

WEGA MACCHINE PER CAFFÈ S.r.l.

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2006/42/CE Machinery Directive

IO

EVDS

EVD

MACHINE FOR ESPRESSO COFFEE

Use and maintenance manual. Instructions for the **TECHNICIAN**.

EN



IMPORTANT: Read carefully before use - Store for future reference

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ESPRESSO COFFEE MACHINE

Use and maintenance manual. Instructions for the TECHNICIAN.

English

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1. INTRODUCTION

Read this manual carefully. It provides important information on the safety to the Technician during the operations indicated in this document.

Keep this Manual in a safe place. If you lose it, you can ask the Manufacturer for another copy.

The Manufacturer of the equipment cannot be held responsible for damage caused by failure to oblige to the requirements listed in this manual.



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

This document assumes that in the locations where the machine is installed, the relevant safety standards and work hygiene are observed.

The instructions, drawings and documentation contained in this manual are technical and confidential, the sole property of the Manufacturer, and may not be reproduced in any way, either in full, or in part.

The Manufacturer reserves the right to make any improvements and/or modifications to the product. We guarantee that this Manual reflects the technical state of the appliance at the time it is marketed.

We encourage the Qualified Technicians to make any proposals for improvement of the product or the Manual.

1.1 Guidelines for reading the Manual

The Manual is divided into separate chapters. The sequence of chapters responds to the temporal logic of the life of the machine.

Terms, abbreviations and pictograms are used to facilitate the immediate understanding of the text.

This Manual is constituted by a cover, an index and a series of chapters. Each chapter is numbered in sequence. The page number is in the footer.

The nameplate of the machine and the CE Declaration of Conformity show the machine identification data, the last page shows the date and revision of the Instructions Manual.

ABBREVIATIONS

Sect.	=	Section
Chap.	=	Chapter
Par.	=	Paragraph
P.	=	Page
Fig.	=	Figure
Tab.	=	Table

MEASUREMENT UNIT

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

PICTOGRAMS

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

- dangers for the safety of those operating the machine;
- injury, also serious (in some cases even death);
- loss of the guarantee;
- manufacturer's liability waiver.



DANGER symbol used in case of danger of permanent serious injury that requires hospitalization, or causes death in extreme cases.



CAUTION symbol used in case of risk of minor injury that requires medical attention.



WARNING symbol used in case of danger of minor injury that can be treated with first aid or the like.



NOTE symbol used to provide important information related to the topic.

1.2 Storing the Manual

The Instructions Manual must be stored carefully. Storage should be favoured by handling it with care, with clean hands and not depositing it on dirty surfaces. The Manual must be stored in an environment protected from moisture and heat.

Do not remove, torn or arbitrarily modify any of its parts.

At the request of the Qualified Technician, the manufacturer can provide additional copies of the Instructions Manual of the machine.

1.3 Method for updating the Instruction Manual

The Manufacturer reserves the right to modify and make improvements to the machine without notifying it and without updating the Manual already delivered.

Moreover, in case of substantial changes to the already installed machine involving the modification of one or more chapters of the Instruction Manual, the Manufacturer will send the Qualified Technicians the chapters affected by the changes or the revision of the entire manual.

It is the Qualified Technicians' responsibility, to replace the old document with the new revision.

The manufacturer is responsible for the Italian descriptions; the translations cannot be fully verified; therefore, in case of inconsistency, users must pay attention to the Italian version and possibly contact the Manufacturer, who will make the appropriate changes.



If the manual should become illegible or otherwise hard to consult, the Qualified Technicians is obliged to request a new copy from the Manufacturer before carrying out any work on the machine. It is absolutely forbidden to remove or rewrite parts of the Manual. The instructions, drawings and documentation contained in this manual are confidential and the sole property of the Manufacturer, and may not be reproduced in any way, either in full, or in part without prior authorization.

Qualified Technicians are responsible for the compliance with the instructions contained in this Manual.

For any incident that should occur as a result of incorrect use of these recommendations, the Manufacturer declines any liability.

1.4 Recipients

This Manual is intended for the Manufacturer's Qualified Technicians, to whom the following operations pertaining to the machine are assigned:

- Transport and handling;
- Storage;
- Installation;
- Commissioning;
- Maintenance;
- Cleaning;
- Spare part replacement;
- Emergency operations and faults;
- Decommissioning;
- Dismantling;
- Disposal.

QUALIFICATION OF RECIPIENTS

The machine is intended for professional and not generalized use, so it can be used by Qualified Technicians, in particular who:

- Have attended the training courses organized by the Manufacturer relating to the type of machine;
- Have reached the age of majority;
- Are physically and mentally fit for using the machine;
- Are able to understand and interpret the Instruction Manual and the safety requirements;
- Know the safety procedures and their implementation;
- Possess the ability to use of the machine;
- Understand the procedures of use defined by the machine manufacturer.

1.5 Glossary and Pictograms

This paragraph lists uncommon terms or terms with different meaning from the ordinary.

Below is an explanation of the abbreviations used and the meaning of the pictograms to indicate the operator qualification and the machine status; their use allows to quickly and uniquely provide the necessary information for proper use of the machine in safe conditions.

1.5.1 GLOSSARY

User

The person in charge of the periodic maintenance and cleaning of the machine indicated in the User's Manual.

Manufacturer's Qualified Technician

A specialist, specially trained and qualified to make the connection, installation and assembly of the machine; use special equipment (hoists, forklifts, etc.); perform routine or unscheduled maintenance which is particularly complicated or potentially dangerous if performed by the User.

Qualification of the User or Qualified Technician

Minimum level of skills an operator must have to carry out the operation described.

Danger

A potential source of injury or damage to health.

Dangerous area

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

Risk

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

Guard

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

Personal protection equipment (PPE)

Equipment worn or held by individuals for health or safety protection.

Intended use

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

Machine status

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

Residual risk

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

Safety component

- required to perform a safety function;
- whose failure and/or malfunction endangers the safety of persons.

1.6 Guarantee

The machine is covered by a 12-month guarantee on all components, except electrical and electronic components and expendable pieces.

Any action taken on the electronics of the machine when the machine is still supplied with electrical power automatically invalidates any guarantee.

1.5.2 PICTOGRAMS

PICTOGRAM	DESCRIPTION
	Electrical hazard
	Equipotential hazard
	Danger of high temperature
	Hand crush hazard
	Prohibition of maintenance with moving parts
	Mandatory use of protective gloves
	Mandatory use of eye protection
	Mandatory use of protective shoes
	Obligation to read the documentation

1.7 Customer service



2. IDENTIFICATION OF THE MACHINE

2.1 Make and model designation

The identification and the model of the machine are found on the NAMEPLATE and in the EC DECLARATION OF CONFORMITY provided with the machine.

Below are some of the machine identification data.

2.2 General description

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

This product is manufactured in compliance with EU Directives, Regulations and Standards indicated in the EC DECLARATION OF CONFORMITY provided with the machine.

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

2.3 Intended use

The espresso coffee machine is designed for the professional preparation of hot drinks such as tea, cappuccino and weak, strong and espresso coffee, etc.

The device is not intended for home use.

The machine can be used in all operational conditions contained or described in the User's Manual and in this document; any other conditions must be considered dangerous.

PERMITTED USES

All uses compatible with the technical characteristics, operations and applications described in the User's Manual and in this document that do not endanger the safety of the User or Technician, or cause damage to the machine or the environment.



All uses not specifically mentioned in the User's and Technician's Manual are prohibited and must be expressly authorized by the Manufacturer.

INTENDED USES

The machine is designed exclusively for professional use.

The use of products/materials other than those specified by the Manufacturer, which can cause damage to the machine and dangerous situations for the operator and/or those close to the Machine, is considered incorrect or improper.

CONTRAINDICATIONS OF USE

The machine must not be used:

- For uses other than those listed in par. 2.3 , or for uses not mentioned in this Manual;
- With materials other than those listed in this Manual;
- With disabled or not working safety devices.

INCORRECT USE OF THE MACHINE

The type of use and performance this machine is designed for, imposes a number of operations and procedures that cannot be changed, unless previously agreed with the Manufacturer. All allowed practices are contained in this document, any operation not listed and described in this document is to be considered not possible and therefore dangerous.

IMPROPER USE

The only permitted uses are described in the Manual, any other use is to be considered not possible and therefore dangerous.

GENERAL SAFETY

The Qualified Technician must be aware of the risk of accidents, the devices designed for safety, and the general rules on the safety provided by EU directives and by the legislation of the country where the line is installed.

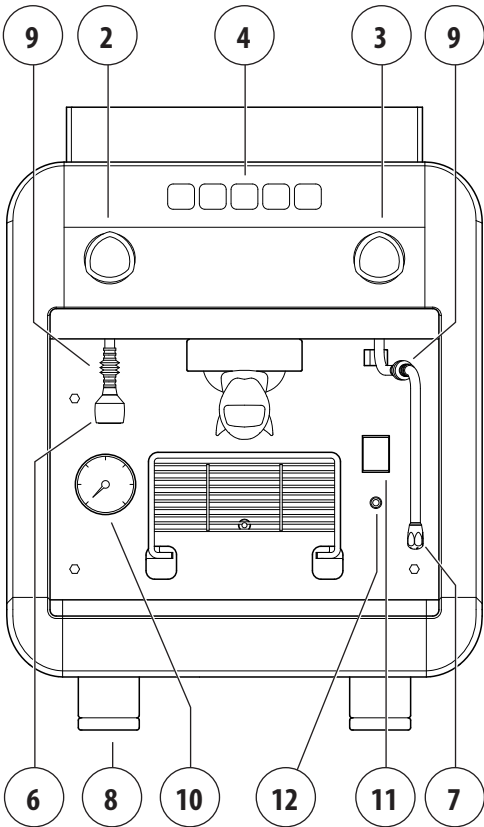
Qualified Technicians should be aware of all machine devices operation.

They must also have fully read this manual.

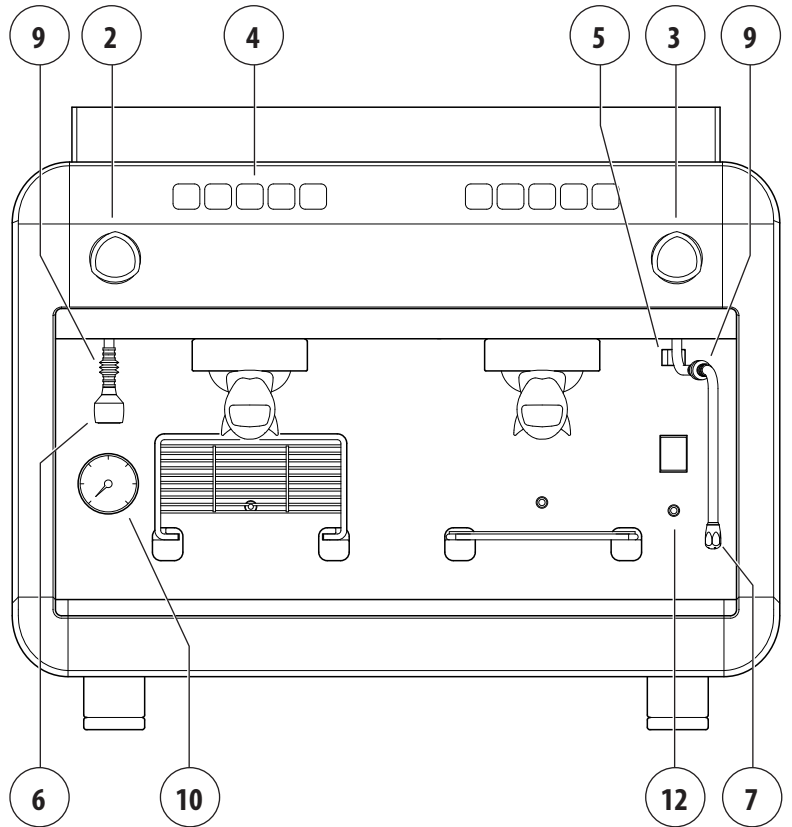
The maintenance work must be performed after specially preparing the machine.

Tampering or unauthorized substitution of one or more parts of the machine, the use of accessories that modify the use and the employment of materials other than those recommended in this Manual, may become a cause of accidents.

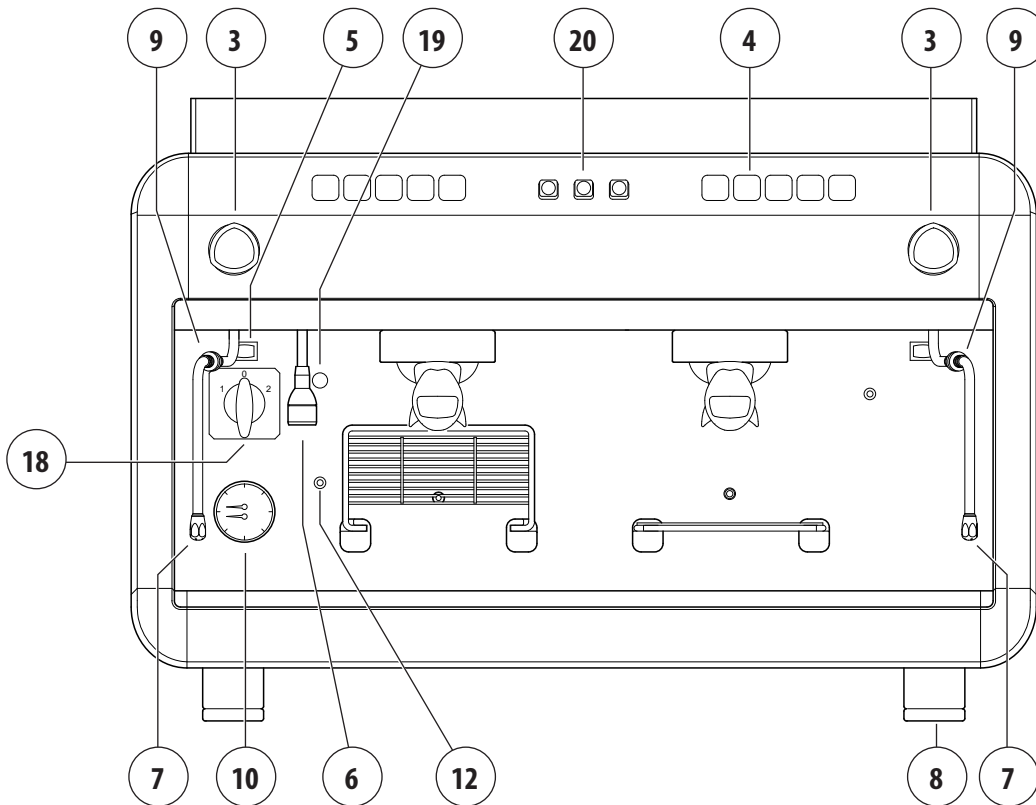
2.4 Illustration of the machine



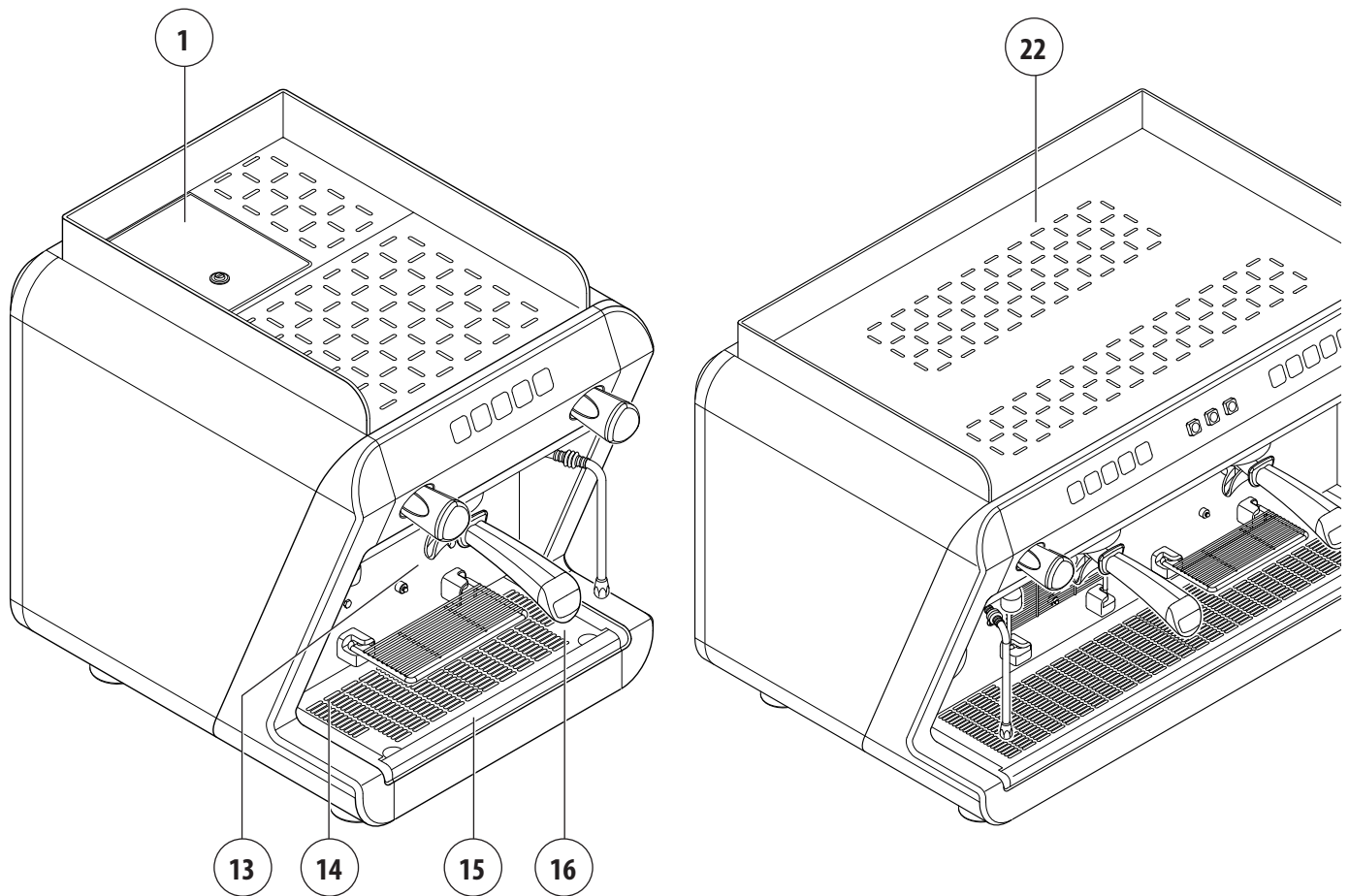
1GR version



2GR COMPACT version

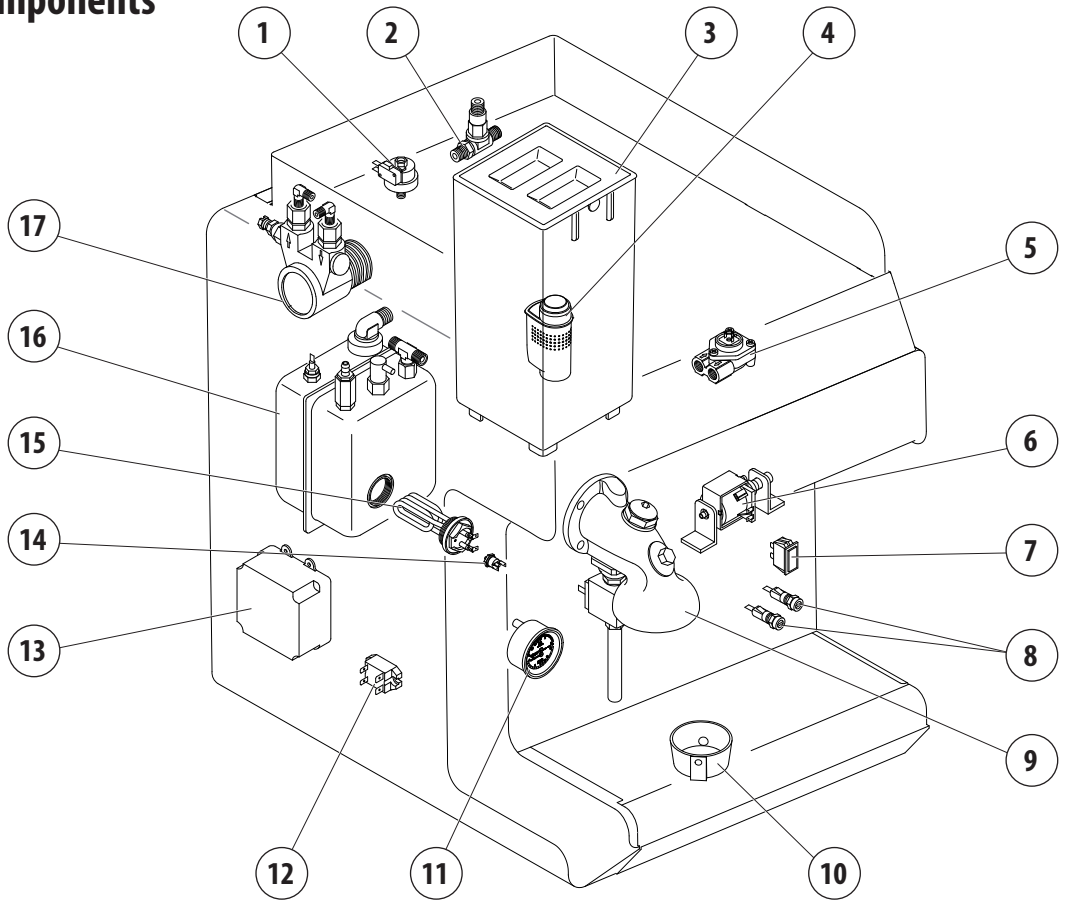


2GR version

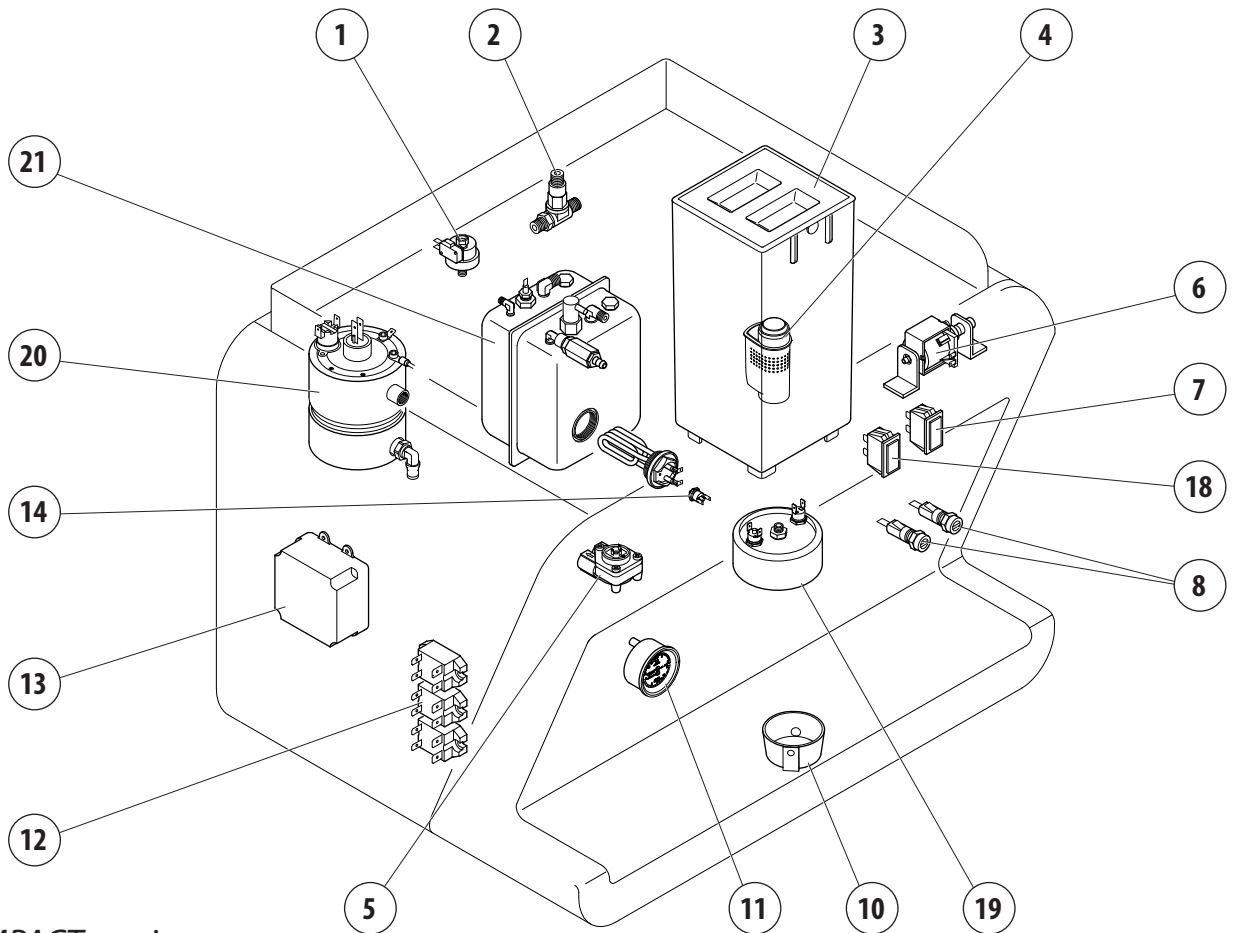


1. Tank (where envisaged).
2. Hot water dispensing knob.
3. Steam dispensing knob.
4. Push-button panel for coffee selections.
5. Work top led switch.
6. Hot water dispensing spout.
7. Steam nozzle.
8. Adjustable foot.
9. Anti-scald protection.
10. Gauge.
11. Machine ON switch.
12. Boiler level warning light.
13. Coffee dispensing spout.
14. Cups lifting rack.
15. Cup support rack.
16. Filter holder.
17. Cup warmer switch (version 2GR).
18. Switch-on selector (version 2GR).
19. Warning light switch-on (version 2GR).
20. Services push-button panel (version 2GR).
21. Cup warmer led (version 2GR).
22. Cup warmer surface.

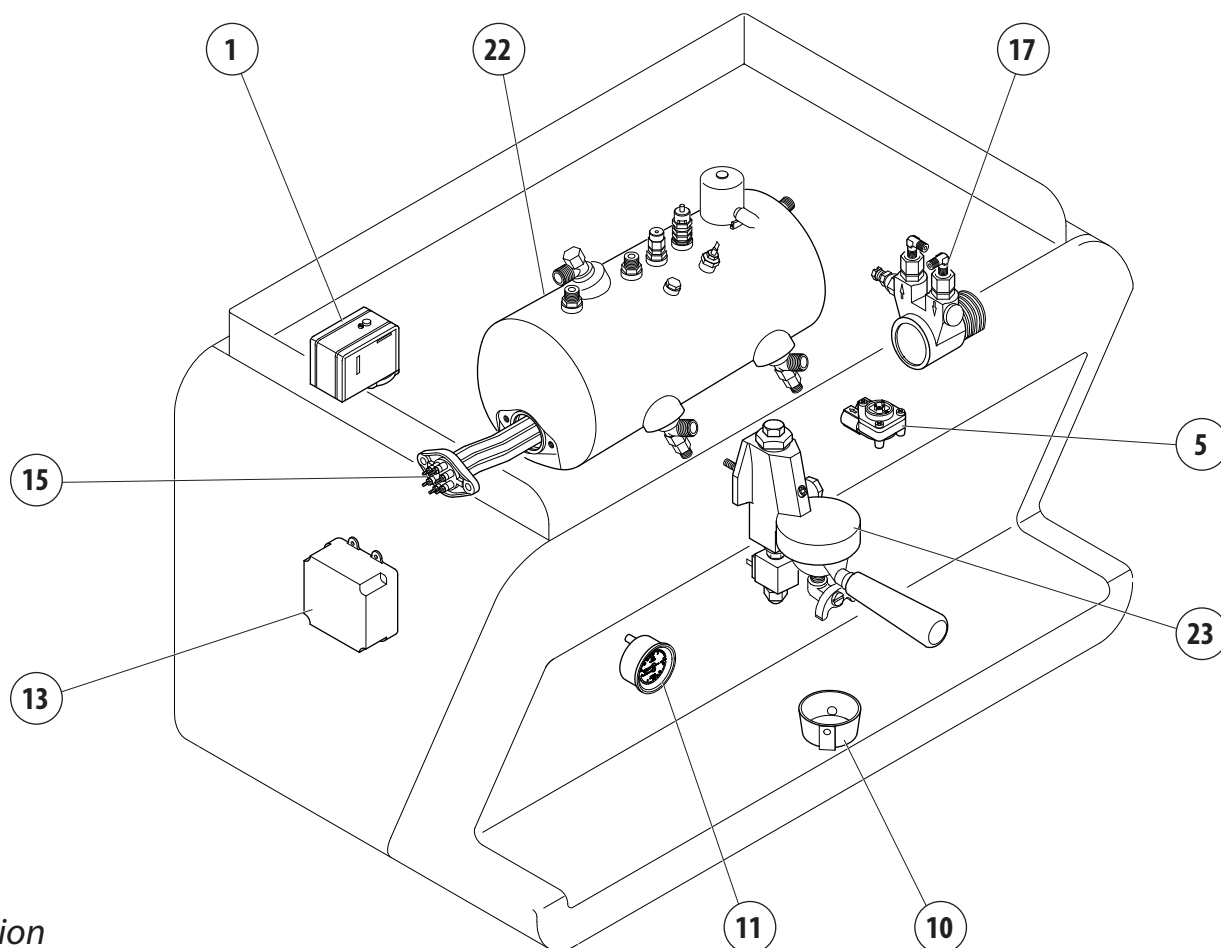
2.5 Internal components



1GR version



2GR COMPACT version



2GR version

- | | |
|---|----------------------------------|
| 1. Pressure switch. | 19. Dispensing unit 2GR COMPACT. |
| 2. SCNR valve. | 20. Coffee boiler 2GR COMPACT. |
| 3. Internal tank (if envisaged). | 21. Boiler 2GR COMPACT. |
| 4. Water filter tank (if envisaged). | 22. Boiler 2GR. |
| 5. Volumetric doser unit. | 23. Dispensing unit 2GR. |
| 6. Vibrator pump (with internal tank). | |
| 7. Services fuse. | |
| 8. Power fuses. | |
| 9. Dispensing unit 1GR. | |
| 10. Drain pan. | |
| 11. Gauge. | |
| 12. Relay. | |
| 13. Electronic control unit. | |
| 14. Thermostat. | |
| 15. Electrical heating element. | |
| 16. Boiler 1GR. | |
| 17. Motor pump (without internal tank). | |
| 18. Led fuse. | |

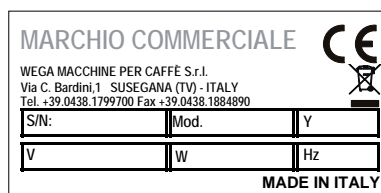
2.6 Data and CE marking

The technical data of the machine is shown in the following table:

TECHNICAL DATA TABLE		1GR	2GR COMPACT	2GR
Voltage	V	120/230	120/230/240	120/230/240
Power	W	1600/2600	1400/2500/2700	1400/2500/2700
Tank capacity	l	4	4	---
Safety valve calibration (bar)	bar	1.9	1.9	1.9
Boiler operating pressure	bar	0.8 - 1.4	0.8 - 1.4	0.8 - 1.4
Feeding water pressure	bar	1.5 - 5 max	1.5 - 5 max	1.5 - 5 max
Coffee dispensing pressure	bar	8 - 9	8 - 9	8 - 9
Dimensions WxDxH	mm	390 x 525 x 510	560 x 525 x 510	745 x 525 x 510
Max gross weight	kg	47	50	77
Operation mode temperature	°C	5 - 40	5 - 40	5 - 40
Sound pressure level	dB	< 70	< 70	< 70

According to Directive 2006/42/EC, the machine is marked with the CE marking, by which the manufacturer declares, under its own responsibility, that the machine is safe for people and things.

The CE nameplate is affixed to the base of the frame under the drain pan on which the identification data is reported. Below is an example of the nameplate:



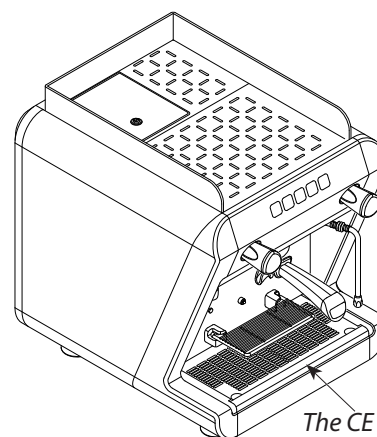
For any communication with the Manufacturer, always note the following information:

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

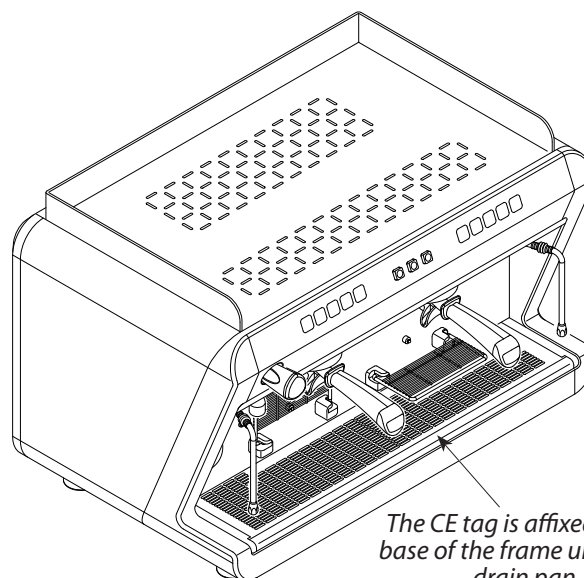
The equipment data is also displayed on the label affixed to the machine's packaging.



It is forbidden to remove or damage the nameplate. If it needs replacing urgently, always exclusively contact the Manufacturer.



The CE tag is affixed to the base of the frame under the drain pan

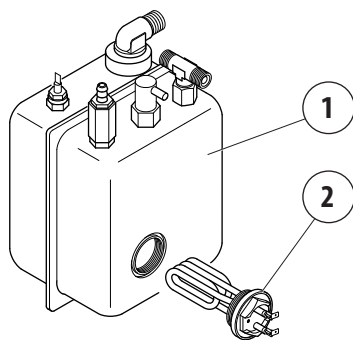


The CE tag is affixed to the base of the frame under the drain pan

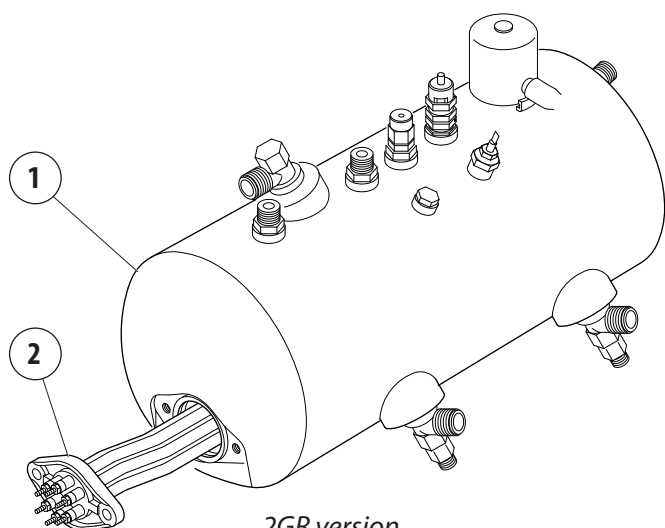
2.6.1 Boiler versions 1GR and 2GR

The boiler (1) is fitted with an internal heat exchanger which is connected to the dispensing unit. Water for coffee dispensing is taken directly from the heat exchanger. During dispensing, cold water is sent to the exchanger by means of the motor-pump or the vibrator pump. Inside the heat exchanger, cold water and the pre-existing hot water are mixed, thus obtaining optimal water temperature for coffee infusion.

The electrical heating in the boiler takes place by means of an electrical resistor immersed in the water (2).



1GR version



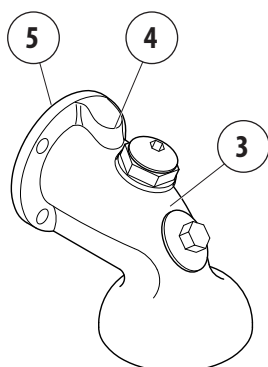
2GR version

2.6.2 Coffee boiler version 2GR COMPACT

In the 2GR COMPACT version, a specific boiler (3) is installed for the dispensing of coffee.

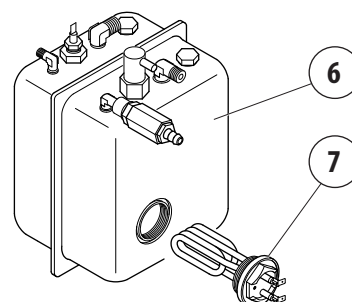
The boiler gets heated by an internal resistor (4).

During dispensing, cold water is fed to the boiler. Through the temperature control by means of thermostat (5), hot water at optimal temperature will be supplied by the boiler.



2.6.3 2GR COMPACT services boiler version

In the 2GR COMPACT version, a boiler for the services (6) is installed, i.e. for the dispensing of steam and hot water. The electrical heating in the boiler takes place by means of an electrical resistor immersed in the water (7).



2.6.4 Pressure limiting safety valve

The pressure relief safety valve has a calibration of 1.9 bar in order to ensure that the pressure in the boiler services does not exceed the value of 2.1 bar. In case of damage, the valve can eliminate all the excess pressure from the boiler.



1GR-2GR COMPACT version

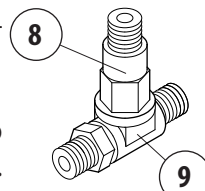


2GR version

2.6.5 Expansion valve + check valve

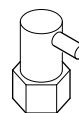
This is a valve consisting of an expansion valve and a non-return valve.

- **expansion valve (3):** the cold water sent by the pump to the heat exchangers heats up. 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.
- **check valve (4):** its function is to avoid the water back-flowing to the exchangers in the hydraulic circuit.



2.6.6 Vacuum relieving valve

The purpose of the negative pressure valve is to prevent the backflow of liquids through the steam nozzle when they are being heated. Furthermore, the excess air is eliminated inside the boiler during the heating phase of the machine.



1GR-2GR COMPACT version



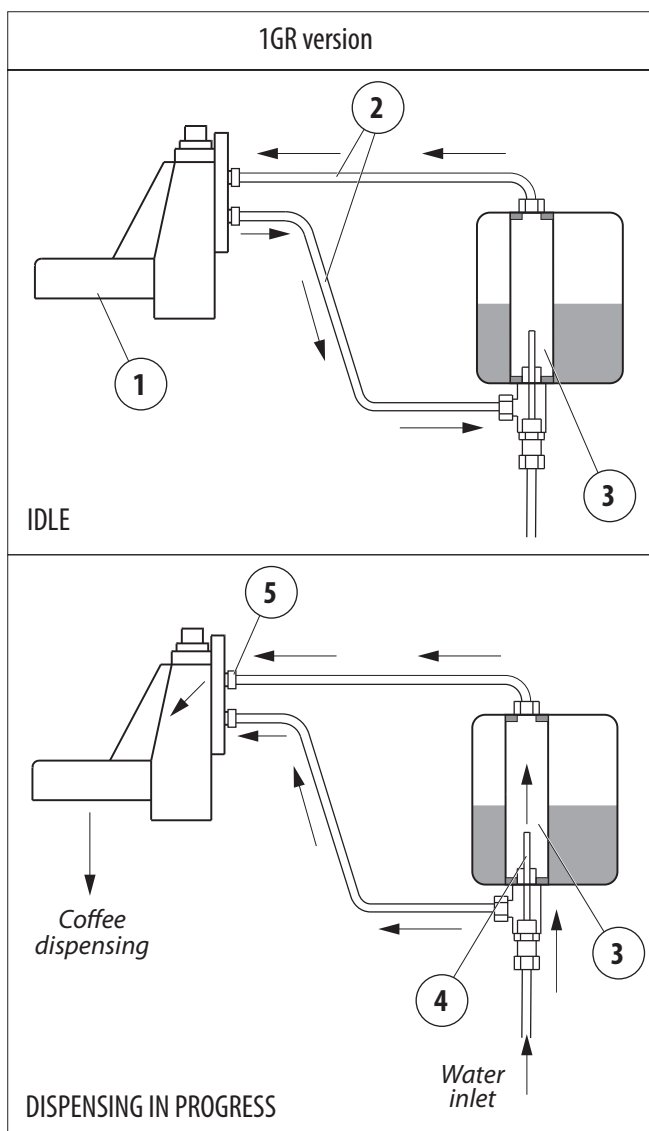
2GR version

2.6.7 Dispensing unit 1GR

For this version, heating of dispensing unit (1) takes place by means of a thermo-syphon circuit (2) connected to the heat exchanger (3). The same water is used for the coffee dispensing, thus ensuring the same temperature for all coffee servings:

- Operating the solenoid valve and the pump allows the sending of cold water to the exchanger (3) through the injector (4);
- from the exchanger (3) the boiler water is carried to the group (4) for dispensing;
- the pump allows the increase of the pressure of the water flow up to 8-9 bar for dispensing.

The injector (4) and the flow reducer (5) are important components for the operation of the dispensing group. To increase the coffee extraction temperature, remove the flow reducer (5) or replace it with one of a larger diameter. To decrease the temperature, replace it with one of a smaller diameter. These operations should be carried out after the machine has been switched down and has cooled off: always replace the seals.

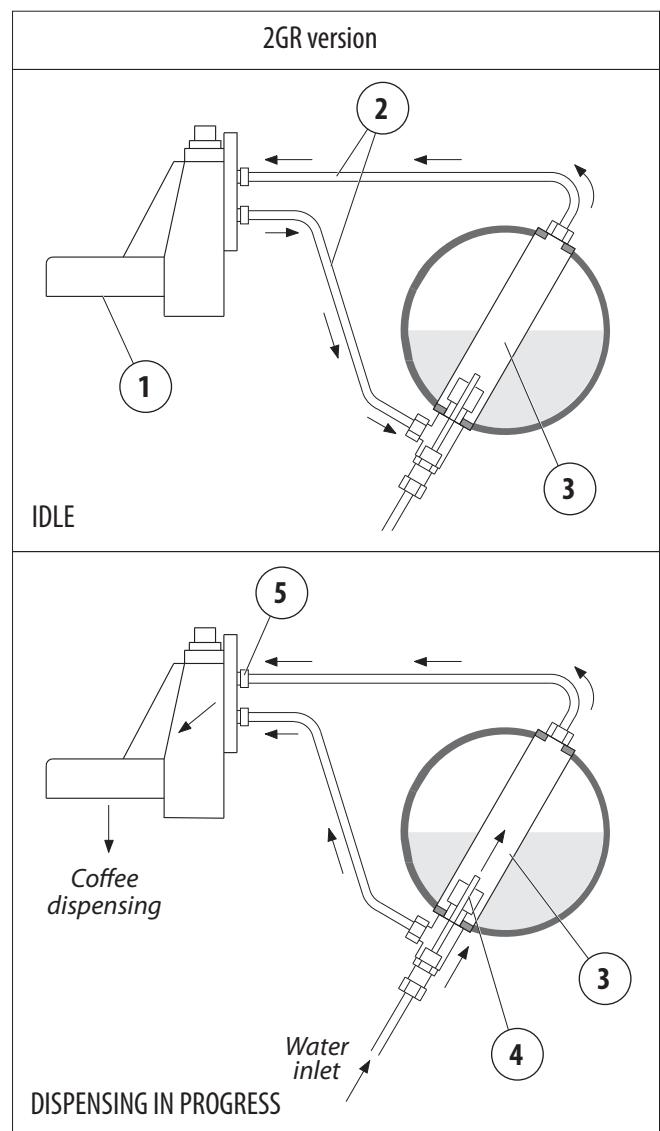


2.6.8 Dispensing unit 2GR

For this version as well, heating of the dispensing unit (1) takes place by means of a thermo-syphon circuit (2) connected to the heat exchanger (3). The same water is used for the coffee dispensing, thus ensuring the same temperature for all coffee servings:

- Operating the solenoid valve and the pump allows the sending of cold water to the exchanger (3) through the injector (4);
- from the exchanger (3) the boiler water is carried to the group (4) for dispensing;
- the pump allows the increase of the pressure of the water flow up to 8-9 bar for dispensing.

The injector (4) and the flow reducer (5) are important components for the operation of the dispensing group. To increase the coffee extraction temperature, remove the flow reducer (5) or replace it with one of a larger diameter. To decrease the temperature, replace it with one of a smaller diameter. These operations should be carried out after the machine has been switched down and has cooled off: always replace the seals.



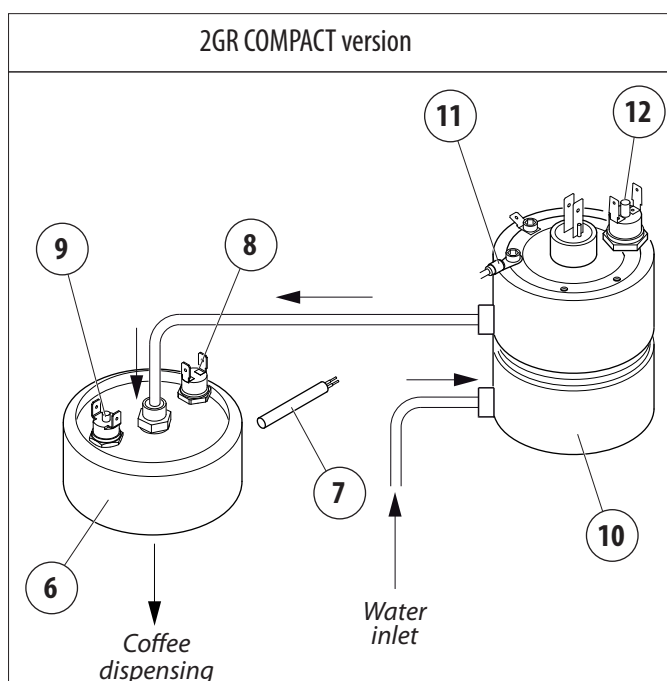
2.6.9 Dispensing unit 2GR COMPACT

In this version, the heating of the dispensing unit (6) takes place by means of an electrical resistor (7).

The unit's temperature is controlled by an adjusting thermostat (8) and by safety thermostat (9).

The water used in dispensing the coffee is heated by the coffee boiler (10).

The boiler is fitted with a temperature sensor (11) and a safety thermostat (12).



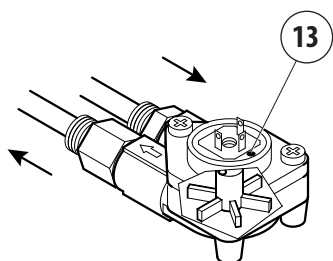
2.6.10 Volumetric dosing

The volumetric doser measures the quantity of water sent to the coffee dispensing unit.

The dispenser generates electrical impulses which are sent to the electronic control unit.

These impulses are read by the control unit and counted during the programming of the dose.

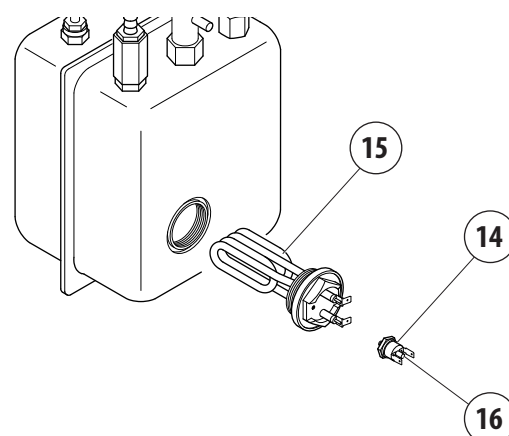
The flashing LED light (13) indicates that the electrical impulse has been sent from the dosing device to the control unit.



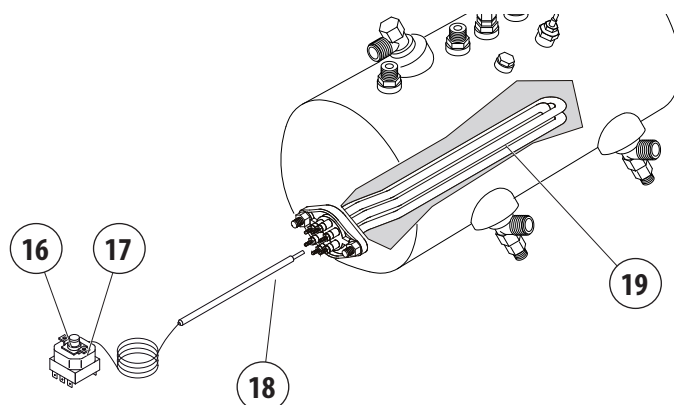
2.6.11 Safety thermostat

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

In the 1GR and 2GR COMPACT versions, thermostat (14) is fastened to the flange of resistor (15). The thermostat contacts are connected to the electrical resistor. 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.



In the 2GR version, thermostat (17) is placed by means of bulb (18) at the centre of resistors (19). 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.



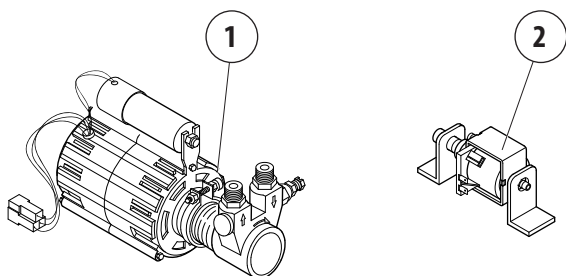
To reset the thermostat, press the centre button (16). However, before trying to operate the machine, verify the causes of the blockade of the water feeding the boiler.

2.6.12 Pump

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

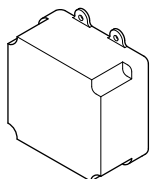
According to the machine being equipped with an internal tank, or being connected to the water mains the set up changes, since it is equipped with:

- motor pump (1), in the versions with connection to the water mains;
- vibrator pump (2) in the versions with internal tank.



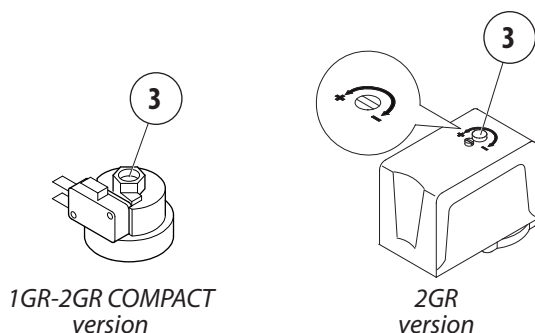
2.6.13 Electronic control unit

The electronic control unit electronically manages the coffee dose by feeding the water through the doser unit and controlling the water inflow in the boiler.



2.6.14 Pressure switch

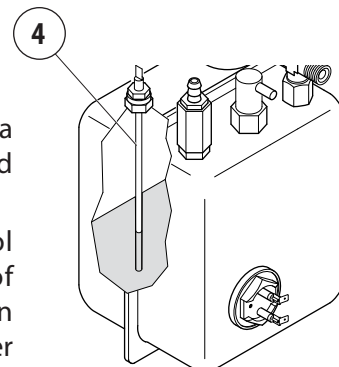
The pressure switch makes it possible to control boiler pressure by activating or bypassing the heating element in the boiler. The eventual calibration of the pressure switch can be carried out with the machine in operation, turning screw (5) on the component itself.



2.6.15 Automatic Water Entry

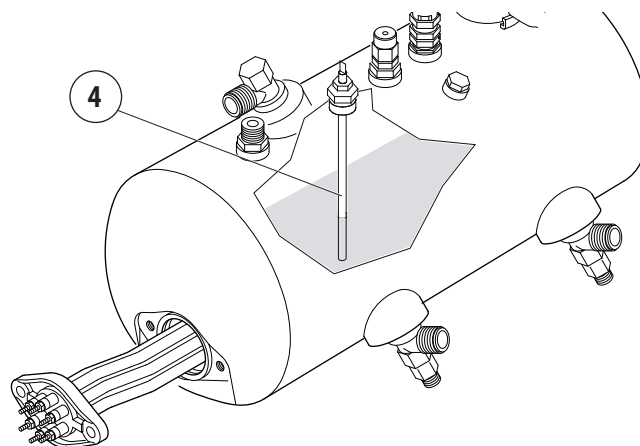
The Automatic Water Entry system is for checking the boiler level. It is made up by:

- A probe inserted in the boiler (4) composed of a stainless steel rod;
- the electronic control unit;
- hydraulic circuit with a solenoid valve controlled by the regulator.



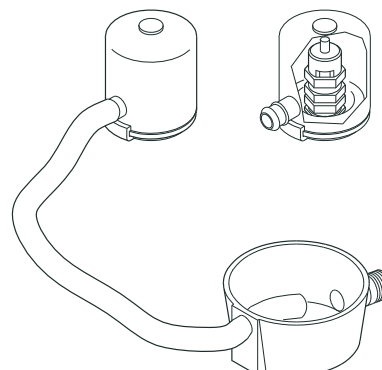
The electronic control unit controls the level of water in the boiler. When the water level in the boiler lowers, the contact with the probe gets interrupted, the control unit sends an impulse to the inflow solenoid valve and to the motor pump or vibrator pump, which are then activated until the normal level of water in the boiler gets restored.

To avoid possible flooding due to machine malfunctions or leaks in the hydraulic circuit, the electronic control unit includes a "Time-out" feature that cuts off automatic filling after a certain time (2 minutes).



2.6.16 Overflow device

The cover installed on the pressure relief valve (2GR version) allows the water and steam that for any machine malfunction might overflow from the boiler, to be collected and conveyed to the drain pan by means of a specific pipe.



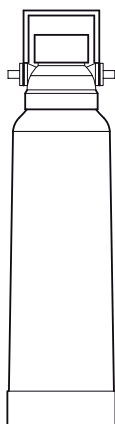
2.6.17 Filter for the water mains

In the water from the mains, non-soluble salts are present that are causing the formation of limestone in the boiler and in other parts of the machine.

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

The filter makes it possible to eliminate or substantially reduce the presence of these mineral salts.

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

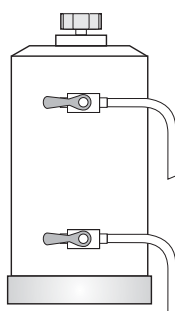


For the water filter use and maintenance, follow the provisions in par. "8.6 Water filter for the water mains" on page 41.

2.6.18 Water softener

The resin softener can be used as an alternative to the water filter.

This component has the property of retaining the calcium contained in the water. For this reason, the resins become saturated after a certain period and must be regenerated with coarse kitchen salt (NaCl, sodium chloride) or special water softening salt. It is very important to regenerate the softener within the established times. Nevertheless, in places where the water is very hard, regeneration will have to take place at shorter intervals. The same is true of places in which there is a large consumption of hot water for tea or other uses.



For the softener use and regeneration, follow the provisions in par. "8.7 Regeneration of the water softener" on page 43.

3. TRANSPORT AND HANDLING

3.1 Safety precautions

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

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

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

In view of the substantial weight of the equipment, exercise caution and care in handling operations.

The manufacturer is not responsible for any injury or damage caused by attires, lifting equipment and personal equipment not suitable for the type of intervention that the operator must carry. The packaging material must not be left within the reach of children, since it is a potential source of danger.

The following residual risks are present during the handling of the machine and cannot be eliminated:

	Hand crush hazard
--	-------------------

3.2 DPI characteristics

During transport of the machine, the following PPE are required:

	Mandatory use of protective gloves
	Mandatory use of protective shoes

3.3 Weight

MODEL:	1 GR	2 GR COMPACT	2 GR
Max gross weight	47 kg	50 kg	77 kg

3.4 Handling the packed machine

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

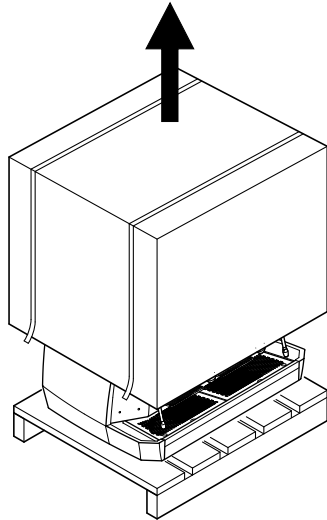


It is very important to verify that the maximum load of the individual lifting equipment, at least corresponds to the loads to be lifted, plus the safety margins required by current standards.

3.5 Unpacking the machine

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

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



After uninstalling the machine, check that there are no damaged parts due to transport or missing parts. Otherwise, immediately (no later than 7 days after dispensing) contact the TRANSPORTER and MANUFACTURER communicating the machine data and photographic documentation:

It is advisable to keep the packaging until after the guarantee has expired.

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

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

4. STORAGE

4.1 Overview

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

4.2 Storing the machine after the operation

If the machine is no longer used after a certain period of operation, store in the following conditions:

- Unplug the machine from the water and power mains;
- Empty all the internal circuits of the water.

Store the machine taking the following precautions:

- Store closed;
- Protect from shocks and stresses;
- Avoid contact with corrosive substances.

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

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

Any variation in these characteristics may decrease the average life of some components of the machine.

Typical examples:

- ambient temperature: premature degrading of the engines.
- RH: premature degrading of seals and electronics.



If the environmental characteristics are significantly different from those listed, contact the MANUFACTURER before they become a source of problems.



After storage, before starting up the machine it is necessary to fully inspect the equipment.

5. INSTALLATION

5.1 Safety precautions

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

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

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

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

Perform the installation with the machine disconnected from the power supply through the main switch.

In case of problems during the installation and/or malfunction, turn off the machine and contact the Manufacturer.

The components used during installation must ensure that the hygiene and safety requirements initially provided for the appliance are still met. These are met by using original spare parts only.

The following residual risks are present during the installation of the machine and cannot be eliminated:

	Electrical hazard
	Equipotential hazard
	Danger of high temperature
	Prohibition to operate with moving parts



Use of the machine without all the installation operations carried out by Qualified Technical Personnel can result in serious damage to the equipment and people.



Any action taken on the electronics of the machine when the machine is still supplied with electrical power automatically invalidates any guarantee.

5.2 DPI characteristics

During installation of the machine, the following PPE are required:

	Mandatory use of protective gloves
	Mandatory use of eye protection
	Mandatory use of protective shoes

5.3 Environmental conditions

5.3.1 Room temperature

The electrical and electronic equipment mounted on the machine, has been designed and made to function properly in environments where the temperature is between +5 and +40 °C.

5.3.2 Relative humidity

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

5.4 Installation space and operating space

Before the arrival of the machine, a suitable environment must be prepared:

- Location suited to the intended use and adequate space for comfortable use of the machine;
- adequate lighting, in accordance with applicable standards;
- earthing system compliant with applicable standards;
- preparation of the electrical system, conforming to the regulations in force.

5.5 Base plane

To ensure a sufficient degree of ergonomics and safety to the machine, it is necessary to provide a support base with the following characteristics:

- Make sure that there is sufficient space for placing and correctly using the machine;
- the work top (1) must be comfortable and able to withstand the machine's weight and must be at a height of approx. 90 cm (15);
- the base must be perfectly level and without irregularities;
- in the immediate vicinity of the support base there must be the terminals for the connections to the electrical mains (7) and, for the version without internal tank, to the water mains (11);
- If the machine is positioned next to a wall, ensure a minimum distance of 20 cm between the machine and the wall (3);
- under the work top, mount a drawer (13) that will be used for depositing spent coffee dregs, better if fitted with a rubber support (14) to be used to knock the spent coffee out of the filter carrier.



For correct operation and to ensure safety, the machine must rest on a perfectly horizontal surface.

Any alignment of the machine must be done by adjusting the feet (6).

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

5.6 Hydraulic connection to the water mains

5.6.1 Water supply

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

5.6.2 Materials to be used

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

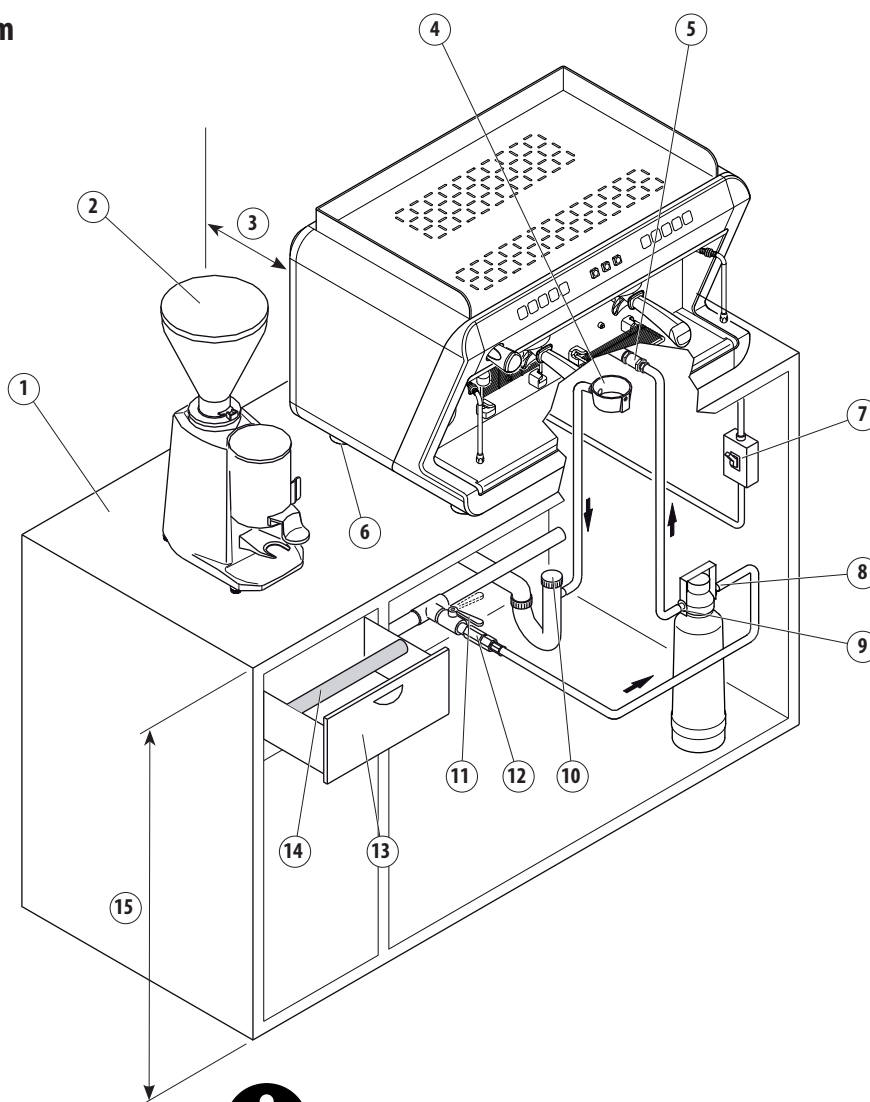
5.6.3 Carrying out of the hydraulic connection

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.

1. Insert a tap on the water mains (11) to allow the interrupting of the water flow to the machine;
2. in order to avoid damaging it, it is suggested that a water purifying filter (8) be installed in a position protected against accidental knocks;
3. should a water purifying filter not be available, connect directly to the mains (11) at the machine inlet (5);
4. when connecting the pad of the machine (4) to the sewer drain (10), avoid overly tight curves or kinks, and make sure that there is sufficient inclination for water to flow out of the drain;
5. the drain must be connected to an inspectable siphon that can be periodically cleaned, in order to avoid bad odours;
6. to avoid oxidization and damage to the machine over time, do not use iron connections for the hydraulic system, even if galvanized.

5.6.4 Description of the hydraulic system

1. Support base
2. Grinder-dispenser
3. 20 cm minimum distance between the machine and the wall
4. Discharge tub
5. Water supply inlet
6. Adjustable feet
7. Electrical power switch
8. Water filter inlet
9. Water filter outlet
10. Sewer drain
11. Water supply tap
12. Water supply check valve
13. Drawer to deposit spent coffee dregs
14. Support for knocking off coffee dregs from the filter carrier
15. Height of support base 90 cm



After installation and before using the machine, the water of the hydraulic circuits must be replaced, as indicated in par. "6.8 Water replacement" on page 30.



FOR THE EUROPEAN COMMUNITY: for the hydraulic connection to the water mains and also for connection to an external tank, it is necessary to place a non-return valve (12) up the line from the machine as set forth by standards EN 1717.



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. All filling connections are 3/8 male gas type. The drain pan is connected to a tube with an internal diameter of 16 mm. If an external tank is used, the connection pipe between the machine and the tank must not exceed 150 cm. 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.



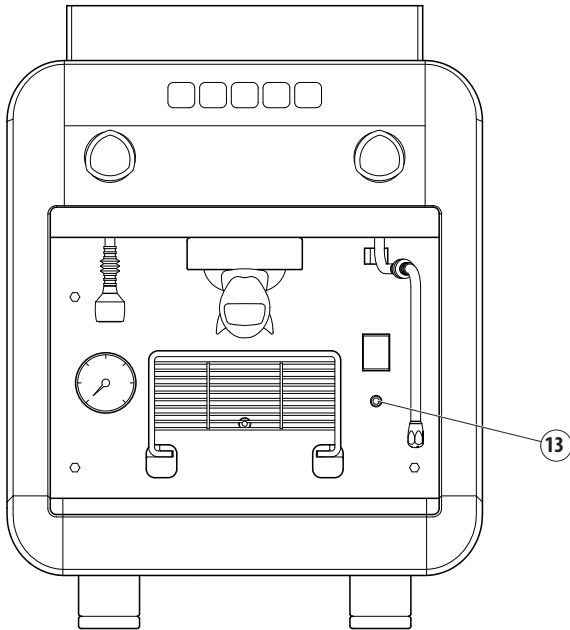
FOR THE U.S.A. - The water connections and discharges must be made in accordance with the 2003 International Plumbing Code of the International Code Council (ICC), or with the 2003 Uniformed Hydraulic Code of the IAPMO. The machine must be installed including a suitable check valve as envisaged by the national standards.

5.7 Hydraulic connection with tank

5.7.1 Internal tank

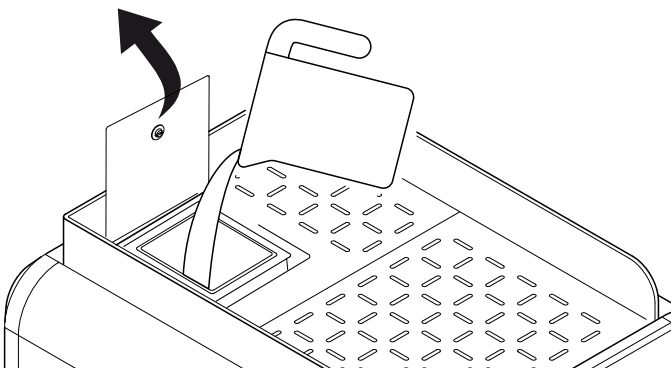
In the version with internal tank, the operations for connecting to the water mains are not required since the water is provided by the machine's internal tank.

Any instances of water missing in the tank is signalled by the slow flashing of the relevant led (13).



To restore the level, it is sufficient to open the tank cover and to add water.

It is recommended to periodically clean the tank proceeding as instructed in par. "8.8.6 Cleaning of the internal tank (if fitted)" on page 45.



Fill the tank only with cold potable water. Do not use other types of liquids or carbonated beverages. Operating without water may damage the machine.

After extended periods of machine inactivity the water in the internal tank must be replaced.

5.7.2 Internal tank filter

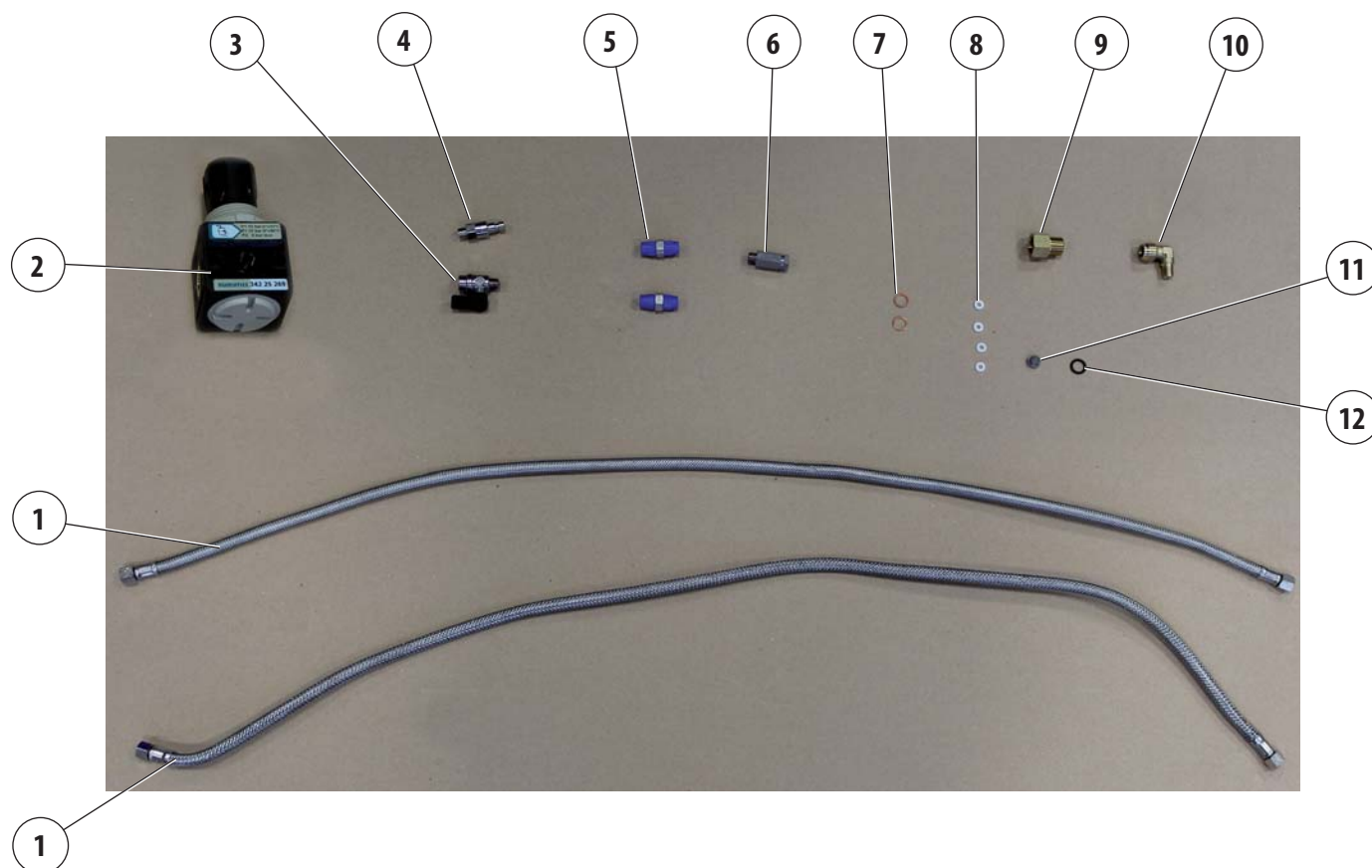
In cases of water hardness exceeding 5°f, the use of a BRITA model filter is advisable (supplied with machine) to be installed in the tank. Not only does this filter reduce lime scale build-up, but it also eliminates any impurities and other substances such as chlorine in the water. Install the filter at the bottom of the tank according to the manufacturer's instructions.

Replace the tank filter as instructed in par. "8.5 Water filter for the internal tank" on page 40.

5.8 Conversion from tank to water mains (1GR version)

Through this procedure the machine's type of water supply can be modified from Internal Tank to Water Mains

5.8.1 Components of the assembly kit



1. Tuboflex
2. Pressure reducer
3. Spherical tap
4. Automatic coupling joint
5. Straight fitting 1/8M - 1/8M
6. Non-return valve
7. Copper gasket
8. Teflon gasket
9. Straight fitting + filter seat
10. "L" fitting
11. Steel filter
12. AEA gasket

5.8.2 Assembly procedure

- Assemble the pressure reducer components, supplied in the specific box;



- screw the fastening washer to the reducer's casing;



- after having assembled the pressure reducer, proceed with the mounting of the Kit. Install the straight fittings on the pressure reducer, adding sealant;

- screw the gauge on the reducer casing, adding some sealant;

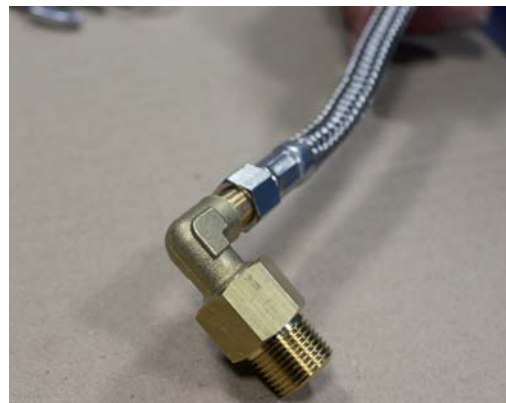


- at the inlet of the reducer marked with acronym "IN", mount the interposing the copper washer to the straight fitting previously assembled;

- screw the plug and relative cover on the other side of the reducer;



- mount the "L" fitting to the hose inserting the teflon gasket;
- screw the straight fitting complete with filter to the "L" fitting, using sealant;



- mount the rubber gasket on the network filter and position the latter on the inlet fitting;
- on the other end of the hose, place another teflon gasket and screw this end to the check valve;



- at the outlet of the reducer, marked with acronym "OUT", mount the tap inserting the copper washer;



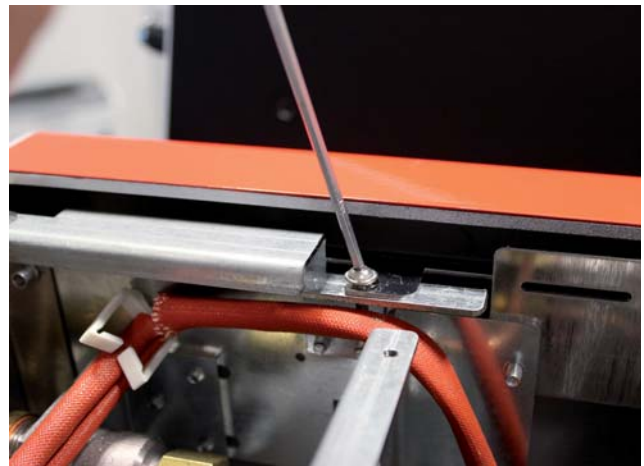
- position a teflon gasket on the other hose supplied in the kit and fit it to the tap;



- remove the machine's side undoing the two fastening screws;



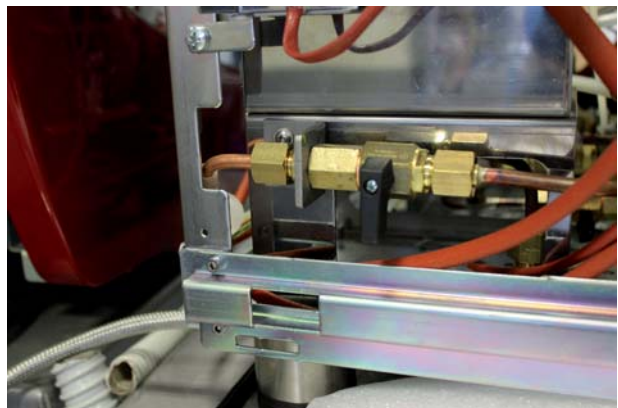
- position another teflon gasket on the end of the hose and mount the snap coupling;



- attach the inlet hose to the water mains. follow up by hooking the reducer's outlet to the snap coupling under the machine;



- close the water inlet tap mounted on the lower side of the tank;



- position the switch on the left of the machine to "O";

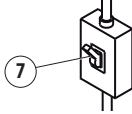


- open the tap of the pressure reducer;



- open the water delivery and switch the machine on. While dispensing with the coffee unit, adjust the gauge of the reducer to 1 bar.

5.9 Electrical connection

- Installation must be done in accordance with the safety standards in force in the country of installation. The owner / manager of the equipment must give confirmation to the installer that the electrical system conforms to the requisites specified above.
- Install a general protection switch (7) as required by current safety regulations suitable to the rated power. 
- For the electrical connection of the machine, refer to Chap. "13. ELECTRICAL DIAGRAM" on page 47.
- Do not use power extensions or electrical adaptors for multiple outlets. If their use is absolutely necessary, use only simple adapters and extensions complying with current safety standards. Never exceed the capacity value indicated on the adapter and the extension cord, and that the maximum power indicated on the adapter.
- The access spaces to the machine and main switch must be left clear, in order to allow the user to intervene without any constrictions and be able to leave the area immediately in case of necessity.



We recommend to promptly report to the Manufacturer any problems encountered during installation of the equipment.

6. COMMISSIONING

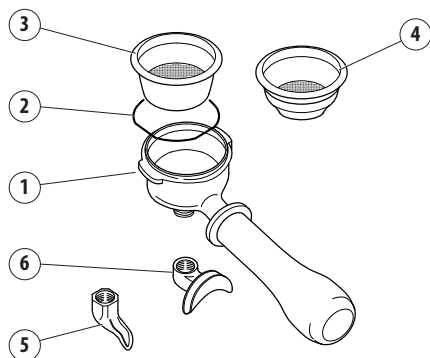
6.1 Safety precautions

The following residual risks are present during the commissioning of the machine and cannot be eliminated:

	<p>Electrical hazard: When using the electrical appliance, several safety standards must be observed:</p> <ul style="list-style-type: none"> • do not touch the appliance with wet or damp hands or feet; • do not use the appliance if barefooted; • do not pull the power cord to disconnect the appliance.
	<p>Danger of high temperature: Some parts of the machine can reach high temperatures:</p> <ul style="list-style-type: none"> • avoid contact with the dispensing group and water spouts; • do not expose your hands or other body parts to the coffee, steam, or hot water spouts.

6.2 Preparing the filter holder

- In the housing of the filter holder (1) place the spring to stop the filter (2).
 - Take the one-cup (3) or (4) filter and press it firmly into the filter holder.
- Complete the filter carrier by mounting the spout for one cup (5) or two cups (6).



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

6.3 Coffee grinding

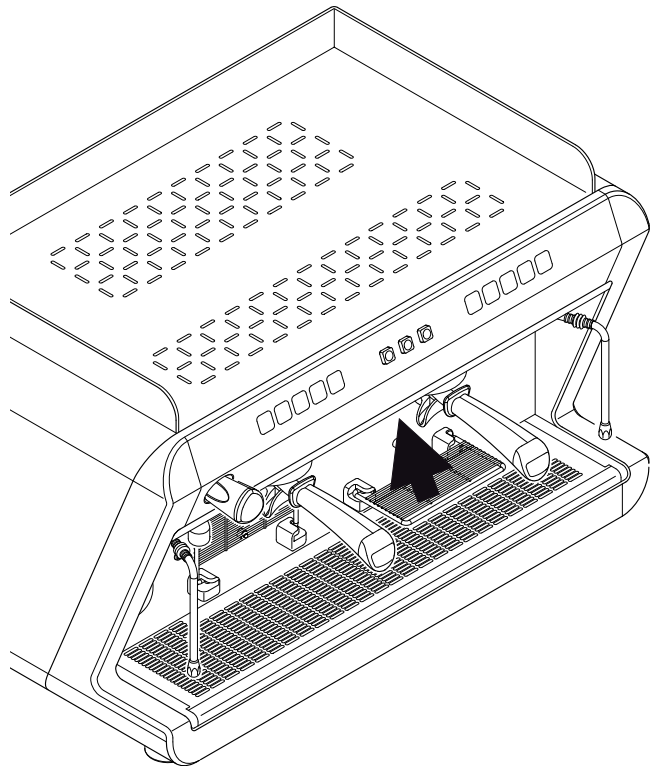
To adjust the coarseness of the ground coffee, use the appropriate regulator located on the hopper of the grinder-dispenser.

6.4 Cups lifting racks

When using cups of different heights, you can use the special folding grilles which the machine is equipped with.

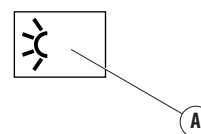
To use the grille, disengage it from the stop and rotate it downward in a horizontal position.

When it is no longer needed, push it upwards, until latching it into place.



6.5 Lighting of dispensing enclosure

To switch the lighting in the work enclosure on and off, press switch (A).



6.6 Before switching machine on

6.6.1 Switch-on of 1GR and 2GR COMPACT

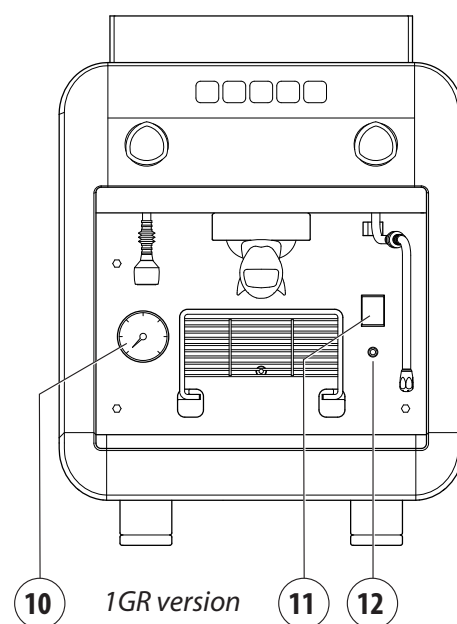
Open the water tap of the water mains and of the softener.

Turn the machine on using the main switch of the machine (11).

Before using the machine, wait a few minutes (approx. 10 min.) until gauge (10) will indicate the correct work pressure (1-1.2 bar).

The possible flashing of warning light(12) signals the following problems:

- *slow flashing*: water missing in the tank or tank not fitted;
- *fast flashing*: time out of the boiler charging (the time expected for the charging was exceeded). Check that water is present in the tank.



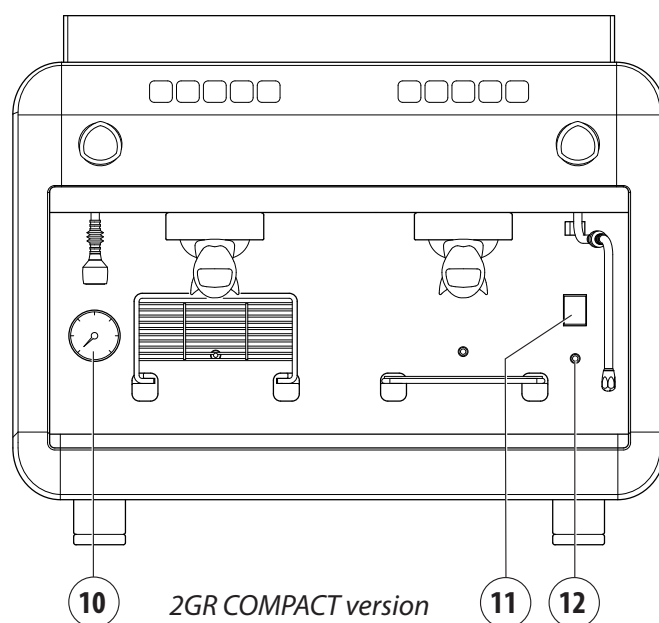
6.6.2 Switch-on 2GR

Rotate the selector to position "1" (powering the pump for automatic filling of the boiler and of the machine services) and wait for the automatic feeding of water to the boiler.

Rotate the selector to position "2" (total power supply including the boiler's resistor) and wait for the machine to heat completely.

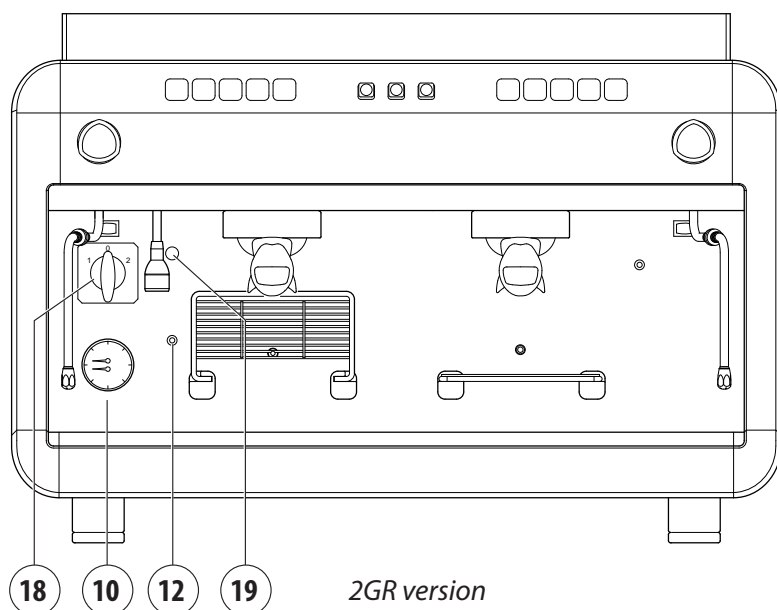


During the machine heating stage (approx. 20 minutes), the vacuum relieving valve will release steam for several seconds until its closure.



6.7 Machine shutdown

Switch the machine off by tripping the main switch (11) or turning the machine selector (18).



6.8 Water replacement

During the installation of the machine, the Qualified Technician must replace the water contained in the hydraulic circuits by following these steps:

- when installation is complete, the appliance has to be started, brought to the nominal working condition and left for 30 minutes in the "ready to operate" condition;
- afterwards, the appliance has to be turned off and emptied of the first water introduced in the whole hydraulic circuit, to eliminate possible initial impurities;
- following this, the equipment must again be charged and brought to the nominal operating conditions;
- after having reached the "ready for use" status, the following operations must be carried out:
 - for every coffee unit carry out continuous dispensing so as to discharge at least 0.5 litres from the coffee circuit;
 - release the entire volume of the hot water from the boiler by continuous delivery through the specific spout;
 - continuously release steam for at least 1 minute for each steam dispensing point.




If the machine remains inactive for a time longer than 1 week, the Qualified Technician must renew 100% of the water contained in the hydraulic circuit, as indicated above.



- **Before using the machine, carry out some empty dispensing cycles with the filter carriers hooked in for several seconds, in order to bleed any air present in the circuit, allowing for complete heating of the dispenser units;**
- **before using the machine, dispense a few servings of coffee to test the grinding and to check the operating pressure of the machine;**
- **during dispensing of coffee, do not remove the filter holder from the brewing.**

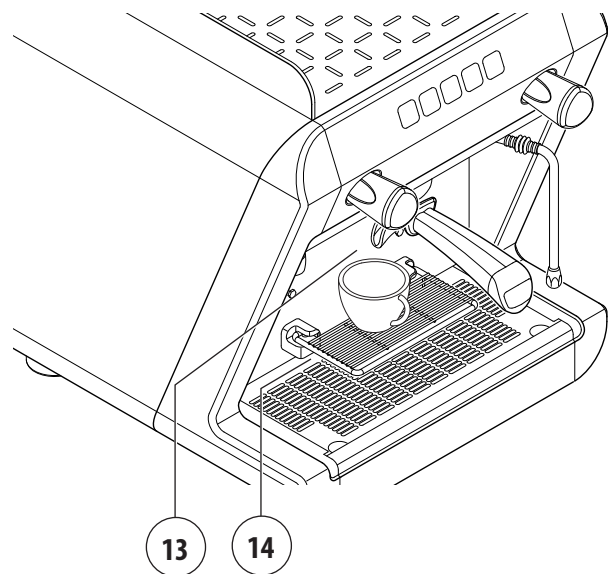
7. PROGRAMMING

7.1 Programming coffee doses

- Fill the filter with a dose of ground coffee and press it with the coffee press;
- attach the filter holder to the delivery group;
- position the cup under dispensing spout (**13**);
- press the STOP/PROG. button for at least 5 seconds until the dose buttons leds will switch on;
- press the wanted dose button (e.g. );
- when the intended dose is reached, confirm by pressing the same button again;
- repeat the operation for the other dose buttons.

Automatic quitting from the programming after 20 seconds.

In case of small-sized cups, a specific cups lifting rack is available (**14**).

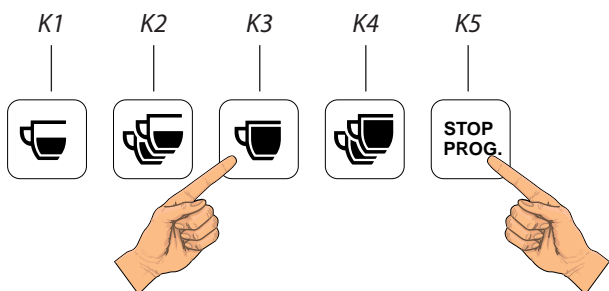


Programming of each dose must be carried out with ground coffee and not with previously used grounds.

7.2 Programming the Stand-by

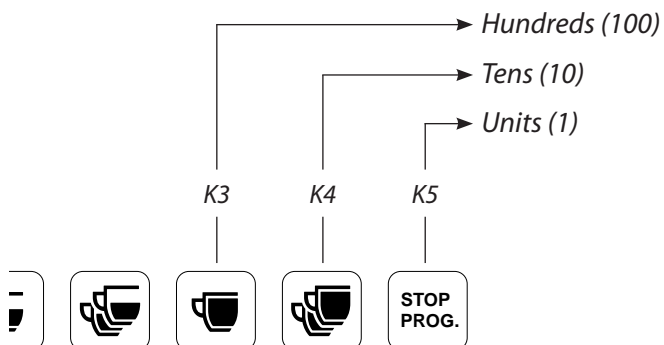
to activate machine's stand-by function, proceed as follows:

- press the K5 button relative to unit 1 (RH);
- press K3, checking that all LEDs on the keypad/s will switch off;
- LEDK3 relative to unit 1 starts flashing in "slow" mode;



- to quit the stand-by status, press button K3 relative to unit 1 (RH).

- to get the temperature of the coffee boiler, count the number of flashes of each of the LEDK3, LEDK4 and LEDK5 as follows:



Example 1:

LEDK3 = 0 flashes
LEDK4 = 9 flashes
LEDK5 = 5 flashes → Coffee boiler temperature = 95°C

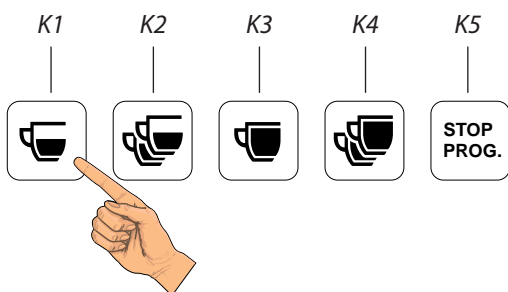
Example 2:

LEDK3 = 1 flash
LEDK4 = 0 flashes
LEDK5 = 8 flashes → Coffee boiler temperature = 108°C

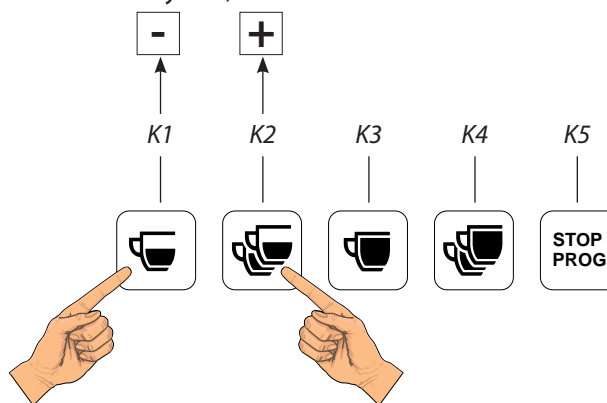
7.3 Programming the Temperature of coffee boilers (for the 2GR COMPACT version)

To display and set the coffee boilers' temperature (only for the 2GR COMPACT version) proceed as follows:

- Enable the Stand-by status as per previous paragraph;
- press and hold down button K1 for longer than 5 seconds. Release the button only after having checked that at least one from LEDK3, LEDK4 or LEDK5 will flash;



- to modify la temperature, press buttons K1 and K2: for every pressing of button K1 the temperature will be reduced by 1°C, whereas pressing button K2 will increase it by 1°C;



- after having applied the modifications it is suggested to check the temperature value by viewing the flashing of the 3 LEDs;
- to return to the stand-by status, press button K5 or switch the machine off and then back on.

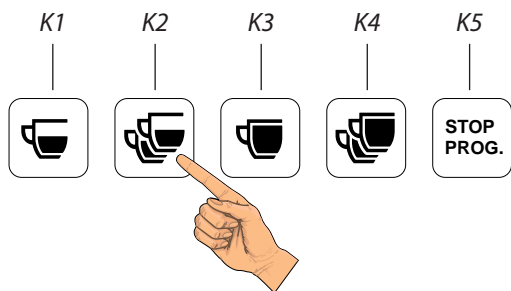


The coffee boilers can be set to separate different temperatures and within a range between 80°C and 110°C.

7.4 Programming the Pre-infusion (for the 2GR COMPACT version)

To activate the pre-infusion function proceed as follows:

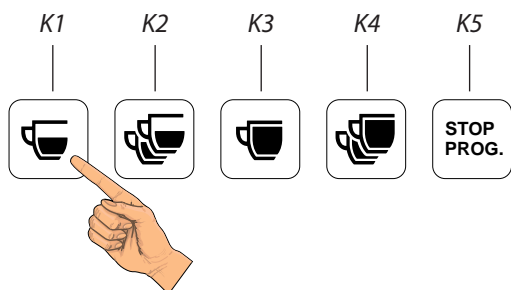
- Enable the Stand-by status as indicated in paragraph 7.2 on page 31;
- press and keep down button K2 relative to unit 1 (RH);



- the switching on of the flashing or fixed LEDs indicates whether the function is active or not:

LED	Pre-infusion
Flashing	→ ACTIVE
Steady	→ NOT ACTIVE

- to activate or deactivate the pre-infusion function, press button K1 relative to the unit intended for modification verifying that the relative LED will switch from the status of fixed ON to flashing and vice-versa;

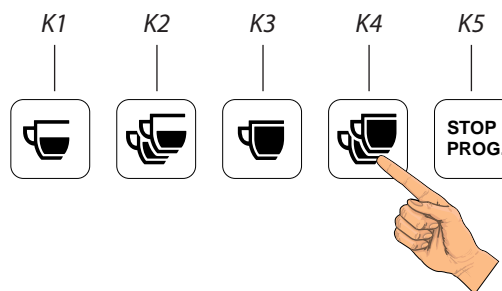


- to save the changes and to quit the stand-by status, press button K5 relative to unit 1 (RH).

7.5 Programming adjustment of the pump's operation (for the 2GR COMPACT version)

The programming of the pump's activation is carried out by the phase voltage slicing during dispensing. Proceed as follows:

- Enable the Stand-by status as indicated in paragraph 7.2 on page 31;
- press and keep down button K4 relative to unit 1 (RH) until LEDK4 relative to the unit/s start flashing;



- the number of flashes indicates whether the function is active or not and what the set slicing percentage is:

*1 flash + PAUSE = function NOT ACTIVE
the pump operates at 100%*

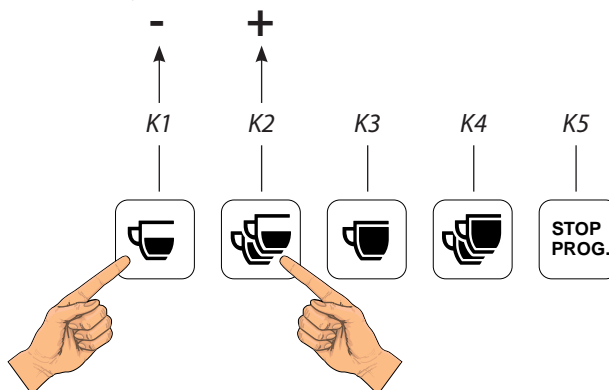
*2 FLASHES+ PAUSE = function ACTIVE
the pump is ACTIVE at 100% + Pre-infusion of 5 secs*

*3 FLASHES+ PAUSE = function ACTIVE
the pump is ACTIVE at 95% + Pre-infusion of 5 secs*

*4 FLASHES+ PAUSE = function ACTIVE
the pump is ACTIVE at 93% + Pre-infusion of 5 secs*

*5 FLASHES+ PAUSE = function ACTIVE
the pump is ACTIVE at 90% + Pre-infusion of 5 secs*

- to modify the setting, press button K1 to reduce the percentage and button K2 to increase it;



Example 1:

To switch:
from **NON ACTIVE FUNCTION** to
PUMP ACTIVE at 93% → Press K2 3 times

Example 2:

To switch:
from **pump ACTIVE** at 90% to
NOT ACTIVE FUNCTION → Press K1 4 times

- to save the modifications and to quit the stand-by status, press button K5).



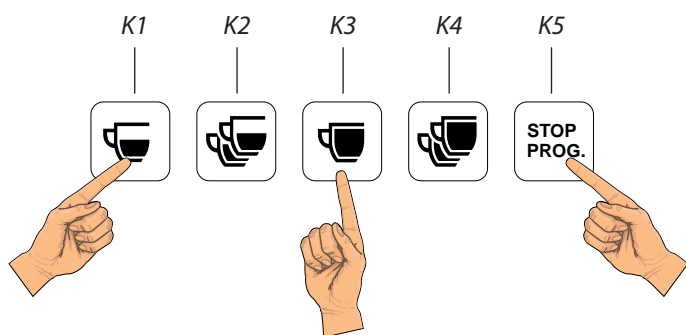
The setting range varies from 90% to "function not active". Different values between the two coffee units can be programmed. To modify the parameter on GR2, use buttons K1 and K2 relative to this unit.

The slicing at 93% and 90%, if set, is carried out exclusively for the single coffee doses. In case of Double coffee selections these are limited to 95%.

7.6 Pre-set values

Use this procedure to reset the factory values both for the doses relative to coffee beverages, and for the coffee boiler temperature. Proceed as follows:

- Turn the machine off;
- switch the machine back on and, after about 1 second, press and keep down buttons K1, K3 and K5. Release the buttons only after having checked that only LEDK5 is flashing



- turn the machine off and then back on. The following default settings will be active:

SELECTION	VOLUMETRIC COUNTER
K1	110 pulses
K2	150 pulses
K3	220 pulses
K4	300 pulses
Coffee boiler temperature	95°C
Pre-infusion	Not active

8. MAINTENANCE AND CLEANING

8.1 Safety precautions

Perform only the maintenance and cleaning operations described in this manual.

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

All maintenance operations must be carried out after disconnecting the power supply, water supply, and after the complete cooling of the machine.

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

The following residual risks are present during the maintenance and cleaning of the machine and cannot be eliminated:

	<p>Electrical hazard: Maintenance and cleaning operations must comply with the behavioural safety regulations:</p> <ul style="list-style-type: none"> do not carry out the maintenance with the machine in operation; do not soak the machine in water; do not spill liquids on the machine or use water jets for cleaning; do not to allow the maintenance and cleaning operations to be carried out by children or incapacitated people; do not perform maintenance and cleaning operations other than those described in this manual.
	<p>Danger of high temperature: During the cleaning operations, pay attention to the parts of the machine that can become overheated.</p> <ul style="list-style-type: none"> avoid contact with the dispensing group and water spouts; do not expose your hands or other body parts to the coffee, steam, or hot water spouts.

8.2 DPI characteristics

During maintenance and cleaning of the machine, the following PPE are required:

	Mandatory use of protective gloves
--	------------------------------------

8.3 Maintenance

8.3.1 Scheduled maintenance

Perform the following maintenance according to the specified frequency.

In case of intensive use of the machine the checks need to be performed in smaller intervals.

Component	Type of intervention	Quarterly	Yearly
GAUGE	Check the boiler pressure, which must be between 0.8 and 1.4 bar. Periodically check water pressure during coffee dispensing: check the pressure indicated on the gauge, which must be between 8 and 9 bar inclusive.	X	
FILTERS AND FILTER CARRIERS	Check the condition of the filters. Check for any damage on the edge of the filters and check whether any coffee grounds settle in the coffee cup and replace filters and/or filter holders, as required.	X	
DISPENSING UNIT	Replace the perforated disk and under cup seal, as indicated in par. "8.3.3 Dispensing group maintenance" on page 35.	X	
WATER FILTER	Replace the water filter cartridge at the frequency indicated by the manufacturer. The presence of scale in the hydraulic system indicates the need for its replacement.	X	
WATER SOFTENER	Carry out the regeneration as indicated by the Manufacturer. Use care in areas where the water is very hard. It will be necessary to regenerate at more frequent intervals, especially in case of intensive use of the machine.	X	
GRINDER-DOSER	Check the ground coffee dose (about 7 grams per time); check the degree of grinding. The grinders must always have sharp cutting edges. Their deterioration is indicated by the presence of too much powder in the grounds. We recommend calling the Qualified Technician to replace the flat grinders after every 400/500 kg of coffee. For conical grinders, replace every 800/900 kg.	X	
BOILER	Replace the water in the boiler as indicated in par. "6.8 Water replacement" on page 30 .	X	
BOILER	Replace the heating element in case of failure or malfunctioning. Do not replace the heating element with a more powerful one. Before making any changes, contact the Manufacturer. If the thermostat of the heating element is triggered, reset it by pressing the central button of the thermostat. However, before trying to operate the machine, verify the causes of the problem. Remove and clean the boiler level probe. Check for any limestone incrustations on the electrical resistor and exchanger. A strong presence of limestone indicates that the water filter has not been replaced, or that the softener has not been regenerated. When replacing any components, always replace the relative gasket as well.		X
SAFETY VALVE SCNR VALVE NEGATIVE PRESSURE VALVE	Check that the safety valves, non-return drain valves, and pressure valves are operating properly, as indicated in par. 8.3.4 - 8.3.5 - 8.3.6. If their replacement becomes necessary due to failure, repeat the check with the new valve installed.		X
HYDRAULIC CIRCUIT	Verify the presence of lime scale deposits in the hydraulic circuit. When replacing any components, always replace the relative gasket as well. A strong presence of limestone in the hydraulic circuit of the machine indicates that the water filter has not been replaced, or that the softener has not been regenerated. Use care in areas where the water is very hard. It will be necessary to replace the water filter more frequently, or regenerate the softener at more frequent intervals, especially in case of intensive use of the machine.		X
DRAIN	Check for any leaks on the hydraulic and sewer connections. Check the state of the drain pan and the drain connection tube.		X
DISPENSING UNIT	Check state of efficiency of the dispensing unit solenoid valve.		X
WATER AND STEAM NOZZLES	Check the condition of the nozzles and clean the sprayer.		X
DISPENSER	Check and clean the volumetric dispenser by removing any oxidation from the terminals.		X

Component	Type of intervention	Quarterly	Yearly
PRESSURE GAUGE AND PRESSURE SWITCH	Check for proper operation of the pressure gauge and pressure switch.		X
ELECTRIC SYSTEM	Check and clean the volumetric dispenser by removing any oxidation from the terminals.		X
MOTOR PUMP VIBRATOR PUMP	Visually inspect the machine wires conditions		X



On the internet site of the Manufacturer all original spare parts are available. The Manufacturer may provide the list of spare parts recommended for the maintenance of the various versions of the machine.

8.3.2 Maintenance after a short period of inactivity

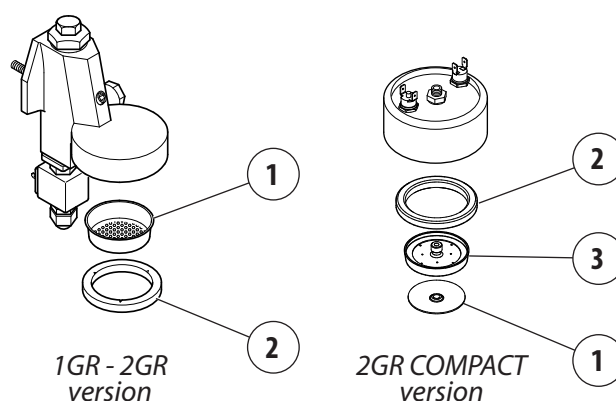
"Short machine downtime" refers to a period of time exceeding one working week.

In case of machine reactivation after this period, the Qualified Technician has to change the whole water contained in the hydraulic circuits, as indicated in par. "6.8 Water replacement" on page 30.

Furthermore, the operations envisaged for the scheduled maintenance must be carried out, see previous paragraph.

8.3.3 Dispensing group maintenance

- Every 3 months, replace strainer (1) and saucer gasket (2) of dispensing unit 1GR and 2GR. On dispensing unit 2GR COMPACT remove strainer carrier (3) and replace strainer (1) and saucer gasket (2). The use of original spares only is recommended.



8.3.4 Checking of the SAFETY VALVE

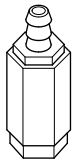
The Pressure relief valve is one of the main components for the machine safety. Therefore, it is important to carry out the following checks:

First check (only for 2GR version):

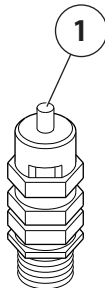
- Remove the top grill of the machine;
- use pliers to pull the pin of the valve (1) upwards;
- if the pin does not move, it probably means the valve is encrusted with limestone and must be replaced.

Second check:

- Turn the machine off;
- block the pressure switch contacts;
- switch the machine back on and wait for the boiler pressure to rise; verify the correct tripping at 1.9 bar of the maximum pressure valve.



1GR-2GR COMPACT
version



2GR
version



If a malfunction is noticed, replace the valve. Use only the Manufacturer's original Safety Valves.

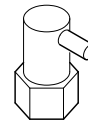
8.3.5 Checking of the VACUUM RELIEVING VALVE

First check (only for 2GR version):

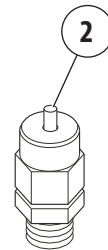
- Remove the top grill of the machine;
- use pliers to push the pin (2) downwards;
- if the pin does not move, it probably means the valve is encrusted with limestone and must be replaced.

Second check:

- Turn the machine off;
- open the steam taps and discharge all the pressure from the boiler; switch the machine back on and check that the valve closes properly.



1GR-2GR COMPACT
version



2GR
version

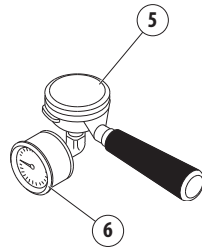
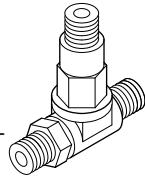


If a malfunction is noticed, replace the valve.

8.3.6 Checking the DISCHARGE-CHECK VALVE

The discharge-check valve is an important component for the correct to machine operation. Perform the check as follows:

- Activate the dispensing groups for about 30 seconds;
- attach a filter holder (5) with a gauge (available on request) to the dispensing group;
- activate the dispensing unit by checking, through the gauge (6), the pressure increase up to 8-9 bar;
- check the increase in the pressure due to the expansion of the heated water up to a value of approximately 12 bar: reaching this value confirms proper operation of the valve, as well as of the gaskets and solenoid valves seal;
- deactivate the deliveries;
- repeat the check on the other dispensing units.



If a malfunction is noticed, replace the valve.

8.4 Malfunctions and solutions

Problem	Cause	Action
MACHINE LACKING POWER	<ul style="list-style-type: none"> The general switch is in the "OFF" position. The machine switch is defective. The mains power supply switch is in the OFF position. The wiring is defective. 	<ul style="list-style-type: none"> Place the main switch in the "ON" position. Replace the main switch. Place the main switch in the ON position. Check for any faulty connections.
NO WATER IN BOILER	<ul style="list-style-type: none"> The tap of the water mains is closed / the machine's internal tank is empty. The pump filter is clogged. The motor pump/vibrator pump is disconnected or jammed. The water filling solenoid valve is defective. The water inlet solenoid valve filter is clogged. 	<ul style="list-style-type: none"> Open the water mains tap / Fill the internal tank with water. Replace the pump filter. Check the motor pump / vibrator pump. Replace the water filling solenoid valve. Clean or replace the filter of the solenoid valve.
TOO MUCH WATER IN THE BOILER	<ul style="list-style-type: none"> The solenoid valve of the automatic level device is defective. The heat exchanger is punctured. The level probe is out of order (clogged by lime scale). 	<ul style="list-style-type: none"> Replace the solenoid valve of the automatic level device. Replace the boiler. Replace the level probe.
WATER LEAKS FROM THE MACHINE	<ul style="list-style-type: none"> The pad does not drain. The drain pipe is broken or detached or the water flow is obstructed. Hydraulic leaks in the hydraulic circuit. 	<ul style="list-style-type: none"> Check the sewer drain. Check and restore the connection of the drain pipe to the pad. Restore the hydraulic seal by replacing the pipe, the gasket or the fitting as necessary.
WATER LEAKS FROM THE DISPENSING GROUP	<ul style="list-style-type: none"> Worn under cup seal. 	<ul style="list-style-type: none"> Replace the seal.
THE GAUGE INDICATES A NON-CONFORMING PRESSURE	<ul style="list-style-type: none"> The pressure gauge is faulty. Incorrect pressure switch calibration. Incorrect motor pump calibration. 	<ul style="list-style-type: none"> Replace the gauge. Adjust the calibration of the pressure switch Adjust the calibration of the motor pump.
THE SAFETY VALVE STARTED OPERATING	<ul style="list-style-type: none"> The pressure switch is faulty. The electronic control is faulty. 	<ul style="list-style-type: none"> Check the correct operation of the pressure switch. Replace the safety valve only with original spare part. Check for proper operation of the electronic system.
STEAM DOES NOT COME OUT OF NOZZLES	<ul style="list-style-type: none"> The machine is off. The electrical heating element is faulty. The temperature probe is faulty. The nozzle sprayer is clogged. Safety thermostat deactivated or faulty. 	<ul style="list-style-type: none"> Turn on the machine. Replace the boiler's electrical heating element. Replace the temperature probe. Clean the steam nozzle sprayer. Reactivate the thermostat or replace it.
STEAM MIXED WITH WATER COMES OUT OF THE STEAM SPOUTS	<ul style="list-style-type: none"> The level of the boiler is too high due to an incorrect location of the level probe in the boiler or due to the presence of limestone. Leakage from boiler filling solenoid valve. 	<ul style="list-style-type: none"> Check the status of the level probe: check if it is positioned correctly and check for any surface lime scale. Clean and replace the filling solenoid valve.
NO COFFEE DISPENSING	<ul style="list-style-type: none"> No water supply. The group solenoid valve is faulty. The pump is jammed. The group solenoid valve is clogged or dirty. The group filter is clogged. The volumetric dosing device is blocked. The inlet and outlet taps of the dispenser are closed. 	<ul style="list-style-type: none"> Check for the presence of water in the main / Fill the internal tank. Replace the group solenoid valve. Replace the pump. Clean or replace the solenoid valve. Clean or replace the filter. Check/replace the dosing device. Open the taps.
WET COFFEE GROUNDS	<ul style="list-style-type: none"> The group solenoid valve drain is clogged. The dispensing unit is too cold. Coffee is ground too finely. There's not enough ground coffee. 	<ul style="list-style-type: none"> Clean the group drain. Wait for unit to heat up completely. Adjust the grinding of the coffee. Increase the amount of ground coffee.

Problem	Cause	Action
<p>GROUNDS IN CUP</p>	<ul style="list-style-type: none"> • The filter holder is dirty. • The filter holes are worn. • The coffee is not ground evenly. • The seal under the pad is worn. • The pressure in the pump is too high. 	<ul style="list-style-type: none"> • Clean the filter holder. • Replace the filter. • Replace the grinders. • Replace the seal. • Adjust the pressure of the pump.
<p>THE CUP IS DIRTY WITH SPLASHED COFFEE</p>	<ul style="list-style-type: none"> • Presence of steam bubbles in the dispensing. • Air pockets in the hydraulic circuit. • Coffee is ground too coarsely. 	<ul style="list-style-type: none"> • Reduce the water temperature. • Check the cause and eliminate the problem. • Adjust the grinding suitably.
<p>COFFEE IS TOO COLD</p>	<ul style="list-style-type: none"> • The electrical heating element of the coffee boiler is faulty. • The wiring is faulty. • Lime scale on the exchangers and/or heating element. • The pressure switch contacts are oxidized. • The heating element protection thermostat intervened. • Switch machine to the OFF position. • Limestone has reduced water circulation in the hydraulic circuit. • The dispensing group is cold. 	<ul style="list-style-type: none"> • Replace the boiler's electrical heating element. • Check for any faulty connections. • Clean the machine. • Clean the contacts or replace the pressure switch. • Reset the heating element protection. • Turn the machine switch to the ON position. • Clean the connections of the exchanger, and clean or replace the two circulation tubes. • Eliminate air pockets in the hydraulic circuit in the following manner: <ul style="list-style-type: none"> - disconnect the pump from the power supply; - close the water tap of the softener; - perform a dry dispensing run for a few minutes; - connect the pump to the power supply; - open the water outlet tap of the softener; - dispense until water comes out; - wait a few minutes for heating.
<p>COFFEE IS TOO HOT</p>	<ul style="list-style-type: none"> • Boiler temperature is too high. • The flow reducer of the group is not suitable. 	<ul style="list-style-type: none"> • Reduce the pressure in the boiler using the appropriate screw on the pressure switch. • Replace the reducer with one of a smaller diameter.
<p>COFFEE IS BEING DISPENSED TOO QUICKLY</p>	<ul style="list-style-type: none"> • Coffee is ground too coarsely. • The diameter of the injector is too large. • The dose of ground coffee is too small. 	<ul style="list-style-type: none"> • Adjust the grinding of the coffee. • Replace the injector with one of a smaller diameter. • Check the amount (grams) of the ground coffee you are using.
<p>COFFEE IS BEING DISPENSED TOO SLOWLY</p>	<ul style="list-style-type: none"> • Coffee is ground too finely. • The injector is clogged. • The dispensing group is clogged. • The filter holder is dirty. 	<ul style="list-style-type: none"> • Adjust the grinding of the coffee. • Replace the injector. • Check and clean the dispensing group. • Clean and replace the filters, if necessary.
<p>SHUTDOWN OF THE ELECTRONIC SYSTEM</p>	<ul style="list-style-type: none"> • The control unit fuse is burned out. • One of the volumetric dispenser's contacts is grounded. 	<ul style="list-style-type: none"> • Replace the main fuse. • Check the connection of the volumetric dispenser.

Problem	Cause	Action
<p>COFFEE DISPENSING IS NOT CONFORMANT</p> <p>THE COFFEE DOSE IS NOT MET</p> <p>THE LED OF THE DOSE BUTTON FLASHES</p>	<ul style="list-style-type: none"> The connection of the volumetric dosing device is faulty. The connection of the electronic control unit is faulty. The connector of the volumetric dosing device has humidity on it. The volumetric dispenser is faulty: the LED does not flash during dispensing. The coffee is ground too finely: there is not sufficient water flow in the dispenser. The non-return valve loses pressure (the dose is too small). The expansion valves lose pressure (the dose is too small). Water leakage from the group solenoid valve during coffee dispensing or when in stand-by. The volumetric dosing device is partially obstructed. 	<ul style="list-style-type: none"> Check for proper connection of the volumetric dosing device connector. Check for proper connection of the 8/10-pin connector of the electronic control unit. Remove the connector of the volumetric dosing device and thoroughly dry the contacts. Replace the heads of the volumetric dosing device or replace the dosing device. Adjust the grinding suitably and check the grinders, if necessary. Check and replace the non-return valve, if necessary. Check and replace the expansion valves, if necessary. Clean and replace the solenoid valve, if necessary. Clean or replace the volumetric dosing device.
<p>ALL LEDS OF ALL THE PUSH BUTTON PANELS ARE FLASHING</p>	<p>After a few minutes, automatic water filling is stopped.</p> <ul style="list-style-type: none"> The device is in time-out. Water missing in mains / The internal tank is empty. The tap for the automatic level device is closed. Some of the hoses in the circuit are clogged. The probe and/or the mass are disconnected. 	<ul style="list-style-type: none"> Turn the machine off and then back on. Open the water main tap / Fill the internal tank with water. Open the automatic level device tap. Check and replace the defective hoses. Check and restore the connections.

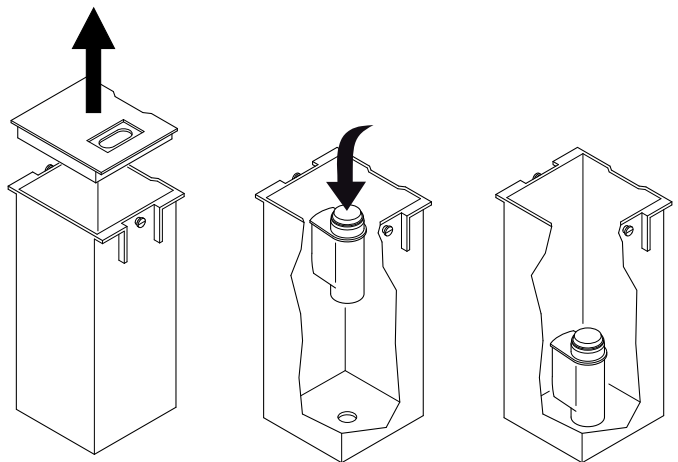


If the problem cannot be solved, turn the machine off and contact the Manufacturer.

8.5 Water filter for the internal tank

Should the tank be fitted with a filter, replace it observing the frequency suggested by the manufacturer, according to the following instructions:

- Extract the tank from its housing;
- remove the spent filter;
- carefully wash the tank with lukewarm water;
- install the new filter.
- fill the tank with potable water;
- place the tank correctly in place.



8.6 Water filter for the water mains

8.6.1 Water hardness detection

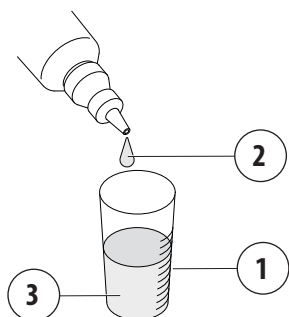
As part of the filter maintenance, it is advisable to test the water beforehand.

To identify the carbonate hardness of the water use the kit specified as follows:

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

1 DROP = 1°dKH

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



8.6.2 By-pass configuration

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

Water hardness 9°dKH

↓

By-pass 2 adjustment

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



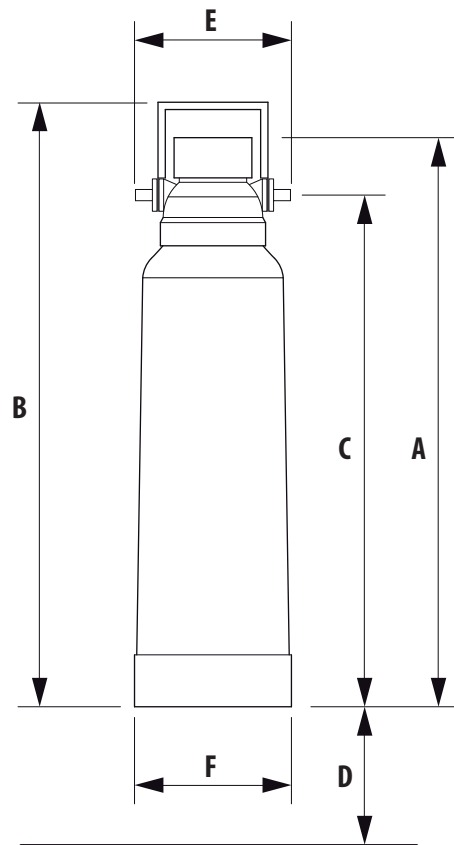
The values indicated in the table may vary, depending on the filter cartridge type used.

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



8.6.3 Technical data

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



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



For the water filter use and maintenance, follow the indications by the manufacturer.

8.7 Regeneration of the water softener

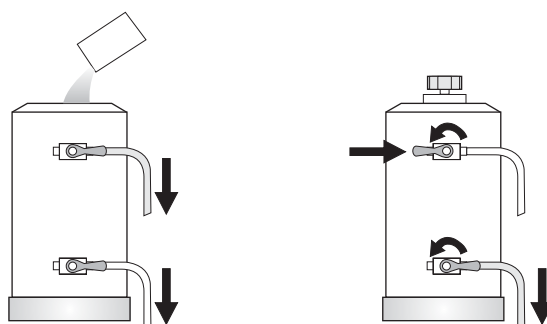
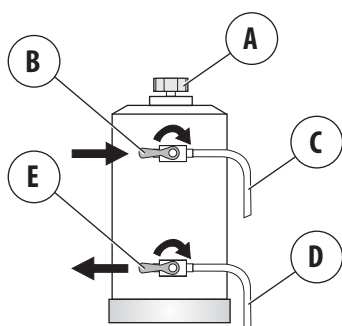
It is very important to regenerate the softener within the established times. The regeneration is to be done regularly every 15 days. Nevertheless, in places where the water is very hard, regeneration will have to take place at shorter intervals. The same is true of places in which there is a large consumption of hot water for tea or other uses:

Proceed as follows:

- Move levers **(B)** and **(E)** from left to right;
- remove the lid by loosening the knob **(A)**;
- release enough water through the pipe **(C)** to make room for the amount of salt as required depending on the model (see table);
- clean any salt or resin residue from the gasket located on the lid;
- put the cover back in place by screwing the knob **(A)** down securely and move the lever **(B)** back from right to left;
- let the salt water drain from the little hose **(D)** until the water is no longer salty (about 30-60 minutes). The salt allows the accumulated mineral salts to be released;
- switch the lever **(E)** from right to left back to its initial position.



The build-up of lime scale in the hydraulic circuit and boiler inhibit thermal exchange, thus compromising proper operation of the machine. Heavy incrustations in the boiler may cause long machine shutdowns and in any case invalidate any guarantee, because this symptom indicates that regeneration has been neglected



In order to keep the softener, and hence the machine, in perfect operating condition, it is necessary to 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 the hardness of the water in the various units of measure:

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

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

Amount of softened water based on hardness

°f	30	40	60	80	salt
°d	16.5	22	33	44	
mg CaCO ₃	30	40	60	80	
8 litres	1000 litres	900 litres	700 litres	500 litres	1.0 kg
12 litres	1500 litres	1350 litres	1050 litres	750 litres	1.5 kg
16 litres	2100 litres	1800 litres	1400 litres	1000 litres	2.0 kg

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



For the softener use and regeneration, follow the indications by the manufacturer.

8.8 Cleaning operations

8.8.1 General instructions

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 continuously, then cleaning should be performed more frequently.



Do not use alkaline detergents, solvents, alcohol or aggressive substances. The used products/detergents have to be suitable for this purpose and must not corrode the materials of the hydraulic circuits.

Do not use abrasive detergents which may scratch the surface of the body.

Always use perfectly clean and hygienic cloths for cleaning.

For washing the filters, filter holders and all machine components, use detergents supplied by the Manufacturer or specific products for cleaning professional coffee machines.

Cleaning	Daily	Weekly
Body and Grilles: Clean the panels of the body with a cloth dampened in lukewarm water. Remove the drip tray and cup holder grille and wash with hot water.	X	
Filter and filter holder: Wash the filters and filter holders daily and weekly, as indicated in par. 8.8.2 on page 44.	X	X
Steam spout: Keep the nozzle clean at all times using a cloth dampened in lukewarm water. Check and clean the ends of the steam spout, clearing the dispensing holes with a small needle. Weekly wash as described in par. 8.8.5 on page 45.	X	X
Dispensing unit: Wash the dispensing unit following the instructions of par. 8.8.3 on page 44. Wash the components weekly as described in par. 8.8.4 on page 45.	X	X
Grinder-doser and Hopper: Clean the hopper and the dispenser inside and out with a cloth dampened with warm water. When finished, dry all parts thoroughly.		X
Internal tank (if envisaged): Clean the tank as instructed in par. 8.8.6 on page 45.		X

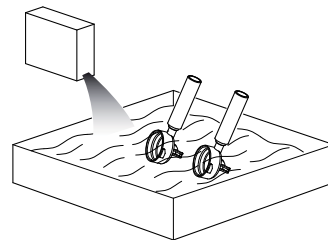
8.8.2 Filter and filter-holder cleaning

Daily:

- Soak the filter and filter-holder in hot water so that the fatty coffee deposits can dissolve;
- rinse with lukewarm water.

Weekly:

- Use a screwdriver to detach the filter from the filter holder;
- soak the filter and filter holder in warm water and cleaning agent for 10 minutes.
- rinse with lukewarm water.



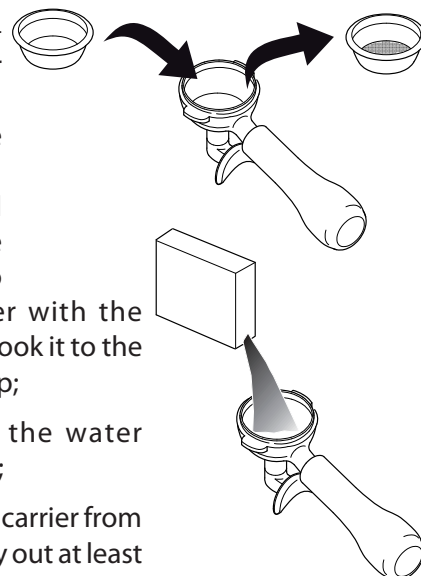
Caution: Only immerse the filter holder cup, avoid soaking the handle in water.

The detergent must be diluted in cold water in the doses indicated on the package (see manufacturer).

8.8.3 Washing the dispensing unit

Wash the dispensing units daily as indicated hereunder:

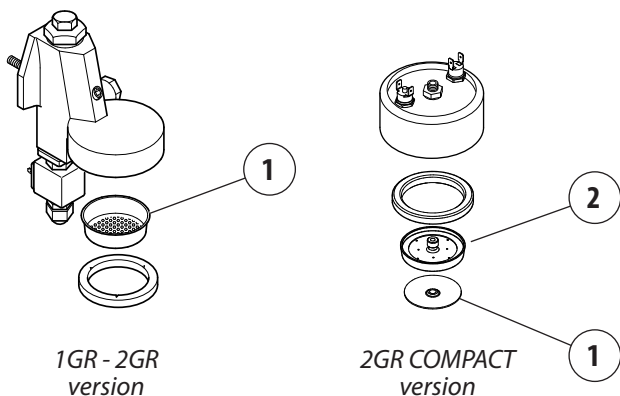
- Remove the filter from the filter holder and fit a blind filter (see spare parts);
- pour the special detergent (see spare parts) into the filter holder with the blind filter and hook it to the dispensing group;
- dispense until the water comes out clean;
- remove the filter carrier from the unit and carry out at least one dispensing cycle in order to eliminate any detergent residues;
- remove the blind filter from the filter carrier replacing it with the original.



8.8.4 Cleaning of strainer and strainer carrier

Carry out the cleaning of the strainer and strainer carrier on a weekly basis, with the following steps:

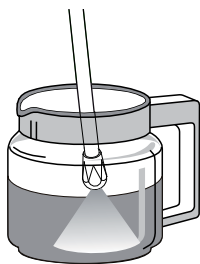
- remove strainer (1) and strainer carrier (2) (2GR COMPACT version);
- carefully wash the two components with hot water;
- return the strainer and strainer carrier to the original position.



8.8.5 Cleaning of the steam spout

Daily perform the cleaning of the steam nozzle in the following way:

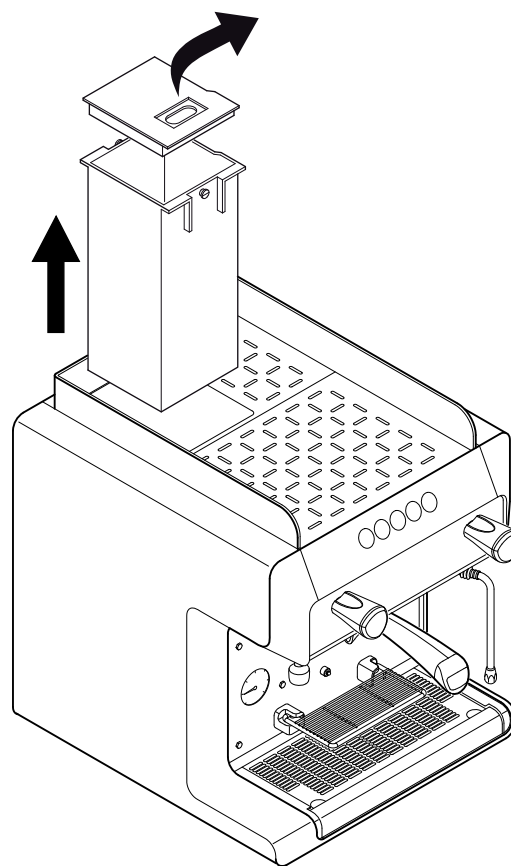
- Immerse the spout in a jug with water and a specific detergent according to manufacturer's instructions;
- heat the solution with the steam of the spout;
- let the spout cool off keeping it immersed in the solution for at least 5 minutes to allow the detergent to rise inside the spout by cooling effect;
- repeat the operation 2 or 3 times until milk is delivered.



8.8.6 Cleaning of the internal tank (if fitted)

Clean the tank weekly in the following way:

- Extract the tank from its housing;
- remove the top cover;
- empty any water from the tank;
- carefully wash the tank internally and externally with hot water;
- re-position the tank in place;
- fill the tank exclusively with cold drinkable water (never use other types of fluids or fizzy beverages);
- replace the cover on the tank.



If necessary, make use of the cleaning to replace the filter, as instructed in par. "8.5 Water filter for the internal tank" on page 40.

9. SPARE PARTS

For the replacement of components and/or parts of the machine, refer to the official documentation provided by the Manufacturer.



All original spares are available by consulting the Manufacturer's internet website. The Manufacturer may provide the list of spare parts recommended for the maintenance of the various versions of the machine.



In case of use of parts that are not original, the safety of the machine cannot be guaranteed. The Manufacturer reserves the right to void the machine warranty.

10. DECOMMISSIONING

In this case, the machine must be disconnected from the electrical and hydraulic mains and all internal circuits must be emptied of residual water.

To connect the machine after this period, follow the procedures for the commissioning of the machine.

11. DISMANTLING

To dismantle the machine follow in reverse the steps carried out when installing it, see chap. "5. INSTALLATION" on page 19.

All the disassembled components must be sorted out by material so as to facilitate the later disposal at authorized collection centres, as indicated in chap. "12. DISPOSAL" on page 46.

12. DISPOSAL

12.1 Information for disposal

Only for the European Union and the European Economic Area.



This symbol indicates that the product cannot be disposed of with household waste, according to the WEEE Directive (2012/19/EC), the Battery Directive (2006/66/EC) and/or the national laws implementing those Directives.

The product should be handed over to a designated collection point, for example the dealer when purchasing a new similar product, or an authorized collection site for recycling waste electrical and electronic equipment (WEEE), as well as batteries and accumulators. Improper handling of this type of waste can have negative consequences on the environment and human health, due to potentially hazardous substances that are generally associated with this kind of waste.

Your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources and avoid incurring the administrative sanctions provided by law. For more information about recycling this product, contact your local authorities, the body responsible for waste collection, an authorized dealer, or your household waste disposal service.

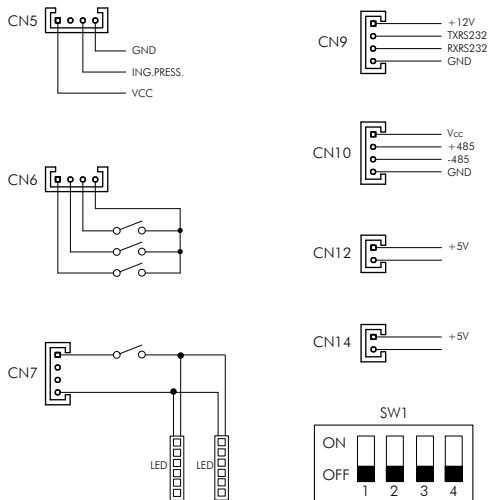
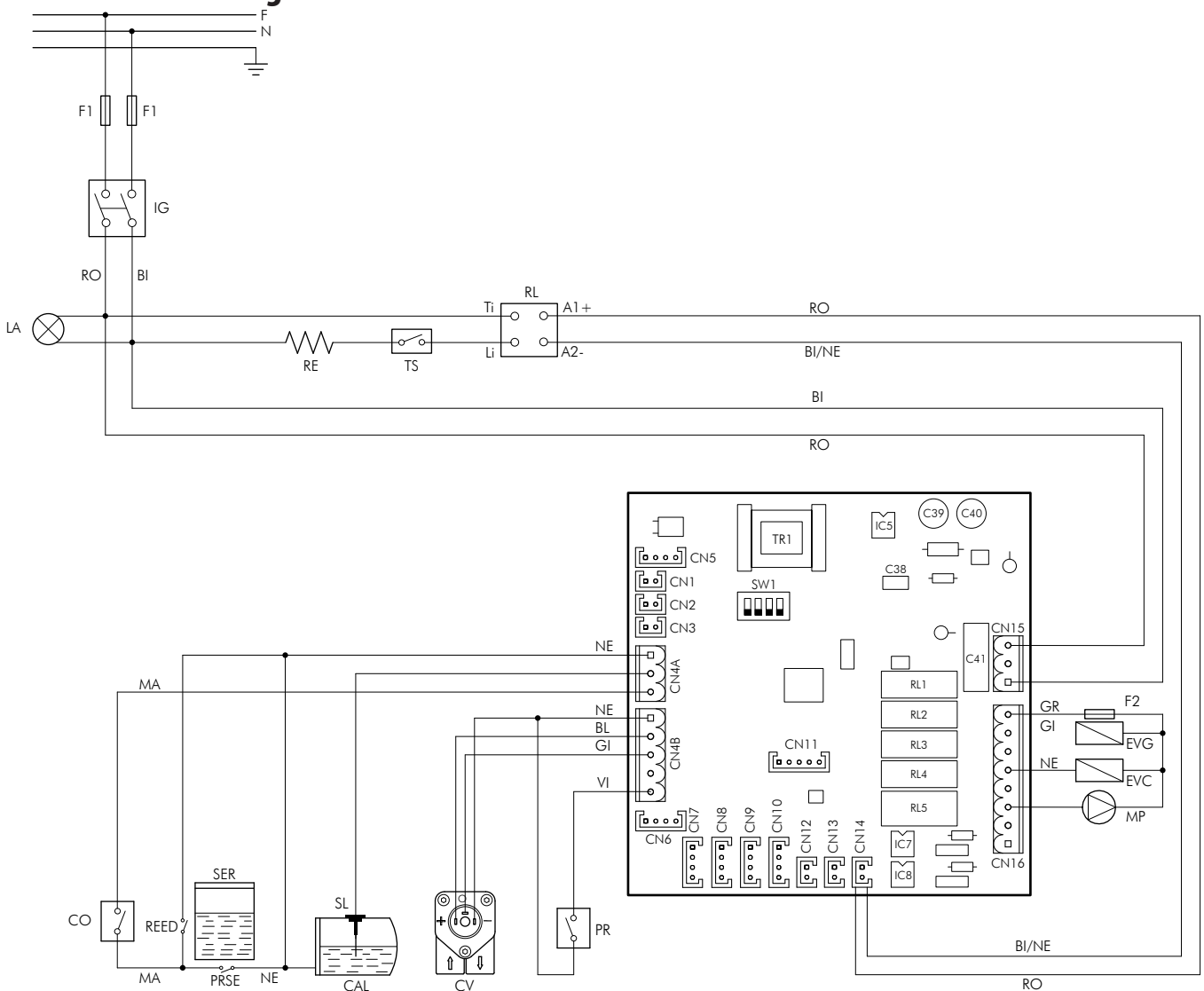
12.2 Environmental information

Inside the machine there is a button lithium battery required for the storage of the data that is placed in the electronic card.

Dispose of the battery in accordance with current local regulations.

13. ELECTRICAL DIAGRAM

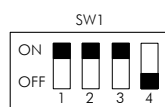
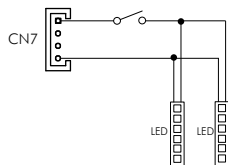
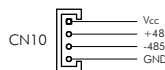
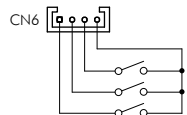
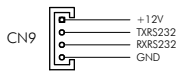
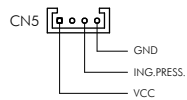
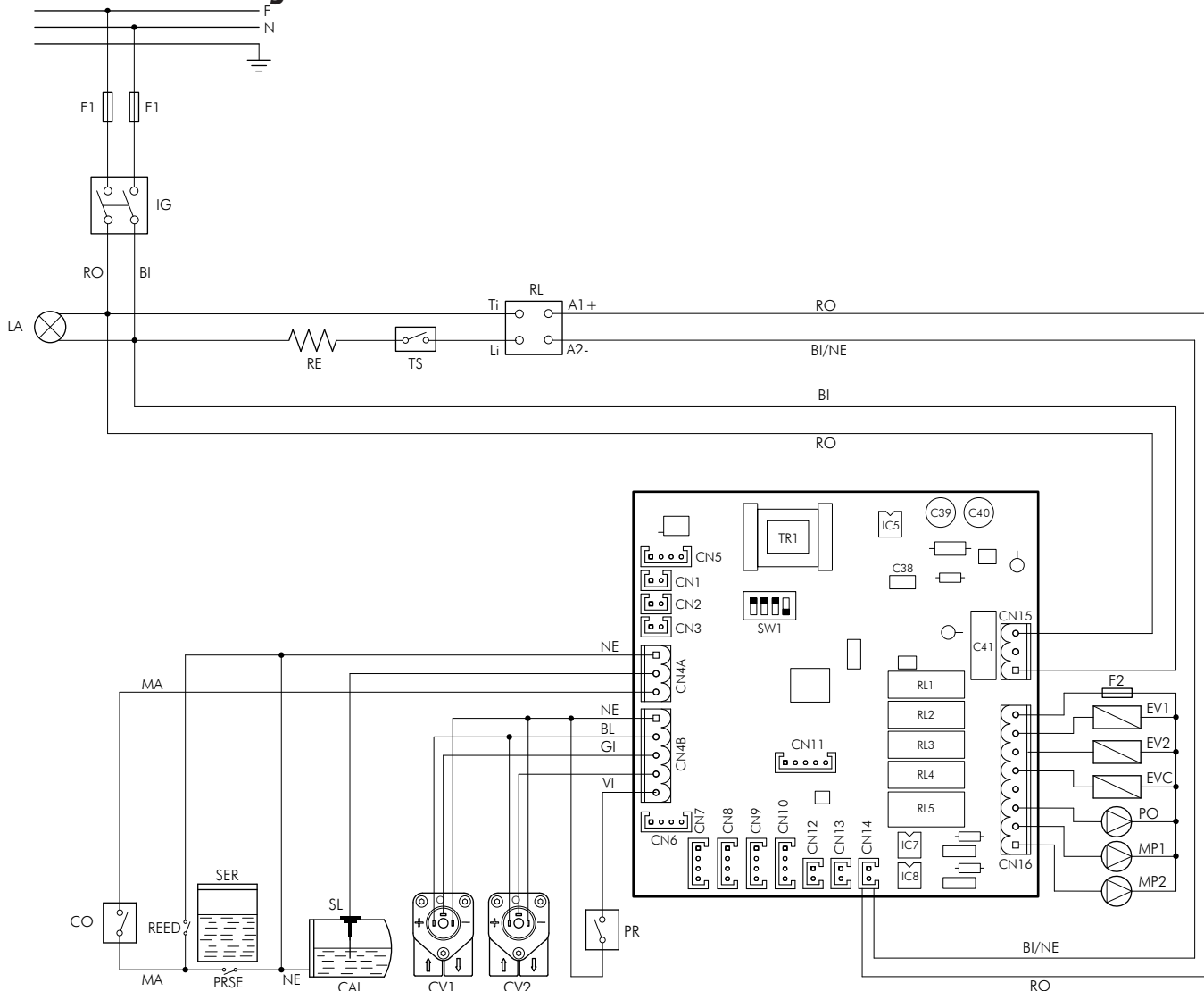
13.1 Electrical diagram 1GR



BI	White
BI/NE	White/Black
BL	Blue
CAL	Boiler
CN1	Level led
CN2	NTC 1
CN3	Auxiliary
CN5	Auxiliary
CN6	Auxiliary
CN7	Button + led
CN8	Auxiliary
CN9	RS232 connection
CN10	Keypad connection
CN12	Auxiliary
CN13	Auxiliary
CN14	Boiler heating command
CN15	Board power supply
CN16	Services outputs
CO	Tank/water mains selector
CV	Volumetric counter

EVC	Boiler filling solenoid valve
EVG	Dispensing solenoid valve
F1	Power supply fuse (15A)
F2	Fuse (6.3A)
GR	Grey
GI	Yellow
IG	ON switch
LA	Indicator light
MA	Brown
MP	Motor pump
NE	Black
PR	Steam boiler pressure switch
RE	Boiler heating element
RL	Static relay
RO	Red
SER	Tank
SL	Boiler level probe
SW1	Configuration micro-switch
TR1	Switching
TS	Safety thermostat
VI	Violet

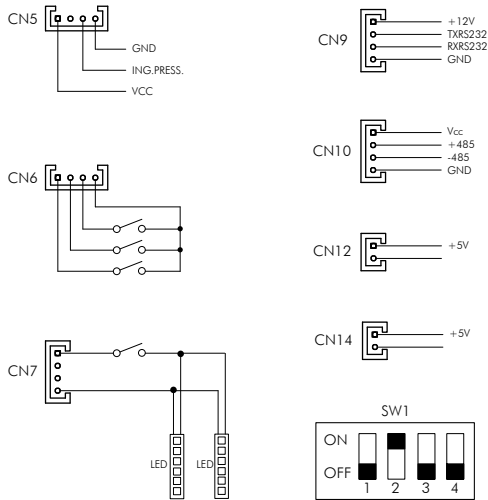
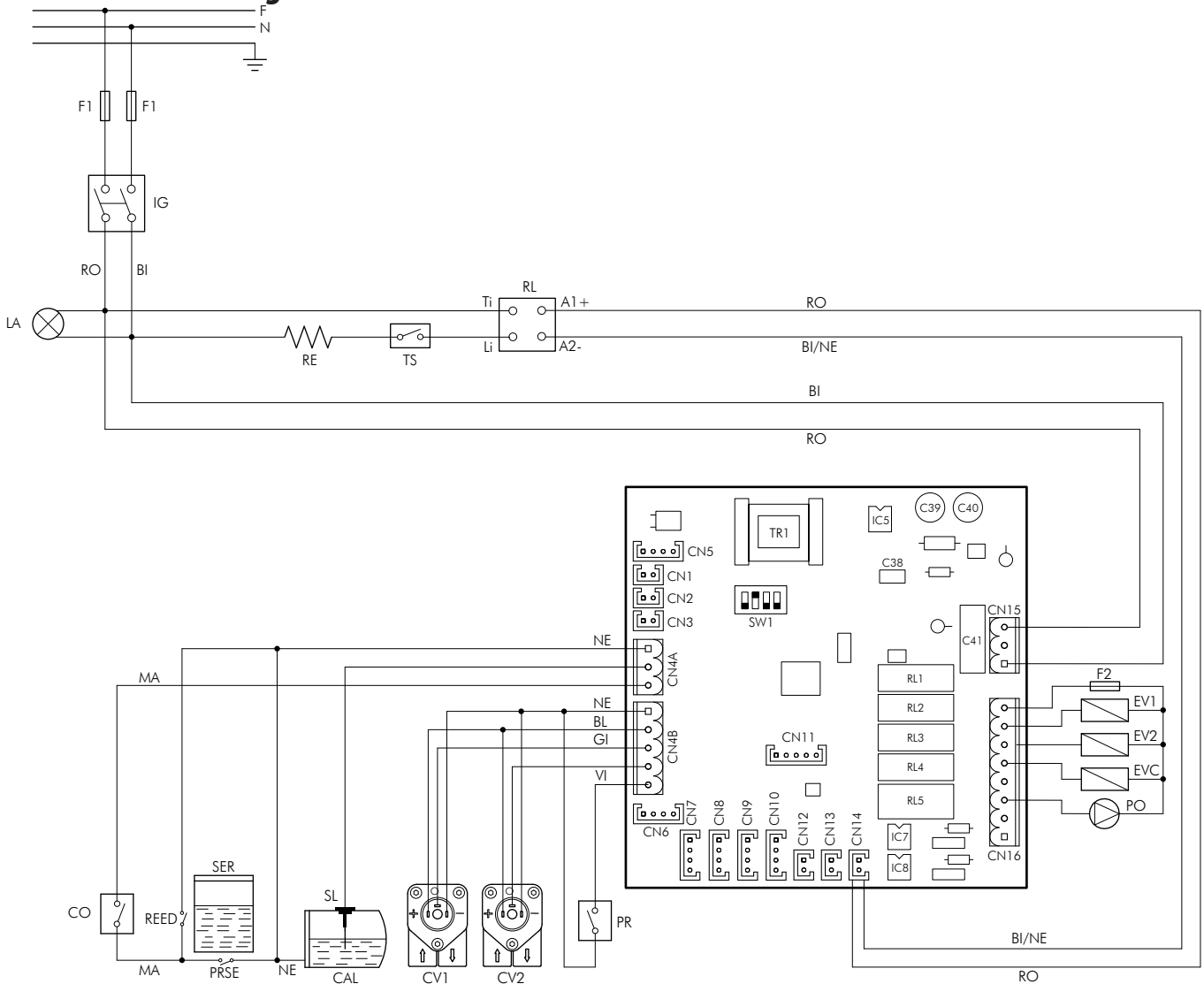
13.2 Electrical diagram 2GR COMPACT



BI	White
BI/NE	White/Black
BL	Blue
CAL	Boiler
CN1	Level led
CN2	NTC 1
CN3	Auxiliary
CN5	Auxiliary
CN6	Auxiliary
CN7	Button + Led GR1
CN8	Button + Led GR2
CN9	RS232 connection
CN10	Keypad connection
CN11	Microproc. programming
CN12	Auxiliary
CN13	Auxiliary
CN14	Boiler heating command
CN15	Board power supply
CN16	Services outputs
CO	Tank/water mains selector
CV1	Volumetric counter GR1
CV2	Volumetric counter GR2
EV1	Solenoid valve GR1

EV2	Solenoid valve GR2
EVC	Boiler filling solenoid valve
F1	Power supply fuse (15A)
F2	Fuse (6.3A)
GR	Grey
GI	Yellow
IG	ON switch
LA	Indicator light
MA	Brown
MP1	Motor pump GR1
MP2	Motor pump GR2
NE	Black
PO	Pump
PR	Steam boiler pressure switch
RE	Boiler heating element
RL	Static relay
RO	Red
SER	Tank
SL	Boiler level probe
SW1	Configuration micro-switch
TR1	Switching
TS	Safety thermostat
VI	Violet

13.3 Electrical diagram 2GR

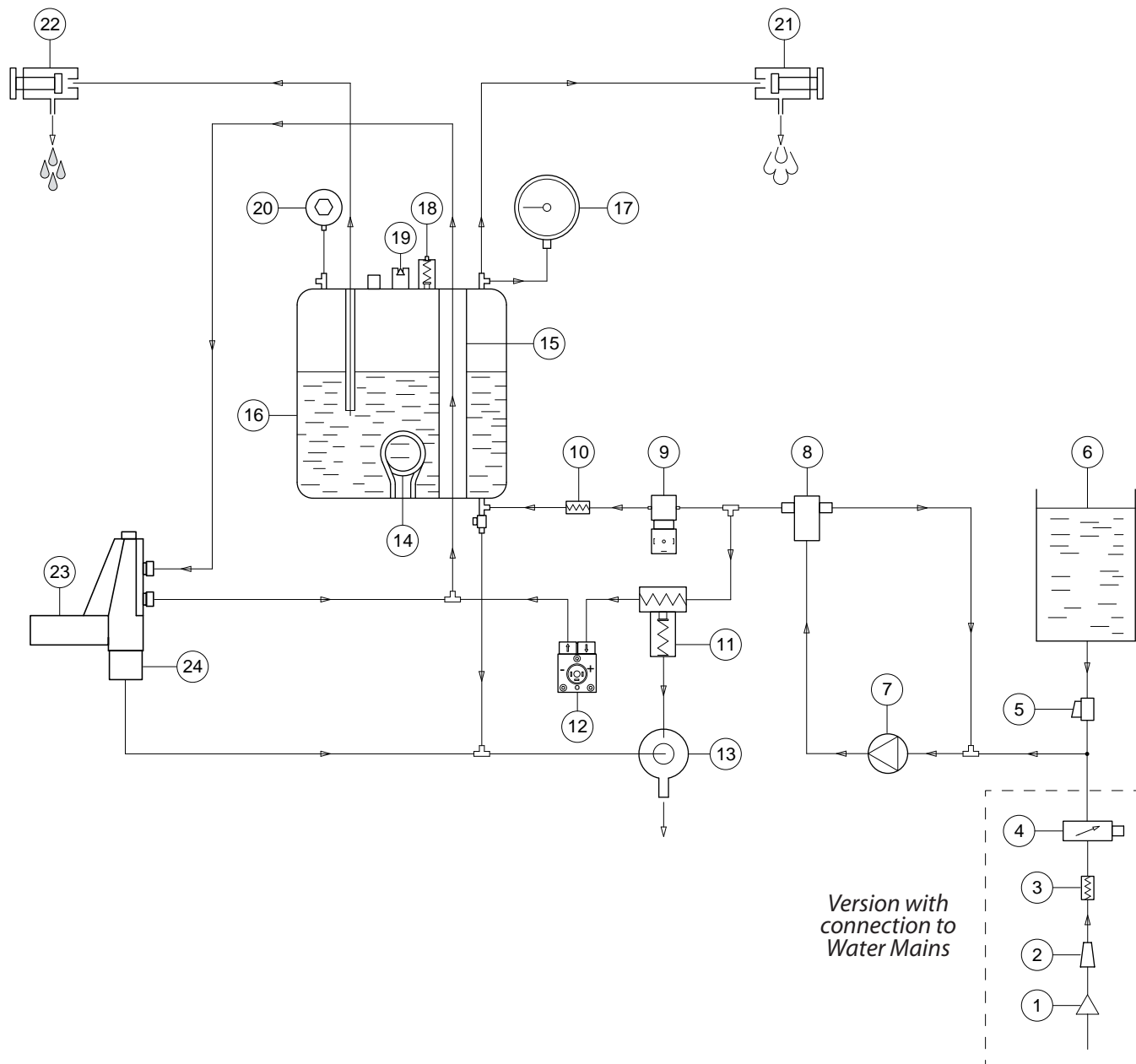


BI	White
BI/NE	White/Black
BL	Blue
CAL	Boiler
CN1	Level led
CN2	NTC 1
CN3	Auxiliary
CN5	Auxiliary
CN6	Auxiliary
CN7	Button + Led GR1
CN8	Button + Led GR2
CN9	RS232 connection
CN10	Keypad connection
CN11	Microproc. programming
CN12	Auxiliary
CN13	Auxiliary
CN14	Boiler heating command
CN15	Board power supply
CN16	Services outputs
CO	Tank/water mains selector
CV1	Volumetric counter GR1
CV2	Volumetric counter GR2

EV1	Solenoid valve GR1
EV2	Solenoid valve GR2
EVC	Boiler filling solenoid valve
F1	Power supply fuse (15A)
F2	Fuse (6.3A)
GR	Grey
GI	Yellow
IG	ON switch
LA	Indicator light
MA	Brown
NE	Black
PO	Pump
PR	Steam boiler pressure switch
RE	Boiler heating element
RL	Static relay
RO	Red
SER	Tank
SL	Boiler level probe
SW1	Configuration micro-switch
TR1	Switching
TS	Safety thermostat
VI	Violet

14. HYDRAULIC DIAGRAM

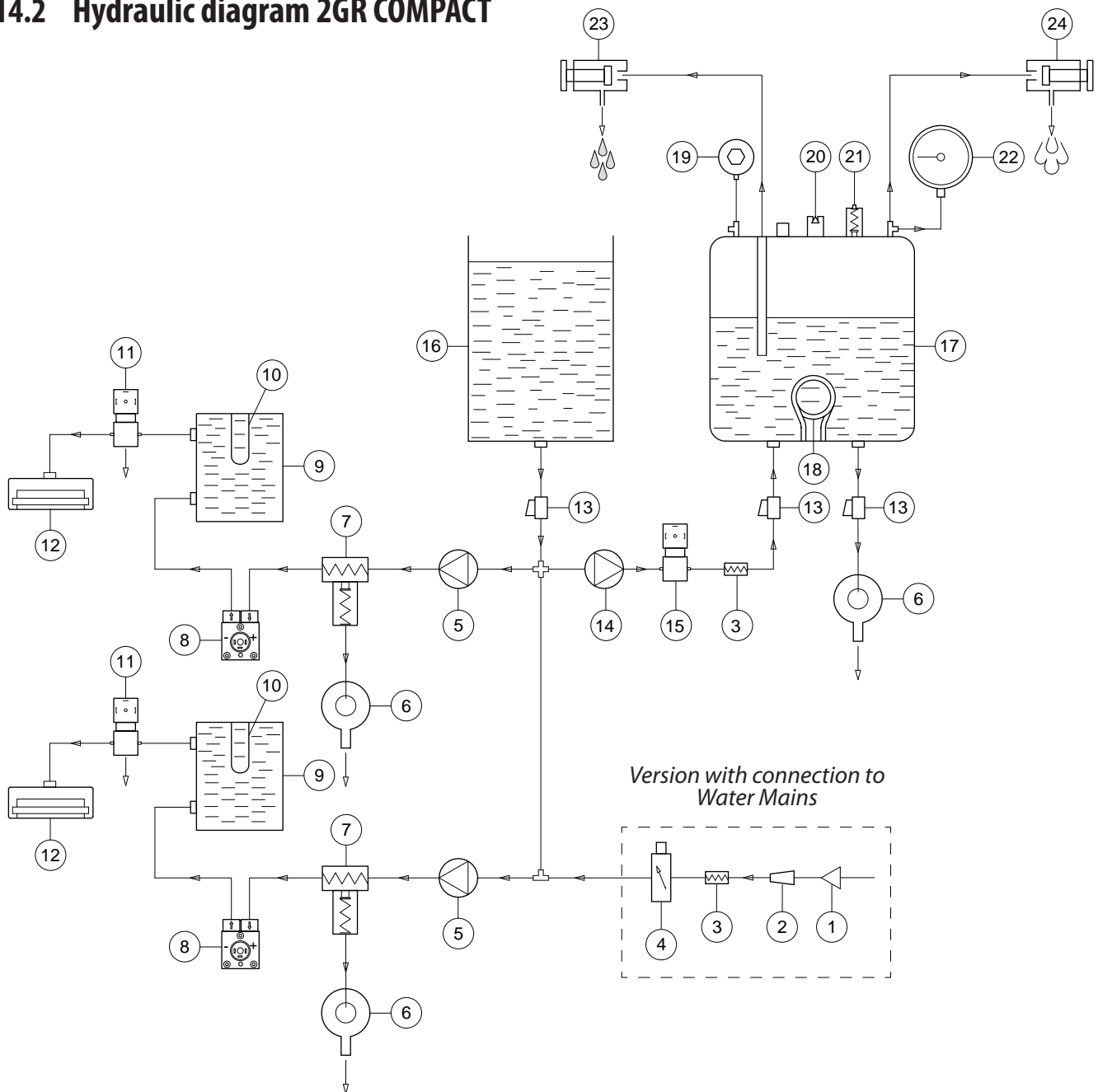
14.1 Hydraulic diagram 1GR



1	Water mains inlet
2	Water inlet filter
3	Non-return valve
4	Pressure reducer
5	Tap
6	Water tank
7	Pump
8	By-pass valve
9	Boiler solenoid valve
10	Non-return valve
11	SCNR valve
12	Volumetric doser unit (SAES version)

13	Discharge tub
14	Boiler heating element
15	Coffee exchanger
16	Boiler
17	Pressure gauge
18	Safety valve
19	Vacuum relieving valve
20	Pressure switch
21	Steam cock
22	Hot water tap
23	Dispensing group
24	Group solenoid valve

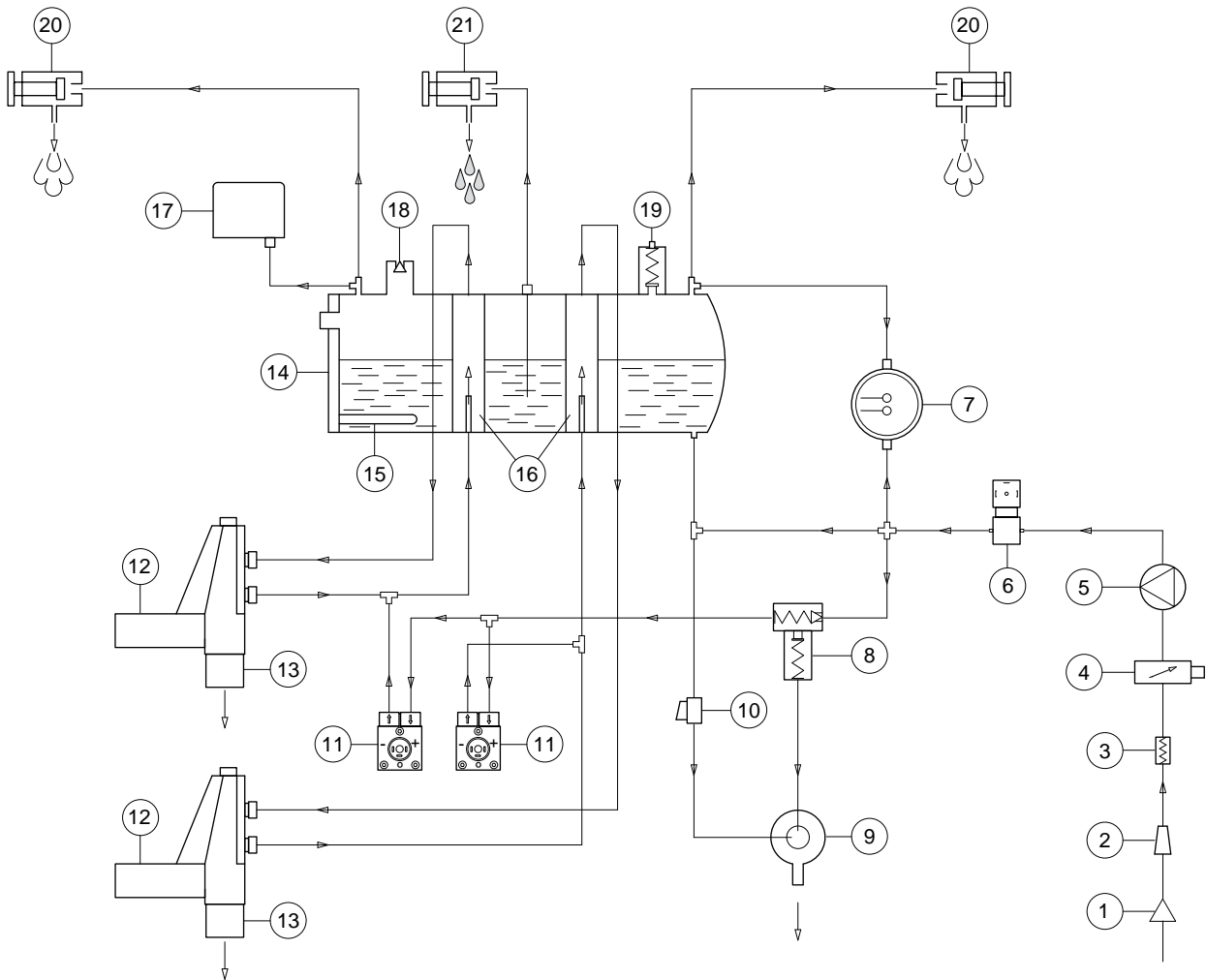
14.2 Hydraulic diagram 2GR COMPACT



1	Water mains inlet
2	Water inlet filter
3	Non-return valve
4	Pressure reducer
5	Unit pump
6	Discharge tub
7	SCNR valve
8	Volumetric dosing device
9	Coffee boiler
10	Coffee boiler resistor
11	Group solenoid valve
12	Dispensing group

13	Tap
14	Boiler services pump
15	Services boiler solenoid valve
16	Water tank
17	Services boiler
18	Services boiler heating element
19	Pressure switch
20	Vacuum relieving valve
21	Safety valve
22	Pressure gauge
23	Hot water tap
24	Steam cock

14.3 Hydraulic diagram 2GR



1	Water mains inlet
2	Water inlet filter
3	Non-return valve
4	Pressure reducer
5	Pump
6	Boiler solenoid valve
7	Pressure gauge
8	SCNR valve
9	Discharge tub
10	Tap
11	Volumetric dosing device

12	Dispensing group
13	Group solenoid valve
14	Boiler
15	Boiler heating element
16	Heat exchanger
17	Pressure switch
18	Vacuum relieving valve
19	Safety valve
20	Steam cock
21	Hot water tap

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