



rhFS1

Installation and Maintenance Manual

Translation of the original instructions – Type: FS01



.buttons16



.touch21,5"

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Please print this manual only if necessary environmental protection is our common interest.

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1. General information

1.1. Intended use



This machine is intended for professional use only, the correct operation of the vending machine occurs indoors under normal environmental conditions and at a room temperature between 5°C and 35°C, the relative humidity below 80%.

The vending machine is intended to dispense prepared drinks only, by mixing food products with water (espresso coffee by infusion) to use food products declared by the manufacturer suitable for vending in open canisters, any other use is improper and it may cause accidents.

Drinks are dispensed in plastic cups, dispensed drinks shall be consumed immediately and in no case preserved for later consumption; however, it is recommended to use products specific for vending machines only.



Never use the machine for purposes other than its intended use; it is absolutely forbidden to make any technical change.

All the instructions on how to maintain, clean and sanitise the vending machine shall be strictly observed and followed by the operator who shall pay great attention to treatment, preservation and replacement of the products as scheduled and make sure that they perfectly comply with the standards for preserving and dispensing foodstuffs.

1.2. Storage of the manual

This user manual forms an integral part of the machine, and it shall be kept intact and at the user's disposal for the whole life cycle of the machine.



This manual is intended for the installer and the maintenance man, it shall be kept carefully and accompany the vending machine at each property transfer during its life.

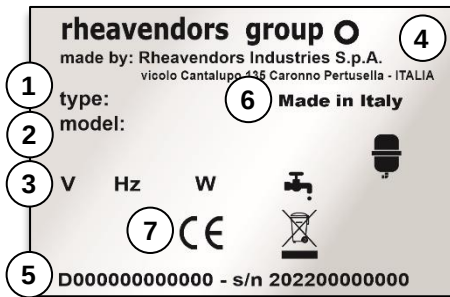
For a better storage handle it carefully, with clean hands and never place it on dirty surfaces. No part shall be removed, torn or arbitrarily modified, the manual is to be filed in an environment protected against humidity and heat and in the proximity of the machine of reference.



A copy of this manual and the complete manual may be requested from the contact details of the following point.

1.3. Serial number label

Silver serial number labels are applied inside and outside the cabinet of the vending machine, they supply the following information:



1	Type of the machine
2	Model of the vending machine and configuration
3	Rating plate with power supply voltage and hydraulic supply
4	Manufacturer
5	Vending machine code - production date and serial number
6	Country of manufacture
7	Certifications

for a quick identification of the vending machine and for the best support please supply the data on the serial number label and make them known.



Rheavendors Services S.p.A. is ready to supply support and information on this vending machine:

Telephone: +39 02 966551

e-mail: rheavendors@rheavendors.com

for the references of our partners all over the world visit the site: www.rheavendors.com

1.4. Conformity mark



DECLARATION OF CONFORMITY

Rheavendors Industries S.p.A. declares that this drink vending machine has been designed and manufactured in compliance with the following directives and regulations; including subsequent updates and amendments.

DIRECTIVES : 2014/30/EU, 2014/35/EU, 2006/42/EC, 2012/19/EU, 2011/65/EC, (EU)2015/863, 2014/53/EU*

(*) The machine could be equipped with radio modules approved by Rheavendors Industries SpA; on the label, some letters identify the type of radio technologies (as shown below)

REGULATIONS : 1907/2006/EC, 1935/2004/EC

MANUFACTURER : Rheavendors Industries S.p.A. - Via Valleggio, 2/bis - 22100 Como (CO) - Italy

w	r	m	L
Wi-Fi	RFID	GSM module	LTE module

The radio parameters are:

WI-FI : 2402-2480 MHz, max power 20 dBm

RFID : 13.56MHz, radiated H-field (maximum field strength) H-field @ 10m =-31.5 dBμA/m

GSM module : 33 dBm 900 MHz; 30 dBm 1800 MHz.

LTE module : LTE-FDD: B1/ B3/B7/B20: Class 3 (23 dBm ±2 dB)
WCDMA: B1/B8: Class 3 (24 dBm +1/-3 dB)
GSM: B8 (900 MHz) Class 4 (33 dBm ±2 dB) and B3 (1800MHz) Class 1 (30 dBm ±2 dB)

2. General safety instructions

2.1. Symbols of danger

Before using the machine, carefully read this information that helps you behave properly and guarantees a safe use; the following pages use the symbols listed here below, whose meaning is of attention:

**GENERAL**

if the text is highlighted by this symbol, it is recommended to pay special attention to the performance of the procedures described; if not carefully performed on safe conditions, they can be source of general danger.

**HIGH VOLTAGE**

if not properly performed, the actions marked by this symbol may expose to accidental contacts with live parts.

**DANGEROUS TEMPERATURE**

if not properly performed, the actions marked by this symbol may expose to accidental contacts with high-temperature parts.

**MOVING PARTS**

if not properly performed, the actions marked by this symbol may expose to accidental contacts with moving parts.

**CRUSHING**

if not properly carried out, the actions marked by this symbol may expose to a risk of crushing; the same symbols are placed inside the vending machine to indicate the parts on which to act with the utmost caution.

**NON-IONIZING RADIATION (versions with induction heating)**

people with a cardiac pacemaker or similar medical devices shall not be in the proximity of the machine when it is dispensing a drink and it is free of any external metal protection; if case of doubt, to avoid any danger, consult a physician before using this vending machine.

**SERVICE KEY IN USE**

the symbol recommends the utmost attention during the actions described; the use of the service key activating all machine functions when the door is open is only reserved to the technical operators who know the operation of the vending machine, who are aware of its potential risks and who make sure they are operating on totally safe conditions; the use of the service key shall be strictly limited to the time necessary to perform the actions requiring the use thereof; users shall be informed of the prohibition on using and approaching the vending machine.

**WEIGHT**

the symbol reminds the user to consider the machine weight carefully for handling and placing it definitively.

**WATER SUPPLY**

it marks the parts duly requiring caution in case of leakage, if connected with the hydraulic network.

**SUPPORT SURFACE**

it reminds the user to install the machine on a support surface, the max. inclination of which is 2°.

2.2. Safety standards for maintenance

Pay special attention to the chapters and notes highlighted by the symbols of alert and strictly observe the rules concerning the technicians' safety.

The vending machine may be used by children who are at least 8 years old and by people having reduced physical, sensory or mental capacities or not having all necessary experience and knowledge, provided that they are supervised or instructed on how to use the machine safely and they have well understood the dangers related thereto; children must be supervised and prevented from playing with the vending machine. Cleaning and servicing should not be performed by children unless they are supervised by someone.

Should you find out a water leak, the presence of smoke, ... immediately detach the vending machine from the electric and hydraulic network, never try to restore its operation and apply to skilled technicians.

The machine shall be installed according to the laws in force in the Country of operation; pay special attention to the rules about the machines directly connected with the hydraulic network.

The inclination of the support surface of the vending machine shall not exceed 2°.

The normal operation conditions of the vending machine shall be:

Temperature: 5°C ÷ 35°C and maximum relative humidity: 80 %

If the hydraulic connection tube is not supplied with the machine or in case of replacement, the connection must be carried out only with a set of mobile joints (old ones shall never be reused), whose material is type-approved for food use according to the laws in force in the Country of operation and capable of supporting the operating pressure of the hydraulic network, in compliance with IEC/EN 61770.

The user is forbidden to approach the vending machine during maintenance and service operations.

The area where to carry out maintenance and service operations shall be properly signalled.

Never remove protections, never override safety devices and never modify the machine or its components.

The vending machine is not suitable for installation in environments where you use water jets for cleaning (e.g. large kitchens, canteens) or steam jets or sparks (e.g. machine shops).

For cleaning at regular intervals refer to the chapter about maintenance.

2.3. Residual risks



A residual risk is understood as a potential danger that cannot be eliminated and persists despite all precautions in use since it is related to the intrinsic features of the product, and it also includes non-identifiable risks.

The actions and behaviours listed here below are intended to reduce residual risks and you shall always adopt them when interacting with the machine.



Wear clothes that can properly avoid any accident (never wear rings, chains, clothes with laces or excessively long sleeves, ...).



Never repair or carry out any technical action if you have not been properly trained.



Signal that a technical action is in progress on the machine (barriers against approach, signs, ...), carry it out quickly without leaving the station.



Install the machine in a sheltered, illuminated and well-ventilated environment; keep it clean and never place tools or any other object on it; never install it outdoors or, anyway, never expose it to atmospheric agents.



Make sure it can be neither reached by water sprays, vapours or sparks nor hit by objects that might damage it.



Carefully consider the machine weight and stability during the installation and in the final working position.



Supply the machine within voltage, temperature, pressure and water limits and provide for an effective earthing.



Even if detached from supplies, the machine may contain pressurised hot water at a high temperature.



Never detach hydraulic and electric supplies when they are active and/or the vending machine is in use.

3. General guarantee conditions

These conditions regulate Rheavendors Industries S.p.A.'s obligations with reference to guarantee and repair; any other term or condition, either verbal or written, is not applicable, including those in the purchaser's purchase orders, if not explicitly accepted and signed by Rheavendors Industries S.p.A.; if the guarantee terms here below should be held not to be valid and/or lawful in the Country where the product is sold, they will not be effective whereas all the other clauses will remain valid and applicable.

The mechanical and electronic components of the machine are guaranteed for twelve months, starting from the sales date certified by the fiscal receipt.

The guarantee shall be understood as the replacement of any part of the machine that – at the manufacturer's unquestionable discretion – should prove to be originally defective due to manufacturing defects; the cost of sending the manufacturer machines, defective pieces and spare parts will be totally charged to the user's account; the manufacturer reserves the right to use new or reconditioned components for repair; if replaced, original components will be guaranteed for 12 months; the parts replaced under guarantee will become Rheavendors Services S.p.A's property (request "Form PO 19.01/2b" Materials under guarantee – Authorisation to return).

In case of irreparable failure or if a failure of the same origin is repeated, the manufacturer may – at its unquestionable discretion – replace the machine with another one, the model of which is either the same or an equivalent one; the guarantee of the new machine will be extended up to the original term of guarantee of the replaced machine.

All the parts that should prove to be defective due to negligence or carelessness (non-observance of the instructions for the operation of the machine), incorrect installation or maintenance by unauthorised personnel, transport damage or any circumstance – anyway – not due to the manufacturing defects of the machine are not covered by guarantee; the installation and connection with supply plants as well as the maintenance operations mentioned by the installation manual are also excluded from any performance under guarantee; moreover, the guarantee will not cover payment systems either; whether installed on the machine or supplied as an accessory, they are subject to their manufacturer's guarantee whereas Rheavendors Industries S.p.A. will just act as a broker.

All changes made to the machine and not agreed with the manufacturer in writing will involve the immediate termination of the guarantee period and anyway fall under the Customer's total responsibility.

The guarantee is excluded in all cases of improper use of the machine.

Rheavendors Industries S.p.A. will disclaim all responsibility for any damage that may be directly or indirectly caused to people, animals or things as a result of:

improper use of the vending machine; incorrect installation; improper energy or water supply; serious maintenance deficiency; actions or changes not explicitly authorised; use of non original spare parts.

In case of failure, Rheavendors Industries S.p.A. is obliged neither to compensate any economic damage due to a forced stop of the machine nor to extend the guarantee period.

If the machine should be transferred to a centre designated by the manufacturer for overhaul or repair, the relative transportation risks and costs will be charged to the user's account; the freight charges of machines, defective pieces and spare parts are always understood as charged to the user's account.

4. Technical data of the vending machine

DIMENSIONS

Height	1840 mm
Width	630 mm
Depth	720 mm
Depth with open door	1260 mm

NET WEIGHT

Instant machine:	± 150 kg
Espresso machine:	± 170 kg

SUPPLIES

Hydraulic:	water inlet with 3/8" Male Gas-fittings
Hydraulic pressure range	0,1-1MPa
Electric espresso Varitherm	3100 W 220-240 Vac 50/60 Hz single-phase
Electric espresso (0,8 litre pressure boiler)	2100 W 220-240 Vac 50/60 Hz single-phase
Electric instant	1700 W 220-240 Vac 50/60 Hz single-phase

SOUND PRESSURE

A-weighted sound pressure level:	Less than 70 dB (A) measured at 1 meter from the surface of the machines and at a height of 1,6 meters from the floor
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MACHINE SAFETY DEVICES

Hydraulic	Water solenoid valve with antiflood sensor
Electric door	Door interlock microswitch
Electric fuses 6.3x32mm	12 A delayed – 230 Vac
Electric fuses 6.3x32mm (Varitherm) Electronic board	16 A fast – 230 Vac
Thermal Klixon on heating devices	Safety thermostat manually resettable
Vibration pump	Thermal protector equipped

GRINDER

Motor	230 Vac
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VARIFLEX ESPRESSO COFFEE BREWER

Motor	30 W – 24 Vdc
Coffee brewer Ø36 mm.	Ground capacity 5 ÷ 9 g
Coffee brewer Ø45 mm.	Ground capacity 8 ÷ 15 g

WATER PUMP

Instant machine	24 Vdc
Espresso machine	230 Vac

PRODUCT MOTORS

Motor	24 Vdc
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MIXER MOTORS

Motor	24 Vdc
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SUPPLY TOLERANCE VALUES

Total water hardness:	From 10 °f to 25 °f
Water conductivity:	400 µS @ 20 °C
Nominal electric voltage:	+10 % / -15 %
Temperature:	From 5 °C to 32 °C
Relative humidity:	Maximum 80 %

CUPS CAPACITY

Cups dispenser Ø70 - 5 columns	Mono turret	n° 700
Cups dispenser Ø73 - 5 columns	Mono turret	n° 670
Cups dispenser Ø70 - 4 columns	Double turret	n° 450
Cups dispenser Ø73 - 4 columns	Double turret	n° 430
Cups dispenser Ø80 - 4 columns	Double turret	n° 400

STIRRERS DISPENSER CAPACITY

Stirrer lenght 89 – 104 - 115 mm	Max n° 500
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INTERNAL SERVICE SOCKET

Electrical supply and maximum load:	230 Vac – 100 W
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4.1. Product canisters

In according to the machine configuration:

Canister 55	Width 55 mm	Height 470 mm	Canister 67	Width 67 mm	Height 470 mm
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The tests carried out by Rheavendors use instant products and coffee beans suitable for vending purposes.



Rheavendors Services S.p.A. is ready to supply support and information to carry out operation tests by using products having different characteristics.



Products, cups and stirrers shall comply with what is stated in terms of quantity, dimensions and quality.

USE PRODUCTS SPECIFIC FOR VENDING MACHINES ONLY.

The functionality and reliability of the machine might be influenced by external factors not complying with the standard operation conditions of vending equipment.

4.2. Tolerance values

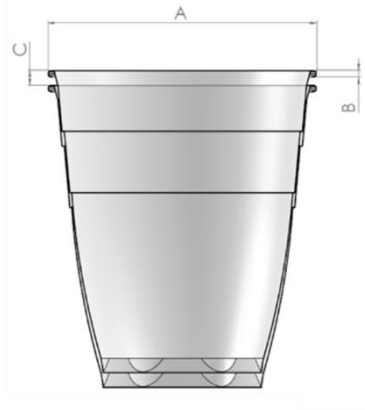


Because of the standard industrial average tolerance values of various components of the machine, such as spirals, motors, gears, millstones, etc., and because of variable parameters, such as ambient temperature, relative humidity and ageing, that may act on products, dosage may vary all over the time and from one machine to the other one; this aspect must be carefully considered, above all in view of operations, such as the cloning of the configuration of recipes, the change of components and products, telemetry and other mathematical calculations depending upon weights.

4.3. Cups specifications:

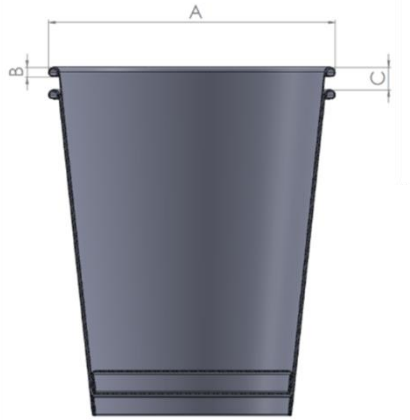
The cups in use shall be specific for use in vending machines, homogeneous in terms of material, dimensions and weight, free of electrostatic charges, compatible with the temperatures of drinks, stacked up in a non-forced way, not deformed; dimensions shall comply with the following tables:

Plastic cups (suitable for machines)



PS Cup	Diameter A [mm]	Brim Thickness B [mm]	Spacing C [mm]
ø 57 mm	$57,5 \pm 0,3$	$2,1 \pm 0,4$	$3,7 \pm 0,3$
ø 70 mm	$70,3 \pm 0,3$	$2,1 \pm 0,5$	$4,1 \pm 0,4$
ø 70 mm (high spacing)	$70,3 \pm 0,3$	$2,1 \pm 0,5$	$4,9 \pm 0,4$

Paper cups (suitable for machine)



	A [mm]	B [mm]	C [mm]
3 oz	$57,5 \pm 0,3$	$2,0 \pm 0,3$	$4,6 \pm 0,3$
5 oz	$70,3 \pm 0,3$	$2,8 \pm 0,3$	$5,5 \pm 0,3$
6 oz	$70,3 \pm 0,3$	$2,4 \pm 0,3$	$5,5 \pm 0,3$
7 oz	$70,3 \pm 0,3$	$2,8 \pm 0,3$	$5,3 \pm 0,3$
7 oz (ø73)	$73,0 \pm 0,3$	$2,3 \pm 0,3$	$5,3 \pm 0,3$
8-9 oz	$80,2 \pm 0,3$	$3,2 \pm 0,3$	$6,1 \pm 0,3$
9 oz (ø73)	$73,0 \pm 0,3$	$2,5 \pm 0,3$	$6,1 \pm 0,3$
12 oz	$80,2 \pm 0,3$	$2,5 \pm 0,3$	$5,6 \pm 0,3$



The tests carried out by Rheavendors use cups suitable for vending purposes, with the features specified by the tables above.

4.1. Configurations

Possible configurations are numerous and they are coded by categories exemplified here below in the abbreviation of the machine (I= instant, E= Espresso, R= Mixers):

Espresso	E6 R3	E7 R3	E7 R4	E8 R4	EE7 R4	EE8 R4			
Instant	I5 R3	I6 R3	I6 R4	I7 R4	I8 R4				

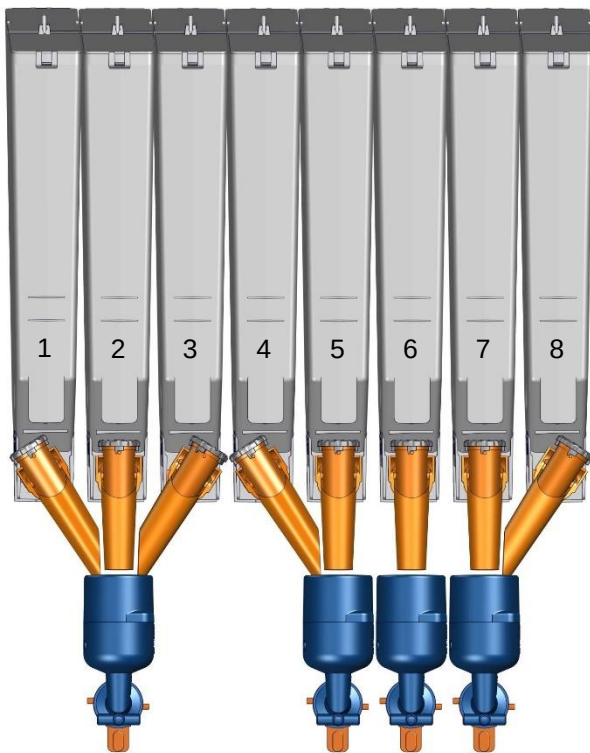
Instant	instant products only	I
Instant and espresso	instant products and coffee beans	E
Instant and two espresso	instant products and two different types of coffee beans:	EE
Product canisters	number of instant products (i.e.7):	7



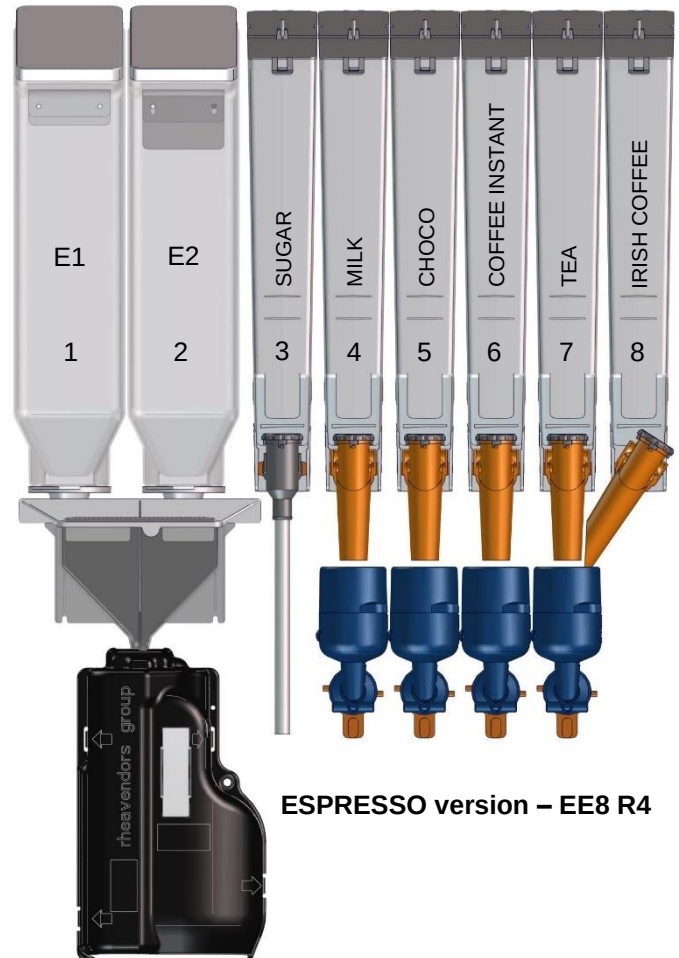
the product canisters, mixing bowls and mixers are numbered progressively from the left to the right, this numbering is used for programming drinks.

Maximum configuration EXAMPLES:

two possible configuration examples are represented here below, the operation principles are any way universal and applicable to all machines:



INSTANT version - I8 R4



ESPRESSO version – EE8 R4

4.2. Accessories



To supplement the vending machines of the range, Rheavendors has got a series of accessories manufactured for these machines, such as autonomous water supply kits, anti-limestone filters, connection with machines dispensing packed products, module for dispensing covers, cooling units, peristaltic pump units for dispensing syrups and water.

5. Installation

5.1. Receipt

Upon receipt of the vending machine make sure that it has not been damaged during transport; if you should find out any damage, immediately make a complaint to the carrier: the package shall be intact, it shall show no sign of alteration, dent, impact, deformation, breakage, wetted area or sign that may indicate that the package has been exposed to rain, frost or heat.



Never connect the vending machine hydraulically and/or electrically if the package has been damaged during transport and /or in case of missing visible parts.

5.2. Handling

The vending machine shall be transported, handled and positioned by skilled and trained personnel; never overturn the machine while transporting it and never forget to observe the orientation arrows on the package; never lift the vending machine with ropes, never drag it, never lay down the vending machine for transport and avoid any shock.

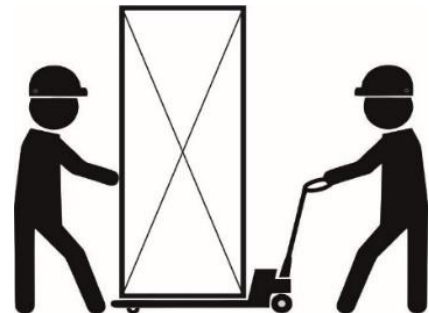


Two operators provided with personal protective equipment (accident-prevention shoes, gloves ...) are required for handling; the vending machine weighs more than 150 kg.

Handle the machine carefully to prevent any accident to the personnel in charge.

The vending machine is supplied on pallets; for handling use a lift truck or a manual transpallet for supporting its weight and handling it at a lower speed to avoid dangerous overturning or swaying motions.

The manufacturing company is not liable for any damage caused by the total or partial non-observance of the a.m. warnings.



5.3. Unpacking

Put the packed vending machine close to its working position, remove the vending machine from its package by cutting the protection film along one of the protection angles, release the vending machine from the pallet by loosening the screws intended to lock the fastening brackets and insert the 4 feet into the threaded holes.

Use the key placed in the dispensing compartment to open the door of the vending machine and remove the adhesive tape and the polystyrene from the internal components (product canisters, cup and stirrer columns...).



The materials forming the package shall be left out of the reach of unauthorised personnel, in particular of children, since they represent a potential source of danger.



The disposal of package components may be carried out by specialised companies only.

5.4. Positioning

When installed in its workplace, the vending machine shall be positioned in a room protected against atmospheric agents: it is not suitable for installation outdoors.

It shall be installed in dry rooms at a temperature between 5° and 35°C and it can't be installed in environments where you use water jets for cleaning (e.g. large kitchens, canteens) or steam jets or sparks (e.g. machine shops).

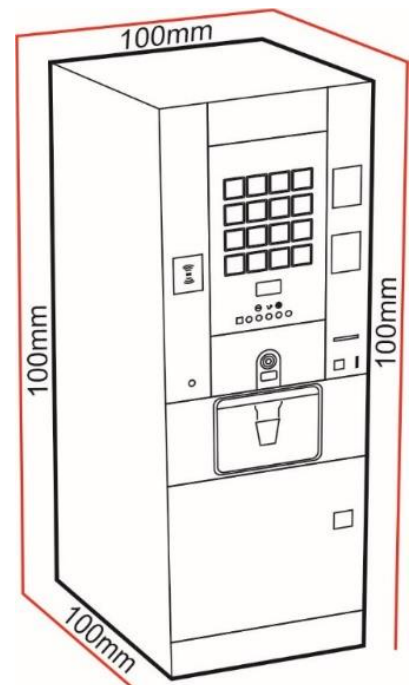
The switch, the socket and the relative plug shall be easily accessible, make sure that the wall socket is suitable for the type and length of the vending machine cable.

Use the cable supplied with the vending machine for connection with the electric network, the machine shall be placed close to a wall so that the rear panel and the external perimeter are min. 100 mm far from the walls for regular ventilation.

The vending machine shall in no case be covered with cloths or structures.



Make sure that the floor can support the weight of the machine, that the machine is placed on a levelled surface by adjusting its feet so that the inclination of the cabinet will not exceed 2° and that the vending machine is perfectly stable.



5.5. Electric connection

The machine is arranged for electric operation at a single-phase voltage of 220-240Vac and it is protected by 12A fuses (16A Varitherm).



Make sure beforehand that the power supply installation can supply the power required by the machine and strictly refer to the rating plate of the vending machine on the serial number label.



Observe the laws on connections with the electric network in force in the Country of operation, **make sure that the power supply cable is neither crashed, nor bent, damaged by any sharp edge or subject to any mechanical load.**

The electric safety of the vending machine is ensured only when it is properly connected with an effective earthing system; professionally qualified personnel shall check this fundamental safety requirement, the intactness of the machine and its compliance with the standards at least once a year.



It is mandatory to install a switch to detach the machine from the electric mains and to install a residual current device operating at less than 30 mA to detaching the machine from the mains and promptly tripping in case of improper electric input to considerably decrease the risks from any short-circuit. connect the machine without using reductions, adapters, multiple sockets or extensions; use the cable supplied with the vending machine for connection with the network only.

The power supply cable is of the type with a non-detachable plug.

If damaged, the power supply cable shall be replaced by the manufacturer or its customer care service or, anyway, by a person similarly qualified so as to prevent any risk by using only cables of the type: H05VV-F 3G 1.5 mm² in cross-section.

5.6. Hydraulic connection



Observe the laws on connections with the hydraulic network in force in the Country of operation.

The water used to supply the vending machine must have all the features suitable for human consumption, let water come out of the hydraulic network until it is clear and free of any trace of dirt.

Make sure that the pressure of the network is the one required for the machine and use a pump or a reducer in case of non-compliance; it is recommended to install a tap detaching the machine from the hydraulic network.

The connection shall be carried out by means of a new tube only, type-approved for food use.



The water inlet solenoid valve is provided with an antiflood device mechanically locking the water inlet because of a malfunction of the solenoid valve or the device intended to control the water level.

To restore normal operation, act as follows:

- Power off the machine.
- Discharge water from the overflow tube and dry up any water leaks.
- Close the tap of the hydraulic network outside the machine.
- Loosen the joint securing the supply tube of the solenoid valve to discharge the residual network pressure and tighten it again.
- Open the tap and power on the machine.

5.7. Water quality

The vending machine shall be supplied with treated or non-treated water, for drinking purposes and suitable for the preparation of food and drinks or for any other home use, supplied through a distribution network and they shall include neither micro-organisms and parasites nor other substances, whose quantities or concentrations may represent a potential danger for human health.

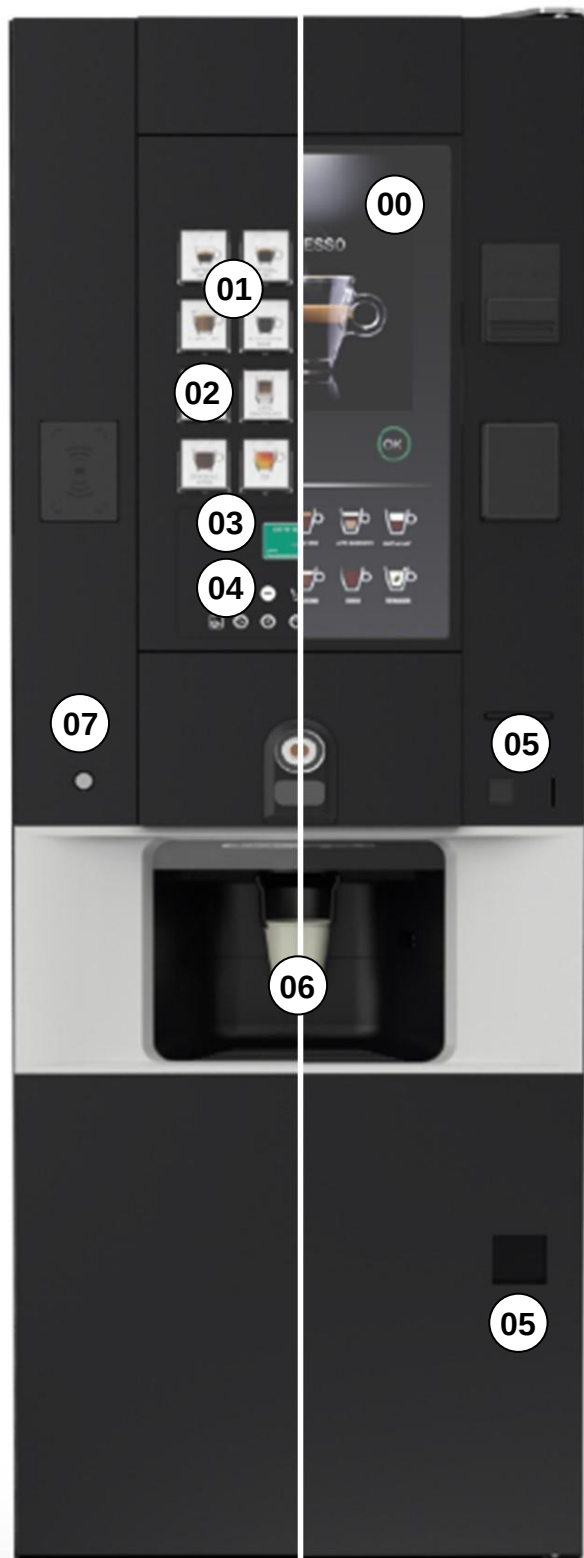
In this regard, the water features shall observe the laws in force in the Country of operation of the vending machine.

6. Description of the vending machine

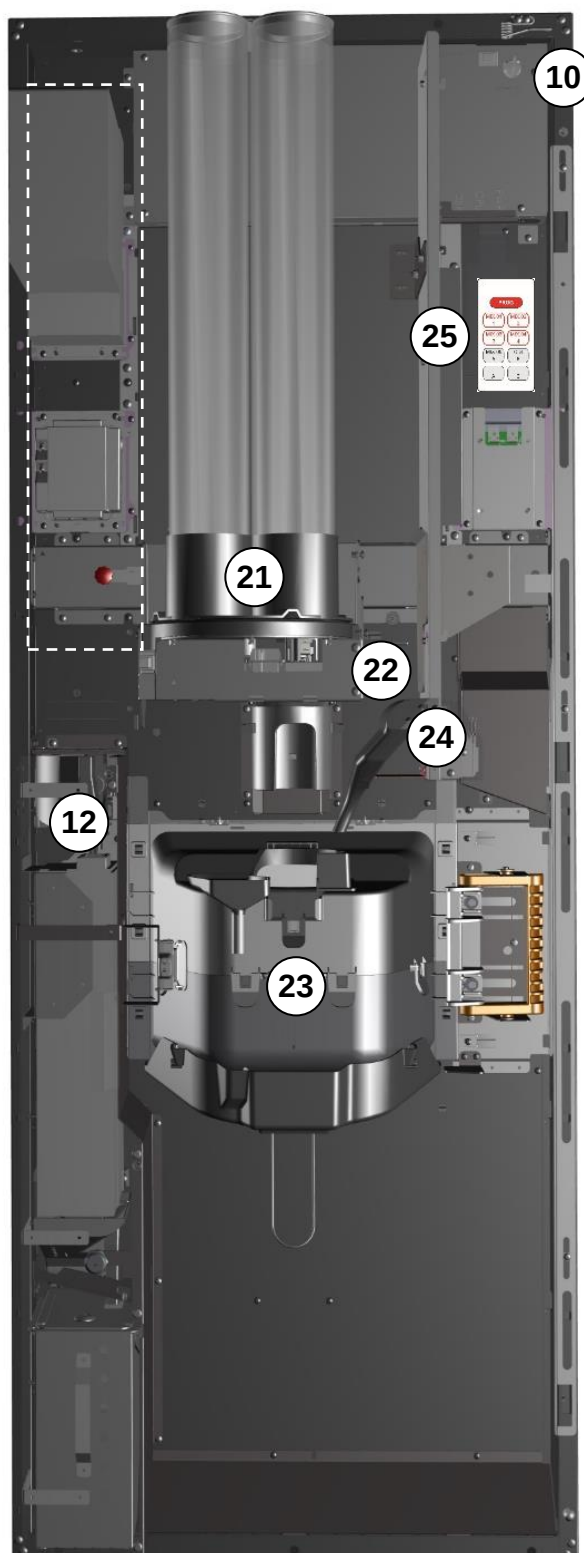
6.1. Door description

The vending machine is a machine designed for being used by all users since requiring no specific competence; to obtain the drink, insert the credit and press the key you wish for a short time.

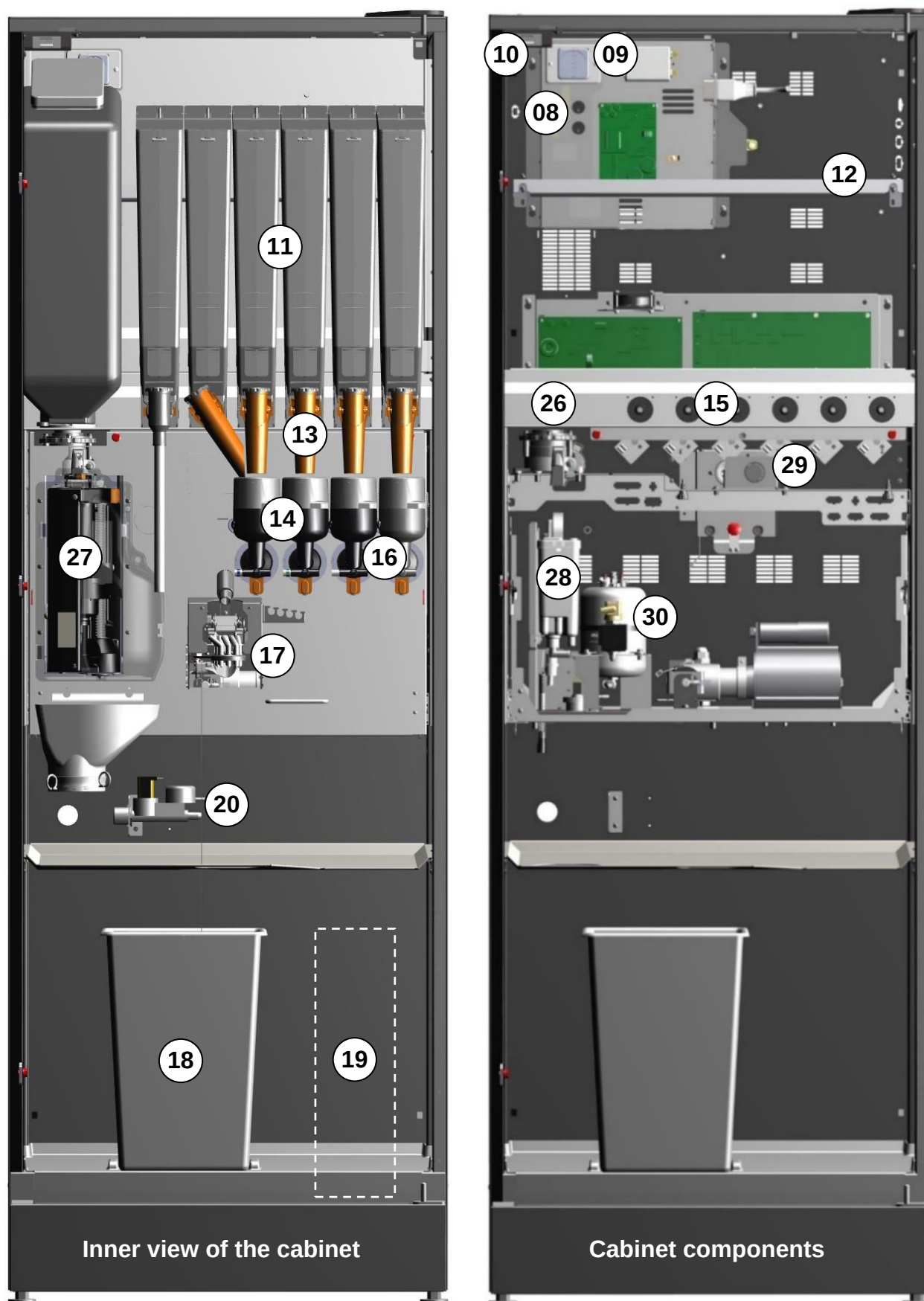
Door front panel



Inner view of the door



6.2. Cabinet description



00 – Touch screen

The central touch screen combines all the features which serve to communicate with users; the selections and programming keyboards and all multimedia messages and information are gathered in this component.

01 – Selection keyboard

After having closed the door, press the buttons to dispense; keys will assume various functions in the programming mode and enable the user to modify the machine parameters; keys are numbered progressively from the top and from the left: 1, 2, ...

02 – Selection key labels

Product labels are arranged inside the door panel, behind the carter; insert the labels into the pockets by observing the machine configuration.

03 – Display

The display messages inform users and operators about the operation state of the vending machine.

04 – Sugar keyboard

Two keys, just beneath the display, enable the user to adjust the sugar quantity displayed by a led bar.

05 – Coin slot - coin reject button – coin return compartment

They enable the machine to accept and/or return the coins inserted for the credit necessary for the dispensing cycle (payment system not supplied).

06 – Dispensing compartment

The internal space, protected by transparent bulkhead, is lit up during the dispensing cycle.

07 – Door lock

The door is closed by means of a lock; the key is mapped and numbered for identification;

08 – Fuses

installed on the mains power supply to protect the machine; **fuses must be necessarily replaced by specialised technical personnel only.**

09 – Main socket

Service 230 Vac; 100 W Max, for cleaning and accessories.

10 – Door switch

To power off the machine when the door is open.

Attention, some parts remain anyway network connected.

Use the service key to supply the vending machine if it is necessary to activate the machine when the door is open; the key is hung up in the proximity of the switch and its use is reserved to the properly trained technical personnel only.

11 – Product canisters

Instant product canisters dispense their content in the underlying mixing bowls; an internal worm screw driven by the product motor will push the instant product to the product slide; they can be equipped with a wheel and a stirrer for constant dispensing; the coffee bean canister (hopper) has a closing blade for insertion before lifting it; to protect the products, canisters are closed by a cover.

12 – Profile for canisters

It can be used to hook the product containers during the cleaning of the machine.

13 – Product slides

To avoid any product leakage, the end part of product slides can be lifted horizontally and the white ring nut rotated to open (to the left) or to close (to the right) the product canister outlet.

14 – Mixing bowls

The mixing bowls of the mixers will accommodate the instant products you have poured to mix them with water; the fan of mixer motors will act at the bottom and the drink outflow to the dispenser occurs by means of a silicone tube, mixing bowls and outlet tubes can be washed with lukewarm running water.

15 – Product motors

These motors are intended to rotate the worm screws inside instant product canisters to pour the product quantity necessary for selection in the mixing bowls.

16 – Mixer motors

The mixer motors help to mix instant products with water by means of the rotation of the fan mounted on their axis, the rotation speed can be adjusted to the features of the various products.

17 – Dispenser nozzle arm

The arm places the nozzles above the cup during the dispensing cycle and rotate them back at the end of the dispensing cycle.

18 – Wastewater bucket

The bucket collects any residual drop from the dispenser and, if necessary, the wastewater in excess from the boiler and air-break.

19 – Filter seat

The filter cartridge intended to demineralise inlet water is placed in the head and secured at the back of the machine, replace the cartridge regularly in compliance with the manufacturer's instructions; the filter is placed on the left of the machine in some versions.

20 – Water inlet solenoid valve

The water inlet solenoid valve has got an anti-flood safety device intended to stop the water inlet in case of failures.

21 – Cups dispenser

A turret consisting of four columns according to the machine configuration contains paper or plastic cups, the diameter ranging from 70 mm to 80 mm. In case of two turrets, the turret on the left contains the cups classified as "cup. 1" in the programming mode whereas the one on the right contains the cups classified as "cup 2".

22 – Cup dispensing button

Press it shortly to dispense a cup.

23 – Cups station

The cups station accommodates the cup during the dispensing cycle of the drink, a funnel and a tray collect the drops in excess, if any, and convey them into the waste water bucket.

24 – Stirrers dispenser

Placed between the cup turrets, it dispenses the stirrers in the tank column by means of an electromagnet, the tank can be adjusted to the stirrer length by means of three screws.

25 – Service keyboard

The service keyboard is placed on the carter inside the door; its keys can be used to program the machine.

26 – Coffee grinder

It grinds the coffee beans in the canister to pour it in the coffee brewer chamber; the grinding degree can be manually adjusted by means of the wheel you can access after removing the coffee canister whereas the ground quantity is determined by a software parameter that establishes the grinder work time; a version of the grinder is made available with the motorized regulation of the distance between the grinding wheels, depending upon the software settings (referred "motorized grinder=VARIGRIND").

27 – Coffee brewer

After receiving the coffee dose from the grinder and compressing it, percolation occurs in the coffee brewer with the water from the pump; the used dose is conveyed to the grounded bag, the structure of the brewer is kept at the correct temperature by a hot air heating system programmable via software.

28 – Air break

In Espresso machines, it accumulates water for conveyance to the pressure boiler, the level is controlled by a floater and, if higher than established, it will flow back to the safety device of the inlet solenoid valve, thus preventing further water from flowing in;

29 – Powder aspirator

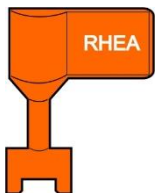
An aspirator will eject suspended product residuals from the inside of the vending machine; the aspirator is connected with a drawer beneath the product slides to intercept the residual impalpable powder coming from selections, Aspirated air is ejected through the slots of the rear panel.

30 – Water heating systems:

Pressure boiler: pressure boiler complete with a temperature probe and protection clicsons; the drain tap may be used to empty the hydraulic circuit.

Boiler: boiler with all active elements (heating element, heat protections, temperature sensor, pumps) secured to the cover; water is conveyed in tubes feeding mixing bowls; the number of pumps varies according to the machine configuration.

Varitherm induction water heater: instantaneous water heating system with a magnetic induction transducer protected and controlled by a clicson and a temperature probe.



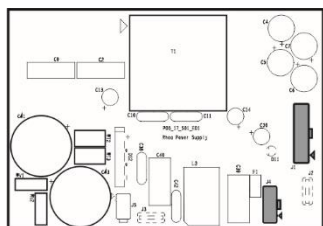
Service key: Use the service key to supply the vending machine if it is necessary to activate the machine when the door is open.

Attention some parts remain live any way: act with the utmost caution.

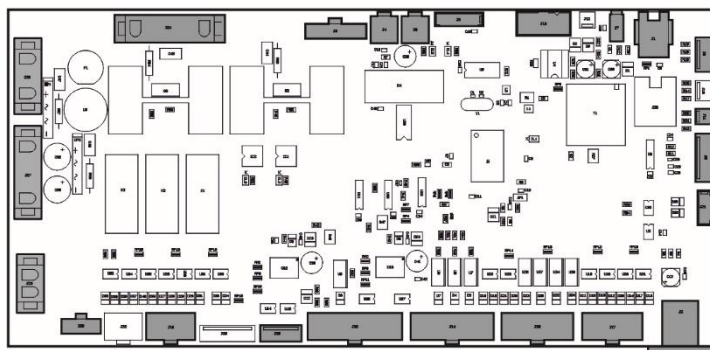
The key is inside the documentation of the vending machine and its use is reserved to the properly trained technical personnel only.

7. Electronics

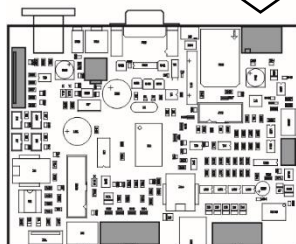
7.1. Connection diagram for espresso and instant machine rhFS1 .button16



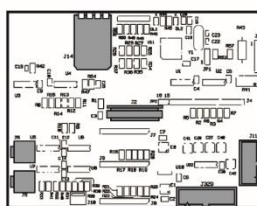
switching power supply



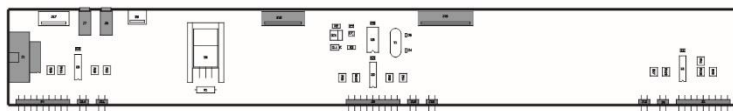
electronic power board



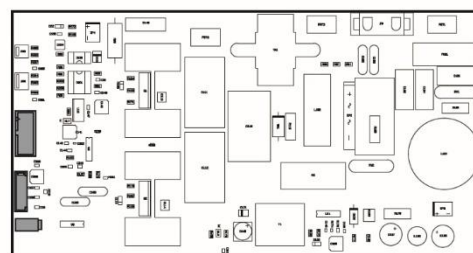
CPU electronic board



display electronic board



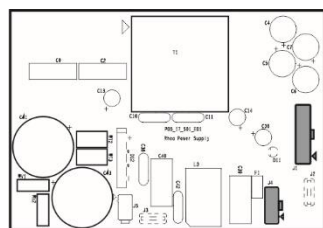
expansion keyboard electronic board



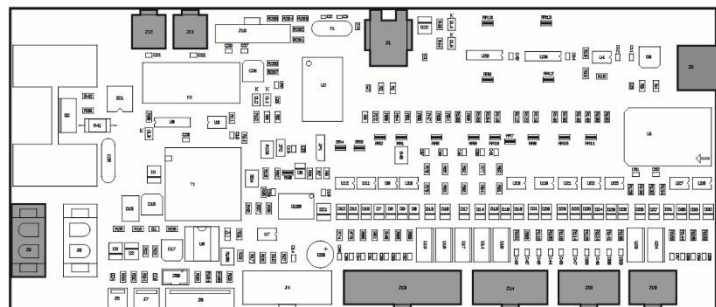
induction power board

only for induction models

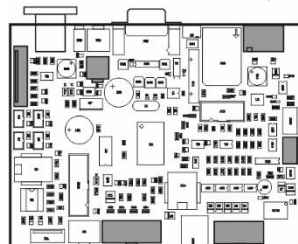
7.2. Connection diagram for espresso and instant machine rhFS1 .touch



switching power supply



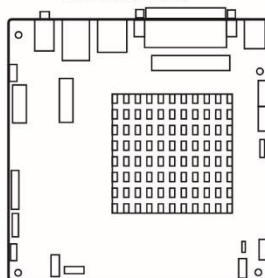
electronic power board



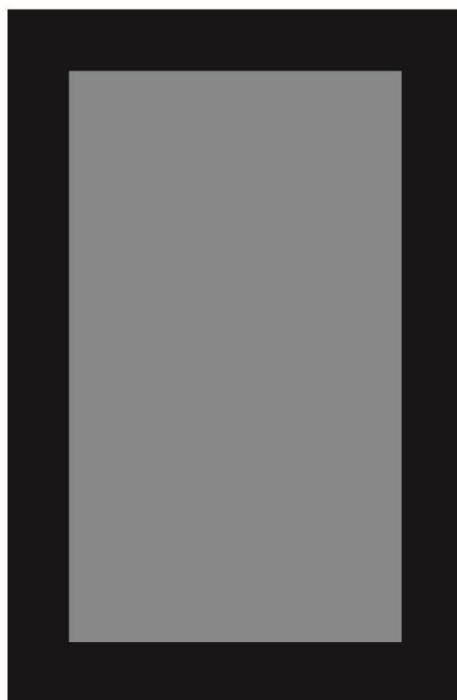
CPU electronic board



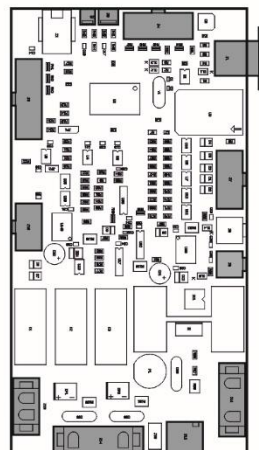
Motherboard



Touchscreen 21.5"



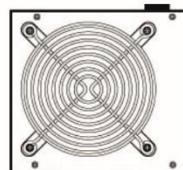
only for Espresso



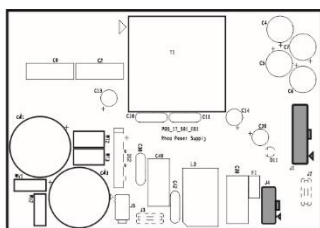
coffee brewer expansion board



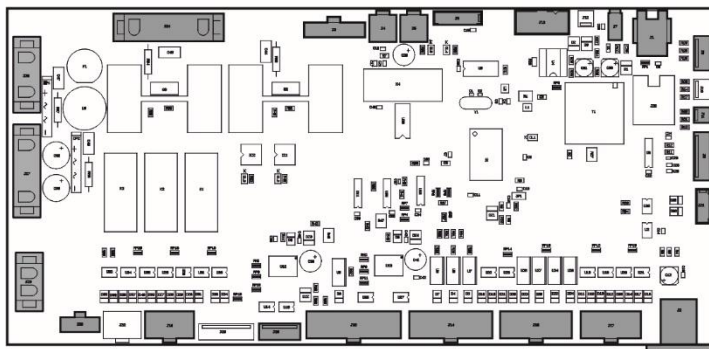
Motherboard power supply



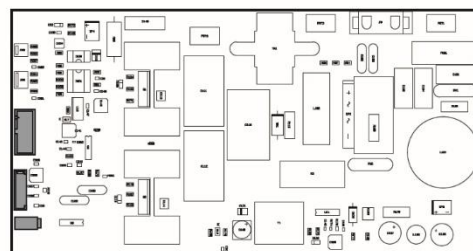
7.3. Connection diagram for espresso induction machine rhFS1 .touch



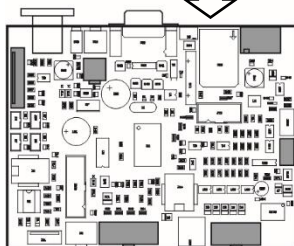
switching power supply



electronic power board EVO



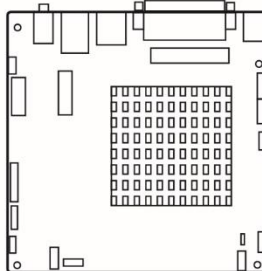
induction power board



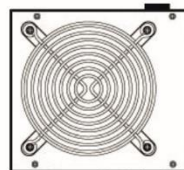
CPU electronic board



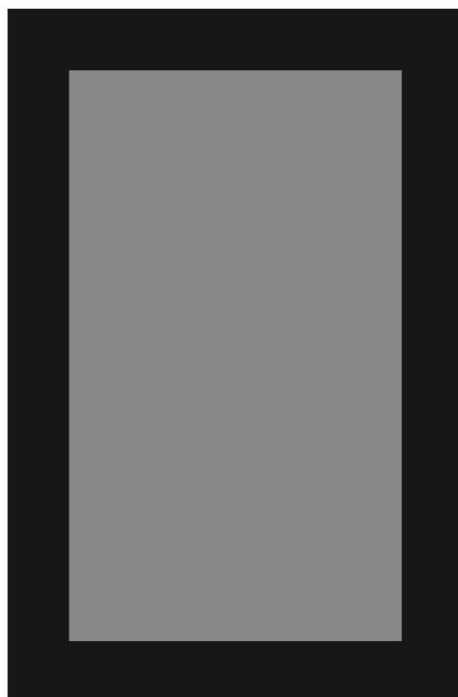
Motherboard



Motherboard power supply

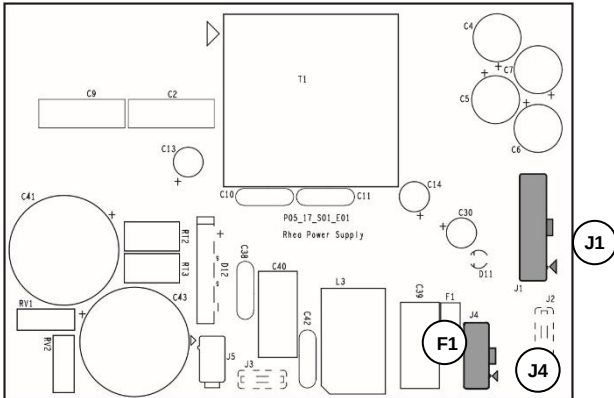


Touchscreen 21.5"



7.4. Switching power supply board - rhFS1 .button16 / rhFS1 .touch

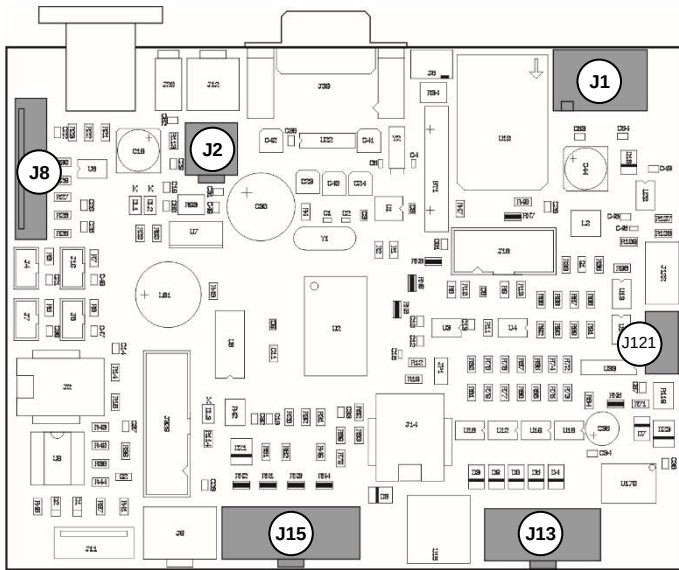
The switching power supply board generates the voltage necessary to operate the machine boards and it is protected against overvoltage by a fuse.



J1	IN 230Vac
F1	fuse 5x20 6,35A ret.
J4	OUT 24/5 Vdc

7.5. CPU board - rhFS1 .button16 / rhFS1 .touch

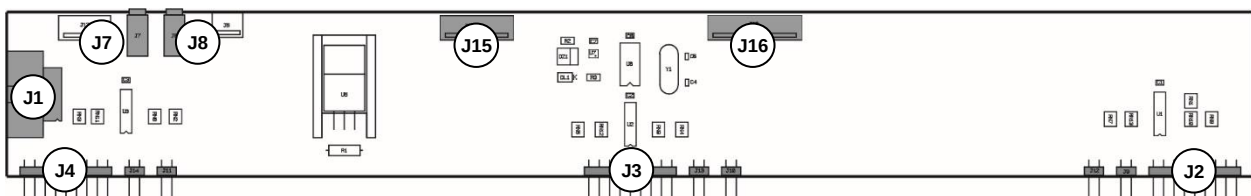
The CPU board - placed inside the door protected by the carter - governs the machine operation; the information exchange with other boards occurs by means of a USB double socket complete with the connectors for the service keyboard, the payment systems and the programming flash key.



J6	Service keyboard
J10	Card connector
J1	GPU power supply
J13	Output 24 Vdc motors
J15	Input cup motor rest position sensor
J121	Output 24 Vdc leds spot and logo
J120	Input/Output 24Vdc to J7 PCB

7.6. Keyboard expansion board - rhFS1 .button16

The keyboard connection board - secured inside the door - receives the CPU and keyboard signals.

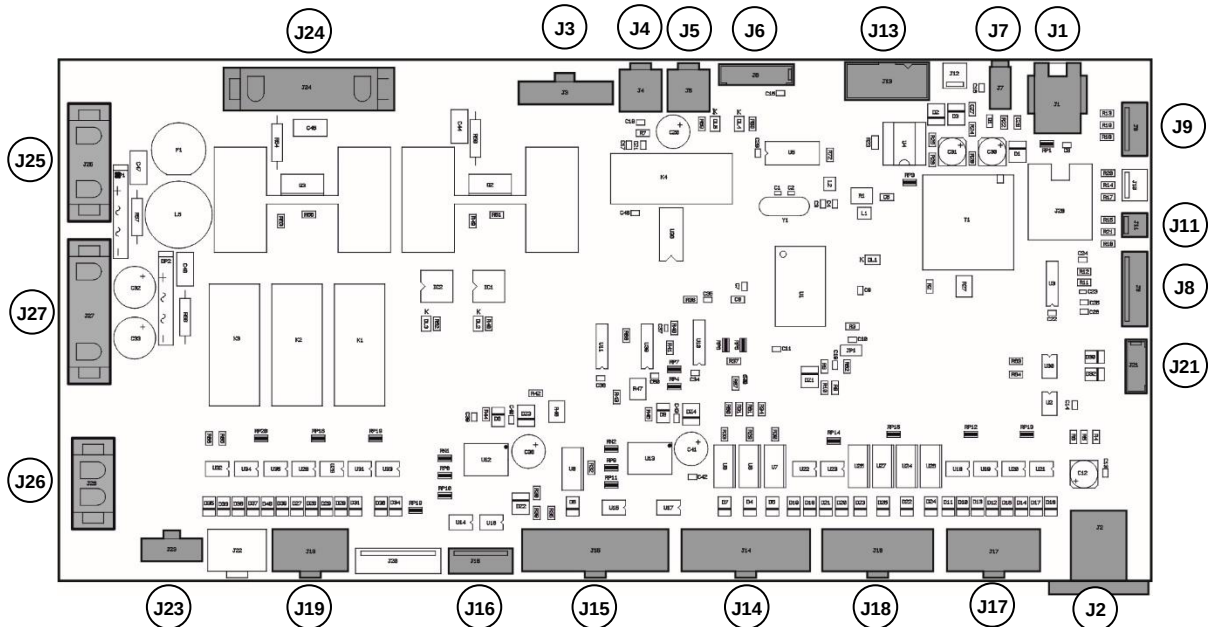


J1	Expansion data	J11	Output 24 Vdc led strips
J2	Push button panel for disabled	J7	Input 24Vdc from J120 CPU
J3	Selection push buttons	J15	PRG button
J4	Selection push buttons	J16	Exp - I/O

7.7. CPU/Power board for espresso and instant

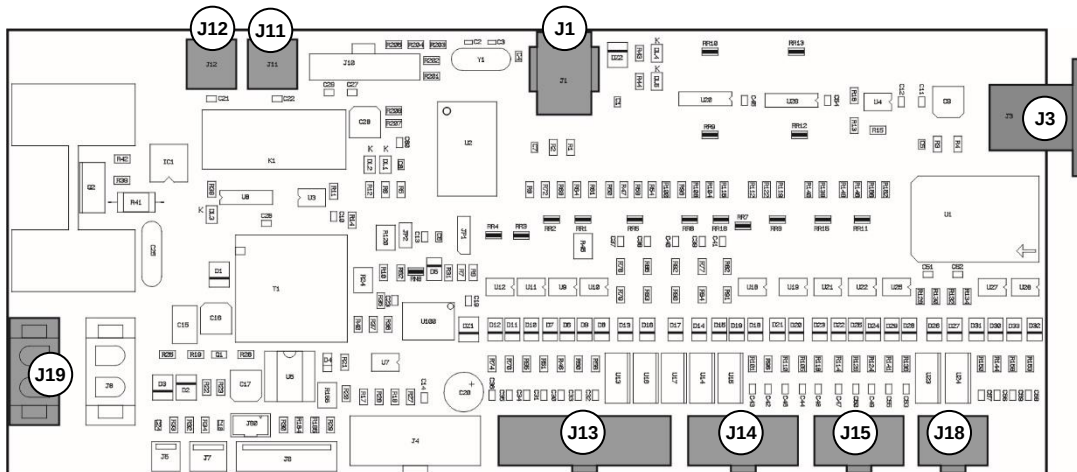
The power board, housed on the rear of the machine, receives the commands from the CPU, is intended to operate the machine devices; it is intended to give the commands for the devices, such as motors, pumps, solenoid valves or heating elements; a double USB connector provides for the logic connection with other boards and the blinking of the status leds indicates the normal operation thereof.

7.7.1. rhFS1 .button16



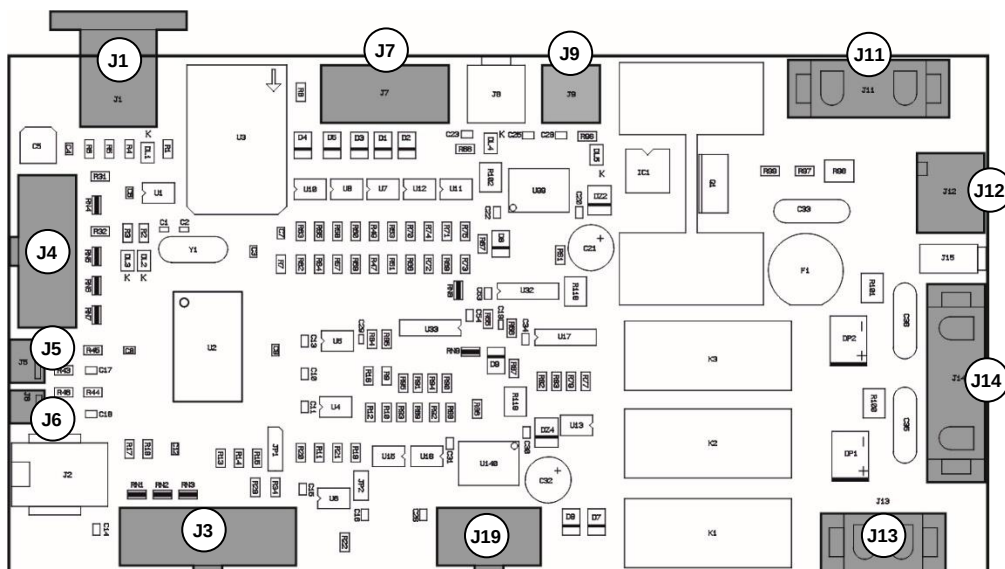
J2	Double USB-A socket for J3 CPU	J3	Input relais 24Vdc
J17	Product motors	J4	Output power supply 24 Vdc
J18	Solenoid valves and mixers	J5	Output power supply 24 Vdc
J14	Brewer Input/Output	J6	Power supply 5/24 Vdc to induction board
J15	Input/Output 24Vdc	J13	Signals vs Varitherm
J16	Output Varigrind	J7	Input 5 Vdc to J20 CPU
J19	Product motor MP3	J1	I2C expansion
J23	Espresso solenoid valve	J9	Instant temperature probe
J26	Vibration pump 203 Vac	J11	Brewer temperature probe
J27	Coffee grinder motor 230 Vac	J8	Input Varigrind
J25	IN 230 Vac	J21	Fans Output
J24	Pressure boiler heater/thermal device	J28	Rheflash box from J1 RF in

7.7.2. rhFS1 .touch



J3	Double USB-A socket for J3 CPU	J9	IN 230 Vac
J14	Product motors	J11	Input power supply 24 Vdc to J12 CPU
J13	Solenoid valves and mixers	J15	Product motor MP3
J12	Brewer Input/Output	j16	Cool solenoid valve
J4	Input/Output 24Vdc	J1	Input 5 Vdc to J20 CPU

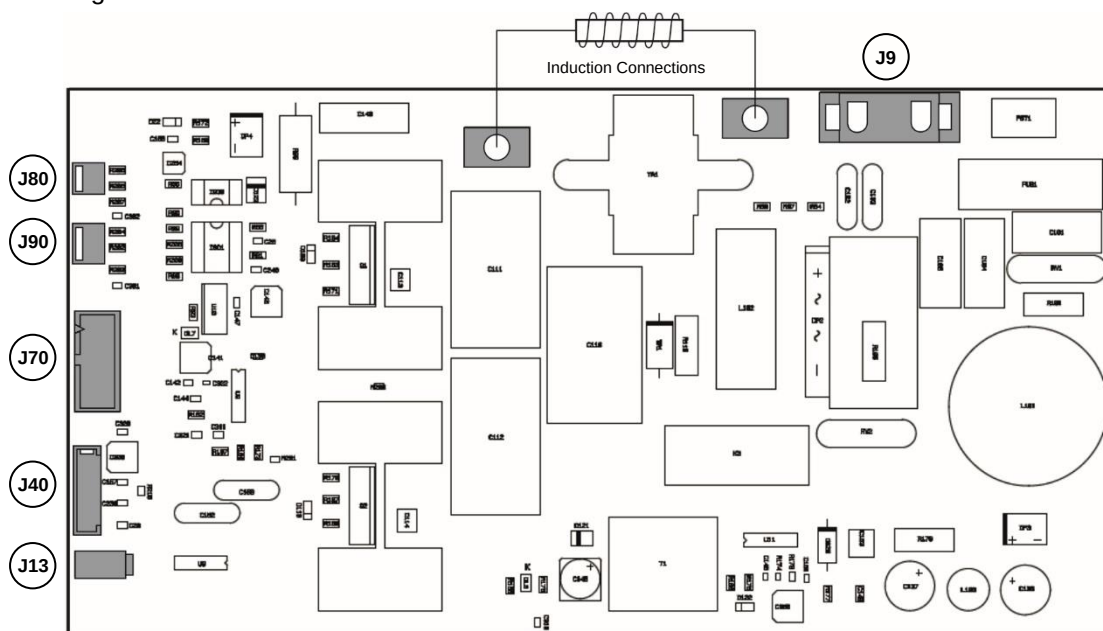
7.8. Power board for espresso brewer (rhFS1 .touch)



J1	Double USB-A socket for J3 CPU	J14	Coffee grinders motors
J9	Input/Output 24Vdc to J12 CPU	J12	J12B 1-3
J7	Brewer Output	J4	Input 5 Vdc signals to coffee brewer
J10	Brewer Output	J3	Input 5 Vdc signals to coffee brewer
J5	Coffee temperature probe	J11	Pressure boiler heater
J13	Vibration pump 230 Vac		

7.9. Electronic board for induction version - rhFS1 .button16 / rhFS1 .touch

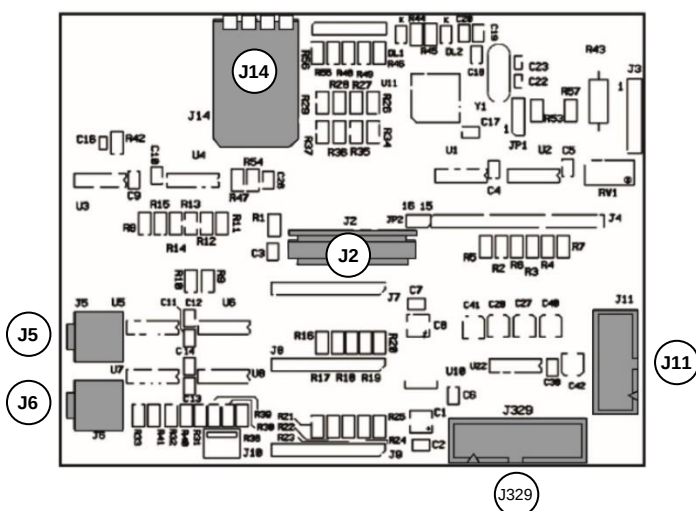
The induction board, housed inside the electric panel, controls the operation of the induction heater and the exchange of information with the other boards.



J9	Power supply 230Vac	J70	IN/OUT signals Power board/CPU (J7)
J13	Aspirator motors	J80	MOSFET temperature probe
J40	Power supply 24Vdc Induction board	J90	Induction temperature probe

7.10. Display board - rhFS1 .button16

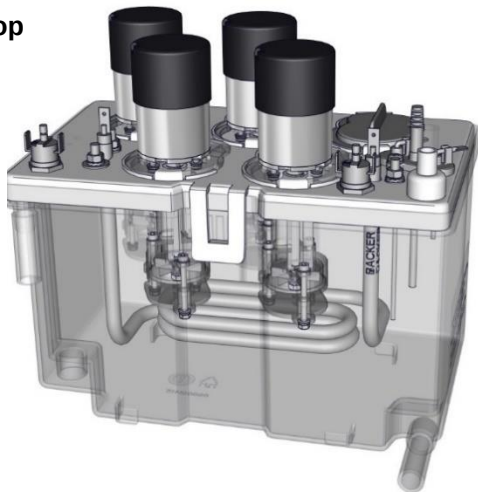
The display board - secured inside the door - receives the CPU and “+/- sugar” regulation signals and displays the user or operator messages.



J11	Expansion data	J329	Signals vs CPU
J2	Display tricolor	J14	Card connector
J6	Output 24 Vdc	J15	Output 24 Vdc

8. Water heating

Open-top boiler



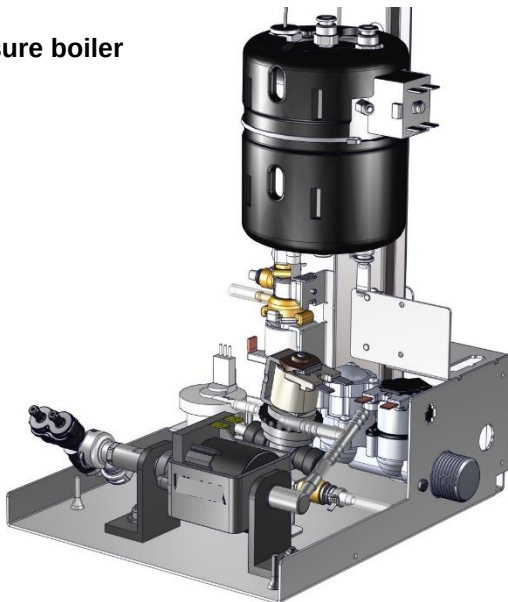
The boiler has all active elements (heating element, heat protections, temperature sensor, pumps) secured to the cover.

Supply pumps have turbines immersed in the boiler water; water is conveyed through tubes intended to supply the mixing bowls; the number of boiler pumps varies according to the machine configuration; a boiler with four pumps is shown here by way of example.

Attention!
these components may be very hot even if the machine is off.

Note: the water heating system occurs through an electric heating element.

Pressure boiler



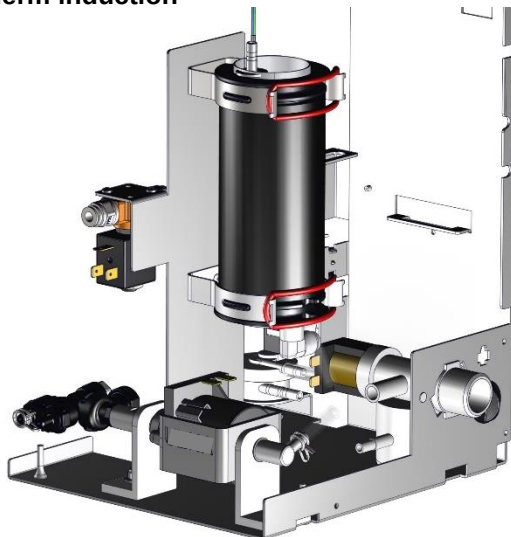
The pressure boiler is available in espresso machines only, a vibration pump with by-pass conveys water through a three-way solenoid valve for espresso and instant products.

The pressure boiler is complete with a temperature probe and a safety thermostat manually resettable. The hydraulic circuit can be emptied through the drain tap.

Attention!
these components may be very hot even if the machine is off.

Note: the water heating system occurs through an electric heating element.

Varitherm induction



The Varitherm device is an instantaneous water heater through a magnetic induction system, protected and controlled by a safety thermostat manually resettable and by a temperature probe. a vibration pump with by-pass conveys water to the magnetic inductor, the recirculation solenoid valve, the instant solenoid valves and the three-way valve for espresso,

Note: the water heating system is a variable magnetic field generator.

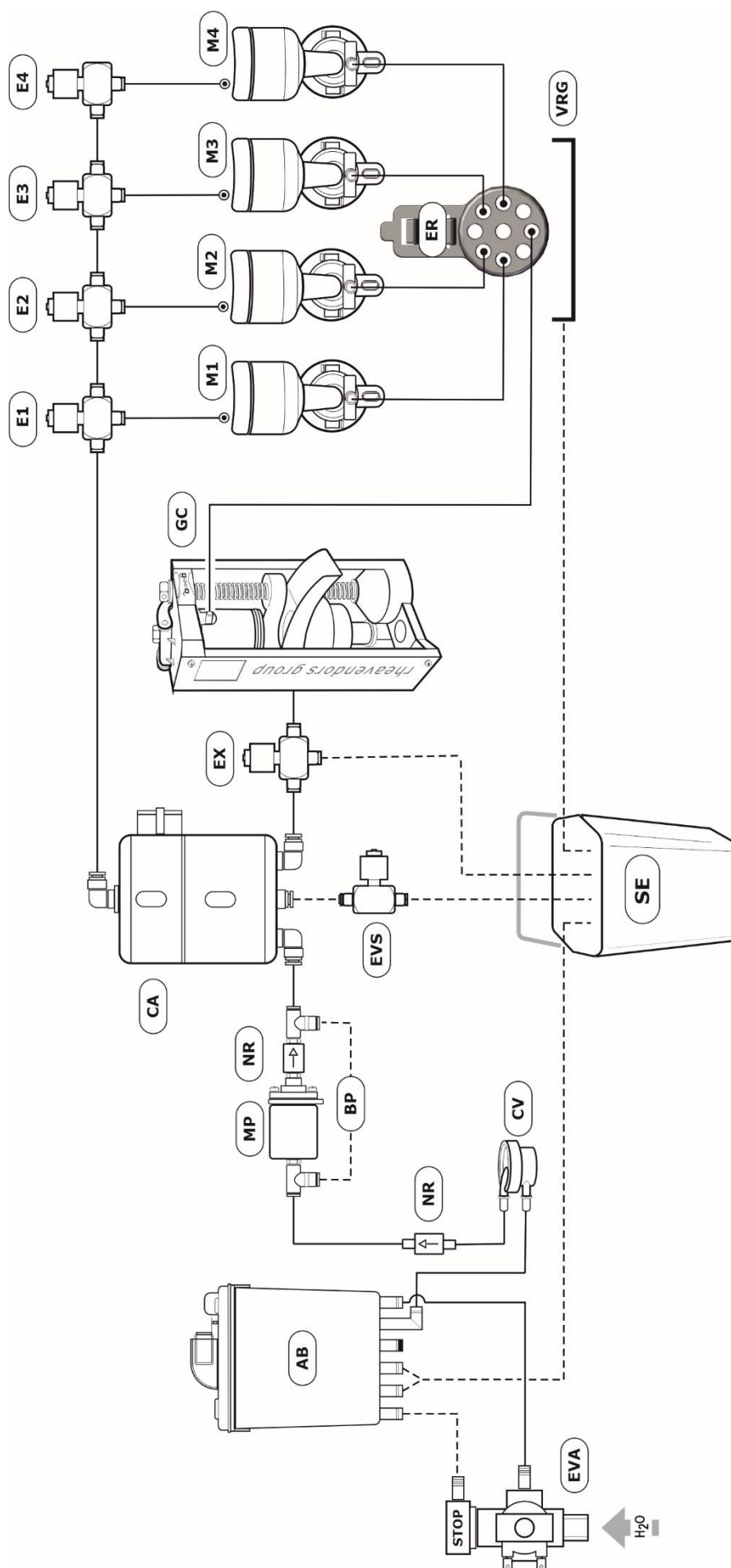
9. Hydraulic installation and diagrams

The hydraulic diagrams of the heating configurations available for the rhFS1 vending machine are supplied here below.

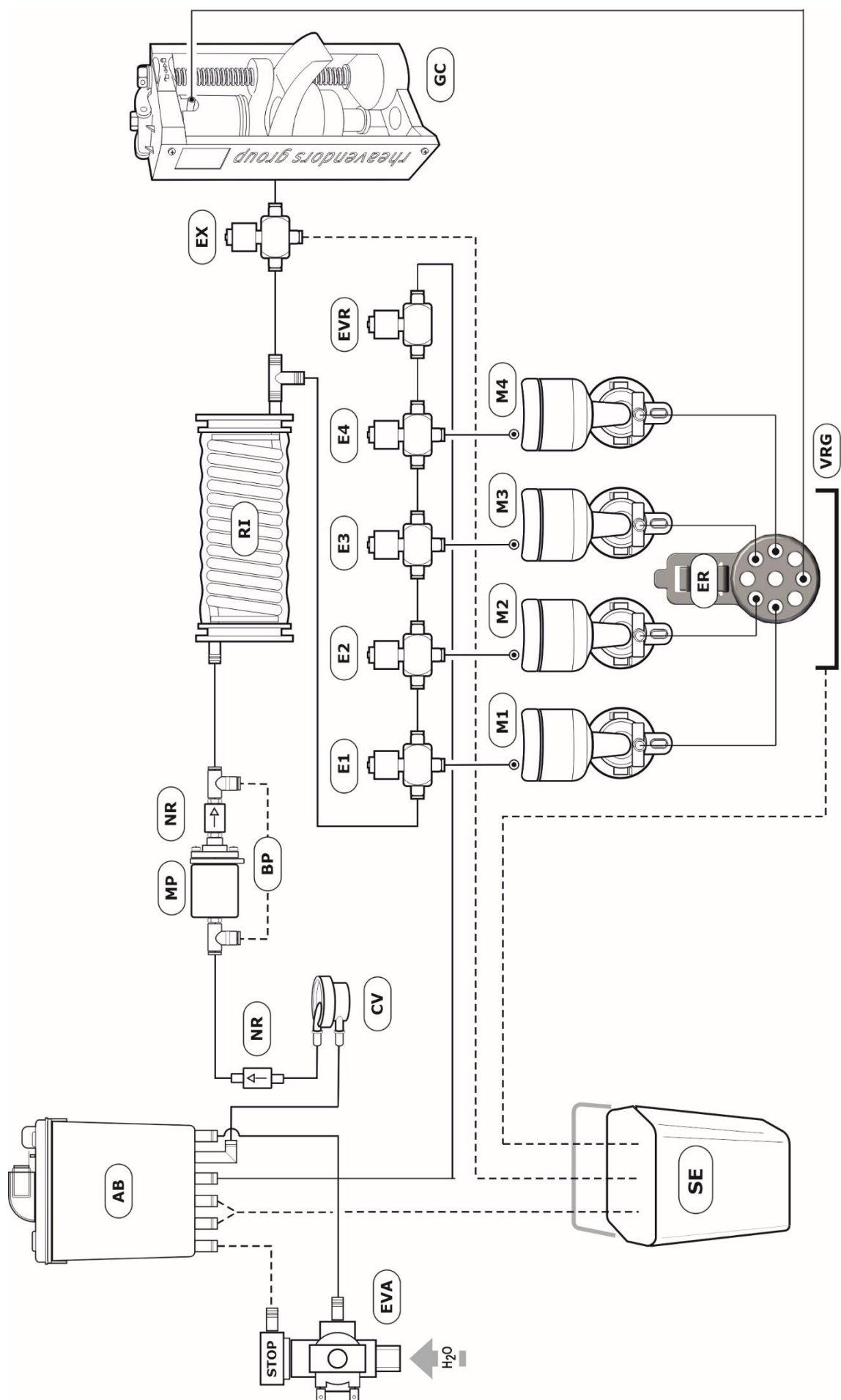
The following table describes the meaning of the symbols mentioned by the diagrams:

symbol	description
EVA	Water inlet solenoid valve
AB	Air break
CV	Volumetric counter
MP	Vibration pump
BP	By-pass
NR	Non-return valve
RI	Varitherm induction water heater
CA	Pressure boiler
BO	Open-top boiler
EX	Three-way solenoid valve
E1	Solenoid valve instant 1
E2	Solenoid valve instant 2
E3	Solenoid valve instant 3
E4	Solenoid valve instant 4
EVR	Recirculation solenoid valve
GC	Coffee brewer
M1.. M5	Mixer 1 ... Mixer 5
IF	Mixer connection (hot water)
ER	Dispenser
SE	Wastewater bucket

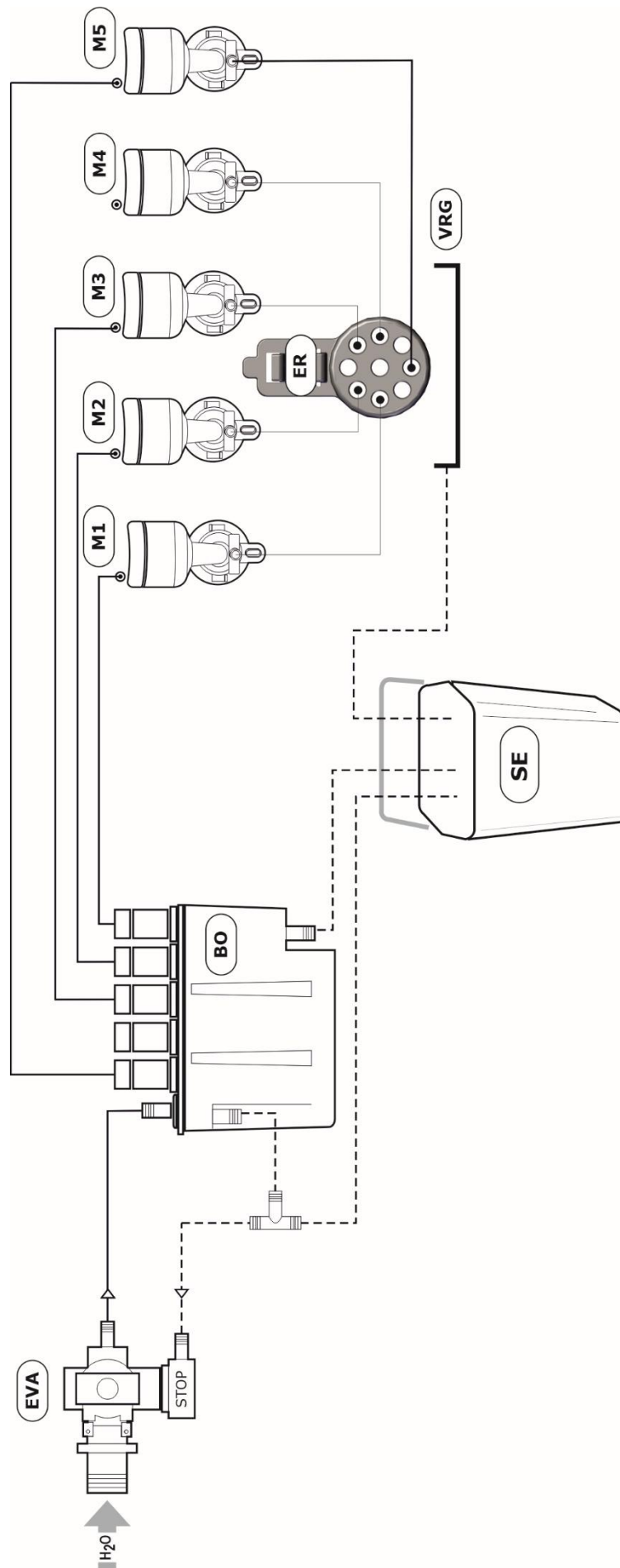
rhFS1 – Espresso machines with pressure boiler heating system (maximum configuration)



rhFS1 – Espresso machines with induction heating system (maximum configuration)



rhFS1— Instant machines with boiler heating (maximum configuration)



10. First installation of the machine



After unpacking the vending machine, placing it firmly at the workstation as well as providing for its water and energy connection, carry out some actions for its functionality.

Wash your hands carefully with water and soap before handling the machine and the products; use drinkable water only to clean the parts thereof.



Please remember that all the actions described below shall be carried out by personnel having a practical knowledge and experience of the machine, as regards safety and hygiene.

10.1. Cleaning and sanitising the vending machine and its parts in contact with foodstuffs

During the first installation of the vending machine and at least every week, according to the use and quality of inlet water, to ensure the hygiene of dispensed products, carefully sanitise powder deposit drawers, mixers and instant drink dispensing conduit as well as dispensing tubes and nozzles; sugar chute, dispensing compartment.



All components must be cleaned with lukewarm running water only (drinkable). The mixers and the instant canisters can be washed in a dishwasher by setting a short clean cycle and a temperature below 50 °C.

Use sanitising products also to clean the surfaces not directly in contact with the foodstuffs, pay attention not to clean the machine by means of water jets.

Some parts of the machine may be damaged by aggressive detergents.

The manufacturer disclaims all responsibility for any damage caused by the non-observance of the above or by the use of aggressive or toxic chemical agents.

10.2. Cleaning and sanitising internal components



Prepare a chlorine-based anti-bacterial sanitising solution by observing the instructions supplied with the product; after disassembling and removing, put the product canisters, the mixing bowls of mixers, their fans and the silicone tubes for dispensing products into the solution; the time necessary to sanitise is specified by the anti-bacterial product package; at the end, remove all the parts you have sanitised from the solution, dry them carefully by using clean cloths and reassemble them into the machine; rotate the baffles of the product chutes of instant canisters to close them and fill the canisters with the products by making reference to the machine configuration and to the canister labels; fill in the coffee hopper with coffee beans; close the canisters and the coffee hopper with their upper covers. Rotate the baffles of the product chutes to open them, insert the blade intended to close the coffee hopper to the bottom.

To clean and treat foodstuffs properly, refer to the web site:

<http://eur-lex.europa.eu/> searching for the regulation 2004/852/EC

dated 29/04/2004 (CELEX number: 32004R0852)

In the end, lower down the cover and close the door by means of the lock key and place it in a safe place.

10.3. Start up

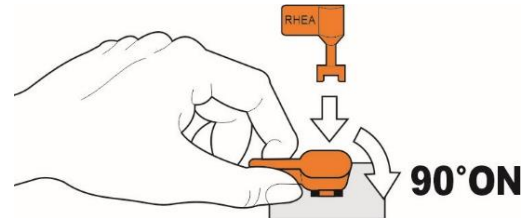
Open the door, place the wastewater bucket, and insert the floater and all outlet hoses.

Remember to open the blade of the coffee beans canister.

Remove the stirrer weight from the tank and load the stirrers by inserting them from above and re-position the weight. Lift the covers intended to protect the turrets and fill in the columns, except for the one placed on the dispensing holes of the cup dispenser.



Insert and rotate the service key into the door switch.



Attention



The vending machine is supplied and operating to all effects; the mobile parts of the coffee brewer will be handled, act with the utmost caution; wait for the turrets to complete their rotation and load the column that has remained empty.

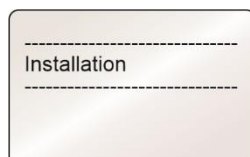
use only stirrers and cups specific for vending machines.

The vending machine performs a diagnostic cycle for loading and heating water; according to the release, the warning messages appear on the display for the progress of these stages.

10.4. Installation (required for espresso models)

On the first start up, the vending machine will fill the water circuits automatically.

Here the details of the installation procedure for the .buttons16 version machines:



Switching on the machine, the installation procedure starts automatically.

An amount of water should be dispensed from the brewing group, confirming that the hydraulic circuit is full of water. If not, the installation procedure has to be repeated. If the issue persists, check that the water supply connection properly works. If required contact the technical support



At the end of the procedure, the message END INSTALLATION appears. The machine has now to be rebooted.

Here the details of the installation procedure for the .touch21,5" versions machines:

- The message **CPU FIRST INSTALL IN PROGRESS** is shown.
- An amount of water should be dispensed from the brewing group, confirming that the hydraulic circuit is full of water. If not, the installation procedure has to be repeated. If the issue persists, check that the water supply connection properly works. If required contact the technical support.
- at the end of the procedure, the message **CPU FIRST INSTALL FINISHED** appears. The machine has now to be rebooted.

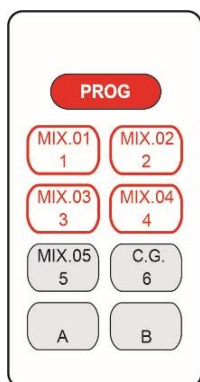
10.5. Initial cleaning

At the end of the final inspection, the water used for testing is discharged from the machine; as soon as the machine is powered on for the first time, it will load water automatically; after all hydraulic circuits of the machine have been filled, the water flow stops automatically and water starts heating so as to reach set values.

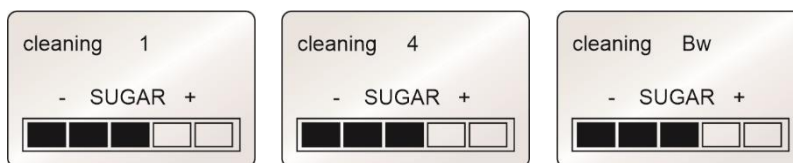


Transportation and installation conditions are such that the vending machine cannot be immediately used.

It is necessary to carry out a complete clean cycle before using the vending machine, the machine will dispense a pre-fixed water quantity for each clean cycle.



The cleaning of mixers and brewing unit is performed by the internal programming keyboard: press the "MIX 01", "MIX 02"... keys of the service keyboard to activate the clean cycle of the corresponding hydraulic circuit (pressure boiler, tubes, mixing bowls).

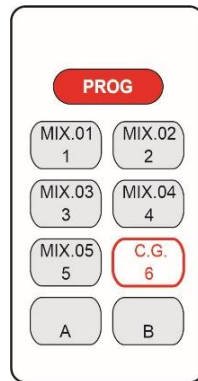
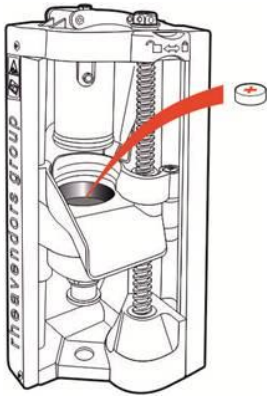


the related *n* mixer cleaning cycle will be performed, the "C.G." key activates the clean cycle of the coffee brewer circuit.



In the touch versions, the message: **MANUAL RINSING IN PROGRESS is shown.**

10.6. Sanitary clean cycle “cleaning brewer”



To clean the coffee brewer thoroughly, press the “C.G.” key and hold it down for five seconds until you hear the machine “beep” repeatedly and the brewing chamber opens.

Insert the tab and press “C.G.” once, the coffee brewer closes while keeping the tab brewing; a small water quantity is poured three times, each one after about thirty seconds, then the chamber is emptied, and it starts a five-rinsing cycle.

For a few seconds the machine will dispense only water through the coffee brewer, the brewing chamber will move up and down and then will open, the display will show to put a tab in the coffee brewer chamber and press and confirm by the display.

Attention: the chamber closes while keeping the tab brewing.

The time counter for dissolving the tab begins to decrease up to 0 min. (about ninety seconds dissolving time and about twenty seconds cleaning time, for 2 cycles). follow the display (or touch screen) instructions and wait for the clean cycle to automatically come to an end.



Attention

The vending machine is supplied and running to all effects, the mobile parts of the coffee brewer will be handled. act extremely carefully.

Follow the display instructions and wait for the clean cycle to automatically come to an end, then, the chamber is emptied and a three-cleaning cycle starts, (about ten seconds and then a “splash” occurs through the coffee brewer nozzle).



Attention

Abt. 100 cc. water will be dispensed for each one of the six clean cycles, press the key to repeat on iteration of the last cycle, or press any other keys to skip and go forward.

To allow filter cleaning by a brush, the brewer chamber will move down; clean and remove any residues by means of a food-grade soft brush and follow instructions to continue.



It starts a six-cleaning cycle; (about ten seconds and then a “splash” through brewer nozzle, for six times).

The machine will dispense a coffee and also clean the mixing bowls; for this reason, make sure that you have at least a couple of cups to be placed beneath the product nozzles, the display shows the number of the corresponding circuit cleaning.



If this cycle should be interrupted (sudden power failure, ...), the procedure will restart from the initial step of this clean cycle as soon as operation is restored.

After the sanitary clean cycle power off the vending machine by means of the service key also power off the main switch.

11. Loading the vending machine (when the machine is off)

11.1. Loading instant products and coffee beans

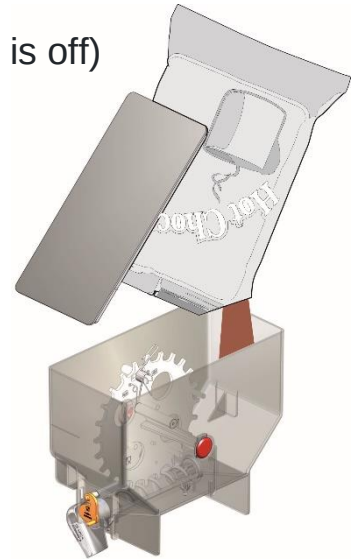


To load instant products, it is recommended to extract each canister.

To load **Coffee beans**, close the baffle before extracting the canister.

Lift the covers of each canister and pour the product according to the content of the machine configuration, make sure that there is no lump and avoid compressing the product.

Never fill any quantity in excess to avoid ageing, check the capacity of each canister on the basis of technical data.

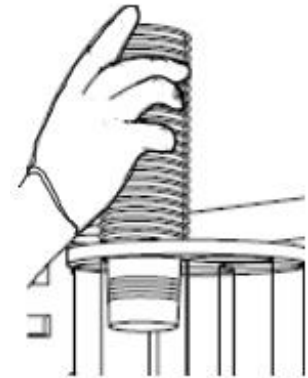


11.2. Loading cups

To load the cup columns, power off the machine, open the front door and lift the covers intended to protect the turrets, fill in the columns, except for the one placed on the dispensing holes of the cup dispenser; as soon as you power on the vending machine, wait for the turrets to complete their rotation and load the column that has remained empty.



Use cups suitable for vending only, avoid compressing them during the load cycle. Never try to rotate the column manually.

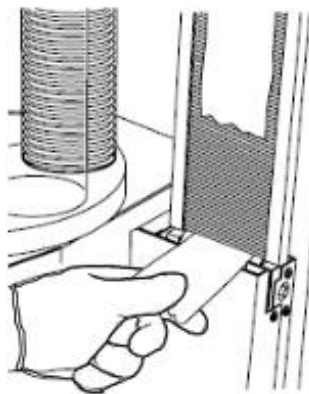


11.3. Loading stirrers



Use stirrers suitable for vending machines only.

Make sure that the stirrers are free of any burrs, they are not curved and they are all arranged horizontally.



Remove the metal weight from the stacker and insert the stirrers with their package strap in the column.

Place them at the bottom, cut and remove the clamp.

After completing the loading process, re-insert the upper weight.



At the end of loading operations close the door by means of the lock key and put it in a safe place; the display (or the monitor) will display the messages indicating the operations carried out by the machine until the water temperatures are suitable for the values set up in the configuration software; at the end of this stage intended to heat water, the vending machine is ready for dispensing on a free basis and the display will alternatively show the standby screen page.

12. Programming

The vending machine is programmed with parameters considered standard for the specific configuration required.

The values forming the composition of recipes – written in the board memories – enable the user to dispense drinks without requiring the installer to programme special parameters; to modify these parameters for adaptation of the drinks you have produced, **refer to the programming manual.**



The vending machine is equipped with an automatic cleaning system for the coffee brewer, the mixers and the relative water circuit.

If the vending machine is not used for some time (weekends, etc.) even for less than two days, it is recommended to enable the automatic cleaning functions available in the software manual before using the vending machine.



Rheavendors Services S.p.A. is ready to supply support and information on this vending machine:

telephone: +39 02 966551

e-mail: rheavendors@rheavendors.com

for the references of our partners all over the world visit the site: www.rheavendors.com

13. Maintenance

The time interval of cleaning operations largely depends upon the number of dispensing cycles and the hardness of water in use (use a softening system) and it must be adjusted to the working conditions of the vending machine.



The actions described herein are intended to prevent bacterial growth in the machine areas directly in contact with foodstuffs and to keep the parts conveying drink-composing products clean; after having disassembled the parts of the machine listed here below, use plenty of lukewarm water to remove any residue that should build up.

The support of a bacterialstatic or bactericidal solution may strengthen a deep cleaning action, provided it is compatible with human health and the supply of foodstuffs; reassemble all the parts you have cleaned after having dried them by means of a piece of clean cloth.

Before accessing the machine for each maintenance operation, it is recommended to inform the users by means of warning signs - properly positioned - that it is forbidden to use and approach the vending machine.



Attention: never wash the machine by means of water jets, wash your hands carefully with water and soap before handling the machine and its products, use drinkable water only, all components must be washed with lukewarm running water only.
the mixers and the instant canisters can be washed in a dishwasher by setting a short wash cycle and a temperature below 50°C.

Also use the Service Book of the vending machine.

13.1. Weekly

Power off the machine, check the supply cable and carefully make sure that there is no signs of wear; check the stability and efficiency of internal connections of the mains supply carefully.

- **External structure and touchscreen**

Use a non-abrasive cloth, dampened with lukewarm water; use a neutral, non-foamy detergent, only if necessary:



Attention: use neutral detergents only; never use abrasive cloths, steel brushes, aggressive or foamy detergents and other solvents, boiling water and acid; above all, never use alcoholic solutions.

Cleaning products shall be atomised on a cloth and not directly on the surface of the vending machine.

To clean the touch-screen, it is recommended to use a mild detergent only, thinned according to the manufacturer's instructions, specific for these components (pc monitor and alike); pay attention not to scratch, not to leave any residual drop of the liquid detergent, not to spray the detergent directly onto the monitor; in any case, avoid dripping.

- **Product chutes**

Remove them from the product canisters, clean them with plenty of lukewarm water (product chutes are plugged in).

- **Product dispensing system**

Turn the levers intended to fasten the mixing bowls clockwise, remove the dispensing nozzles, pull the mixing bowls and the upper ring; remove the chutes and clean the assembly of disassembled parts with plenty of lukewarm water.

- **Machine walls and bottom**

Remove any trace of residue from the internal surfaces of the machine and clean with a damp cloth

- **Internal door wall**

Remove any trace of residue from the internal surfaces of the door, above all in the proximity of the cup station.

13.2. Monthly

- **Environmental aspirator and powder aspirator**

Carefully make sure that the rotors of the two aspirators can freely rotate without any hindrance or stoppage; make sure that the corrugated tube for connection between the powder aspirator and the extraction drawer is clean and free of any product deposit.

- **Product canisters**

Rotate the closing baffles, remove the canisters from the machine, clean them outside; clean the support surface carefully to remove any trace of product.

- **Coffee beans canister**

Remove the coffee beans canister, make sure that coffee chute is free of any scale and that the millstones are intact and free of any residue.

- **Coffee brewer**

The whole coffee brewer can be cleaned and washed with running water since it has no component that may be damaged.



13.3. Yearly

- **Dispensing system**

Replace the gasket at the bottom of the mixing bowl of the mixer; extract the mixer motor fan by pulling it and replace the gasket of the mixer motor shaft.

- **Product canisters**

Disassemble the product canisters on the machine; empty them, disassemble them in their basic components and clean them carefully.

- **Powder aspirator drawer**

Extract the powder aspirator drawer and the tube and clean them with plenty of lukewarm water.

- **Open-Top Boiler**

Remove the cover and clean the tank by removing any solid residue that may have built up at the bottom; remove any calcareous scale from active elements: temperature probe, heating element, level probes, shafts of rotary pumps.

- **Silicone hoses**

Make sure that the water conveying tubes are intact; replace them in case of need.

- **Pressure boiler**

Disassemble the pressure boiler; detach the pressure boiler and the solenoid valves and check the sealing o-ring; clean the instant and espresso outlet hydraulic circuits; remove any trace of residue to check the discharge of the third way of the espresso solenoid valve; empty and clean the airbreak tank.

- **Coffee brewer**

Replace the three sealing rings of the compression chamber and the lower piston guide.

Replace the upper and lower filters.

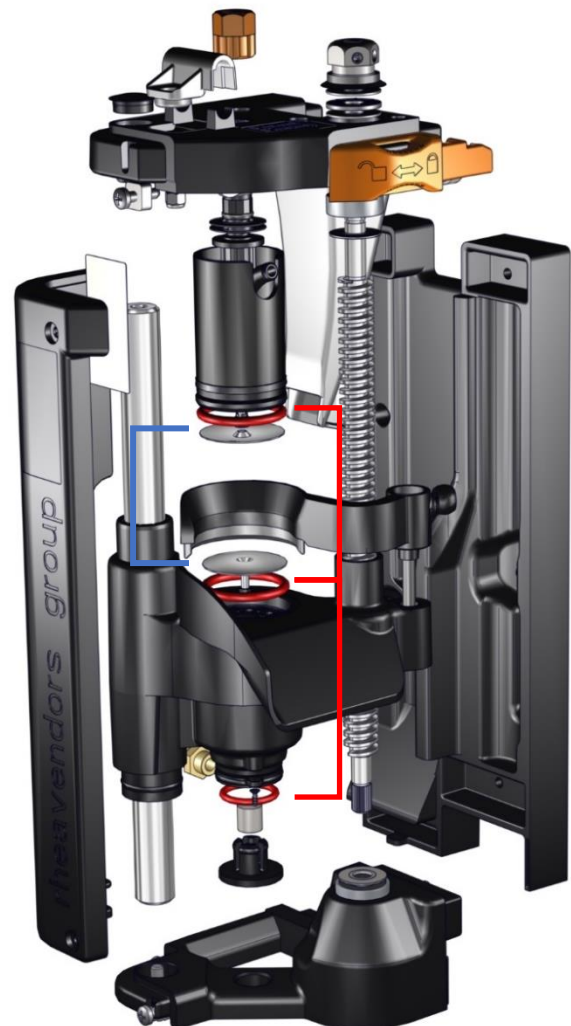
Check the state of the compression chamber.



The frequency of these operations depends upon the number of dispensing cycles and the hardness of water in use.

Their regular and accurate execution prevents failures and malfunctions, it allows constant dispensing cycles and lengthens the life cycle of the machine.

The use of a softening filter, whose cartridge is regularly replaced, prevents the build-up of limestone.



14. Solution of Problems (major OFF Codes)

Some events occurring during the operation of a machine, may partially or totally compromise its functionality; to help the user restore the normal functionality of the vending machine, the display shows an error code, summed up by an abbreviation, pointing at the compromised function or device.



While carrying out the operations necessary to restore the machine functions, act with the utmost care and strictly observe the safety rules for operators and users.

The following table shows an example of the errors that may appear during the functioning of the machine.

For the complete list of errors, refer to the software manual of the machine.

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
1	EBJ	Cup dispenser	No cup is physically present; after finishing the cups of a column, the machine rotates the cup turret to look for cups in the other columns; after exploring all possibilities without finding out any cup, the machine stops; if the machine has two cup turrets, error "1A" means that there is no cup in the column close to the door hinge.
1 A		Cup dispenser	No cup in dispenser 1 (the one closest to the door hinge)
1B		Cup dispenser	No cup in dispenser 2 (the one farthest from the door hinge)
2	OCM	Payment system	No communication between the payment system and the CPU of the vending machine; it might be caused by improper power supply, false programming or malfunction of the payment system;
2E	OCMexe	Payment system	No communication between CPU and the payment system (in Executive mode)
2M	OCMmdb	Payment system	No communication between CPU and the payment system (in MDB mode)
2P	OCMpar	Payment system	No communication between CPU and the payment system (in parallel mode)
3	EGN	Waste water	The waste water level has reached the maximum admitted value;
4	EDF	Tube movement	The tube moving motor has not rotated according to command or the control microswitch has not properly detected the movement; a mechanical obstacle between the two parts of the stretchable arm might have caused the error;
4 A		Tube movement	Tube moving motor faulty
4B		Tube movement	Tube moving motor faulty
5	ECO	EAROM	EAROM of the CPU board failed
5D		EAROM	EAROM writing error
5T		EAROM	Slave connection error
6		Water inlet	No water supply - Water supply faulty

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
6 A	EFL	Water inlet (instant)	Instantaneous boiler filling time too long; the water supply might be totally lacking, its pressure might be not enough or some obstacle might slow down the regular water flow (filter grilled cover, inlet hoses either choked or clogged); the water inlet solenoid valve safety has tripped;
6B	EFJ	Water inlet (instant)	The instantaneous boiler circuit has been filled with water, but no drink has been dispensed; the supply circuit might leak;
6C	EFL	Water inlet (espresso)	Air break filling time too long; the water supply might be totally lacking, the water pressure might be not enough or some obstacle might slow down the regular water flow (filter cover, inlet hoses either choked or clogged); the water inlet solenoid valve safety has tripped;
6D	EFJ	Water inlet (espresso)	Air break circuit reloaded without dispensing any drink; the supply circuit might leak;
6F	EFZ	Water inlet (instant)	Error during the first installation: during the first installation stage, a water supply error occurs in the machine; after having opened the water inlet solenoid valve, the CPU waits for the water to wet the boiler level probes within a well-defined time interval; if this is not the case, error 6F is triggered;
6G	EFZ	Water inlet (espresso)	Error during the first installation: during the first installation stage, a water supply error occurs in the machine; after having opened the water inlet solenoid valve and activated the pump, the volumetric counter will send the CPU a sequence of impulses to give evidence that water is flowing; if this is not the case, error 6G is triggered;
7	EEH	Espresso circuit	Espresso circuit faulty
7 A		Espresso circuit (pump)	The power-on time of the espresso circuit pump has exceeded the limit; the water flow has encountered more resistance than usual and the impulses produced by the volumetric counter have required a time interval deemed to be too long for a dispensing cycle within proper limits;
7C		Espresso circuit (Variflex)	During the dispensing stage, the chamber has moved down, beyond the safety position, because of pressure;
7D		Espresso circuit	The volumetric counter fails to detect the impulses within the time limits
7R		Espresso circuit	Error in the water recirculation phase
8		Coffee brewer	Generic
8 A	EEK	Coffee brewer (Micro)	The coffee brewer failed to rotate properly; the microswitch controlling the coffee brewer rotation is not properly working, it is not connected or ill-positioned with respect to the cam;
8B	EEK	Coffee brewer (Micro)	The machine fails to acknowledge the presence of the coffee brewer in its correct working position; check the presence microswitch;
8C	EEZ	Coffee brewer (Micro)	The water supply tube of the coffee brewer is not present;

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
8 A		Coffee brewer (Variable dose)	Error in the movement of the lower piston down or in the movement of the upper piston up;
8B		Coffee brewer (Variable dose)	The pressure exercised in the brewing chamber is not enough to dispense espresso; the ground product dose in the brewing chamber might be too small;
8C		Coffee brewer (Variable dose)	The upper piston is not moving properly;
8D		Coffee brewer (Variable dose)	The lower piston is not moving properly to the chamber;
8E		Coffee brewer (Variable dose)	The lower piston is not moving down properly;
8R		Coffee brewer (Variable dose)	Error of communication with the CPU; no power supply during the dispensing cycle;
8a		Coffee brewer (Variflex)	The coffee brewer motor is either not working or not connected; the encoder impulses are not detected by the CPU during the reset or start cycle;
8b		Coffee brewer (Variflex)	The presence microswitch is not pressed or not working during the reset or start cycle, the coffee brewer is not present;
8c		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving, the current absorption limit is reached too early during the reset or start cycle;
8d		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving, the time out has been exceeded during the reset or start cycle;
8e		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving to reach its standby position, the current required by the motor is higher than the one admitted during the reset or start cycle;
8f		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving to reach its standby position, the time out has been exceeded during the reset or start cycle;
8 A	EEG	Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving to reach its grinding position, an obstacle to the motor movement is detected during the work phase;
8B	EEZ	Coffee brewer (Variflex)	The presence microswitch is not pressed or not working during the work phase, the coffee brewer is not present;
8C	EEG	Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving to reach its brewing position, an obstacle to the motor movement is detected during the work phase;
8D	EEG	Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving up, the time out has been exceeded during the work phase;
8E	EEG	Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving down, the current required by the motor is higher than the one admitted during the work phase;

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
8F		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving down, the time out has been exceeded during the work phase;
8G		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is moving up, the time out has been exceeded during the work phase
8H		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is compressing for infusion, the time out has been exceeded during the work phase
8I		Coffee brewer (Variflex)	While the brewing chamber of the coffee brewer is compressing for infusion, the current consumption limit is detected before the chamber has reached its brewing position during the work phase; too much coffee ground in the brewing chamber; THIS CHECK IS CARRIED OUT ONLY IF THE VARIFLEX CALIBRATION HAS BEEN PERFORMED
8L		Coffee brewer (Variflex)	While the coffee brewer is brewing, the brewing chamber is not moving as expected during the work phase
8M		Coffee brewer (Variflex)	Wrong discharge position of the dose during the work phase
8N		Coffee brewer (Variflex)	Upper position not reached while moving up during the work phase
8P		Coffee brewer (Variflex)	Lower position of the brewing chamber not reached while moving down during the work phase, after brewing
8Q		Coffee brewer (Variflex)	After ejecting the dose, the brewing chamber fails to reach the upper position during the work phase.
8R	EEZ	Coffee brewer (Variflex)	The standby position has not been reached during the work phase
8S		Coffee brewer (Variflex)	The dose is not compressed during the work phase
9		Coffee beans	The maximum grinding time has been exceeded. MICRO coffee brewer: the ground coffee fails to fill the doser chamber (the control switch has not changed status); VARIFLEX coffee brewer: the brewing chamber was empty (this check is carried out only if the VARIFLEX coffee brewer has been calibrated).
9 A	EDJ	Coffee beans	in the machine with two coffee beans canister, lack of coffee beans in the left one;
9B	EDJ	Coffee beans	lack of coffee beans in the right coffee beans canister
9C		Coffee beans	Grinder - angular position beyond the minimum angular value
9D	EDU	Coffee beans	The LEFT volumetric doser has not released the ground product dose or the machine has failed to acknowledge the opening of the chamber intended to collect the ground product. In the machine without a (time-based) volumetric doser, the grinder motor has rotated beyond the limits, thus giving evidence that there are no coffee beans (speed rate higher than tolerated) or that filling is improper (speed rate lower than expected).

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
9E	EDU	Coffee beans	The RIGHT volumetric doser has not released the ground product dose or the machine has failed to acknowledge the opening of the chamber intended to collect the ground product. In the machine without a (time-based) volumetric doser, the grinder motor has rotated beyond the limits, thus giving evidence that there are no coffee beans (speed rate higher than tolerated) or that filling is improper (speed rate lower than expected).
10	ECO	EAROM	Stored data are not consistent (reading or writing error) and the overall operation of the vending machine may be otherwise than expected;
10 A		Snack Slave	Snack data audit error; the error is specific to the reading of the data of selections;
10B		Snack Slave	Snack data audit error; the error is specific to the reading of the data of configurations;
10C		Snack Slave	Snack data audit error; the error is specific to the EAROM reading;
11	EBZ	Cup sensor	A cup or another kind of obstacle has been detected in the cup station at the beginning of the selection;
12	EBM	Cup station with fork	The cup support fork has not properly rotated; the device motor may be faulty or disconnected or its rotation is hindered or slowed down by a physical obstacle;
12	EBM	Cam dispenser	The cam device acting on the tubes that supply the mixing bowls (instant products) is not working properly; motor disconnected, position sensor out of order;
12	EBM	Cup sensor	The cam device acting on the tubes that supply the mixing bowls (instant products) is not working properly; motor disconnected, position sensor out of order;
13	EBI	Cup station	The cup is not properly positioned to accept the selection you have dispensed; it might have been properly released, but ill-positioned since the detection system is unable to acknowledge its presence
14	EFG	Water inlet	The error is triggered if water is not reloaded after six dispensing cycles; even a water inlet pressure value other than the pre-set one, may cause this error, thus filling in the pressure boiler or the boiler in excess and providing for a number of dispensing cycles higher than the pre-set one; if selections are dispensed with a limited water quantity, the error is more likely to occur.
14 A		Water inlet	For the Instant version
14B		Water inlet	For the Espresso version
15	EBN	Cup dispenser	The cup column has failed to rotate properly; the error occurs when the machine rotates the cup columns to search for one containing cups and the rotation is not perceived within a pre-set time interval.
15 A		Cup dispenser	For the cup column closest to the door hinge
15B		Cup dispenser	For the cup column farthest from to the door hinge

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
16	EC1B	Programming keyboard	The programming keyboard inside the machine has a short-circuited key or it has been pressed too long; if pressed too long, the manual release key of cup turrets may cause this error.
17	EC1B	Keyboard	A key appears as if it were constantly pressed
17 A		Keyboard	The selection keyboard has at least one button locked
17B		Keyboard	A button of the sugar selection keyboard is locked
23	EEA	Tea brewer	After a dispensing cycle, the tea brewer has not moved back to its standby position.
23B		Tea brewer	The brewing time is too long
24	ECA	Power supply unit	Power supply failure
24 A		Power supply unit	The actual 24 V dc voltage value is higher than the tolerated one
24B		Power supply unit	The measured 24 V dc voltage is below the admitted threshold or totally absent, e.g. because a fuse has tripped.
25 A	EBM	Cup dispensing cycle	The cup has not been properly dispensed; the gear moving the augers intended to release the cup dispenser has been activated too long or it has not moved at all - Dispenser 1
25B	EBM	Cup dispensing cycle	The cup has not been properly dispensed; the gear moving the augers intended to release the cup dispenser has been activated too long or it has not moved at all - Dispenser 2
25C	EBZ	Cup dispensing cycle	Cup properly dispensed, but failed to reach the correct position waiting for the drink or the cup sensor has not worked
26		Dispensing station	The motor-driven hatch protecting the dispensing compartment has not properly moved.
31		Espresso coffee water	Espresso coffee water failure
31 A	EDN	Espresso coffee water	The pressure boiler water temperature is higher than the programmed value.
31B	EDK	Espresso coffee water	Water fails to achieve the temperature setpoint.
31C	EC1C	Espresso coffee water	The temperature probe is interrupted or its electric connector disconnected.
31D	EDK	Espresso coffee water	The temperature fails to achieve the programmed value within the admitted time limit.
31H		Espresso coffee water	No current in the induction transducer

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
31V		Espresso coffee water	Induction heatsink temperature too high or temperature probe faulty
32		Coffee brewer chamber	Coffee brewer chamber temperature failure or coffee brewer heater faulty
32 A	EDN	Coffee brewer chamber	The coffee brewer chamber temperature is higher than the set value.
32B	EDK	Coffee brewer chamber	The coffee brewer temperature is lower than the programmed one.
32C	EC1C	Coffee brewer chamber	The temperature probe of the coffee brewer is faulty.
32 A	EDN	Coffee brewer heater	The coffee brewer temperature is higher than the programmed value;
32B	EDK	Coffee brewer heater	The coffee brewer temperature is lower than the programmed value;
32C	EC1C	Coffee brewer heater	The temperature probe of the coffee brewer is faulty;
33		Instant product water temperature	Instant product water temperature
33 A	EDN	Instant product water temperature	The boiler water temperature is higher than the programmed value.
33B	EDK	Instant product water temperature	The boiler water has failed to achieve the programmed temperature.
33C	EC1C	Instant product water temperature	The boiler temperature probe is interrupted; its electric connector is disconnected.
34	OBT	Cooling unit temperature	In the vending machine with internal cooling unit, the water temperature of the cooling tank is not compliant; the water level might be not enough.
34 A		Snack Slave	
34B		Snack Slave	
34C		Snack Slave	
34C		Cooling unit temperature	Temperature probe interrupted.
34D		Cooling unit temperature	Temperature probe interrupted.
35	EHC	Carbonator	The carbonator water level might be not enough;

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
41	OAK	Water filter counter	The number of dispensing cycles made requires the operator to replace the water filter cartridge outside the machine.
42	OAJ	Coffee dispensing counter	The coffee brewer has dispensed such a number of espresso cups that maintenance is required.
43	OBH	Grounds counter	The number of coffee doses in the grounds tray has reached the maximum limit.
50	ECF	Connection	Faulty data exchange between CPU and power board (via USB cable).
51	ECF	Connection	Faulty communication between power boards and coffee brewer control
53	ECF	Connection	Faulty communication between machine and cooling unit.
54		Connection	Faulty communication between machine and cappuccinatore.
55	ECF	Connection	Faulty data exchange between CPU and control board for dispensing cups and stirrer (via USB cable).
77	ECF	CPU	The buffer battery might be low; the "clock" function has not been properly fulfilled, carefully check the clock-related machine functions that might have been compromised by the lack of time references.
80 N	EAU	MDB change-giver	MDB change-giver
80 4		MDB change-giver	A tube sensor is not working
80 6		MDB change-giver	Validator not inserted or disconnected
80 7		MDB change-giver	A coin tube is not working properly
80 8		MDB change-giver	ROM with reading / writing error
80 C		MDB change-giver	Coin locked along the acceptance path
80 D		MDB change-giver	Attempt at fraud and coin removal
99		Product counters	All product counters have reached the disable value
110		Tea brewer microswitch	The microswitch of the tea brewer motor cam is not connected; wiring is interrupted;
111	EDZ	Cup dispenser	Covers lacking in the turret, pay attention to the loading direction and dimension of covers.
112		Cup dispenser	Gear dispensing the turret covers locked.

OFF code	EVA-DTS code	CONTEXT	ERROR DESCRIPTION
113		Cup dispenser	Gear ejecting the covers locked.
114		Cup dispenser	The hatch intended to protect the dispensing compartment has been opened for a time longer than the admitted one; a physical obstacle might prevent it from closing;
121		Cappuccinatore	Pressure boiler filling time too long; the water supply might be totally lacking, its pressure might be not enough or some obstacle might slow down the regular water flow (filter grilled cover of the master machine, inlet hoses either choked or clogged); the water inlet solenoid valve safety of the master machine has tripped;
122		Cappuccinatore	The error is triggered if water is not reloaded after six dispensing cycles; even a water inlet pressure value other than the pre-set one, may cause this error, thus filling in the pressure boiler or the boiler in excess and providing for a number of dispensing cycles higher than the pre-set one; if selections are dispensed with a limited water quantity, the error is more likely to occur.
123 A		Cappuccinatore	The pressure boiler water temperature is higher than the programmed value.
123 B		Cappuccinatore	The pressure boiler water fails to achieve the temperature setpoint.
123 C		Cappuccinatore	The temperature probe of the pressure boiler is interrupted or its electric connector disconnected.
124		Cappuccinatore	The internal optical sensor fails to detect the presence of milk in the conveying tubes
34	EJJ	Snack dispenser	The snack machine temperature is other than the programmed one.
36	EC1B	Snack dispenser	The snack machine keyboard has a faulty key.
37	EJB	Snack dispenser	The motors of the snack machine spirals are not properly working or error of connection with the master machine.

15. Deinstallation procedure (required only for espresso models)

In case of temporary or definitive service interruption of the vending machine, discharge water from the hydraulic installation to avoid any bacterial growth, mould or anything else and to restore the same optimal conditions of the vending machine as when it is delivered by the manufacturer.

To uninstall properly, follow the instructions supplied here below:

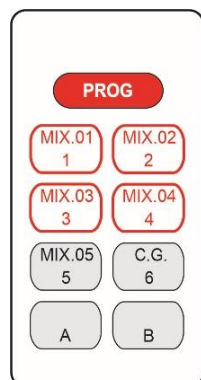
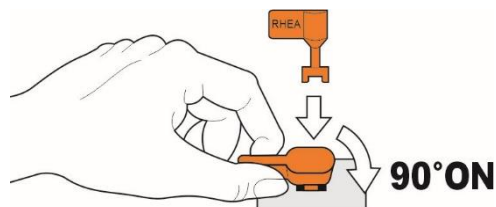
Power on the vending machine; open the door and use the service key to activate the functions of the vending machine:



Insert and rotate the service key into the door switch;



Attention The vending machine is supplied and operating to all effects; the mobile parts of the coffee brewer will be handled, act with the utmost caution; wait for the turrets to complete their rotation and load the column that has remained empty.



Enter in PROGRAMMING mode by pressing the PROG button on the programming keyboard and browse to MISCELLANEOUS menu.

The menu on the front display is activated in the “programming” mode

PROGRAMMING -----
-MISCELLANEOUS --

Deinstallation
4=START

Boiler valve
opens automatic

Deinstallation
END

Select **DEINSTALLATION** parameter and press **button 4** to start the procedure.

At the end of the procedure, the message **END INSTALLATION** appears. The machine has now to be rebooted.

Here the details of the installation procedure for the touch versions machines:

- Enter in PROGRAMMING mode by pressing the PROG button on the programming keyboard
- Browse to **INSTALL/UNINSTALL** menu
- Set parameter cpu booting mode to **UNINSTALLATION** ,the valve of the boiler will be automatically opened
- Press **SAVE** and then QUIT.
- Display shows the message **CPU UNINSTALLATION IN PROGRESS**
- Once the procedure is completed, the message **CPU UNINSTALLATION FINISHED** is shown. You can now turn off the VMC

Important note:



The vending machine with induction heating has no uninstallation procedure, the technician is not required to act.



Important note:

- The open-top boiler heating has no uninstallation procedure.
- it is only necessary to discharge water from the boiler by using its outlet hose.

16. Suspension of the service (temporary inactivity)

If the machine should remain off for more than two weeks, for any reason, it is necessary to:

- Empty the grinder completely by dispensing espresso coffee till an empty signal is sent out.
- Use the side handle to remove the cup station from inside the door, separate its components and clean them with plenty of lukewarm water; clean the transparent bulkhead from the inside.
- Remove the product canisters from the vending machine and the product chutes from the canisters, clean them with plenty of lukewarm water (product chutes are plugged in).
- Turn the levers intended to fasten the mixing bowls clockwise, remove the dispensing nozzles, pull the mixing bowls and the upper ring; remove the chutes and the sugar dispensing tube; clean the assembly of disassembled parts with plenty of lukewarm water.
- Remove any trace of residue from the internal surfaces of the machine and clean with a damp cloth.
- Remove any trace of residue from the internal surfaces of the door, above all in the proximity of the cup station.
- Empty the grounds bag.
- Empty the hydraulic circuit completely (see the uninstallation procedures).



Before setting the machine at work again, carry out the cleaning and sanitising operations described above.

17. Out of service

17.1. Temporary out of service

- In machine E, carry out the uninstallation cycle.
- In machine I, set the boiler water temperature to zero.
- Disconnect the water and power supply.
- In machine I, empty the boiler.
- Empty the waste water bucket.
- Remove the grounds bag.
- Empty and clean the product canisters.
- Use a wet cloth to clean internal and external surfaces.
- Use a cloth to cover the machine
- Store it in a sheltered place at a temperature not below 5 °C, relative humidity not above 80%.

17.2. Definitive out of service



If you should put the vending machine out of service definitively and provide for the disposal of the components thereof, after carrying out the operations above, disassemble the vending machine by subdividing the parts according to the nature of the materials; the symbol applied means that the components of the vending machine shall not be treated as household waste, but delivered to the dump sites suitable for recycling electric and electronic equipment.



Refer to Directive 2012/19/EU and to the provisions thereof; the complete text of the Directive is available at the following address http://eur-lex.europa.eu/directive_2012/19/EU

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