Plus4You

ESPRESSO COFFEE MACHINE

Use and maintenance manual for the TECHNICIAN

- ENGLISH -

Astoria®

Think espresso.

English

Sections

A General Warnings

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

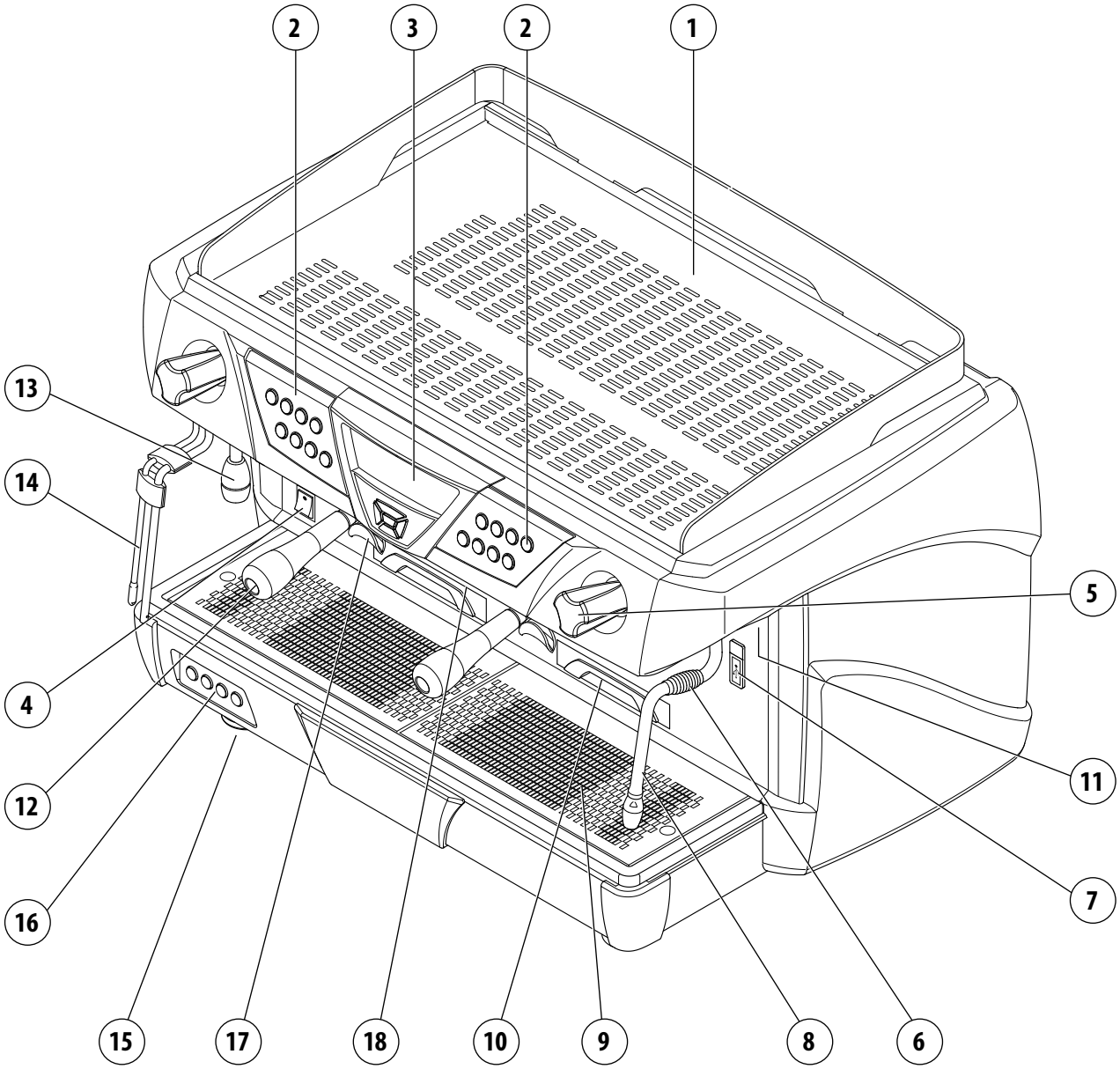
B Warnings for the installer

- Read this manual carefully. It provides important information on safe installation, operation and maintenance of the equipment;
- Installation, conversion to other type of gas, and maintenance of the equipment must be carried out by personnel qualified and authorized by the manufacturer, in compliance with safety regulations and instructions included in this manual;
- 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.

Section I - Operation

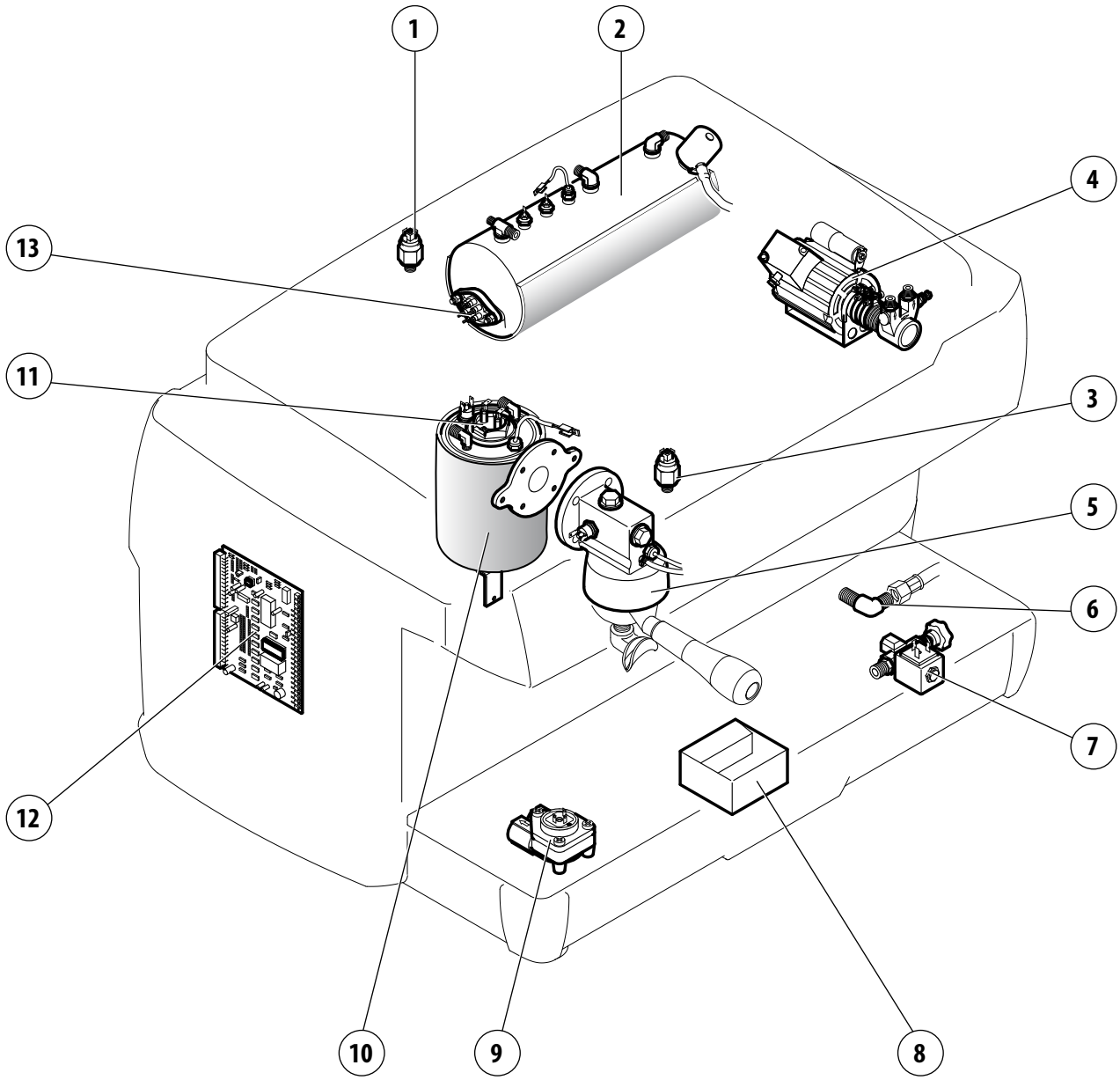
1 Technical characteristics

1.1 External components



1. Cup heater surface.
2. Push-button panel for coffee and tea selections.
3. Display and browser key.
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.

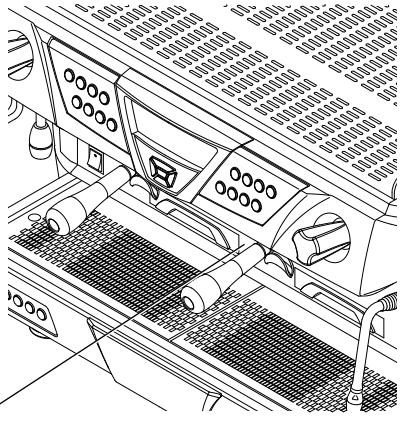
1.2 Internal components



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

1.3 Specifications

The specifications indicated in the table below correspond to the plate located on front of the machine.



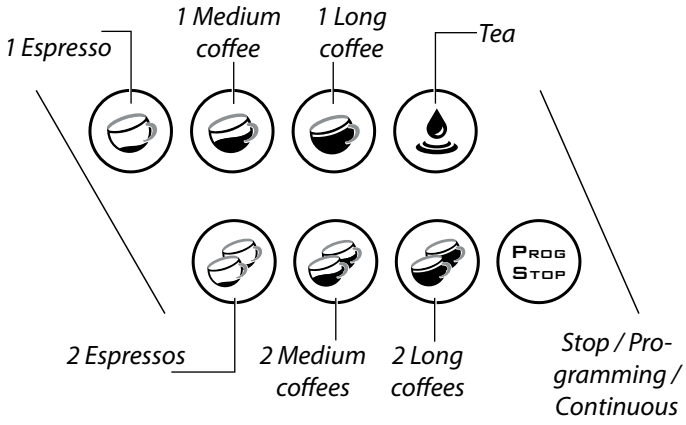
Groups		2		3		4	
Power supply voltage	V	230/400	240/415	230/400	240/415	230/400	240/415
Total power	W	4.400	4.700	5.500	6.100	7.100	7.700
Power x group	W	150x2	165x2	150x3	165x3	150x4	165x4
Coffee water tank heating element power per group	W	1,000x2	1,090x2	1,000x3	1,090x3	1,000x4	1,090x4
Steam boiler 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					

Technical data table

1.4 Push-buttons panels

Push-button panel for coffee and tea selections.

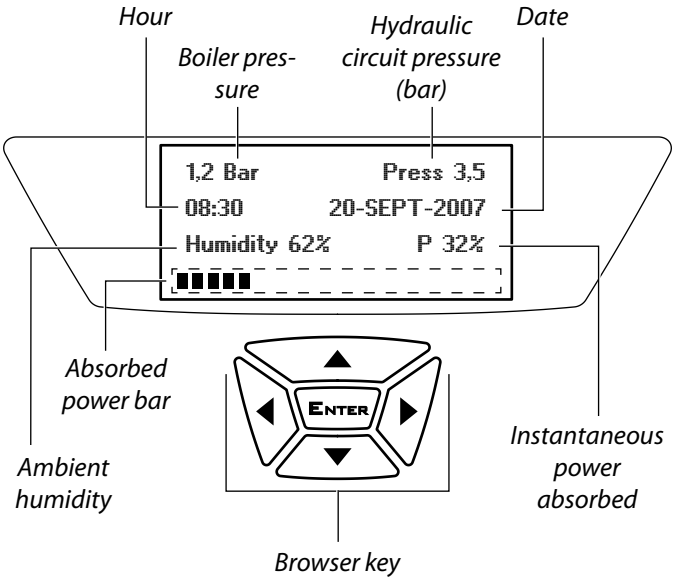
The push button panel is connected to the electronic control unit, and allows selection and programming of the doses of coffee and tea.



Display and browser key.

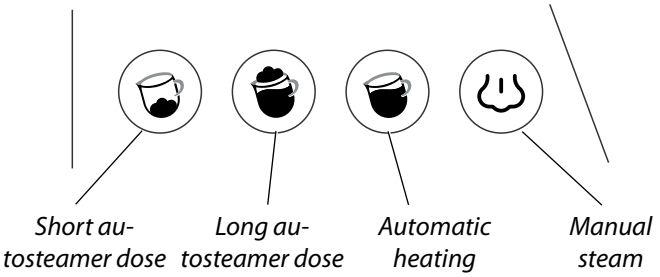
All programming operations of the machine are carried out using the selector as specified in the chapter "28 on programming".

Alongside the selector there is a display which shows the operating data of the machine and the programming messages.



Autosteamer push-button panel.

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



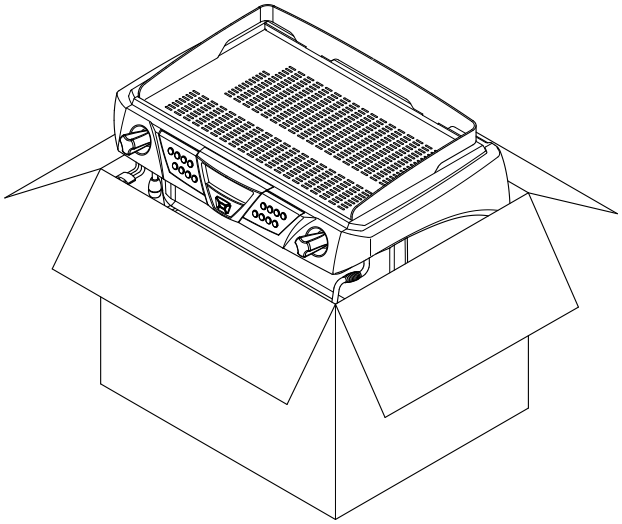
2 Preparation

2.1 Unpacking the machine

Open the packaging, ensuring not to damage the machine.

Remove the machine protections and the equipment contained in the package. Take the machine out.

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



2.2 Equipment preparation

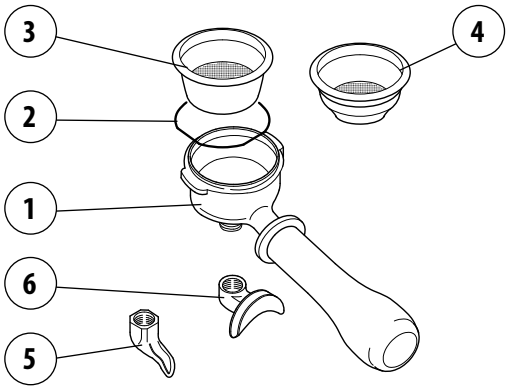
Filter holder

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 relative filter: one-cup spout on one-cup filter holder or with one-cup filter, etc.

Motor pump

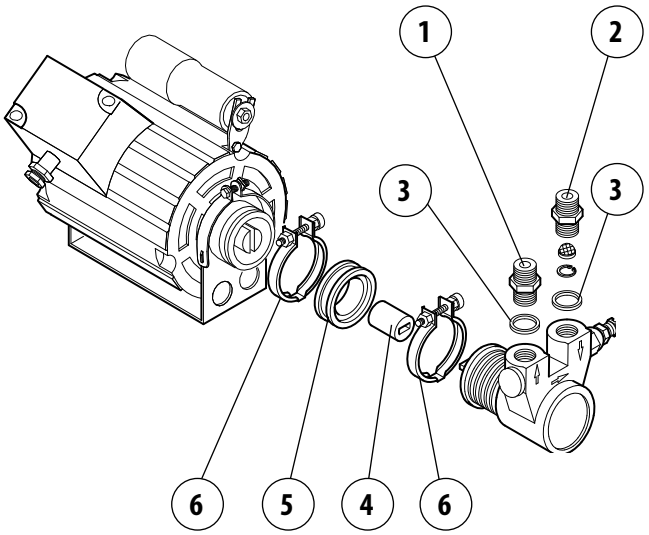
For the machines with an external motor, it is necessary to prepare the pump and the motor.

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



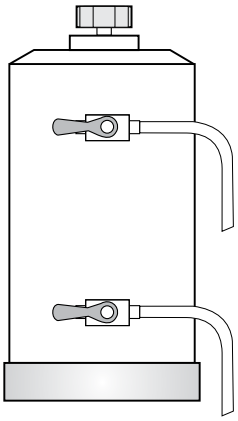
Install the connection with the inlet filter (2) of the pump (arrow ⬇).

Softener

The softener is supplied by default.

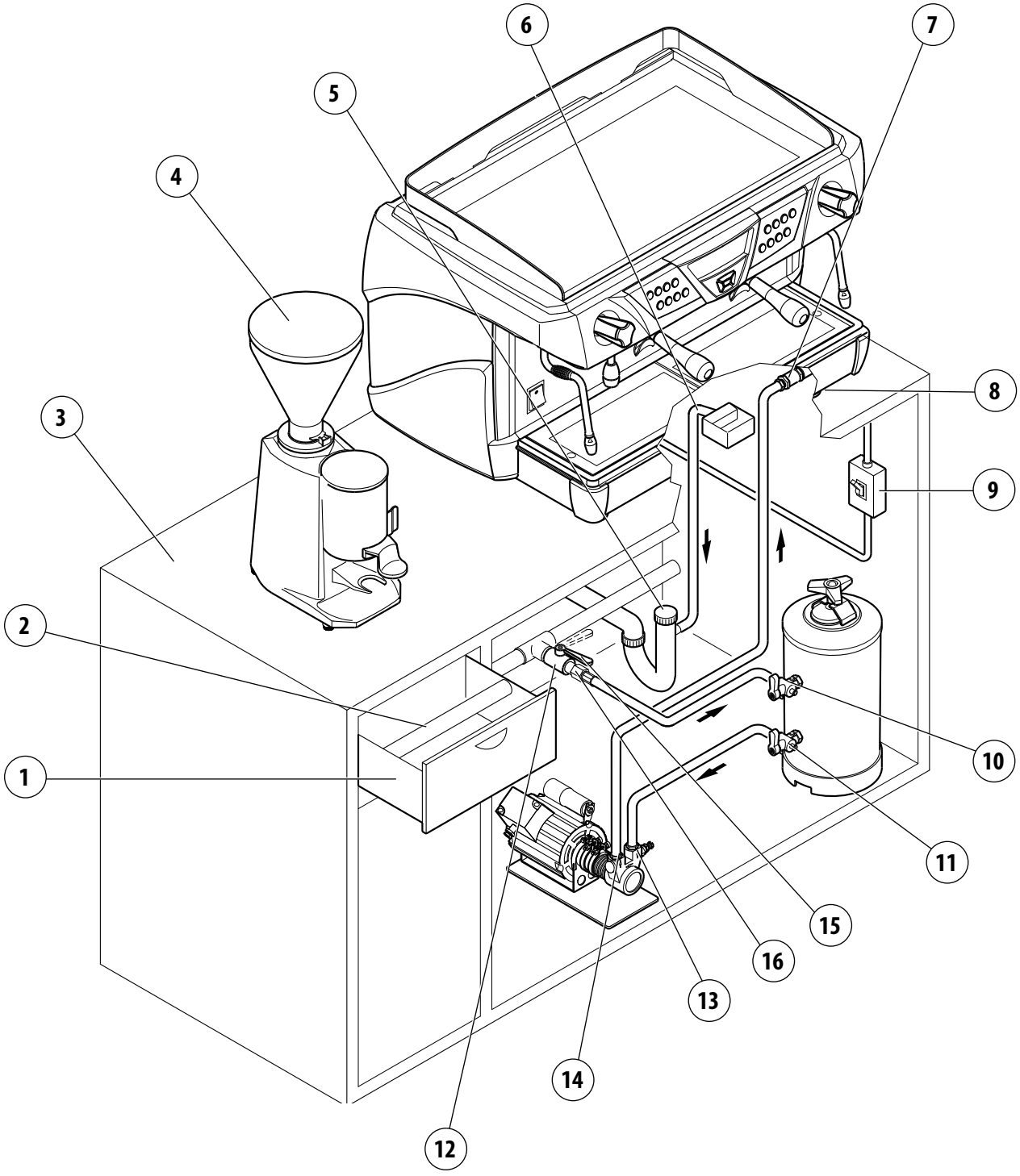
On request, an automatic resin softener is supplied.

For further information, refer to chapter "15-Softeners".



ENGLISH

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.

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.

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).

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.

3.2 Hydraulic connection

- Remove any rubber plugs which may be inserted in the tap fixtures of the softener;
- connect the water supply (**12**) to the softener inlet (**10**) using the provided flexible hose;
- rinse the resins from the softener and check that the water, which initially comes out yellowish, comes out clean;
- connect the softener outlet (**11**) to the external motor pump inlet (**13**);
- connect the outlet of the motor pump (**14**) to the inlet of the machine (**7**);
- 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.

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

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.

Warnings

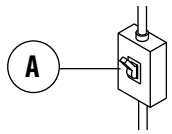
1. The water supply must provide cold water for human consumption (potable water) at a pressure between 1,5 and 5 bars. If the pressure is higher than 5 bar, connect a pressure reducer before the pump.
2. add a tap (**15**) to the water supply so as to stop water from flowing to the machine;
3. in order to prevent damage, it is advisable to install the softener where it will be protected from accidental blows;
4. to prevent water from freezing, install the softener inside a premise with a room temperature higher than 5°C;
5. if there is no softener, 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 inspectable siphon that can be periodically cleaned, in order to avoid 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.

The hydraulic connection must be made in compliance with local national standards. In case of use of an external tank: the connection hose between the machine and the tank can't be longer than 150 cm. For the European Community: both for the hydraulic connection to the water supply, and for the connection to an external tank, it is necessary to place a non-return valve (16) on the machine as set forth by EN 1717 standards.

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.

All of the machines are equipped with a "Time-out" device that allows filling of water in the boiler within a maximum time. This function keeps water from flowing out of the boiler's valve (flooding) and keeps the motor pump from overheating. If the time limit is not enough for the boiler to fill up completely (such as for the machines installed with 3 or 4 groups), turn the machine off and then back on, and repeat the operations listed above.

3.3 Wiring



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

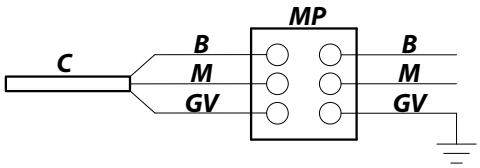
Machine with INTERNAL MOTOR PUMP

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.



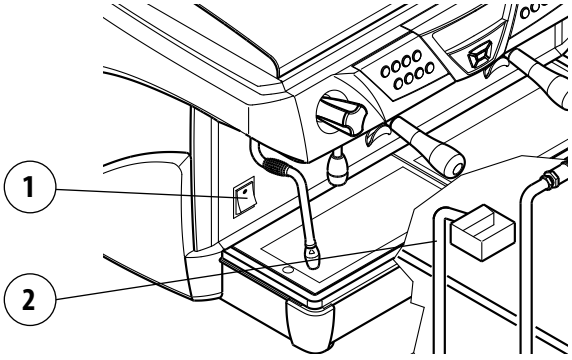
C Motor pump power cable
MP Motor pump terminal
B Blue
M Brown
GV Yellow-green

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.

3.4 Turning on the machine

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.



• To avoid the risk of burns, it is advisable to keep hands away from the hot water nozzle, steam nozzle and delivery groups during the machine's heating phase.
• Before using the machine, run deliveries dry with the filter holder attached for a few seconds to release any air which may be in the circuit.
• Before using the machine, dispense a few servings of coffee to test the grinding and to check the operating pressure of the machine.

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

```
FUNCTIONAL TEST
DELNEW XX-XX-XX RY
D.ELITE
```

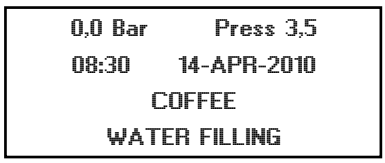
- XX.XX.XXXX : revision date
- RY : revision number

If the result is O.K. the machine is working correctly.

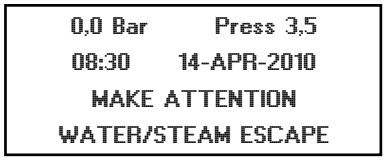
In case of negative result, check the message on the display.

```
TEST
-O.K.-
```

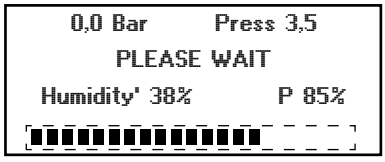
When the machine is turned on, it will activate the motor pump installed and begin to fill the services boiler and the water heaters for the coffee (equal to the number of delivery groups installed on the machine).



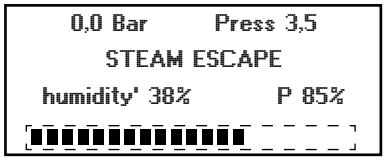
In order to remove the air from the heaters, each time the machine is turned on the solenoid valves of the groups will be activated, making water and steam come out from the perforated disk of each group for about 10 seconds.



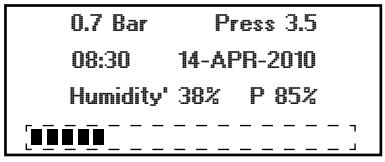
When the heating phase of the delivery groups has finished (after about 10 minutes), signaled by the disappearance of the "**PLEASE WAIT**" indication, it will be possible to make the coffee selections. For the delivery of hot water and steam, it will be necessary to wait for the complete heating of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

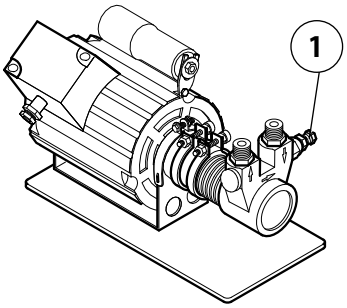


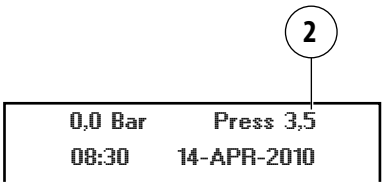
To avoid the risk of burns, it is advisable to keep hands away from the hot water nozzle, steam nozzle and delivery groups during the machine's heating phase.

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 (**2**);
- 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 having reached the "ready to operate" condition, the following operations have to be performed:

a) for each coffee unit, carry out a continuous delivery, in order to release at least 0.5 liters of the coffee circuit. In the case of several dispensing points matched with the same exchanger/coffee boiler, divide the volume on the base of the number of the dispensing points;

b) release the whole volume of hot water inside the boiler (3 liters for 1GR, 6 liters for 2GR, 8 liters for 3GR, 11 liters for 4GR), by performing a continuous delivery from the appropriate nozzle. In the case of several dispensing points, divide the volume on the base of the number of the dispensing points;continuously release steam for at least 1 minute for each steam dispensing point.

4 Boilers

There are two kinds of boilers inside the machine:

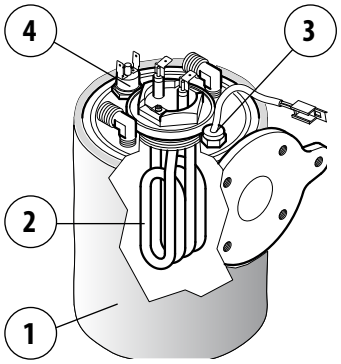
4.1 Coffee boiler

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**).



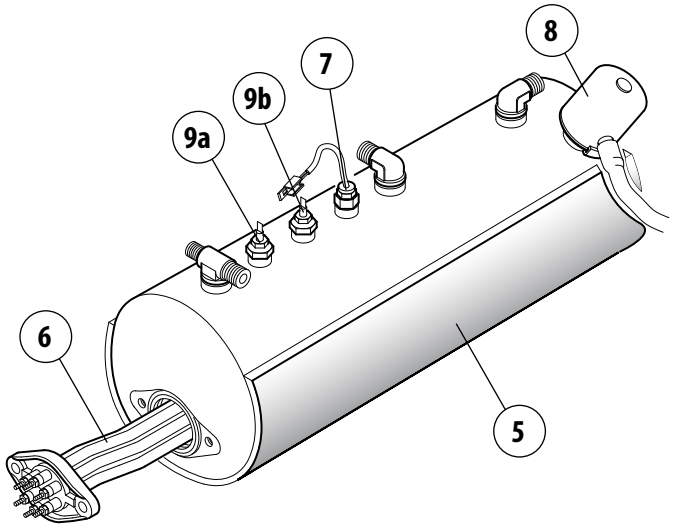
4.2 Services boiler

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**).



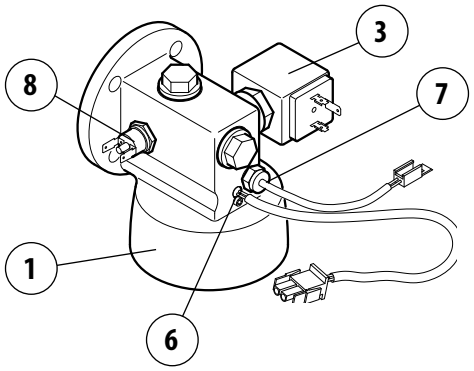
Do not replace the heating element with a more powerful one. Before making any modifications, contact the manufacturer.

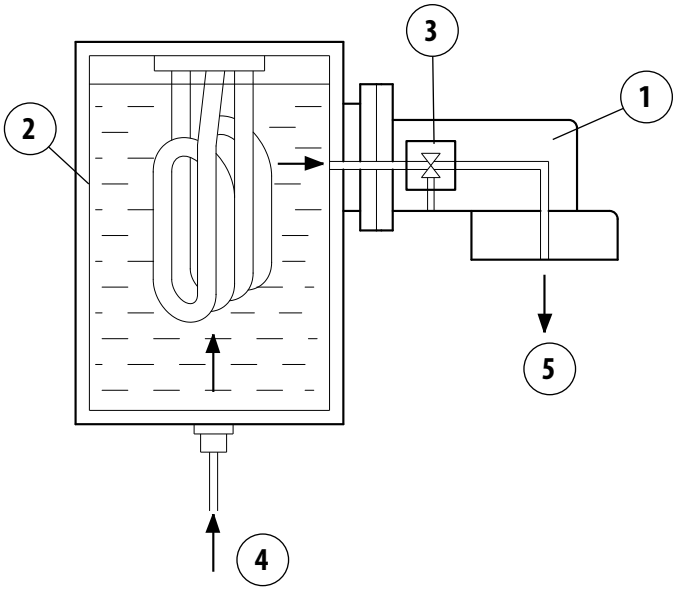
5 Dispensing assembly

The delivery 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

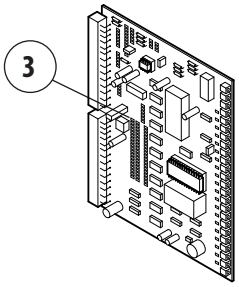




6 Automatic Water Entry

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

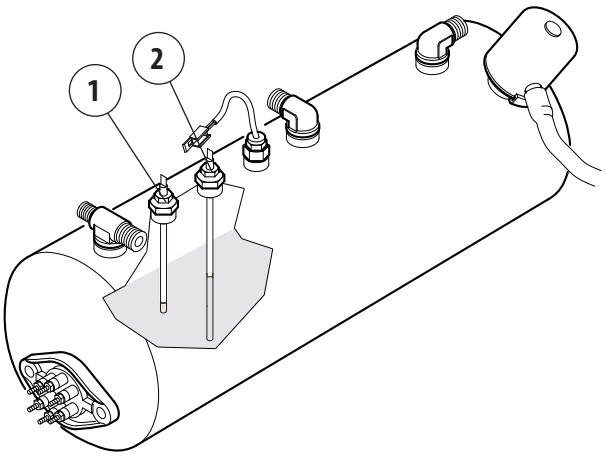
- level probe (short) (**1**)and safety probe (long) (**2**) inserted in the boiler, composed of a stainless steel rod;
- electronic control unit (**3**) ;
- hydraulic circuit controlled by a motor pump and a solenoid valve controlled by the electronic control unit.



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.

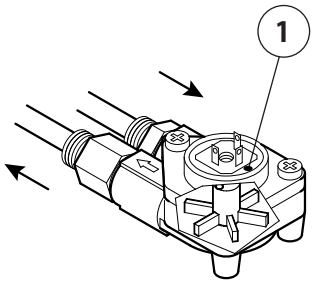
If the level is very low or there is no water in the boiler (during the machine's installation or due to a failure), the safety probe (**2**) sends a signal to the control unit which de-activates the heating element to keep it from overheating and activates the motor pump and the solenoid valve to restore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



7 Volumetric dosing

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



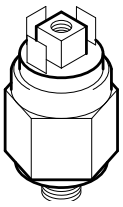
The dosing device generates an electrical impulse which is sent to the electronic control unit.

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.

8 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.

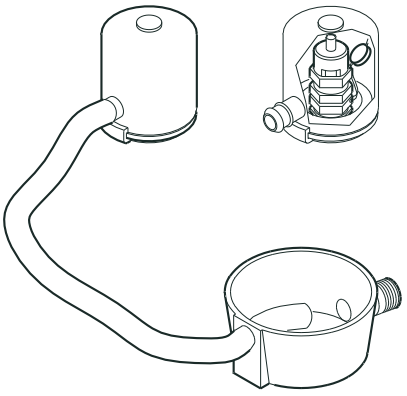
SERVICES BOILER PRESSURE SWITCH

also the boiler is equipped with a pressure switch to control the pressure.

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

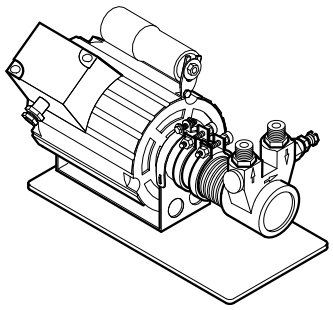
9 Anti-flooding device

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.



10 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.



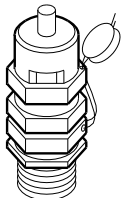
11 Valve group

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

11.1 Pressure limitation safety valve

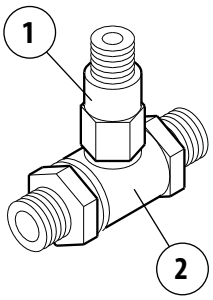
The pressure relief valve guarantees that the pressure in the boiler does not go above 2 bar. If there is a malfunction, the capacity of the valve is such that it can eliminate all the excess pressure from the boiler.

11.2 Expansion valve- non-return valve

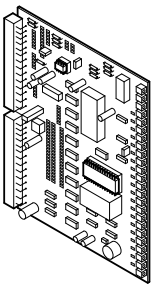


This is a valve consisting of an expansion valve and a non-return valve.

- **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.



12 Electric control unit



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

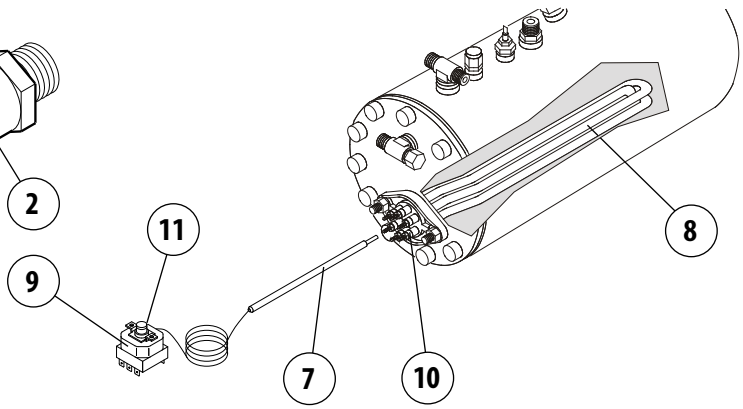
The information related to the installed software (date and version) can be seen on the display when the machine is turned on. The monitoring and control of the entire functioning of the machine.

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

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.

13 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.

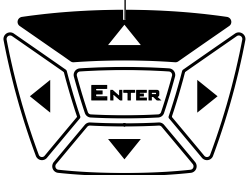
14 Cup heating device

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

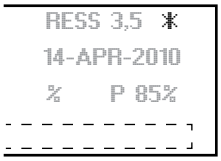
Place the cups to be heated on the appropriate surface (**1**).

To turn on the cup heater, press the (▲) navigator button (it is not necessary to insert an USB drive); an asterisk will appear on the first line on the far right of the display, indicating that the cup heater is ON.

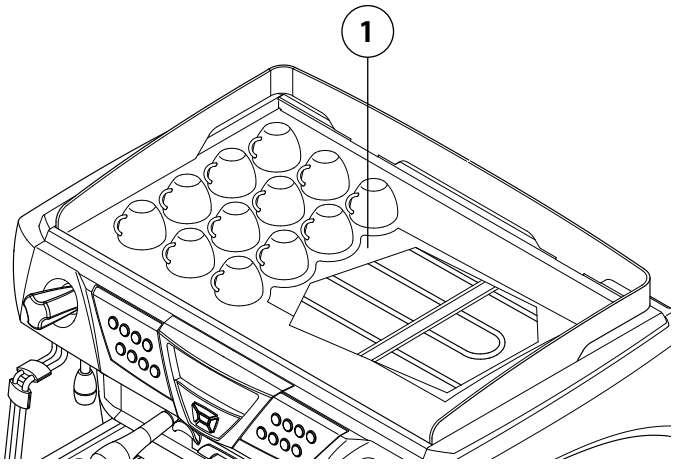
Cup heater ON/OFF



To turn it off, press the (▲) navigator button again, the asterisk will disappear.



To change the temperature of the cup heater, proceed as listed in chapter "28-Programming".



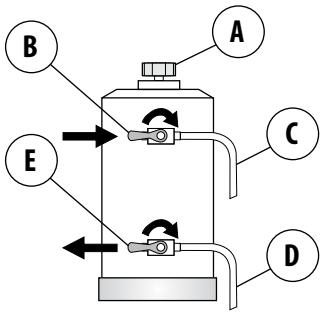
For safety reasons, it is advisable not to place cloths or other objects on the cup heater surface (1).

If the cup heater is set to a temperature lower than 70 °C in the adjustment menu, it will remain off, even if switched to ON (* symbol on the display).

15 Softeners

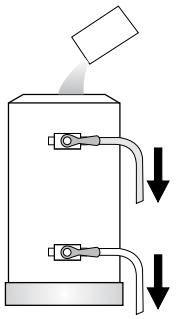
Mains water contains insoluble salts, which cause the build-up of lime scale deposits in the boiler and other parts of the machine. The softener makes it possible to eliminate or substantially reduce the presence of these mineral salts. The resin softener has the property of retaining the calcium contained 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 where water is very hard, it will be necessary to regenerate it more frequently. The same rule can be applied to locations where there is a large consumption of hot water for tea or other uses.

15.1 Regeneration of the softener

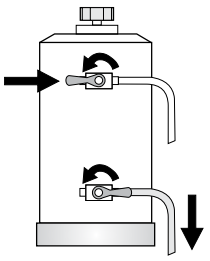


Proceed as follows:

- 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 salt to be added, based on the model (see the table on the following page);



- clean any salt or resin residues from the gasket located on the cover;
- 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.

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

The build-up of lime scale deposits in the hydraulic circuit and boiler inhibits thermal exchange, thus compromising proper operation of the machine. Heavy incrustation of the boiler may cause long machine shutdowns and invalidate the warranty in any case, because it indicates regeneration has been neglected.

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

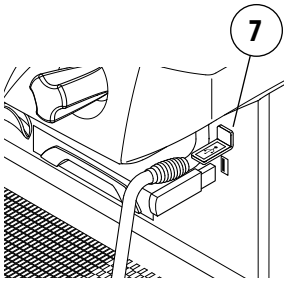
- °f: French degree
- °d: German degree = 1.8 °f
- mg $CaCO_3$

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

Amount of softened water based on hardness

°f	30	40	60	80	
°d	16,5	22	33	44	salt
mg $CaCO_3$	30	40	60	80	
8 liters	1000 lt	900 lt	700 lt	500 lt	1.0 kg
12 liters	1500 lt	1350 lt	1050 lt	750 lt	1.5 kg
16 liters	2100 lt	1800 lt	1400 lt	1000 lt	2.0 kg

15.2 Regeneration notification and counter reset

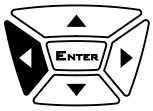


If the function has been enabled during the programming, the system measures the amount of water used by the machine and prompts the user for regeneration (flashing of "WATER SOFTENER REGENERATION") when the set amount has been exceeded.

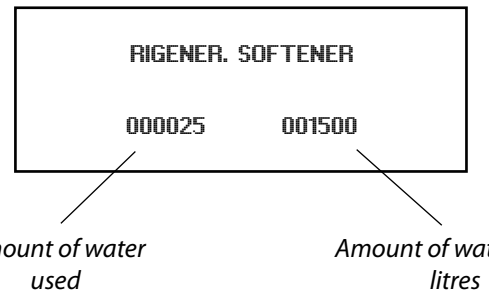
Once the regeneration has been carried out, the counter must be reset.

Proceed as follows:

- insert the USB pen in the appropriate reader (7), and the programming selector will light up;
- hold down the (◂) key of the programming selector for 5 seconds: display of the litres set and the amount of water used;



- to reset the counter, hold down the same key (◂) of the programming selector for another 5 seconds;
- when finished, remove the USB drive.

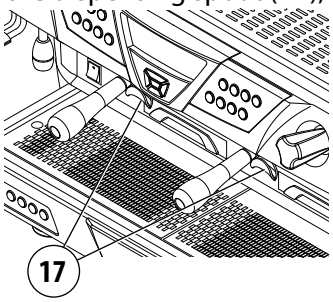


16 Preparation of beverages

16.1 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;
- put the coffee cup under the dispensing 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.

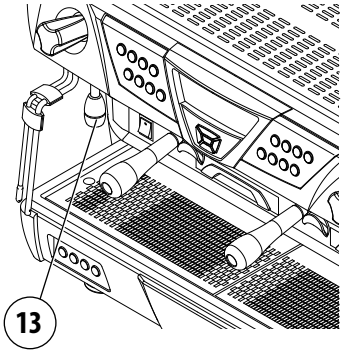
It is possible to program all machine's push-button panels simultaneously using only the left push-button panel. To obtain different doses for the various groups, perform the programming with the left push-button panel first, and then with all the others.

16.2 Coffee preparation

- 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.

16.3 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 delivery key ;
- 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*.

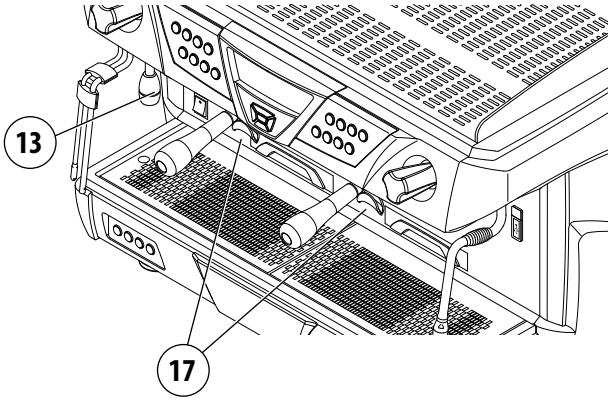
The tea key is present on each keypad of each group. These can be programmed individually and supply doses which are independent from one another.

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.

16.4 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.

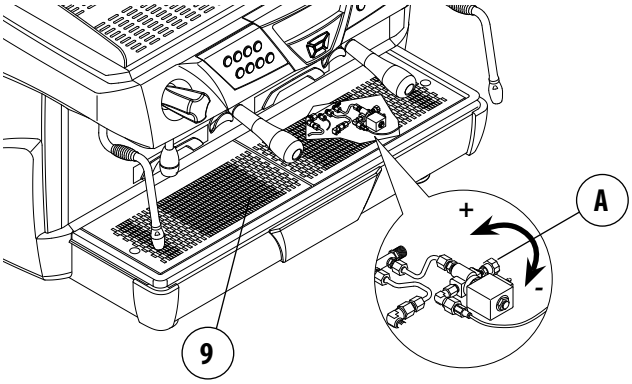
When the machine is cool (pressure below 0,6 bar) the delivery of hot water is not active.



16.5 Regulation of the hot water temperature

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

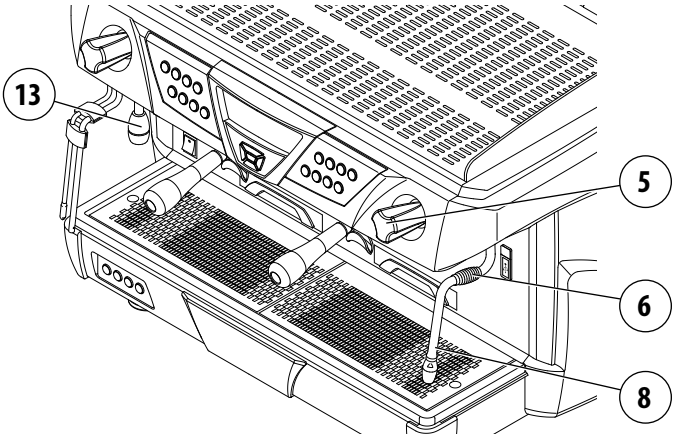
- remove the grilles and the drain tub (**9**);
- rotate the knob (**A**):
  - to increase the temperature turn clockwise
  - to decrease the temperature turn counter-clockwise



By turning the knob clockwise as far as it will go, only steam will exit the hot water dispenser.

16.6 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.

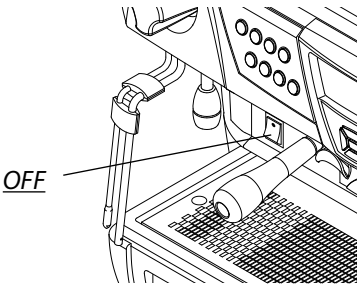


Carefully move the steam nozzle using the anti-burn rubber bulb (6) and never touch the steam nozzle (8) or the hot water nozzle (13): contact with the hot water or steam may be harmful to individuals, animals or property.

LEAVE THE STEAM NOZZLE IMMERGED IN THE MILK ONLY FOR THE TIME REQUIRED FOR HEATING.

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.

DO NOT TURN ON THE STEAM KNOB IF THE NOZZLE IS IN THE MILK AND THE MACHINE IS OFF.



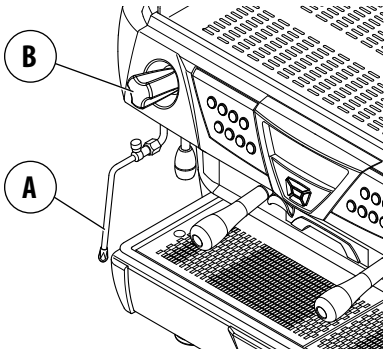
To keep the steam nozzle tips in perfect working order, it is advisable to carry out a brief dry delivery after each use. Keep the tips clean at all times using a cloth dampened in lukewarm water. Handle the nozzle with utmost caution due to the hazard resulting from the presence of high-temperature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

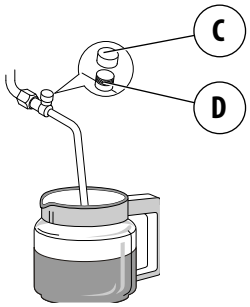
17 Milk foaming nozzle

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.

18 Cappuccino maker

18.1 installation

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.

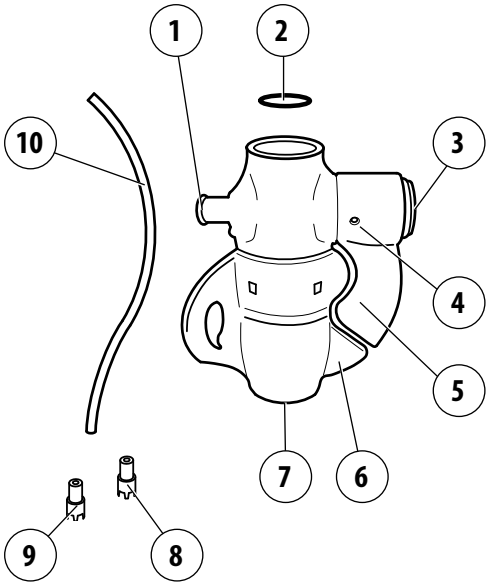
Ensure that seal (**2**) is present and/or use Teflon tape in order to avoid steam loss which may compromise the cappuccino maker's operation.

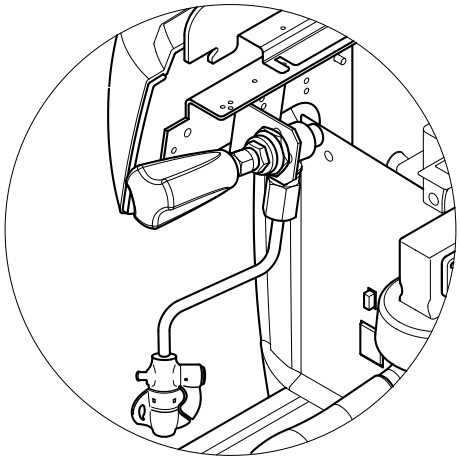
Insert the milk drawing hose (**10**) into the appropriate connection (**1**) of the cappuccino maker.

The cappuccino maker is now ready for use.

This will allow to:

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

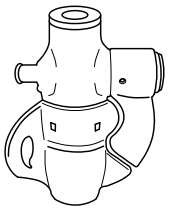




18.2 Cleaning

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.

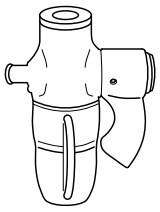


*Pos.**A***

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***

18.3 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.

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

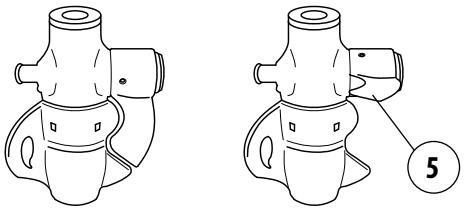
This operation should be performed carefully because excessive air, which occurs when the milk sprays, does not allow you to get the best possible performance: the cream will have rather large bubbles in it, and there will be more, but it will be less dense!

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

18.4 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.



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

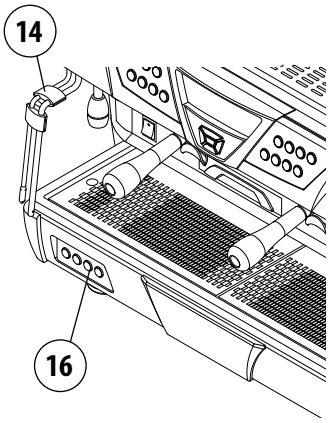
Table of temperature with and without adaptor (temperatures measured in pre-heated cup)

19 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.

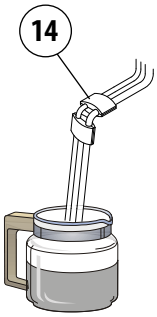
Long autosteamer dose.

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.

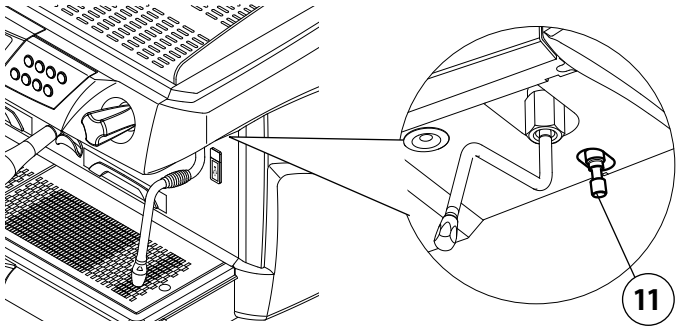
19.1 Autosteamer operation



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 dispensing is finished;
- when the dispensing 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 froth, while turning it counterclockwise will increase the froth.



19.2 heater operation

Proceed as follows:

- Immerge the tips of the autosteamer (**14**) into the beverage;
- press the key;
- wait until the dispensing 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.

19.3 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.

19.4 Automatic autosteamer nozzle cleaning.

After 120 minutes of idle time the automatic cleaning of the nozzle starts, lasting 15 seconds.

The following message will appear on the display: "STEAM CLEANING CYCLE"

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

The system includes a time limit of 4 minutes maximum for the 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 dispensing after each use. Keep the tips of the autosteamer 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.

20 Energy Saving

20.1 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 nighttime shutdown of the machine;
- self-learning of daytime working routine
- possibility to program the operating temperature of the groups and boiler.

20.2 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 "28-Programming".

20.3 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, monitors the use of the machine and then automatically processes and sets the times and groups involved in the stand-by (only if enabled as shown in chapter 28-Programming);

to program the stand-by of the groups, please refer to chapter "28 programming".

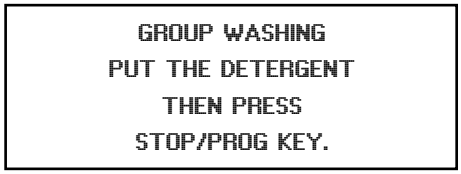
21 Group washing

If provided for in the programming, the machine automatically requests that the washing of the delivery groups be carried out.

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

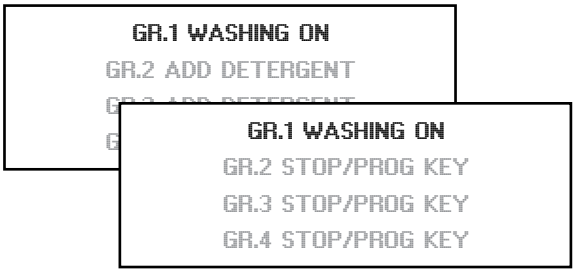
Follow the indications provided on the display:

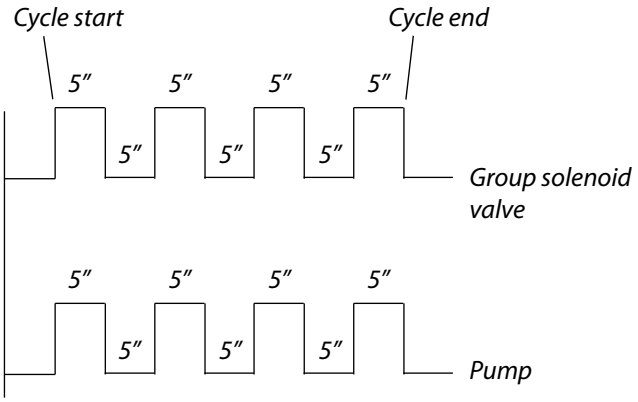
- Use the solid filter;
- insert the detergent tab into the filter;



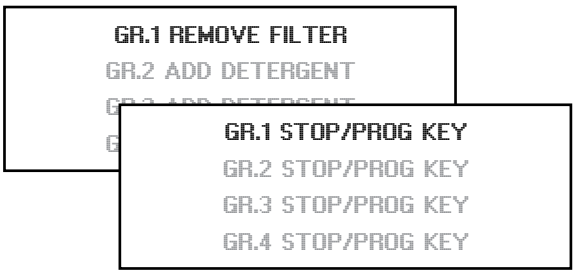
- attach filter holder to delivery group 1;
- press the "***PROG/STOP***" key to start the washing phase;

the following messages appear on the display in alternating sequence:

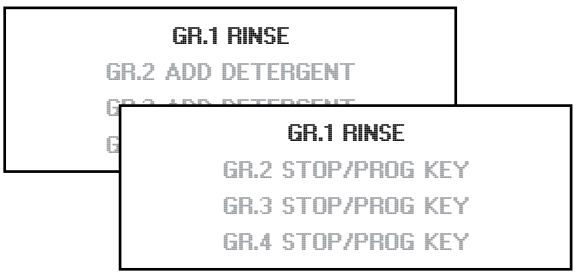




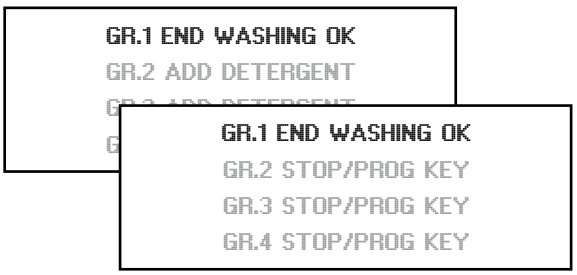
- wait for the washing to be carried out until the following messages appear on the display:



- 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:

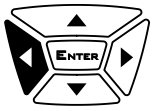


- at the end of the rinse cycle, the following messages will appear on the display:



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

If desired, the washing request can be forced by pressing and holding the (◂) key of the programming selector for 5 seconds.



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 signalling on the display of the wash request or to modify the time of activation of the message, see the chapter on "Programming".

Before confirming the start of washing with the PROG/STOP key, you can delete the operation by pressing the key (◂). To exit a washing phase that is already in progress, the washing must be completed of all the groups.

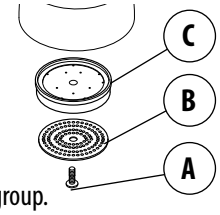
To display and reset the washing cycles of the groups, see section 28.18

22 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
CAPPUCCINO MAKER Clean it several times a day as indicated in chap. 18, especially if used continuously	XXX		
FILTERS and FILTER HOLDERS Use a screwdriver to detach the filter from the filter holder. Let the filters and filter holders soak in hot water for a few hours so that the fatty coffee deposits can dissolve. It is advisable to add special detergent to the water and then rinse with clean water.	XXX		
FILTERS and FILTER HOLDERS Use a screwdriver to detach the filter from the filter holder. Clean the inside of the filter holder with a brush and wash the filter and filter holder with hot water. Failure to clean the filters and filter holders may compromise the quality of the coffee and cause problems such as bad delivery and coffee grounds at the bottom of the cup.	X		
STEAM NOZZLE - MILK FOAMER - AUTOSTEAMER Keep the nozzle clean at all times using a cloth dampened in lukewarm water.	X		
STEAM NOZZLE - MILK FOAMER - AUTOSTEAMER TIPS Check and clean the tips of the nozzle, clearing out the steam outlet holes with a small needle.	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.	X		

Cleaning	Daily	Weekly	Monthly
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	
DISPENSING UNIT Carry out the washing of the groups as indicated in Chapter 21 and follow the instructions below: • use the blind filter holder; • 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**	
GRINDER-DOSER Clean the inside and outside of the receptacle and doser of the grinder-doser with a cloth dampened in lukewarm water.		**X**	

When cleaning, always use cloths that are completely clean and hygienic.

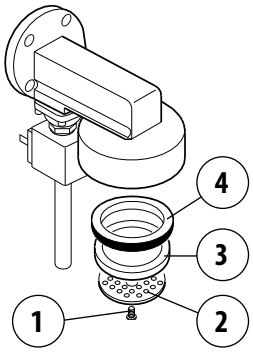
23 Checks and maintenance

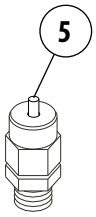
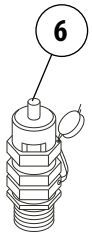
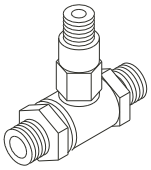
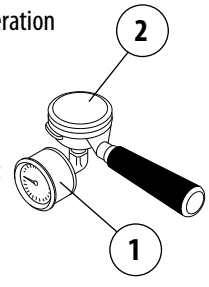
23.1 Control and maintenance operations

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

Not 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.

Checks	Weekly	Monthly	Yearly
MACHINE • Using the machine display, check that the indicated pump pressure is around 8-9 bar. • Check that the boiler pressure indicated on the display is consistent with a programming value.	**X**		
FILTER HOLDER FILTERS Check the wear of the filters, if there is damage to the edges, and if coffee grounds are getting into the cup. If necessary, replace the filters.		**X**	
GRINDER-DOSER • Check the dose of the ground coffee, which should be about 6-7 gr. at a time, and adjust the amount as necessary. • Check the degree of grinding and modify as required. • Check the grinders for wear: they should be replaced if there is too much powder in the ground coffee. • You should replace the flat grinders after every 400/500 kg of coffee. For conical grinders, replace every 800/900 kg		**X**	

Checks	Weekly	Monthly	Yearly
SOFTENER • Carry out regeneration of the softener (for the manual softener). • Check that there is salt in the container (for the softener in the automatic version).		X	
PERFORATED DISK and SEAL UNDER THE PAD 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: • loosen the screw (**1**); • remove the containment ring (**3**); • replace the perforated disk (**2**) and the seal under the pad (**4**); • reassemble the components 		X	
• Verify the correct functioning of the pressure switches • Check for LIME SCALE on the heating elements and boilers. • Check the efficiency of the SOLENOID VALVES of the delivery groups. • Check for any HYDRAULIC LEAKS at the bench and the efficiency of the drains.			X
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. For the checks, proceed as follows:			

Checks	Weekly	Monthly	Yearly
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
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 gauge **(8)** to monitor pressure increase 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; • de-activate the deliveries; • check the other delivery groups.  			X

23.2 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 alarm messages will remain on the display and blink 10 seconds every minute in the selection standby phase or in the programming standby phase.

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 32.

When the machine is functioning, 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.

```
PLANNED SERVICE -A-

REMAIN CYCLES 0999
PLEASE CALL SERVICE
```

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

```
PLANNED SERVICE -A-

LIMIT REACHED
PLEASE CALL SERVICE
```

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

```
PLANNED SERVICE -B-

REMAIN CYCLES 1000
PLEASE CALL SERVICE
```

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

```
PLANNED SERVICE -B-

LIMIT REACHED
PLEASE CALL SERVICE
```

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

```
PLANNED SERVICE -C-

REMAIN CYCLES 1000
PLEASE CALL SERVICE
```

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

```
PLANNED SERVICE -C-

LIMIT REACHED
PLEASE CALL SERVICE
```

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:

```
TOTAL CYCLES :    WWWWW

REMAIN 15 DAY
PLEASE CALL SERVICE
```

Once the date of required assistance is reached, the following message appears on the display:

```
TOTAL CYCLES :    WWWWW

LIMIT REACHED
PLEASE CALL SERVICE
```

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

The alarms are reset by pressing the button (▸) for at least 3 seconds until the cycles meter resets to 0000.

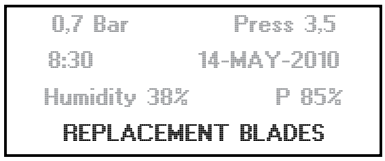
For programming of the alarms refer to chapter 30.2.

23.3 Grinders wear check

If enabled, this feature displays a message to warn the user when it is necessary to replace the coffee grinder blades.

The appears when the amount in kg of coffee used reaches the programmed limit.

The message will remain on the display and blink 10 seconds every minute in the selection standby phase or in the programming standby phase.



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

The counter can be reset at any time (also before the alarm is engaged) by a technician following the procedure described in chapter 32.

For the programming, refer to chapter 30.3.

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

ENGLISH

24 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.

MALFUNCTION	CAUSE	SOLUTION
WATER LEAKS FROM THE MACHINE	• 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.
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 dispensing 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 UNACCEPTABLE PRESSURE	• 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.

MALFUNCTION	CAUSE	SOLUTION
ALL THE 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.
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 motor 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 motor. • 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 motor 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.

25 Alarms and display indications

25.1 Display indications

INDICATION	CAUSE	SOLUTION
The Led of the STOP-PROG key remains lit constantly	Delivery group off.	Modify the machine programming.
The LED of the STOP-PROG key is flashing	One or more delivery groups are in stand-by.	• Place the group back in service by pressing the STOP/ PROG key for 3 seconds. • Modify the machine programming.
PERFORM GROUP WASHING	Need to clean the delivery groups.	Wash the groups as instructed in the chapter on "Group washing"
ENERGY SAVING + flashing LEDs of the STOP-PROG keys	The entire machine (including the services boiler) is in energy savings mode.	Wait for the stand-by phase to end or change the programming of the machine.
- OFF -	The machine is off in automatic mode.	Start the machine again.

25.2 Alarms

ALARM	CAUSE	SOLUTION
HEAT SENSOR GROUP OPEN ON GROUP #	Group temperature probe disconnected or defective.	Check for proper connection of the probe and replace it if necessary.
CHECK HEATING CIRCUIT GROUP ON GROUP #	• Heating circuit group on group open. • Group heating element interrupted • Safety thermostat open. • Fuse F5/F6 interrupted. • Triac defective.	Check heating circuit group : Group heating element; Safety thermostat, related fuse and triac in the control unit; main switch; phase connection for 380 V version. if necessary replace the defective components;
WATER HEAT SENSOR OPEN ON GROUP #	Group temperature probe disconnected or defective.	Check the connection and replace the probe if necessary.
CHECK WATER HEAT SENSOR ON GROUP #	• Water heating circuit group on group open. • Group water heating element interrupted. • Safety thermostat open. • Fuse F2/F3 burned. • Triac defective.	Check heating circuit group : Group heating element; Safety thermostat, related fuse and triac in the control unit; main switch; phase connection for 380 V version. if necessary replace the defective components;
STEAM BOILER SENSOR OPEN	Service boiler temperature probe disconnected or defective	Check for proper connection of the service boiler probe and replace it if necessary.
STEAM BOILER HEATING CIRCUIT	• Steam boiler heating circuit disconnected. • Fuse F7 burned. • Static relays are faulty. • Heating element is faulty.	Check steam boiler heating circuit and replace defective components if necessary.
CUP HEATER SENSOR	• Cup heater temperature probe disconnected. • Temperature probe in short circuit. • Cup heater overheating.	Check for proper connection of the cup heater probe and replace it if necessary.

ALARM	CAUSE	SOLUTION
AUTOSTEAMER SENSOR	• Autosteamer temperature probe disconnected. • Autosteamer probe in short circuit. • Autosteamer probe overheating.	Check for proper connection of the autosteamer probe and replace it if necessary.
STEAM BOILER HEATING TIMEOUT	• Service boiler heating circuit disconnected. • Heating element protection thermostat open. • Fuse F7 burned.	Check steam boiler heating circuit and replace burned components if necessary.
HEATING TIMEOUT GROUP ON GROUP #	• Heating circuit group on group disconnected. • Group heating element interrupted. • Safety thermostat open. • Fuse(s) F6- F5 burned.	Check heating circuit group : Group heating element; Safety thermostat, related fuse and triac in the control unit; main switch; phase connection for 380 V version. if necessary replace the defective components.
HEATING OUT OF SERVICE GROUP ON GROUP #	• Heating circuit group on group disconnected. • Group heating element interrupted • Safety thermostat open. • Fuse(s) F6- F5 burned.	Check heating circuit group : Group heating element; Safety thermostat, related fuse and triac in the control unit; main switch; phase connection for 380 V version. if necessary replace the defective components.
COFFEE WATER HEATING TIMEOUT ON GROUP #	• Water boiler heating circuit on group disconnected. • Group water boiler heating element interrupted. • Safety thermostat open. • Fuse(s) F2 - F3 - F8 - F9 burned.	Check water boiler heating on group: heating element; safety thermostat, related fuse and triac in the control unit; main switch; phase connection for 380 V version. if necessary replace the defective components.
COFFEE WATER HEATING OUT OF SERVICE ON GROUP #	• Water boiler heating circuit on group disconnected. • Group water boiler heating element interrupted. • Safety thermostat open. • Fuse(s) F2 - F3 - F8 - F9 burned.	Check water boiler heating on group: heating element; safety thermostat, related fuse and triac in the control unit; main switch; phase connection for 380 V version. if necessary replace the defective components.
FILLING TIMEOUT	FIRST INSTALLATION. • The service boiler has not completed the filling within the maximum time (255 seconds). • The level probe does not detect the presence of water.	Check hydraulic circuit for service boiler water filling: • Check that there is actually water in the mains water supply. • Check filling solenoid valve / pump filter • Check fuse F3 on control unit.
FILLING TIMEOUT	IN OPERATION. • The service boiler has not completed the filling within the maximum time (90 seconds).	Check hydraulic circuit for service boiler water filling: • Check that there is actually water in the mains water supply. • Check filling solenoid valve / pump filter • Check fuse F3 on control unit.
SAFETY LEVEL	The water in the service boiler has dropped below the minimum level.	Check for correct connection of the minimum level probe.
COFFEE WATER PRESSURE ON GROUP #	The service boiler has not reached the filling pressure within the maximum time (60 seconds).	Check coffee boiler hydraulic circuit: • Check that there is actually water in the mains water supply. • Check solenoid valve / pump filter. • Check volumetric dosing device (filter input / 0.5mm gigler output).
VOLUMETRIC DOSING DEVICE	The volumetric dosing device does not perform water count.	• Check the volumetric dosing device connection. • Check that there is actually water in the mains water supply. • Check pump filter / volumetric dosing device filter. • Check 1mm group gigler. • Check 0.5mm volumetric dosing device gigler.

26. List of hazards

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

The appliance must be connected to an efficient grounding system
If this is not done, the appliance can be a source of dangerous electrical shocks as 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 of the autosteamer, steam and hot water nozzles
During use, the autosteamer, steam, and hot water nozzles become very hot and are thus a potential 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.

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 people not familiar with it 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.

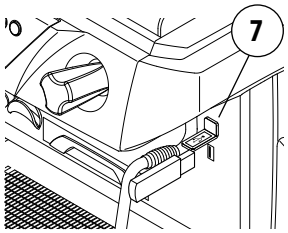
Any action taken by a technician on the electronics of the machine when the machine is still supplied with electrical power automatically invalidates any guarantee. The technician needs to be aware that the machine is electrically connected and act accordingly.

Section II - Programming

27 USB drive

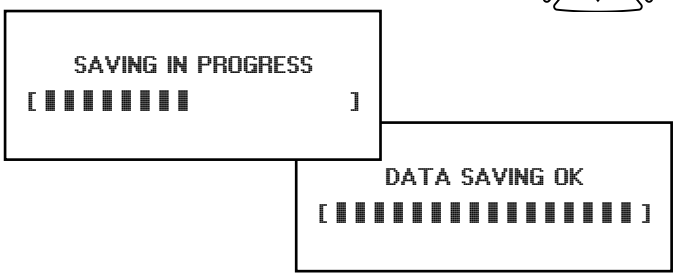
The USB drive provided can be used to save all the settings made on the machine.

If necessary, it's also possible to operate in reverse, i.e., load the previously saved data from the drive to automatically reset all the machine parameters.



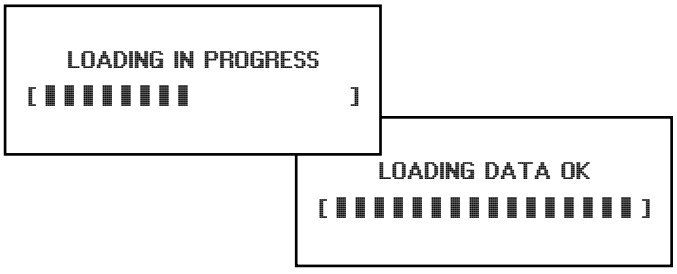
27.1 Data saving

- Insert the USB pen in the appropriate reader (**7**), and the programming selector will light up;
- press the (▲) key and wait for the data to be completely saved;
- when finished, all the configurations on the machine will be saved on the USB drive.



27.2 Restoring data

- Insert the USB pen in the appropriate reader (**7**), and the programming selector will light up;
- press the (▼) key and wait for the data to be completely loaded;
- when finished, all the configurations saved on the USB drive will be transferred onto the machine.



Do not remove the USB drive during data transfer.

If the USB is used with no loaded files, the message "INVALID DATA" will be displayed.

27.3 Software Update

Through the USB reader you can update the software on your machine.

Before the update, it is a good thing to prepare the machine, resetting the counts and alarms.

Proceed as follows:

- with the USB drive inserted, turn on the machine while holding down the **ENTER** button on the browser;
- a message will be displayed to warn you of the success of the operation, and the machine will boot normally.

The parameters that are re-initialized are:

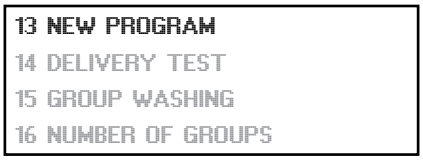
- The alarm page.
- The programming of the plans for the intervention of the A-B-C. services, the count of the strokes carried out relating to the facilities, and also their total.
- The grinders wear alarm and related counts.

During the operation, leave the dip switch No. 12 at OFF, otherwise the partial and total counts (machine life) are also reset.

At this point you can update the software. After requesting the files to the manufacturer, proceed as follows:

- use a new USB drive;
- create a folder named "CMAELITE";
- save the unzipped files in .HEX format into this folder;
- the file named "QUALIFY.TXT" must also be inserted into the same file;
- update the machine software as described below.

	Insert the USB drive in the appropriate reader (**7**)
▼	Scroll the menu until the item is highlighted.



ENTER	Confirm to access the menu.
▲ ▼	Select the language to use.

ENTER	After confirming your language, the software update will start.
Deletion of memory cells	ERASING FLASH S1...S2
Software update	PROG. RECORD #### [ ]
Update completed.	DOWNLOAD COMPLETED OK PLEASE SWITCH OFF-ON
	Turn the machine off and then back on to complete the operation.

Do not use the supplied drive to perform the upgrade, but always get a new USB drive.

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 provided by the manufacturer.

28 Programming

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

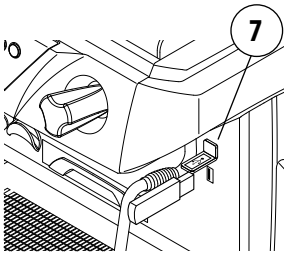
It also explains how to reset the machine by reloading the default manufacturer's data to the memory.

28.1 Access to the programming

To access machine programming, proceed as follows:

- insert the USB drive in the program reader (**7**), the browser key will light up;
- hold down the **ENTER** button for at least 5 seconds.

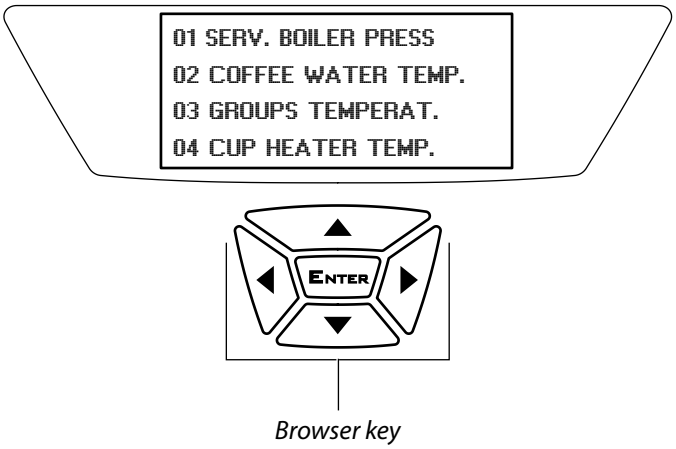
The display will show the programming menu.



28.2 Browser key

All the machine programming operations carried out using the browser key.

During the programming phase a menu will be displayed, from which it's possible to select the parameters to be changed.

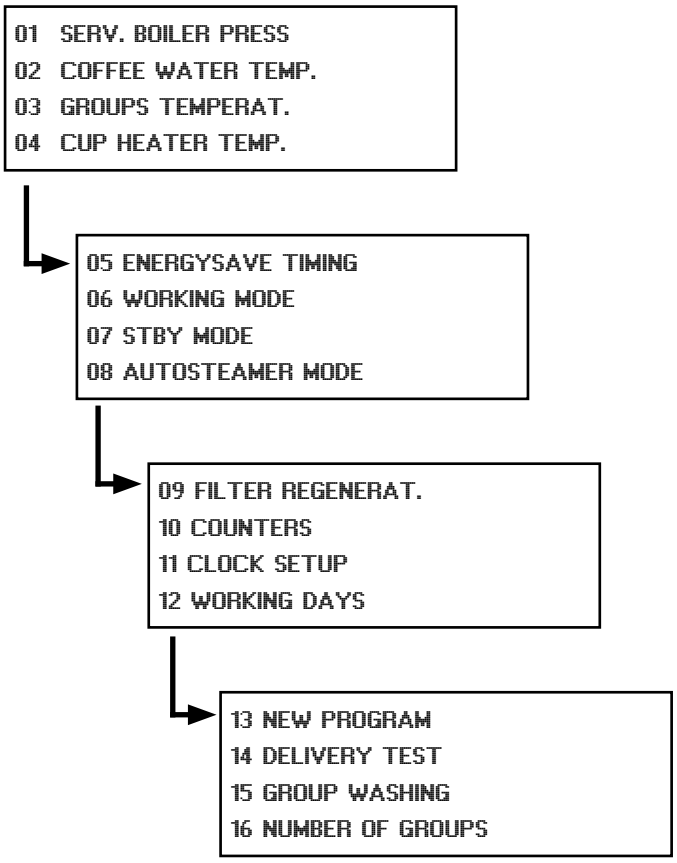


Browser key

The menu item, or the parameter that has been selected is highlighted by lighting up. To exit the menu, press the (◂) or (▸) key.

28.3 Programming menu

Here follow the 4 screens in which the programming menu is divided, shown on the display and managed via the browser key.



Recap menu items:

1. Boiler pressure regulation.
2. Coffee water temperature regulation.
3. Group temperature regulation.
4. Cup heater temperature regulation.
5. Setting of Energy Saving time.
6. Setting of method of use of the groups.
7. Setting of stand-by mode.
8. Setting Autosteamer mode.
9. Setting of softener regeneration.
10. Displaying of counters.
11. Setting of date.
12. Setting of working days.
13. New Program: setting the language.
14. Checking of delivery flow.
15. Setting of group washing interval.
16. Setting of groups number.

28.4 Boiler pressure adjustment.

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
	01 SERV. BOILER PRESS 02 COFFEE WATER TEMP. 03 GROUPS TEMPERAT. 04 CUP HEATER TEMP.
ENTER	Confirm to access the menu
	BOILER PRESSURE X.X Bar Corr=Y
◀ ▶	Scroll the menu until the parameter to be highlighted is modified
▲ ▼	Modify the parameter: increase or decrease
ENTER	Confirm to exit the menu.
	01 SERV. BOILER PRESS 02 COFFEE WATER TEMP. 03 GROUPS TEMPERAT. 04 CUP HEATER TEMP.
◀ ▶	To exit the programming menu

X.X *Boiler pressure.*

Y *Correction parameter (select 1 to match the value displayed with the actual pressure in the boiler).*

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.

28.5 Adjustment of coffee water temperature.

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
	01 SERV. BOILER PRESS 02 COFFEE WATER TEMP. 03 GROUPS TEMPERAT. 04 CUP HEATER TEMP.
ENTER	Confirm to access the menu
	WATER TEMP. COFFEE X YY °C
◀ ▶	Scroll the menu until the group which needs the temperature to be adjusted is selected: all the keys of the selected group will be highlighted.
▲ ▼	Modify the parameter: increase or decrease
ENTER	Confirm to exit the menu.
	01 SERV. BOILER PRESS 02 COFFEE WATER TEMP. 03 GROUPS TEMPERAT. 04 CUP HEATER TEMP.
◀ ▶	To exit the programming menu

X *Dispensing group.*

Y *Temperature of the water in the coffee boiler*

28.6 Adjustment of the groups temperature

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
	01 SERV. BOILER PRESS 02 COFFEE WATER TEMP. 03 GROUPS TEMPERAT. 04 CUP HEATER TEMP.
ENTER	Confirm to access the menu
	TEMPERATURE GROUP. X Y °C
◀ ▶	Scroll the menu until the group which needs the temperature to be adjusted is selected: all the keys of the selected group will be highlighted.
▲ ▼	Modify the parameter: increase or decrease
ENTER	Confirm to exit the menu.
	01 SERV. BOILER PRESS 02 COFFEE WATER TEMP. 03 GROUPS TEMPERAT. 04 CUP HEATER TEMP.
◀ ▶	To exit the programming menu

X *Dispensing group.*

Y *Group temperature.*

28.7 Adjusting the cup heater temperature

To modify the cup heater temperature, proceed as follows:

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
01 SERV. BOILER PRESS
02 COFFEE WATER TEMP.
03 GROUPS TEMPERAT.
04 CUP HEATER TEMP.
```

ENTER	Confirm to access the menu

```
CUP HEATER
X °C
```

▲ ▼	Modify the parameter: increase or decrease
ENTER	Confirm to exit the menu.

```
01 SERV. BOILER PRESS
02 COFFEE WATER TEMP.
03 GROUPS TEMPERAT.
04 CUP HEATER TEMP.
```

◀ ▶	To exit the programming menu

X *Cup heater temperature(70 ÷ 114 °C).*

If a temperature above 114°C is set, the indication CUP HEATER ON will appear on the display and the cup heater will be activated in continuous operation.

If setting a temperature below 70°C, the indication "CUP HEATER--" will appear on the display and the cup heater will be deactivated. Deactivation of the cup heater by a technician does not allow the user to activate the cup heater. Deactivation of the cup heater by the user can be reversed at any time.

28.8 Programming of Energy Saving time and groups stand-by.

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

Setting the machine START-UP TIME:

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
05 ENERGYSAVE TIMING
06 WORKING MODE
07 STBY MODE
08 AUTOSTEAMER MODE
```

ENTER	Confirm to access the menu

Machine start-up time

```
ON TIME
HH:MM
```

▲ ▼	Set the time for the machine to start. To switch from hours (HR) to minutes (MN) press the (▶) key.
▶	Once the minutes (MN) are set, press the (▶) key to move to the next display.

Time of the first stand-by period of the delivery groups:

```
STANDBY 1 TIME
FROM HR:MN
```

▲ ▼	Set the start time for stand-by. To switch from hours (HR) to minutes (MN) press the (▶) key.
▶	Once the minutes (MN) are set, press (▶).

```
STANDBY 1 TIME
TO HR:MN
```

▲ ▼	Set the end time for stand-by. To switch from hours (HR) to minutes (MN) press the (▶) key.
▶	Once the minutes (MN) are set, press (▶). You can now program the time for the second stand-by period.

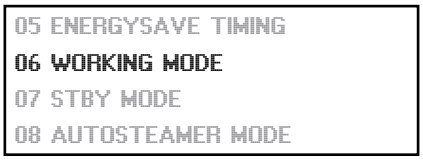
Time of the second stand-by period of the delivery groups:	
STANDBY 2 TIME FROM HR:MN	
▲ ▼	Set the start time for stand-by. To switch from hours (HR) to minutes (MN) press the (▶) key.
▶	Once the minutes (MN) are set, press (▶).
STANDBY 2 TIME TO HR:MN	
▲ ▼	Set the start time for stand-by. To switch from hours (HR) to minutes (MN) press the (▶) key.
▶	Once the minutes (MN) are set, press (▶). Programming the energy saving time of the machine.
Time of activation of machine Energy Saving	
REST TIME HR:MN	
▲ ▼	Set the start time for stand-by. To switch from hours (HR) to minutes (MN) press the (▶) key.
ENTER	Confirm to exit the menu.
05 ENERGYSAVE TIMING 06 WORKING MODE 07 STBY MODE 08 AUTOSTEAMER MODE	
◀ ▶	To exit the programming menu

In the even you want to program the stand by periods, and/or rest periods of the machine, set the time to 00:00.

28.9 Configuration of groups proper use

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
05 ENERGYSAVE TIMING 06 WORKING MODE 07 STBY MODE 08 AUTOSTEAMER MODE	
ENTER	Confirm to access the menu
SET ON/STBY/OFF GR.1 XXX	
▲ ▼	Set the operating mode of group 1: ON always active, STBY, config. stand-by, OFF always inactive
▶	Confirm and go to next group Repeat the operation for each delivery group. Once the last group has been set, the display will show the Energy Saving settings
SET ON/ESAV/OFF REST XXX	
▲ ▼	Set the machine stand-by mode: ON machine always on, ESAV set on Energy Saving, OFF completely turned off.
▶	Confirm and move to the next screen.
REDUCED SETPOINT STBY TEMP. XXX.C	
▲ ▼	Set the temperature of the groups in the stand-by phase
▶	Confirm and go to programming of the temperature of the entire machine in the energy saving phase (only if set)

	
▲ ▼	Set the temperature of the entire machine in the energy saving phase
ENTER	Confirm to exit the menu.
	
◀ ▶	To exit the programming menu

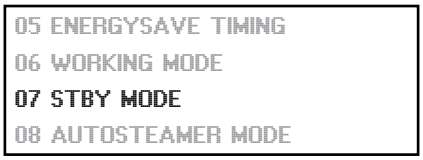
To program the stand-by time zone for the single dispensing groups, and energy saving of the machine, refer to the previous paragraph.

28.10 Standby mode.

This option lets you use the daytime energy savings mode in two ways:

TIMER Operates according to programmed time periods (see par. 28.8)

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).

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
	
ENTER	Confirm to access the menu
	
▲ ▼	Modify the TIMER or AUTO operating mode

Based on the selected mode, by pressing the (▶) key, the proper screen will be displayed:

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 (see below), the system will go back to stand-by.

To program the time of activation, proceed as follows:

▶	Press (▶), to visualize the stand-by late minutes

```
REST STAND-BY
MM
```

ENTER	Confirm to exit the menu.

```
05 ENERGYSAVE TIMING
06 WORKING MODE
07 STBY MODE
08 AUTOSTEAMER MODE
```

◀ ▶	To exit the programming menu

AUTO

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

▶	press (▶), to view the number of possible beverages

```
threshold AUTO STBY
XX
```

ENTER	Confirm to exit the menu.

```
05 ENERGYSAVE TIMING
06 WORKING MODE
07 STBY MODE
08 AUTOSTEAMER MODE
```

◀ ▶	To exit the programming menu

Once confirmed and exited from the menu, the machine should be turned off and back on pressing the **ENTER** button, until the message "***TEST OK***" is displayed.

From now on, a one-week period of machine monitoring begins.

28.11 Autosteamer option

To enable or disable the autosteamer, proceed as follows:

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted.

```
05 ENERGYSAVE TIMING
06 WORKING MODE
07 STBY MODE
08 AUTOSTEAMER MODE
```

ENTER	Confirm to access the menu.

```
AUTOSTEAMER
YES/NO
```

▲ ▼	Enable or disable the autosteamer (if you select NO, the "Autosteamer" keyboard will be excluded).
▶	If activated, press (▶), to view the programming temperature for each different function.

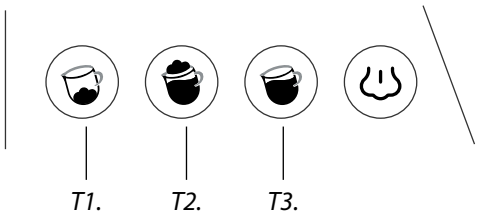
```
AUTOSTEAMER (.C)
T1=XX T2=XX T3=XX
```

▲ ▼	Set the desired temperature (50 ÷ 80 °C).
◀ ▶	Press the (◀) and (▶) keys to switch from a value to another.
ENTER	Confirm to exit the menu.

```
05 ENERGYSAVE TIMING
06 WORKING MODE
07 STBY MODE
08 AUTOSTEAMER MODE
```

◀ ▶	To exit the programming menu

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



28.12 Softener regeneration

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
	09 FILTER REGENERAT. 10 COUNTERS 11 CLOCK SETUP 12 WORKING DAYS
ENTER	Confirm to access the menu
	RIGENER. SOFTENER XXXXX
▲ ▼	Set the number of litres used by the machine after which the message indicating the need for regeneration will be shown
ENTER	Confirm to exit the menu.
	09 FILTER REGENERAT. 10 COUNTERS 11 CLOCK SETUP 12 WORKING DAYS
◀ ▶	To exit the programming menu

Once the set number of litres is reached, to eliminate the signal on the display see chapter 15. To cancel the signal set the litres to "000000".

28.13 Display of the counters

This menu item allows to view a variety of information, useful to the technician for the proper identification of anomalies.

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

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
	09 FILTER REGENERAT. 10 COUNTERS 11 CLOCK SETUP 12 WORKING DAYS
ENTER	Confirm to access the menu
	TOTAL COFFEES XXXXX
	The first screen shows the number of total coffee selections made by the machine.
	To display the partial strokes for the various types of delivery, press the respective keys on the push-button panel. The selected key will light up, and the number of selections made will be displayed. You can repeat this operation for every dose key.
	COUNTERS XXXXX
▶	Press (▶), to view the alarm list.
	XX - DDMMYY XX - DDMMYY XX - DDMMYY XX - DDMMYY XX - DDMMYY XX - DDMMYY XX - DDMMYY XX - DDMMYY
	This screen shows the last 8 alarms stored by the machine. For further information, refer to chapter 32
▶	Press (▶), to view the scheduled maintenance.

TOTAL CYCLES : WWWWW SRV-A: 070000 / XXXXXX SRV-B: 140000 / YYYYYY SRV-C: 350000 / ZZZZZZ	
	This screen allows you to control the scheduled maintenance alerts. For further information, refer to chapter 31.
▶	Press (▶), to view the "Grinders wear" screen.
WEAR ABD BLADES kg XXXX/YYYY	
▶	Press (▶) to display the coffee gram count input screen for the individual dose keys.
k1 gr.00 k4 gr.00 k2 gr.00 k5 gr.00 k3 gr.00 k6 gr.00 kC gr.00	
	These last 2 screens allow you to check the grinders wear of the grinder-doser, and to intervene accordingly. For further information, refer to chapter 33.
ENTER	Confirm to exit the menu.

28.14 Setting the date

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
09 FILTER REGENERAT. 10 COUNTERS 11 CLOCK SETUP 12 WORKING DAYS	
ENTER	Confirm to access the menu
CLOCK SET-UP HH:MM DD-MM-YYYY D AUTO	
◀ ▶	Scroll the menu until the item to be modified is highlighted
▲ ▼	Modify the parameter
◀ ▶	Switch to another parameter and repeat the operation
ENTER	Confirm to exit the menu.
09 FILTER REGENERAT. 10 COUNTERS 11 CLOCK SETUP 12 WORKING DAYS	
◀ ▶	To exit the programming menu

HH	hours		
MM	minutes		
DD	day	**1**	Monday
MM	month	**2**	Tuesday
YYYY	year	**3**	Wednesday
D	day of the week	**4**	Thursday
		5	Friday
		6	Saturday
		7	Sunday
AUTO	The clock automatically switches to the Daylight Saving time and vice versa.		
MANUAL	The clock doesn't switch to the Daylight Saving time and vice versa.		

Legend

28.15 Setting the working days

To program the start-up and shutdown of the machine, proceed as follows:

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
09 FILTER REGENERAT.
10 COUNTERS
11 CLOCK SETUP
12 WORKING DAYS
```

ENTER	Confirm to access the menu

```
WORKING DAYS
1 2 3 4 5 6 7
```

◀ ▶	Scroll the menu until the parameter to be highlighted is modified
▲ ▼	Enable or disable the working day.
◀ ▶	Switch to another day and repeat the operation
ENTER	Confirm to exit the menu.

```
09 FILTER REGENERAT.
10 COUNTERS
11 CLOCK SETUP
12 WORKING DAYS
```

◀ ▶	To exit the programming menu

1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

By setting the character "-" the machine will stay off or in energy saving mode corresponding to the day of the week (example 1 2 - 4 5 6 7 : the machine stays off on Wednesday).

28.16 Setting the language

To set the displayed language, proceed as follows:

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
13 NEW PROGRAM
14 DELIVERY TEST
15 GROUP WASHING
16 NUMBER OF GROUPS
```

ENTER	Confirm to access the menu

```
LANGUAGE
ENGLISH

< EXIT AND 'OK' TO CONFIRM
```

▲ ▼	Select the language to use
ENTER	Confirm to exit the menu.
◀	To exit without changes.

By confirming the new language, the machine will delete the previous language; once done, the machine will load the new language.

Afterwards, the machine will restart.

When it's on again, the displayed text will be in the last language selected.

It is possible to choose one of the following languages:

- Italian
- English °C
- English °F
- French
- German
- Spanish
- Portuguese

This procedure also updates the software of the machine. Ensure to note the version stored in the USB drive you are using.

If the operation fails, it will be necessary to manually turn the machine off and back on, while the USB drive is inserted.

28.17 Delivery check

To set the type of delivery check, proceed as follows:

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
13 NEW PROGRAM
14 DELIVERY TEST
15 GROUP WASHING
16 NUMBER OF GROUPS
```

ENTER	Confirm to access the menu

```
DELIVERY TEST
XXXX
```

◄ ►	Modify the setting.: NO / TIMER / FLOW / TEMPERATURES
ENTER	Confirm and exit the menu

```
13 NEW PROGRAM
14 DELIVERY TEST
15 GROUP WASHING
16 NUMBER OF GROUPS
```

◄ ►	To exit the programming menu

NO:

By setting "NO", the machine doesn't perform any control during delivery time.

TIMER MODE:

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

At the end of the selections the time count stops and is displayed for 10 seconds.

```
1,2 Bar          Press 3,5
08:30        20-MAY-2010
TIME  GR1 GR2 GR3 GR4
      XX-XX-XX  XX
```

GR1, GR2, GR3, GR4 = time of delivery expressed in seconds.

FLOW MODE

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

If "flow mode" is activated, the deliveries are controlled by the system and are considered valid when the speed of delivery is within the tolerance with respect to the set one. If the delivery speed is too fast or too slow, the system will display a message suggesting to increase or decrease the fineness of coffee grind (refer to chapter "Display notifications")

```
DELIVERY TEST
     FLOW        00%
```

Tolerance value in the delivery speed control.

Use the arrow keys ▲ and ▼ , to modify the tolerance value (Range: 0 ÷ 30%).

TEMPERATURE MODE

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

```
1,2 Bar          Press 3,5
08:30        20-MAY-2010
T1=XX              T2=XX
T3=XX              T4=XX
```

T1, T2, T3, T4 = temperature in °C of the delivery groups.

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

28.18 Programming group washing

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

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
13 NEW PROGRAM
14 DELIVERY TEST
15 GROUP WASHING
16 NUMBER OF GROUPS
```

ENTER	Confirm to access the menu

```
START ON WASHING
YES/NO
```

▲ ▼	Enable or disable the request for automatic washing of the groups at machine start-up
▶	Confirm pressing (▶) to move to the next screen.

```
WASHING TIME/CYCLO
HH:MM N=X
```

▲ ▼	Set the requested time for the washing of the groups
▶	Move on to the next item.
▲ ▼	Set the number of washing cycles ON-OFF (**X**).
ENTER	Confirm to exit the menu.

```
13 NEW PROGRAM
14 DELIVERY TEST
15 GROUP WASHING
16 NUMBER OF GROUPS
```

◀ ▶	To exit the programming menu

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.

Counting and reset of groups washes

It is possible to read the number of wash cycles executed since the last reset operation, proceeding as follows:

	Display the following screen as previously indicated.

```
WASHING TIME/CYCLO
HH:MM N=X
```

▶ ▶ ▶	Repeatedly press the button (▶) until the following screen appears.

```
TOTAL WASHES
ZZZZZZZZ
```

The field marked with the letter "Z" indicates the number of washes executed since the last reset.

To reset the washes counter, proceed as follows:

▼	Reset of the counter is carried out by pressing the button (▼).

```
RESET WASHES
PRESS ^KEY 3 SEC
```

▲	To reset, hold down the button (▲) for at least 3 seconds.

Once the procedure is concluded the program returns to the main programming menu.

28.19 Setting the number of active groups

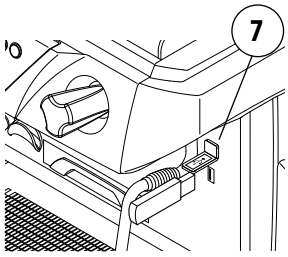
To set the number of active groups, proceed as follows:

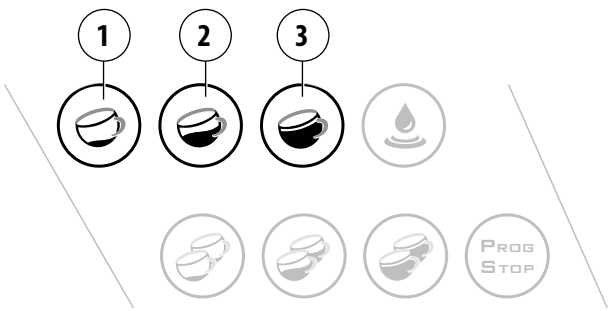
ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted
	13 NEW PROGRAM 14 DELIVERY TEST 15 GROUP WASHING **16 NUMBER OF GROUPS**
ENTER	Confirm to access the menu
	GROUPS NUMBER X
ENTER	Confirm to exit the menu.
	13 NEW PROGRAM 14 DELIVERY TEST 15 GROUP WASHING **16 NUMBER OF GROUPS**
◀ ▶	To exit the programming menu

28.20 Loading the default data

To load the default data, proceed as follows:

- insert the USB drive in the programming reader (**7**);
- turn on the machine by pressing keys (**1**), (**2**), (**3**) on the left keyboard.



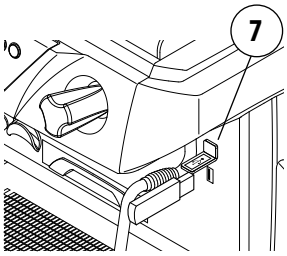


29 Water meter

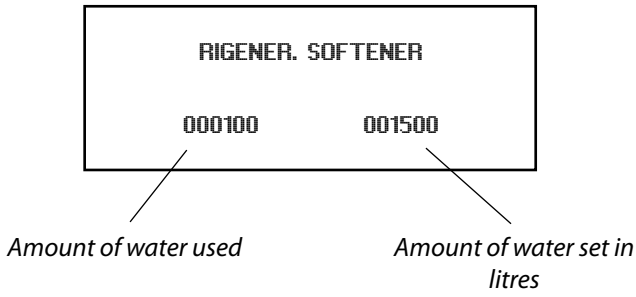
29.1 Viewing of the litres of water used

To view the litres of water used, proceed as follows:

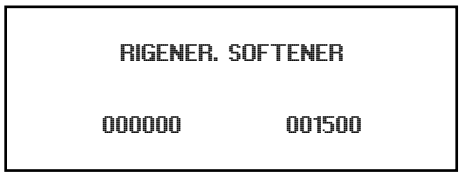
- insert the USB drive in the programming reader (**7**);
- hold down the (◀) button for at least 5 seconds.
- the litres of water used (on the left) and the quality of the water set for the next regeneration (on the right) will be displayed.



29.2 Resetting the litres of water used



- proceed as indicated in the previous paragraph
- hold down the (◀) key for 10 seconds, until the litres of water used is reset.



ENGLISH

30 Schedules maintenance

30.1 Alarm display

This function permits verification of the last 8 alarms detected by the machine.

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▲ ▼	Scroll the menu until the item is highlighted

```
09 FILTER REGENERAT.
10 COUNTERS
11 CLOCK SETUP
12 WORKING DAYS
```

ENTER	Confirm to access the menu

```
TOTAL COFFEES
XXXXXXXX
```

◀ ▶	Press (◀) or (▶) to display the last 8 alarms memorized by the system

```
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
```

XX	Alarm code.
DDMMYY	Last alarm date

	To reset the alarms proceed as follows.

```
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
```

▼	The alarms can be reset by pressing the button (▼) for at least 3 seconds.

```
RESET ALARMS?
PRESS KEY ^ 3 SEC
```

▲	confirm by pressing (▲) for 3 seconds.

The alarm view and reset functions are enabled ONLY for the technician.

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
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 coffee water on group 1 - Machine running
37	Coffee water heating coffee water on group 2 - Machine running
38	Coffee water heating coffee water on group 3 - Machine running
39	Coffee water heating coffee water 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. Pressure timeout.
44	Coffee water pressure group 2. Pressure timeout.
45	Coffee water pressure group 3. Pressure timeout.
46	Coffee water pressure group 4. Pressure timeout.
47	Volumetric dosing device 1
48	Volumetric dosing device 2
49	Volumetric dosing device 3
50	Volumetric dosing device 4
51	Water softener regeneration

30.2 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.

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▲ ▼	Scroll the menu until the item is highlighted

```
09 FILTER REGENERAT.
10 COUNTERS
11 CLOCK SETUP
12 WORKING DAYS
```

ENTER	Confirm to access the menu
▶	Press (▶), to view the number of doser alarms.

```
TOTAL COFFEES
XXXXXXXX
```

▶	Press (▶) repeatedly to access the timed assistance thresholds programming/display

```
TOTAL CYCLES :      WWWWW
SRV-A:  070000 / XXXXXXX
SRV-B:  140000 / YYYYYYY
SRV-C:  350000 / ZZZZZZZ
```

Where:

WWWWW	The total number of coffee, tea and boiler filling cycles.
070000 140000 350000	Required assistance thresholds.
XXXXXXX YYYYYYY ZZZZZZZ	Number of cycles performed by the activation of the "Scheduled Maintenance" function.

Example:

```
TOTAL CYCLES :      WWWWW
SRV-A:  070000 / 0016800
SRV-B:  140000 / 0086800
SRV-C:  350000 / 0296800
```

The scheduled assistance setting and resetting of cycle counters are reserved for a technician. The user can only display the data.

To modify the assistance thresholds, proceed as follows:

ENTER	Press the button **ENTER** to select the type of service (A - B - C). The selected line will blink.

```
TOTAL CYCLES :      053200
SRV-A:  070000 / 0016800
SRV-B:  140000 / 0086800
SRV-C:  350000 / 0296800
```

▲ ▼	To modify the value (steps of 1000) press the button (▼) or (▲) .

```
TOTAL CYCLES :      053200
SRV-A:  085000 / 0016800
SRV-B:  140000 / 0086800
SRV-C:  350000 / 0296800
```

ENTER	Confirm to change the line (A - B - C).

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

To reset the executed cycles counter proceed as follows:

```
TOTAL CYCLES :      053200
SRV-A:  085000 / 0016800
SRV-B:  140000 / 0086800
SRV-C:  350000 / 0296800
```

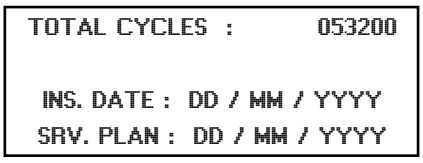
◀	Reset of the counter is carried out by pressing the button (◀) for at least 5 seconds.

```
TOTAL CYCLES :      053200
SRV-A:  085000 / 0000000
SRV-B:  140000 / 0086800
SRV-C:  350000 / 0296800
```

ENTER	Confirm to change the line (A - B - C).

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

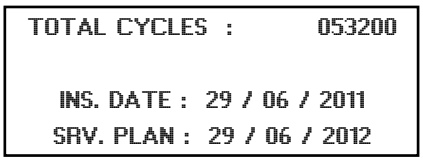
▶	Press (▶) to access the timed assistance thresholds programming/display.



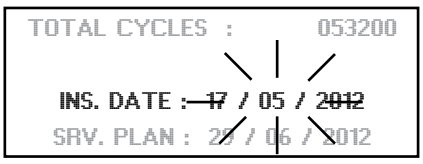
Where:

INS. DATE	Machine installation date or date of activation of timed service.
SRV. PLAN	Scheduled date of required assistance.

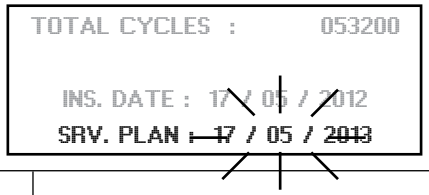
Example:



▶	Press (▶) to activate the change: specific sector blinking.
▲ ▼	To modify the set date press the button (▼) or (▲) .



▶	Press (▶) to change the sector.
▲ ▼	To modify the date of the next maintenance intervention press the button (▼) or (▲) .

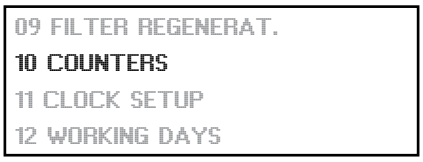


ENTER	Confirm and return to the main programming menu.

30.3 Grinders wear check

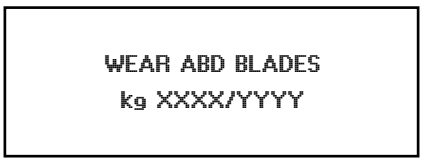
With this function, the machine displays the wear and replacement of the grinders of the grinder-doser, according to the kg of coffee used.

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▲ ▼	Scroll the menu until the item is highlighted



ENTER	Confirm to access the menu
▶	Press (▶), to view the number of doser alarms.

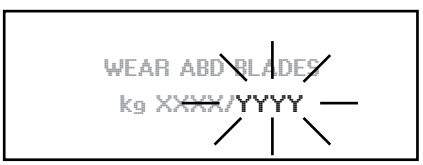
▶	Press (▶) repeatedly to access the first grinders wear control panel.



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

To modify the wear threshold proceed as follows:

ENTER	Press the **ENTER** key, the threshold value will flash.



▲ ▼	To modify the quantity in kg. press the button (▼) or (▲) . The available range is: 0 ÷ 2000 kg.

Once you set the limit threshold in kg of coffee, you must set each beverage key and assign the correct weight of ground coffee used to it.

▶	Press (▶) to view the key-dose grammage screen.

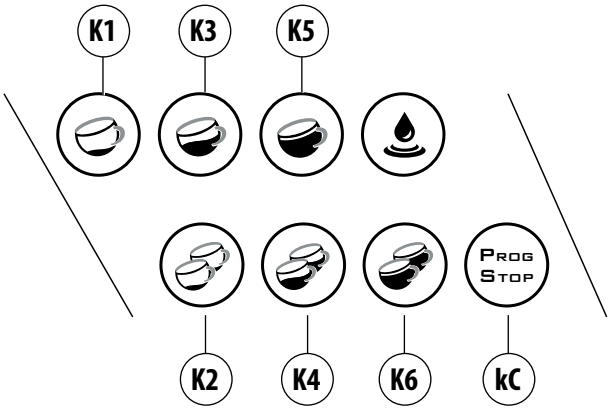
k1 gr.00	k4 gr.00
k2 gr.00	k5 gr.00
k3 gr.00	k6 gr.00
kC gr.00	

ENTER	Press the **ENTER** key, the value referred to the "k1" key will flash.
▲ ▼	Enter the amount in grams of ground coffee per programmed dose using the key (▼) or (▲) . The available range is: 0 ÷ 22 g.

k1 gr.00	k4 gr.00
k2 gr.00	k5 gr.00
k3 gr.00	k6 gr.00
kC gr.00	

ENTER	Confirm by pressing **ENTER,** the system will switch to the next data. Repeat the previous step until all the dose keys are set.

After completing this operation, during in the use, the count will be increased by the dose set for each drink, with every coffee delivery.



Key - value correspondence on the display.

Setting example:					
K1	gr.07	(Single espresso)	K4	gr.14	(Double medium)
K2	gr.14	(Double espresso)	K5	gr.07	(Single long)
K3	gr.07	(Single medium)	K6	gr.14	(Double long)
kC	gr.07	(Continuous)			

Upon reaching the amount of kg set as the threshold, the system will show a message on the display (bottom row), reminding the user to carry out the replacement of the grinding of the coffee grinder-doser.

Reset

To reset the used kg counter proceed as follows:

	Display the screen below.

WEAR ABD BLADES kg XXXX/YYYY

▼	Press the key (▼) .

RESET ALARMS PRESS KEY ^ 3 SEC

▲	confirm by pressing (▲) for 3 seconds.

Setting the "GRINDERS WEAR" threshold to 0, the system will not perform any reporting.

By setting one or more dose-keys to 0, those keys will not be counted.

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

31 Machine serial programming

This function permits inserting the serial number of the machine.

ENTER (x 5 secs.)	Hold down the **ENTER** button for at least 5 seconds.
▼	Scroll the menu until the item is highlighted

```
13 NEW PROGRAM
14 DELIVERY TEST
15 GROUP WASHING
16 NUMBER OF GROUPS
```

ENTER	Confirm and set the number of groups.

```
GROUPS NUMBER
X
```

◀ ▶	Press (◀) or (▶) to modify the serial number

```
SERIAL NUMBER
Y/N :  XXXXXXXXXX
```

◀ ▶	Press (◀) or (▶) to select the character to be modified
▲ ▼	To modify the value of the character press the button (▼) or (▲) .
ENTER	Confirm and return to the main menu.

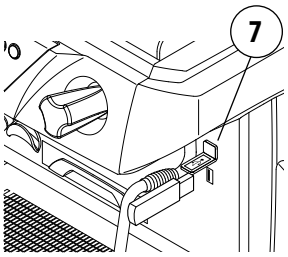
If the serial number is composed of 6 numbers, it is necessary to set the first four digits with a 0 value: for example: 0000619347.

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

32 Data reset

32.1 Resetting of selection counters

To reset the counters of each section, proceed as follows:



- insert the USB drive in the programming reader (**7**);
- hold down the **ENTER** button for at least 5 seconds.
- scroll the menu until the item "10 COUNTERS" is highlighted;
- press **ENTER** to view the menu
- press (▼) to reset the partial counters;
- confirm by pressing (▲) for 3 seconds.

```
09 FILTER REGENERAT.
10 COUNTERS
11 CLOCK SETUP
12 WORKING DAYS
```

```
TOTAL COFFEES

00000
```

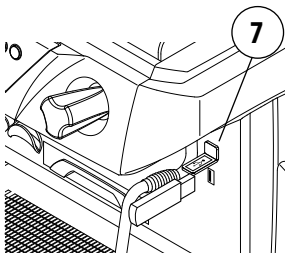
```
RESET COUNTS?

PRESS KEY ^ 3 SEC
```

With this procedure only the partial selections are reset (for each key). it is impossible to reset the total count (machine life).

32.2 Alarm reset

To reset the counters of the doser alarms, proceed as follows:

- insert the USB drive in the programming reader (**7**);
- hold down the **ENTER** button for at least 5 seconds.
- scroll the menu until the item "10 COUNTERS" is highlighted.
- press **ENTER** to view the menu
- press (▸) repeatedly to reach alarms page;
- press (▾) to reset the alarms;
- confirm by pressing (▴) for 3 seconds.




```
09 FILTER REGENERAT.
10 COUNTERS
11 CLOCK SETUP
12 WORKING DAYS
```

```
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
XX - DDMMYY   XX - DDMMYY
```

```
RESET COUNTS?

PRESS KEY ^ 3 SEC
```

32.3 Resetting groups washing counter

See par. 28.18 .

32.4 Water liters count for softener regeneration reset

See par. 29.2.

32.5 Cycle count for planned service reset

See chap. 30.2 .

32.6 Ground coffee kg count reset

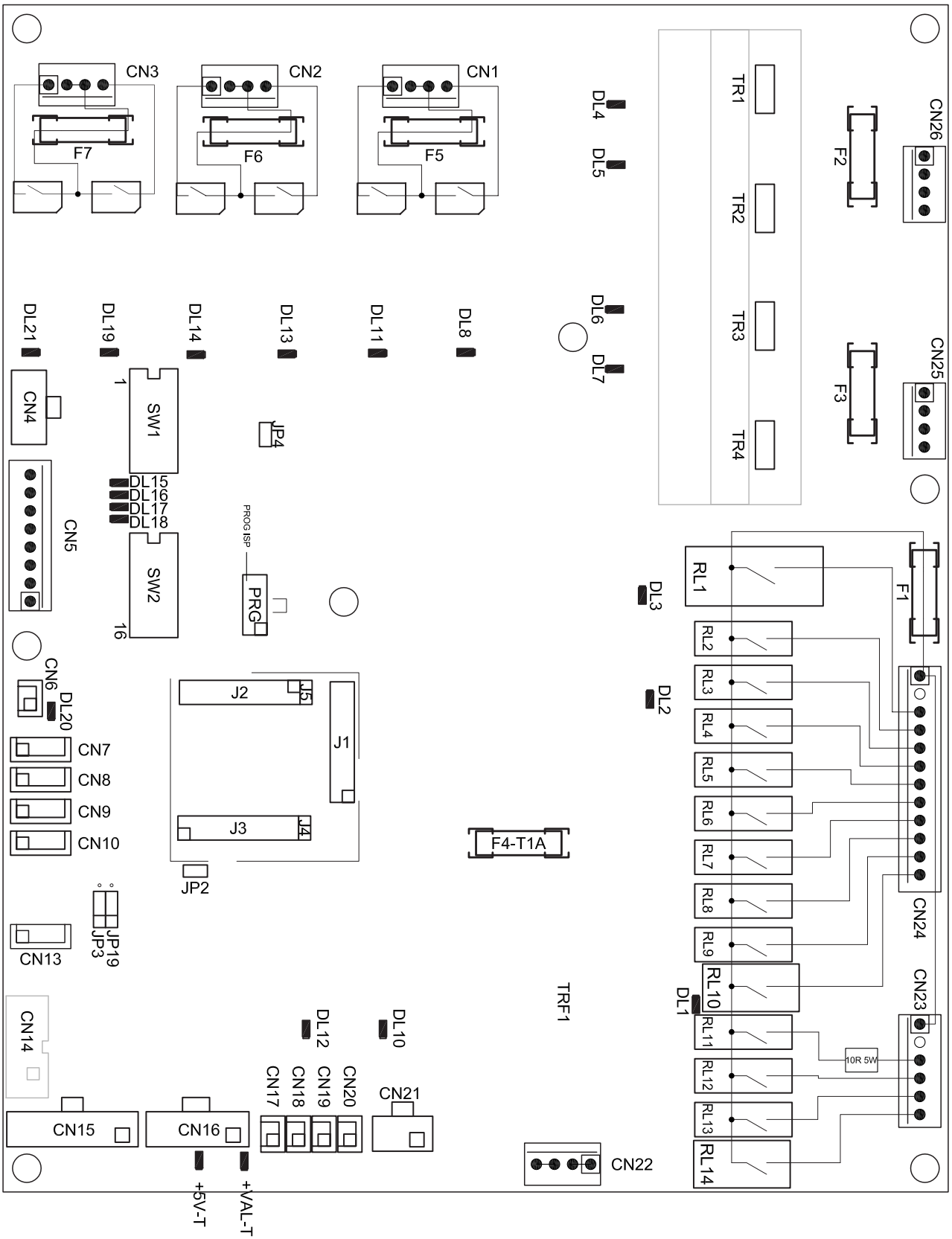
See chap. 30.3 .

ENGLISH

Section III - electrical/ hydraulic diagrams

33 Electric diagrams

33.1 Electronic control unit diagram



Fuse		Description
F1	Fuse 5x20 delayed by 6.3A	Protects: from RL1 to RL14
F2	Fuse 5x20 delayed by 12.5A	Protects: coffee boiler heating element group 2 and 4
F3	Fuse 5x20 delayed by 12.5A	Protects: coffee boiler heating element group 1 and 3
F4	Fuse 5x20 delayed by 1A	Protects: transformer's double winding
F5	Fuse 5x20 super rapid 12.5A	Protects : group heating elements 1 and 3
F6	Fuse 5x20 super rapid 12.5A	Protects : group heating elements 2 and 4
F7	Fuse 5x20 delayed by 1A	Protects: services boiler heating elements 1 and 2

	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 key.
7	■	□	ON = excludes the automatic control of the services boiler temperature.
8	■	□	ON = Pre-infusion active

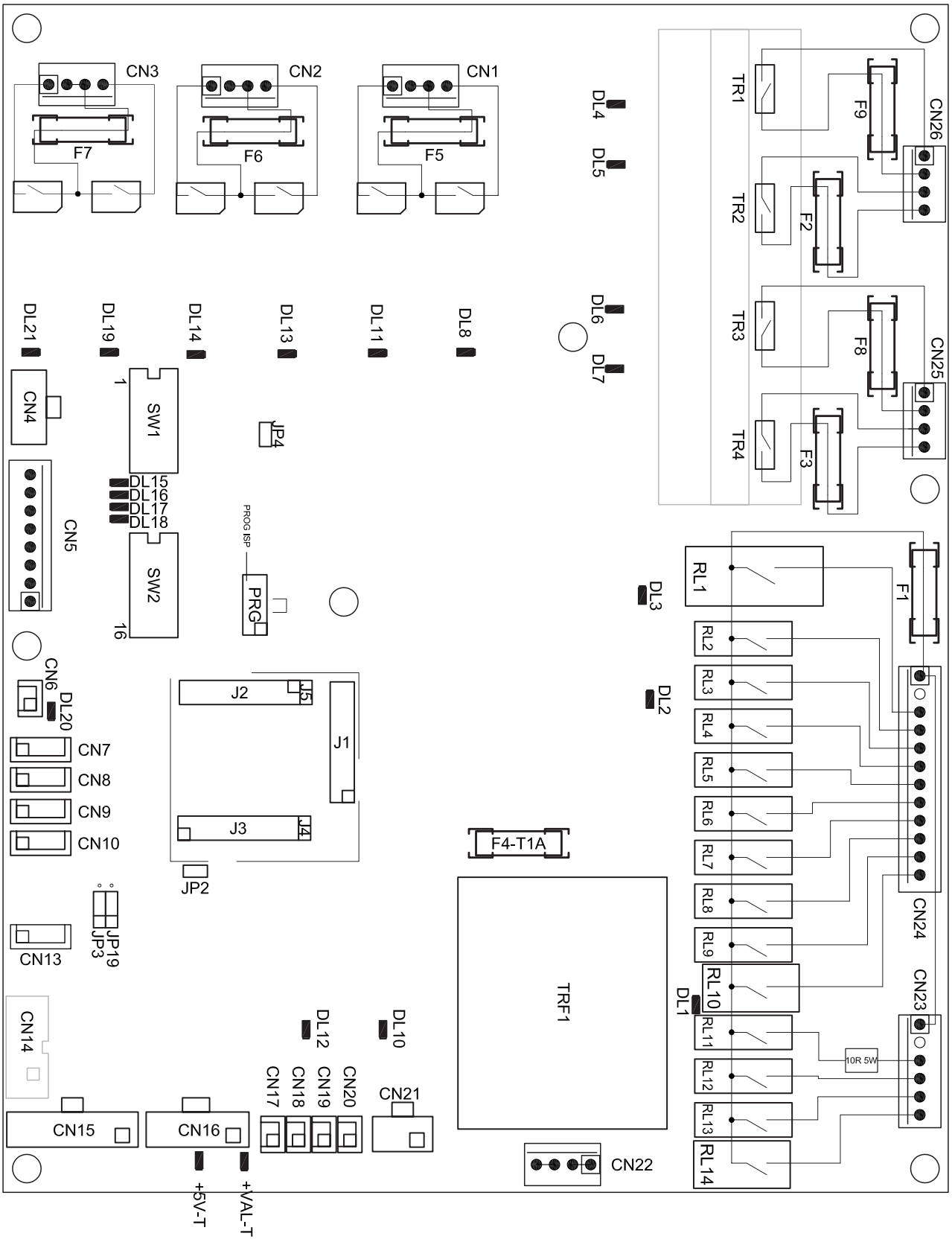
	Off	On	SW2 Switch
9	■	□	ON = 6 doses keyboard.
10	■	□	ON = rinse active for 3 secs. dose keys
11	■	□	ON = Active Credit / Debit.
12	■	□	ON = Reset machine life cycle
13	■	□	ON = Continuous disabled.
14	■	□	ON = NTC probe
15	■	□	ON = Serial communication active.
16	■	□	ON = MICRO-Processor programming.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

LED	Description
DL1	Cup heater
DL2	+5V
DL3	+9V
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	+5V
DL10	+9VB
DL11	group 3 heating element
DL12	+9VA
DL13	group 2 heating element
DL14	group 4 heating element
DL15	group 4 volumetric counter
DL16	group 3 volumetric counter
DL17	group 2 volumetric counter
DL18	group 1 volumetric counter
DL19	services 1 boiler heating element
DL20	+12V pressure gauge
DL21	services 2 boiler heating element
+VAL-T	transducer's power supply to +VAL
+5V-T	transducer's power supply to +5V

Jumper	Description
JP2	Not managed
JP4	Aux
JP13	TX-RX signal inversion
JP19	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
RL9	Autosteamer steam solenoid valve
RL10	Cup heater
RL11	Aux. solenoid valve
RL12	Air solenoid valve
RL13	Tea solenoid valve 2
RL14	Aux

33.2 Electronic control unit Diagram Rev. 01



Fuse		Description
F1	Fuse 5x20 delayed by 6.3A	Protects: from RL1 to RL14
F2	Fuse 5x20 delayed by 12.5A	It protects: coffee boiler heating elements group 2
F3	Fuse 5x20 delayed by 12.5A	It protects: coffee boiler heating elements group 1
F4	Fuse 5x20 delayed by 1A	Protects: transformer's double winding
F5	Fuse 5x20 delayed by 10A	Protects : group heating elements 1 and 3
F6	Fuse 5x20 delayed by 10A	Protects : group heating elements 2 and 4
F7	Fuse 5x20 delayed by 1A	Protects: services boiler heating elements 1 and 2
F8	Fuse 5x20 delayed by 12.5A	It protects: coffee boiler heating elements group 3
F9	Fuse 5x20 delayed by 12.5A	It protects: coffee boiler heating elements group 4

	Off	On	SW1 Switch
1	■	□	Not used. Leave on OFF mode.
2	■	□	Exclude the double doses
3	■	□	On= Excludes tea key from keyboard n° 2 e 3 (see.fig.p.46).
4	■	□	Reserve.
5	■	□	Reserve.
6	■	□	ON = rinse active for 3 secs. PROG./STOP key.
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 keys
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

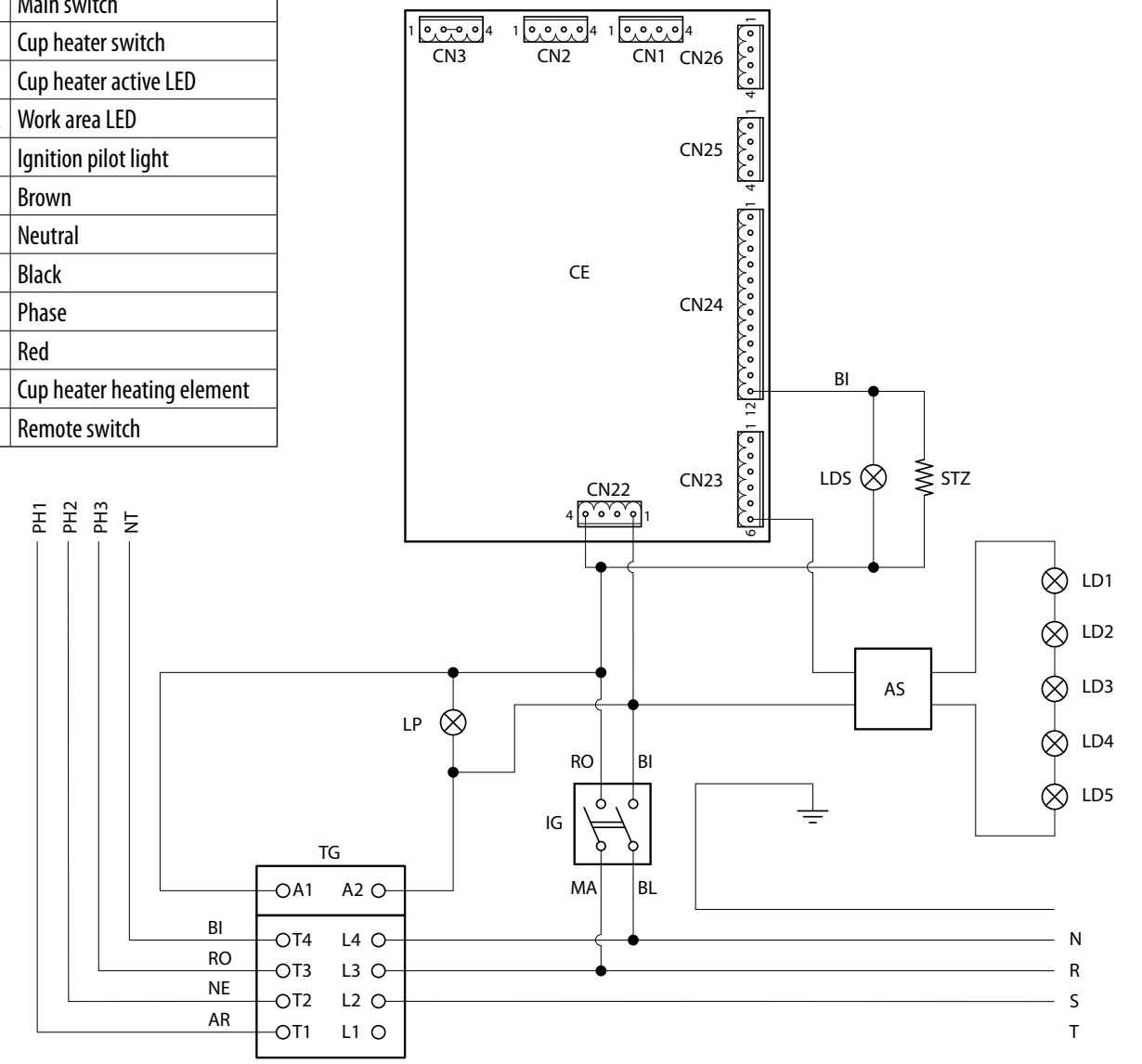
LED	Description
DL1	Cup heater
DL2	+5V
DL3	+9V
DL4	Heating element control boiler group 4
DL5	Heating element control boiler group 2
DL6	Heating element control boiler group 3
DL7	Heating element control boiler group 1
DL8	group 1 heating element
DL9	+5V
DL10	+9VB
DL11	group 3 heating element
DL12	+9VA
DL13	group 2 heating element
DL14	group 4 heating element
DL15	group 4 volumetric counter
DL16	group 3 volumetric counter
DL17	group 2 volumetric counter
DL18	group 1 volumetric counter
DL19	services 1 boiler heating element
DL20	+12V pressure gauge
DL21	services 2 boiler heating element
+VAL-T	transducer's power supply to +VAL
+5V-T	transducer's power supply to +5V

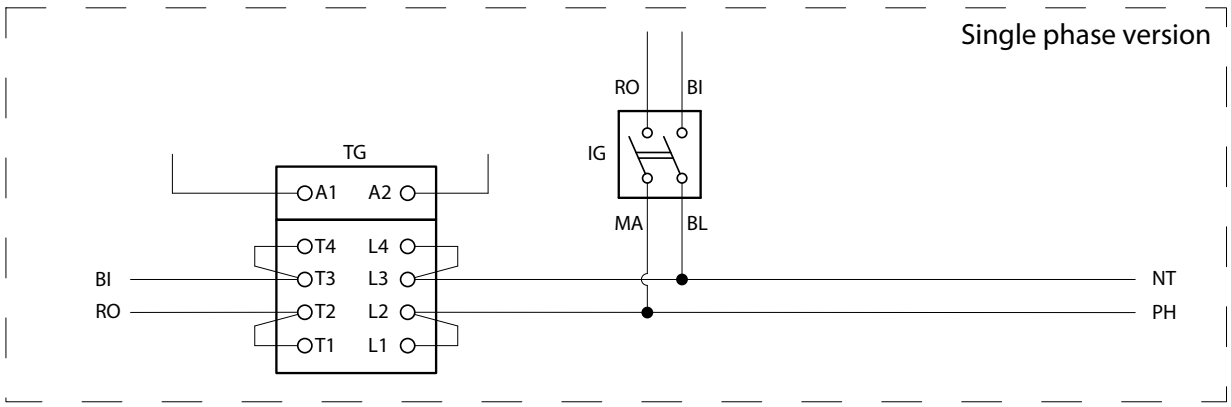
Jumper	Description
JP2	Not managed
JP4	Aux
JP13	TX-RX signal inversion
JP19	TX-RX signal inversion

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
RL9	Autosteamer steam solenoid valve
RL10	Cup heater
RL11	Aux. solenoid valve
RL12	Air solenoid valve
RL13	Tea solenoid valve 2
RL14	Aux

33.3 Power supply electric 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 pilot light
MA	Brown
N	Neutral
NE	Black
PH	Phase
RO	Red
STZ	Cup heater heating element
TG	Remote switch

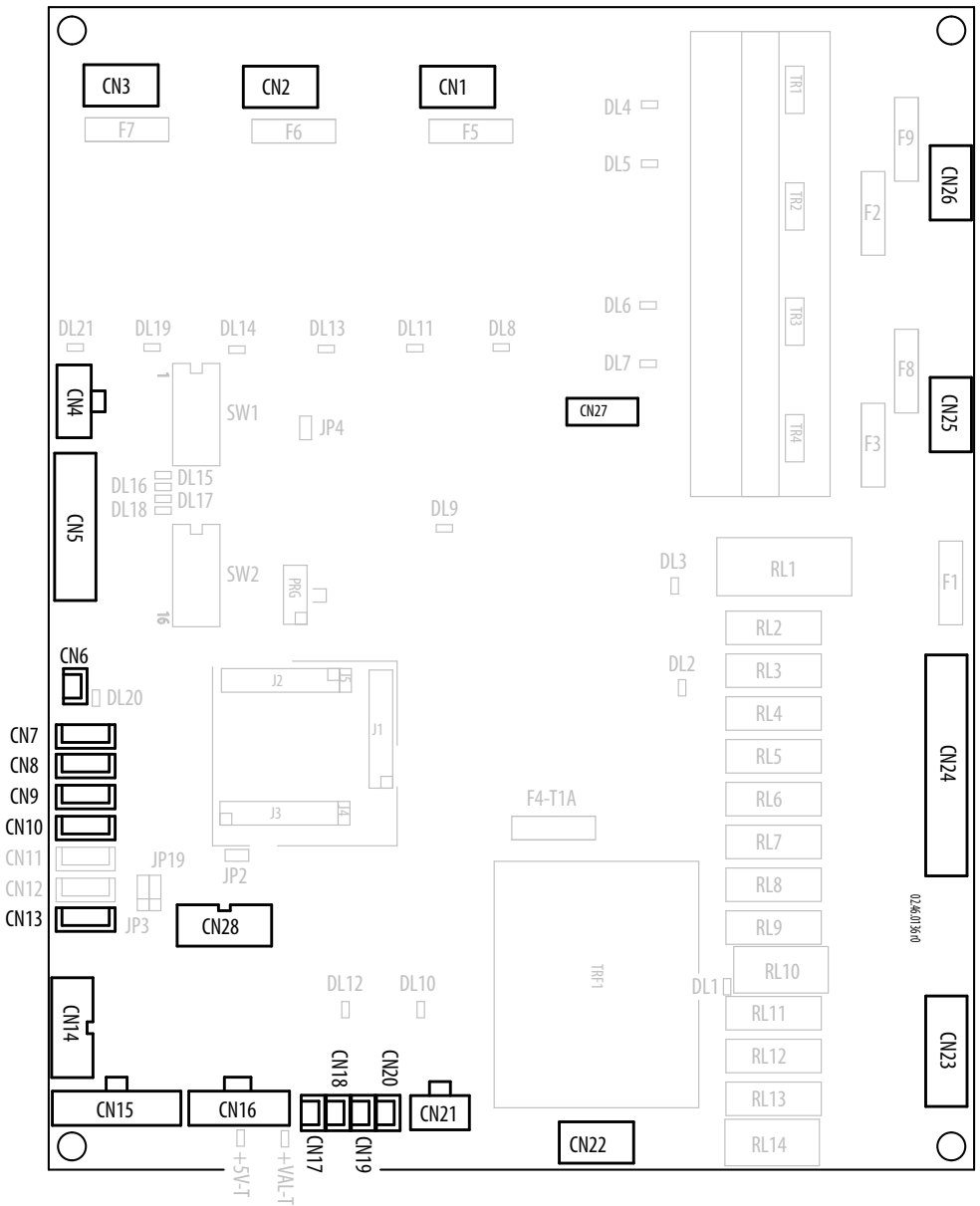




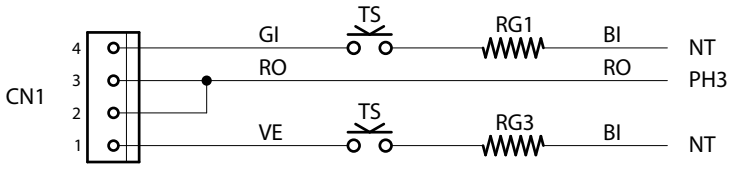
33.4 Connectors electric diagram

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	Not used.
CN7	Wiring of pressure transducer
CN8	AUX connector
CN9	AUX connector
CN10	AUX connector
CN13	Connection of RS232 serial socket
CN14	Connection of display/CPU
CN15	Connection of NTC temperature sensors

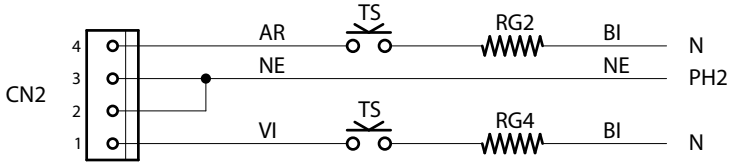
CN16	Connection of coffee boiler pressure transducers
CN17	Connection of NTC services boiler
CN18	Connection of NTC autosteamer
CN19	Connection of NTC cup heater
CN20	AUX connector
CN21	Connection of sensor for humidity and mains/pump pressure
CN22	Wiring of circuit board
CN23	Connection of 230V AC outputs
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	Not used.
CN28	Not used.



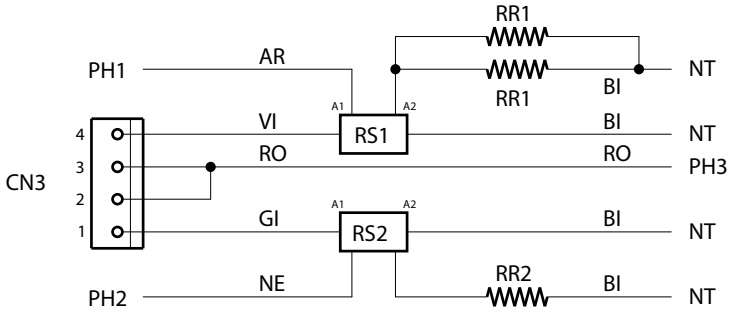
CN1 - connection of heating elements groups 1 and 3



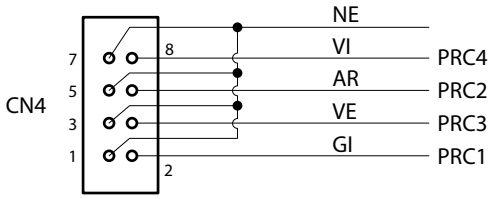
CN2 - connection of heating elements groups 2 and 4



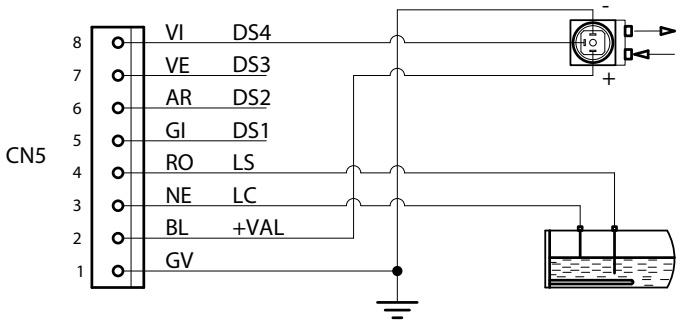
CN3 - connection of SERVICES BOILER heating elements



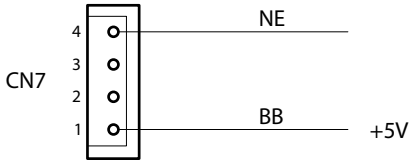
CN4 - Connection of coffee boilers pressure transducer



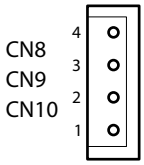
CN5 - connection of volumetric dosers and services boiler levels



CN7 - Wiring of pressure transducer

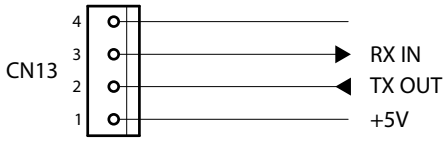


CN8-9-10 - AUX connector

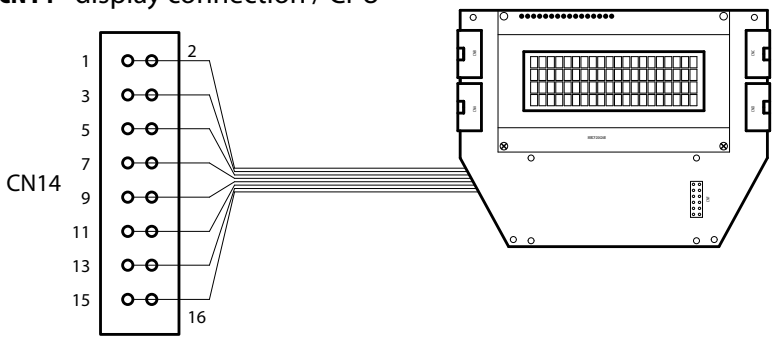


AR	Orange
BI	White
BB	White/Blue
DS	Volumetric dosing device
GI	Yellow
GV	Yellow-Green
LC	Boiler level
LS	Safety level
N	Neutral
NE	Black
PH	Phase
PRC	Coffee boiler pressure switch
RG	Group heating element
RO	Red
RR	Heating element
RS	Static relay
TS	Safety thermostat
VE	Green
VI	Violet

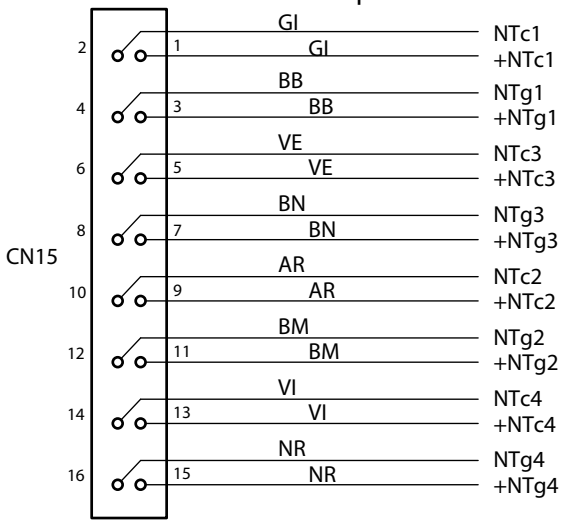
CN4 - connection of RS 232 serial socket



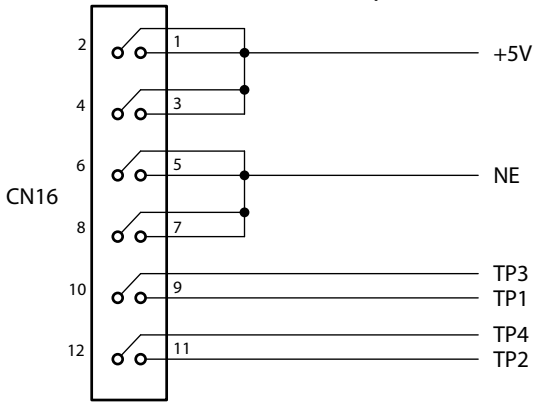
CN14 - display connection / CPU



CN17 - connection of NTC temperature sensors

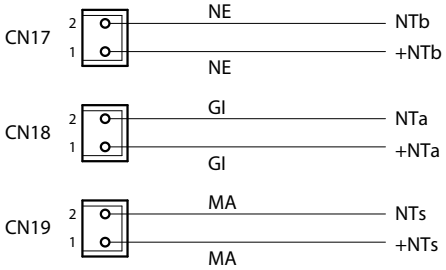


CN16 -connection coffee boiler pressure transducer



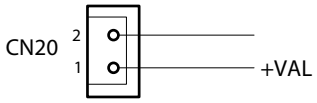
AR	Orange
BB	White/Blue
BM	White/Brown
Bn	White/Black
GI	Yellow
GV	Yellow-Green
MA	Brown
NE	Black
NTA	NTC autosteamer probe
NTB	NTC services boiler probe
NTc	NTC coffee boiler probe
NTg	NTC group probe
NTs	NTC cup heater probe
TP	Press. transducer coffee boiler
VE	Green
VI	Violet

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

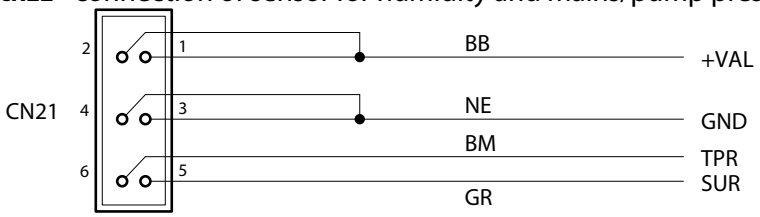


ENGLISH

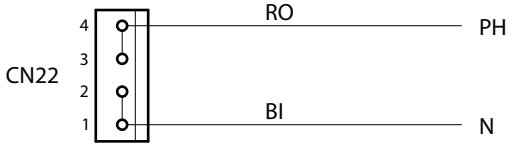
CN20 - AUX connector



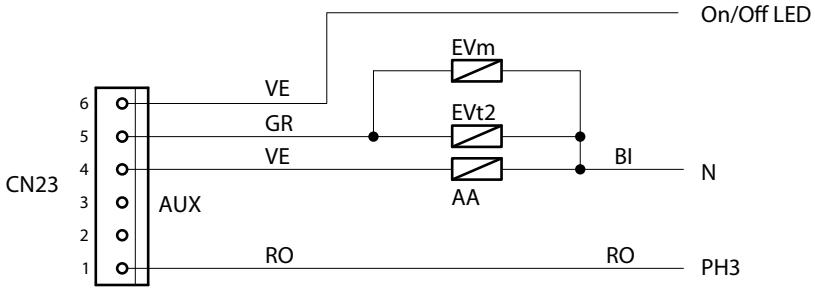
CN22 - connection of sensor for humidity and mains/pump pressure (opt.)



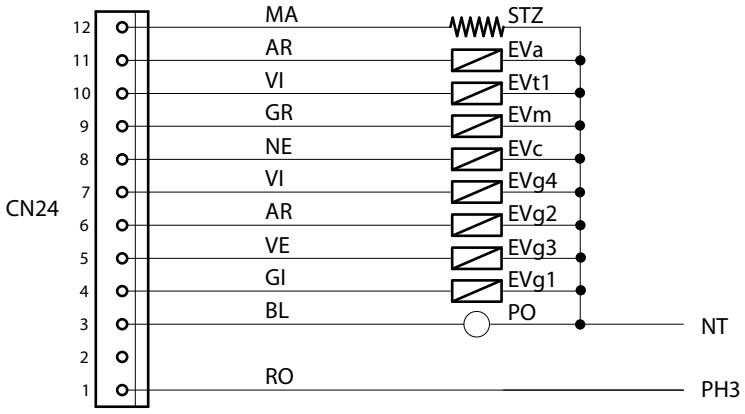
CN23 - connection of electronic card power supply



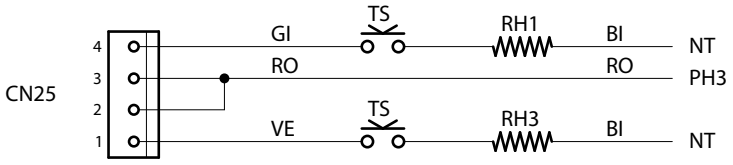
CN26 - connection for 230V AC outputs



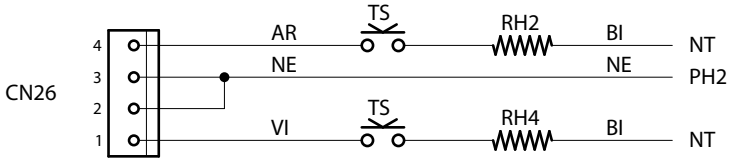
CN26 - connection for 230V AC outputs



CN27 - connection for heating elements for hot water containers 1 and 3

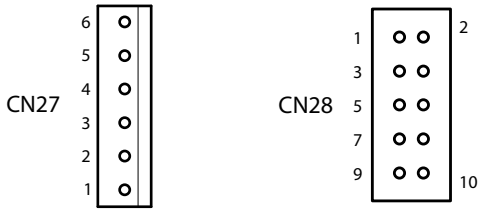


CN27 - connection for heating elements for hot water containers 2 and 4

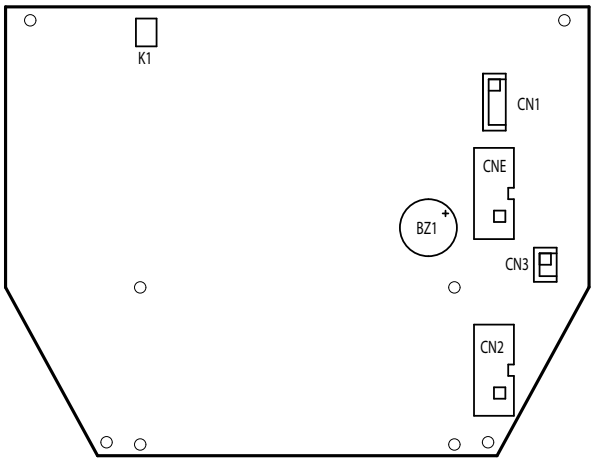


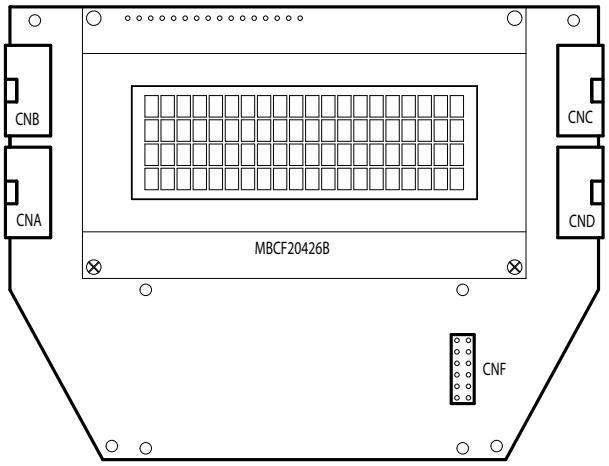
AA	Wiring of the autost. air pump
AR	Orange
BI	White
BL	Blue
EVA	Autosteamer solenoid valve
EVgr	Group solenoid valve
EVC	Boiler filling solenoid valve
EVt1	Water solenoid valve
EVt2	Water solenoid valve 2
EVM	Water mix solenoid valve
GI	Yellow
GR	Grey
MA	Brown
N	Neutral
NE	Black
PH	Phase
PO	Pump
RH	Water heating element
RO	Red
STZ	Cup heater
SUR	Humidity sensor
TPR	Pressure transducer
TS	Safety thermostat
VE	Green
VI	Violet

CN27- CN28 - Not used



34.5 Control unit display / CPU diagram

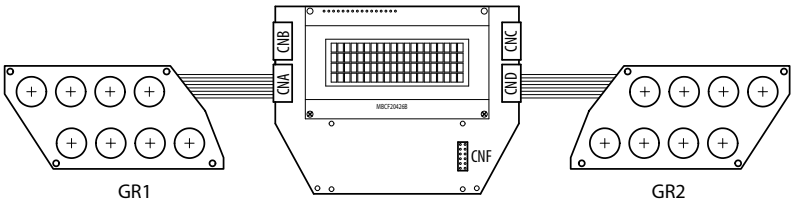




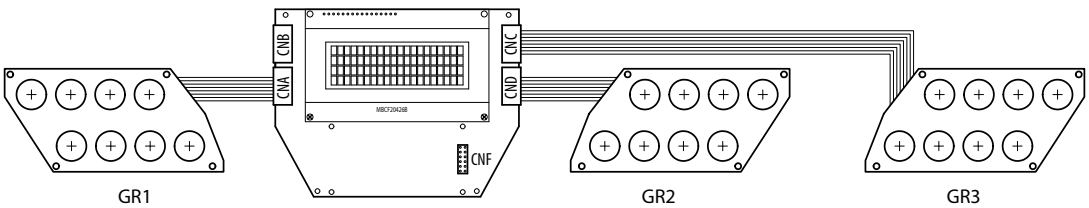
CN1	USB drive connection
CN2	Circuit board connection
CN3	-

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

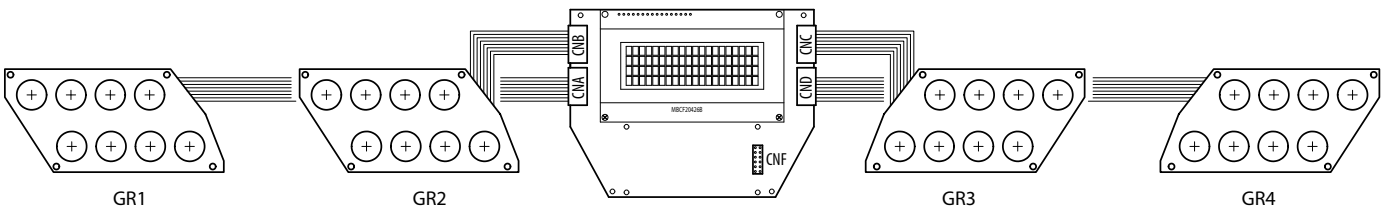
Keyboard connections diagram



2GR

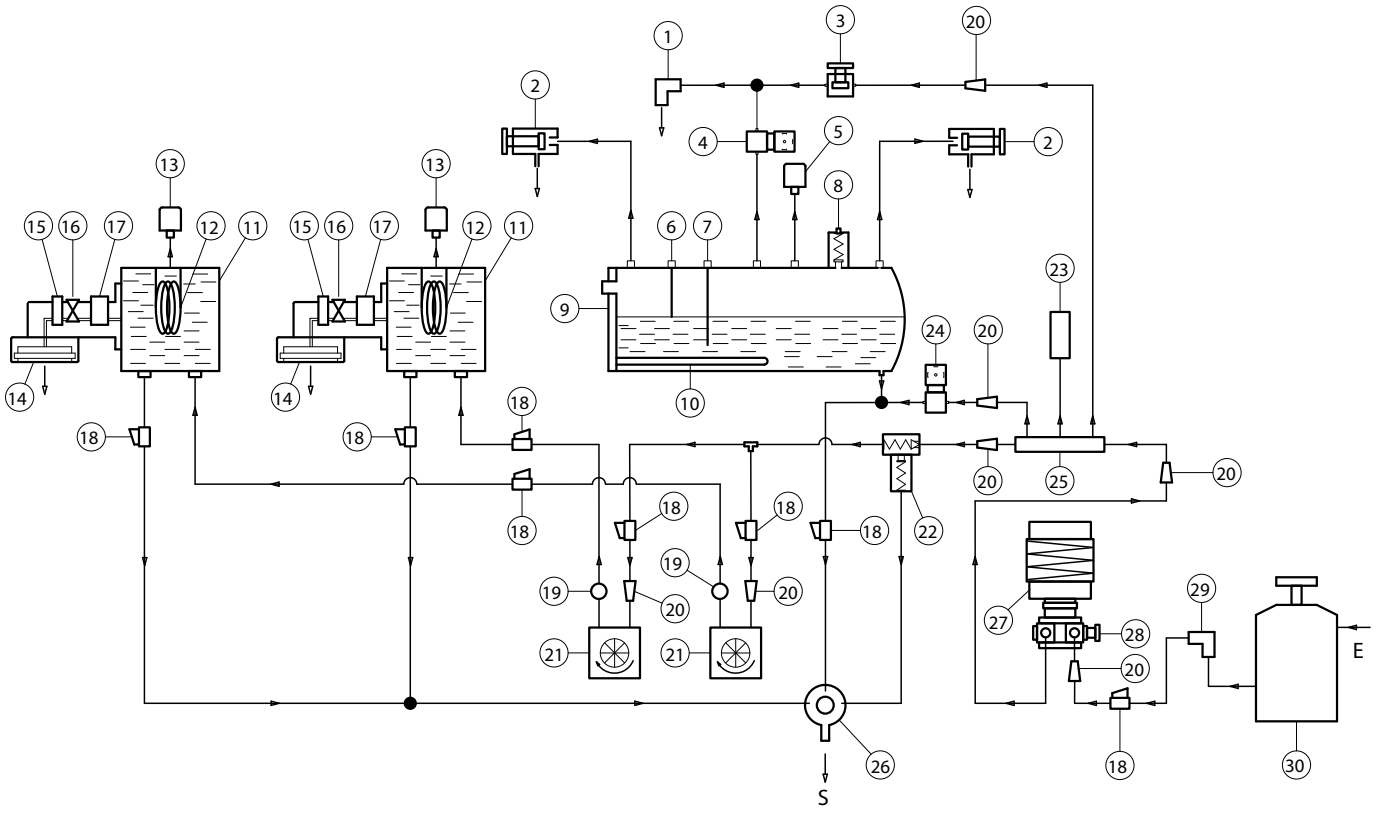


3GR



4GR

34 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
E	Water inlet
S	Water discharge

Section IV - Interfaces

35 CREDIT - DEBIT / DEBIT - CREDIT system

35.1 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:

Installation

The CREDIT-DEBIT function is available on electronic control units with software program dated 06/03/08 or later.

For installation proceed as follows:

- Turn the machine off;
- place **the switches** no. **11** and **15** of the **SW2** micro-switch battery in the ON position, as shown in the electrical diagram;
- connect the supplied cable **CC** (code **22554012**) to the **CN13** dedicated connector of the circuit board **CE** (cod.**18090099**);
- 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.

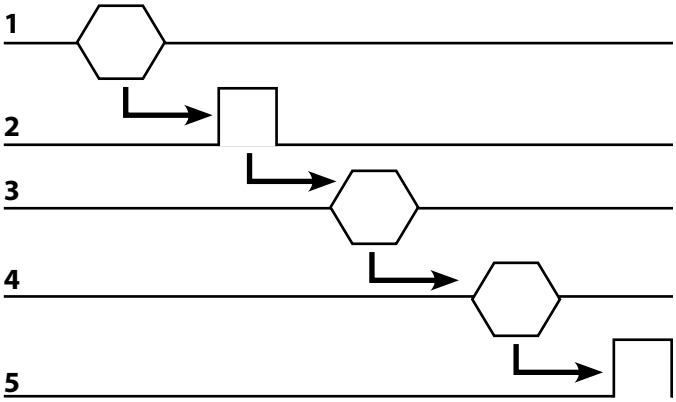
It is possible to use a serial cable different from the one supplied by manufacturer (cod. 22556004), as long as it isn't longer than 15 meters.

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)**

35.2 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:

Installation

The CREDIT-DEBIT function is available on electronic control units with software program dated 06/03/08 or later.

For installation proceed as follows:

- Turn the machine off;
- place **the switch** no. **11** of the **SW2** micro-switch battery in the ON position, as shown in the electrical diagram;
- connect the supplied cable **CC** (code **22554012**) to the **CN13** dedicated connector of the circuit board **CE** (cod.**18090099**);
- 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.

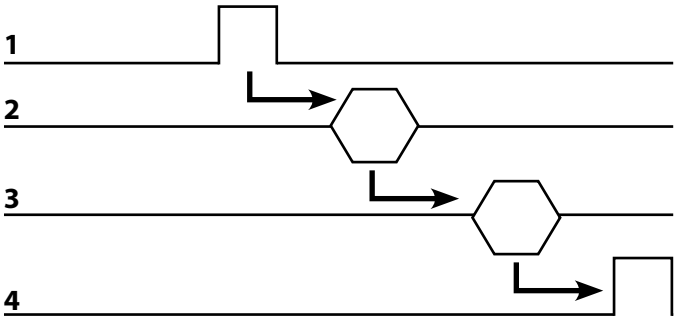
It is possible to use a serial cable different from the one supplied by manufacturer (cod. 22556004), as long as it isn't longer than 15 meters.

Communication protocol

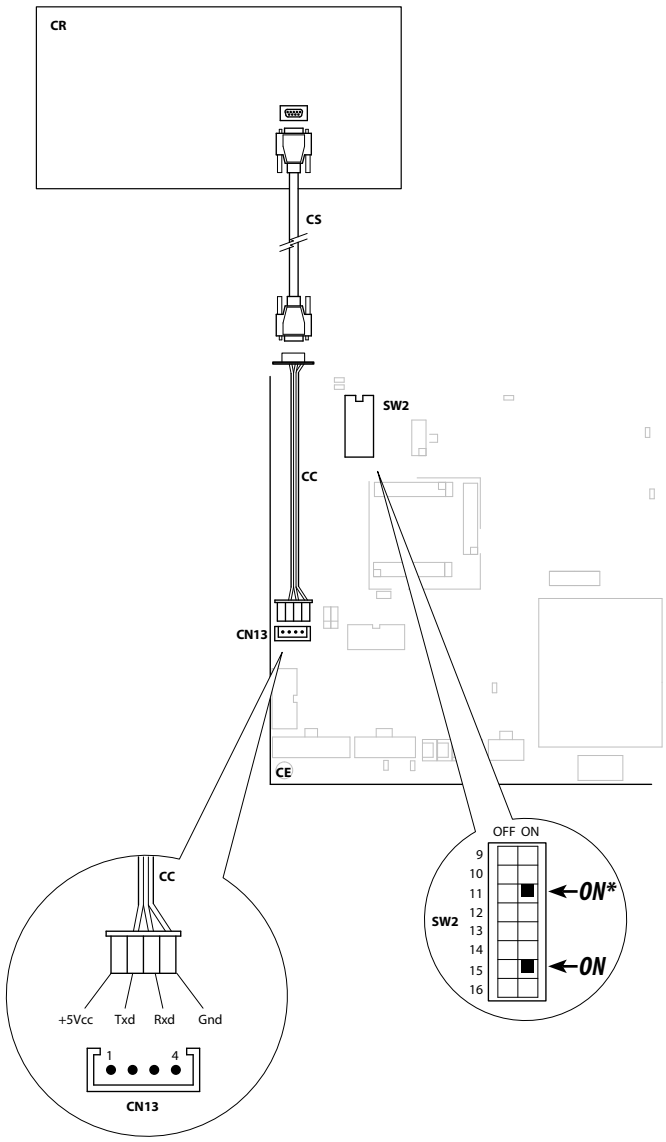
Description of the operating principle with reference to the diagram shown below:

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**	• **1 bit Stop**
• **8 bit**	• **Parity E (even)**



** - only for CREDIT - DEBIT configuration*

	CN13	Serial transmission connector.
	CR	Cash register.
	CE	Control unit cod.18090099.
	SW	Control unit micro-switches
*	CC	Supplied serial connection cable cod. 22554012.
*	CS	Serial transmission cable not supplied cod. 22556004.
*	**Kit Cod.: 83260061R**	

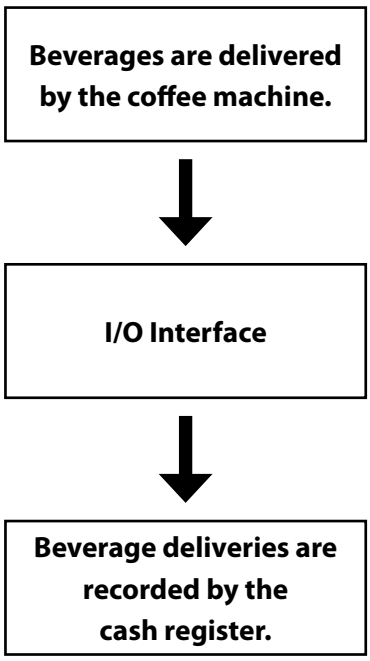
Beverages selection codes table

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

35.3 DEBIT - CREDIT system with connection to the INTERFACE

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. The procedure is possible thanks to the interface between the coffee machine and the cash register.

In particular, the system is structured as follows:



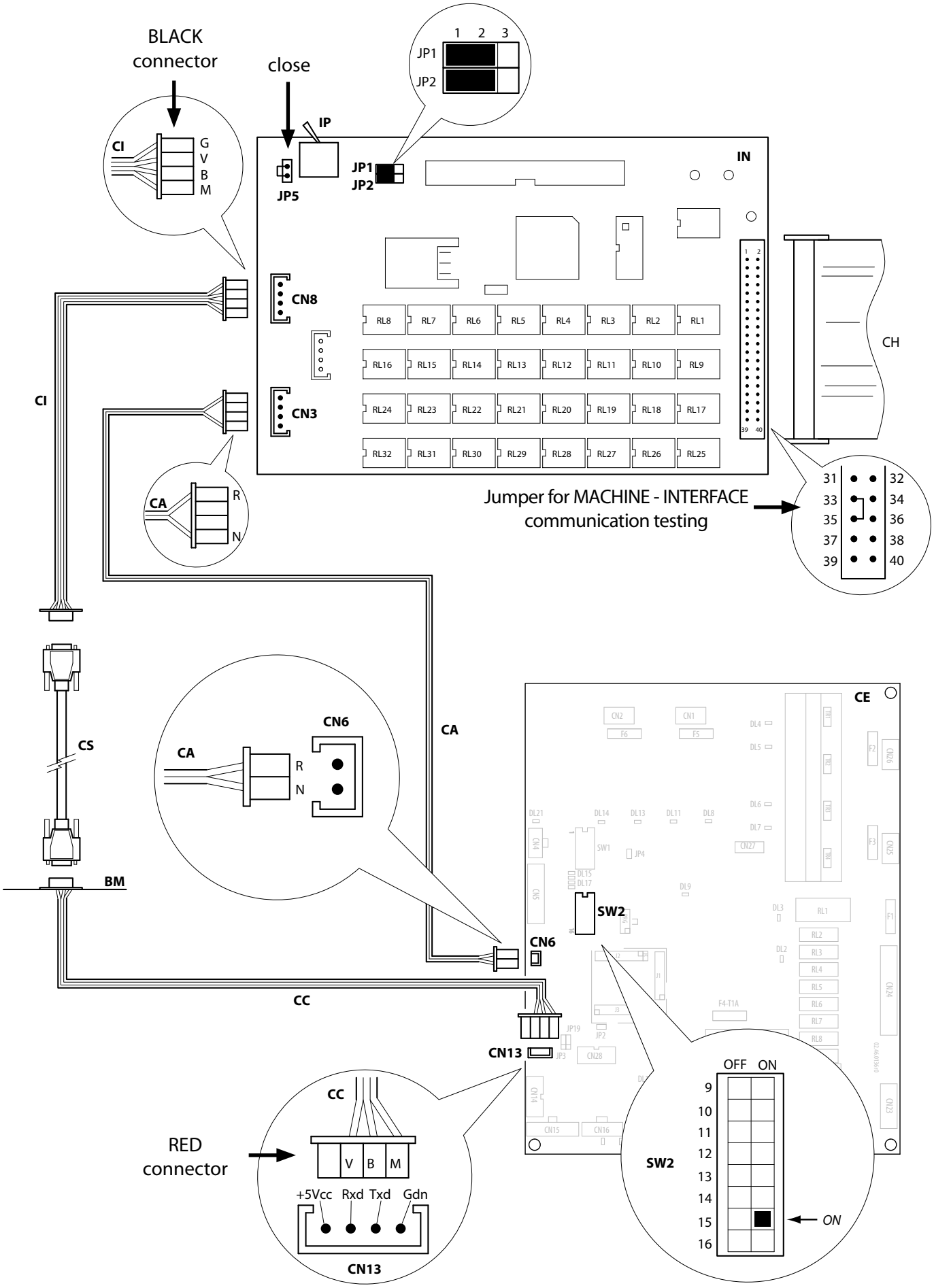
Installation

The CREDIT-DEBIT function is available on electronic control units with software program dated 06/03/08 or later.

For installation proceed as follows:

- Turn the machine off;
- place **the switch** no. **11** of the **SW2** micro-switch battery in the ON position, as shown in the electrical diagram on the next page;
- connect the supplied **CA** cable (code **22554011**) from the **CN13** dedicated connector of the **CE** electronic board (cod.**18090099**); to the **CN3** connector of the **IN** interface;
- connect the **CS** serial cable (code **22554010**) from the **CN4** dedicated connector of the **CE** electronic board to the **CN8** connector of the **IN** interface;
- connect the **CH** hartwall cable (code **22554004**) between the connector of the **IN** interface and the cash register;
- position the **JP1** and **JP2** jumpers on the **IN** interface, as shown in the following diagram
- close the **JP5** jumper on the **IN** interface;
- start the machine again.

The management software of the register and the of the hartwall CH at the register, are not the responsibility of the manufacturer The switch of the IP interface can't be in *PROG.* position


BLACK
connector
close
1 2 3
JP1
JP2
IP
CI
G
V
B
M
JP5
JP1
JP2
IN
CN8
CN3
RL8 RL7 RL6 RL5 RL4 RL3 RL2 RL1
RL16 RL15 RL14 RL13 RL12 RL11 RL10 RL9
RL24 RL23 RL22 RL21 RL20 RL19 RL18 RL17
RL32 RL31 RL30 RL29 RL28 RL27 RL26 RL25
CH
CI
CA
R
N
Jumper for MACHINE - INTERFACE
communication testing
31 32
33 34
35 36
37 38
39 40
CS
BM
CA
CN6
CE
SW2
CC
CN13
RED
connector
V B M
+5Vcc Rxd Txd Gdn
CN13
OFF ON
9
10
11
12
13
14
15
16
ON
SW2

	CE	electronic central unit PLUS4 cod. 18090099
*	CA	Power supply cable 06.00.413 cod. 22554011
*	CH	Hartwall cable 8.9.28.51 code 22554004
	CN3	Power supply connector 12V DC interface
	CN13	Control unit serial cable connector
	CN8	Interface serial cable connector
	CN6	Power supply connector 12V DC control unit
*	CC	Connect. cable serial transmission AMP L 550 cod. 22554012
*	CI	Interface cable 32 relay cod. 22554002
*	CS	Serial transmission cable code 22556004.
*	IN	Interface 32 relay cod. 26016
	IP	Programming switch
	SW	Control unit micro-switches
	BM	Machine edge
	33 - 35	Jumper for MACHINE - INTERFACE communication testing
	B	White
	N	Black
	R	Red
	V	Green
	M	Brown
	G	Yellow
	JP	Jumper (jumpers)
*	Kit Cod.: 83260063R	

Water	**Group**	**Relay**	**I/O CONNECTOR**
1 Espresso	1	1	CN7-1
1 Medium	1	2	CN7-2
1 Large	1	3	CN7-3
2 Espressos	1	4	CN7-4
2 Medium	1	5	CN7-5
2 Large	1	6	CN7-6
1 Espresso	2	7	CN7-7
1 Medium	2	8	CN7-8
1 Large	2	9	CN7-9
2 Espressos	2	10	CN7-10
2 Medium	2	11	CN7-11
2 Large	2	12	CN7-12
1 Espresso	3	13	CN7-13
1 Medium	3	14	CN7-14
1 Large	3	15	CN7-15
2 Espressos	3	16	CN7-16
2 Medium	3	17	CN7-17
2 Large	3	18	CN7-18
1 Espresso	4	19	CN7-19
1 Medium	4	20	CN7-20
1 Large	4	21	CN7-21
2 Espressos	4	22	CN7-22
2 Medium	4	23	CN7-23
2 Large	4	24	CN7-24
Tea 1		25	CN7-25
Tea 2		26	CN7-26
			CN7-33 I/O enabling
			CN7-35 I/O enabling
			CN7-37 com. relay
			CN7-38 com. relay
			CN7-39 com. relay
			CN7-40 com. relay

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