

# Wegaconcept

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## **ESPRESSO COFFEE MACHINE**

Use and maintenance manual for the **TECHNICIAN**

*- ENGLISH -*





English

## General warnings

The manufacturer of the equipment can not be held responsible for damages caused by failure to oblige to the requirements below.

## Warnings for the installer

- Read this manual carefully. It provides important information on safe installation, operation and maintenance of the equipment;
- installation 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.

## Typographical conventions



**This symbol indicates that you must strictly follow the instructions to which it refers in order to avoid severe injury and/or damage to the machine.**



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



**After installing the machine, the installer is required to fill in the "Installation Form" that goes with the machine.**

**On this form must be confirmed the hygiene and safety requirements in force on the installation site and must be reported any notes relating to changes or interventions necessary for the proper functioning of the equipment.**

**Filled copies of the Installation form must be kept by the user and by the installer until the end of life of the machine.**

**In case of withdrawal of the machine, the installer must also provide for the withdrawal of the user's Installation form.**

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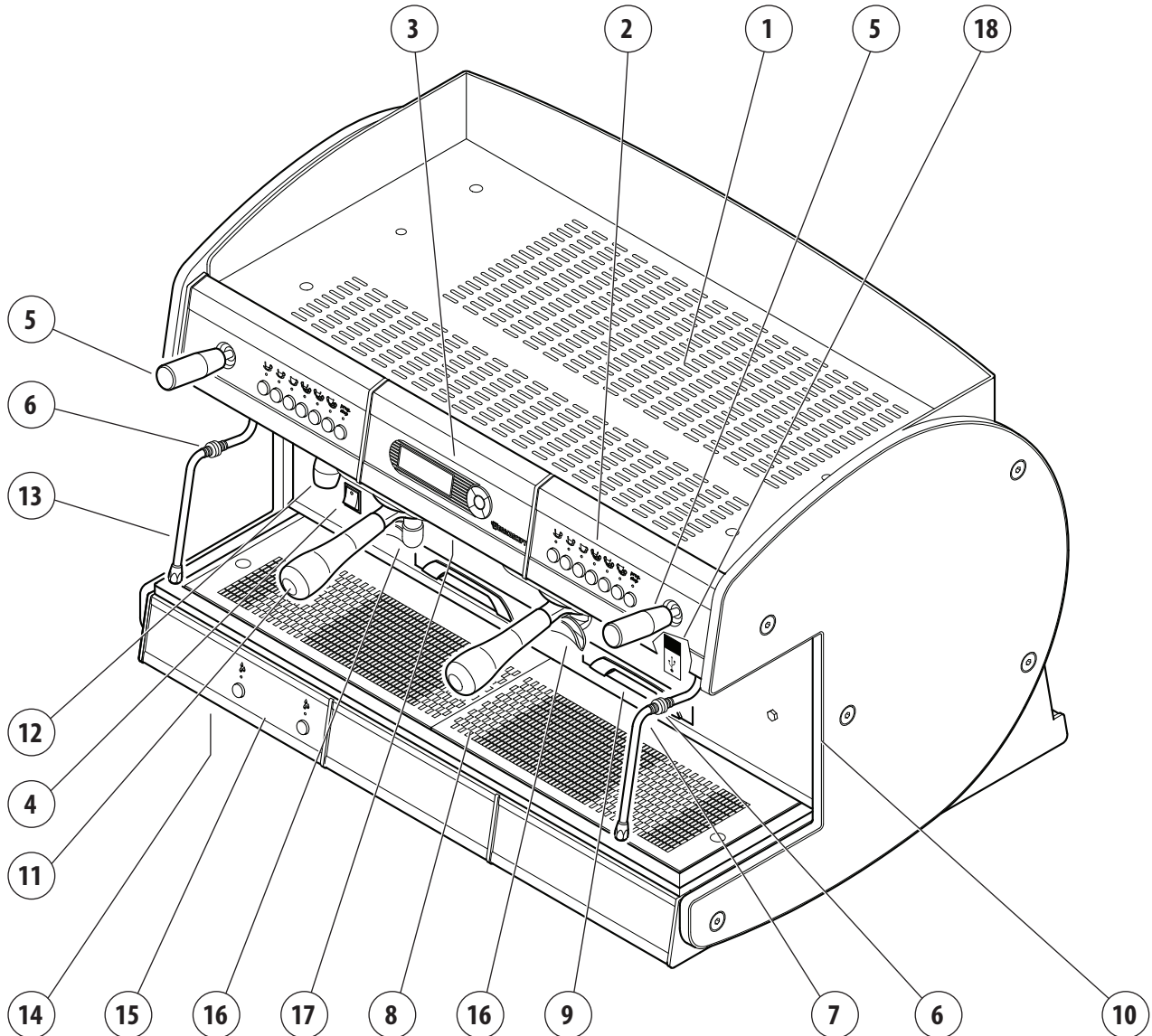
# Section I

## Operation

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# 1 Technical characteristics

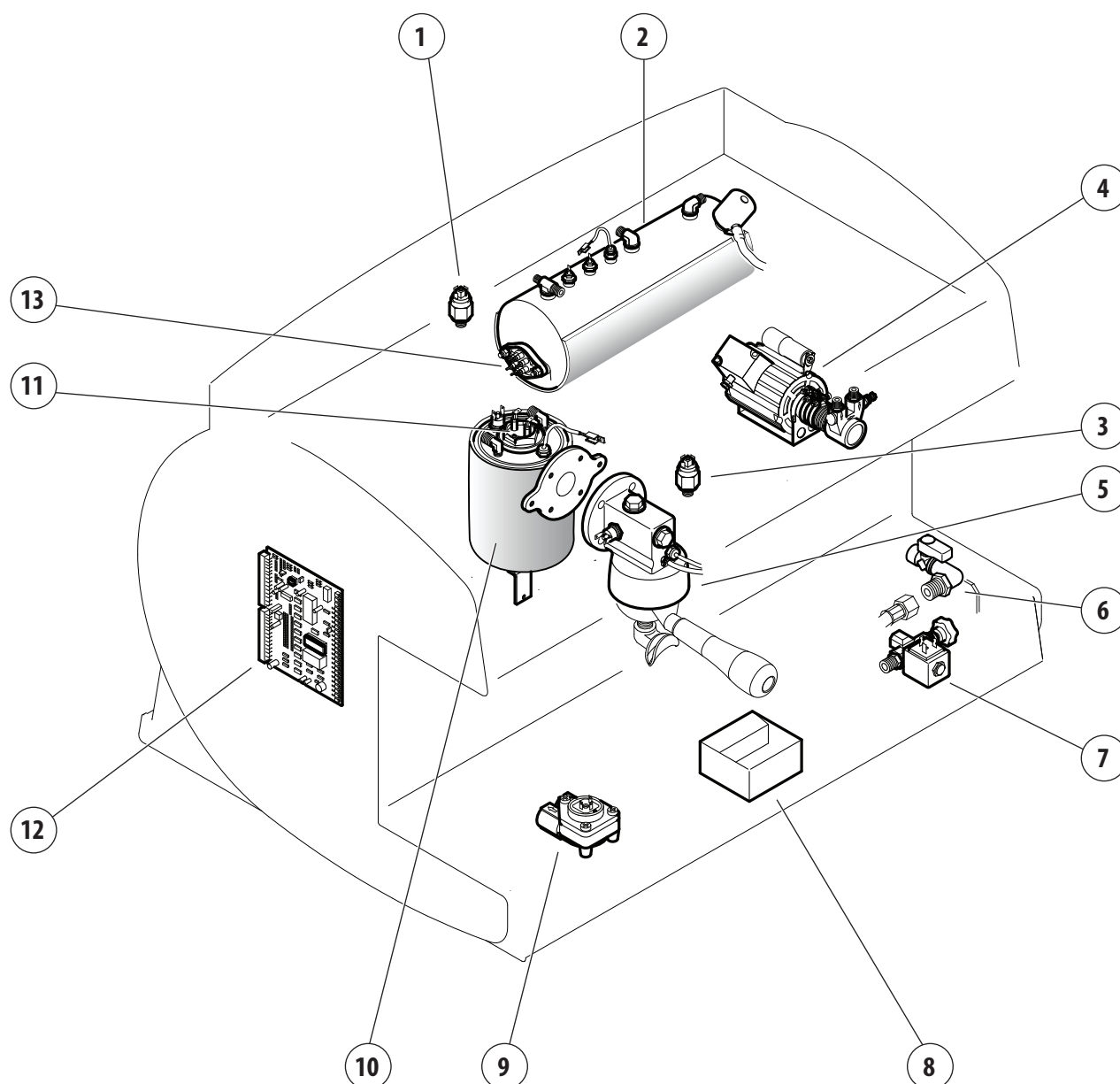
## 1.1 External components



- |                                             |                                                     |
|---------------------------------------------|-----------------------------------------------------|
| 1. Cup heater surface.                      | 10. Lit up side.                                    |
| 2. Push-button panel for coffee selections. | 11. Filter holder.                                  |
| 3. Display and browser key.                 | 12. Hot water delivery nozzle.                      |
| 4. Machine power switch.                    | 13. Steam delivery nozzle / autsteamer (*).         |
| 5. Steam knob.                              | 14. Adjustable foot.                                |
| 6. Anti-burn seal.                          | 15. Push-button panel for services/ autsteamer (*). |
| 7. Steam nozzle.                            | 16. Dispensing spouts.                              |
| 8. Tray and cup support grille.             | 17. Dispensing compartment light.                   |
| 9. Pull-out cup support grille.             | 18. USB socket.                                     |

(\*) optional.

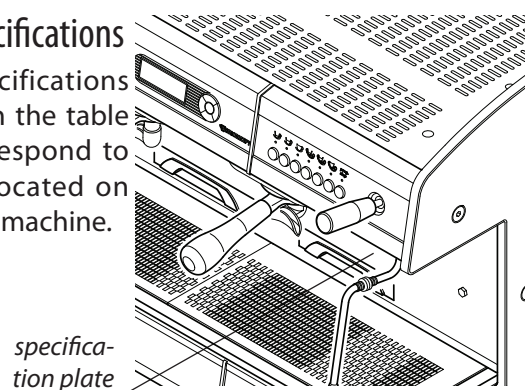
## 1.2 Internal components



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

### 1.3 Specifications

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



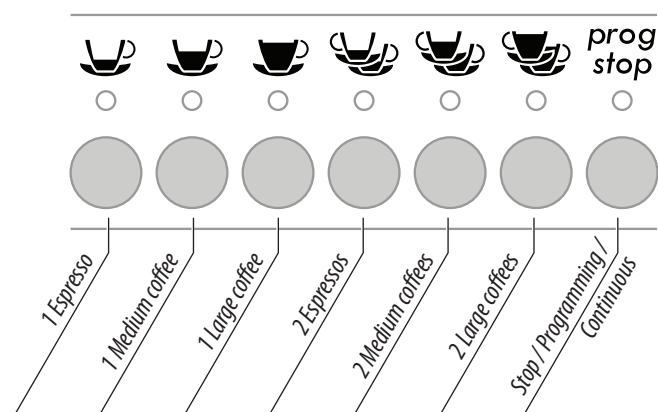
|                                                   |             | 2Gr               |         | 3Gr           |         | 4Gr           |         |
|---------------------------------------------------|-------------|-------------------|---------|---------------|---------|---------------|---------|
| Power supply voltage                              | V           | 230/400           | 240/415 | 230/400       | 240/415 | 230/400       | 240/415 |
| Total power                                       | W           | 4.400             | 4.790   | 5.600         | 6.100   | 7.100         | 7.730   |
| 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     | 800 / 31.5        |         | 1040 / 40.9   |         | 1280 / 50.4   |         |
| Depth                                             | mm / in     | 580 / 22.8        |         | 580 / 22.8    |         | 580 / 22.8    |         |
| Height                                            | mm / in     | 590 / 23.2        |         | 590 / 23.2    |         | 590 / 23.2    |         |
| Net weight                                        | kg / lb     | 95 / 209          |         | 117 / 257     |         | 142 / 312     |         |
| Operating conditions                              | °C / °F     | 5 ÷ 40 / 41 ÷ 104 |         |               |         |               |         |

Technical data table

### 1.4 Push-buttons panels

#### Coffee selections push button panel

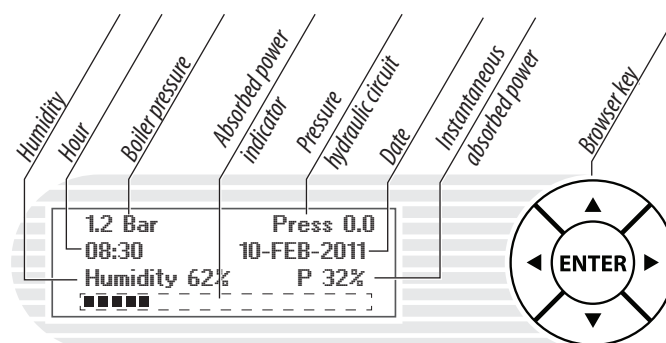
The push button panel is connected to the electronic control unit, and allows selection and programming of coffee doses.



#### Display and browser key.

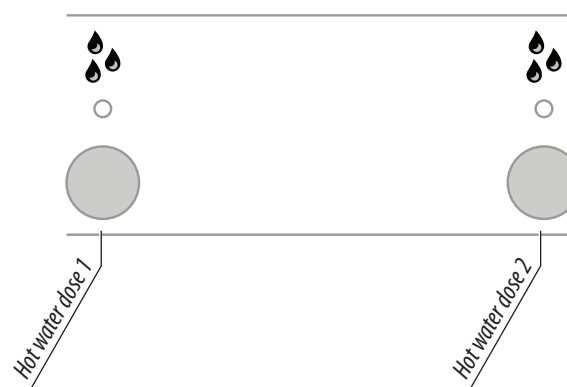
All programming operations of the machine are carried out using the selector as specified in the chapter "23 Programming".

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



#### Services push button panel

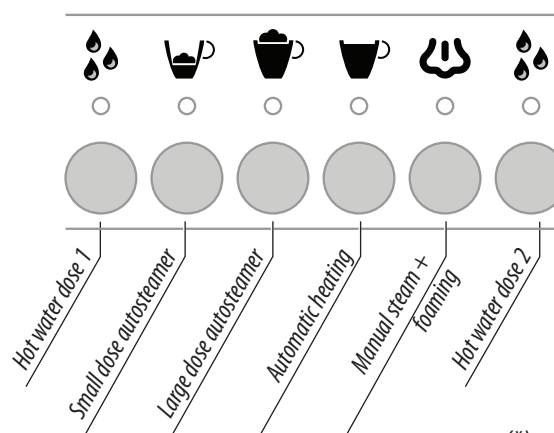
The services push button panel is included with the machine, it is connected to the electronic control unit and allows the delivery of hot water for making beverages such as tea, etc...



#### Services push-button and autosteamer (\*)

The autosteamer push-button panel is installed with the homonymous device, and allows selection and programming of milk-based beverages.

It also includes the services push button panel



(\*) optional.

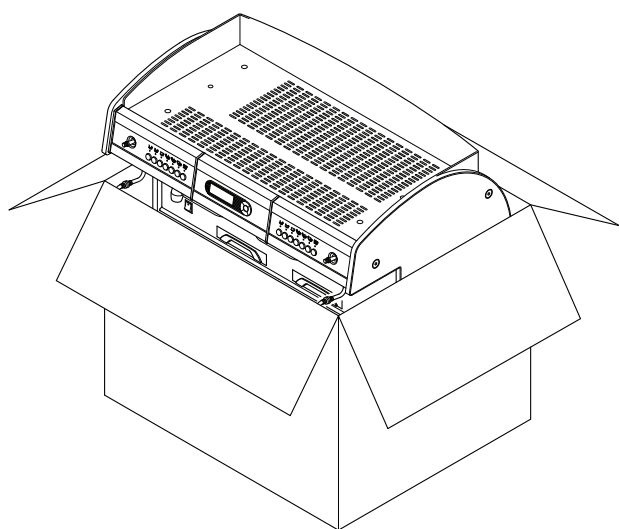
## 2 Preparation

### 2.1 Unpacking the machine

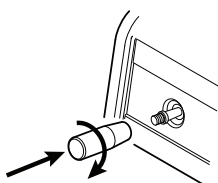
Open the packaging, ensuring not to damage the machine.

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.



Screw the steam nozzles to the taps.



### 2.2 Equipment preparation

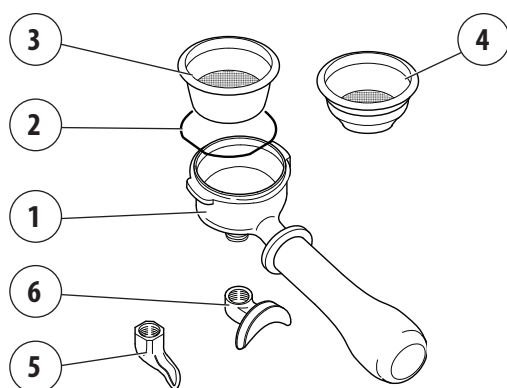
#### Filter holder

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 related filter: one-cup spout on one-cup filter holder, etc.**

#### Motor pump

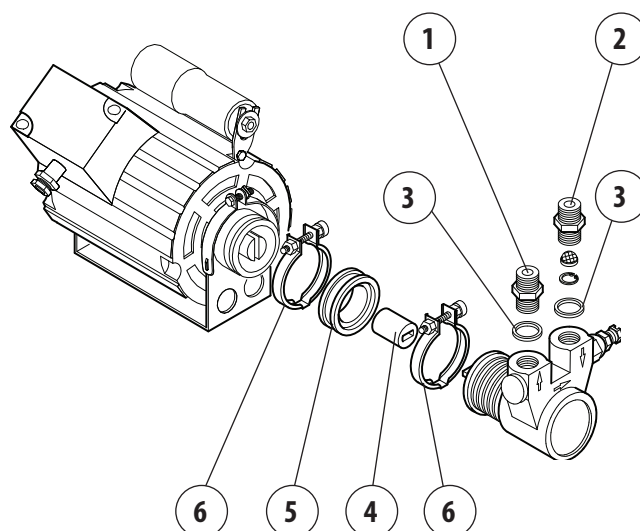
For the machines with an external motor, it is necessary to prepare the pump and the motor.

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.



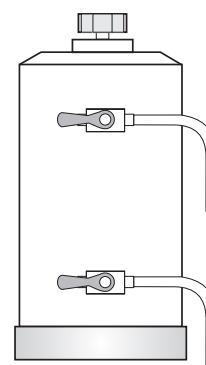
**Install the connection with the inlet filter (2) of the pump (arrow ↓).**

#### Softener

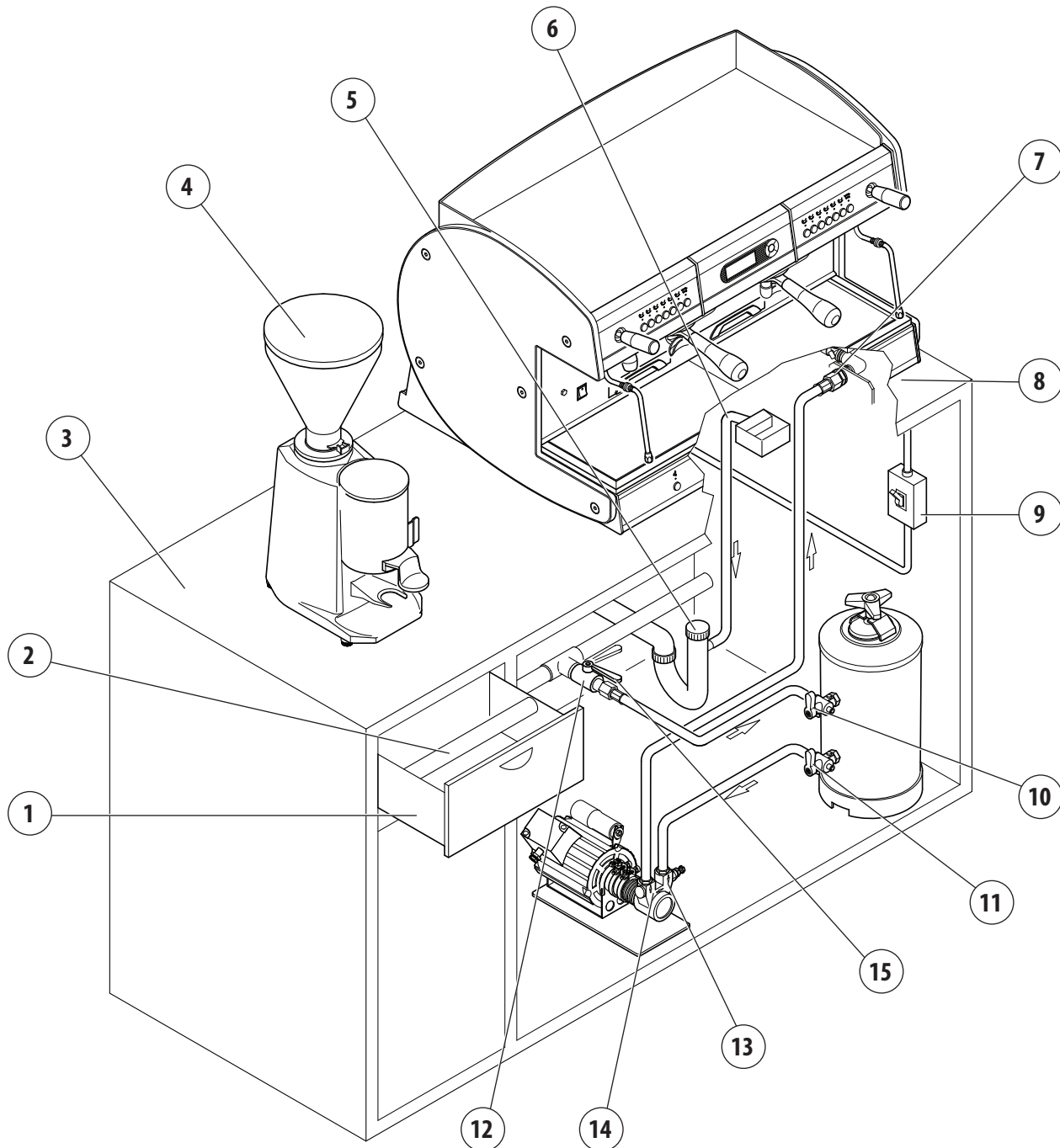
The softener is supplied by default.

On request, an automatic resin softener is supplied.

For further information, refer to the chapter "12 Softener".



### 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 the connections to the water supply (12) and to the power supply (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).**

## 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 of the 3/8 male gas type. The drain pan is connected to a tube with an internal diameter of 16mm.**



**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.**



**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.



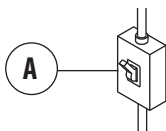
**The hydraulic connection must be made in compliance with local national standards. In case of use of an external tank: the connection hose between the machine and the tank can't be longer than 150 cm. For the European Community: both for the hydraulic connection to the water supply, and for the connection to an external tank, it is necessary to place a non-return valve (15) on the machine as set forth by EN 1717 standards.**



**The machines are equipped with a time-limit switch that allows the water to fill the boiler only for a limited 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.



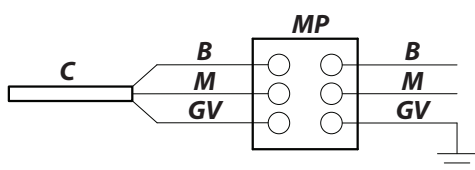
#### Machine with INTERNAL MOTOR PUMP

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

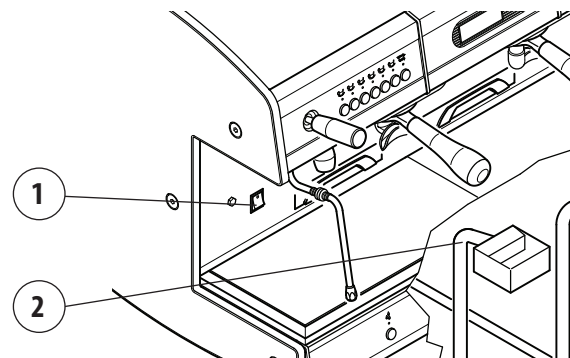


**Always connect the motor pump cable before the machine power supply cable, in accordance with the diagram provided. Failure to comply with the instructions given above may cause serious damage to the machine and/or motor pump and will invalidate the warranty. Carry out the electrical connections only 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.

- XX-XX-XX : revision date
- Rx : software revision number;
- D.Board x.xx: display card version.

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

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

#### FUNCTIONAL TEST

DELNEW xx-xx-xx Rx  
D.BOARD x.xx

TEST  
-O.K.-

0.0 Bar      Press 3.5  
08:30      14-APR-2010  
COFFEE  
WATER FILLING

0.0 Bar      Press 3.5  
08:30      14-APR-2010  
MAKE ATTENTION  
WATER/STEAM ESCAPE

0,0 Bar Press 3,5  
PLEASE WAIT  
Humidity 38% P 85%

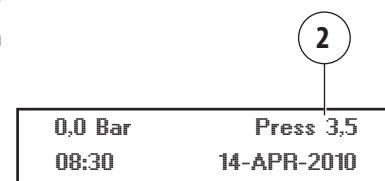
[████████████████████]

0,0 Bar Press 3,5  
STEAM ESCAPE  
Humidity 38% P 85%

0.7 Bar Press 3.5  
08:30 14-APR-2010  
Humidity 38% P 85%  
[■■■■■]



A detailed line drawing of the pump assembly. It shows a motor with a cooling fan on top, connected to a pump head. The pump head has a large circular outlet on the right and several smaller ports on top. A callout bubble with the number '1' points to the pump head.



## 4 Boilers

There are two kinds of boilers inside the machine:

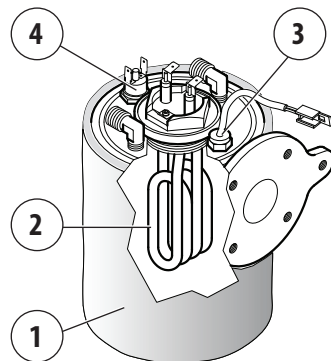
### 4.1 Coffee boiler

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).

For each boiler are installed: a temperature sensor (3), a safety thermostat (4), and a pressure switch.

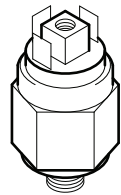


#### 4.1.1 Security systems:

##### Coffee boiler pressure switch.

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

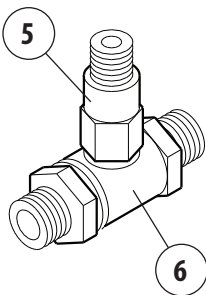
Calibration is set to 5 Bar and can be distinguished by the GREEN seal.



##### Expansion - non-return valve

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

- expansion valve (5): 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 (6): its function is that of preventing the back flow of water from the exchangers in the hydraulic circuit.



##### Temperature sensor (3).

Turns off the resistance when 130° C are reached and displays an alarm.

##### Temperature sensor (4).

Turns off the resistance when 150° C are reached.

##### CPU Control.

Turns off the resistance if using 100% of its max power for 45 minutes.

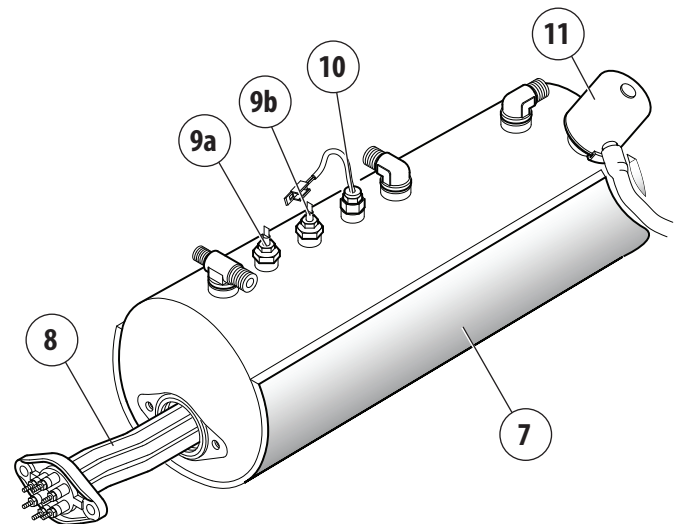
### 4.2 Services boiler

Inside the coffee machine, there is a services boiler (7).

This boiler provides steam and hot water for tea.

Heat is provided by an electric heating element (8).

The boiler includes a temperature sensor (10), a safety valve (11), a level probe (9a) and a safety probe (9b).



#### 4.2.1 Security systems:

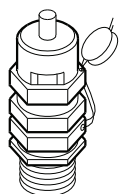
##### Services boiler pressure switch.

Also the boiler is equipped with a safety switch to control the pressure.

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

##### Pressure limitation safety valve

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



##### Temperature sensor (10).

Turns off the resistance when 130° C are reached and displays an alarm.

##### CPU Control.

Turns off the resistance if using 100% of its max power for 60 minutes.

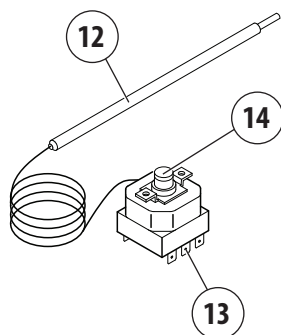
**Safety thermostat.**

Located inside the boiler, turns off the resistance if the temperature reaches 169° C.

The thermostat allows you to avoid damage to the electrical resistance in case of lack of water in the boiler.

The thermostat bulb (12) is located inside a sheath placed at the center of resistance. The contacts of the thermostat (13) are connected to the electrical resistance (8).

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 (14). However, before trying to operate the machine, verify the causes of the blockade of the water feeding the boiler



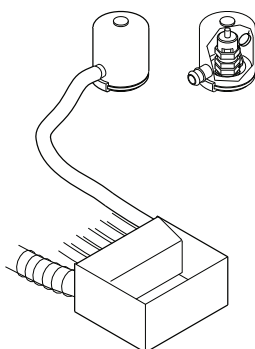
Do not replace the heating element with a more powerful one. Before making any modifications, contact the manufacturer.



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

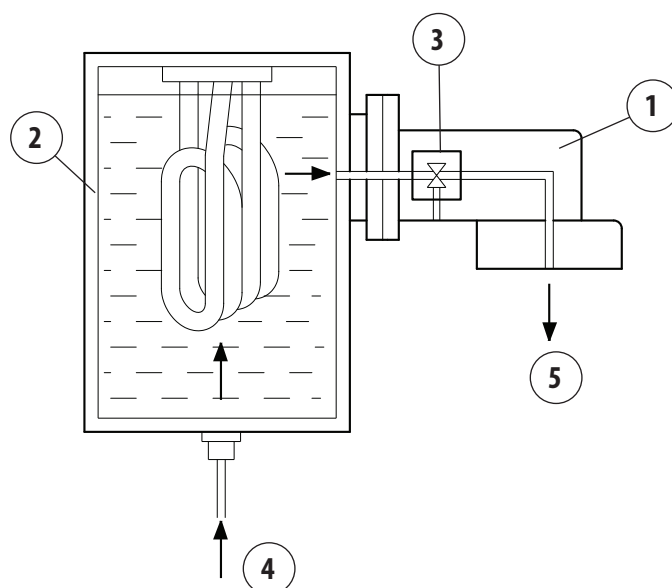
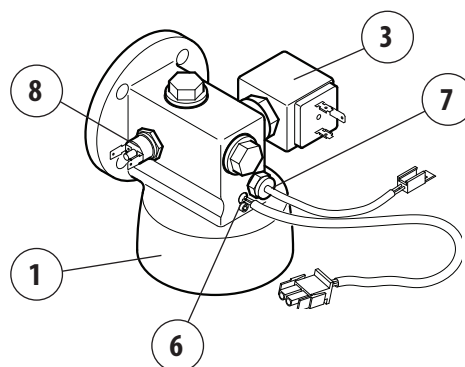
**4.3 Anti-flooding device**

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.

**5 Delivery group**

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

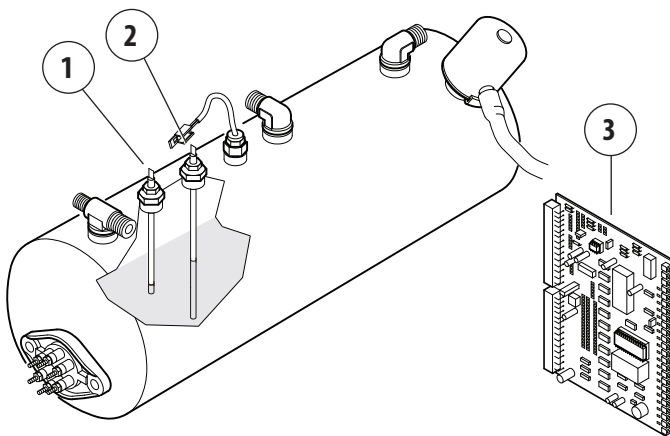
The Automatic Water Entry system is for checking the boiler level. It is composed of:

- 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 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.

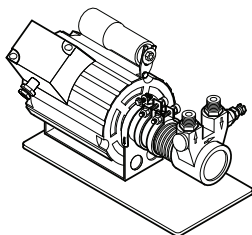
If the level is very low or there is no water in the boiler (during the machine's installation or due to a failure), the safety probe (2) sends a signal to the control unit which de-activates the heating element to keep it from overheating and activates the motor pump and the solenoid valve to restore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



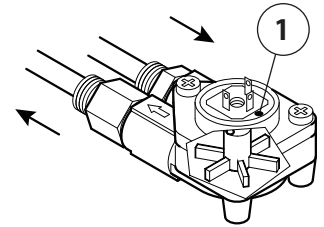
## 8 Volumetric dosing

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.



## 9 Electric control unit

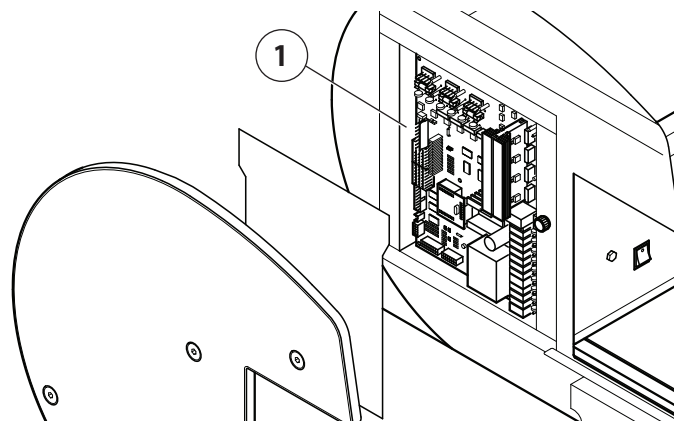
The electronic control unit (1) is the core of the machine. It monitors and controls all operation of the unit.

Among its functions, it electronically manages the dose of coffee through the passage of water in the dispenser and controls the entry of water into the boiler.

It is set up to be connected to the delivery accounting systems by means of a specific interface.

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

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



**i**

The unit includes a button lithium battery. When it needs replacing, disconnect the machine from the power outlet and open the central unit placed inside the equipment.

Dispose of the battery in compliance with the collection regulations of the country of use.



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.



## 10 Cup heating device

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

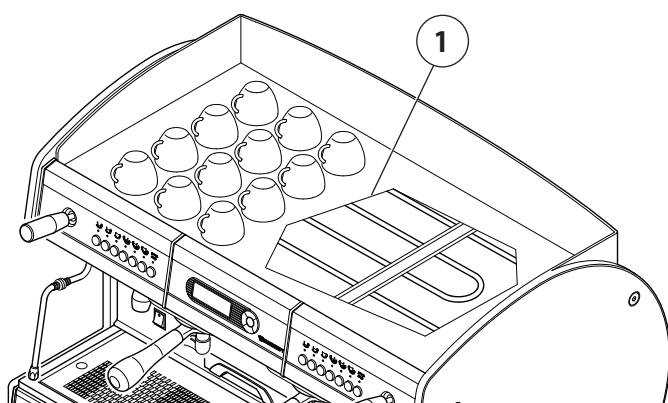
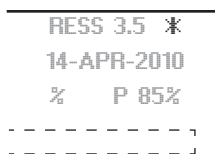
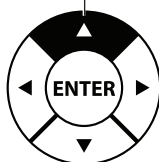
Place the cups to be heated on the appropriate surface (1).

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

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 "23-Programming".

Cup heater  
ON/OFF



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



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

## 11 Illuminated side

### 11.1 Description

Within each side of the body, there is a drowned strip with LEDs.

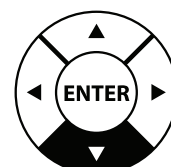
They provide uniform and adjustable lighting along the perimeter on the same side, which can be activated at user's discretion.

This chapter provides instructions for adjusting and turning on/off one or both lit sides.

To activate and deactivate the lighting of the delivery compartments, as well as of the sides of the machine, press the (▼) navigator button repeatedly.

The lights will switch on sequentially, depending on how many times the button is pressed.

The table below shows the correspondence between the number of presses and the switching on of the lights.



ON/OFF  
Lights

| no. of presses on the button (▼) | Dispensing compartment light | Sides light |
|----------------------------------|------------------------------|-------------|
| 1                                | ON                           | OFF         |
| 2                                | ON                           | ON          |
| 3                                | OFF                          | ON          |
| 4                                | OFF                          | OFF         |



The ON/OFF lights button works as a main switch. The internal dimmer and the remote control cannot switch on the sides if these were set to OFF by the main switch.

### 11.2 Preparing the remote control

- Open the battery cover on the back of the remote control.
- Insert two AAA batteries. Make sure the polarity (+ and -) is aligned correctly.
- Put the battery cover back in place.



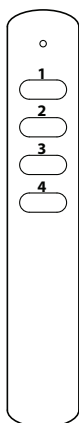
Dispose of the batteries in compliance with the environmental regulations in use. Do not dispose of them together with the household waste.

## 11.3 Adjusting the brightness

### 11.3.1 Adjustment by remote control

You can adjust the brightness of the body sides, using the supplied remote control. Proceed as follows:

- Point the remote at the machine;
- briefly press the button (< 1 sec) to turn on/off the side;
- holding the button (> 1 sec) increases/decreases the brightness of the side.
- button no. 1 (red) operates the right side, while button no. 2 (green) operates the left side.

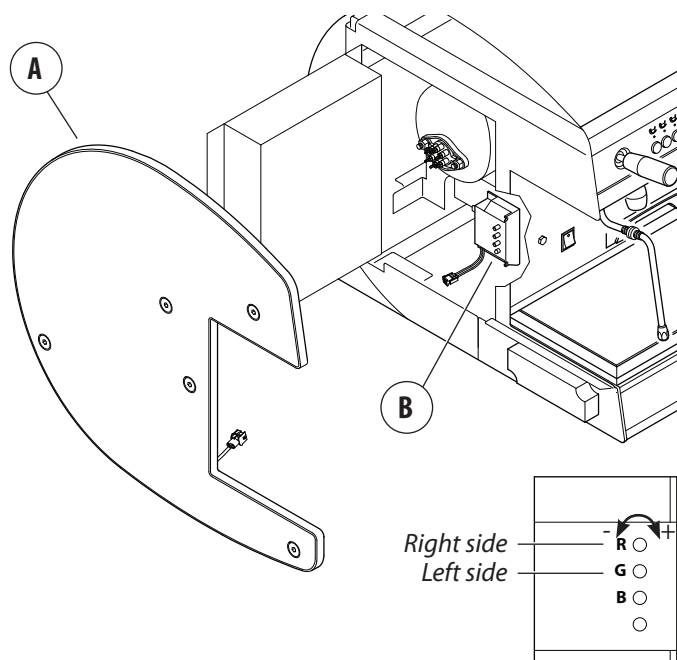


### 11.3.2 Adjustment by internal regulator

Should the remote control not work properly, you can make the adjustment by the regulator installed inside the machine.

To access it, proceed as follows:

- remove the left side of the body (A), after disconnecting the LED connector;
- open the unit compartment to access the machine;
- once the regulator (B) has been detected, operate the appropriate trimmers.



**Never operate the electronic apparatus when the machine is wired.  
Shut down the machine completely by disconnecting it from the power outlet before carrying out any operation.**

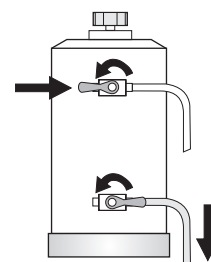
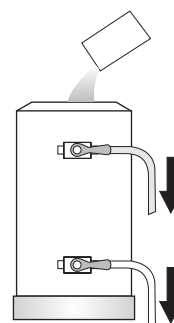
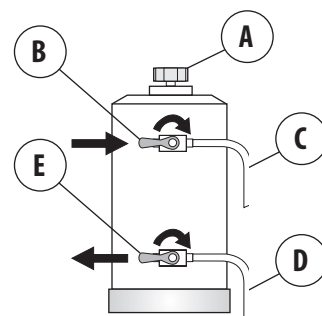
## 12 Softener

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.

### 12.1 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 litres       | 1.0 kg         |
| 12 litres      | 1.5 kg         |
| 16 litres      | 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<sub>3</sub>

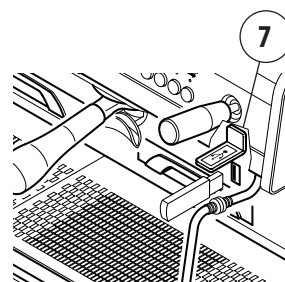
For further information on softener installation, start-up and regeneration, refer to the instruction manual.

Amount of softened water based on hardness

| F°                   | 30      | 40      | 60      | 80      | salt   |
|----------------------|---------|---------|---------|---------|--------|
| D°                   | 16,5    | 22      | 33      | 44      |        |
| mg CaCO <sub>3</sub> | 30      | 40      | 60      | 80      |        |
| 8 litres             | 1000 lt | 900 lt  | 700 lt  | 500 lt  | 1.0 kg |
| 12 litres            | 1500 lt | 1350 lt | 1050 lt | 750 lt  | 1.5 kg |
| 16 litres            | 2100 lt | 1800 lt | 1400 lt | 1000 lt | 2.0 kg |

## 12.2 Regeneration request

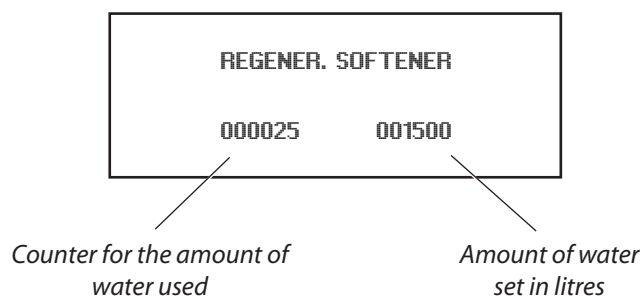
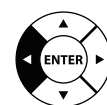
If the function has been enabled during the programming, the system measures the amount of water used by the machine and prompts the user for regeneration (flashing of "WATER SOFTENER REGENERATION") when the set amount has been exceeded.



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

Proceed as follows:

- Insert the USB drive in the appropriate reader (7);
- hold down the (◀) key of the navigator for 5 seconds: display of litres set and amount of water used;
- to reset the counter, hold down the same key (◀) of the navigator for another 5 seconds;
- when finished, remove the USB drive.

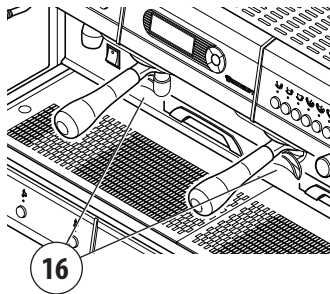


## 13 Preparation of beverages

### 13.1 Programming the coffee doses

To program the dose keys, proceed as follows:

- press and hold the "**PROG/STOP**" key down for 5 seconds: the LED of the "**PROG/STOP**" key will flash and all keys on the push-button panel being programmed will turn on;
- fill the filter with a dose of ground coffee and press it with the coffee press;
- attach the filter holder to the delivery group;
- place the coffee cup under the delivery spout (16);
- press the desired dose key (e.g.: "1 Espresso" );
- wait for the delivery;
- to confirm the desired dose press the dose key or the "**PROG/STOP**" key again;
- once the dose is confirmed, the programmed key LED switches off and only the keys yet to be set remain on;
- repeat this operation for the other dose buttons;
- upon completion of the programming, press the "**PROG/STOP**" key to exit dose programming.



After idling for 30 seconds, the machine will automatically exit the dose programming mode, confirming the already programmed ones.



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



It is possible to program all the push-button panels of the machine 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.

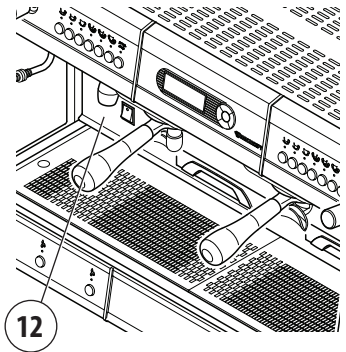
### 13.2 Coffee preparation

- Fill the filter with a dose of ground coffee and press it with the coffee press;
- attach the filter holder to the delivery group;
- place the coffee cup under the delivery spout (16);
- press the desired dose key (e.g. "1 Espresso" ) and wait for coffee delivery (all LEDs switch off, except for that on the selected key).
- to stop delivery of coffee in advance, press the delivery key again or press the "**PROG/STOP**" key.

### 13.3 Programming the hot water doses

To program the hot water doses, proceed as follows:

- place the cup under the hot water nozzle (12);
- 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;
- repeat the operation for the other dose button;
- upon completion of the programming, press the "**PROG/STOP**" key.



All models are provided with 2 keys for the delivery of hot water. These can be programmed individually and supply doses which are independent from one another.



The 4GR version has 2 hot water nozzles. The left key controls the left hot water nozzle, while the right key controls the right hot water nozzle.

### 13.4 Hot water delivery

- Place the cup under the hot water nozzle (12);
- press the hot water key , wait for the delivery of water;
- To stop delivery in advance, press the hot water key again .

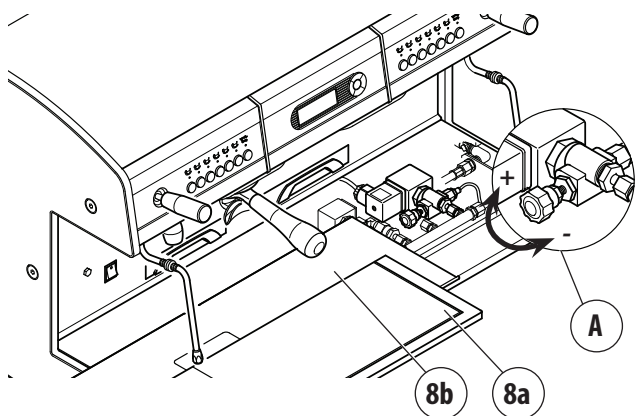


**When the machine is cool (pressure below 0,6 bar) the delivery of hot water is not active.**

### 13.5 Regulation of the hot water temperature

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

- remove the grids and drain pad (8a);
- remove the protection under the pad (8b);
- rotate the knob (A):
  - to increase the temperature turn clockwise
  - to decrease the temperature turn counter-clockwise

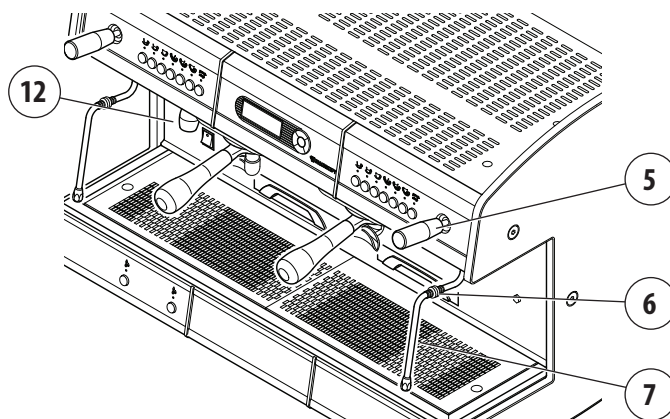


**By completely turning the knob clockwise, only steam will come out of the hot water dispenser.**

### 13.6 Steam delivery

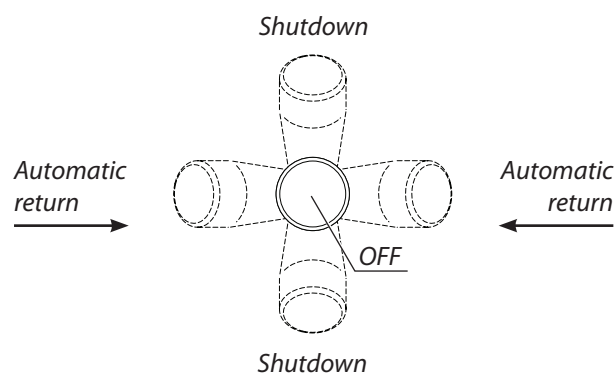
Immerse the steam nozzle into the liquid to be heated and operate the tap knob (5), by turning it horizontally: the steam coming out of the nozzle (7) will be proportional to the opening of the tap.

If the knob is released, it will return to the off position, stopping the delivery.



By moving the knob vertically, it is possible to lock it in the constant on position, in order to have a continuous delivery of steam.

To stop the outflow of steam through the nozzle, manually return the knob to the OFF status, disengaging it from the on position.

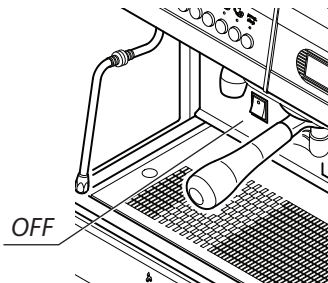


To obtain optimal foaming, it is recommended to observe the following simple rules:

- heat only the amount of milk you intend to use, once heated, it will have to be completely poured from the jug and not heated again ;
- the milk to be foamed must have a starting temperature of 4°C;



**LEAVE THE STEAM NOZZLE IMMERGED IN THE MILK ONLY FOR THE HEATING TIME REQUIRED. DO NOT TURN ON THE STEAM KNOB IF THE NOZZLE IS IN THE MILK AND THE MACHINE IS OFF.**



**Carefully operate the steam nozzle using the anti-burn rubber bulb (6) and never touch the steam nozzle (7) or the hot water nozzle (12): contact with the hot water or steam may be harmful to individuals, animals or property.**



**The use of the steam delivery point (steam nozzle), must always be preceded by condensation draining for at least 2 seconds.**



**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.**

## 14 Cappuccino maker

### 14.1 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.

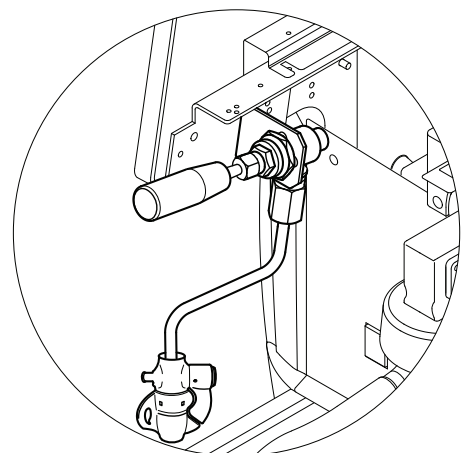
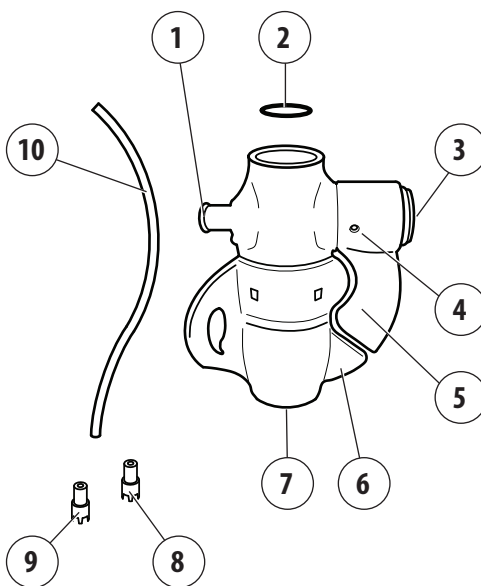
Ensure that seal (2) is present and/or use Teflon tape in order to avoid steam loss which may compromise the cappuccino maker's operation.

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.



14.2 Cleaning

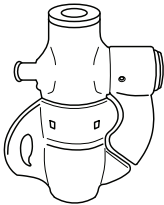
The first time you use the cappuccino maker, it is important to clean it: turn the rotating body (6) by 90° and place the cappuccino maker in position B. Doing this closes the milk outlet conduit.

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.

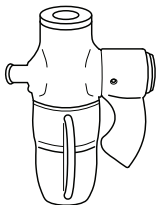
Turn off the steam and restore position A of the cappuccino maker.

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.A

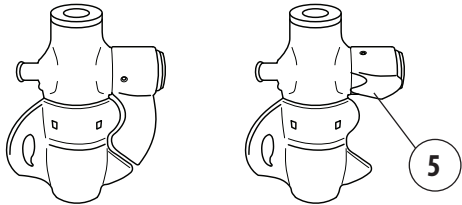


Pos.B

14.4 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)

14.3 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!

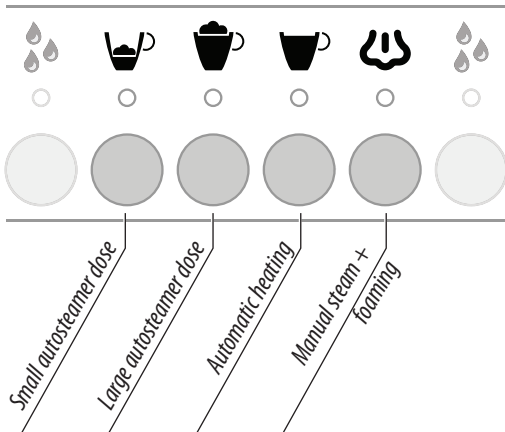
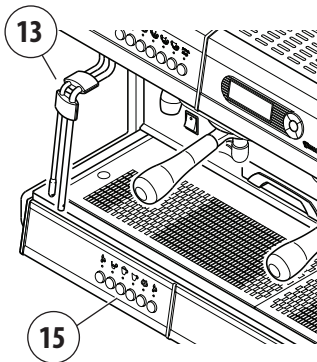
A good cappuccino should be served with a dense, compact and silky cream, at a temperature between 60°C and 65°C.

15 Autosteamer (\*)

15.1 Description

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

It can be controlled using the keypad (15) located on the left base of the machine.



(\*) optional.

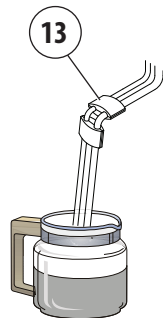
To obtain optimal foaming, it is recommended to observe the following simple rules:

- heat only the amount of milk you intend to use, once heated, the milk will have to be completely poured from the jug and mustn't be heated again;
- the autosteamer guarantees a correspondence of  $\pm 3^{\circ}\text{C}$  between the set temperature and the real temperature of the milk, only by starting from a milk temperature of  $4^{\circ}\text{C}$ ;
- since the delivery of steam stops on its own when the set temperature of milk is reached, to prevent the milk foam spilling out, it is necessary to introduce a volume of liquid not higher than 1/2 the capacity of the jug.
- use a container with a capacity of 0.75 litres and half-fill it with milk;
- set a maximum heating temperature of  $60^{\circ}\text{C}$  (contact the technical support).

## 15.2 Automatic heating and foaming

Proceed as follows:

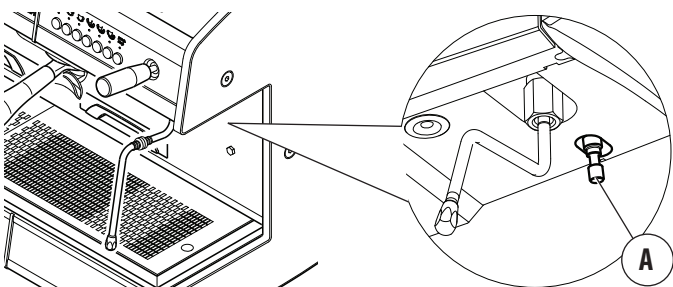
- Immerge the tips of the autosteamer (13) into the beverage;
- press the  or  key, depending on the dose of milk in the jug;
- wait until the delivery is finished;
- when the delivery is finished, the milk will be foamed and heated at the preset temperature.



- To stop delivery in advance, press the same key again;
- to prolong the delivery of steam, use the "Manual steam"  key.

To increase or decrease the consistency of the foam, slightly adjust the special regulator (A). Turning it clockwise will decrease the consistency, while turning it counter-clockwise will increase it.

Always proceed by performing slight adjustments.



**The autosteamer foaming is factory-adjusted during the testing phase of the machine. Therefore, it is recommended to modify the adjustment only if strictly necessary.**

## 15.3 Automatic heating

Proceed as follows:

- Immerge the tips of the autosteamer (13) into the beverage;
- press the  key;
- wait until the delivery is finished;
- once the delivery is finished, the milk will be heated at the programmed temperature, but not foamed.
- To stop delivery in advance, press the same key again;
- to prolong the delivery of steam, use the "Manual steam"  key.

## 15.4 Manual heating and foaming

This control allows for manual use of the autosteamer nozzle to heat and foam the milk at the same time.

Proceed as follows:

- Immerge the tips of the autosteamer (13) into the beverage;
- press the  key;
- To stop delivery, press the same key again.

## 15.5 Automatic Cleaning

After idling for 120 minutes 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 use of the steam delivery point (steam nozzle), must always be preceded by condensation draining for at least 2 seconds.**



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



To change the temperature of the autosteamer, and to enable or disable its operation, contact the technical support.



To keep the steam dispensers in perfect working order, it is advisable to carry out a brief dry delivery after each use. Keep the tips of the autosteamer clean at all times using a cloth dampened in lukewarm water. If regular cleaning is not carried out, the proper operation of the autosteamer can be compromised.

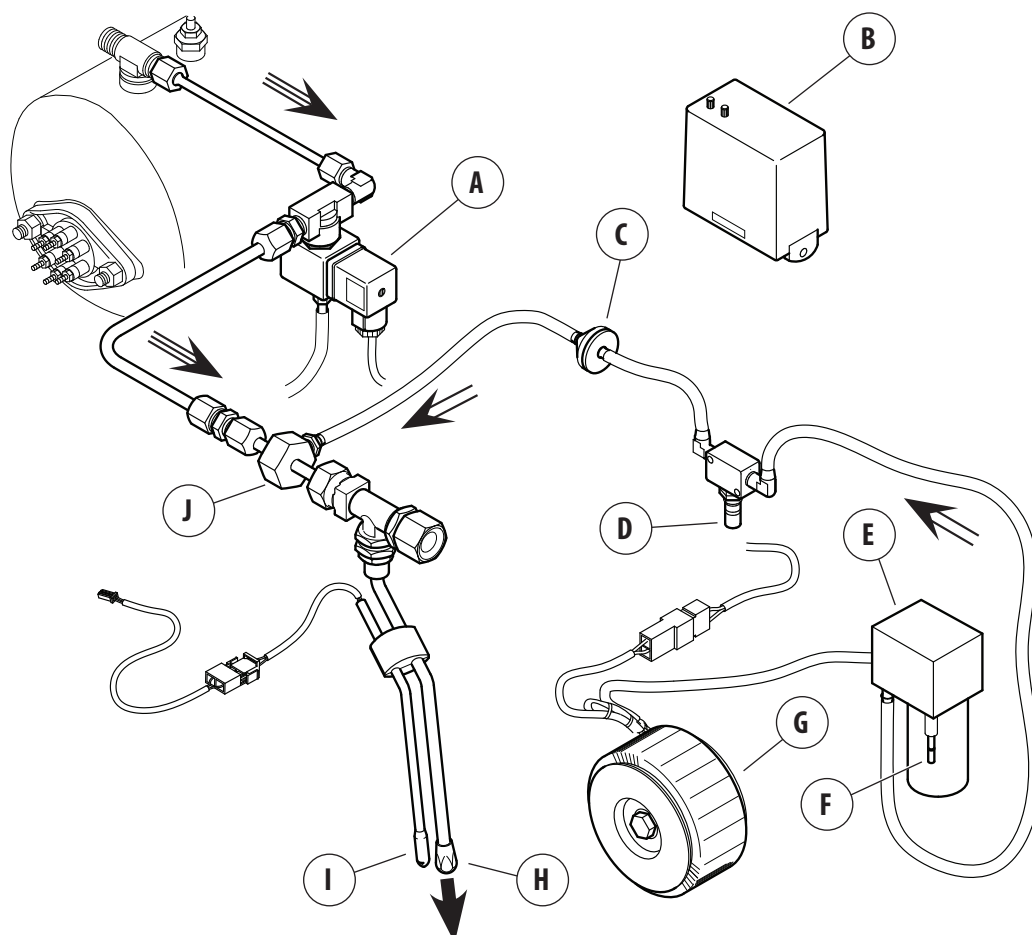


Do not leave the autosteamer nozzle immersed in the milk when it is not being used. Handle the autosteamer with utmost caution due to the hazard resulting from the presence of high-temperature steam.

## 15.6 Autosteamer system operation

Below is listed the operating principle of the autosteamer:

- press the or key;
- opening of the solenoid valve (A) with consequent flow of steam from the boiler to the autosteamer;
- simultaneously, the system activates the air pump (E) which is controlled by the control unit (B) and powered by a processor (G). The regulation of milk foaming can be made by changing the amount of air intake from the nozzle (F) using the control (D) as indicated in par. 15.2;
- after passing through the non-return valve (C), the air mixes with the steam in the "autosteamer interface" (J);
- leakage of steam from the pipe (H);
- the probe (I) connected to the electronic unit of the machine detects the temperature of the heating milk;
- Once the set temperature of the milk has been reached, the electronic system blocks the flow of air and steam.



## 16 Energy Saving

### 16.1 Description

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

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

### 16.2 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 "23 Programming".

### 16.3 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 23 Programming);

To program the stand-by of the groups, please refer to chapter "23 Programming".

## 17 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.

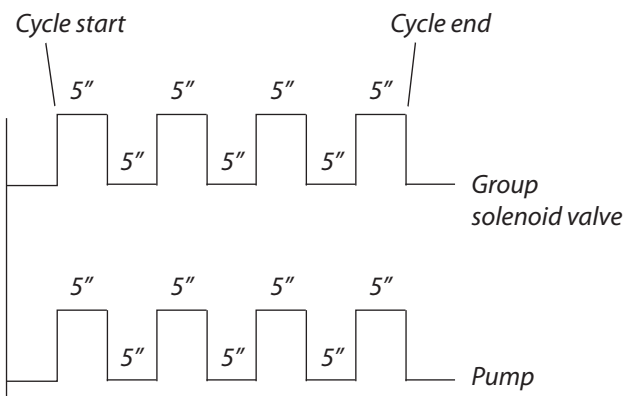
Follow the indications provided on the display:

- 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;

**GROUP WASHING**  
**PUT THE DETERGENT**  
**THEN PRESS**  
**STOP/PROG KEY.**

the following messages appear on the display in alternating sequence:

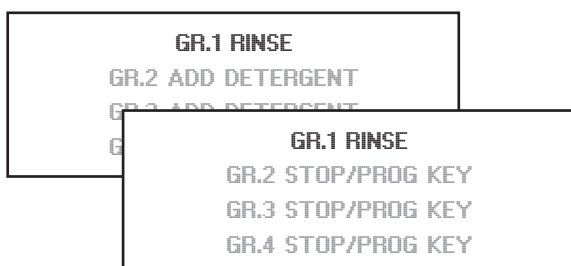
**GR.1 WASHING ON**  
**GR.2 ADD DETERGENT**  
**GR.3 ADD DETERGENT**  
**GR.4 STOP/PROG KEY**



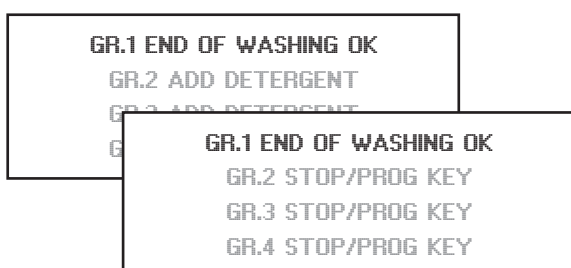
- wait for the washing to be carried out until the following messages appear on the display:

**GR.1 REMOVE FILTER**  
**GR.2 ADD DETERGENT**  
**GR.3 ADD DETERGENT**  
**GR.4 STOP/PROG KEY**

- 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.



**i**

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.

**i**

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

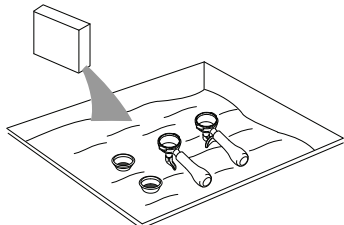
**i**

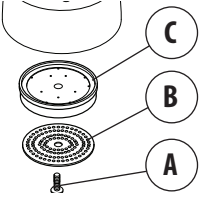
Before starting the washing phase with the **PROG/STOP** key, you can cancel the operation by pressing the (◀) key. To exit a washing phase that is already in progress, the washing must be completed of all the groups.

## 18 Cleaning

For perfect hygiene and efficiency of the unit, a few simple cleaning tasks are required.

The indications given here are applicable for normal use of the coffee machine. If the machine is used intensively, the cleaning should be performed more frequently. When cleaning, always use cloths that are completely clean and hygienic.

| Cleaning                                                                                                                                                                                                                                                                                                                                                                                         | Daily | Weekly | Monthly |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|---------|
| <b>CAPPUCCINO MAKER</b><br>Clean it several times a day as indicated in chap. 14.2, especially if used continuously                                                                                                                                                                                                                                                                              | XXX   |        |         |
| <b>FILTERS and FILTER HOLDERS</b><br>Use a screwdriver to detach the filter from the filter holder.<br>Let the filters and filter holders soak in hot water for a few hours so that the fatty coffee deposits can dissolve.<br>It is advisable to add special detergent to the water and then rinse with clean water.                                                                            | XXX   |        |         |
|                                                                                                                                                                                                                                                                                                              |       |        |         |
| <b>FILTERS and FILTER HOLDERS</b><br>Use a screwdriver to detach the filter from the filter holder.<br>Clean the inside of the filter holder with a brush and wash the filter and filter holder with hot water.<br>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     |        |         |
| <b>STEAM NOZZLE, AUTOSTEAMER</b><br>Keep the nozzle clean at all times using a cloth dampened in lukewarm water.                                                                                                                                                                                                                                                                                 | X     |        |         |
| <b>STEAM NOZZLE, AUTOSTEAMER TERMINALS</b><br>Check and clean the tips of the nozzle, clearing out the steam outlet holes with a small needle.                                                                                                                                                                                                                                                   | X     |        |         |

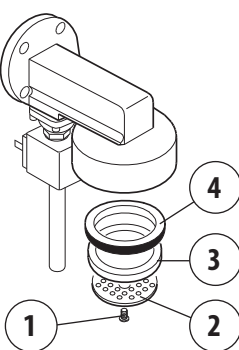
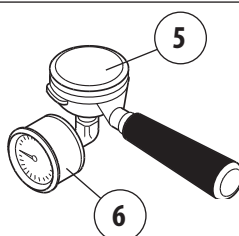
| Cleaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Daily | Weekly | Monthly |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|---------|
| <b>BODY</b><br>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     |        |         |
| <b>PERFORATED DISK and CONTAINMENT RING</b><br>Loosen the screw (A) and remove the perforated disk (B) and containment ring (C) from the delivery group. Wash with hot water.                                                                                                                                                                                                                                            |       | X      |         |
| <b>DISPENSER UNIT</b><br>Carry out the washing of the groups as indicated in Chapter 17 and follow the instructions below: <ul style="list-style-type: none"> <li>• use the solid filter holder;</li> <li>• pour the detergent on the solid filter and attach the filter holder;</li> <li>• carry out a series of deliveries until the water comes out clean;</li> <li>• remove the filter holder from the unit and carry out at least one delivery so as to eliminate any detergent residues.</li> </ul> |       | X      |         |
| <b>GRINDER-DOSER</b><br>Clean the inside and outside of the receptacle and doser of the grinder-doser with a cloth dampened in lukewarm water.                                                                                                                                                                                                                                                                                                                                                            |       | X      |         |

- 
- During the cleaning operations, pay attention to the parts of the machine that are overheated.
  - To guarantee the correct operation and hygiene of the machine, it is necessary to use the cleaning methods and products suitable for the purpose.
  - Do not immerse the machine into water.
  - Never use alkaline detergents, solvents, alcohol or aggressive substances.
  - The descaling of the machine has to be performed by dismantling the encrusted components, so that no descaling debris is put into circulation. The used products/detergents have to be suitable for the purpose and must not corrode the hydraulic circuits materials.

## 19 Checks and maintenance

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.**

| Checks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Weekly | Monthly | Yearly |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|
| <b>MACHINE</b> <ul style="list-style-type: none"> <li>• Using the machine display, check that the indicated pump pressure is around 8-9 bar.</li> <li>• Check that the boiler pressure indicated on the display is consistent with a programming value.</li> </ul>                                                                                                                                                                                                                                              | X      |         |        |
| <b>FILTER HOLDER FILTERS</b><br>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       |        |
| <b>GRINDER-DOSER</b> <ul style="list-style-type: none"> <li>• Check the dose of the ground coffee, which should be about 6-7 gr. at a time, and adjust the amount as necessary.</li> <li>• Check the degree of grinding and modify as required.</li> <li>• Check the grinders for wear: they should be replaced if there is too much powder in the ground coffee.</li> <li>• You should replace the flat grinders after every 400/500 kg of coffee. For conical grinders, replace every 1000/1200 kg</li> </ul> |        | X       |        |
| <b>SOFTENER</b> <ul style="list-style-type: none"> <li>• Carry out regeneration of the softener (for the manual softener).</li> <li>• Check that there is salt in the container (for the softener in the automatic version).</li> </ul>                                                                                                                                                                                                                                                                         |        | X       |        |

| Checks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Weekly | Monthly | Yearly |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|
| <b>PERFORATED DISK and SEAL UNDER THE PAD</b><br>Every 4 months, replace the shower (2) and gasket under the pad of the dispenser (4) group (we recommend to use only genuine parts) proceeding as follows: <ul style="list-style-type: none"> <li>• loosen the screw (1);</li> <li>• remove the containment ring (3);</li> <li>• replace the perforated disk (2) and the seal under the pad (4);</li> <li>• reassemble the components</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        | X       |        |
| Verify the correct operation of the pressure limiting valve and non-return drain valve as follows:<br><b>PRESSURE RELIEF VALVE</b> <ul style="list-style-type: none"> <li>• block the pressure switch contacts;</li> <li>• wait for the boiler pressure to increase and check that the valve activates at the maximum pressure of 2 bar.</li> </ul> <b>NON-RETURN DRAIN VALVE</b> <ul style="list-style-type: none"> <li>• activate the delivery groups for about 30 seconds;</li> <li>• attach a filter holder (5) with pressure gauge (available on request) to the group;</li> <li>• activate the delivery group, and use the pressure gauge (6) to monitor the pressure as it increases up to 8-9 bar;</li> <li>• 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;</li> <li>• check the other delivery groups.</li> </ul>  |        |         | X      |

| Checks                                                                                                                                                                                                                                                                                                                                     | Weekly | Monthly | Yearly |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|
| <ul style="list-style-type: none"> <li>• Verify the correct functioning of the PRESSURE SWITCHES</li> <li>• Check for LIME SCALE on heating elements and boilers.</li> <li>• Check the efficiency of the SOLENOID VALVES of the delivery groups.</li> <li>• Check for any HYDRAULIC LEAKS and for the efficiency of the drains.</li> </ul> |        |         | X      |

## 20 Malfunctions and related solutions

| MALFUNCTION                                     | CAUSE                                                                                                                                                                                                                                                                                                                                                                                                                                          | SOLUTION                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MACHINE LACKING POWER                           | <ul style="list-style-type: none"> <li>The general switch is in the "OFF" position.</li> <li>The machine switch is defective</li> <li>The mains power supply switch is in the OFF position.</li> <li>The wiring is defective</li> </ul>                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Place the main switch in the "ON" position.</li> <li>Replace the main switch.</li> <li>Place the main switch in the ON position.</li> <li>Check for any defective connections.</li> </ul>                                                                                                                                                          |
| NO WATER IN BOILER                              | <ul style="list-style-type: none"> <li>The water supply tap is closed.</li> <li>The cut-off tap of the automatic level device is in the closed position.</li> <li>The pump filter is clogged.</li> <li>The motor pump is disconnected or jammed.</li> <li>The water filling solenoid valve is defective.</li> <li>The water inlet solenoid valve filter is clogged.</li> </ul>                                                                 | <ul style="list-style-type: none"> <li>Open the water mains tap.</li> <li>Open the automatic level device tap.</li> <li>Substitute the pump filter.</li> <li>Check the motor pump.</li> <li>Replace the water filling solenoid valve.</li> <li>Clean or replace the filter of the solenoid valve.</li> </ul>                                                                              |
| TOO MUCH WATER IN THE BOILER                    | <ul style="list-style-type: none"> <li>The solenoid valve of the automatic level device is defective</li> <li>The level probe is out of order (clogged by lime scale)</li> </ul>                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Replace the solenoid valve of the automatic level device.</li> <li>Replace the level probe.</li> </ul>                                                                                                                                                                                                                                             |
| STEAM DOES NOT COME OUT OF NOZZLES              | <ul style="list-style-type: none"> <li>The machine is off.</li> <li>The electrical heating element is faulty.</li> <li>The temperature probe is faulty.</li> <li>The nozzle sprayer is clogged.</li> <li>Fuse F7 is burned out.</li> </ul>                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Turn on the machine.</li> <li>Replace the electrical heating element.</li> <li>Replace the temperature probe.</li> <li>Clean the steam nozzle sprayer.</li> <li>Replace fuse F7.</li> </ul>                                                                                                                                                        |
| STEAM MIXED WITH WATER COMES OUT OF THE NOZZLES | <ul style="list-style-type: none"> <li>The boiler level is too high.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Check the status of the level probe: check if it is positioned correctly and check for any surface lime scale.</li> </ul>                                                                                                                                                                                                                          |
| NO DELIVERY                                     | <ul style="list-style-type: none"> <li>No water supply.</li> <li>The group solenoid valve is faulty.</li> <li>The pump is jammed.</li> <li>The control unit fuse F1 is burned out.</li> <li>The injector is clogged.</li> <li>The group solenoid valve is clogged or dirty.</li> <li>The group filter is clogged.</li> <li>The volumetric dosing device is blocked.</li> <li>The inlet and outlet taps of the dispenser are closed.</li> </ul> | <ul style="list-style-type: none"> <li>Check that there is water in the mains.</li> <li>Replace the group solenoid valve.</li> <li>Replace the pump.</li> <li>Replace fuse F1.</li> <li>Clean or replace the injector.</li> <li>Clean or replace the solenoid valve.</li> <li>Clean or replace the filter.</li> <li>Check/replace the dosing device.</li> <li>Open the taps.</li> </ul>   |
| WATER LEAKS FROM THE MACHINE                    | <ul style="list-style-type: none"> <li>The pad does not drain.</li> <li>The drain pipe is broken or detached or the water flow is obstructed.</li> <li>Hydraulic leaks in the hydraulic circuit.</li> </ul>                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Check the sewer drain.</li> <li>Check and restore the connection of the drain pipe to the pad.</li> <li>Identify and eliminate any hydraulic leaks.</li> </ul>                                                                                                                                                                                     |
| COFFEE IS TOO COLD                              | <ul style="list-style-type: none"> <li>The electrical heating element of the coffee boiler is faulty.</li> <li>The wiring is faulty.</li> <li>Lime scale on the heating element.</li> <li>The heating element protection thermostat intervened.</li> <li>Machine switch in "OFF" position.</li> <li>The control unit fuses F2-F3-F5-F6 are burned out.</li> <li>The safety thermostat of the boiler or group is disabled.</li> </ul>           | <ul style="list-style-type: none"> <li>Replace the boiler's electrical heating element.</li> <li>Check for any faulty connections.</li> <li>Clean the machine.</li> <li>Reset the heating element protection.</li> <li>Place the main switch in the "ON" position.</li> <li>Replace the interrupted fuses.</li> <li>Reset the safety thermostat of the boiler or of the group.</li> </ul> |

|                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COFFEE IS TOO HOT                                                                             | <ul style="list-style-type: none"> <li>The set temperature for the coffee water is too high.</li> <li>The set temperature of the group is too high.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Reduce the set coffee water temperature.</li> <li>Reduce the group temperature.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| COFFEE DISPENSED TOO QUICKLY                                                                  | <ul style="list-style-type: none"> <li>Coffee is ground too coarsely.</li> <li>The dose of ground coffee is too small.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Adjust the grinding of the coffee.</li> <li>Check the amount (weight) of the ground coffee you are using.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| COFFEE DISPENSED TOO SLOWLY                                                                   | <ul style="list-style-type: none"> <li>Coffee is ground too finely.</li> <li>The delivery group is clogged.</li> <li>The filter holder is dirty.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Adjust the grinding of the coffee.</li> <li>Check and clean the delivery group.</li> <li>Clean and replace the filters, if necessary.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| WET COFFEE GROUNDS                                                                            | <ul style="list-style-type: none"> <li>The group solenoid valve drain is clogged.</li> <li>The delivery unit is too cold</li> <li>Coffee is ground too finely.</li> <li>There's not enough ground coffee.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Clean the group drain.</li> <li>Modify the heating temperature of the group.</li> <li>Adjust the grinding of the coffee.</li> <li>Increase the amount of ground coffee.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| THE DISPLAY INDICATES UNACCEPTABLE PRESSURE                                                   | <ul style="list-style-type: none"> <li>The pressure transducer is faulty.</li> <li>Incorrect motor pump calibration.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>Replace the pressure transducer.</li> <li>Adjust the calibration of the motor pump.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| GROUNDS IN CUP                                                                                | <ul style="list-style-type: none"> <li>The filter holder is dirty.</li> <li>The filter holes are worn.</li> <li>The coffee is not ground evenly.</li> <li>The seal under the pad is worn</li> <li>The temperature of the delivery water is high.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Clean the filter holder.</li> <li>Replace the filter.</li> <li>Replace the grinders.</li> <li>Replace the seal.</li> <li>Decrease the temperature of the groups and/or of water used for coffee preparation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| INCORRECT COFFEE DELIVERY<br>THE COFFEE DOSE IS NOT MET<br>THE LED OF THE DOSE BUTTON FLASHES | <ul style="list-style-type: none"> <li>The connection of the volumetric dosing device is faulty.</li> <li>The connection of the electronic control unit is faulty.</li> <li>The connector of the volumetric dosing device has humidity on it.</li> <li>The volumetric dosing device is faulty: during delivery the dosing device, LED does not flash.</li> <li>The coffee is ground too finely: there is not sufficient water flow in the dosing device.</li> <li>The non-return valve loses pressure (the dose is too small).</li> <li>The drain valves lose pressure (the dose is too small).</li> <li>Water leakage from the group solenoid valve during coffee delivery or when in stand-by.</li> <li>The volumetric dosing device is partially obstructed.</li> </ul> | <ul style="list-style-type: none"> <li>Check for proper connection of the volumetric dosing device connector.</li> <li>Check for proper connection of the 8-pin connector of the electronic control unit.</li> <li>Remove the connector of the volumetric dosing device and thoroughly dry the contacts.</li> <li>Replace the heads of the volumetric dosing device or replace the dosing device.</li> <li>Adjust the grinding suitably and check the grinders, if necessary.</li> <li>Check and replace the non-return valve, if necessary.</li> <li>Check and replace the drain valves, if necessary.</li> <li>Clean and replace the solenoid valve, if necessary.</li> <li>Clean or replace the volumetric dosing device.</li> </ul> |
| ALL THE LEDS OF ALL THE PUSH BUTTON PANELS ARE FLASHING                                       | <p>After a few minutes, automatic water filling is stopped:</p> <ul style="list-style-type: none"> <li>The device is in time-out.</li> <li>No water in mains.</li> <li>The tap for the automatic level device is closed.</li> <li>Some of the hoses in the circuit are clogged.</li> <li>The probe and/or the mass are disconnected.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>Turn the machine off and then back on.</li> <li>Open the water supply tap.</li> <li>Open the automatic level device tap.</li> <li>Check and replace the defective hoses.</li> <li>Check and restore the connections.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

|                                                                              |                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SHUTDOWN OF THE ELECTRONIC SYSTEM                                            | <ul style="list-style-type: none"> <li>The control unit fuse F4 is burned out.</li> <li>One of the volumetric dosing device's contacts is grounded</li> </ul>                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Replace fuse F4</li> <li>Check the connection of the volumetric dosing device</li> </ul>                                                                                                                                                                                                                         |
| THE PUMP LEAKS WATER                                                         | <ul style="list-style-type: none"> <li>Poor mechanical grip of the shaft or O-Ring seal.</li> <li>The inlet and outlet connections are loose.</li> <li>The hex nut of the pressure relief valve or filter is loose.</li> <li>The seal or the O-Ring of the pressure relief valve or filter is faulty.</li> </ul>                                                              | <ul style="list-style-type: none"> <li>Check the status of the pump and take any corrective action which may be required.</li> <li>Tighten the connections.</li> <li>Tighten the hex connection of the pressure relief valve and filter.</li> <li>Replace the seal and O-Ring, taking care not to change the calibration of the valve.</li> </ul>       |
| THE MOTOR STOPS SUDDENLY OR THE THERMAL PROTECTOR INTERVENES DUE TO OVERLOAD | <ul style="list-style-type: none"> <li>Lime scale and mineral build-ups in the pump have caused it to jam.</li> <li>The pump and motor are not aligned.</li> <li>The motor is faulty.</li> <li>The motor is wired with non-conforming voltage.</li> </ul>                                                                                                                     | <ul style="list-style-type: none"> <li>Check the status of the pump and replace it, if necessary.</li> <li>Install the motor-pump joint</li> <li>Replace the motor.</li> <li>Ensure the power supply voltage of the motor is correct.</li> </ul>                                                                                                        |
| THE PUMP FUNCTIONS BELOW NOMINAL CAPACITY                                    | <ul style="list-style-type: none"> <li>The inlet is clogged, perhaps only partially.</li> <li>The rotation sense of the pump is incorrect.</li> <li>The pressure relief valve is not properly calibrated.</li> <li>The motor runs at low RPM.</li> <li>The inside of the pump is damaged due to the infiltration of foreign materials.</li> </ul>                             | <ul style="list-style-type: none"> <li>Clean the filter holder.</li> <li>Check the engine.</li> <li>Calibrate the relief valve.</li> <li>Check the voltage or replace the motor.</li> <li>Replace the pump.</li> </ul>                                                                                                                                  |
| THE PUMP MAKES NOISE                                                         | <ul style="list-style-type: none"> <li>The pump and the engine are not aligned.</li> <li>The seal or O-Ring of the pressure relief valve or filter is faulty.</li> <li>The joint, the coupling screw or the V-shaped clamp are loose.</li> <li>The inlet is clogged, perhaps only partially.</li> <li>The hex nut of the pressure relief valve or filter is loose.</li> </ul> | <ul style="list-style-type: none"> <li>Install the motor-pump joint.</li> <li>Replace the seal and O-Ring, taking care not to change the calibration of the valve.</li> <li>Align and tighten the components which are loose.</li> <li>Clean the filter holder.</li> <li>Tighten the hex connection of the pressure relief valve and filter.</li> </ul> |
| THE CUP IS DIRTY WITH SPLASHED COFFEE                                        | <ul style="list-style-type: none"> <li>Steam pockets in the delivery system.</li> <li>Air pockets in the hydraulic circuit.</li> <li>Coffee is ground too coarsely</li> </ul>                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Reduce the water temperature.</li> <li>Check the cause and eliminate the problem.</li> <li>Adjust the grinding suitably.</li> </ul>                                                                                                                                                                              |

## 21 Display indications

| INDICATION                                                 | CAUSE                                                                                                                                                                            | SOLUTION                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GR.X DELIVERY FAST<br>MANUAL CONSULT                       | <ul style="list-style-type: none"> <li>Coarse grinding.</li> <li>Scarce coffee dose.</li> <li>Ground coffee too old.</li> <li>Ambient humidity lower than usual.</li> </ul>      | <ul style="list-style-type: none"> <li>Reduce the grinding degree.</li> <li>Adjust the dose of the grinder-doser.</li> <li>Use freshly ground coffee.</li> <li>Slightly reduce the degree of grinding.</li> </ul>                                                                |
| GR.X DELIVERY SLOW<br>MANUAL CONSULT                       | <ul style="list-style-type: none"> <li>Fine grinding.</li> <li>Excessive coffee dose.</li> <li>Hydraulic circuit clogged.</li> <li>Ambient humidity lower than usual.</li> </ul> | <ul style="list-style-type: none"> <li>Increase the grinding degree.</li> <li>Adjust the dose of the grinder-doser.</li> <li>Clean or replace the clogged component.</li> <li>Slightly increase the degree of grinding.</li> </ul>                                               |
| PERFORM<br>GROUP WASHING                                   | Need to clean the delivery groups.                                                                                                                                               | Wash the groups as instructed in the chapter on "Group washing"                                                                                                                                                                                                                  |
| ENERGY SAVING<br><br>+ 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.                                                                                                                                                                                                                                                         |
| 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.                                                                                                                                     | <ul style="list-style-type: none"> <li>Place the group back in service by pressing the STOP/PROG key for 3 seconds.</li> <li>Modify the machine programming.</li> </ul>                                                                                                          |
| TIMEOUT FILLING                                            | <ul style="list-style-type: none"> <li>The services boiler has not been filled within the maximum time (90 seconds)</li> </ul>                                                   | <ul style="list-style-type: none"> <li>Check opening of the taps on the coffee-maker.</li> <li>Check the efficiency of the pump filter.</li> <li>Check operation of the pump and boiler filling solenoid valve.</li> <li>Check operation of fuse F3 on circuit board.</li> </ul> |
| TEMPER.COFFEE WATER X                                      | <ul style="list-style-type: none"> <li>The level probe does not detect the presence of water.</li> </ul>                                                                         | <ul style="list-style-type: none"> <li>Remove the probe and clean the lime scale from it.</li> <li>Check for correct wiring.</li> </ul>                                                                                                                                          |
| TEMPER.COFFEE WATER X                                      | <ul style="list-style-type: none"> <li>Faulty remote switch.</li> <li>Heating elements burned out.</li> <li>Safety thermostats open.</li> <li>Fuse F2/F3 burned out.</li> </ul>  | <ul style="list-style-type: none"> <li>Replace the remote switch.</li> <li>Replace the heating elements.</li> <li>Check and replace the thermostats.</li> <li>Replace the fuse.</li> </ul>                                                                                       |
| TEMPER. GROUP X                                            | <ul style="list-style-type: none"> <li>Faulty remote switch.</li> <li>Heating elements burned out.</li> <li>Safety thermostats open .</li> <li>Fuse F5/F6 burned out.</li> </ul> | <ul style="list-style-type: none"> <li>Replace the remote switch.</li> <li>Replace heating elements.</li> <li>Check and replace the thermostats.</li> <li>Replace the fuse.</li> </ul>                                                                                           |

| INDICATION            | CAUSE                                                                                                                                                                                                              | SOLUTION                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MINIMUM LEAST         | <ul style="list-style-type: none"> <li>The water in the services boiler has dropped below the minimum level.</li> <li>The minimum level probe is short-circuited.</li> </ul>                                       | <ul style="list-style-type: none"> <li>Check for correct wiring of the minimum level probe.</li> <li>Check for correct operation of the minimum level probe.</li> </ul>                                                                                                                                                                                                                                                                                       |
| WATER COFFEE PRESSION | <p>The pressure in the heater cannot achieve the established value.</p> <p>The input hole of the volumetric dosing device is clogged.</p> <p>The output JET of the volumetric dosing device is clogged.</p>        | <ul style="list-style-type: none"> <li>Check the pump for correct calibration (9 bar).</li> <li>Check for opening of the heater's filling valves.</li> <li>Check for closing of the heater's drain valve.</li> <li>Check for correct operation of fuse F3 on circuit board.</li> <li>Check for any leakage on the group solenoid valve.</li> </ul> <p>Check and clean the input hole of the dosing device.</p> <p>Check and replace the JET, if necessary</p> |
| PROBE BOILER SERVICE  | No signal from the probe.                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Check for proper connection of the probe.</li> <li>Defective probe: replace it.</li> </ul>                                                                                                                                                                                                                                                                                                                             |
| PROBE COFFEE WATER    | No signal from the probe.                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Check for proper connection of the probe.</li> <li>Defective probe: replace it.</li> </ul>                                                                                                                                                                                                                                                                                                                             |
| PROBE GROUP           | No signal from the probe.                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Check for proper connection of the probe.</li> <li>Defective probe: replace it.</li> </ul>                                                                                                                                                                                                                                                                                                                             |
| PROBE CUP HEATER      | No signal from the probe.                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Check for proper connection of the probe.</li> <li>The temperature of the cup heater is too high: reduce set temperature.</li> <li>Defective probe: replace it.</li> </ul>                                                                                                                                                                                                                                             |
| PROBE AUTOSTEAMER     | No signal from the probe.                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Check for proper connection of the probe.</li> <li>The temperature of the cup heater is too high: reduce set temperature.</li> <li>Defective probe: replace it.</li> </ul>                                                                                                                                                                                                                                             |
| HEATING BOILER SERV.  | <ul style="list-style-type: none"> <li>Fuse F7 is faulty.</li> <li>Static relays are faulty.</li> <li>Heating element is faulty.</li> <li>Faulty remote switch.</li> <li>Safety thermostat is disabled.</li> </ul> | <ul style="list-style-type: none"> <li>Replace fuse F7 of the circuit board.</li> <li>Replace static relays.</li> <li>Replace the heating element in the services boiler.</li> <li>Replace the remote switch.</li> <li>Reset the safety thermostat.</li> </ul>                                                                                                                                                                                                |

# Section II

# Programming

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## 22 USB drive

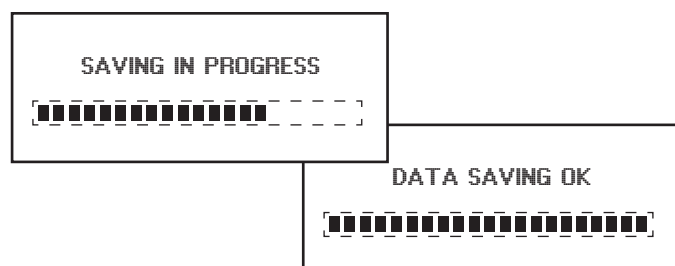
The USB drive provided can be used to save all the settings made on the machine.

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.

The various procedures are described below.

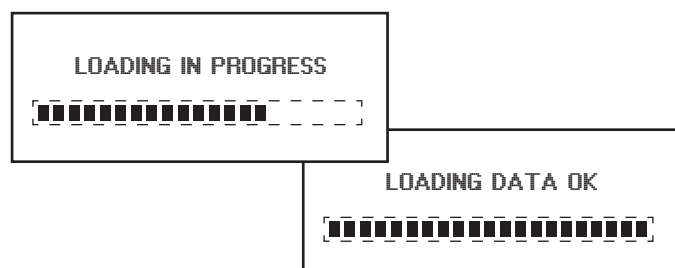
### 22.1 Data saving

- Insert the USB drive in the appropriate reader (7);
- 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.



### 22.2 Restoring data

- Insert the USB drive in the appropriate reader (7);
- 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.**

## 23 Programming

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

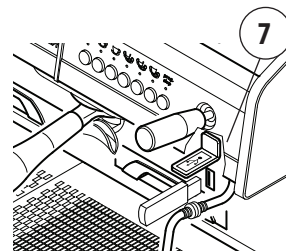
It also explains how to reset the machine by reloading the default manufacturer's data to the memory.

### 23.1 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.

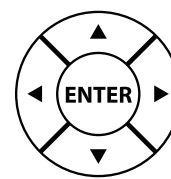


### 23.2 Browser key

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.

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



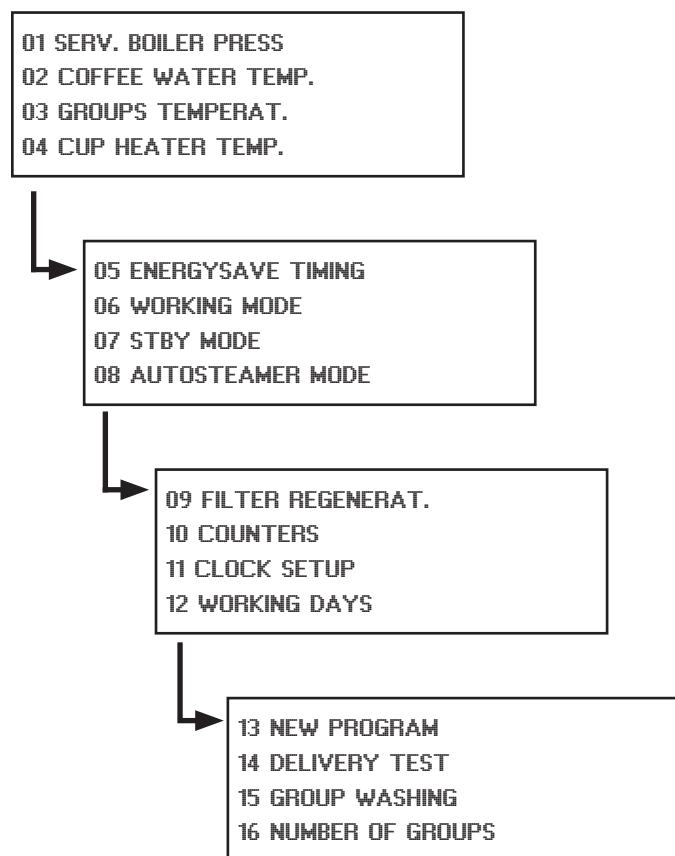
Browser key



The menu item, or the parameter that has been selected, will flash. To exit the menu, press the (◀) or (▶) key.

## 23.3 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.

## 23.4 Boiler pressure adjustment.

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

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

### 23.5 Adjustment of coffee water temperature.

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

|                                                                                                            |                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                                | Hold down the <b>ENTER</b> button for at least 5 seconds.                                                                                       |
| ▼                                                                                                          | Scroll the menu until the item is highlighted                                                                                                   |
| <div>01 SERV. BOILER PRESS<br/>02 COFFEE WATER TEMP.<br/>03 GROUPS TEMPERAT.<br/>04 CUP HEATER TEMP.</div> |                                                                                                                                                 |
| <b>Enter</b>                                                                                               | Confirm to access the menu                                                                                                                      |
| <div>WATER TEMP. COFFEE X<br/>YY °C</div>                                                                  |                                                                                                                                                 |
| ◀ ▶                                                                                                        | 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                                                                                                      |
| <b>ENTER</b>                                                                                               | Confirm to exit the menu.                                                                                                                       |
| <div>01 SERV. BOILER PRESS<br/>02 COFFEE WATER TEMP.<br/>03 GROUPS TEMPERAT.<br/>04 CUP HEATER TEMP.</div> |                                                                                                                                                 |
| ◀ ▶                                                                                                        | To exit the programming menu                                                                                                                    |

**X** Dispensing group.

**Y** Dispensed water temperature.

### 23.6 Adjustment of the groups temperature

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

|                                                                                                            |                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                                | Hold down the <b>ENTER</b> button for at least 5 seconds.                                                                                       |
| ▼                                                                                                          | Scroll the menu until the item is highlighted                                                                                                   |
| <div>01 SERV. BOILER PRESS<br/>02 COFFEE WATER TEMP.<br/>03 GROUPS TEMPERAT.<br/>04 CUP HEATER TEMP.</div> |                                                                                                                                                 |
| <b>ENTER</b>                                                                                               | Confirm to access the menu                                                                                                                      |
| <div>TEMPERATURE GROUP. X<br/>Y °C</div>                                                                   |                                                                                                                                                 |
| ◀ ▶                                                                                                        | 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                                                                                                      |
| <b>ENTER</b>                                                                                               | Confirm to exit the menu.                                                                                                                       |
| <div>01 SERV. BOILER PRESS<br/>02 COFFEE WATER TEMP.<br/>03 GROUPS TEMPERAT.<br/>04 CUP HEATER TEMP.</div> |                                                                                                                                                 |
| ◀ ▶                                                                                                        | To exit the programming menu                                                                                                                    |

**X** Dispensing group.

**Y** Group temperature.

## 23.7 Adjusting the cup heater temperature

To modify the cup heater temperature, proceed as follows:

|                                                                                                            |                                                           |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                                | Hold down the <b>ENTER</b> button for at least 5 seconds. |
| ▼                                                                                                          | Scroll the menu until the item is highlighted             |
| <div>01 SERV. BOILER PRESS<br/>02 COFFEE WATER TEMP.<br/>03 GROUPS TEMPERAT.<br/>04 CUP HEATER TEMP.</div> |                                                           |
| <b>Enter</b>                                                                                               | Confirm to access the menu                                |
| <div>CUP HEATER<br/>X °C</div>                                                                             |                                                           |
| ▲ ▼                                                                                                        | Modify the parameter: increase or decrease                |
| <b>ENTER</b>                                                                                               | Confirm to exit the menu.                                 |
| <div>01 SERV. BOILER PRESS<br/>02 COFFEE WATER TEMP.<br/>03 GROUPS TEMPERAT.<br/>04 CUP HEATER TEMP.</div> |                                                           |
| ◀ ▶                                                                                                        | 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" appears on the display and the cup heater's continuous operation is enabled.



If setting a temperature below 70°C, the indication "CUP HEATER--" appears on the display and the cup heater is disabled.

## 23.8 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:

|                                                                                              |                                                                                                             |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                  | Hold down the <b>ENTER</b> button for at least 5 seconds.                                                   |
| ▼                                                                                            | Scroll the menu until the item is highlighted                                                               |
| <div>05 ENERGYSAVE TIMING<br/>06 WORKING MODE<br/>07 STBY MODE<br/>08 AUTOSTEAMER MODE</div> |                                                                                                             |
| <b>ENTER</b>                                                                                 | Confirm to access the menu                                                                                  |
| Machine start-up time                                                                        |                                                                                                             |
| <div>ON TIME<br/>HR:MN</div>                                                                 |                                                                                                             |
| ▲ ▼                                                                                          | 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:                                    |                                                                                                             |
| <div>STANDBY 1 TIME<br/>FROM HR:MN</div>                                                     |                                                                                                             |
| ▲ ▼                                                                                          | 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 ( ▶ ).                                                                 |
| <div>STANDBY 1 TIME<br/>TO HR:MN</div>                                                       |                                                                                                             |
| ▲ ▼                                                                                          | 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 ( ▶ ).<br>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



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

## 23.9 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  
STAND-BY 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)

|                                                                                              |                                                                      |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <div>REDUCED SETPOINT<br/>ENSAV TEMP. XXX.C</div>                                            |                                                                      |
| ▲ ▼                                                                                          | Set the temperature of the entire machine in the energy saving phase |
| ENTER                                                                                        | Confirm to exit the menu.                                            |
| <div>05 ENERGYSAVE TIMING<br/>06 WORKING MODE<br/>07 STBY MODE<br/>08 AUTOSTEAMER MODE</div> |                                                                      |
| ◀ ▶                                                                                          | To exit the programming menu                                         |



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

### 23.10 Standby mode.

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

**TIMER** Operates according to programmed time periods (see par. 23.8)

**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<br>(x 5 secs.)                                                                         | Hold down the <b>ENTER</b> button for at least 5 seconds. |
| ▼                                                                                            | Scroll the menu until the item is highlighted             |
| <div>05 ENERGYSAVE TIMING<br/>06 WORKING MODE<br/>07 STBY MODE<br/>08 AUTOSTEAMER MODE</div> |                                                           |
| ENTER                                                                                        | Confirm to access the menu                                |
| <div>STAND-BY MODE TIME<br/>XXX</div>                                                        |                                                           |
| ▲ ▼                                                                                          | Modify the <b>TIMER</b> or <b>AUTO</b> 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 |
| <div>STAND-BY DELAY<br/>MM</div>                                                             |                                                     |
| ENTER                                                                                        | Confirm to exit the menu.                           |
| <div>05 ENERGYSAVE TIMING<br/>06 WORKING MODE<br/>07 STBY MODE<br/>08 AUTOSTEAMER MODE</div> |                                                     |
| ◀ ▶                                                                                          | 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 |
| <div>AUTOMATIC STAND-BY<br/>THRESHOLD<br/>XX</div>                                       |                                                       |
| ENTER                                                                                    | Confirm to exit the menu.                             |
| <div>05 ENERGY SAV TIME<br/>06 PROPER USE<br/>07 STBY MODE<br/>08 MODE AUTOSTEAMER</div> |                                                       |
| ◀ ▶                                                                                      | 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.

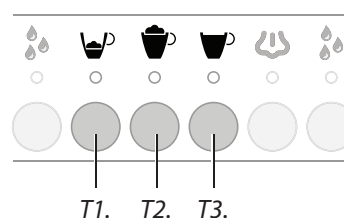
From now on, a one-week period of machine monitoring begins.

## 23.11 Autosteamer option

To enable or disable the autosteamer, proceed as follows:

|                                                                                              |                                                                                                    |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| ENTER<br>(x 5 secs.)                                                                         | Hold down the <b>ENTER</b> button for at least 5 seconds.                                          |
| ▼                                                                                            | Scroll the menu until the item is highlighted                                                      |
| <div>05 ENERGYSAVE TIMING<br/>06 WORKING MODE<br/>07 STBY MODE<br/>08 AUTOSTEAMER MODE</div> |                                                                                                    |
| ENTER                                                                                        | Confirm to access the menu                                                                         |
| <div>AUTOSTEAMER<br/>YES/NO</div>                                                            |                                                                                                    |
| ▲ ▼                                                                                          | 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.        |
| <div>AUTOSTEAMER (C)<br/>T1=XX T2=XX T3=XX</div>                                             |                                                                                                    |
| ▲ ▼                                                                                          | Set the desired temperature (50 ÷ 80 °C).                                                          |
| ◀ ▶                                                                                          | Press the ( ◀ ) and ( ▶ ) keys to switch from a value to another.                                  |
| ENTER                                                                                        | Confirm to exit the menu.                                                                          |
| <div>05 ENERGYSAVE TIMING<br/>06 WORKING MODE<br/>07 STBY MODE<br/>08 AUTOSTEAMER MODE</div> |                                                                                                    |
| ◀ ▶                                                                                          | To exit the programming menu                                                                       |

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



### 23.12 Softener regeneration

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

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



Once the set number of litres is reached, to stop the signal on the display see chapter 27. To cancel the signal set the litres to "000000".

### 23.13 Display of the counters

To display the work carried out by the machine (single selections or total) and the number of doser alarms that have occurred, proceed as follows:

|                                                                                        |                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                            | Hold down the <b>ENTER</b> button for at least 5 seconds.                                                                                                                                                  |
| ▼                                                                                      | Scroll the menu until the item is highlighted                                                                                                                                                              |
| <div>09 FILTER REGENERAT.<br/>10 COUNTERS<br/>11 CLOCK SETUP<br/>12 WORKING DAYS</div> |                                                                                                                                                                                                            |
| <b>ENTER</b>                                                                           | Confirm to access the menu                                                                                                                                                                                 |
| <div>TOTAL COFFEE<br/>XXXXXX</div>                                                     |                                                                                                                                                                                                            |
| The first screen shows the number of total coffee selections made by the machine.      |                                                                                                                                                                                                            |
| ☺ ☹ ☹ ☹ ☹ ☹<br>● ● ● ● ● ●                                                             | 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. |
| <div>COUNTERS<br/>XXXXXX</div>                                                         |                                                                                                                                                                                                            |
| ▶                                                                                      | Press ( ▶ ), to view the number of doser alarms.                                                                                                                                                           |
| <div>DOSER ALARMS<br/>XXXX XXXX XXXX XXXX</div>                                        |                                                                                                                                                                                                            |
| <b>ENTER</b>                                                                           | Confirm to exit the menu.                                                                                                                                                                                  |
| <div>09 FILTER REGENERAT.<br/>10 COUNTERS<br/>11 CLOCK SETUP<br/>12 WORKING DAYS</div> |                                                                                                                                                                                                            |
| ◀ ▶                                                                                    | To exit the programming menu                                                                                                                                                                               |



To reset the counter alarms, see chapter 25.

### 23.14 Setting the date

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

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

|           |                 |              |
|-----------|-----------------|--------------|
| <b>H</b>  | hours           |              |
| <b>M</b>  | minutes         |              |
| <b>DD</b> | day             | 1 Monday     |
| <b>MM</b> | month           | 2 Tuesday    |
| <b>YY</b> | year            | 3 Wednesday  |
| <b>D</b>  | day of the week | ➔ 4 Thursday |
|           |                 | 5 Friday     |
|           |                 | 6 Saturday   |
|           |                 | 7 Sunday     |

Legend

### 23.15 Setting the working days

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

|                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                            | Hold down the <b>ENTER</b> button for at least 5 seconds.         |
| ▼                                                                                      | Scroll the menu until the item is highlighted                     |
| <div>09 FILTER REGENERAT.<br/>10 COUNTERS<br/>11 CLOCK SETUP<br/>12 WORKING DAYS</div> |                                                                   |
| <b>ENTER</b>                                                                           | Confirm to access the menu                                        |
| <div>WORKING DAYS<br/>1 2 3 4 5 6 7</div>                                              |                                                                   |
| ◀ ▶                                                                                    | 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                    |
| <b>ENTER</b>                                                                           | Confirm to exit the menu.                                         |
| <div>09 FILTER REGENERAT.<br/>10 COUNTERS<br/>11 CLOCK SETUP<br/>12 WORKING DAYS</div> |                                                                   |
| ◀ ▶                                                                                    | 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 depending on the day of the week (example 1 2 - 4 5 6 7 : the machine stays off on Wednesdays).

## 22.16 Setting the language

To set the displayed language, proceed as follows:

|                                                                                                                                                                     |                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                                                                                         | Hold down the <b>ENTER</b> button for at least 5 seconds. |
| ▼                                                                                                                                                                   | Scroll the menu until the item is highlighted             |
| <div style="border: 1px solid black; padding: 5px; text-align: center;"> 13 NEW PROGRAM<br/> 14 DELIVERY TEST<br/> 15 GROUP WASHING<br/> 16 NUMBER OF GROUPS </div> |                                                           |
| <b>ENTER</b>                                                                                                                                                        | Confirm to access the menu                                |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"> LANGUAGE<br/> ENGLISH<br/><br/> &lt; EXIT AND 'OK' TO CONFIRM </div>                      |                                                           |
| ▲ ▼                                                                                                                                                                 | Select the language to use                                |
| <b>ENTER</b>                                                                                                                                                        | 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



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

## 23.17 Delivery check

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

|                                                                                                                                                                     |                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                                                                                         | Hold down the <b>ENTER</b> button for at least 5 seconds. |
| ▼                                                                                                                                                                   | Scroll the menu until the item is highlighted             |
| <div style="border: 1px solid black; padding: 5px; text-align: center;"> 13 NEW PROGRAM<br/> 14 DELIVERY TEST<br/> 15 GROUP WASHING<br/> 16 NUMBER OF GROUPS </div> |                                                           |
| <b>ENTER</b>                                                                                                                                                        | Confirm to access the menu                                |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"> DELIVERY TEST<br/> XXXX </div>                                                            |                                                           |
| ▲ ▼                                                                                                                                                                 | Modify the setting.:<br>NO / TIMER / FLOW / TEMPERATURES  |
| <b>ENTER</b>                                                                                                                                                        | Confirm to exit the menu.                                 |
| <div style="border: 1px solid black; padding: 5px; text-align: center;"> 13 NEW PROGRAM<br/> 14 DELIVERY TEST<br/> 15 GROUP WASHING<br/> 16 NUMBER OF GROUPS </div> |                                                           |
| ◀ ▶                                                                                                                                                                 | 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 ( $\pm 30\%$ ) with respect to the memorized one. If the delivery speed is too fast or too slow, the system will display a message suggesting to check the manual (refer to chapter "Display notifications")

**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.

**23.18 Programming group washing**

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

|                                                                                             |                                                                                       |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>ENTER</b><br>(x 5 secs.)                                                                 | Hold down the <b>ENTER</b> button for at least 5 seconds.                             |
| ▼                                                                                           | Scroll the menu until the item is highlighted                                         |
| <div>13 NEW PROGRAM<br/>14 DELIVERY TEST<br/>15 GROUP WASHING<br/>16 NUMBER OF GROUPS</div> |                                                                                       |
| <b>ENTER</b>                                                                                | Confirm to access the menu                                                            |
| <div>START ON WASHING<br/>YES/NO</div>                                                      |                                                                                       |
| ▲ ▼                                                                                         | Enable or disable the request for automatic washing of the groups at machine start-up |
| ►                                                                                           | Confirm pressing ( ► ) to move to the next screen.                                    |
| <div>WASHING TIME/CYCLO<br/>HH:MM N=X</div>                                                 |                                                                                       |
| ▲ ▼                                                                                         | 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).                                          |
| <b>ENTER</b>                                                                                | Confirm to exit the menu.                                                             |
| <div>13 NEW PROGRAM<br/>14 DELIVERY TEST<br/>15 GROUP WASHING<br/>16 NUMBER OF GROUPS</div> |                                                                                       |
| ◀ ▶                                                                                         | 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.

## 23.19 Setting the number of active groups

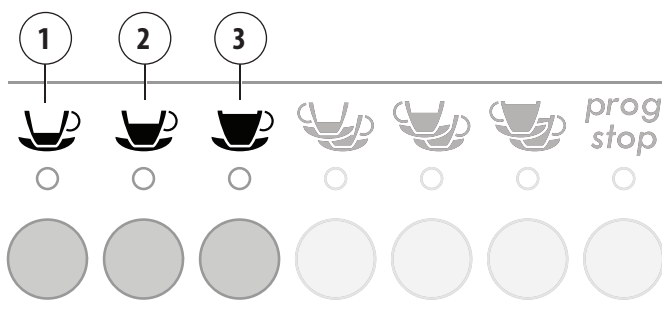
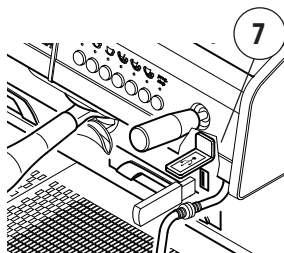
To set the number of active groups, proceed as follows:

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

## 23.20 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.

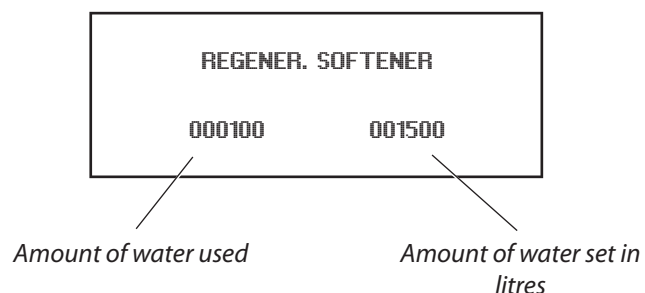
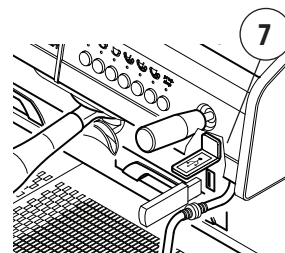


## 24 Water meter

### 24.1 Viewing of the litres of water used

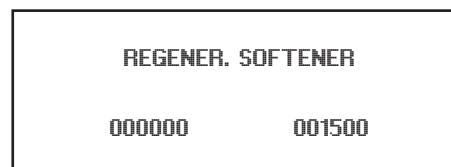
To view the litres of water used, proceed as follows:

- 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.



### 24.2 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.

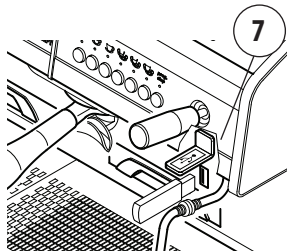


## 25 Data reset

### 25.1 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

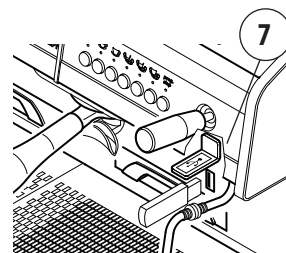


With this procedure only the partial selections are reset (for each key). It is impossible to reset the total count (machine life).

### 25.2 Resetting of dosers alarm

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 (▶) to switch to the doser alarms page;
- press (▼) to reset the alarms;
- confirm by pressing (▲) for 3 seconds.



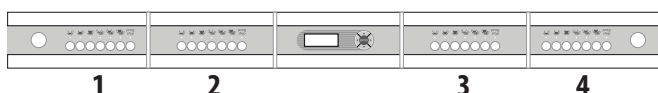
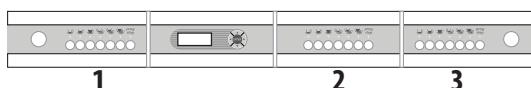
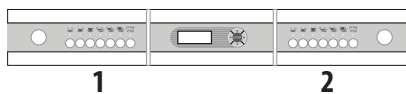
09 FILTER REGENERAT.  
10 COUNTERS  
11 CLOCK SETUP  
12 WORKING DAYS

DOSER ALARMS  
XXX XXX XXX XXX

RESET COUNTS?  
PRESS KEY ^ 3 SEC

DOSER ALARMS

000 000 000 000  
1 2 3 4



Correspondence diagram between the display alarm position and the machine group position



In case of inactivity of the operator, after 10 seconds, the display will return to the main menu.

# Section III

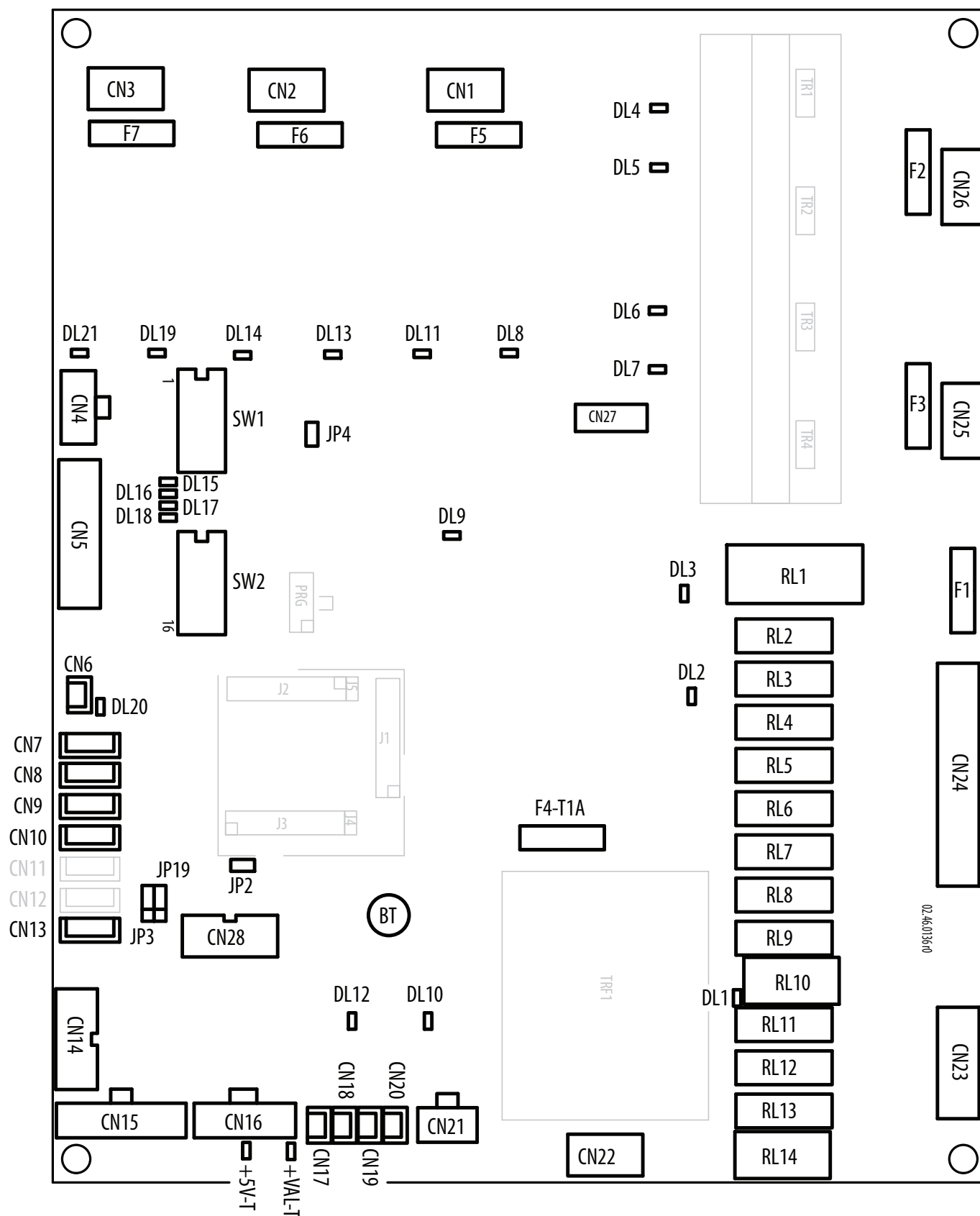
## Electrical/ hydraulic diagrams

ENGLISH

Electrical

## 26 Electric diagrams

### 26.1 Electronic control unit diagram



| Fuse |                           | Description                                         |
|------|---------------------------|-----------------------------------------------------|
| F1   | Fuse 5x20 delayed by 6.3A | Protects: from RL1 to RL14                          |
| F2   | Fuse 5x20 delayed by 10A  | Protects: coffee boiler heating element group 2 e 4 |
| F3   | Fuse 5x20 delayed by 10A  | Protects: coffee boiler heating element group 1 e 3 |
| F4   | Fuse 5x20 delayed by 1A   | Protects: transformer's double winding              |
| F5   | Fuse 5x20 delayed by 2A   | Protects : group heating elements 1 e 3             |
| F6   | Fuse 5x20 delayed by 2A   | Protects : group heating elements 2 e 4             |
| F7   | Fuse 5x20 delayed by 1A   | Protects: services boiler heating elements 1 e 2    |

|   | Off                                 | On                                  | SW1 Switch                                                             |
|---|-------------------------------------|-------------------------------------|------------------------------------------------------------------------|
| 1 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Not used. Leave on ON mode.                                            |
| 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Reserve.                                                               |
| 3 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Reserve.                                                               |
| 4 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Reserve.                                                               |
| 5 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Reserve.                                                               |
| 6 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | ON = rinse active for 3 secs. PROG./STOP key.                          |
| 7 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | ON = excludes the automatic control of the services boiler temperature |
| 8 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | ON = Pre-infusion active                                               |

|    | Off                                 | On                       | SW2 Switch                                                         |
|----|-------------------------------------|--------------------------|--------------------------------------------------------------------|
| 9  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = 6 doses keyboard.                                             |
| 10 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = rinse active for 3 secs. dose keys                            |
| 11 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = Active Credit / Debit.                                        |
| 12 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = Reset machine life cycle                                      |
| 13 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = Continuous disabled.                                          |
| 14 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = NTC probe                                                     |
| 15 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = Serial communication active.                                  |
| 16 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ON = MICRO-Processor programming.<br>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 |

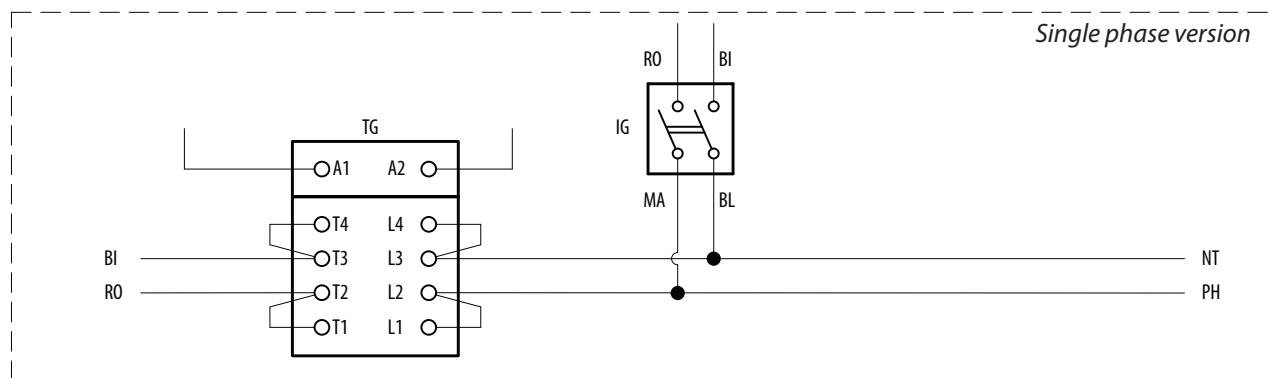
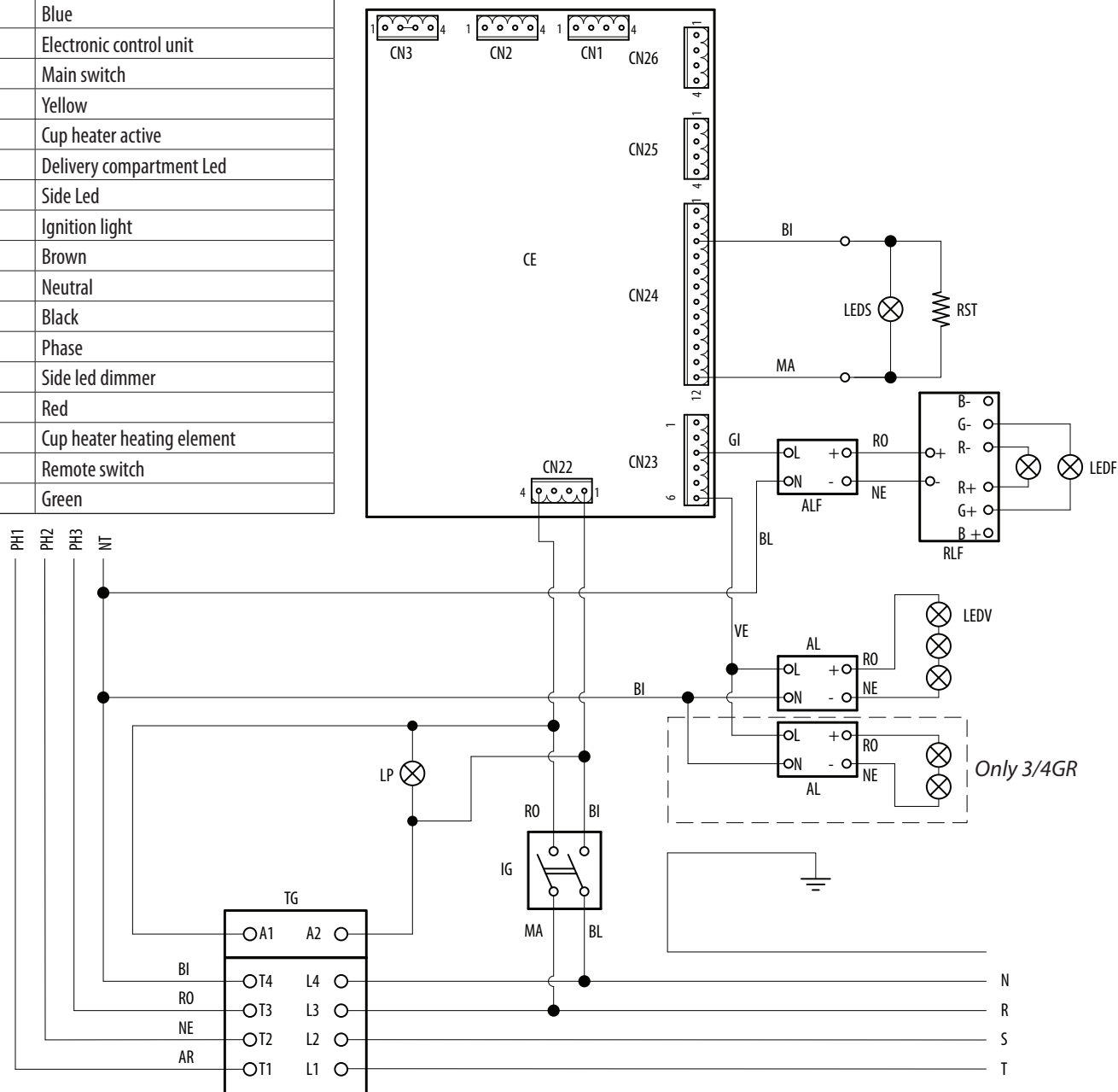
| Relay | Description                      |
|-------|----------------------------------|
| RL1   | Pump                             |
| RL2   | Solenoid valve group 1           |
| RL3   | Solenoid valve group 3           |
| RL4   | Solenoid valve group 2           |
| RL5   | Solenoid valve group 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                              |

|    |                |
|----|----------------|
| BT | Battery Buffer |
|----|----------------|

## 26.2 Power supply electronic diagram

|       |                                       |
|-------|---------------------------------------|
| AL    | Delivery compartment LED power supply |
| ALF   | Side LED power supply                 |
| AR    | Orange                                |
| BI    | White                                 |
| BI/MA | White/Brown                           |
| BI/NE | White/Black                           |
| BL    | Blue                                  |
| CE    | Electronic control unit               |
| IG    | Main switch                           |
| GI    | Yellow                                |
| LEDS  | Cup heater active                     |
| LEDV  | Delivery compartment Led              |
| LEDF  | Side Led                              |
| LP    | Ignition light                        |
| MA    | Brown                                 |
| N     | Neutral                               |
| NE    | Black                                 |
| PH    | Phase                                 |
| RLF   | Side led dimmer                       |
| RO    | Red                                   |
| RST   | Cup heater heating element            |
| TG    | Remote switch                         |
| VE    | Green                                 |

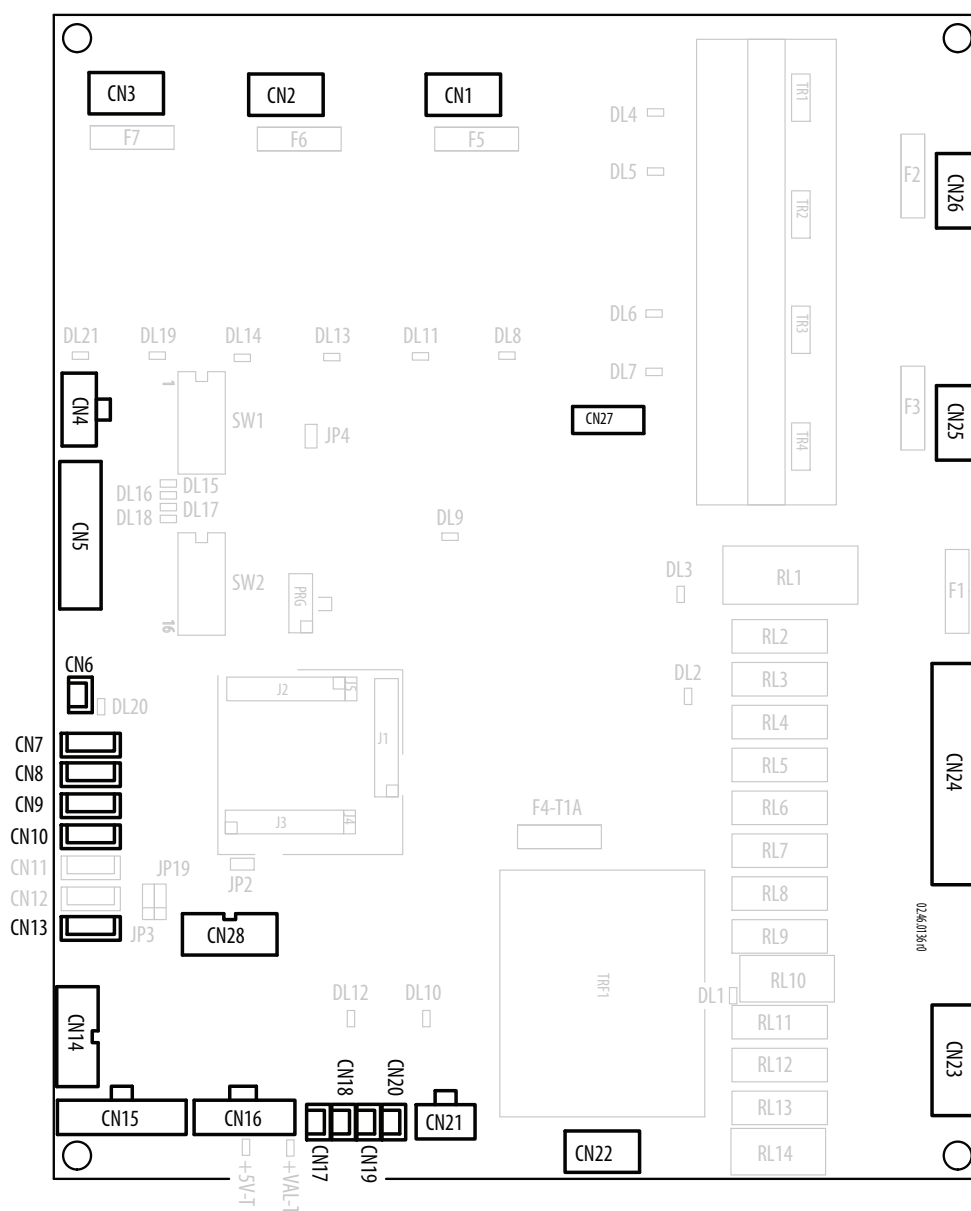
|    |       |                |
|----|-------|----------------|
| B- |       |                |
| G- | BI/MA | Left side Led  |
| R- | BI/NE | Right side Led |
| R+ | AR    | Right side Led |
| G+ | VE    | Left side Led  |
| B+ |       |                |



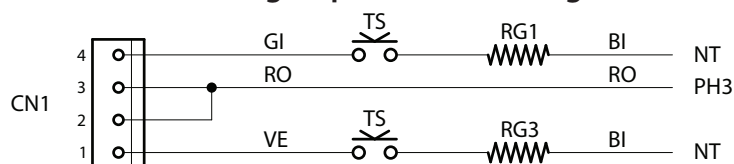
## 26.3 Connectors electric diagram

|             |                                                            |
|-------------|------------------------------------------------------------|
| <b>CN1</b>  | Connection of groups 1 e 3 heating elements                |
| <b>CN2</b>  | Connection of groups 2 e 4 heating elements                |
| <b>CN3</b>  | Connection of services boiler's heating elements           |
| <b>CN4</b>  | Connection of coffee boiler pressure switches              |
| <b>CN5</b>  | Connection of volumetric dosers and services boiler levels |
| <b>CN6</b>  | Not used.                                                  |
| <b>CN7</b>  | Wiring of pressure transducer                              |
| <b>CN8</b>  | AUX connector                                              |
| <b>CN9</b>  | AUX connector                                              |
| <b>CN10</b> | AUX connector                                              |
| <b>CN13</b> | Connection of RS232 serial socket                          |
| <b>CN14</b> | Connection of display/CPU                                  |
| <b>CN15</b> | Connection of NTC temperature sensors                      |

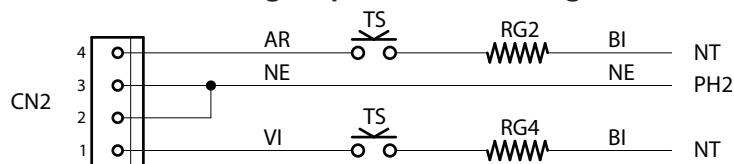
|             |                                                                 |
|-------------|-----------------------------------------------------------------|
| <b>CN16</b> | Connection of coffee boiler pressure transducers                |
| <b>CN17</b> | Connection of NTC services boiler                               |
| <b>CN18</b> | Connection of NTC autosteamer                                   |
| <b>CN19</b> | Connection of NTC cup heater                                    |
| <b>CN20</b> | AUX connector                                                   |
| <b>CN21</b> | Connection of sensor for humidity and mains/pump pressure       |
| <b>CN22</b> | Wiring of circuit board                                         |
| <b>CN23</b> | Connection of 230V AC outputs                                   |
| <b>CN24</b> | Connection of 230V AC outputs                                   |
| <b>CN25</b> | Connection of heating elements for hot water containers 1 and 3 |
| <b>CN26</b> | Connection of heating elements for hot water containers 2 and 4 |
| <b>CN27</b> | Not used.                                                       |
| <b>CN28</b> | Not used.                                                       |



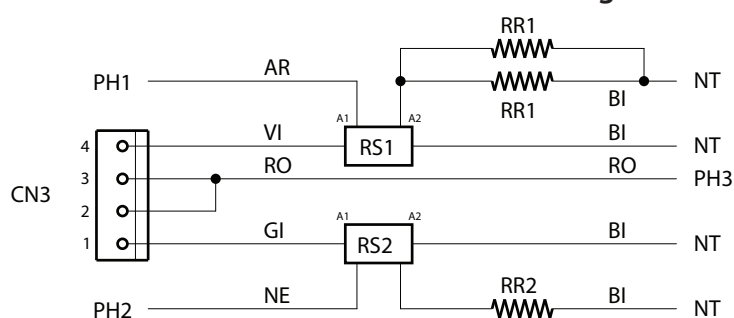
### CN1 - connection of groups 1 and 3 heating elements



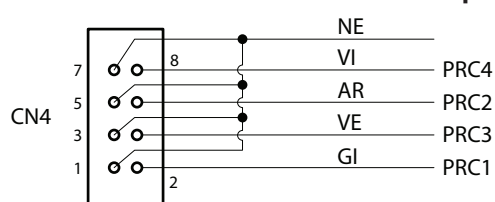
### CN2 - connection of groups 2 and 4 heating elements



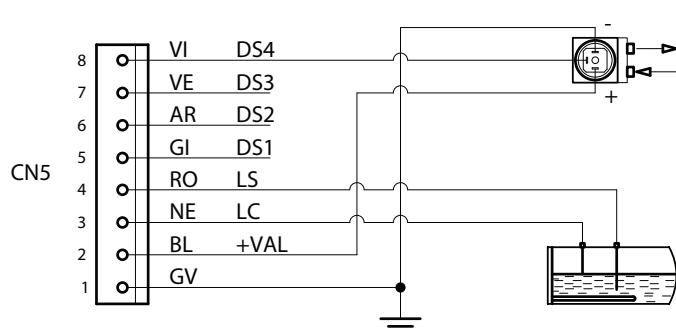
### CN3 - connection of SERVICES BOILER heating elements



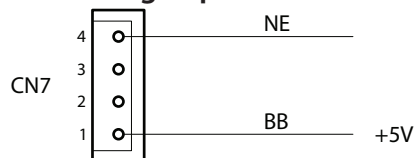
### CN4 - Connection of coffee boilers pressure transducer



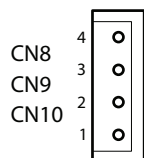
### CN5 - connection of volumetric dosers and services boiler levels



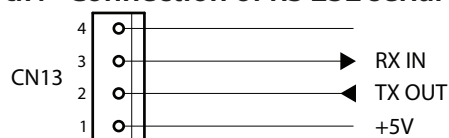
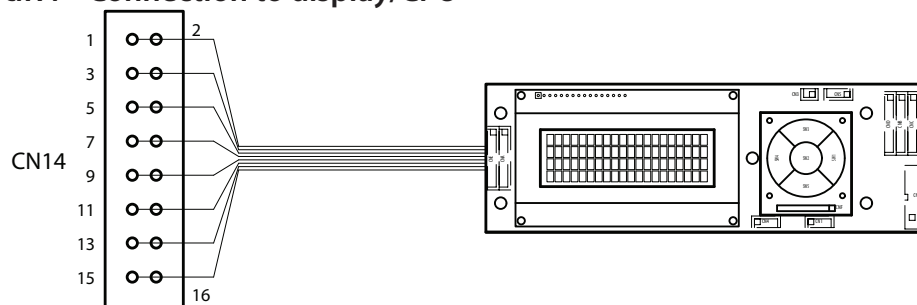
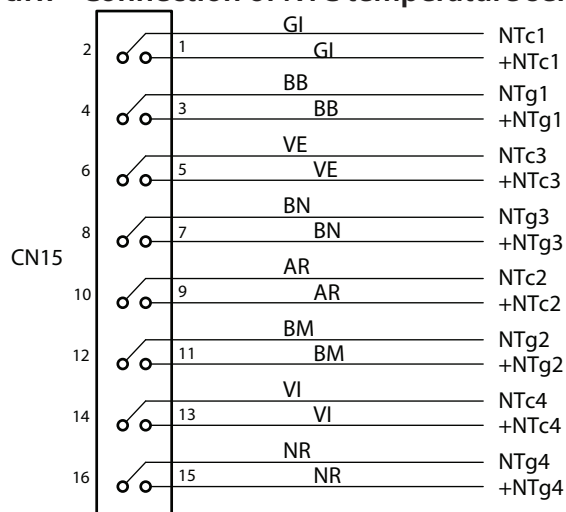
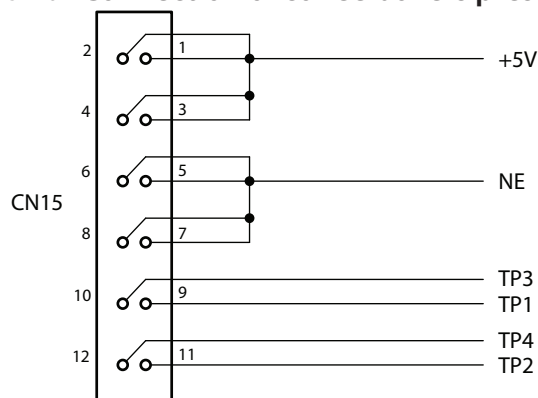
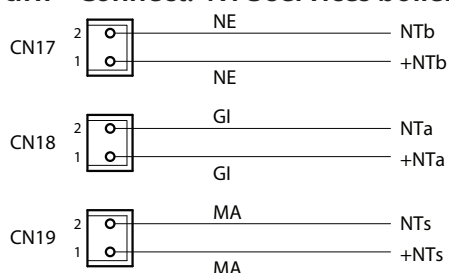
### CN7 - Wiring of pressure transducer



### CN8-9-10 - AUX connector

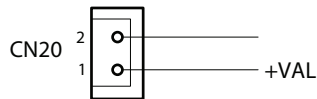


|     |                               |
|-----|-------------------------------|
| AR  | Orange                        |
| BI  | White                         |
| BB  | White/Blue                    |
| DS  | Volumetric dosing device      |
| GI  | Yellow                        |
| GV  | Yellow-Green                  |
| 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                        |

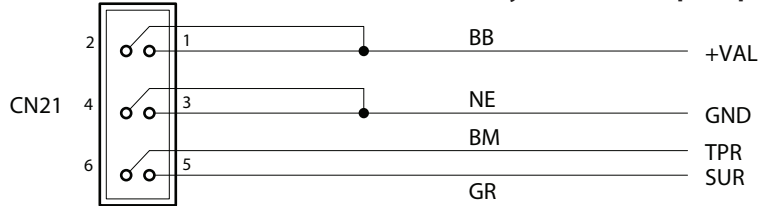
**CN4 - Connection of RS 232 serial socket****CN14 - Connection to display/CPU****CN17 - Connection of NTC temperature sensors****CN16 - Connection of coffee boilers pressure transducer****CN17 - Connect. NTC services boiler / CN18 - Connect. NTC autosteamer / CN19 - Connect. NTC cup heater**

|     |                                 |
|-----|---------------------------------|
| 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                          |

## CN20 AUX - Connector



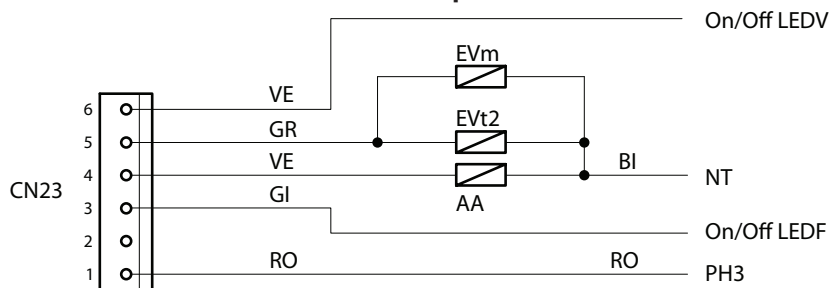
## CN21 - Connection of sensor for humidity and mains/pump pressure



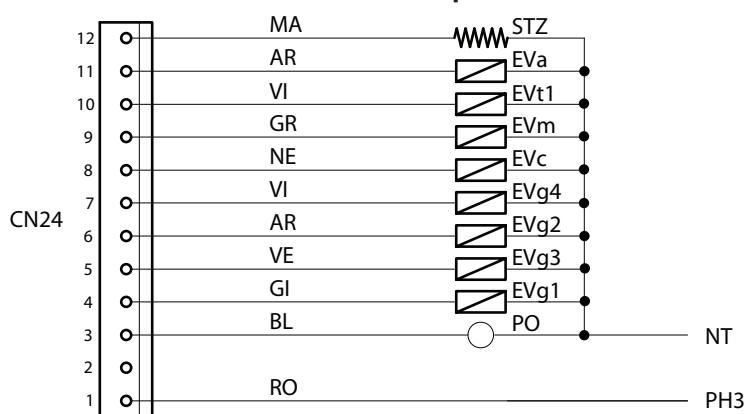
## CN22 - Wiring of circuit board



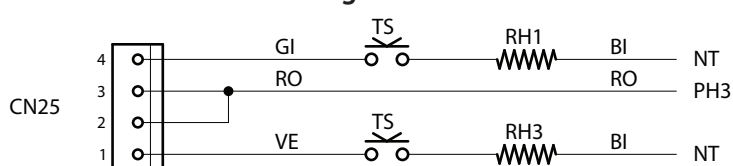
## CN23 - Connection of 230V AC outputs



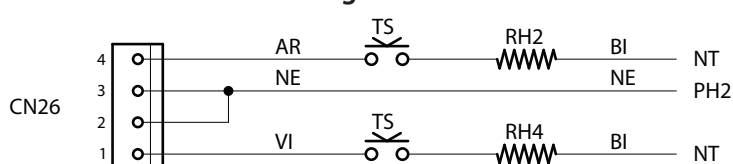
## CN24 - Connection of 230V AC outputs



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

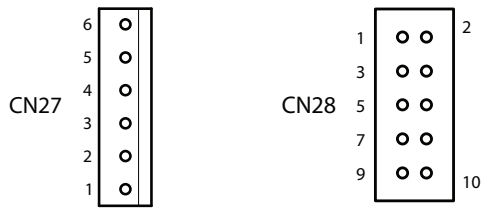


## CN26 - Connection of heating elements for hot water containers 2 and 4

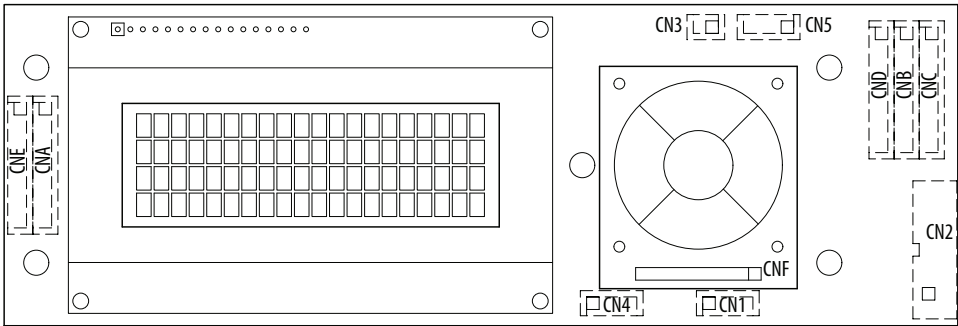


|      |                                |
|------|--------------------------------|
| AA   | Wiring of the autost. air pump |
| AR   | Orange                         |
| BI   | White                          |
| BL   | Blue                           |
| EVA  | Autosteamer solenoid valve     |
| EVgr | 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                         |

CN27-28 - not used



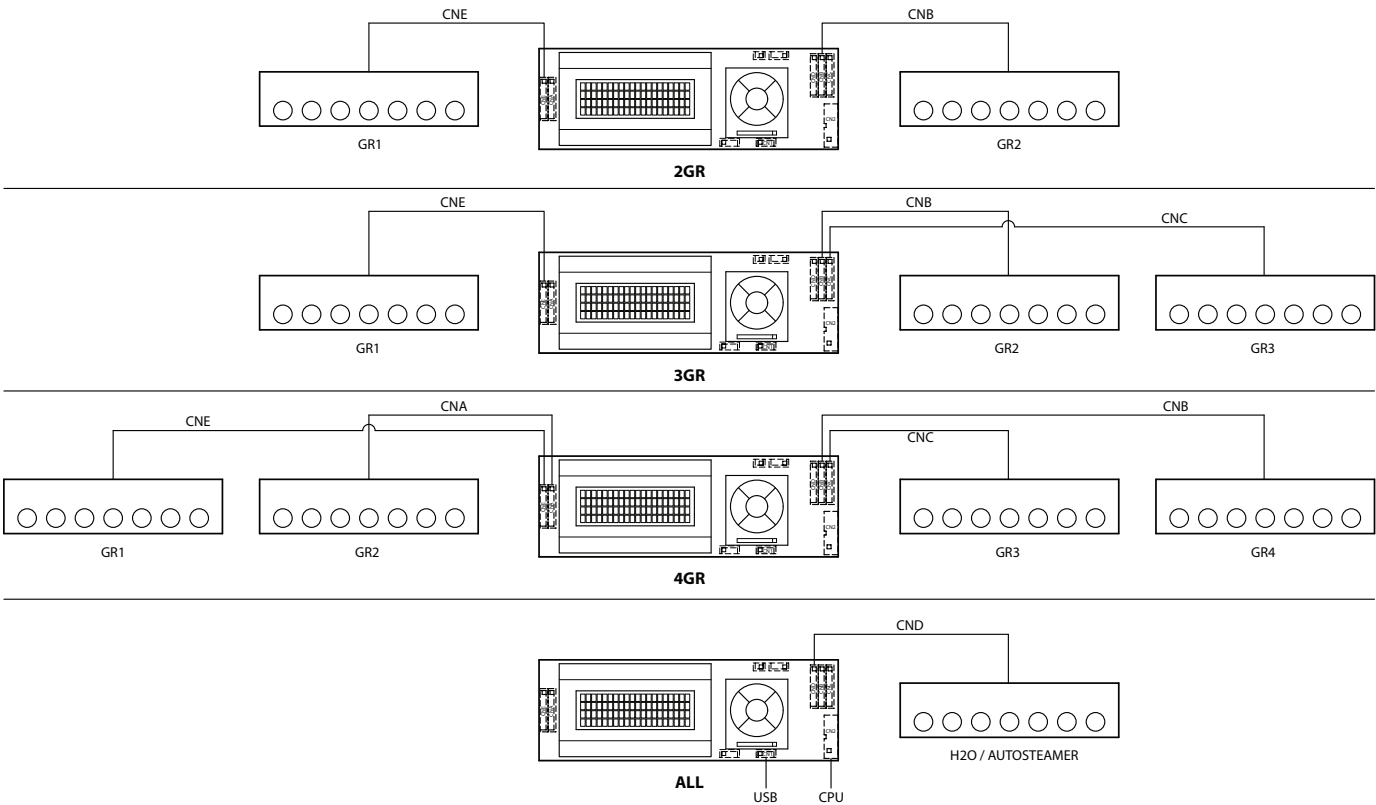
26.4 Control unit display / CPU diagram



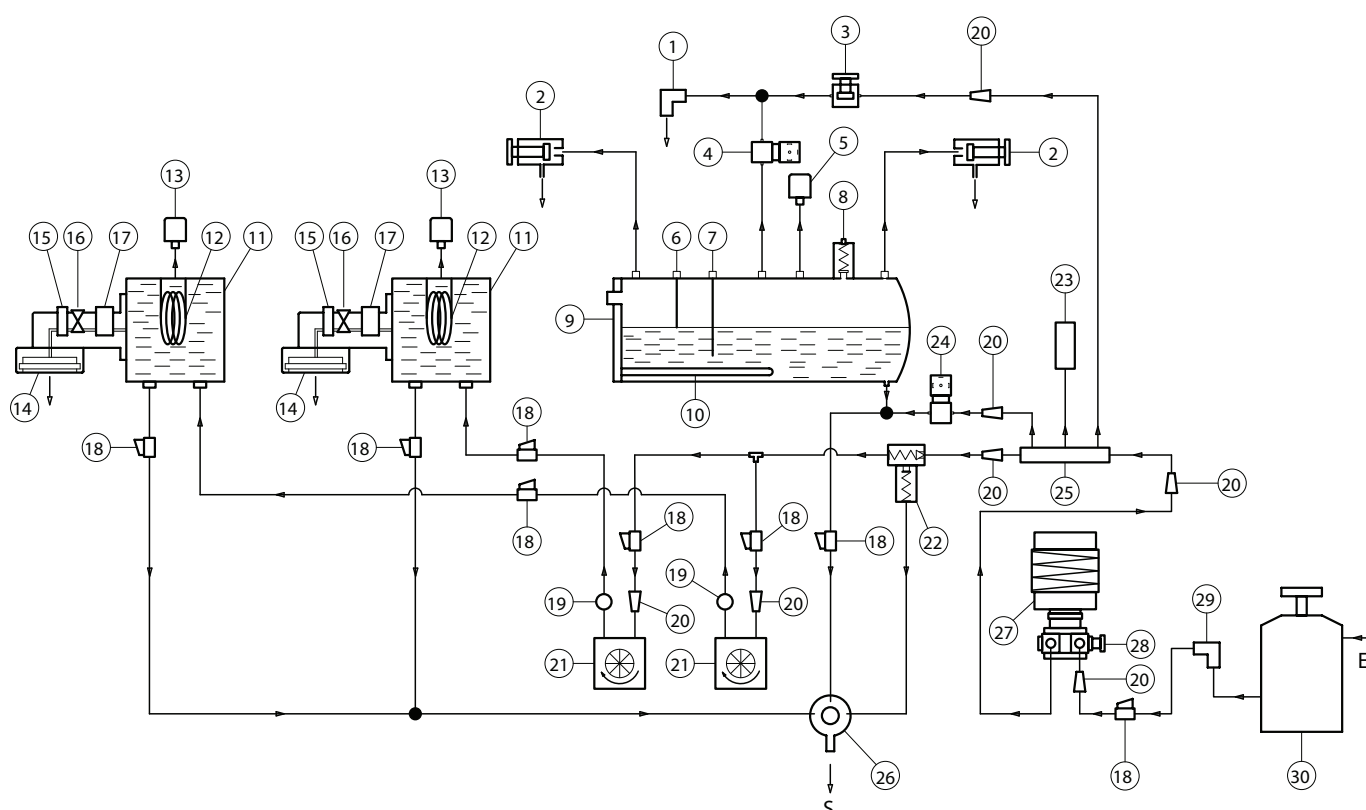
|     |                          |
|-----|--------------------------|
| CN1 | USB drive connection     |
| CN2 | Circuit board connection |
| CN3 | -                        |
| CN4 | -                        |

|                |                                            |
|----------------|--------------------------------------------|
| CN5            | -                                          |
| CNA-B-C-D (.C) | Groups keyboards connections (see diagram) |
| CNE            | Autosteamer keyboard connection            |
| CNF            | -                                          |

Keyboard connections diagram



## 27 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 Gicleur                       |

|    |                                |
|----|--------------------------------|
| 17 | GROUP solenoid valve           |
| 18 | MANUAL tap                     |
| 19 | COLD Gicleur                   |
| 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

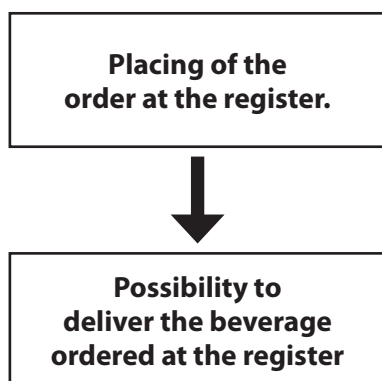
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## 28 CREDIT - DEBIT / DEBIT - CREDIT system

### 28.1 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 **CC** cable (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.**



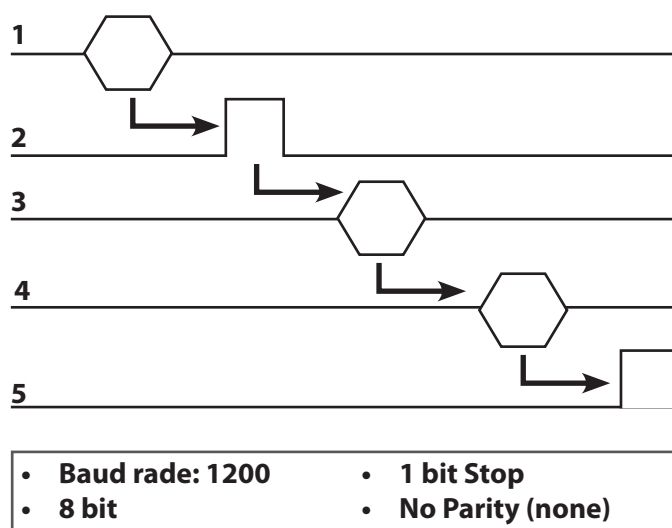
**It is possible to use a serial cable different from the one supplied by manufacturer (cod. 22556004), as long as it isn't longer than 15 meters.**

#### 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.



### 28.2 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.



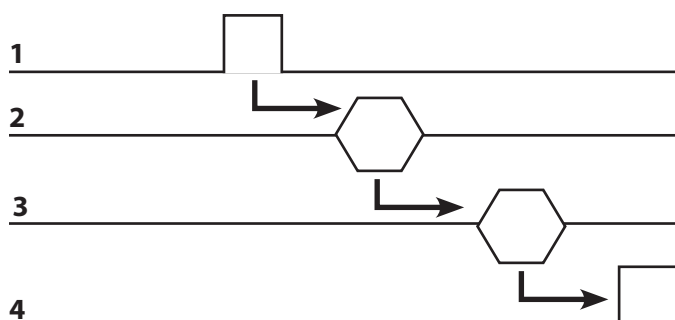
It is possible to use a serial cable different from the one supplied by manufacturer (cod. 22556004), as long as it isn't longer than 15 meters.

## Communication protocol

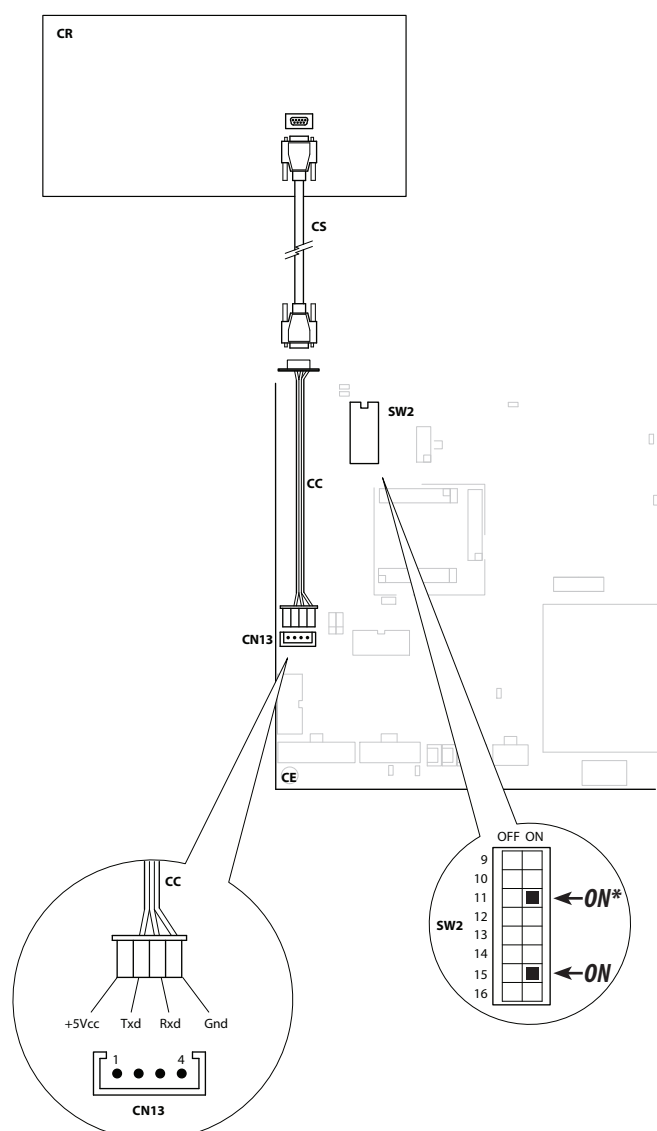
Description of the operating principle with reference to the diagram shown below:

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 rate: 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 |                                                       |

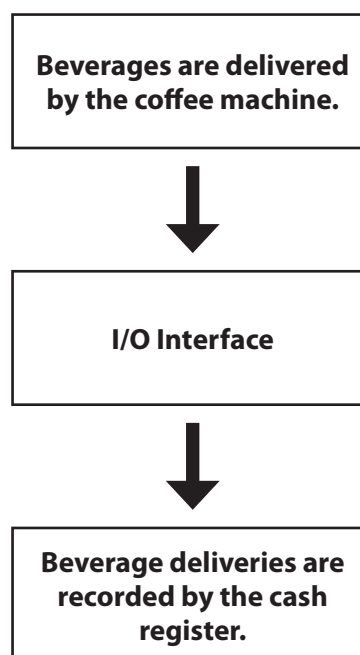
**Beverages selection codes table**

| <i>Description</i> | <i>Signal</i> |
|--------------------|---------------|
| 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         |

### 28.3 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

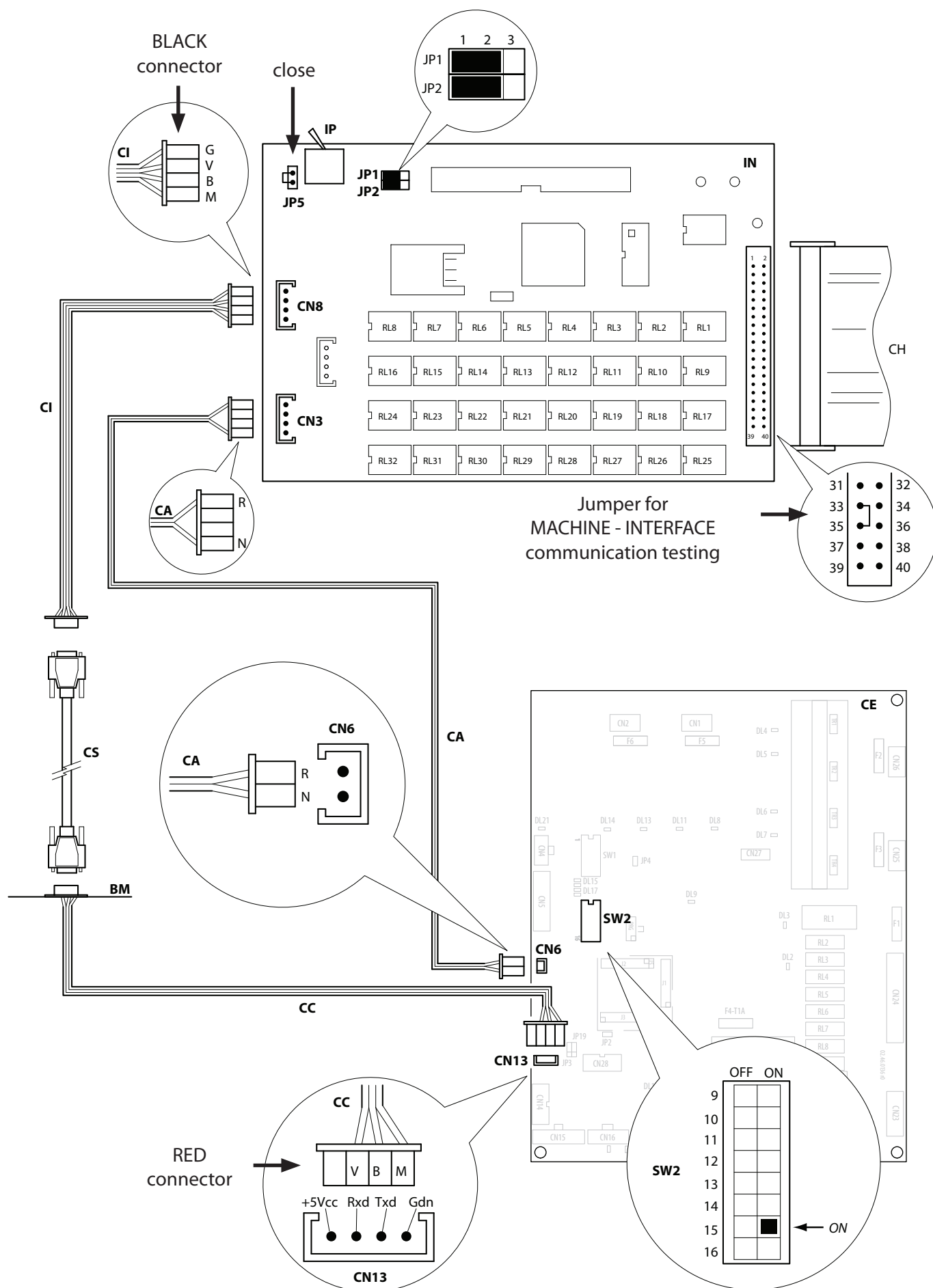
The CREDIT-DEBIT function is available on electronic control units with software program dated 06/03/08 or later.

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 connection of the CH hartwall cable to the register, are not the responsibility of the manufacturer. The switch of the IP interface can't be in PROG. position**



|   |                     |                                                            |
|---|---------------------|------------------------------------------------------------|
|   | CE                  | Electronic central unit 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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Code 02000471 - Rev. 00 - 02/2011