180"for coffee boiler)
42	Safety level Steam boiler
43	Coffee water pressure group 1. Coffee water pressure timeout at startup.
44	Coffee water pressure group 2. Coffee water pressure timeout at startup.
45	Coffee water pressure group 3. Coffee water pressure timeout at startup.
46	Coffee water pressure group 4. Coffee water pressure timeout at startup.
47	Coffee water pressure group 1. Coffee water pressure timeout at operating levels.
48	Coffee water pressure group 2. Coffee water pressure timeout at operating levels.
49	Coffee water pressure group 3. Coffee water pressure timeout at operating levels.
50	Coffee water pressure group 4. Coffee water pressure timeout at operating levels.
51	Volumetric dosing device 1
52	Volumetric dosing device 2
53	Volumetric dosing device 3
54	Volumetric dosing device 4
55	Water softener regeneration

To reset the video alerts, proceed as follows:

- press the reset key ( );
- in the next screen answer "Yes";
- all alerts will be reset.



The alarms display and reset functions are enabled ONLY for the technician.

15.2 Scheduled assistance

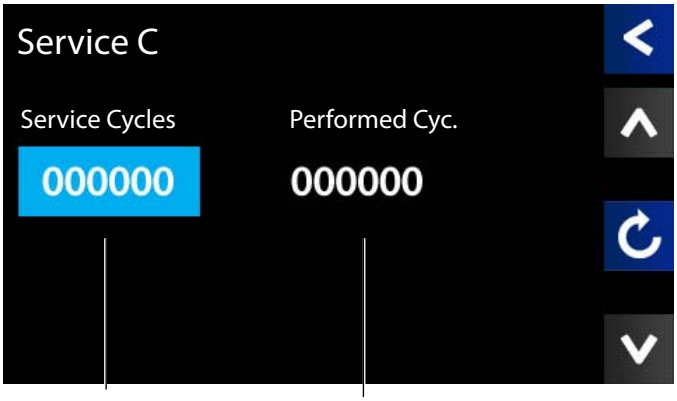
This function is related to the request for machine assistance and provides notification of when to proceed with ordinary scheduled maintenance.

The request for assistance appears when the number of coffee, tea, boiler filling cycles, or the number of days passed since installation of the machine, have reached a value equal to the cycle programmed by the technician.

- Press "Counters" (see previous chapter); after a short time the main screen appears.


Counters

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



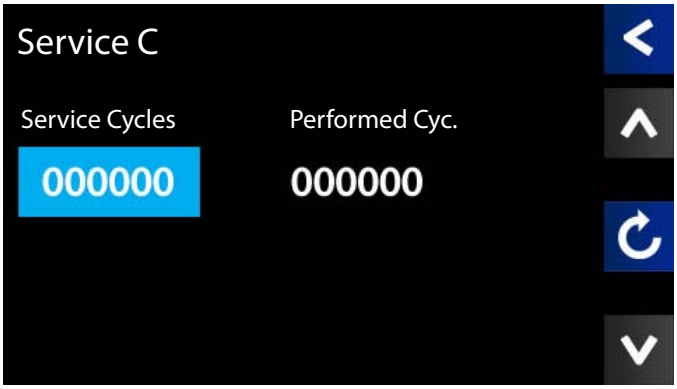
Required assistance threshold.

Number of cycles performed since last reset.

There are three thresholds (ABC) to request intervention, which can be programmed separately.

To modify the assistance thresholds, proceed as follows:

select the desired maintenance threshold, eg. C:



Press "Service Cycles" and select the threshold for the service cycles for which to require the maintenance service:

The system displays an alert when there are less than 1000 cycles to reach the programmed threshold.

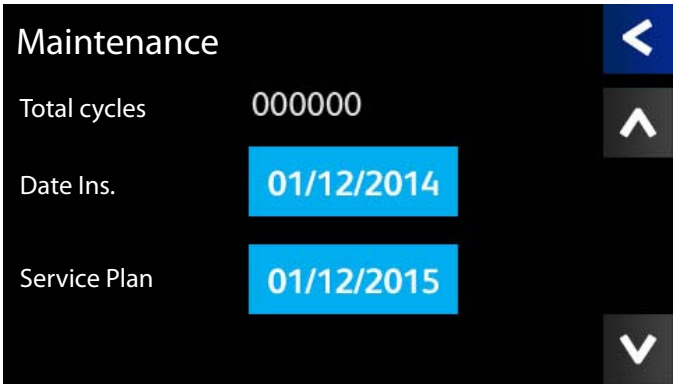
To reset the executed cycles counter proceed as follows:

- press the reset key ( );
- in the next screen answer "Yes";
- performed cycles count will restart from 0.

Setting a value of 000000 the scheduled assistance service s excluded.

To display and modify the timed assistance thresholds, proceed as follows:

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



Total cycles	Total number of selections made on the machine.
Instasll. date	Machine installation date or date of activation of timed service.
Service Plan	Scheduled date of required assistance.

- Set a request date for scheduled maintenance (Service Plan);
- The system begins to notify the user 15 days before the scheduled date.

The scheduled assistance setting and resetting of cycle counters are reserved for a technician.

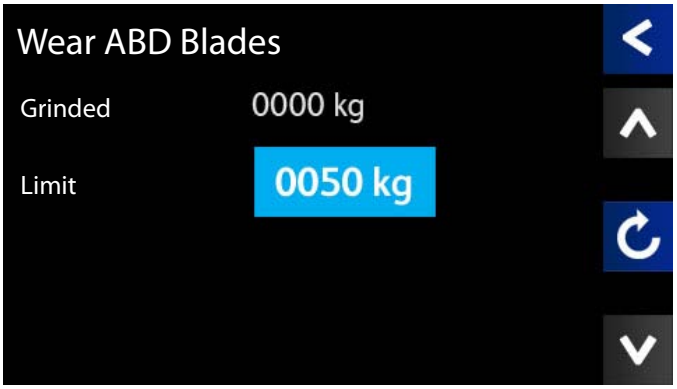
15.3 Grinders wear alert programming

With this function, the machine displays an alert relative to grinders wear and replacement, according to the kg of coffee used.

- Press "Counters" (see previous chapter); after a short time the main screen appears.

Counters

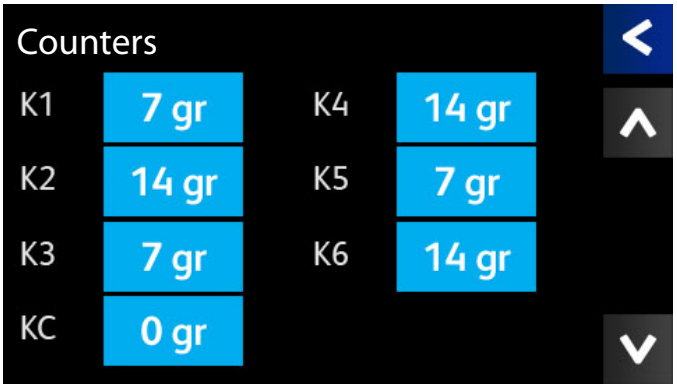
- Scroll through the screens with the arrows (▲) or (▼), until you see the screen below:



Grinded	Total weight in kg of coffee used since the last reset.
Limit	Threshold to be reached in kg of coffee, for signaling grinders wear.

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

By setting the threshold for "GRINDERS WEAR" to 0, the system will not display any alerts.



After setting the threshold limit of coffee in kg, you must set each beverage button and give them the correct weight of ground coffee used.

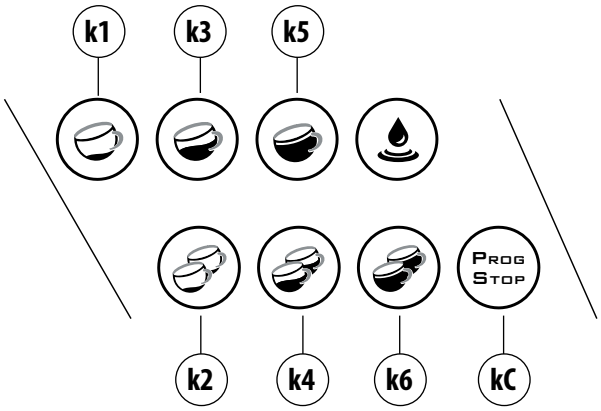
Press (▲) and move to the screen below.

Select the dose key "K1", and in the next screen, enter the amount in grams of ground coffee for the dose in programming.

Repeat the previous step up to the setting of all the dose keys.

The available range is: 0 ÷ 22 g.

After this operation, the counter will be incremented by the dose set for each drink with every dispensing of coffee during use.



Key correspondence - displayed value.

Example of setting:

k1	g.07	(Single espresso)	k4	g.14	(Medium double)
k2	g.14	(Double espresso)	k5	g.07	(Single long)
k3	g.07	(Medium single)	k6	g.14	(Double long)
kC	g.07	(Continuous)			

Upon reaching the amount of kilograms set as the threshold, the system will display a message, reminding the user to perform the replacement of the grinders of the coffee grinder.

Reset

To reset the executed cycles counter proceed as follows:

- move to the "Grinders Wear" screen;
- press the reset key ( );
- in the next screen answer "Yes";
- the ground coffee kg count will restart from 0.

The system only works if the machine is paired with only one grinder.

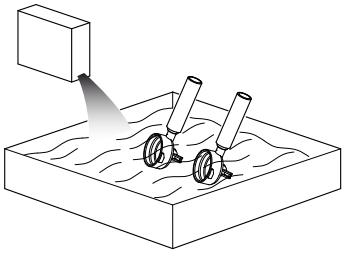
Setting one or more dose keys to 0, the count for those keys will not be performed.

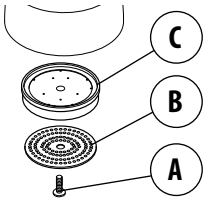
Section IV - CHECKS AND MAINTENANCE

16 Cleaning

For perfect cleaning and efficiency of the appliance, several simple cleaning operations are necessary on the functional parts and accessories as well as the body panels. The indications given here are applicable for normal use of the coffee machine. If the machine is used continuously, then cleaning should be performed more frequently.

Before cleaning the machine, turn it off the machine and let it cool off.

Cleaning	Daily	Weekly	Monthly
CAPP. MAKER Clean several times a day as indicated in the chapter Cappuccino", especially if used continuously.	**XXX**		
FILTERS and FILTER HOLDERS Clean the filter holders daily leaving them to soak in hot water overnight so that the fatty coffee deposits can dissolve and then rinse under running water. Weekly perform the same washing for 10 minutes in warm water and cleaning agent. Failure to clean the filter holders will compromise the quality of the coffee and the filterholder correct operation. **Caution: only immerse the filter holder cup. Do not immerse the handle.** 	**X**		

Cleaning	Daily	Weekly	Monthly
CUP TRAYS Extract the grids from the housing; Clean with a cloth dampened in lukewarm water. Reinsert the grids in their housing.	**X**		
BODY Clean the panels of the body with a cloth dampened in lukewarm water. Do not use abrasive detergents which may scratch the surface of the body. Remove the drip tray and cup holder grill and wash with hot water. During the cleaning operations pay attention to the edges and protruding parts.	**X**		
STEAM NOZZLE - MILK FOAMER - AUTOSTEAMER Keep the nozzle clean at all times using a cloth dampened in lukewarm water.	**X**		
DISPENSING UNIT Carry out the washing of the groups as indicated in Chapter "Group washing" and follow the instructions below: • use the blind portafilter; • pour the detergent on the solid filter and attach the filter holder; • Carry out a series of deliveries until the water comes out clean; • remove the filter holder from the unit and carry out at least one delivery so as to eliminate any detergent residues.	**X**		
PERFORATED DISK and CONTAINMENT RING Loosen the screw (**A**) and remove the perforated disk (**B**) and containment ring (**C**) from the delivery group. Wash with hot water. 		**X**	

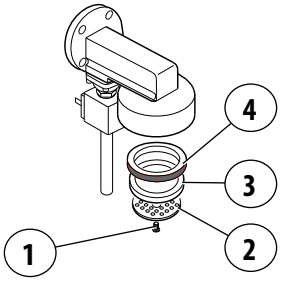
Cleaning	Daily	Weekly	Monthly
GRINDER-DOSER Clean the inside and outside of the receptacle and doser of the grinder-doser with a cloth dampened in lukewarm water.		X	
STEAM NOZZLE - MILK FOAMER - AUTOSTEAMER Check and clean the terminals of the steam nozzles, using a small needle to reopen the exit holes. At least once a week, clean the spouts on the inside: • immerse the spout in a jug with water and a specific detergent according to manufacturer's instructions; • heat the solution with the steam of the spout; • let the spout cool off keeping it immersed in the solution for at least 5 minutes to allow the detergent to rise inside the spout by cooling effect; • repeat the operation 2 or 3 times until milk is delivered.			X

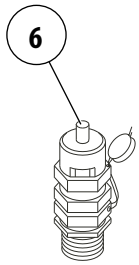
- **When cleaning, always use cloths that are completely clean and hygienic.**
- **To guarantee the correct operation and hygiene of the machine, it is necessary to use cleaning methods and products suitable for the purpose.**
- **Do not immerse the machine into water.**
- **Never use alkaline detergents, solvents, alcohol or aggressive substances.**
- **The descaling of the machine has to be performed by specialized technicians, by disassembling the components with deposits, so that no descaling debris is put into circulation.**
- **The used products/detergents have to be suitable for this purpose and must not corrode the materials of the hydraulic circuits.**
- **Cleaning operations must not be carried out by children without supervision.**
- **Do not spill liquids on the machine or use water jets.**

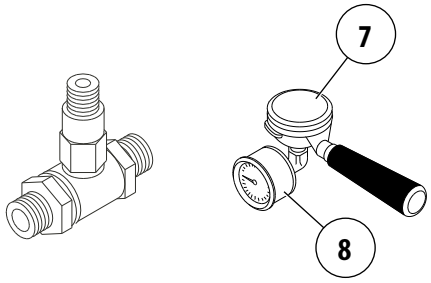
17 Checks and maintenance

17.1 Check and maintenance operations

To ensure perfect safety and efficiency of the machine over time, it is necessary to carry out routine, preventive and special maintenance. In particular, **it is advisable to carry out an overall check of the machine at least once a year.**

Intervention	Weekly	Monthly	Yearly
MACHINE Carry out the cleaning as described in the previous chapter.	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.		X	
MACHINE Every four months replace the perforated disk (2) and the undercup seal (4) of the delivery group (use only original spare parts) proceeding as follows: **1.** loosen the screw (1); **2.** remove the containment ring(3); **3.** replace the group perforated disk (2) and the rubber undercup seal (4); **4.** reassemble the components 		X	

Intervention	Weekly	Monthly	Yearly
VALVES Check for proper operation of the negative pressure valve, pressure limiting valve and non-return drain valve. If, owing to failure, their replacement becomes necessary, repeat the test with the new valve installed.			X
NEGATIVE PRESSURE VALVE 1) first try : • remove the top grill of the machine; • use pliers to push the pin (5) downwards; • if the pin does not move, it probably means the valve is encrusted with limestone and must be replaced. 2) second try : • turn the machine off; • open the steam valves and drain off all the pressure from inside the boiler; • turn the machine back on and check for regular closure of the valve. 			X
SAFETY OR PRESSURE RELIEF VALVE 1) first try : • remove the top grill of the machine; • use pliers to pull the pin (6) upwards; • if the pin does not move, it probably means the valve is encrusted with limestone and must be replaced. 2) second try : • turn the machine off; • block the pressure switch contacts; • turn the machine back on and check for pressure in the boiler to rise. • check for correct intervention of the valve at a maximum pressure of 2 bar. 			X

Intervention	Weekly	Monthly	Yearly
NON-RETURN DRAIN VALVE • Activate the delivery groups for about 30 seconds; • attach a filter holder (7) with a gauge (available on request) to the delivery group; • activate the delivery group, and use the pressure gauge (8) to monitor the pressure as it increases up to 8-9 bar; • check the increase in the pressure due to the expansion of the heated water up to a value of approximately 12 bar: reaching this value confirms proper operation of the valve, as well as of the gaskets and solenoid valves seal; • deactivate the deliveries; • check the other delivery groups. 			X
GRINDER-DOSER check the ground coffee dose (between 6 and 7 grams for each time); check the degree of grinding. The grinders must always have sharp cutting edges. Their deterioration is indicated by the presence of too much powder in the grounds. You should replace the flat grinders after every 400/500 kg of coffee. For conical grinders, replace every 800/900 kg.		X	
SOFTENER The build-up of lime scale deposits in the hydraulic circuit of the machine indicates that regeneration has been neglected. Carry out maintenance of the boiler and of the hydraulic circuit, replacing any components as required. Use care in areas where the water is very hard. It will be necessary to regenerate at more frequent intervals, likewise if there is high consumption of hot water for tea and so forth		X	

Intervention	Weekly	Monthly	Yearly
HYDRAULIC CIRCUIT Check for lime scale deposits on the heating element, on the exchanger (inside and out) and on the hydraulic circuit. When replacing any components, always replace the relative gasket as well.			X
DISPENSING UNIT Check the condition of the solenoid valve of the delivery group.			X
DRAIN Check for trace water leaks on the counter. Also check the condition of the discharge tub and its connection to the sewer system.			X

! **All maintenance operations must be carried out after disconnecting the power supply, water supply, and after the complete cooling of the machine.**
We recommend the use of appropriate protective gloves.

! **After maintenance and/or repair intervention, the components used must ensure that the hygiene and safety requirements initially provided for the appliance are still met. These are met by using original spare parts only. After repair or replacement of components related to parts in direct contact with water and food, a washing procedure has to be carried out, as in the case of first installation.**

17.2 Scheduled assistance

This function is related to the request for machine assistance and provides notification of when to proceed with ordinary scheduled maintenance.

The request for assistance appears when the number of coffee, tea, boiler filling cycles, or the number of days passed since installation of the machine, have reached a value equal to the cycle programmed by the technician.

All alerts appear on the top of the touchscreen display.

The alarms for reached/exceeded thresholds do not prevent the machine from functioning.

The alarms can be reset at any time (also before the alarm is engaged) by a technician following the procedure described in chapter "Scheduled maintenance".

Functioning:

When the machine is functioning normally, the system increases both the machine cycle counter and the time since installation counter.

When the number of executed cycles is less than **1000 cycles** in respect to the programmed threshold "**A**", the alarm message in the following example appears.

If no maintenance operation is executed, the message indicated above remains until the subsequent threshold **"B**" alarm is reached:

Once threshold "**B**" has been reached, the alarm message changes to the following:

If no maintenance operation is executed, the message indicated above remains until the subsequent threshold "**C**" alarm is reached:

The system also displays the installation date of the machine (or the date of the last intervention) with the date for required maintenance.

Two weeks prior to reaching the programmed threshold, the following message appears on the display:

The A - B - C meters are independent from one another and are therefore reset independently.

To reset the alarms, refer to the "Scheduled maintenance" chapter.

To program the alarms, refer to the "Scheduled maintenance" chapter.

17.3 Grinders wear alert

If enabled, this function displays a message to alert the user when it is necessary to replace the grinders of the coffee grinder.

When the quantity in kilograms of coffee used reaches the threshold limit, the following warning is displayed:

The alarm for reached/exceeded thresholds do not prevent the machine from functioning.

The count can be reset at any time (also before the alarm is engaged) by a technician following the procedure described in chapter "Scheduled maintenance".

For the programming, refer to the same chapter.

The system only works if the machine is paired with only one grinder.

18 Malfunctions and related solutions

MALFUNCTION	CAUSE	SOLUTION
MACHINE LACKING POWER	• The general switch is in the "OFF" position. • The machine switch is defective • The mains power supply switch is in the OFF position. • The wiring is defective	• Place the main switch in the "ON" position. • Replace the main switch. • Place the main switch in the ON position. • Check for any faulty connections.
NO WATER IN BOILER	• The water supply tap is closed. • The cut-off tap of the automatic level device is in the closed position. • The pump filter is clogged. • The motor pump is disconnected or jammed. • The water filling solenoid valve is defective. • The water inlet solenoid valve filter is clogged.	• Open the water supply tap. • Open the automatic level device tap. • Substitute the pump filter. • Check the motor pump. • Replace the water filling solenoid valve. • Clean or replace the filter of the solenoid valve.
TOO MUCH WATER IN THE BOILER	• The solenoid valve of the automatic level device is defective • The level probe is out of order (clogged by lime scale)	• Replace the solenoid valve of the automatic level device. • Replace the level probe.
STEAM DOES NOT COME OUT OF NOZZLES	• The machine is off. • The electrical heating element is faulty. • The temperature probe is faulty. • The nozzle sprayer is clogged. • Fuse F7 is burned out.	• Turn on the machine. • Replace the boiler's electrical heating element. • Replace the temperature probe. • Clean the steam nozzle sprayer. • Replace fuse F7.
STEAM MIXED WITH WATER COMES OUT OF THE NOZZLES	• The boiler level is too high.	• Check the status of the level probe: check if it is positioned correctly and check for any surface lime scale.
NO DELIVERY	• No water supply. • The group solenoid valve is faulty. • The pump is jammed. • The control unit fuse F1 is burned out. • The injector is clogged. • The group solenoid valve is clogged or dirty. • The group filter is clogged. • The volumetric dosing device is blocked. • The inlet and outlet taps of the dispenser are closed.	• Check that there is water in the mains. • Replace the group solenoid valve. • Replace the pump. • Replace fuse F1. • Clean or replace the injector. • Clean or replace the solenoid valve. • Clean or replace the filter. • Check/replace the dosing device. • Open the taps.
WATER LEAKS FROM THE APPLIANCE	• The pad does not drain. • The drain pipe is broken or detached or the water flow is obstructed. • Hydraulic leaks in the hydraulic circuit.	• Check the sewer drain. • Check and restore the connection of the drain pipe to the pad. • Identify and eliminate any hydraulic leaks.
COFFEE IS TOO COLD	• The electrical heating element of the coffee boiler is faulty. • The wiring is faulty. • Lime scale on the heating element. • The heating element protection thermostat intervened. • Machine switch in "OFF" position. • The control unit fuses F2-F3-F5-F6 are burned out. • The safety thermostat of the boiler or group is disabled.	• Replace the boiler's electrical heating element. • Check for any faulty connections. • Clean the machine. • Reset the heating element protection. • Place the main switch in the "ON" position. • Replace the interrupted fuses. • Reset the safety thermostat of the boiler or of the group.
COFFEE IS TOO HOT	• The set temperature for the coffee water is too high. • The set temperature of the group is too high.	• Reduce the set coffee water temperature. • Reduce the group temperature.

MALFUNCTION	CAUSE	SOLUTION
COFFEE DISPENSED TOO QUICKLY	• Coffee is ground too coarsely • The dose of ground coffee is too small.	• Adjust the grinding of the coffee. • Check the amount (weight) of the ground coffee you are using.
COFFEE DISPENSED TOO SLOWLY	• Coffee is ground too finely. • The delivery group is clogged. • The filter holder is dirty.	• Adjust the grinding of the coffee. • Check and clean the delivery group. • Clean and replace the filters, if necessary.
WET COFFEE GROUNDS	• The group solenoid valve drain is clogged. • The delivery unit is too cold • Coffee is ground too finely. • There's not enough ground coffee.	• Clean the group drain. • Modify the heating temperature of the group. • Adjust the grinding of the coffee. • Increase the amount of ground coffee.
THE DISPLAY INDICATES A PRESSURE WHICH IS INCONSISTENT	• The pressure transducer is faulty. • Incorrect motor pump calibration.	• Replace the pressure transducer. • Adjust the calibration of the motor pump.
GROUNDS IN CUP	• The filter holder is dirty. • The filter holes are worn. • The coffee is not ground evenly. • The seal under the pad is worn • The temperature of the delivery water is high.	• Clean the filter holder. • Replace the filter. • Replace the grinders. • Replace the seal. • Decrease the temperature of the groups and/or of water used for coffee preparation
INCORRECT COFFEE DELIVERY THE COFFEE DOSE IS NOT MET THE LED OF THE DOSE BUTTON FLASHES	• The connection of the volumetric dosing device is faulty. • The connection of the electronic control unit is faulty. • The connector of the volumetric dosing device has humidity on it. • The volumetric dosing device is faulty: during delivery the dosing device, LED does not flash. • The coffee is ground too finely: there is not sufficient water flow in the dosing device. • The non-return valve loses pressure (the dose is too small). • The drain valves lose pressure (the dose is too small). • Water leakage from the group solenoid valve during coffee delivery or when in stand-by. • The volumetric dosing device is partially obstructed.	• Check for proper connection of the volumetric dosing device connector. • Check for proper connection of the 8-pin connector of the electronic control unit. • Remove the connector of the volumetric dosing device and thoroughly dry the contacts. • Replace the heads of the volumetric dosing device or replace the dosing device. • Adjust the grinding suitably and check the grinders, if necessary. • Check and replace the non-return valve, if necessary. • Check and replace the drain valves, if necessary. • Clean and replace the solenoid valve, if necessary. • Clean or replace the volumetric dosing device.
ALL LEDS OF ALL THE PUSH BUTTON PANELS ARE FLASHING	After a few minutes, automatic filling with water is stopped: • The device is in time-out. • No water in mains. • The tap for the automatic level device is closed. • Some of the hoses in the circuit are clogged. • The probe and/or the mass are disconnected.	• Turn the machine off and then back on. • Open the water supply tap. • Open the automatic level device tap. • Check and replace the defective hoses. • Check and restore the connections.
SHUTDOWN OF THE ELECTRONIC SYSTEM	• The control unit fuse F4 is burned out. • One of the volumetric dosing device's contacts is grounded	• Replace fuse F4 • Check the connection of the volumetric dosing device
THE PUMP LEAKS WATER	• Poor mechanical grip of the shaft or O-Ring seal. • The inlet and outlet connections are loose. • The hex nut of the pressure relief valve or filter is loose. • The seal or O-Ring of the pressure relief valve or filter is faulty.	• Check the status of the pump and take any corrective action which may be required. • Tighten the connections. • Tighten the hex connection of the pressure relief valve and filter. • Replace the seal and O-Ring, taking care not to change the calibration of the valve.

MALFUNCTION	CAUSE	SOLUTION
THE MOTOR STOPS SUDDENLY OR THE THERMAL PROTECTOR INTERVENES DUE TO OVERLOAD	• Lime scale and mineral build-ups in the pump have caused it to jam. • The pump and the engine are not aligned. • The motor is faulty. • The motor is wired with non-conforming voltage.	• Check the status of the pump and replace it, if necessary. • Install the motor-pump joint. • Replace the engine. • Ensure the power supply voltage of the motor is correct.
THE PUMP FUNCTIONS BELOW NOMINAL CAPACITY	• The inlet is clogged, perhaps only partially. • The rotation sense of the pump is incorrect. • The pressure relief valve is not properly calibrated. • The motor runs at low RPM. • The inside of the pump is damaged due to the infiltration of foreign materials.	• Clean the filter holder. • Check the engine. • Calibrate the relief valve. • Check the voltage or replace the motor. • Replace the pump.
THE PUMP IS NOISY	• The pump and the engine are not aligned. • The seal or O-Ring of the pressure relief valve or filter is faulty. • The joint, the coupling screw or the V-shaped clamp are loose. • The inlet is clogged, perhaps only partially. • The hex nut of the pressure relief valve or filter is loose.	• Install the motor-pump joint. • Replace the seal and O-Ring, taking care not to change the calibration of the valve. • Align and tighten the components which are loose. • Clean the filter holder. • Tighten the hex connection of the pressure relief valve and filter.
THE CUP IS DIRTY WITH SPLASHED COFFEE	• Steam pockets in the delivery system. • Air pockets in the hydraulic circuit. • Coffee is ground too coarsely	• Reduce the water temperature. • Check the cause and eliminate the problem. • Adjust the grinding suitably.

19 Alarms

ALARM	CAUSE	SOLUTION
HEAT SENSOR GROUP OPEN ON GROUP #	Group temperature probe disconnected or faulty.	Check the connection of its probe can, if necessary replace it.
CHECK HEATING CIRCUIT GROUP ON GROUP #	• Open group heat circuit. • Group heating element interrupted. • Safety thermostat open. • Fuse F5/F6 burned out. • Faulty Triac.	Check group heat circuit: group heating element; safety thermostat, fuse and triac in the control unit; main switch; connection of the phases for 380V version. If necessary replace the faulty components.
WATER HEAT SENSOR OPEN ON GROUP #	Group temperature probe disconnected or faulty.	Check the connection and if necessary replace the probe.
CHECK WATER HEAT SENSOR ON GROUP #	• Open group water heat circuit. • Group water coil interrupted. • Safety thermostat open. • Fuse F2/F3 burned out. • Faulty Triac.	Check group heat circuit: group heating element; safety thermostat, fuse and triac in the control unit; main switch; connection of the phases for 380V version. If necessary replace the faulty components.
STEAM BOILER SENSOR OPEN	Services boiler temperature probe disconnected or faulty	Check the connection of the services boiler probe, if necessary replace it.
STEAM BOILER HEAT CIRCUIT	• Steam boiler heat circuit disconnected. • Fuse F7 burned out. • Static relays are faulty. • Heating element is faulty.	Check services boiler heat circuit, if necessary replace defective parts.
CUP HEATER	• Cup heater temperature probe disconnected. • Temperature probe in short circuit. • Cup heater overtemperature.	Check the connection of the cup heater probe, if necessary replace it.
AUTOSTEAMER SENSOR	• Autosteamer temperature probe disconnected. • Autosteamer probe in short circuit. • Autosteamer probe overtemperature.	Check the connection of the Autosteamer probe, if necessary replace it.
STEAM BOILER HEATING TIMEOUT	• Services boiler heat circuit disconnected. • Safety thermostat open. • Fuse F7 burned out.	Check services boiler heat circuit, if necessary replace burned out parts.
GROUP HEATING TIMEOUT ON GROUP #	• Disconnected group heat circuit. • Group heating element interrupted. • Safety thermostat open. • Fuse F6- F5 burned out.	Check group heat circuit: group heating element; safety thermostat, fuse and triac in the control unit; main switch; connection of the phases for 380V version. If necessary replace the faulty components.
GROUP HEATING OUT OF SERVICE ON GROUP #	• Disconnected group heat circuit. • Group heating element interrupted. • Safety thermostat open. • Fuse F6- F5 burned out.	Check group heat circuit: group heating element; safety thermostat, fuse and triac in the control unit; main switch; connection of the phases for 380V version. If necessary replace the faulty components.
COFFEE WATER HEATING TIMEOUT OPEN ON GROUP #	• Group water boiler heat circuit disconnected. • Group water boiler coil interrupted. • Safety thermostat open. • Fuse F2 - F3 - F8 - F9 burned out.	Check group water boiler heating: heating element; safety thermostat, fuses and triac in the control unit; main switch; connection of the phases for 380V version. If necessary replace the faulty components.

ALARM	CAUSE	SOLUTION
COFFEE WATER HEATING OUT OF SERVICE ON GROUP #	• Group water boiler heat circuit disconnected. • Group water boiler coil interrupted. • Safety thermostat open. • Fuse F2 - F3 - F8 - F9 burned out.	Check group water boiler heating: heating element; safety thermostat, fuses and triac in the control unit; main switch; connection of the phases for 380V version. If necessary replace the faulty components.
FILLING TIMEOUT	FIRST INSTALLATION. • The services boiler has not completed filling in the maximum time (255 seconds). • The level probe does not detect the presence of water.	Check services boiler water filling hydraulic circuit: • Check that there is actually water in the mains water supply. • Check filling solenoid valve / pump filter • Check fuse F3 of the control unit.
FILLING TIMEOUT	DURING OPERATION • The services boiler has not completed filling in the maximum time (90 seconds).	Check services boiler water filling hydraulic circuit: • Check that there is actually water in the mains water supply. • Check filling solenoid valve / pump filter • Check fuse F3 of the control unit.
SAFETY LEVEL	The water in the services boiler has dropped below the minimum level.	Check for correct connection of the minimum level probe.
COFFEE WATER PRESSURE GROUP #	The coffee boiler has not reached the filling pressure in the maximum time (60 seconds).	Check hydraulic circuit of the coffee boiler: • Check that there is actually water in the mains water supply. • Check solenoid valve / pump filter • Check volumetric doser (filter input / 0.5mm Gigler output).
VOLUMETRIC DOSING DEVICE	Volumetric doser does not count water.	• Check connection on the volumetric doser. • Check that there is actually water in the mains water supply. • Check pump filter / volumetric doser filter. • Check 1mm group Gigler. • Check 0.5mm volumetric doser Gigler.

20 List of hazards

This chapter describes possible hazards for the user if the specific safety standards (described in this manual) are not adhered to.

The appliance must be connected to an efficient grounding system

If this is not done, the appliance can be a source of dangerous electrical discharges in that it is no longer able to discharge electricity to earth.

Do not use running water for washing.

The use of pressurized water directly on the machine can seriously damage the electrical equipment. Never use water jets to wash any part of the appliance.

Be careful with the steam nozzles and the hot water

During use, the steam and hot water nozzles may overheat, thus becoming a source of danger.

Handle these parts carefully. Never direct steam or hot water jets directly on the body.

Do not work on the machine when it is supplied with electrical power

Before carrying out any maintenance or repair work on the machine you must turn it off using the main switch or, better yet, disconnecting the mains connection terminals. Never remove any body panel when the machine is supplied with electrical power.

If you should decide not to use the appliance, it is necessary to shut it down by disconnecting the power supply cable from the electrical mains, closing the inflow of water from the hydraulic mains and emptying the hydraulic system.

For the operations of disconnection from the electrical and hydraulic mains and of release of the water, qualified personnel has to be contacted.

Never work on the hydraulic system before having emptied it

All work regarding the hydraulic system and the related boiler is to be avoided when there is still water and pressure in the system. Thus you must empty it beforehand by closing the mains tap and dry-running the delivery group for a short time. Switch off the machine and turn on all the steam and water taps. When the pressure is zero, empty the boiler completely by unscrewing the special pipe fitting located on the lower part of boiler.

If the above procedure is not carried out correctly, opening any part of the hydraulic system can cause a sudden outburst of superheated water under pressure.

Use of the appliance

This espresso coffee machine is an appliance for professional use only. Any other type of use is considered incorrect and therefore dangerous. Never allow children or incapacitated persons to use the machine.

Non-observance of the above-described standards can cause serious harm to people, property or animals.

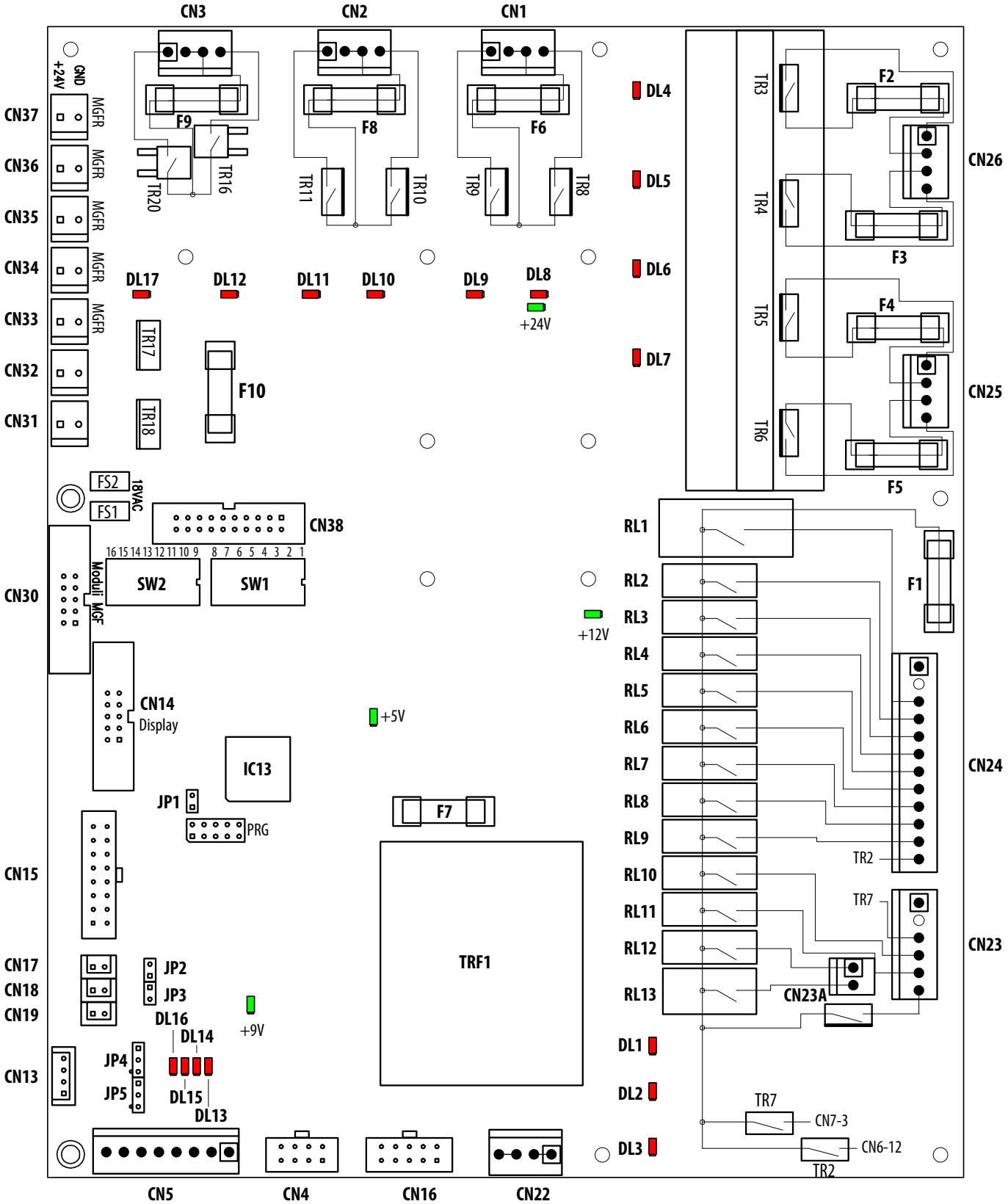
Never operate the electronic apparatus when the appliance is supplied with electrical power.

Shut down the appliance completely by disconnecting it from the power outlet before carrying out any operation.

Section V - ELECTRIC/HYDRAULIC DIAGRAMS

21 Electric diagrams

21.1 Electronic control unit diagram Rev.00



Fuse		Description
F1	Fuse 5x20 delayed by 6.3A	Protects: from RL1 to RL13
F2	Fuse5x20FF super rapid by 10A	Protects: group coffee boiler heating element 4
F3	Fuse5x20 FF super rapid by 10A	Protects: group coffee boiler heating element 2
F4	Fuse5x20FF super rapid by 10A	Protects: group coffee boiler heating element 3
F5	Fuse 5x20 FF super rapid by 10A	Protects: group coffee boiler heating element 1
F6	Fuse 5x20 FF super rapid by 10A	Protects : coffee boiler heating element group 1 e 3
F7	Fuse 5x20 delayed by 1A	Protects: transformer's double winding
F8	Fuse 5x20 FF super rapid by 10A	Protects : coffee boiler heating element group 2 and 4
F9	Fuse 5x20 delayed by 1A	Protects: services boiler heating element group 1 and 2
F10	Fuse 5x20 delayed by 6.3A	Protects: +24V Power supply

	Off	On	SW1 Switch
1	■	□	Not used. leave on OFF mode.
2	■	□	Reserve.
3	■	□	Reserve
4	■	□	Reserve.
5	■	□	Reserve.
6	■	□	ON = rinse active for 3 secs. PROG./STOP button.
7	■	□	ON = excludes the automatic control of the services boiler temperature
8	■	□	ON = Pre-infusion active

	Off	On	SW2 Switch
9	■	□	ON = 6 doses keyboard.
10	■	□	ON = rinse active for 3 secs. dose buttons.
11	■	□	ON = Active Credit / Debit.
12	■	□	ON = Reset machine life cycle
13	■	□	ON = Continuous disabled.
14	■	□	ON = NTC probe
15	■	□	ON = Serial communication active.
16	■	□	ON = MICRO-Processor programming. OFF = Machine service enabled

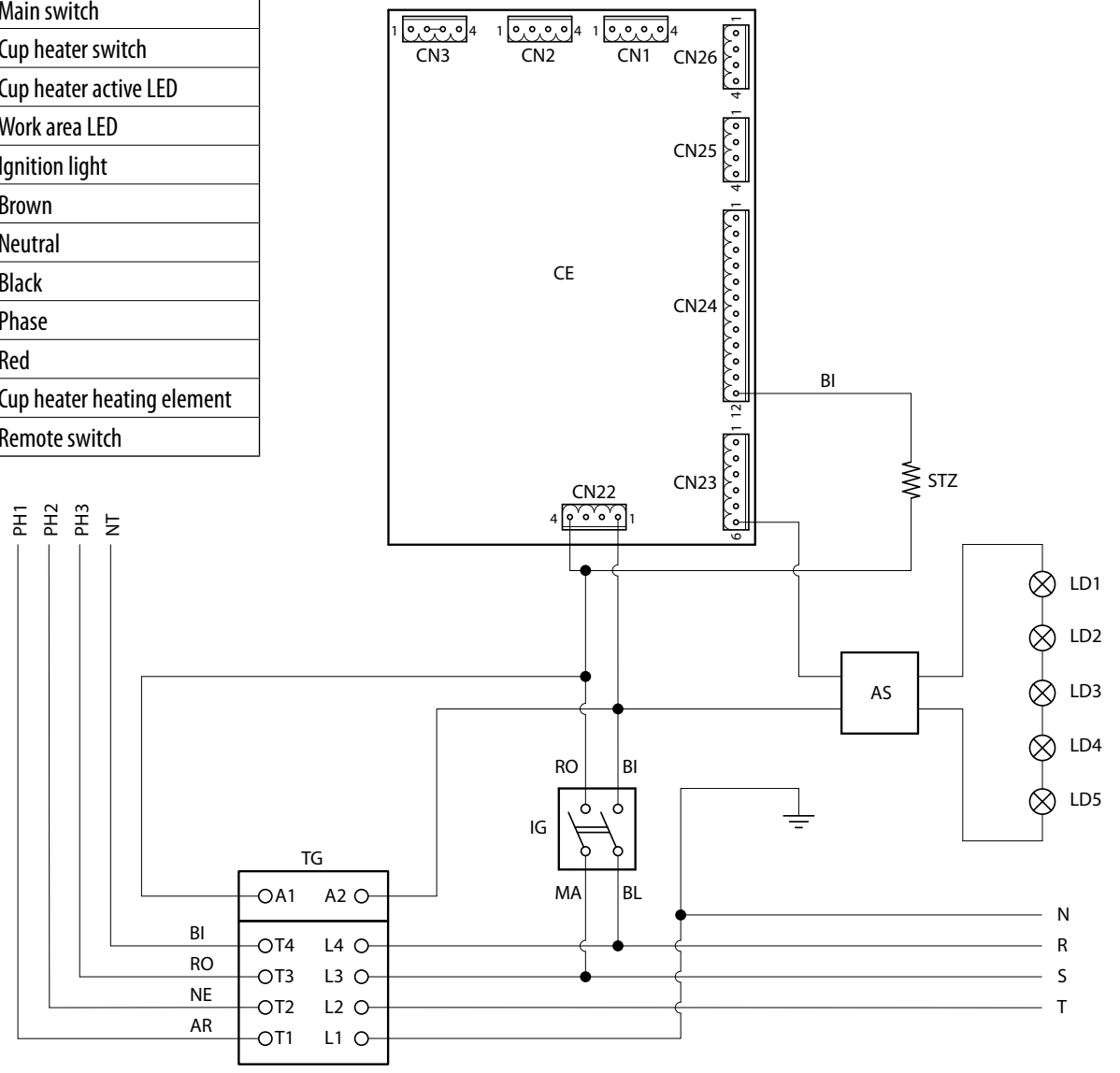
LED	Description
DL1	Front Led
DL2	Not managed
DL3	Cup heater
DL4	Heating element control boiler group 4
DL5	Heating element control boiler group 2
DL6	Heating element control boiler group 3
DL7	Heating element control boiler group 1
DL8	group 1 heating element
DL9	group 3 heating element
DL10	group 2 heating element
DL11	group 4 heating element
DL12	services 1 boiler heating element
DL13	group 1 volumetric counter
DL14	group 2 volumetric counter
DL15	group 3 volumetric counter
DL16	group 4 volumetric counter
DL17	services 2 boiler heating element
+5V	+5V Power supply
+9V	+9V Power supply
+12V	+12V Power supply
+24V	+24V Power supply

Jumper	Description
JP1	Not managed
JP2	Aux
JP3	Aux
JP4	TX-RX signal inversion
JP5	TX-RX signal inversion

Relay	Description
RL1	Pump
RL2	Solenoid valve group 1
RL3	Solenoid valve group 3
RL4	Solenoid valve group 2
RL5	Solenoid valve group 4
RL6	Boiler filling solenoid valve
RL7	Hot water mix solenoid valve
RL8	Tea solenoid valve 1
RL9	Autosteamer steam solenoid valve
RL10	Air solenoid valve
RL11	Tea solenoid valve 2
RL12	Reserve 2
RL13	Reserve 1

21.2 Power supply diagram

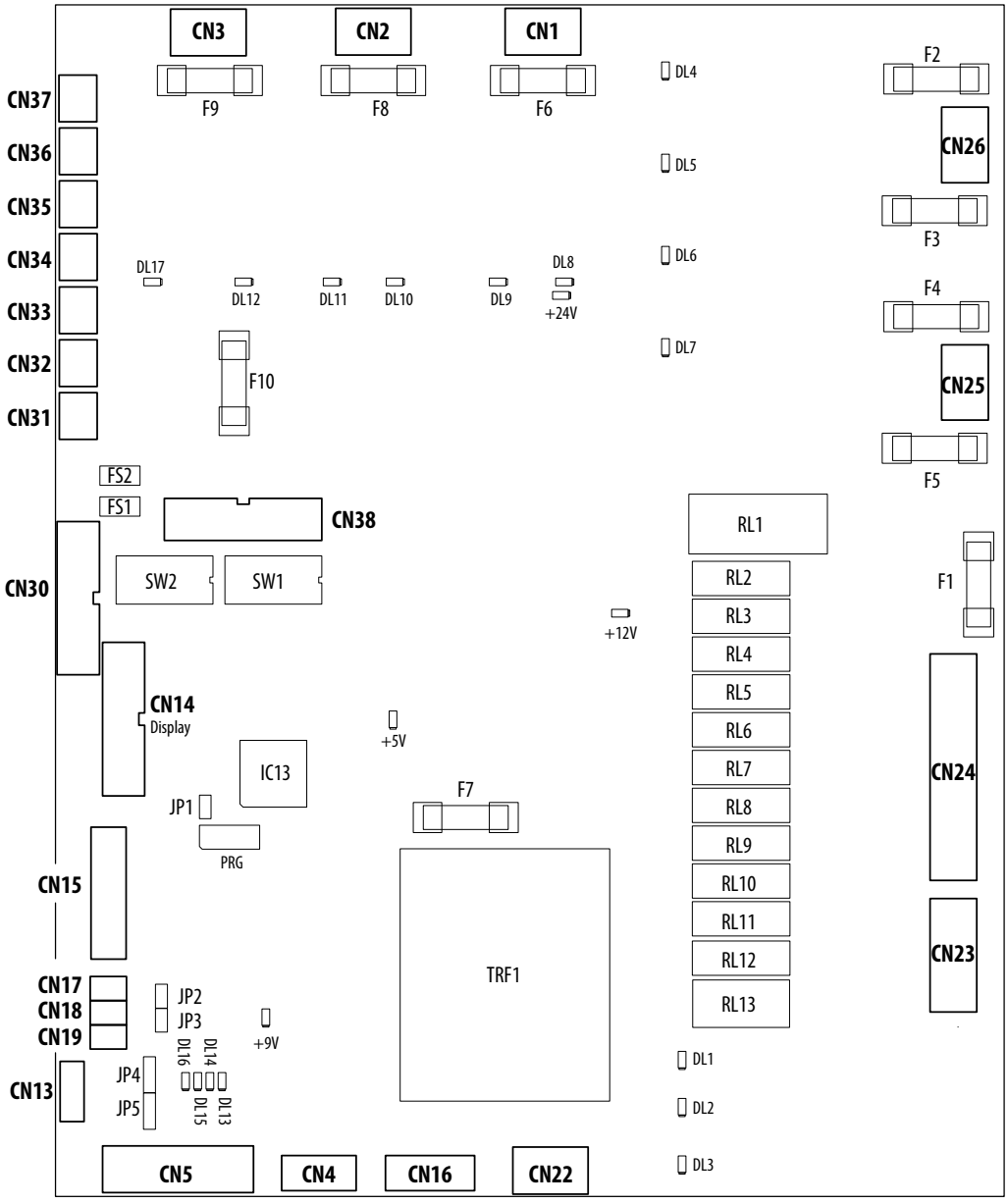
AR	Orange
AS	Stabilized power supply unit
BI	White
CE	Electronic control unit
CN22	Supply connection
IG	Main switch
IS	Cup heater switch
LDS	Cup heater active LED
LD1-2-..	Work area LED
LP	Ignition light
MA	Brown
N	Neutral
NE	Black
PH	Phase
RO	Red
STZ	Cup heater heating element
TG	Remote switch



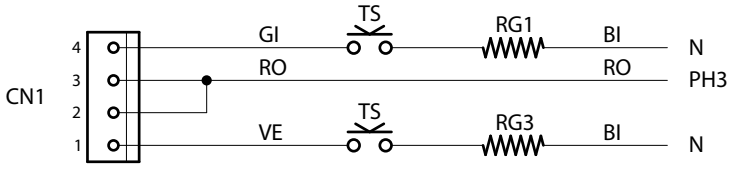
21.3 Connectors electric diagram

CN1	Connection of groups 1 e 3 heating elements
CN2	Connection of groups 2 e 4 heating elements
CN3	Connection of services boiler's heating elements
CN4	Connection of coffee boiler pressure switches
CN5	Connection of volumetric dosers and services boiler levels
CN6 - 12	Not used
CN13	Connection of RS232 serial socket
CN14	Connection of display/CPU
CN15	Connection of NTC temperature sensors
CN16	Mains pressure, humidity sensor and boiler press. tranducer supply

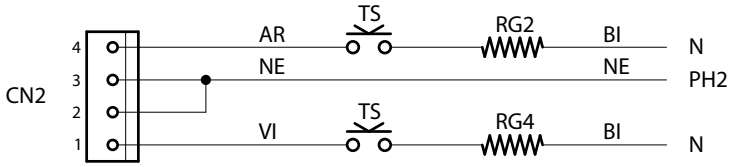
CN17	Connection of NTC services boiler
CN18	Connection of NTC autosteamer
CN19	Connection of NTC cup heater
CN20 - 21	Not used
CN22	Wiring of circuit board
CN23	Connection of 230V AC outputs
CN24	Connection of 230V AC outputs
CN25	Connection of heating elements for hot water containers 1 and 3
CN26	Connection of heating elements for hot water containers 2 and 4
CN27 - 38	Not used



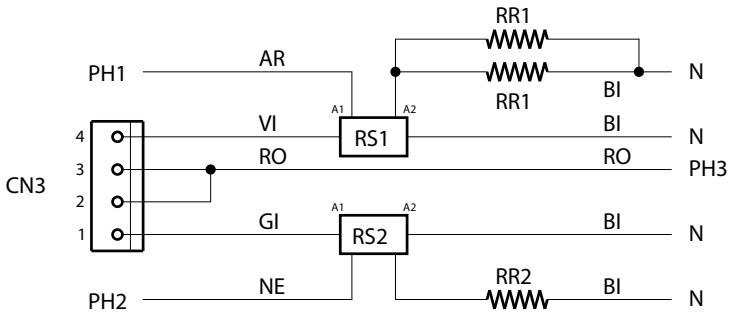
CN1 - connection of GROUPS 1 and 3 heating elements



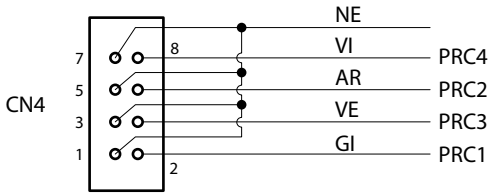
CN2 - connection of GROUPS 2 and 4 heating elements



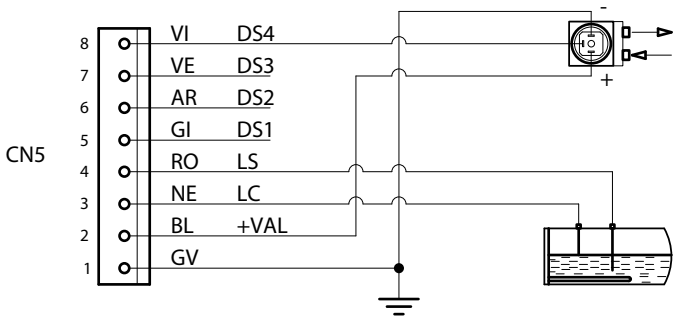
CN3 - connection of SERVICES BOILER heating elements



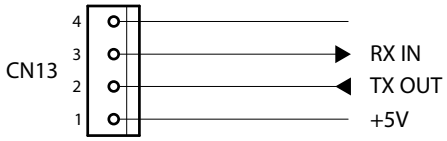
CN4 - Connection of coffee boilers pressure transducer



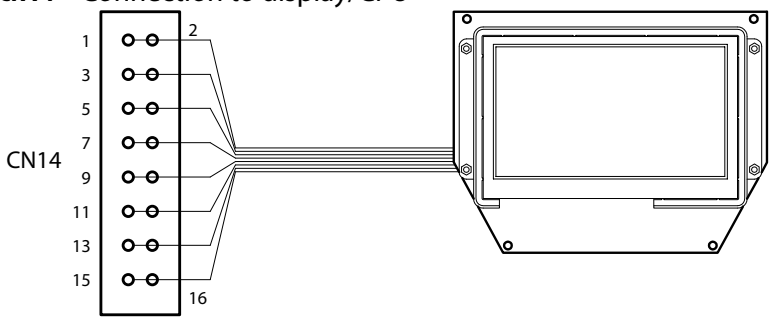
CN5 - connection of volumetric dosers and services boiler levels



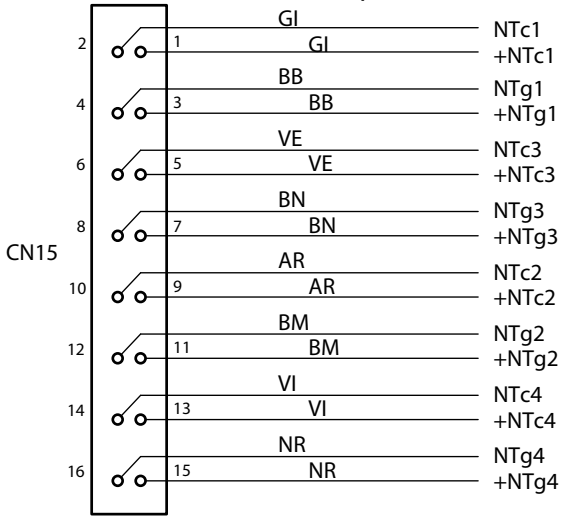
CN4 - Connection of RS 232 serial socket



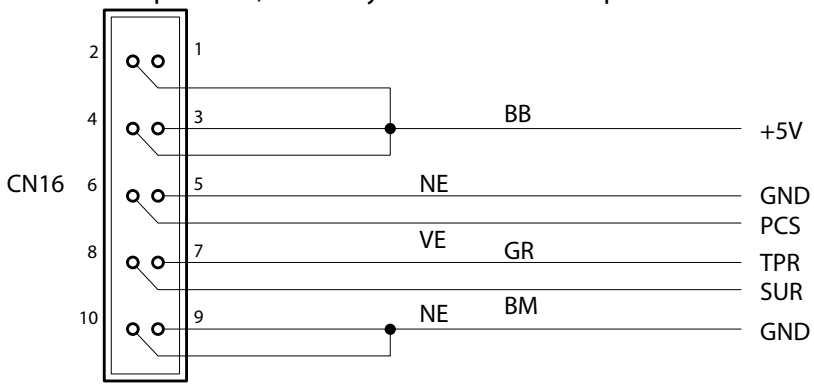
CN14 - Connection to display/CPU



CN17 - Connection of NTC temperature sensors

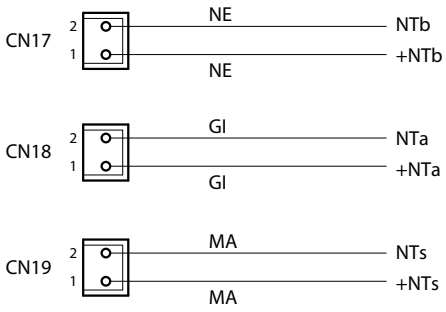


CN16 - Mains pressure, humidity sensor and boiler press. tranducer supply

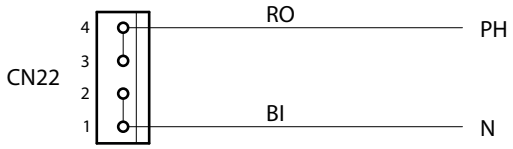


AA	Wiring of the autost. air pump
AR	Orange
BB	White/Blue
BI	White
BL	Blue
BM	White/Brown
Bn	White/Black
DS	Volumetric dosing device
EVA	Autosteamer solenoid valve
EVgr	Group solenoid valve
EVC	Boiler filling solenoid valve
EVt1	Water solenoid valve
EVt2	Water solenoid valve 2
EVM	Water mix solenoid valve
GI	Yellow
GR	Grey
GV	Yellow-Green
LC	Boiler level
LS	Safety 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	Coffee boiler pressure switch
RG	Group heating element
RH	Water heating element
RO	Red
RR	Heating element
RS	Static relay
TS	Safety thermostat
TP	Coffee boilers pressure transducer
TPR	Pressure transducer
TS	Safety thermostat
STZ	Cup heater
SUR	Humidity sensor
VE	Green
VI	Violet

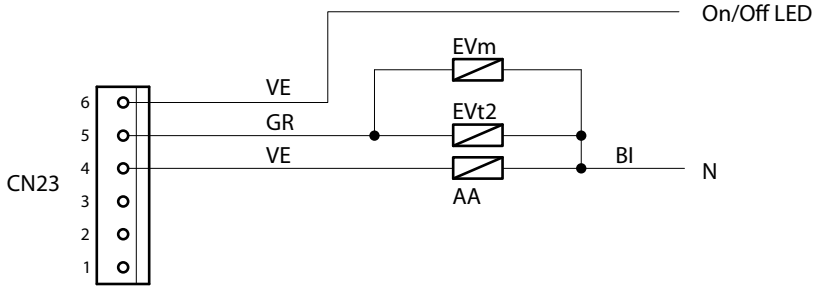
CN17 - Connect. NTC services boiler / **CN18** - Connect. NTC autosteamer / **CN19** - Connect. NTC cup heater



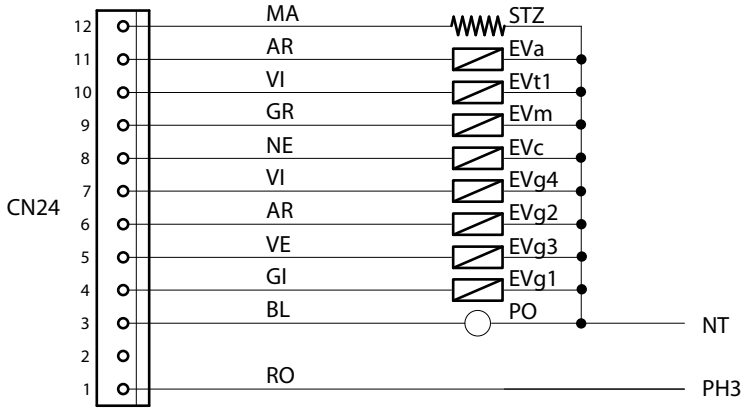
CN22 - Wiring of circuit board



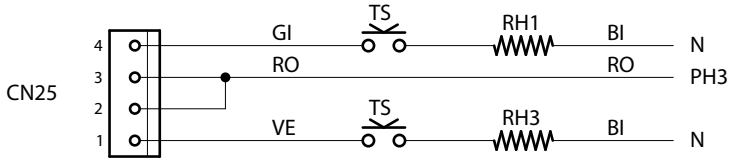
CN23 - Connection of 230V AC outputs



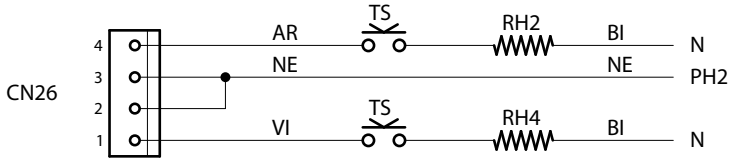
CN24 - Connection of 230V AC outputs



CN25 - Connection of heating elements for hot water containers 1 and 3

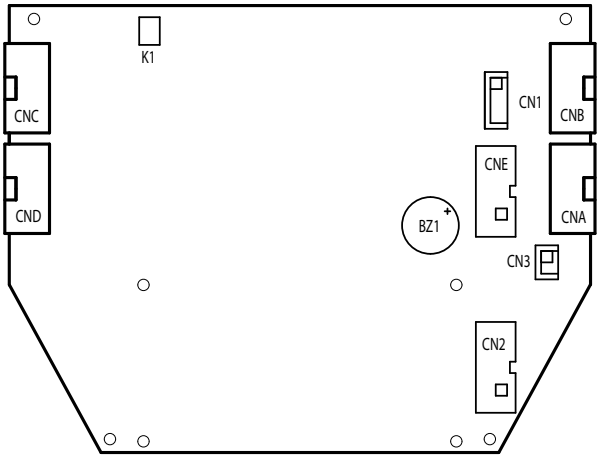


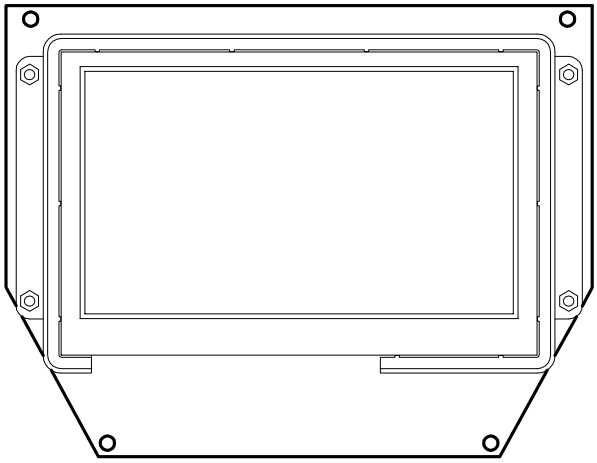
CN26 - Connection of heating elements for hot water containers 2 and 4



AA	Wiring of the autost. air pump
AR	Orange
BB	White/Blue
BI	White
BL	Blue
BM	White/Brown
Bn	White/Black
DS	Volumetric dosing device
EVA	Autosteamer solenoid valve
EVgr	Group solenoid valve
EVC	Boiler filling solenoid valve
EVt1	Water solenoid valve
EVt2	Water solenoid valve 2
EVM	Water mix solenoid valve
GI	Yellow
GR	Grey
GV	Yellow-Green
LC	Boiler level
LS	Safety 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	Coffee boiler pressure switch
RG	Group heating element
RH	Water heating element
RO	Red
RR	Heating element
RS	Static relay
TS	Safety thermostat
TP	Coffee boilers pressure transducer
TPR	Pressure transducer
TS	Safety thermostat
STZ	Cup heater
SUR	Humidity sensor
VE	Green
VI	Violet

21.4 Display / CPU control unit diagram

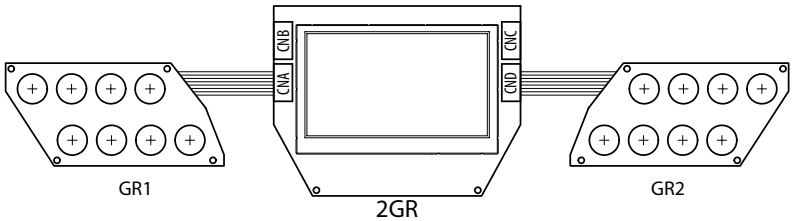


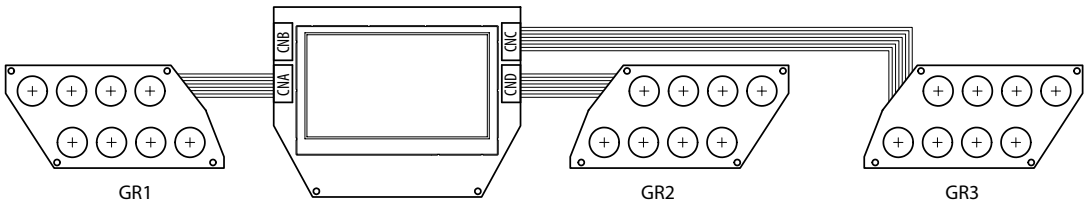


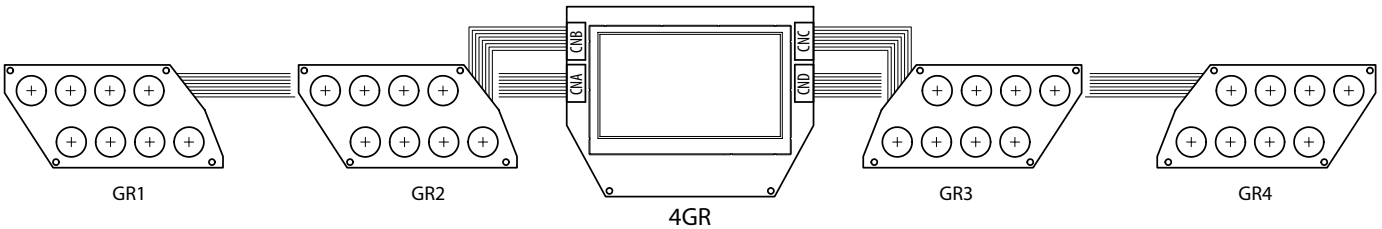
CN1	USB drive connection
CN2	Circuit board connection
CN3	-

CNA-B-C-D	Groups keyboards connections (see diagram)
CNE	Autosteamer keyboard connection
CNF	-

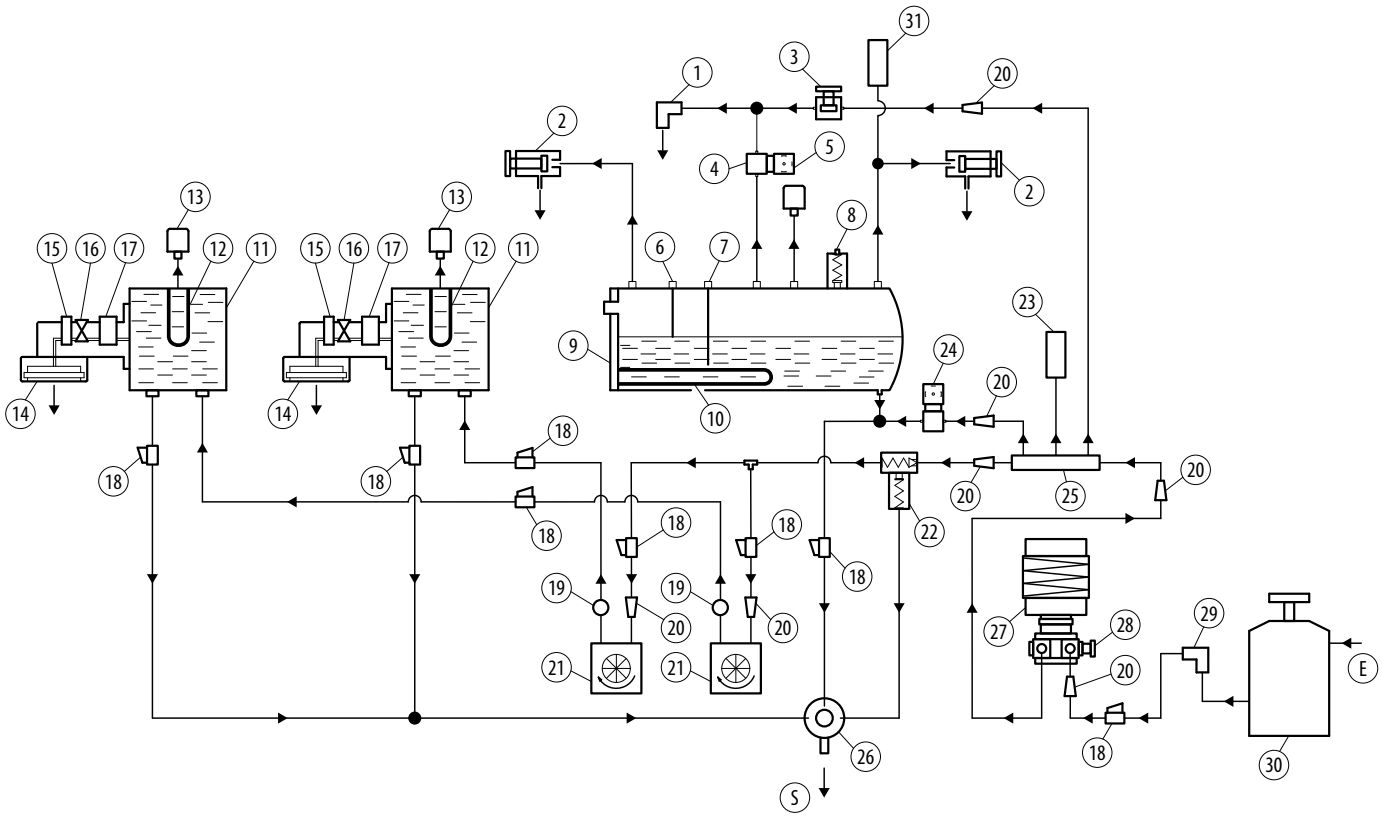
Keyboard connections diagram







22 Hydraulic diagram



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 LEVEL probe
8	SAFETY valve
9	STEAM boiler
10	STEAM boiler heating element
11	COFFEE boiler
12	COFFEE water heating element
13	COFFEE water pressure switch
14	DELIVERY group
15	GROUP filter
16	GROUP Gigleur
17	GROUP solenoid valve

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

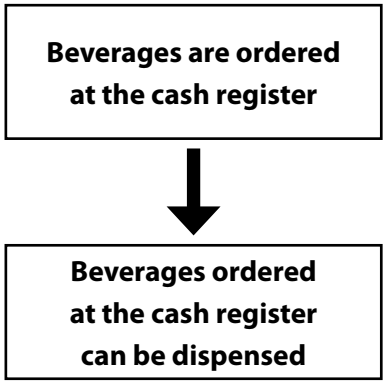
Section VI - SERIAL COMMUNICATION

23 CREDIT-DEBIT system

23.1 CREDIT - DEBIT system with direct connection to the register

The CREDIT-DEBIT system allows the coffee to be delivered from the machine only after beverages have been paid for at the cash register.

In particular, the system is structured as follows:



23.2 Installation

For installation proceed as follows:

- Turn the machine off;
- Position switches 11 and 15 of the SW2 micro-switch battery in the ON position, as shown in the electrical diagram;
- connect the **CS** serial cable (code **22556004**) to the other end of the **CC** cable and to the register;
- start the machine again.

The cash register management software and the standard serial cable CS (maximum length 15 metres) are not the responsibility of the manufacturer.

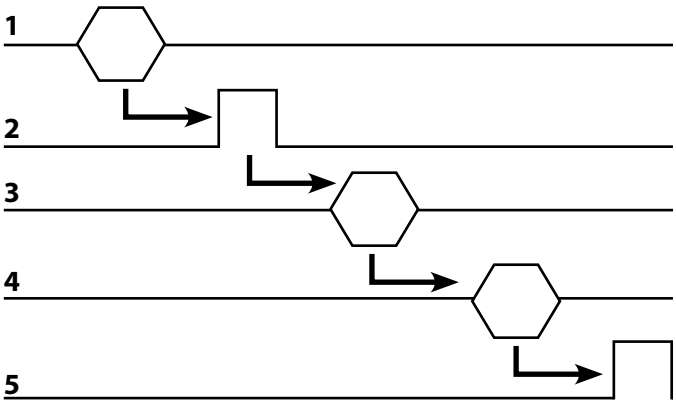
It is possible to use a serial cable different from the one supplied by manufacturer (cod. 22556004), as long as it isn't longer than 15 meters.

23.3 Communication protocol

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

1. order the beverage at the cash register;
2. select the ordered dose on the coffee machine;
3. the code that corresponds to the selection is sent to the cash register (see codes table);
4. the cash register replies **ACK=06H** thus enabling delivery;
5. the coffee machine delivers the beverage.

If the cash register does not identify the code, there is no enabling and the delivery is not made, the cash register sends the **NACK=15H** code.



- **Baud rade: 1200**
- **8 bit**
- **1 bit Stop**
- **No Parity (none)**

24 DEBIT-CREDIT system

24.1 DEBIT - CREDIT system with direct connection to the register

The DEBIT-CREDIT system allows beverages to be paid for after they have been delivered, as the doses are recorded by the coffee machine's cash register.

In particular, the system is structured as follows:

24.2 Installation

For installation proceed as follows:

- Turn the machine off;
- Position switch 15 of the SW2micro-switch battery in the ON position, as shown in the electrical diagram;
- connect the **CS** serial cable (code **22556004**) to the other end of the **CC** cable and to the register;
- start the machine again.

The cash register management software and the standard serial cable CS (maximum length 15 metres) are not the responsibility of the manufacturer.

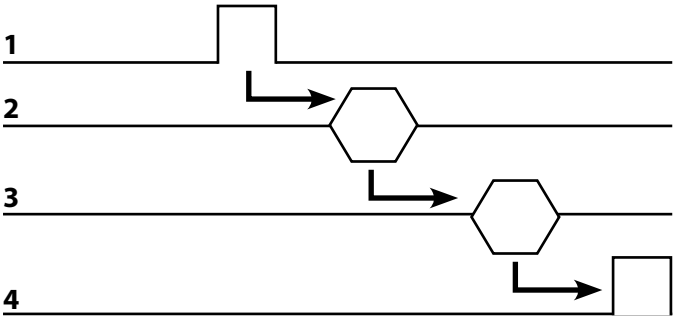
It is possible to use a serial cable different from the one supplied by manufacturer (cod. 22556004), as long as it isn't longer than 15 meters.

24.3 Communication protocol

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

1. select the desired dose on the coffee machine;
2. the code that corresponds to the selection is sent to the cash register (see codes table);
3. the cash register replies **ACK=1H** thus enabling delivery;
4. the coffee machine delivers the beverage;
5. the cash register records the delivered beverage

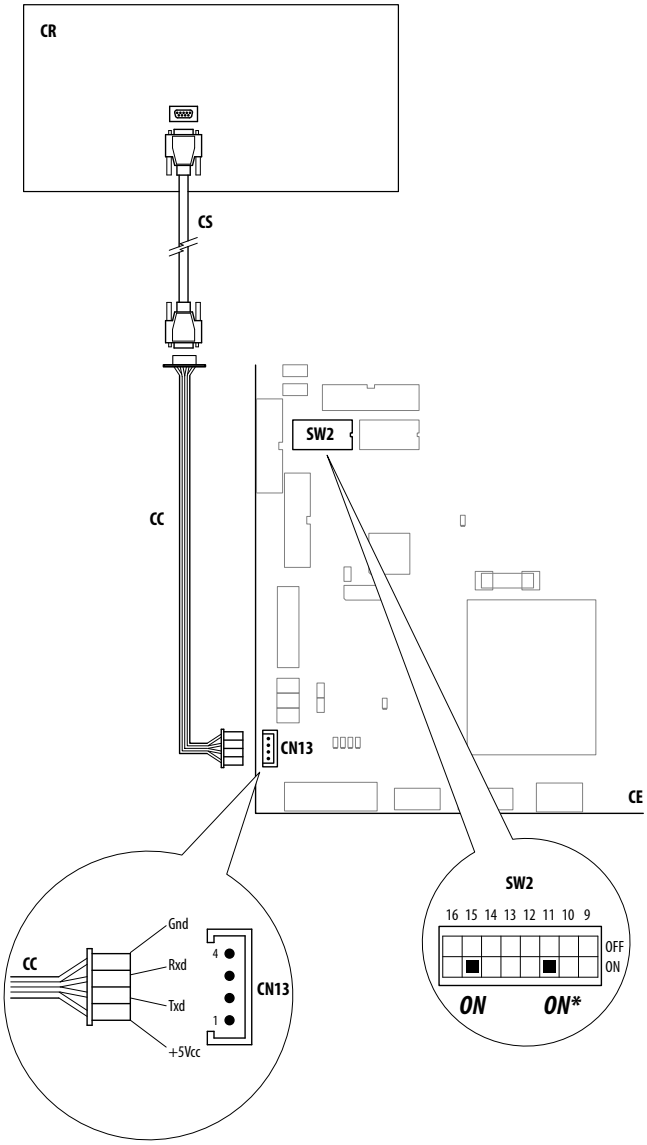
If the cash register does not identify the code, there is no enabling and the delivery is not made, the cash register sends the **NACK=0H** code.



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

ENGLISH

25 Serial connection diagram and beverages table



** - only for CREDIT - DEBIT configuration*

Beverages selection codes table

Description	***Signal***
1 Espresso GR1	011 h
1 Medium GR1	012 h
1 Large GR1	013 h
2 Espressos GR1	014 h
2 Medium GR1	015 h
2 Large GR1	016 h
1 Espresso GR2	021 h
1 Medium GR2	022 h
1 Large GR2	023 h
2 Espressos GR2	024 h
2 Medium GR2	025 h
2 Large GR2	026 h
1 Espresso GR3	031 h
1 Medium GR3	032 h
1 Large GR3	033 h
2 Espressos GR3	034 h
2 Medium GR3	035 h
2 Large GR3	036 h
1 Espresso GR4	041 h
1 Medium GR4	042 h
1 Large GR4	043 h
2 Espressos GR4	044 h
2 Medium GR4	045 h
2 Large GR4	046 h
Tea 1	051 h
Tea 2	052 h

	CN13	Serial transmission connector.
	CR	Cash register.
	CE	Control unit cod.18090167.
	SW	Control unit micro-switches
*	CC	Supplied serial connection cable cod. 22554012.
*	CS	Serial transmission cable not supplied cod. 22556004.
*	**Kit Cod.: 83260061R**	

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