N&W
GLOBAL VENDING

TECHNICAL AND AFTER-SALES SERVICE

SERVICE MANUAL

"KORINTO"

(Espresso Version)

INDEX

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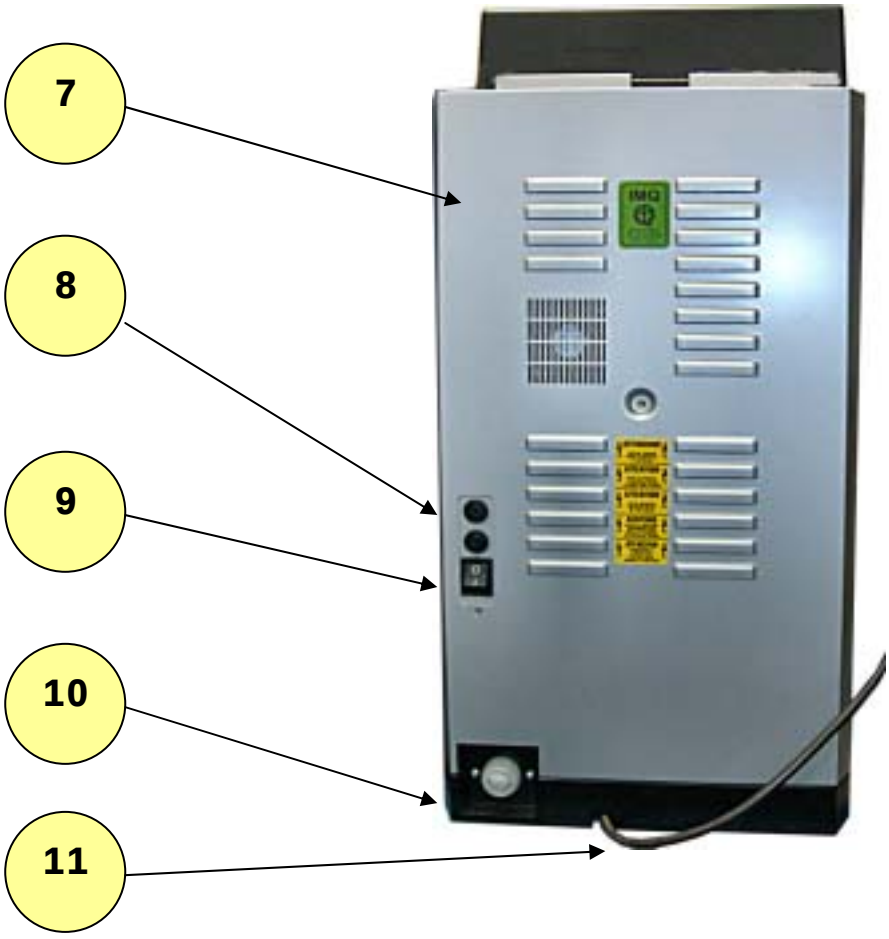
DOUBLE CUP & SINGLE CUP

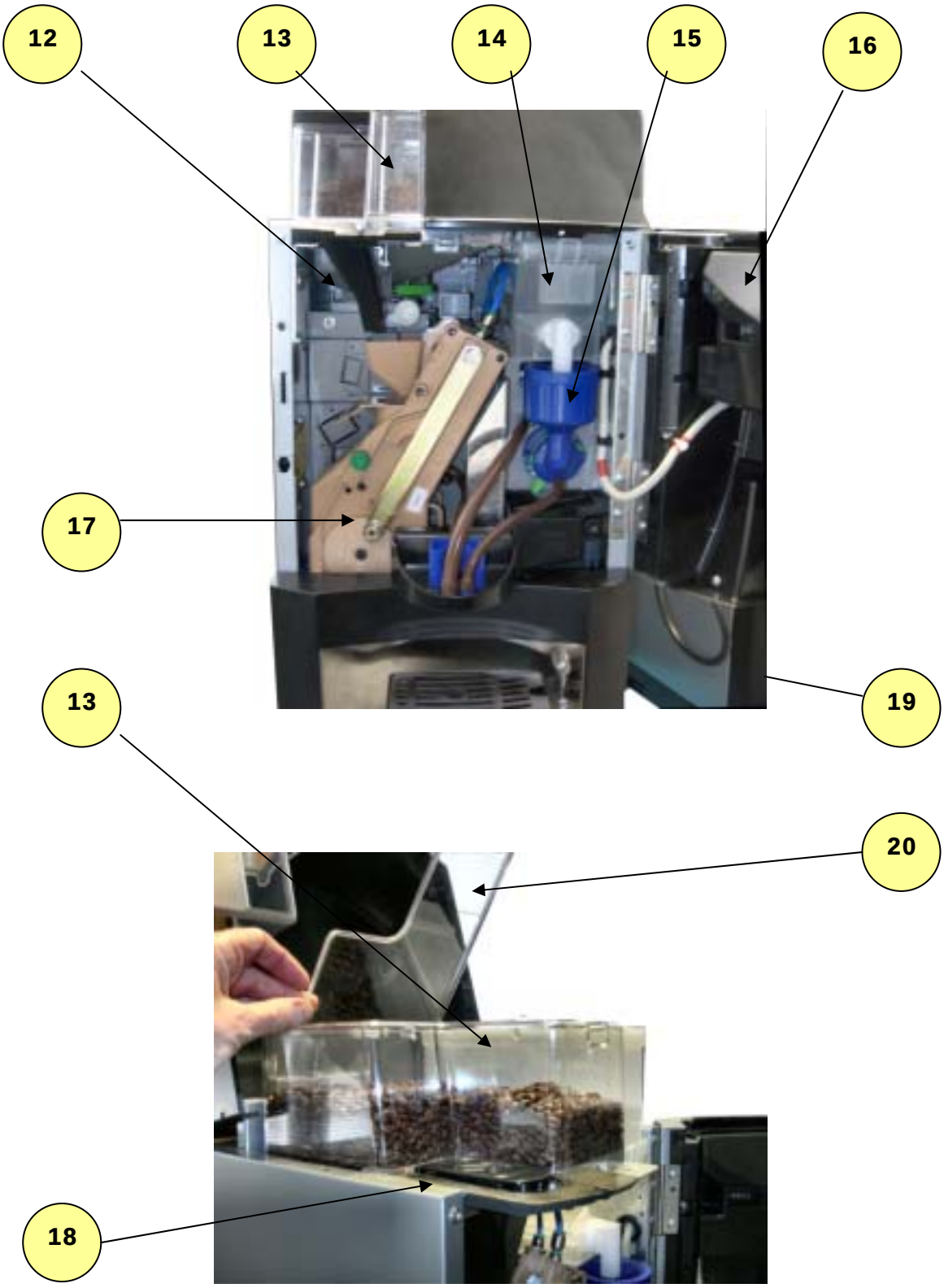
ESPRESSO VERSION WITH FROTHER AND CUP-WARMER

FRESH BREWER VERSION

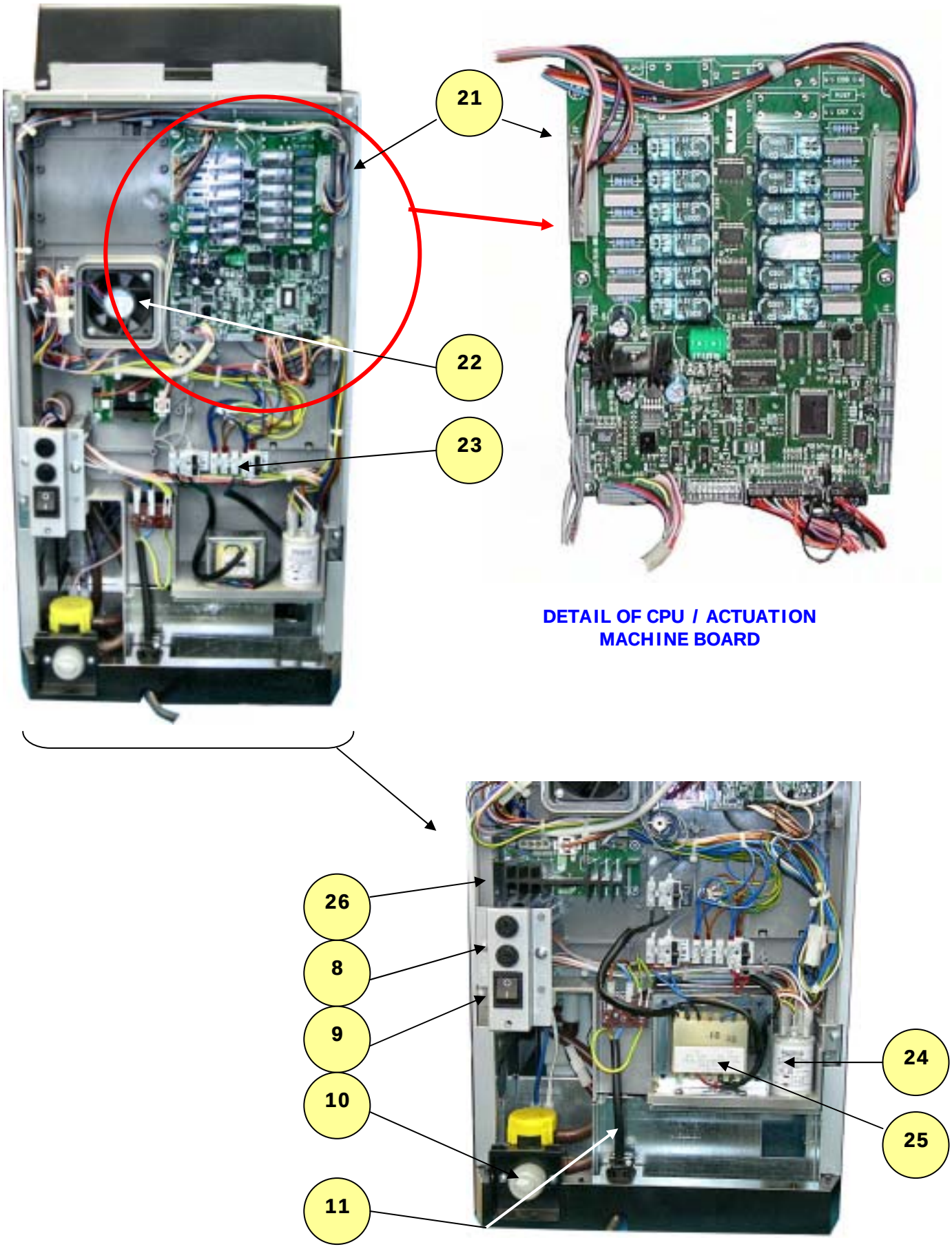
1.1 MAIN EXTERNAL COMPONENTS



1.2 MAIN INTERNAL COMPONENTS



REAR COMPARTMENT WITHOUT PROTECTIVE CASING



DETAIL OF CPU / ACTUATION MACHINE BOARD

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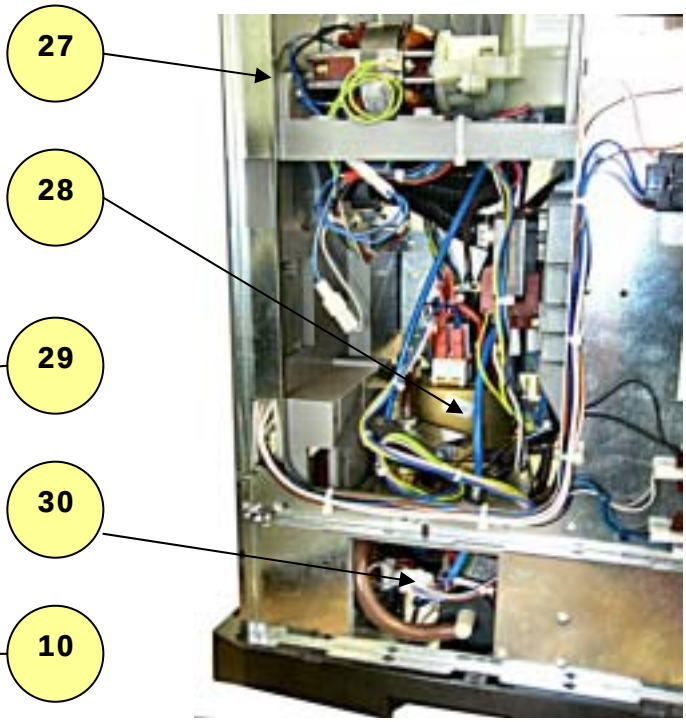
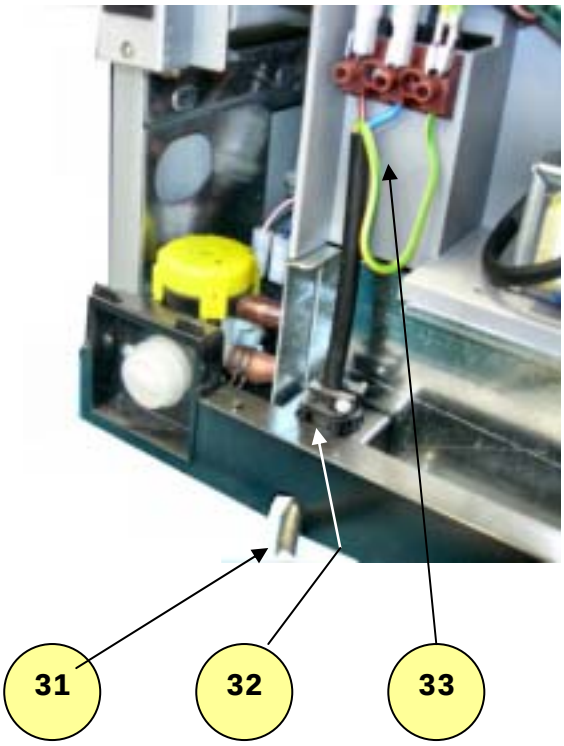


SIDE VIEW WITHOUT PROTECTIVE CASING - ESPRESSO BOILER SIDE



DETAIL OF POWER SUPPLY CABLE CLAMPING

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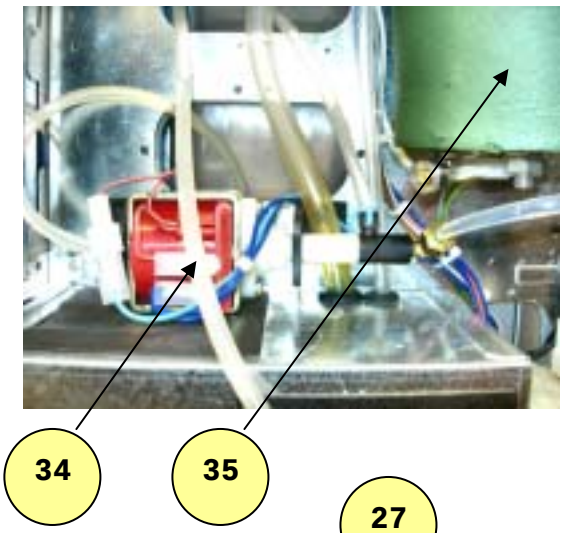
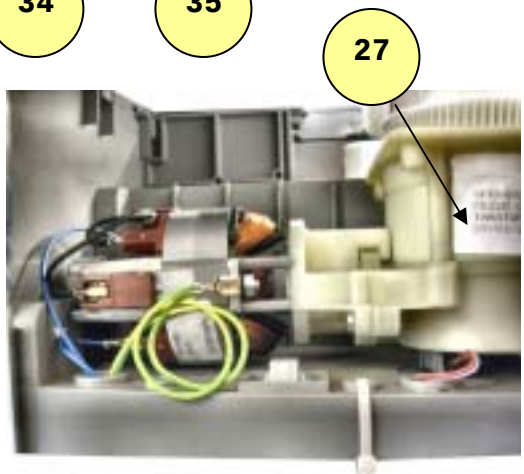
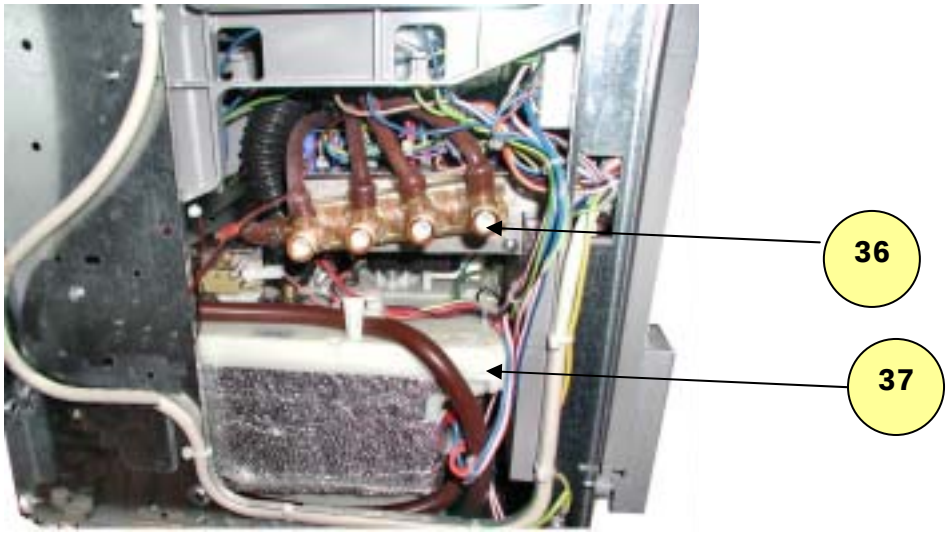




DOSER GRINDER UNIT DETAIL

SIDE VIEW WITHOUT PROTECTIVE CASING - INSTANT BOILER SIDE
(Only for INSTANT VERSION or FRESH BREWER)

FRONT VIEW WITHOUT PROTECTIVE CASING - INSTANT BOILER SIDE
(Only for INSTANT VERSION)



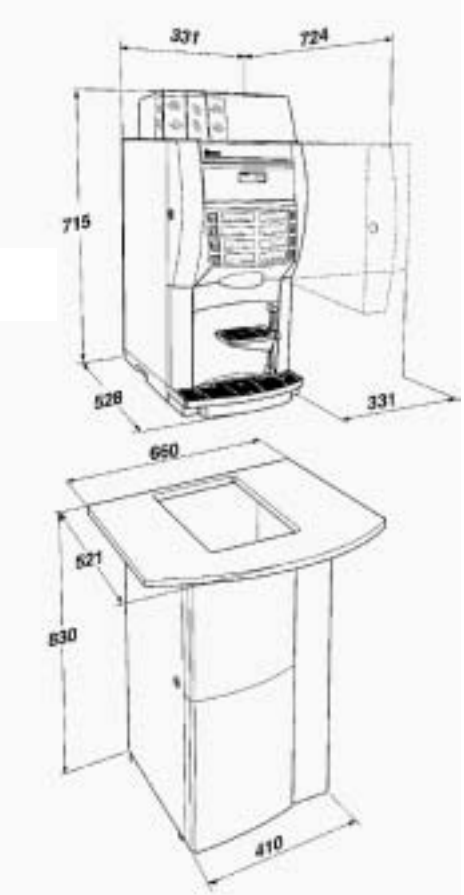
DETAIL OF SOLENOID VALVES FOR INSTANT BOILER
(Only for INSTANT VERSION)

2 - LIST OF MAIN COMPONENTS

N° Ref.	DESCRIPTION
1	Lock
2	Cabinet
3	User interface
4	Selection keypad
5	Dispensing unit
6	Cup tip-up support
7	Rear protective casing
8	Power supply fuses
9	Main switch
10	Water inlet solenoid valve
11	Power supply cable
12	Grinder and doser device
13	Coffee beans hopper
14	Instant product canister
15	Mixer assembly
16	Door
17	Espresso coffee brewer unit
18	Decaf. coffee door (pre-measured sachets of ground coffee)
19	Coffee hopper lid
20	Spouts assembly
21	Actuation and control board
22	Exhaust fan
23	Fuse box
24	Power supply interference suppressor
25	Transformer
26	Boiler power supply board
27	Grinder and doser device
28	Espresso boiler
29	Air break
30	Vibration pump
31	Power supply cable
32	Cable clamp
33	Power supply cable connector
34	Frother pump
35	Frother unit boiler
36	Instant boiler solenoid valve
37	Instant boiler

3 – TECHNICAL DATA AND FEATURES

Height	28.14"
Width	13.03"
Depth	20.78"
Overall depth with door open	28.89"
Weight	**70.54lb**
Power supply	120V AC 60 Hz
Installed power	1300W(Espresso)



Overall size of vending machine and of base cabinet (optional)

Payment systems used:

The machine is pre-set to use (by means of special kits) payment systems, coin mechanisms and 24 V DC validators with EXECUTIVE, BDV and MDB protocols.
The payment systems must be housed in the special side module supplied as optional accessory together with the payment system kits.

Water supply:

From the mains, 7-123PSI 0.05-0.85 Mpa 0.5-8.5

Available adjustments:

Grade of grinding for espresso coffee
Espresso coffee dose through number of rotations of grinding wheels +
Water doses for coffee by volume
Water doses for instant products by timing
Powder doses for instant products by timing
Boiler temperature adjusted via software

Base versions:

Espresso – Instant – Fresh brever

Installed boilers and temperature:

Una caldaia in pressione per la versione espresso
One open-top boiler for Instant and Fresh-brew versions - Temperature setting via SW

Safety devices:

Main switch (at the back) – Main safety switch for opening the door
Water inlet solenoid valve with passive overflow device
Manual-reset boiler safety thermostat
Manual-reset instant boiler anti-boiling thermostat
Air-break float jamming and instant boiler
Presence of liquid waste tray – Presence of coffee grounds tray
Boiler sensor control (short-circuit or failure)
Double heating and timing protection for:
Pump – Doser devices – Coffee unit ratiomotor – Coffee grinder – Mixer motors
Fuse protection for: Transformers, electronic boards and main wiring
Protection for 100% impedance: Instant product solenoid valves, water inlet solenoid valve

Controls:

Presence of water - Presence of coffee - Operating temperature reached

4 – ELECTRICAL SAFETY AND RELEVANT STANDARDS

The vending machine **KORINTO** was designed and made in conformity with the provisions of the following directives and related European standards:

MACHINE SAFETY DIRECTIVE EEC 98/37

EN 60529 UNI EN 292 –1-2 IEC 695-2-2

LOW VOLTAGE DIRECTIVE EEC 73/23; EEC 89/392; EEC 89/336

(the low voltage directive covers all equipment powered with voltage below 400 V AC)
The following European standards are applied:
EN 60335-2-14 EN 60335-2-15 EN 60335-2-24 EN 60335-2-75

ELECTROMAGNETIC COMPATIBILITY DIRECTIVE

EN 61000-3-3 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-11

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With regard to **Low Voltage** and **Electromagnetic Compatibility** this vending machine KORINTO was tested and certified by **IMQ**, a certifying body authorised by ministerial decree at European level**.**
It is therefore prohibited (on pain of voiding the warranty and the responsibility of the certification) to replace any electrical component with non-original parts during the routine and extraordinary maintenance operations.

Therefore it is also prohibited to:

Tamper with or deactivate the safety systems installed in the vending machine.
Install the vending machine outdoor or in any case in a place that is not protected from the weather.
Use the vending machine for purposes other than those indicated in the sales contract.
Connect the vending machine by means of extension cords or multiple sockets and/or adapters.
Use water jets for cleaning.

Then, it is also compulsory to:

Verify the conformity and suitability of power supply line and of the power outlet.

5 – REQUIREMENT FOR THE USERS

For safety purposes, three different operators with different qualifications have been defined.

USER

The user is practically the final user who buys the products from the machine.
The user must not have any access whatsoever to the inside of the machine.

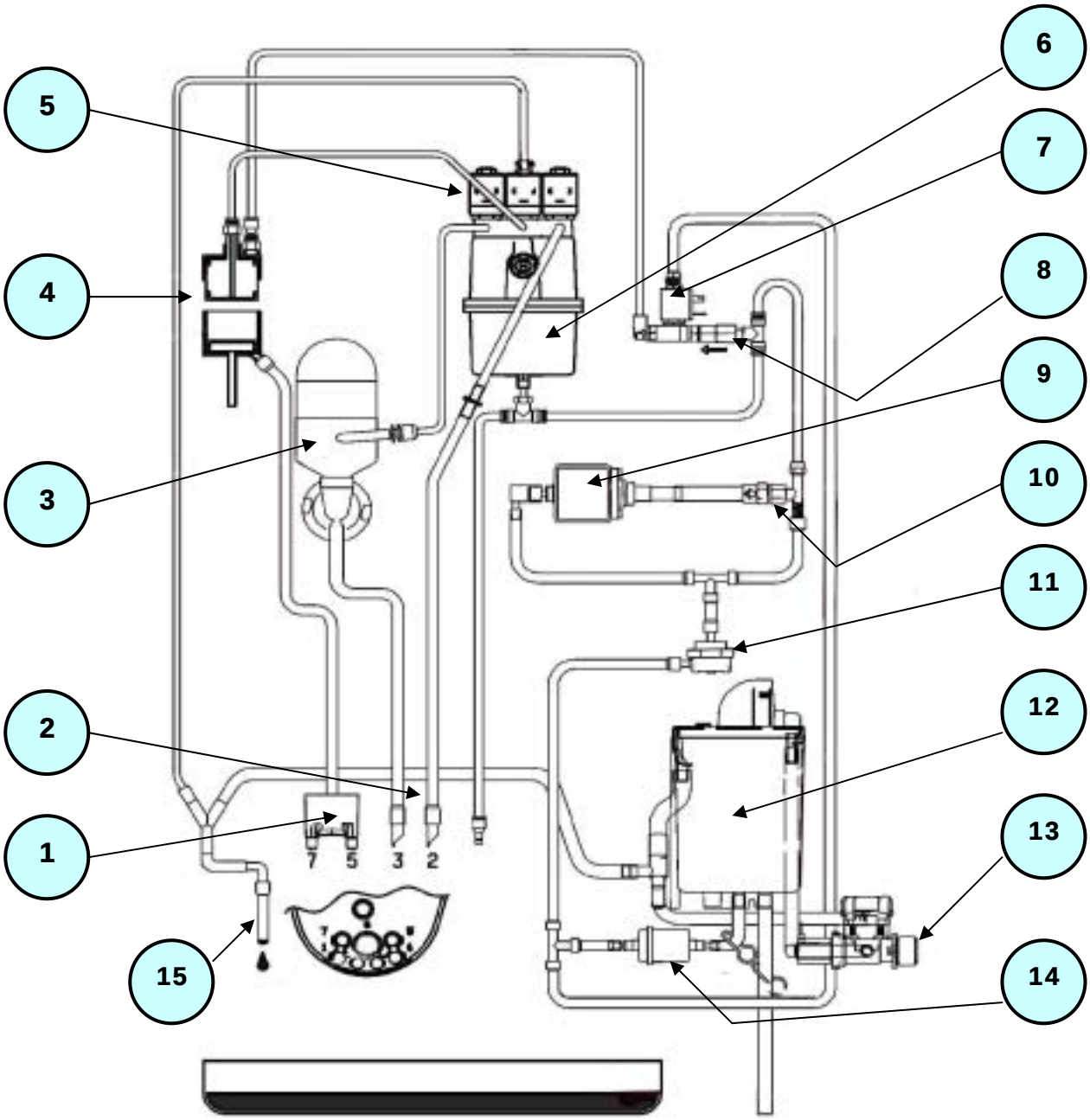
PERSON RESPONSIBLE FOR REFILLING AND ROUTINE CLEANING

The person responsible for refilling has the key for opening the machine and is in charge of the refilling, cleaning and internal hygiene of the machine.
He must not have any access to energised parts or moving parts.

MAINTENANCE TECHNICIAN

The maintenance technician must be a highly skilled person and must be aware of the electrical hazards in the event of complex technical operations and can operate with the machine switched on and the door open, using the safety key supplied.

6 – HYDRAULIC LAYOUT “ESPRESSO”

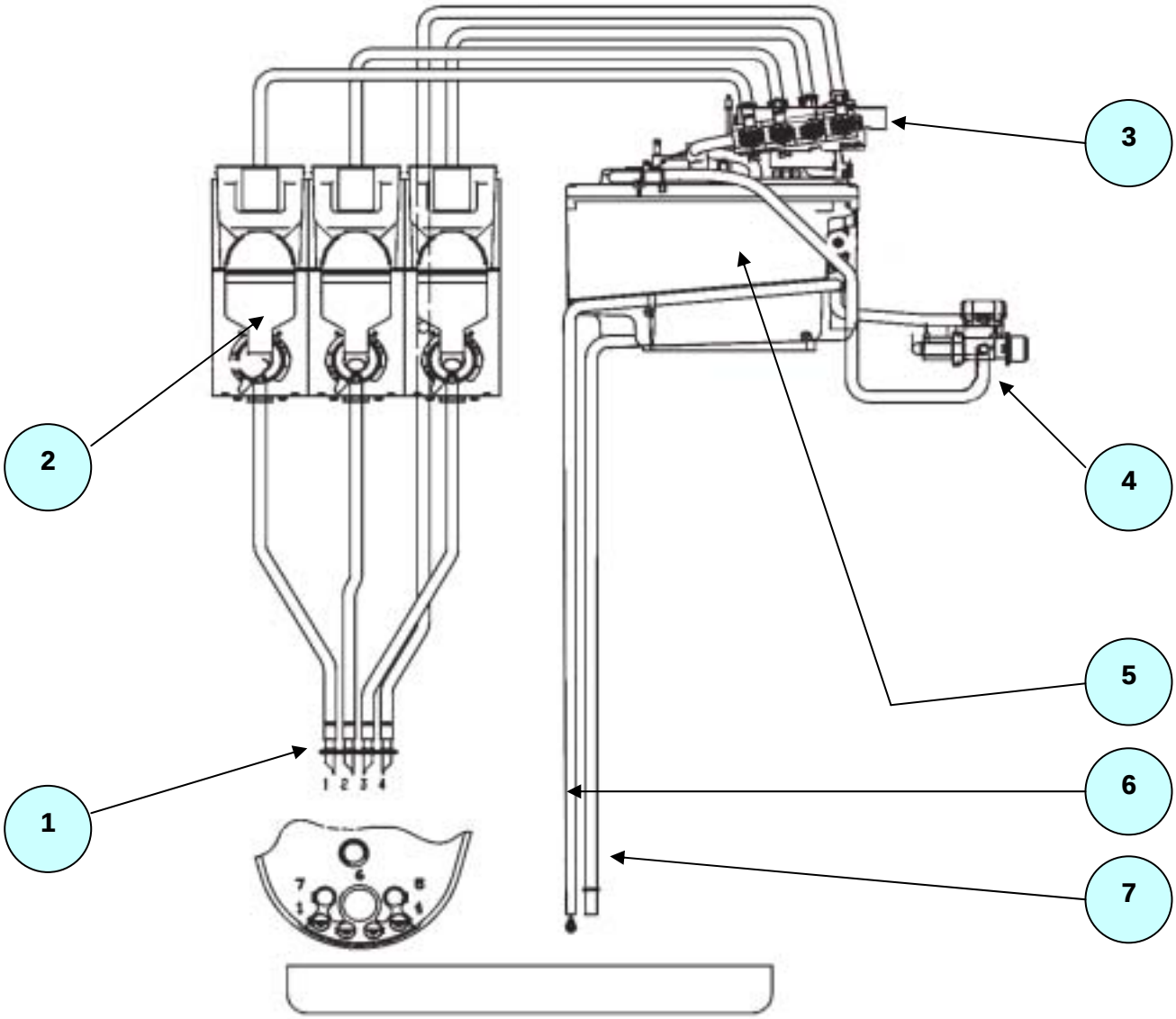


ESPRESSO VERSION COMPONENTS (with variable brewing chamber)

RIF	DESCRIPTION	RIF	DESCRIPTION	RIF	DESCRIPTION
1	Spouts assembly for double coffee	**2**	Instant drinks spouts assembly	**3**	Mixer
4	Brewing chamber	**5**	Solenoid valve assembly	**6**	Espresso boiler
7	Piston solenoid valve	**8**	By-pass	**9**	Vibration pump
10	By-pass pump	**11**	Volumetric counter	**12**	Air-break
13	Water solenoid valve	**14**	Water filter	**15**	Vent tube

N.B. The diagram shown is given only as a reference as it may differ for each version.

7 – HYDRAULIC LAYOUT “INSTANT”

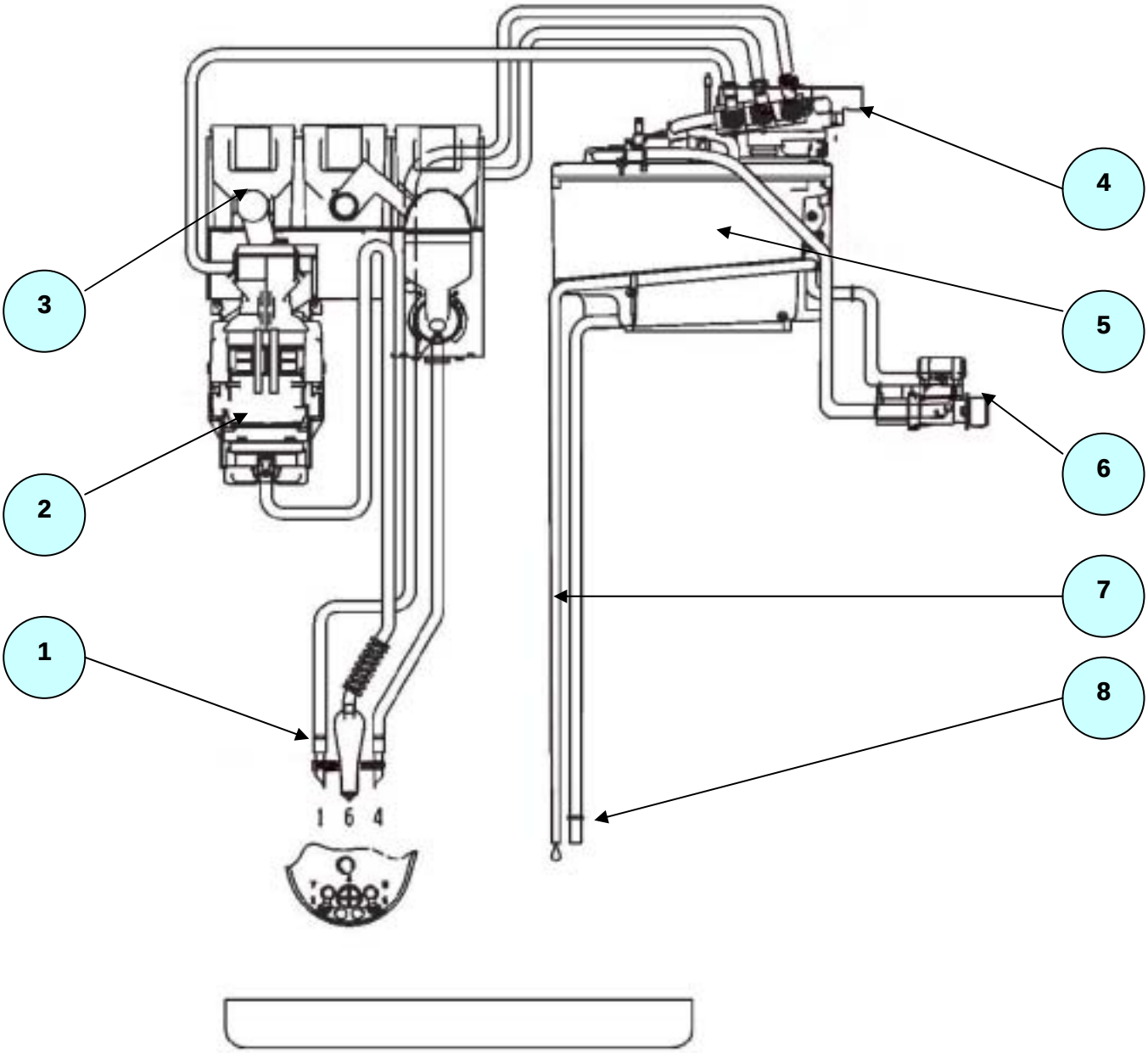


INSTANT VERSION COMPONENTS

RIF	DESCRIPTION	RIF	DESCRIPTION	RIF	DESCRIPTION
1	SPOUTS ASSEMBLY	**2**	Mixer	**3**	Solenoid valves
4	Water solenoid valve	**5**	Boiler assembly	**6**	Boiler vent tube
7	Drain tube				

N.B. The diagram shown is given only as a reference as it may differ for each version.

8 – HYDRAULIC LAYOUT “FRESH BREWER”



COMPONENTS OF FRESH BREWER VERSION

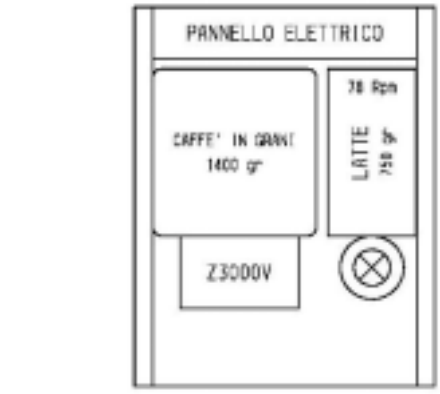
RIF	DESCRIPTION	RIF	DESCRIPTION	RIF	DESCRIPTION
1	Spouts assembly	**2**	Sigma Brewer unit	**3**	Mixer
4	Solenoid valves	**5**	Instant boiler	**6**	Water solenoid valve
7	Vent tube	**8**	Drain tube	**9**	

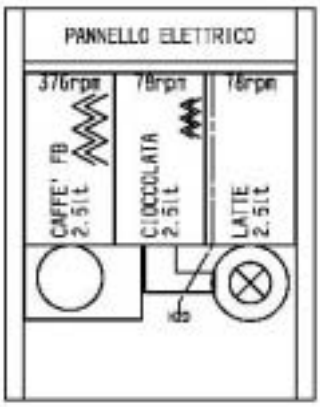
N.B. The diagram shown is given only as a reference as it may differ for each version.

9 - INTERNAL LAYOUTS

EXAMPLES OF INTERNAL LAYOUT

NOTE: THE FOLLOWING I LAYOUTS ARE ONLY GIVEN AS AN EXAMPLE FOR THE PURPOSE OF INDICATING THE CONFIGURATION POSSIBILITIES. REFER TO THE TABLES SUPPLIED WITH THE MACHINE FOR THE ACTUAL LAYOUT.





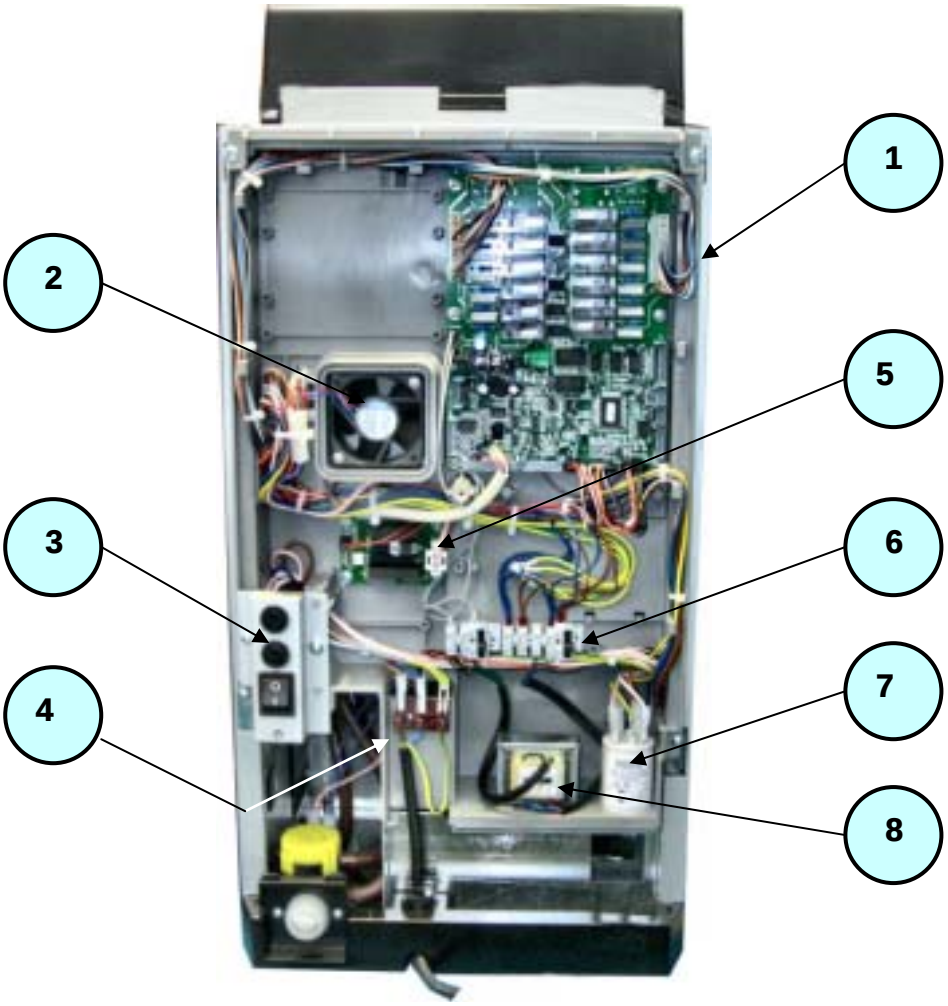
LAYOUT OF KORINTO INSTANT AND SELECTION PANEL

LAYOUT OF KORINTO FRESH BREWER AND SELECTION PANEL

9.1 - ELECTRICAL SYSTEMS – CONNECTIONS

The machine is designed to operate under a single-phase voltage of 120 V AC (+5-10V)
It is protected with a main 15 A fuse on both phases.
With regard to the transformer: the primary winding is protected with a 125 mA fuse
the secondary winding is protected with a 1.25 mA fuse
It is fitted with a door opening safety switch.
The power cable can be supplied as standard feature and chosen among the following types:
1) HO5 RN – F copper with a 3 x 1.5 mm^2 section
2) HO5 V V – F ,, ,, ,, ,,
3) HO5 V V – F ,, ,, ,, ,,
Fitted with a fixed SCHUKO ** plug.
NB **: it is possible that for some specific markets a cable with specific plug be fitted in accordance with the regulations in force in that country.
In the event of replacement cables of exactly the same characteristics must be used.
Since the "**KORINTO**" vending machine is approved by an electrical safety certification institute **(IMQ)**, replacements with non-original components are not permitted.
Otherwise the electrical safety certificate and the warranty will be void.

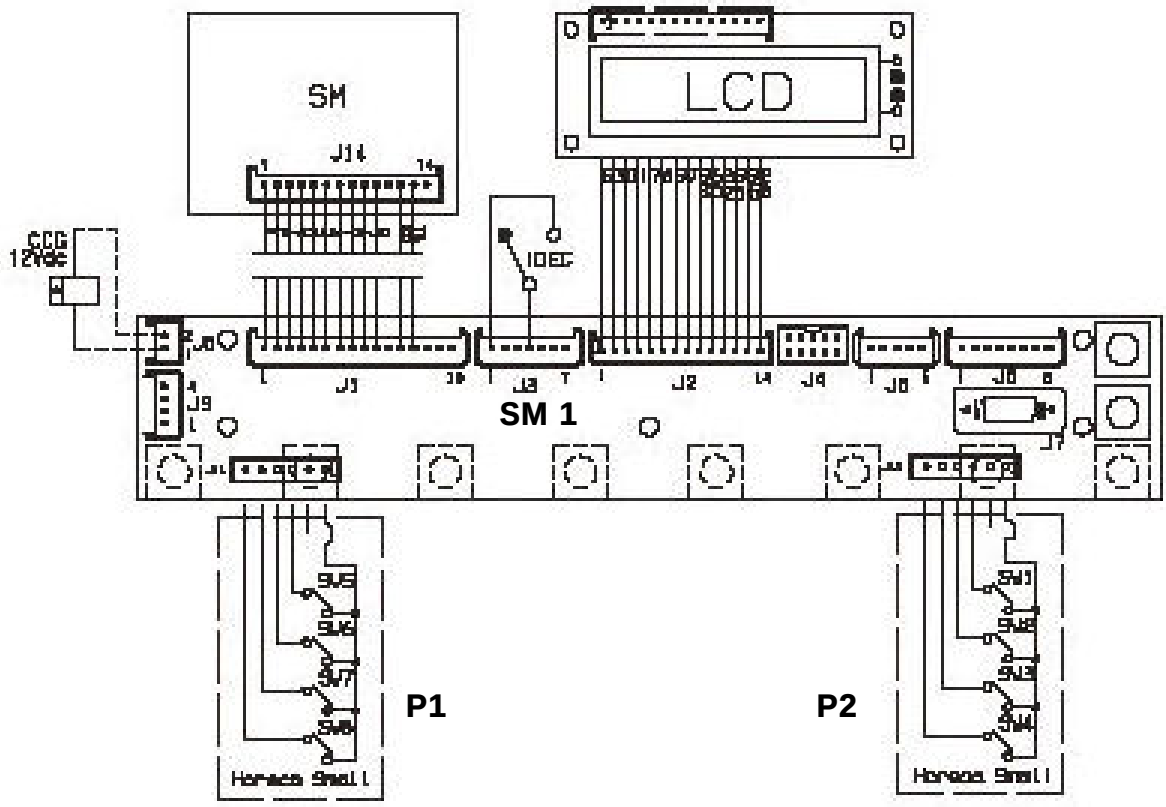
9.2 – CONNECTION OF ELECTRONIC BOARDS



1	Actuation board
2	Steam exhauster
3	Switch and fuses
4	Terminal strip
5	Boiler control board
6	Secondary winding fuses
7	Interference suppressor filter
8	Transformer

VIEW OF POWER SUPPLY UNIT COMPARTMENT AND ACTUATION BOARD (ESPRESSO VERSION WITHOUT REAR PROTECTIVE CASING)

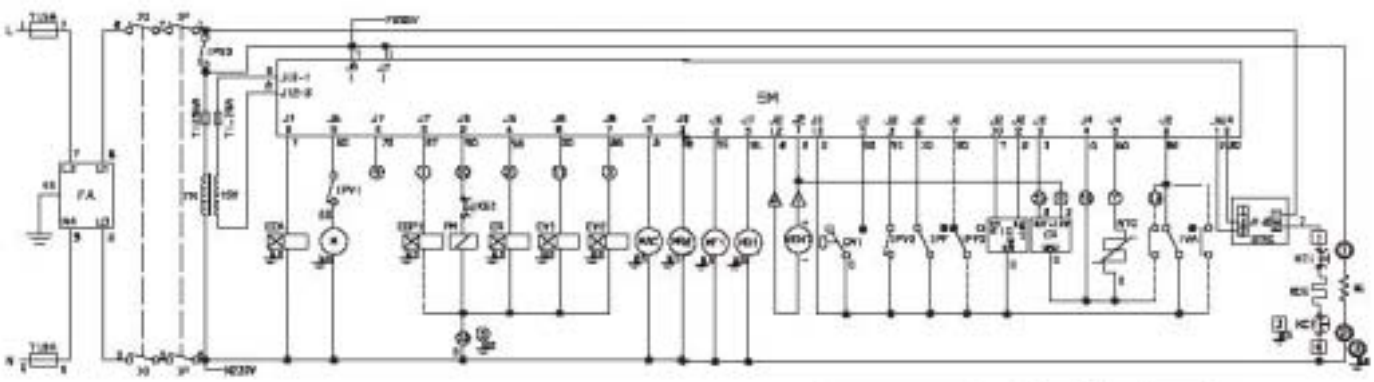
BOARD CONNECTION DIAGRAM

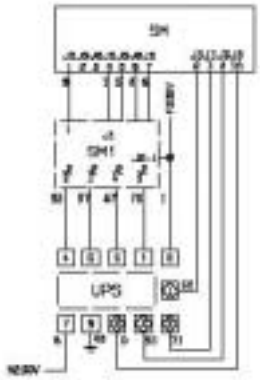


Signal	DESCRIPTION
SAL	Power supply card
SM FB	Sigma brewer control board (where provided)
SM	Actuation & control board
CCG	Mechanical general counter
SM 1	Push-button and display control card
LCD	Liquid Crystal Display
IDEC	Decaf. coffee door switch
P1- P2	Selection keypad

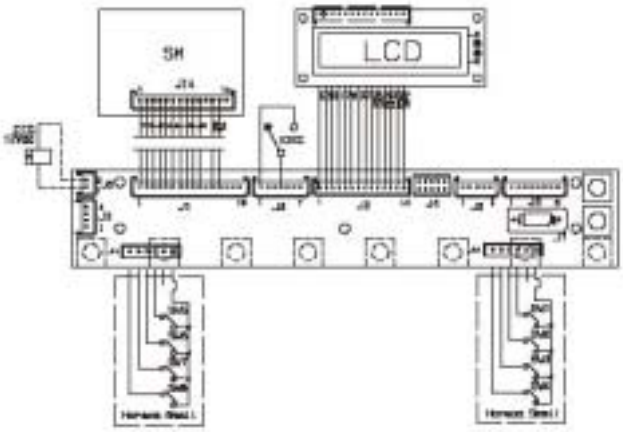
NB: The above codes are indicated in the wiring diagrams and in the tables supplied with the machine.

10 - WIRING DIAGRAMS





UPS CONNECTION DIAGRAM
(Cooler unit)



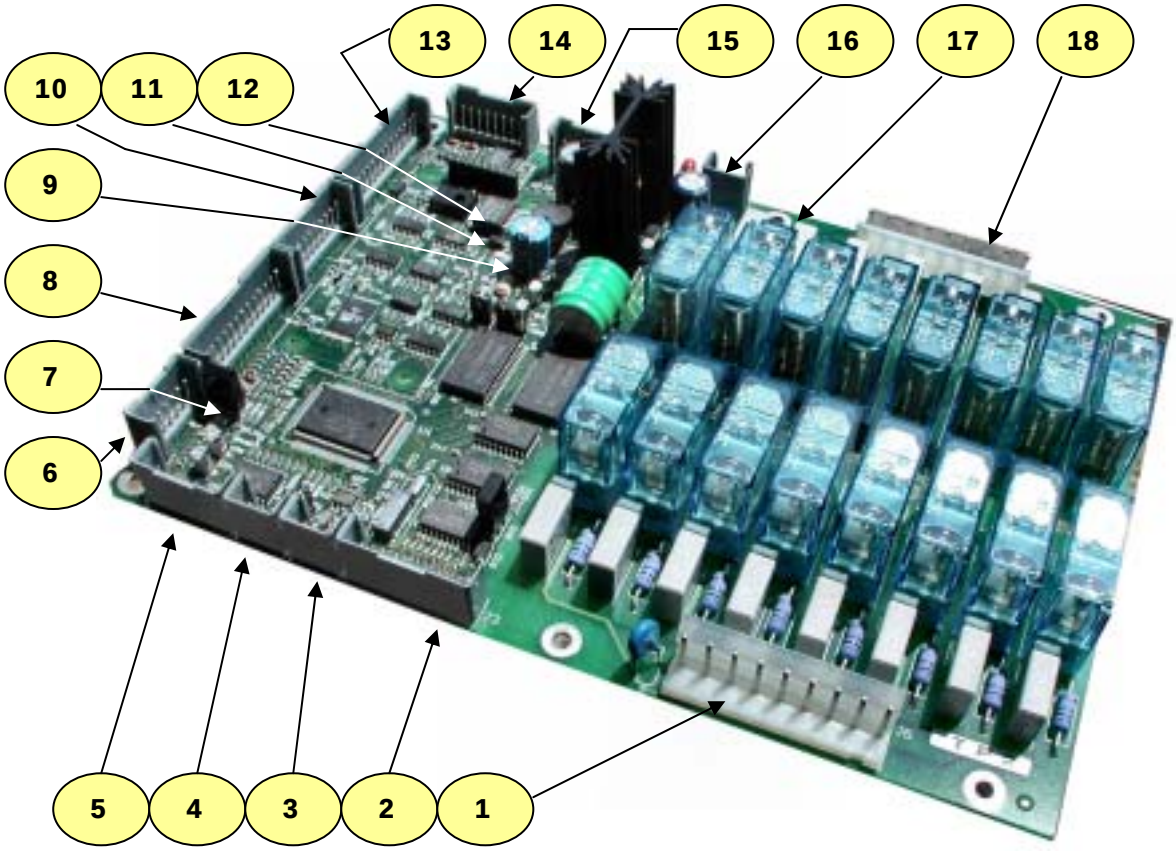
BLOCK CONNECTIONS DIAGRAM
(see detail in previous page)

11 - ACTUATION BOARD – CONFIGURATIONS

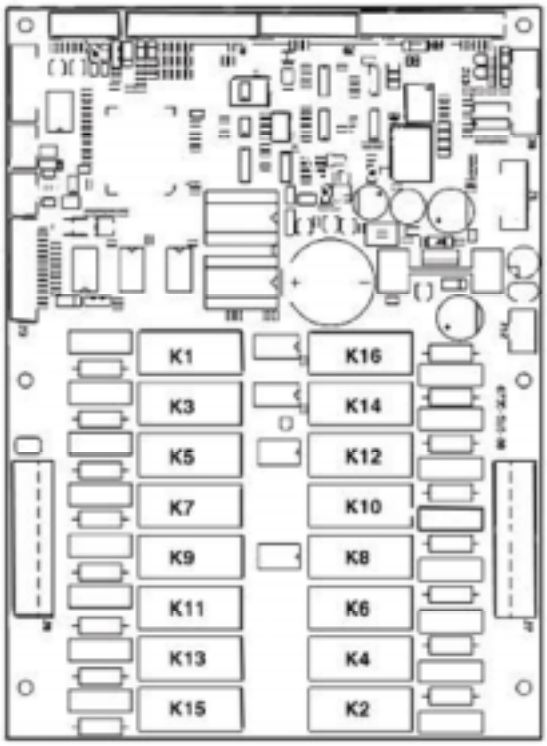
ACTUATION BOARD

This board, placed at the back of the machine, processes the information from the push-button card and from the payment system (if fitted); it also controls the actuations, the input signals and the boiler board.
The 15 VAC voltage necessary for operating the board is supplied by the transformer, protected by a 125 mAT fuse on the primary winding and by a 1.25 AT fuse on the secondary winding; the voltage is rectified and stabilised directly by the board.
This board houses the Flash EPROM. The control software of the board is installed directly (via RS232) in the microprocessor.
The program can be updated or some of its functions can be changed through a PC or palmtop with special Software.

- The red LED (7) indicates the operating status of the boiler heating element;
- The red LED (9) for resetting the CPU glows during the board reset;
- The green LED (11) blinking indicates that the microprocessor is working correctly;
- The yellow LED (12) indicates the presence of 12 V DC.



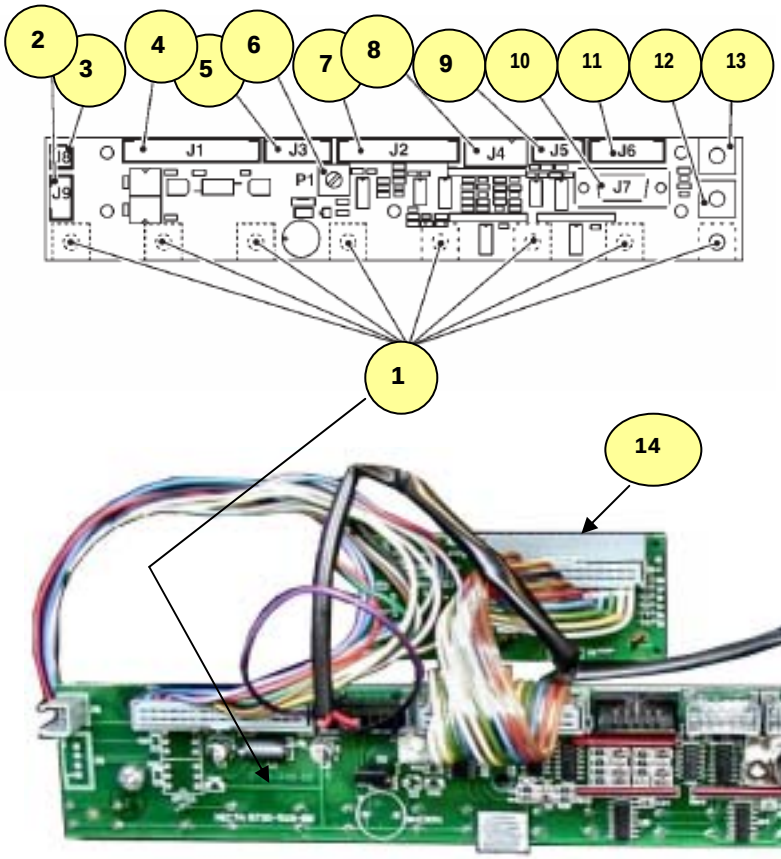
1 - 120 V~ power users
2 - Input signal
3 - Can-Bus connection
4 - Can-Bus connection
5 - Relay expansion connection
6 - Boiler control probes
7 - Red LED - boiler heating element
8 - Input signal
9 - Red LED
10 - Not used
11 - Green LED
12 - Yellow LED
13 - To the push-button board
14 - Connector for board programming (RS232)
15 – Up-Key connector
16 - Board power supply (15Vac)
17 - Relays K1 to K16
18 - Connector for 120 V AC power users



SM: REFERENCE TO RELAY CODE AND ACTUATIONS – ESPRESSO VERSION

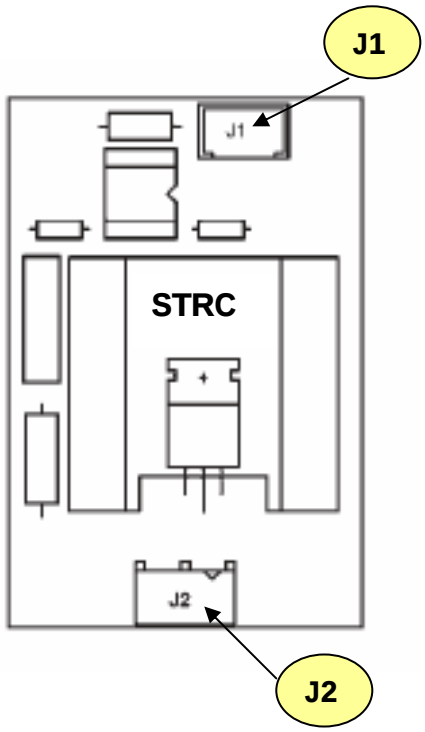
ESPRESSO CONFIGURATION	
K 1	Starting pump
K 2	Not used
K 3	Whipper motor 1
K 4	Not used
K 5	Coffee dispensing solenoid valve
K 6	Discharge solenoid valve 1
K 7	Coffee brewer motor
K 8	Discharge solenoid valve 2
K 9	Instant prod. solenoid valve 1
K 10	Doser device motor 1
K 11	Instant prod. solenoid valve 2
K 12	Not used
K 13	Not used
K 14	Mains water inlet solenoid valve
K 15	Not used
K 16	Coffee grinder ratiomotor

12 - PUSH-BUTTON BOARD



1 - Selection buttons (not used)
2 - Not used
3 - To mechanical counter (optional)
4 - To actuation/CPU board
5 - Input
6 - Display adjustment trimmer
7 - To display
8 - 12 Vdc validators
9 - Not used
10 - RS232 serial port
11 - Not used
12 - Programming access button
13 - Wash button
14 - Display card

13 - ESPRESSO BOILER CONTROL BOARD



Triac board

This board is controlled by the machine board and is powered under 120 V AC.
It is used for controlling and starting the boiler heating element.

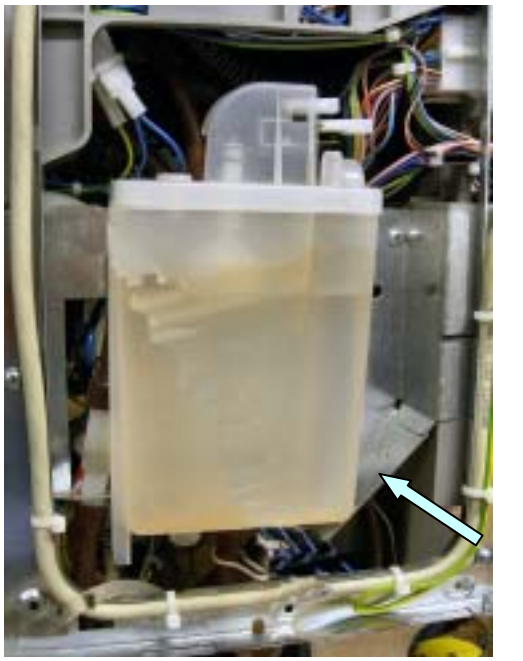
Connector **J2** is connected to a 120 V AC phase
Connector **J1** receives the information from the **SM** board that sends a consent signal to activate the triac for the power supply to the heating element.

14 – AIR-BREAK AND BOILERS

The **air-break** is a functional unit with the function of keeping the water level constant and of signalling a water flow interruption from the mains; in the event of such water failure it serves the purpose of completing the current selection.
In the espresso version, it serves the purpose of holding a reservoir of water at normal atmospheric pressure, so that the pump can draw the correct water dose for the selection and deliver it to the Espresso boiler without changes in pressure that may affect the volumetric counter reading.
The water level is ensured by a float that triggers a micro-switch, keeping the level between a factory set minimum and maximum (it very important not to replace the micro-switch with any one of different mechanical characteristics, as a variety of malfunctions may occur).
In the event of failure to the maximum level micro-switch, an overflow hole allows the water to be conveyed through a tube and to the safety device fitted on the water inlet solenoid valve, thus causing its mechanical lock (such safety device is triggered also in the event of a power failure).
In the Instant version the level is controlled directly through a float located in the boiler itself (see page 24).

SIDE VIEW - AIR-BREAK SIDE (WITHOUT PROTECTIVE CASING)

DETAIL OF WATER LEVEL MICRO-SWITCH

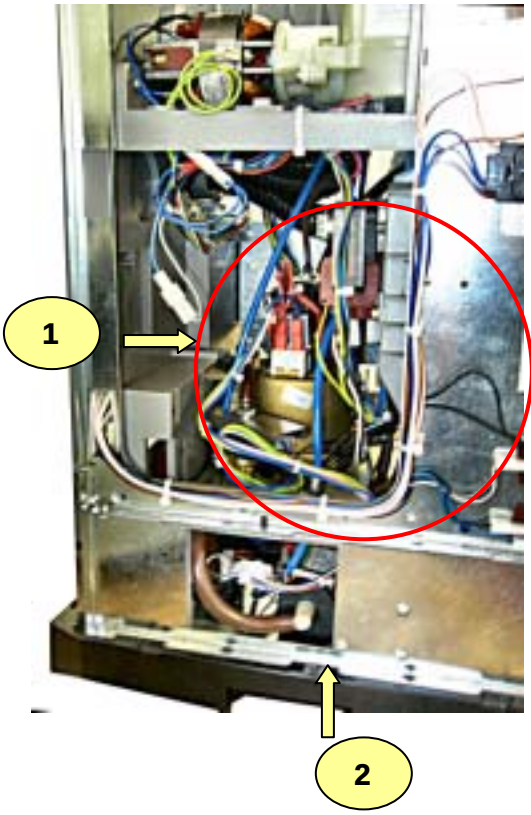


DETAIL OF AIR-BREAK IN WORKING POSITION

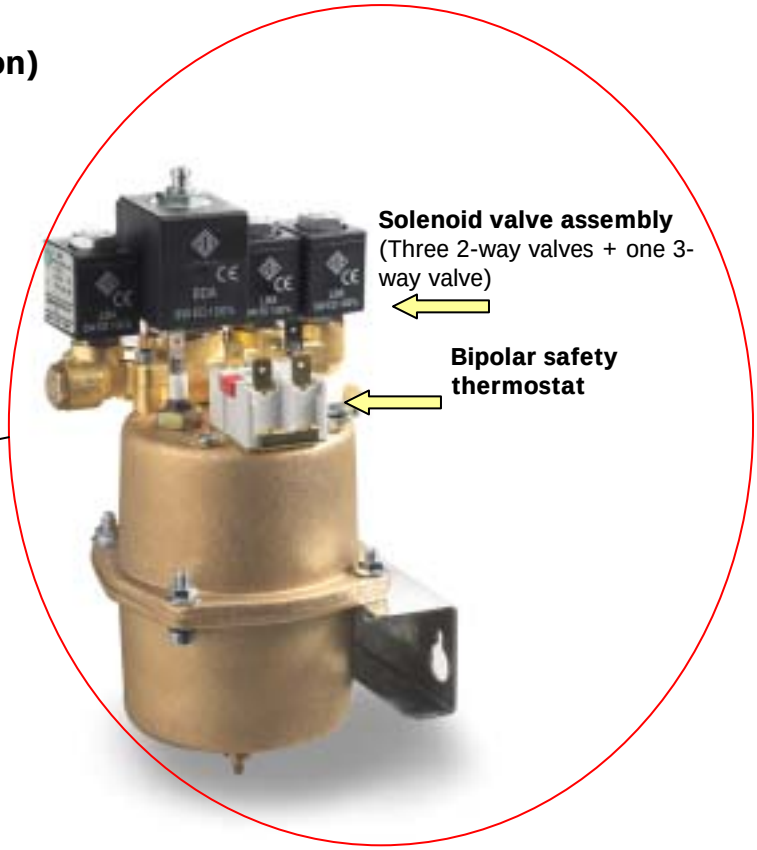
BOILERS

For the **KORINTO** model there are three base versions:
1) **Espresso** version, fitted with a pressure boiler, very similar to the one used in the entire range.
2) **Instant** version, fitted with only the open-top instant boiler, also fitted with a new design level control system.
3) **Fresh brewer** version, fitted with only the same open-top instant boiler used in the Instant version.
The **espresso** boiler is the same used for **KORO / BRIO** models, therefore with the same well known and established characteristics and reliability.
The open-top boiler for the Instant / FB version is a new and specific design with the feature of being molded from thermoplastic material with specific technical characteristics. (Already used in the KORO and Brio 3 models - instant and FB)
For further technical information see the functional unit manuals
To access the boiler and the pump see instructions at page. ...

PRESSURE BOILERS (espresso version)

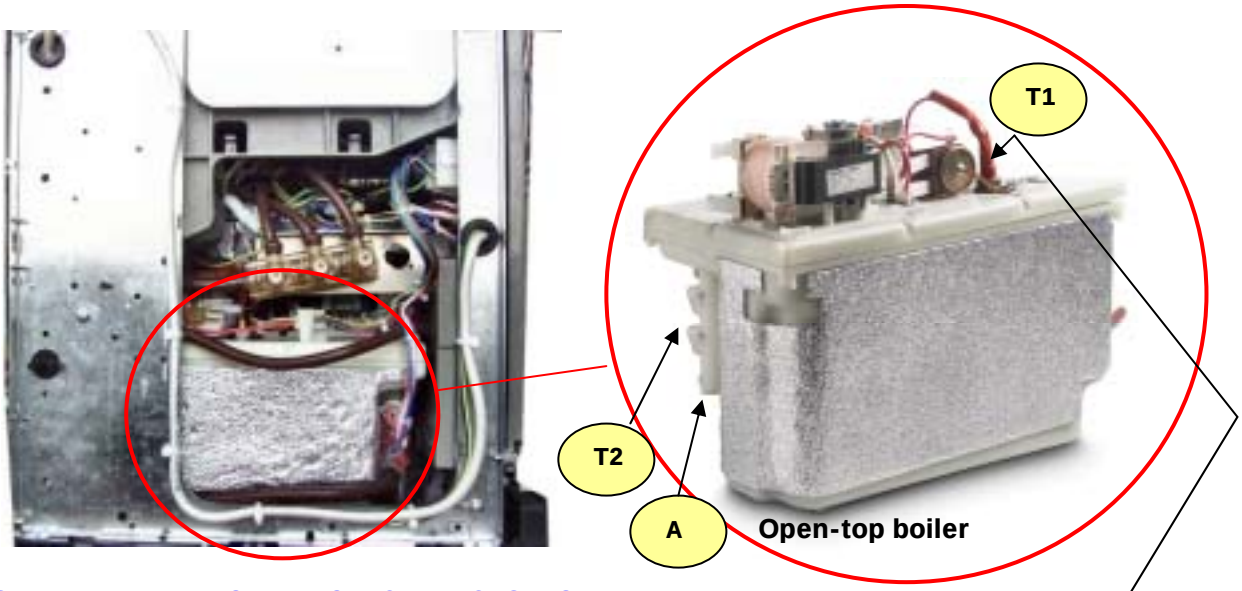


SIDE VIEW WITHOUT PROTECTIVE CASING – INSPECTION SIDE OF PRESSURE BOILER (1) AND VIBRATION PUMP (2)

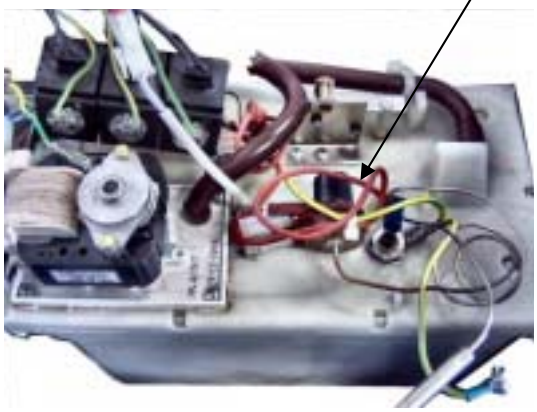


PRESSURE BOILER REMOVED FROM THE MACHINE

OPEN-TOP BOILERS (Instant & Fresh Brewer models)



SIDE VIEW WITHOUT PROTECTIVE CASING – OPEN-TOP BOILER COMPARTMENT



OPEN-TOP BOILER – DETAIL OF SOLENOID VALVES AND OVERHEATING PROTECTIONS

NOTE: The open-top is made of special thermoplastic material and coated with insulating material for more efficient heat insulation; **two** overheating protections are fitted for safety.
(practically it is the same boiler used in the **KORO** instant model).

1) Dry operation protection.
2) Anti-boiling protection.

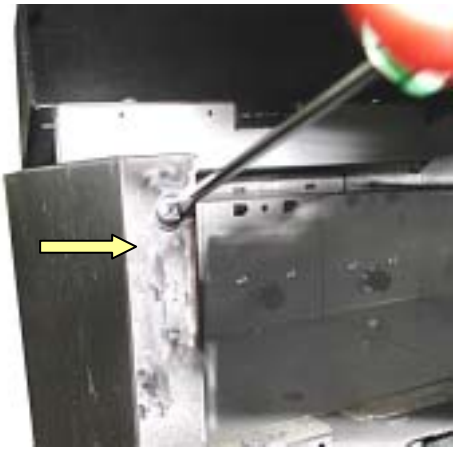
In the event of failure to the control system and of boiler without water, the thermostat **T** is triggered at approximately **125**°C, disconnecting the power supply. In order to reactivate everything, the fault must be identified and the thermostat must be reset by pressing the central red button.
In the event of failure to the control system and of a full boiler, upon reaching boiling temperature, as the steam exits from tube **A** it touches and triggers the two thermostats **T2** (each thermostat disconnects one phase of the power supply).
Proceed as above to reset them; see specific chapter to identify the type of malfunction.
See relevant section in the functional unit manual for details, photos and complete description: **BOILERS**
The internal temperature control is by means of an **NTC** type electronic probe fitted with an internal 12K ohm (+/- 4 ohm) resistance at a temperature of **25**° C. The following table shows the changes in internal resistance as the temperature changes.
We can see that the resistance decreases as the **NTC** temperature increases
The SW, when reading such changes, causes the activation or deactivation of the heating element with a specific cycle to avoid temperature changes that are too high.

Boiler temperature °C	Value in ohm	Allowed tolerance
0	35875	+/-7 ohm
25	12000	+/- 4 ohm
50	2900	,,
85	1475	,,
90	1260	,,
100	963	,,

15 - INSTRUCTIONS FOR REMOVING THE CASINGS TO ACCESS THE INTERNAL PARTS OF THE MACHINE

In order to remove the rear casing and access the electrical parts, undo the two screws indicated by the arrows and lift vertically and remove, thus releasing the upper fasteners

Rear view without protective casing

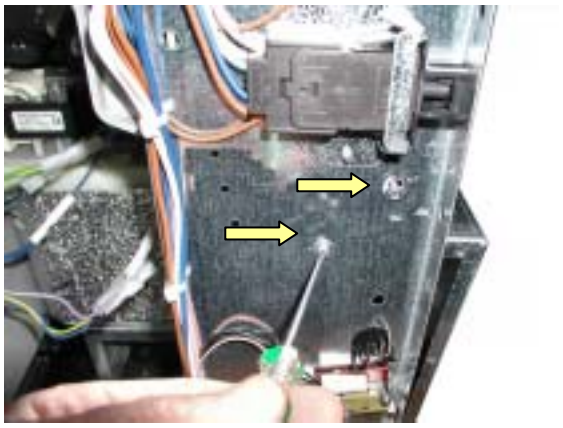


In order to remove the left side casing and access the internal functional units, undo the two screws located at the front, both upper and lower

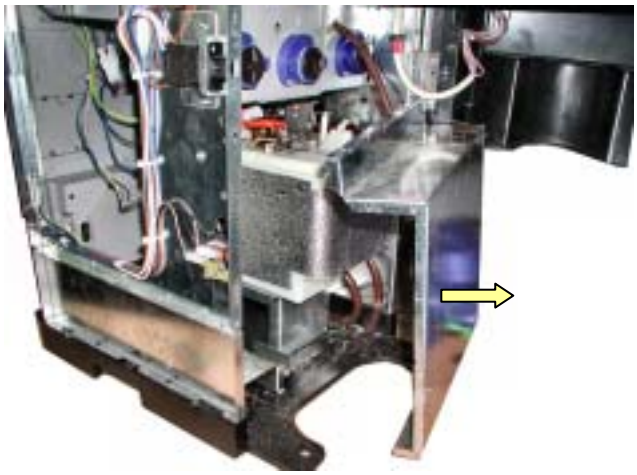
Slightly lift the casing to slide out the upper fasteners

Proceed the same way to remove the right side casing

ADDITIONAL INSTRUCTIONS TO ACCESS THE OPEN-TOP BOILER IN THE INSTANT VERSION



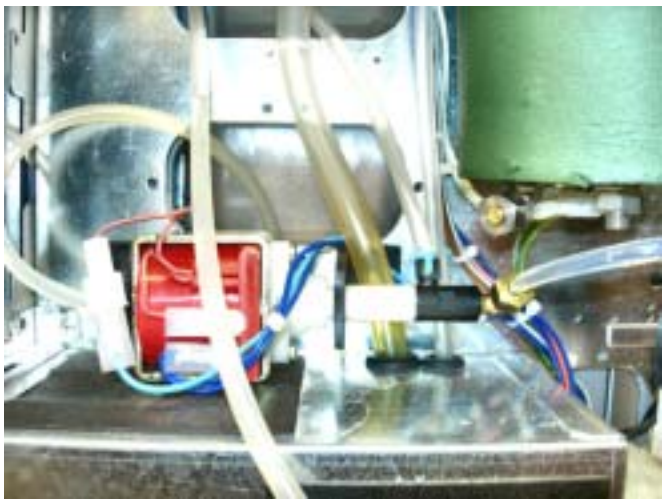
After removing the side casings to have full access to the instant boiler, remove also the lower front casing (Photo at the side).
Undo the two screws on each side



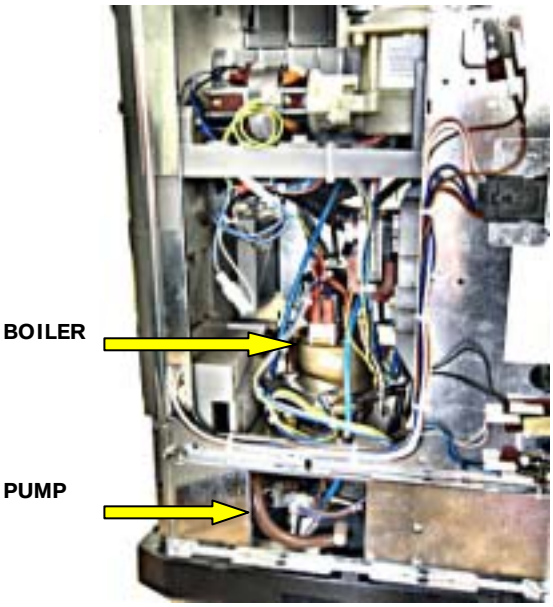
After undoing the two screws for each side, pull outwards and remove it completely.
At this point the boiler is completely accessible for removal from the machine
See photo at the side

16 – PUMPS AND BY-PASS

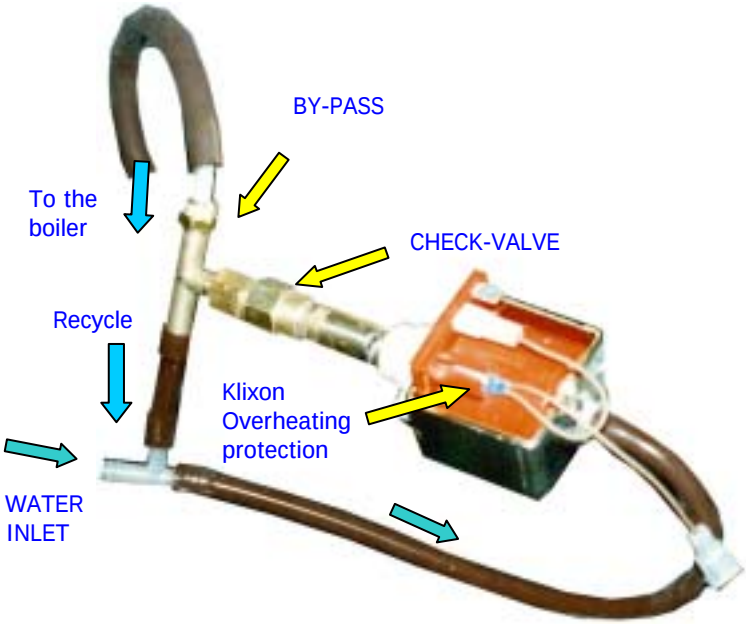
In order to supply water to the espresso boiler and to the frother module (specific version) a vibration pump used, which is the same used in the entire **H&C** range of Necta.
The application is specific, as pump, boiler, triac control circuit and connections are located inside the cabinet and access is gained by removing the side casing (see photo).
This solution ensures total full access for maintenance and hygiene.
The pump has overheating protection in case of continuous or dry operation by means of a 90°C self-reset klixon. It is fitted with a by-pass at the outlet to ensure correct and consistent dispensing pressure.
The by-pass is factory pre-set to **12 bar**.
The pump is activated by **relay K 8**.



PUMP COMPARTMENT OF THE FROTHER MODULE



BOILER AND PUMP COMPARTMENT - VIEW WITHOUT SIDE CASING



PUMP REMOVED FROM THE BOILER ASSEMBLY

THE PUMP IS LOCATED IN THE LEFT SIDE COMPARTMENT

In the event of malfunctions the pump can be replaced with a new one.
To have access to the pump it is necessary to remove the side casing, undoing the two fastening screws on the front side and slide the panel upwards until removing it completely.
The PUMP is located on the left-hand side and is mounted on two rubber anti-vibration elastic supports.
Disconnect the connection cables and remove after undoing the special screws.
NEVER change the setting of the bypass, especially adjusted at the factory, if the malfunction is due to clogging from calcium deposits; replace with the complete check-valve spare part set.
If the malfunction was due to triggering of the klixon, replace it with an identical one.

17– ESPRESSO & FB UNITS

The espresso version is equipped with the new **Z 3000** unit, used in three specific versions (refer to the specific Z 3000 service manual). In any case it is an evolution, with many improvements, of the Z 2000 model, more specifically planned for the following versions:

1) Standard version, which is equivalent to the old Z 2000 but with a simpler structure.
2) Variable chamber version, which permits brewing with variable coffee doses (model being examined).

A heating system (optional) has been designed for all versions, for the purpose of increasing the temperature of the first coffee.

A specific brewer unit for filtered coffee, **SIGMA BREWER**, is used in the **FB** version.

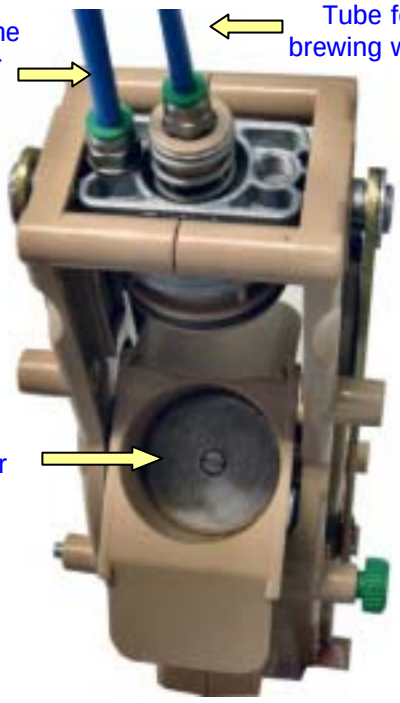
For further details on the functional units refer to the specific H&C functional unit manuals **"BREWER UNITS"**.

The Espresso brewer unit uses coffee that is ground on the spot by the grinder and doser unit, specifically designed for this model and that also uses a particular method of metering the ground coffee dose.

The FB unit uses specific coffee, already ground to an optimum grade for quick and adequate brewing.

Door open with view of brewer unit

DETAIL OF TUBE CONNECTIONS, ADJUSTMENT OF BREWING CHAMBER AND WATER INLET FOR COFFEE BREWING



18 – SPOUTS ASSEMBLY

Because of the size of the vending machine FIXED SPOUTS have been designed.
The spouts are mounted onto a tray that is easy to remove for daily cleaning

SPOUTS ASSEMBLY
EXTERNAL VIEW WITH DETAIL OF COFFEE SPOUT WITH SPLIT OUTLET TO OPTIMISE QUALITY AND TO PERMIT DISPENSING OF DOUBLE COFFEE

DETAIL OF SUPPORT TRAY BEING REMOVED

19 – POWDER PRODUCT CONTAINER AND DOSER DEVICES ASSEMBLY

According to new market requirements, it was necessary to design new solutions using quick fastening without any screws, to allow easy access for maintenance, as well as quick changes to the layout by means of preassembled modules.

D D
INSTANT POWDER CANISTERS

MIXER RATIOMOTOR ASSEMBLY BEING REMOVED FROM ITS SEAT

DETAIL OF POWDER CANISTER

RATIOMOTOR REMOVED FROM ITS SEAT

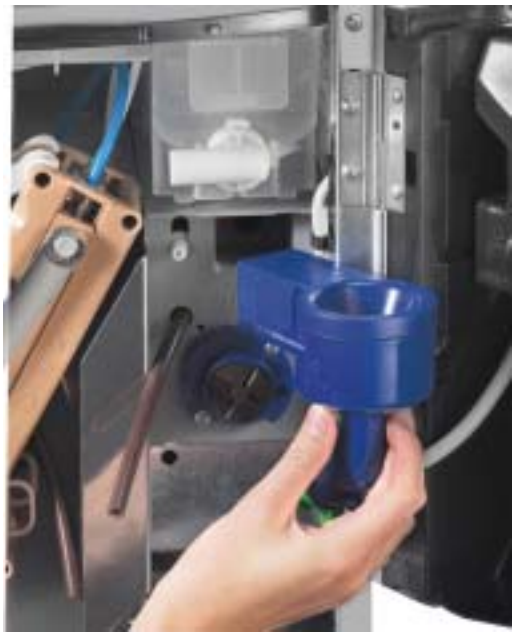
MIXER RATIOMOTOR ASSEMBLY VIEWED FROM BELOW

Standards components are used, already adopted in other applications, but in a new support and with newly designed specific powder containers, comprising also the mixer assembly.
The system is modular and of the same width as a powder container.
It was designed for quick and easy removal as required by the particular type of machine

20 – MIXER ASSEMBLY

TRAY UNDER THE MIXER BEING REMOVED

MIXER IN EXTRACTION POSITION: DETAIL OF RELEASE LEVER



MIXERS WITH EXTERNAL PARTS SUBJECT TO DAILY HYGIENE BEING REMOVED

PLASTIC COMPONENTS OF DISASSEMBLED MIXER

The mixers are newly designed, although many components are developed from the ones used in previous models.
The power supply is 230 V AC, the rotation velocity is 20,000 RPM, the motors have overheating self-protection and the axial sealing system is patented, using special “self-positioning” technical material.
More specifically, the release and opening system of the external assembly is new, while the motor and the water tightness system are identical.
The new system permits easier disassembly for daily cleaning.
For further details and technical information refer to the specific **“Service Manual”**.

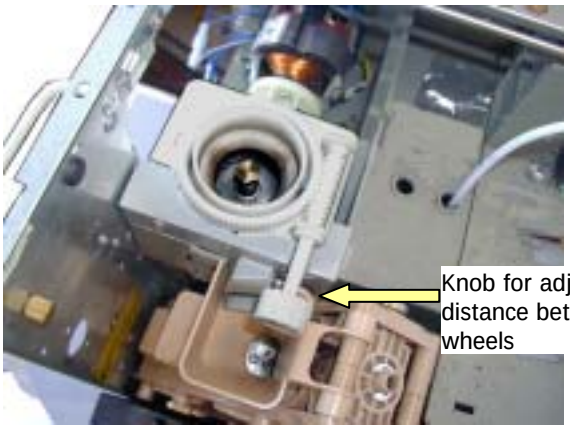
21 – COFFEE DOSER GRINDER UNIT

SIDE VIEW WITHOUT PROTECTIVE CASING – COFFEE GRINDER UNIT POSITION AREA

The coffee grinder is a new design and the ground coffee dose is determined via software setting and by means of a sensor that counts the number of revolutions of the grinding wheels (see view from below).
Therefore, it is very important that the mechanical adjustments to the grade of grinding be checked very frequently.
In order to get a dose of 7 grams of coffee a certain number of revolutions is counted; by increasing or decreasing such value the amount increases or decreases.
It is therefore possible to set selections with different coffee doses.
It is therefore clear that it is very important to keep the adjustment of the grinding wheels constant to obtain accurate coffee doses, especially in the first period of use (1000-2000 selections), because of the greater wear due to the initial settling.
the adjustment can be performed also approximately by regularly checking the weight of the ground coffee and its grade of grinding.
The motor winding is fitted with a self-reset overheating protection.
Flat-type grinding wheels are used.

For further information refer to the specific manual.

COFFEE GRINDER (VIEW FROM BELOW) SENSOR SIDE

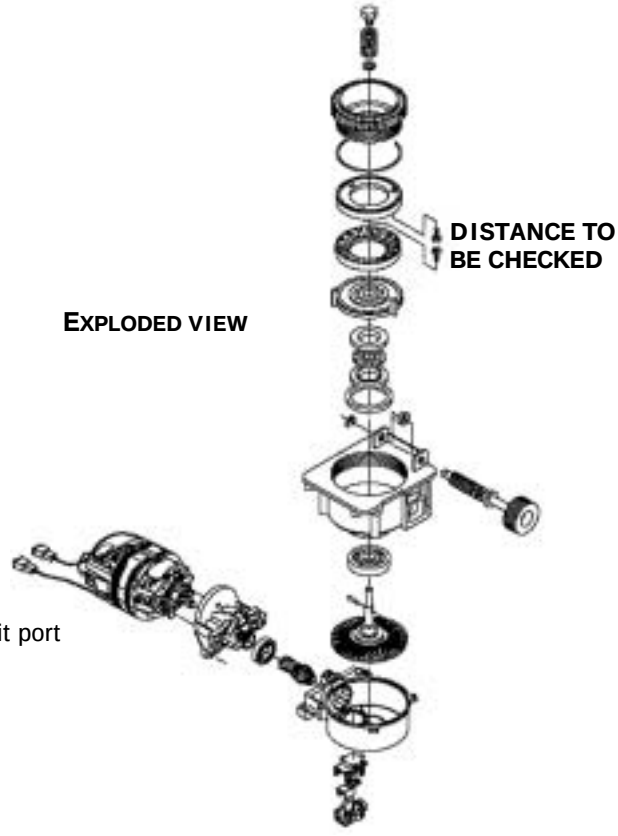


Knob for adjusting the distance between grinding wheels

COFFEE GRINDER - VIEW IN OPERATING POSITION

Ground outlet exit port

COFFEE GRINDER (PERSPECTIVE VIEW)



DISTANCE TO BE CHECKED

EXPLODED VIEW

22 – SELECTION DOSE TABLE

The software is programmed by default with the most suitable settings for the relevant market.
The following table is an example, and are for the Italian market settings, and the correct and updated settings are indicated in the tables supplied with the machine.

Selection	Remarks	Coffee beans	Coffee Instant	Water c.c.	Powder g	Fresh-brew coffee g	Remarks

NOTE 1
The water flow in the mixers is approximately 10 c.c. per second and it is given as a guideline, as there are many variables that can affect the accuracy.
The liquid dose is determined by the flow-meter pulse counting (volumetric counter).

Both versions (Instant and Espresso) use an electromechanical vibration pump (with the espresso boiler) for the water flow, therefore the liquid dose in both versions is measured in flow-meter pulses (**fmp**).

NOTE 2
To be noted that the number of pulses does not change in a linear manner (i.e. double the amount of water does not correspond to double the number of pulses), however the counter varies the accuracy according to the water flow velocity, and namely:
For espresso coffee it is reduced considerably because of the coffee compress reaction that slows down the water flow, while it is accelerated in the instant drinks selections, since there are no obstructions to the water flow. Therefore, in the event of changing the doses set at the factory, some measurements must be made using measuring containers.

23 – ROUTINE AND EXTRAORDINARY MAINTENANCE SCHEDULE

The vending machine KORINTO was designed to operate for a long time without malfunctions; however in order to ensure excellent reliability periodic maintenance is necessary.
Such maintenance must be performed according to the number of selections made and the time lapsed.
Periodic and correct maintenance ensures reliability, constant quality and also guarantees safety standards over time.
The following table indicates the functional units that must be subjected to periodic maintenance and the frequency of maintenance. For the operations to be carried out, refer to the specific **Functional unit manuals.**

Name of unit	DESCRIPTION OF OPERATION	N. of selections	Max frequency
Espresso Brewer Unit	**1)** Check state of filters and wear of silicone O-ring seal **2)** Replace upper and lower filters and related seals **3)** Descale the internal vent hole and lubricate with specific food-safe grease	5000 8000 30.000	1 month 6 months annual
Fresh Brewer Unit	**1)** Check state of filters and wear of silicone O-ring seal; see details in the functional unit manual for FB coffee brewing **2)** Open the unit and check the state of wear and internal lubrication and if necessary replace and lubricate	4000 40.000	1 month annual
Mixer Assembly	**1)** Check the water tightness in the axial bush and the correct assembly, if necessary replace. **2)** Check the wear of the motor brushes and clean off the excess of carbon powder	 50.000	 annual
Boiler And Solenoid Valve Assembly	If the boilers and the solenoid valves operate with soft water or are fitted with specific softener filters, the should be no need of periodic maintenance; otherwise periodically check the grade of scaling and if necessary proceed to complete descaling.	According to the water hardness	Every 6 months
Steam Exhauster Unit	There is not need of any particular maintenance For perfect functioning, it is necessary that the powder removal boxes be emptied periodically. In addition, daily cleaning ensures also maximum hygiene of the machine.		Every day
Coffee Grinder Assembly	The motor was designed to operate for more than 200000 grinding cycles and the grinding wheels can ensure correct grinding for at least 50000 cycles. However, these values can vary because of possible impurities in the coffee (pebbles, pieces of hard wood, etc.), therefore it is advisable, except for premature wear, to check and if necessary replace the grinding wheels every 50000 cycles. Every 200000 cycles check the state of wear of the ratiomotor brushes, if necessary replace and clean off the wear residues. In addition, every month check the correct positioning of the grinding wheels and if necessary adjust to the correct setting by means of the knurled knob.	 50000 200000 4000	Every year month

Extraordinary maintenance is carried out in the event of possible malfunctions.
For the most typical problems the vending machine is fitted with sensors that inform the software about any malfunction. The following tables list the possible malfunctions and possible remedies.

24 – TROUBLE-SHOOTING

PROBLEM (and/or indication on the display)	POSSIBLE CAUSE	SOLUTION
The machine does not go into the boiler heating phase and the display shows the message "WATER FAILURE"	If the micro-switch of the air-break (if fitted) float in the instant boiler, or of the float in the water supply tank, is not activate within one minute, the software disables the machine.	Check the following situations: **Machine with air-break:** check that there is water from the mains; if this is the problem, wait for the water from the mains to be resumed. Otherwise, check the operation of the inlet solenoid valve from the mains, check the operation of the air-break micro-switch **Machine with instant boiler:** in this case it is the boiler to perform the air-break function. Then, repeat the above checks. **Machine with water supply tank:** Check the operation of the magnetic float, and of the water supply pump. **Check the activation of relays K1 and K14**
(espresso versions) **The display indicates the message "NO COFFEE"**	If the coffee grinder exceeds the grinding speed for longer than 5 seconds, the espresso coffee selections are disabled. All instant product selections remain available.	When an espresso coffee selection is made the grinder is activated conveying coffee directly to the brewing chamber of the Z3000 unit, and the amount is determined by the number of revolutions of the grinding wheels by means of a special sensor. Check the presence of coffee Check the distance between the grinding wheels Check the presence of the sensor **Check the functioning of the relay K16**
The display indicates the message "WASTE CONTAINER FULL"	When the float in the liquid waste tray triggers the signal micro-switch.	Empty the tray, removing it from the lower section of the cabinet. Check the operation and correct functioning of float and micro-switch.
The display indicates the message "AIR-BREAK"	The machine locks if after 10 selections the float micro-switch does not change position.	Check the following situations: **Machine with air-break:** check that there is water from the mains; if this is the problem, wait for the water from the mains to be resumed. Otherwise, check the operation of the inlet solenoid valve from the mains, check the operation of the air-break micro-switch **Machine with instant boiler:** in this case it is the boiler to perform the air-break function. Then, repeat the above checks. **Machine with water supply tank:** Check the operation of the magnetic float, and of the water supply pump. **Check the activation of relays K1 and K14**
The display indicates the message "VOLUMETRIC COUNTER"	When the counter does not signal any counting within a time-out set by default.	The water amounts necessary for espresso coffee selections are ensured by a volumetric counter that with the water flow causes a wheel to rotate and sends to the software a number of pulses corresponding to the set water dose; if such dose is not reached within 60 seconds it means that there is a problem. Check that there is water (see above); check that there are no obstructions to the correct flow of water. Check the correct functioning of the impellers. There must be 5 VAC on the terminals during the counter operation. Check that coffee was ground correctly and that dose is accurate. Check that the coffee filters are not clogged.

The display indicates the message "BOILER"	The machine will lock if after the maximum time of heating from the machine start, or from the last selection, there is no signal of correctly reaching the temperature set in the software.	Check that the heating element and the STRC card are functioning correctly. Check that the overheating control systems were not triggered. Check the functioning of the probe (ohm control) Should the overheating protection be triggered before resetting, the cause must be found and eliminated.
The display indicates the message "CAN-BUS BOARD"	Failed dialogue between CPU board and can-bus board that controls the SIGMA BREWER unit.	Check the connections. Check that the power supply is correct. Replace the board.
The display indicates the message "COIN MECHANISM" (only if equipped with a payment system)	The machine will lock if it receives an impulse longer than two seconds on a validator line or there is no communication with the serial coin mechanism for more than 30 seconds (executive protocol). Or 75 seconds (BDV protocol)	Check that connection is correct and the software setting is correct for the protocol. If necessary replace the payment system.
The display indicates the message "GRINDER BLOCKED"	If the coffee grinder does not rotate or rotates too slowly for longer than 5 seconds, the espresso coffee based selections are disabled.	The grinder rotation is controlled by a sensor; if no rotation is detected within 5 seconds, check: That there are no blockages in the grinding wheels. That the overheating control systems on the winding were not triggered. That the sensor works correctly. **Check the activation of relay K16**
The display indicates the message "ESPRESSO UNIT"	If the unit does not reach the initial standby position after making a selection (checked by a position micro-switch) the espresso based selections are disabled.	The standby position is checked by a position micro-switch, and every time the machine is started the unit is checked. If the change in the "on" condition is not read, check that: the motor is started, the position micro-switch works correctly, the brewing chamber is not clogged with too much coffee. **Check the activation of relay K7.**
The display indicates the message "RAM DATA"	One or more areas of the RAM memory contain altered or non-compatible data, which is corrected by the software with default setting data; therefore the machine continues to operate with the initial data, but initialise will be required.	Enter into the installation procedure and initialise the software; if the failure persists replace the CPU board.
The display indicates the message "FRESH-BREWER PISTON"	The default position is determined by the micro-switches, and the position is factory preset; if for any reasons they are not triggered, FRESH-BREW coffee selections are disabled.	The standby position is checked by a position micro-switch, and every time the machine is started the unit is checked. check that: the motor is started, the position micro-switch works correctly, the brewing chamber is not clogged with too much coffee. the filter is not clogged. Check the connection with the FB board
The display indicates the message "FRESH-BREWER BRUSH"	The default position is determined by the micro-switches, and the position is factory preset; if for any reasons they are not triggered, FRESH-BREW coffee selections are disabled.	The standby position is checked by a position micro-switch, and every time the machine is started the unit is checked. check that: the brush is new and the motor is activated. That there are not any mechanical blockages. Check the connection with the FB board
For espresso only: Coffee is dispensed too slowly and it tastes burnt.	Excessive coffee dose or ground too finely.	The dose is calculated using an algorithm that counts the number revolutions of the grinder, and the doses are dispensed correctly if the grinder is adjusted with the correct grade of grinding. Check that the distance between the grinding wheels is the factory default one.

For espresso only: The coffee lacks body and is dispensed too quickly.	Coffee dose too small, or ground too coarsely.	The dose is calculated using an algorithm that counts the number revolutions of the grinder, and the doses are dispensed correctly if the grinder is adjusted with the correct grade of grinding. The dispensing time must remain constant. Check that the distance between the grinding wheels is the factory default one; with use the grinding wheels are subject to wear and it will be necessary to reset the correct measurement periodically.
The mixers clog up	Failed rotation of the mixer. Excessive instant product dose. Steam exhaust box clogged. Water to powder ratio not correct.	Check for the motor overheat protection trigger, if necessary check the cause of such trigger. Empty the powder removal box, adjust and check the correct water to powder ratio. Check the logic of the cycles. **Check the activation of relay K3.**

25 – HACCP DIRECTIVE

HACCP DIRECTIVE (EEC 93/43 and 96/3)

Outline and instructions for use

Notes: What is it and what is indicated by the European Directive

Directives **EEC 93/43 and 96/3** regard the hygiene of food products and are based on the **HACCP** (**H**azard **A**nalysis **C**ritical **C**ontrol **P**oint).

The purpose of this directive is to safeguard the consumer health, suggesting a series of actions to be take by the vending company, aimed at checking, identifying and correcting any critical aspects in the foodstuff chain, from the purchase of products and machines to the dispensing of the product.
The **HACCP** is therefore a system that addresses the analysis of any potential risks in the manufacturing and distribution cycle of food product and the identification of critical points where such risks can occur; the system also highlights the actions to be undertaken and the decisions to be made with regard to such critical points, as well as the implementation of checking and monitoring procedures.

Therefore, each vending company must develop a Company Hygiene Self-control Manual according to the provisions of the directive - and if necessary use the information and recommendations formulated by some associations in the sector. The manual must contain a programming and checking schedule for the vending machine hygiene condition

Important notes:

For a correct use of the machine, the directives must be fully applied. **The operator is responsible for correct operations on a vending machine**

HACCP Directives (EEC 93/43 and 96/3)
Guidelines for correct application

- Ensure hygiene control with a special manual for correct hygiene practices.
- After cleaning, do not touch the surface of any elements that may come into contact with food.
- Wash your hands thoroughly, preferably using disinfectant, before starting any hygiene operations
- Use disposable sterile gloves
- Always use a clean cloth to wipe dry.
- Keep the work area tidy.
- Check that the product packages are intact and not damaged.
- Keep coffee and powder products in a cool, dark and dry place.
- Use products within the recommended time period (see expiry date on the package).
- Always use products from the warehouse according to the principle of “first-in first-out”.
- Tightly close and seal any product packages not completely used.
- Coffee and consumables must be kept and transported separate from the cleaning products.
- The product containers must be cleaned regularly (see operation instructions).
- Only fill coffee or other product containers with sufficient amount for the expected use until the next cleaning.

Cleaning the machine (Pages 39, 40 & 41)

- Carefully observe the following cleaning instructions!
- Clean the machine, preferably at the end of the day or in the morning before the machine is used.
- After cleaning, dispense and check a drink (see last check).
- Fill in the check list log for cleaning operations.
- When the display indicates an error message immediately check the trouble-shooting sheet.
- Use only recommended cleaning products approved for foodstuff, preferably liquid; avoid the use of powder and abrasive products.

26 – DAILY CLEANING AND HYGIENE SCHEDULE

DAILY CLEANING AND HYGIENE "ESPRESSO VERSION"

(Expected time 6')

Fig. 1

Open the door. Remove the dispensing compartment and the tray, slide out the coffee grounds container. Clean and rinse the components thoroughly under current water.
FIG. 1 Instant version
FIG. 2-3 Espresso version
Remove the coffee grounds container, empty it and rinse it thoroughly. **(FIG. 2)**

Fig. 2

Remove the drip tray located under the mixer, rinse it and eliminate any residue. **(FIG. 4)**

Fig. 3

Slide out the external mixer assembly and disassemble it **(FIG. 5 – 6),** clean and rinse out thoroughly all residue.

Remove the brewer unit, clean and rinse with hot water **(FIG. 7 – 8).**

Fig. 4

Reassemble all parts, taking care not to touch with your hands any parts that come into contact with food.
Carry out a mixer automatic wash cycle according to the pre-set procedures.
Close the door and make some test selections.

Fig. 5

For the disassembly instructions, see specific service manuals or specific chapters.

NB: in order to speed up the operations, it is advisable to replace with components that were already cleaned and sanitised at the workshop, and take to the workshop the dirty components for cleaning and sanitising. The cleaning and hygiene operations must be carried out the evening, after the machine use, or the next morning before starting to use the machine.

Fig. 7

Fig. 6

Fig.8

27 – WEEKLY CLEANING AND HYGIENE SCHEDULE

WEEKLY CLEANING AND HYGIENE

(Expected time 6 ')

Fig. 1

Open the door. Remove the dispensing compartment and the tray, slide out the coffee grounds container. Clean and rinse the components thoroughly under current water.
FIG. 1 Instant version
FIG. 2-3 Espresso version
Remove the coffee grounds container, empty it and rinse it thoroughly

Remove the powder and coffee bean containers, empty and clean them removing all encrustations **(FIG. 2 - 3)**

Remove the brewer unit, clean thoroughly and rinse with hot water. **(FIG. 4-5)**

Remove the liquid collection container, empty it, rinse it and clean thoroughly. **(FIG. 6)**

Remove the spouts holder unit, clean and rinse thoroughly. **(FIG. 7)**

Remove the mixer assembly, clean and rinse thoroughly. **(FIG. 8)**

Reassemble all parts, taking care not to touch any parts that come into contact with food.

Make some test selections.

Fig. 2

Fig. 3

Fig. 4

Fig. 6

Fig. 5

Fig. 7

Fig. 8

28 – MONTHLY CLEANING AND HYGIENE SCHEDULE

MONTHLY CLEANING AND HYGIENE (or every 5000 selections)

Expected time 18'

ONCE A MONTH, OR EVERY 5000 SELECTIONS, THE FOLLOWING SCHEDULED MAINTENANCE OPERATIONS MUST BE CARRIED OUT; AS USUAL IT IS ADVISABLE TO CARRY OUT SUCH OPERATIONS AT THE WORKSHOP, AND ON SITE SIMPLY REPLACE THE UNITS WITH THE ONES WHICH WERE ALREADY SUBJECTED TO SCHEDULED MAINTENANCE.

FIG. 1

Remove the "**Z3000**" unit from the vending machine **(FIG. 1)**; disassemble the unit completely, remove the upper piston and the lower brewing chamber **(FIG. 3 – FIG. 4)**; carry out the maintenance operations indicated in the specific manual, and more specifically, clean or replace the filters and lubricate the seals.

FIG. 2

FIG. 3

Remove the side casing to access the air-break unit **(FIG. 2)**, empty it and rinse it with specific hygiene products, at the same time rinse the entire hydraulic circuit.

FIG. 5

Remove the powder containers, empty and clean them thoroughly in the inside, especially the ports and the auger **(FIG. 5-6)**

Remove the grinder and doser assembly, empty any coffee residue, check the state of the grinding wheels, check the efficiency of the sensor that detects the number of revolutions **(FIG. 7-8)**

FIG. 4

Reset the correct distance between the grinding wheels (see specific manual).

Reassemble all parts, taking care not to touch any parts that come into contact with food.

Make some test selections.

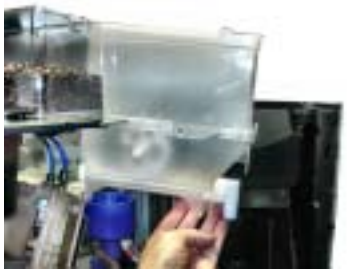


FIG. 6

FIG. 7

FIG. 8