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# Summary

1. TECHNICAL FEATURES.....	22
2. DESCRIPTION OF THE INTERNAL COMPONENTS .....	23
3. GETTING THE MACHINE READY .....	23
4. INSTALLATION .....	25
5. BOILER.....	27
6. EXCHANGERS.....	27
7. DISPENSER UNIT.....	28
8. INTERNAL SYSTEMS.....	28
9. CAPPUCCINO MAKER.....	31
10. CLEANING.....	32
11. CHECKS AND MAINTENANCE .....	34
12. LIST OF RISKS .....	35
13. TROUBLE SHOOTING .....	36
14. WIRING DIAGRAMS .....	94
15. HYDRAULIC DIAGRAMS.....	116

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# 1. TECHNICAL FEATURES

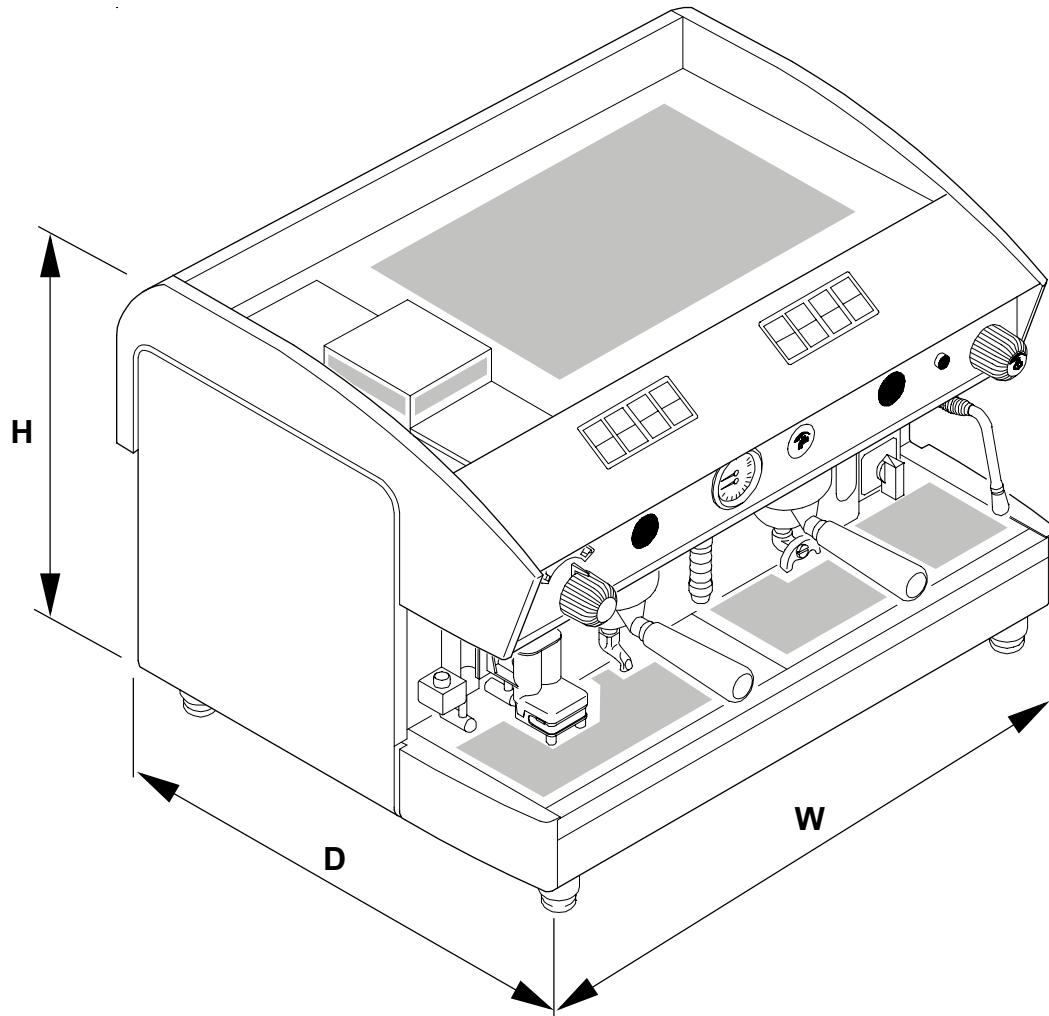


fig.1

Version	1 Unit	2 Units	3 Units
Width <b>W</b> (cm)	50	70	94
Depth <b>D</b> (cm)	57	57	57
Height <b>H</b> (cm)	52	52	52
Boiler capacity (L)	6	10.5	17
Supply voltage (V)	110/230/240/400	110/230/240/400	230/240/400
Absorbed power (W)	2000	2600	3700
Boiler working pressure(bar)	1 - 1.2		
Safety valve calibration (bar)	2		
Supply water pressure(bar)	1.5 - 5		
Coffee dispensing pressure(bar)	8 - 9		

tab.1

## 2. DESCRIPTION OF THE INTERNAL COMPONENTS

- |                                   |  |
|-----------------------------------|--|
| 1. Boiler                         | 9. Electric pump                         |
| 2. Dispensing units               | 10. Refrigerator                         |
| 3. Optical boiler level           | 11. Volumetric doser                     |
| 4. Boiler and pump pressure gauge | 12. Fridge/cappuccino maker power supply |
| 5. Drainage tray                  | 13. Fridge thermostat                    |
| 6. Machine ON switch              | 14. Manual water inlet valve             |
| 7. Pressure switch                | 15. Water coupling for built-in motor    |
| 8. Cappuccino maker               |  |

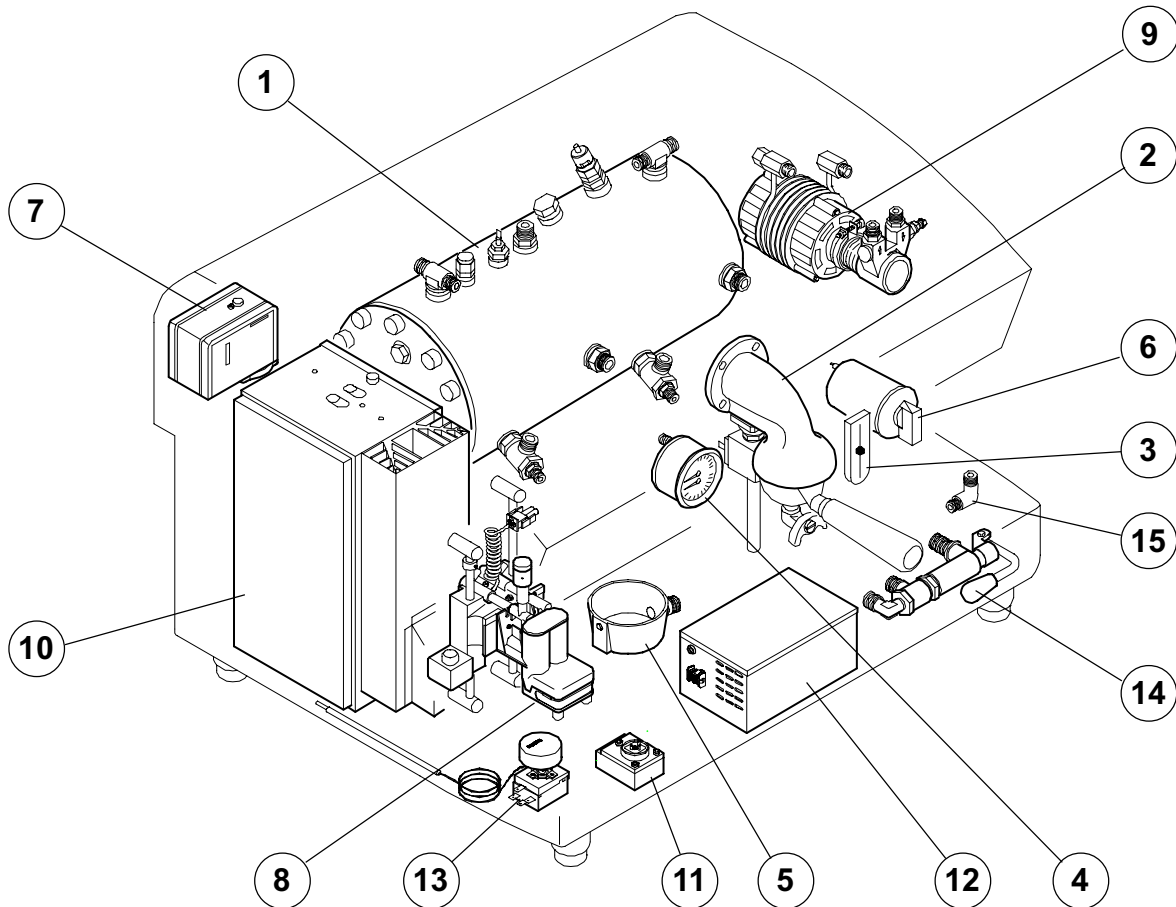


fig.2

## 3. GETTING THE MACHINE READY

### 3.1 UNPACKING (fig.3)

Open the packing trying not to damage it.  
Remove the sheets protecting the machine and the parts inside the packing.  
Remove the machine.  
In the case of an external electric pump both the motor and pump are supplied in a separate packing.

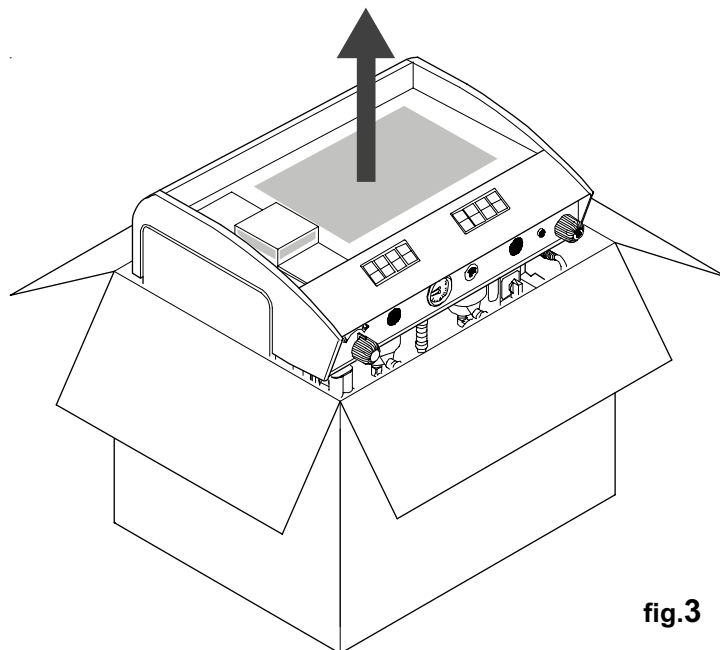


fig.3

### 3.2 POSITIONING THE MACHINE (fig.4)

First of all prepare a comfortable place to stand the machine on that can carry its weight (1); it's important that all the ends of the connections to the water mains (2) and electricity mains (3) are handy and in all cases in the immediate vicinity of the machine.

Make sure there is plenty of room for the machine and for its correct use.

The grinder-doser must be placed in the immediate vicinity of the coffee maker so using it is simpler.

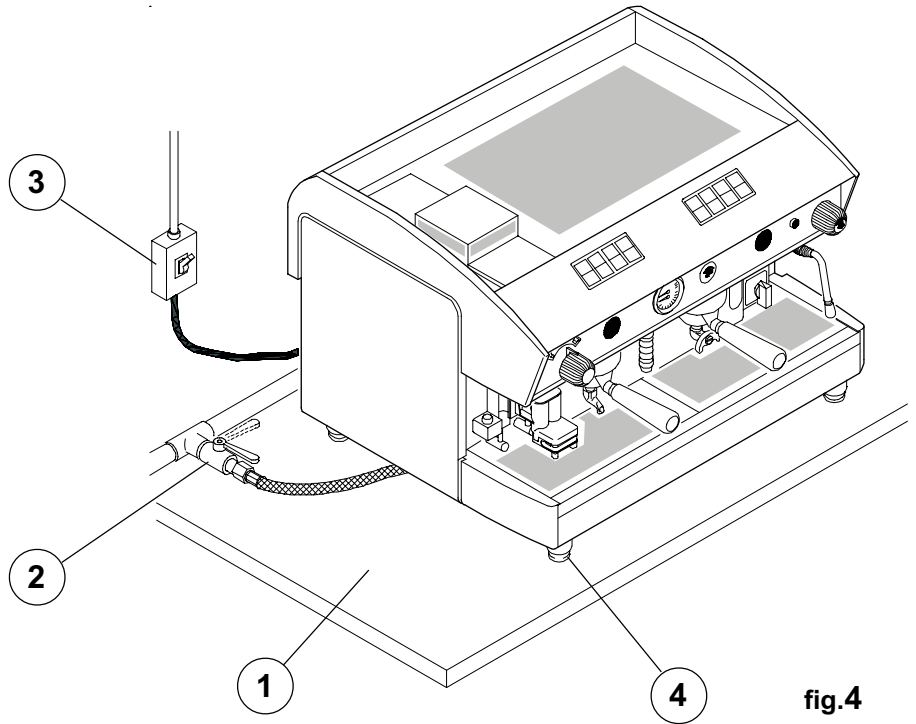


fig.4

#### **ATTENTION**

*If the machine is to work properly it must stand on a perfectly level base. If it needs aligning simply turn the feet (4).*

### 3.3 GETTING THE PARTS READY

#### **External electric pump (fig.5)**

The pump and motor have to be prepared for machines that have an external motor. Fit the 3/8 Gas fitting with filter (2) and the ordinary 3/8 Gas fitting (1) on the pump. Go careful: the fitting with filter (2) must be fitted on the pump inlet.

Use the washers (3) provided.

Install the pump on the motor making sure they are perfectly aligned. An inadequate coupling could lead to trouble like quick wearing of the movable parts, hydraulic leaks or vibrations.

#### **Filter holder (fig.6)**

Take the filter holder (4), a filter stop spring (5) and put it in place on the filter holder. Take the filter (6) or (7) and push it with force into the filter holder.

#### **Spouts (fig.6)**

Complete the filter holder by fitting the spout (8) or (9).

Attention: fit the spout on its relative filter holder: one-cup spout on the filter holder with a 1-cup filter, etc...

#### **Softener**

It is a standard feature.

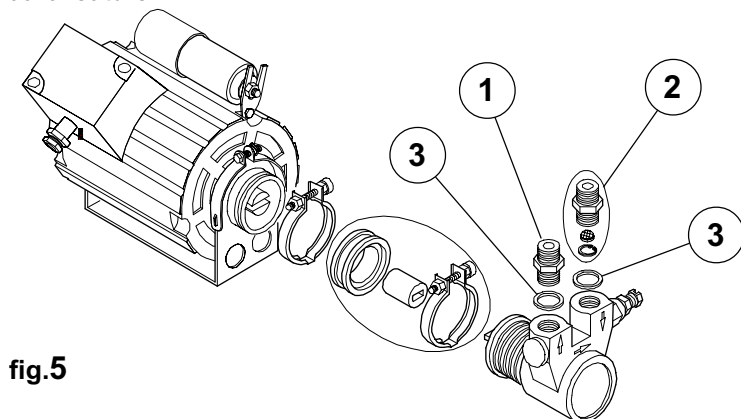


fig.5

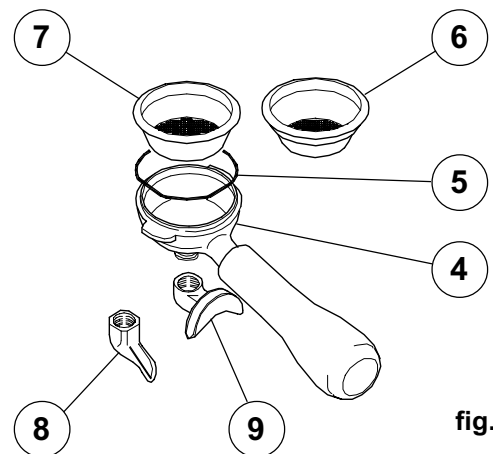


fig.6

## 4. INSTALLATION

### 4.1 HYDRAULIC CONNECTION (fig.7)

The softener provided with the machine is designed to work at a pressure ranging between 1 and 8 bar. Only cold drinking water (for **human consumption**) must be used! There must be a cock on the connection to the water mains so the water supply can be shut off to the appliance.

To prevent the water inside from freezing, we advise installing the softener on premises where environmental temperature is higher than 0°C.

#### ATTENTION

**So as not to damage the outer casing, valves or cocks, install the softener in a place protected against accidental knocks.**

Before connecting the pipes, remove any rubber plugs that may have been put in the softener's cock couplings.

To connect proceed as follows:

- 1) connect the water mains (**A**) on the softener input (**E**) using the flexible hose provided;
- 2) rinse the resins of the softener making sure the water, that is initially yellowy, is of a transparent colour;
- 3) connect the softener's output (**U**) to the machine (**M**); in the case of an external electric pump, install it (**MP**) between the softener's output and machine input;
- 4) connect the machine's tray (**VS**) to the drain (**S**) with the pipe provided, avoiding sharp curves or throttlings and keeping it slanted enough to let the drain water flow away;
- 5) the drain must be connected to an inspectionable trap that can be cleaned periodically so as to avoid the return of bad odours.

#### ATTENTION

**When connecting to the water mains do not use iron or galvanised iron fittings because, with the passing of time, they can corrode and seriously damage the machine.**

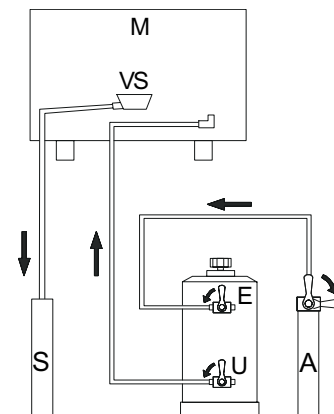


fig.7a - internal pump

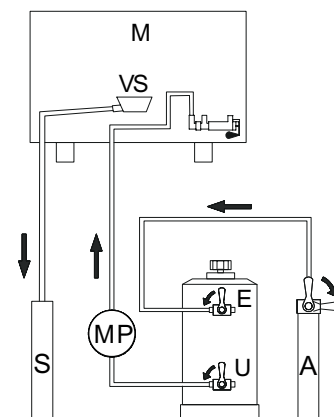


fig.7b - external pump

To keep the softener in perfect working order, and consequently the coffee maker, periodical regeneration is necessary according to how much the softener is used and water hardness.

Table 2, referring to the 12-litre softener, gives the quantities of softened water in relation to the hardness of the water expressed in the various units of measure:

- F°: French degree
- D°: German degree
- ppm: part per million

tab.2

QUANTITY OF WATER SOFTENED ACCORDING TO HARDNESS					
F°	30°	40°	60°	80°	SALT
D°	16.5°	22°	33°	44°	
ppm	289	385	578	770	
quantity of water softened	1,900 l	1,500 l	1,350 l	1,050 l	1.5 kg

For more details on how to install, start up and regenerate the softener, please consult the relative instruction manual.

## 4.2. ELECTRICAL CONNECTION

Proceed as follows:

- open the water cock on the water mains (1) and on the softener;
- remove the steel drainage tray, pulling it towards yourself;
- fill the boiler up by hand with the relative lever (2) and check how much water there is on the optical level (it should be above minimum) so as to prevent the heating element from overheating;
- (only for the external electric pump): connect the motor's power cable (the smaller diameter one) that comes out of the coffee maker to the pump;
- connect the cable with the bigger diameter that comes out of the coffee maker to the electricity mains following the wiring diagram indicated in the chapter "Wiring diagrams";
- we advise installing a general circuit breaker in between for protection (3).

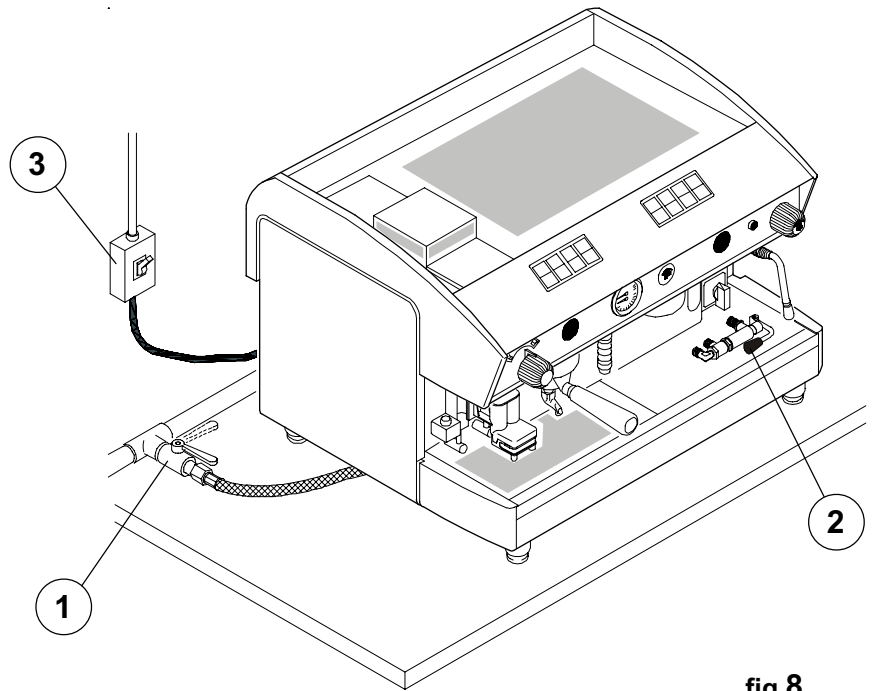


fig.8

The coffee maker is now ready to switch on.

### ATTENTION

**Disconnect mains power when making the electrical connection.**

### NOTE

**All machines are fitted with a device that limits loading time of the water in the boiler to a maximum of 2 minutes. This makes sure water cannot come through the boiler's valve (flooding) and prevents the electric pump from overheating.**

**If this maximum time is not enough to finish filling the boiler (3 units), turn the coffee maker off and then back on and repeat the operations described above.**

## 4.3 TURNING THE COFFEE MAKER ON AND ADJUSTING THE PUMP (fig.9)

Switch the mains on and the coffee machine's main switch.

Adjust the pump as follows:

- switch the coffee dispenser on;
- adjust the screw on the pump (1) until a pressure of between 8 and 9 bar is reached (see gauge);
- switch the dispenser off.

From the moment it is turned on, the coffee maker will take about 20 minutes to reach pressure. While it is warming up steam will come through the anti-vacuum valve for a few seconds until it closes.

Pressure of the machine when it is working is about 1 - 1.2 bar.

### Last things to do

We advise you do the following;

- let the dispensers with the filter holders hooked in position work empty for a few seconds so that any air left inside the circuit can escape and to give the dispenser units the time to warm up completely;
- make a few cups of coffee to test grinding and check pressure which should be between 8 and 9 bar.

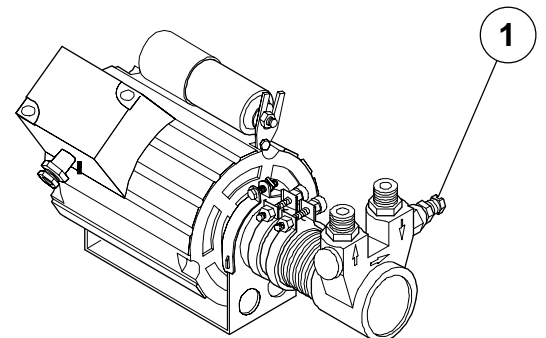


fig.9

## 5. BOILER (fig.10)

The boiler is made in copper sheet (1) to which the heat exchangers are assembled which, in turn, are connected to the dispensing unit. It is the heat exchanger that takes the water to make coffee. While coffee is being dispensed, the electric pump sends cold water to the exchanger. This cold water is mixed with the hot water already inside the exchanger, to have water at just the right temperature to make coffee.

The water is heated inside the boiler by an immersed electric heating element (2).

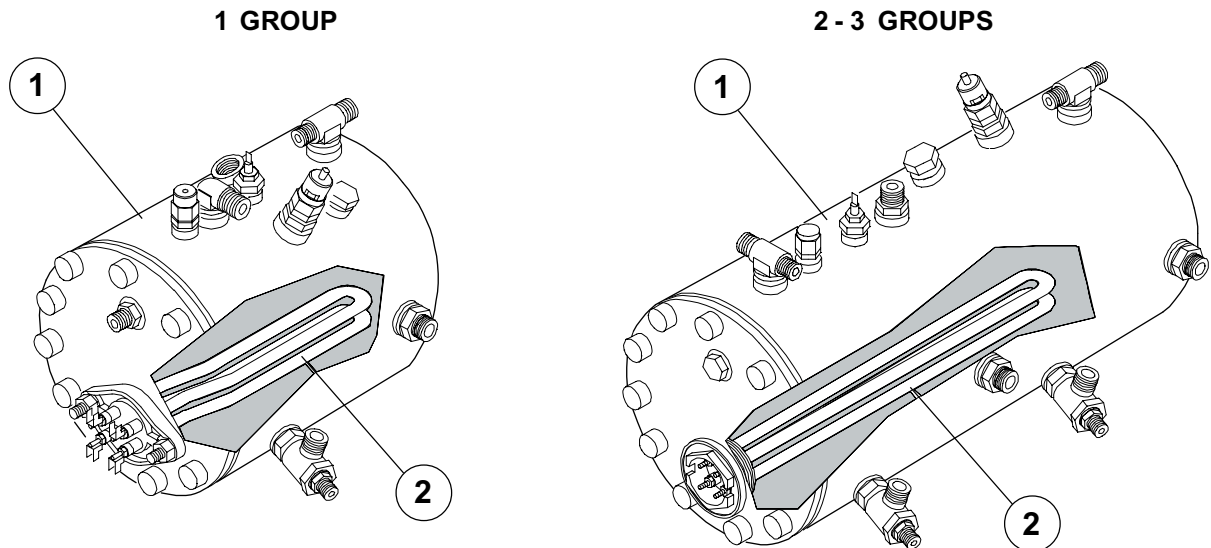


fig.10

## 6. EXCHANGERS (fig.11)

The heat exchangers make it possible to heat the water to have a perfect cup of espresso coffee. Their job is to produce an exchange of thermal energy between the water inside the boiler and the water inside the exchanger.

The dispensing units are heated with a radiator system by means of tubes connected to the heat exchangers.

The same recycled water is used to make coffee to guarantee the same temperature for all the cups of coffee.

It is important to guarantee system efficiency by keeping the circuit clean at all times by the constant regeneration of the softener.

The heat exchangers can be replaced proceeding as follows:

- switch the coffee maker off and empty the water circuits completely of water and steam;
- remove the fridge (if there is one);
- remove the flange from the boiler and unscrew the nuts that are keeping the exchanger fixed to the boiler;
- extract the exchanger and put a new one in its place;
- proceed in the reverse order to put everything back, making sure you change the gaskets as well.

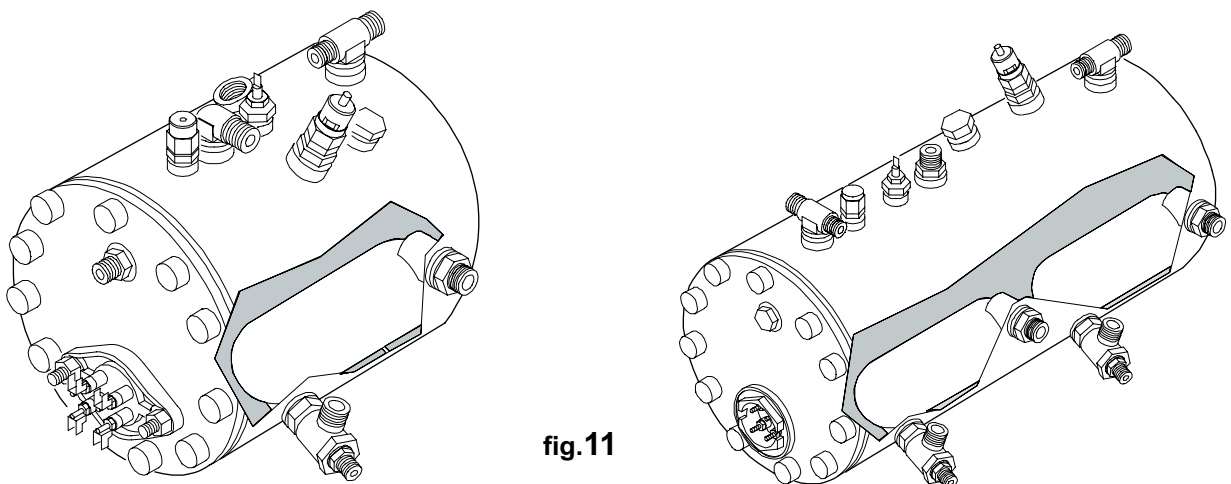


fig.11

## 7. DISPENSING UNIT (fig.12)

When you select dispensing of one dose of coffee you activate:

- the solenoid valve (1) that lets water flow into the coffee;
- the pump that raises pressure of the flowing water between 8 and 9 bar.

The flow reducer (2) and injector (3) are important components if the dispensing unit is to work properly.

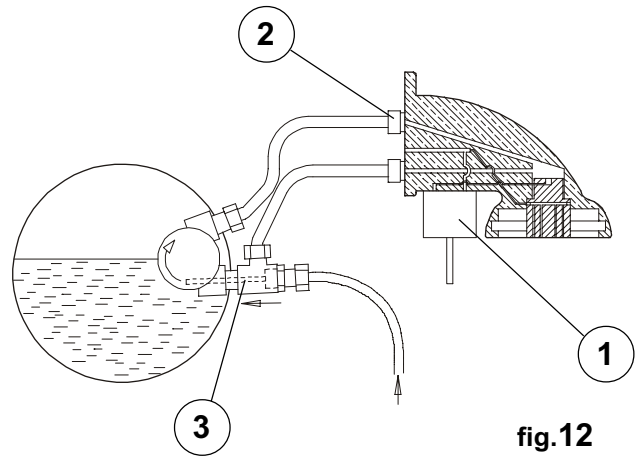


fig.12

## 8. INTERNAL SYSTEMS

### 8.1 Automatic water inlet (fig.13 - fig.14)

The automatic water inlet controls boiler level. It consists of

- a stainless steel rod probe inserted in the boiler;
- an electronic level regulator;
- a hydraulic circuit with a regulator controlled solenoid valve.

The electronic unit controls water level inside the boiler. When the level drops, interrupting contact with the probe, the electronic unit sends an impulse to the inlet solenoid valve and to the electric pump so that water in the boiler can be brought back up to the level.

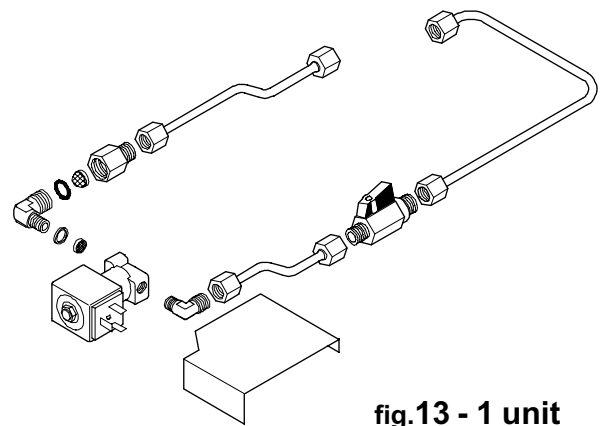


fig.13 - 1 unit

### ATTENTION

*Always keep an eye on the quantity of water in the boiler through the optical level which is on the front panel of the coffee maker.*

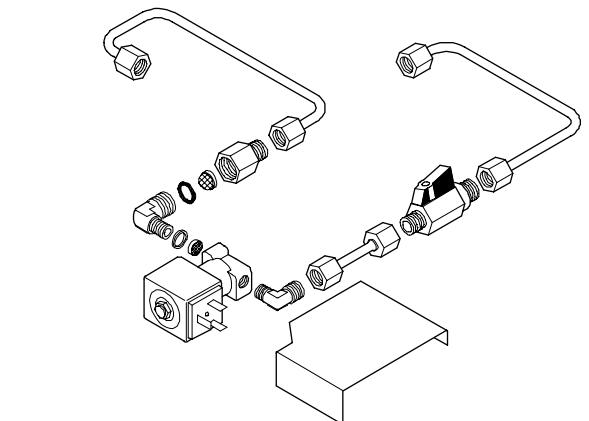


fig.14 - 2/3 units

### 8.2 VOLUMETRIC DOSER (fig.15)

The volumetric doser installed on electronic coffee makers measures the quantity of water sent to the unit to make a cup of espresso coffee. It generates an electric impulse that is sent to the electronic control unit. This impulse is read by the unit and stored while programming the dose. Each flash of the LED (1) on the volumetric doser means an impulse that the doser sends to the unit.

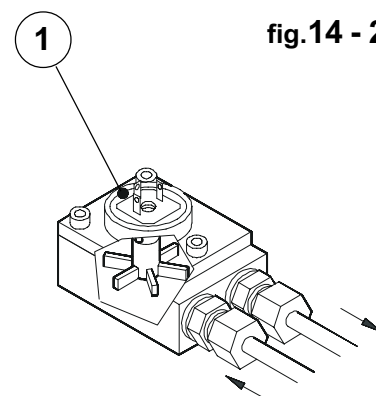
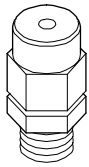


fig.15



### 8.3 VALVE UNIT

fig.16

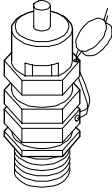


The valves are devices that guarantee safety and correct machine operation. Let's look at them in detail:

#### **Anti-vacuum valve (fig.16)**

This valve's task is to avoid the return of liquids through the steam nozzle while they are being heated. It also eliminates any air from inside the boiler while the coffee maker is warming up.

fig.17



#### **Pressure limiting valve (fig.17)**

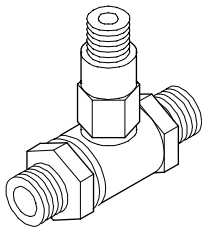
This valve guarantees that pressure inside the boiler does not exceed **2 bar**. Should this valve fail its capacity is such to eliminate all excess pressure in the boiler.

#### **Blowdown-check valve (fig.18)**

This valve consists of an expansion valve and a check valve.

- expansion valve: the cold water the pump sends to the exchangers heats up. This heating causes an increase in the volume of water. To limit pressure rising in the water circuit the valve maintains a maximum pressure of 12 bar inside the circuit.
- check valve: its function is to prevent water flowing back into the water circuit from the exchangers.

fig.18



### 8.4 ANTIFLOOD DEVICE (fig.19)

Thanks to the cover installed on the pressure limiting valve any water that may have come out of the boiler, for any reason, can be collected and sent to the drainage tray through the relative pipe

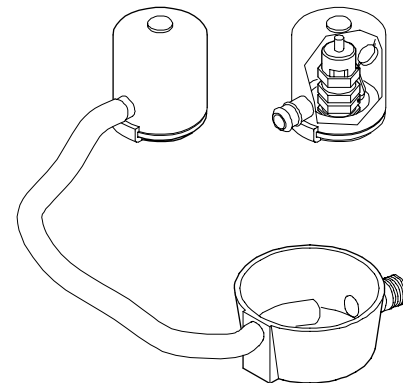


fig.19

### 8.5 PUMPING SYSTEM (fig.20)

Its task is to feed the coffee maker, raising water pressure to 8-9 bar to make coffee and automatically fill the boiler.

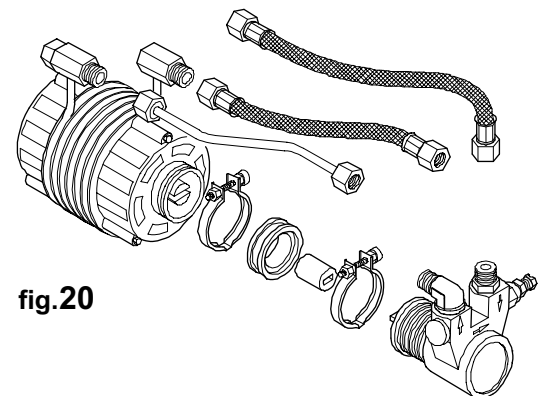


fig.20

### 8.6 CONTROLLING BOILER PRESSURE (fig.21)

Its job is to turn the electric heating elements on or off according to the pressure reached inside the boiler. Adjustment pressure can vary from a minimum of 0.5 bar to a maximum of 1.4 bar.

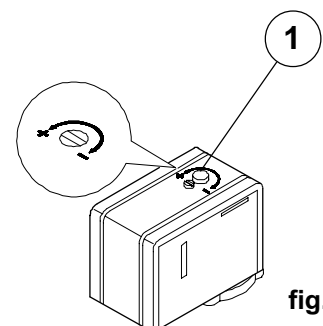


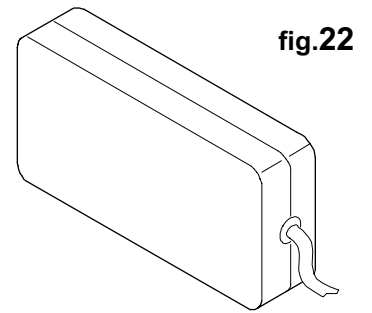
fig.21

#### **ATTENTION**

**The contacts inside the machine are subject to corrosion. We recommend cleaning them periodically with a corrosion-proof spray.**  
**The pressure switch must be calibrated when the coffee maker is working, adjusting pressure with the relative screw on the component (1).**

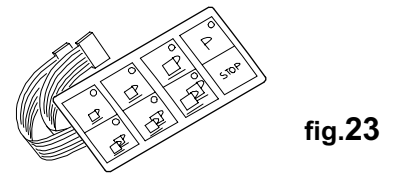
### 8.7 ELECTRONIC CONTROL UNIT (fig.22)

The electronic control unit is installed on machines with a volumetric doser. Its job is to electronically control the dose of coffee and hot water and the filling up with water. This control unit can be connected, with interfacing, to dispensing counter systems.



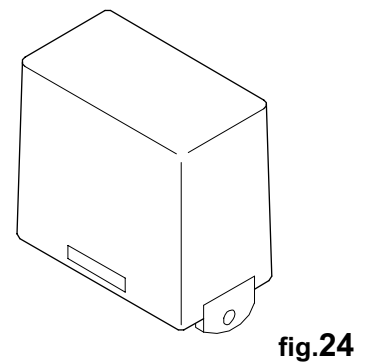
### 8.8 ELECTRONIC PUSH BUTTON PANEL (fig.23)

The push button panel is the electronic component connected to the control unit and is used to select and programme coffee doses. Programming is done following the instructions given in the user's manual.



### 8.9 LEVEL REGULATION OF WATER IN THE BOILER (fig.24)

The level regulator, consisting of an electronic control unit, is installed on semi-automatic coffee makers and controls boiler water level. When the level of water inside the boiler drops, interrupting contact with the probe, the control unit sends an impulse to the inlet solenoid valve and electric pump to restore water level.

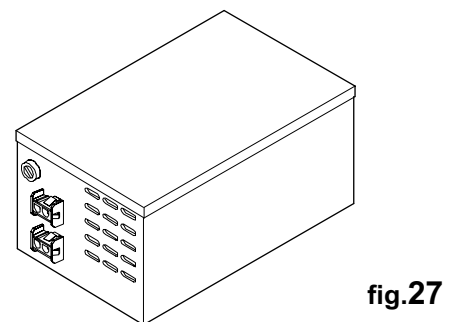
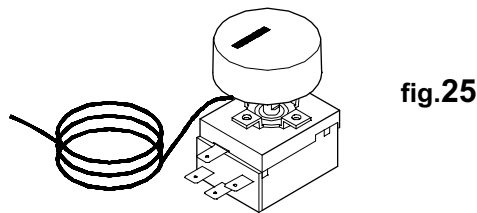
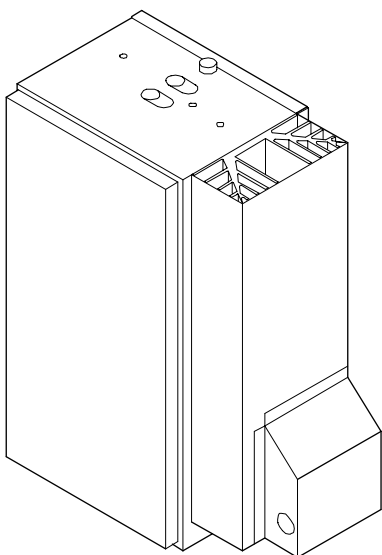


### 8.10 REFRIGERATOR AND POWER SUPPLY (fig.25 - fig.26 - fig.27)

The refrigerator inside the coffee maker works with Peltier cells powered with low voltage direct current generated by a power supply located at the back of the machine.

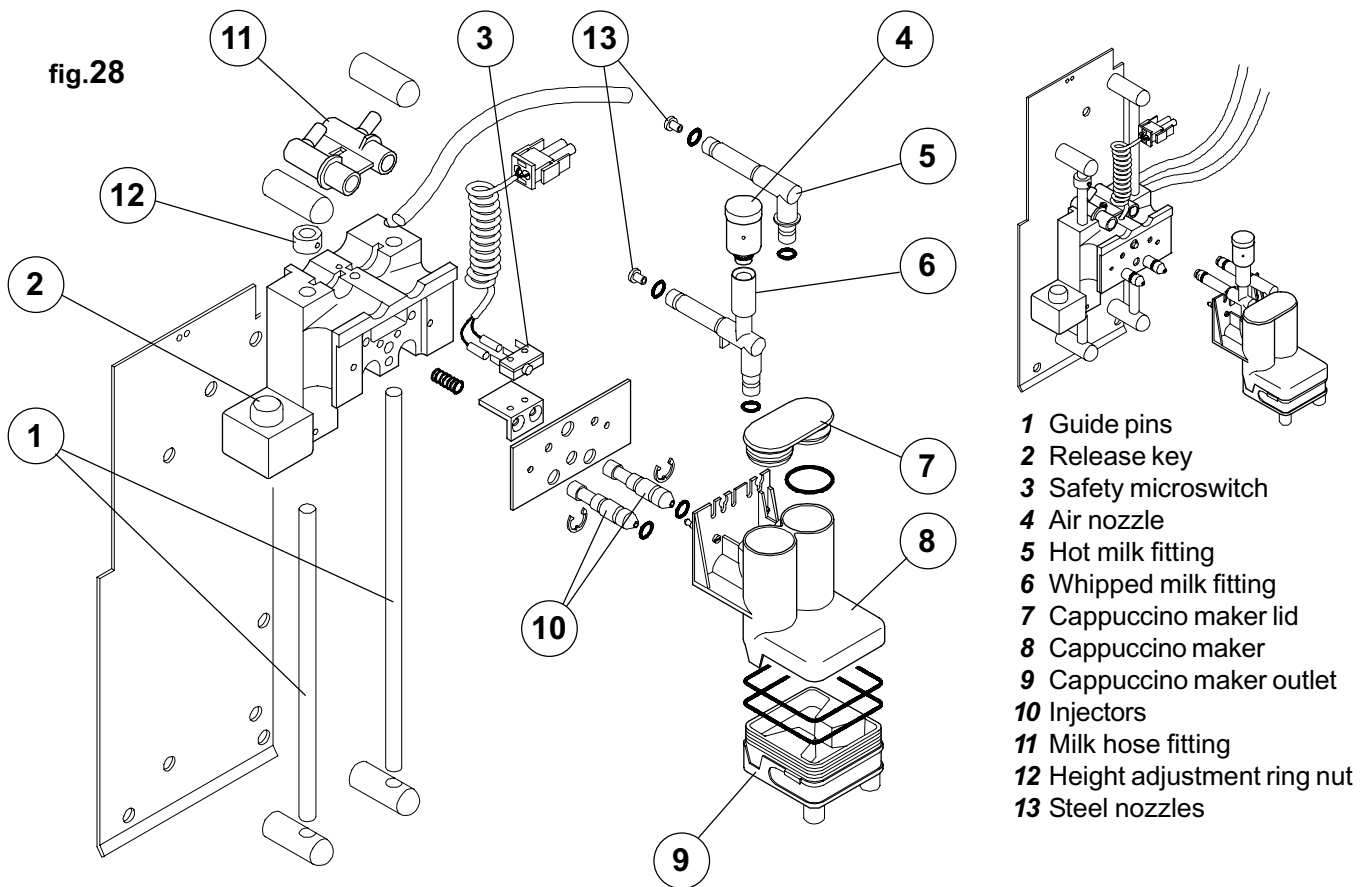
A thermostat bulb inside the fridge controls its temperature which is adjusted with the device under the drainage tray. It must be adjusted based on outside temperature to keep the milk in the fridge at a temperature of about 4°C.

A fan at the bottom of the fridge cools the Peltier cells. An automatically resettable safety thermostat, set at a temperature of 60°C, is installed on the cooling fins. Should this thermostat trigger, the Peltier cells are stopped until working temperature is restored.



## 9. CAPPUCCINO MAKER

### GENERAL ILLUSTRATION (fig.28)



### HOW THE CAPPUCCINO MAKER WORKS (fig.29)

#### Whipped hot milk

turn knob (1) to the left which triggers the microswitch (2) that activates the solenoid valve (4) so that steam can reach the cappuccino maker.

#### Hot milk

turn knob (1) to the right which triggers the microswitch (3) that activates the solenoid valve (5) so that steam can reach the cappuccino maker.

If you put the knob (1) back in the zero position all residual milk will be emptied from the pipes.

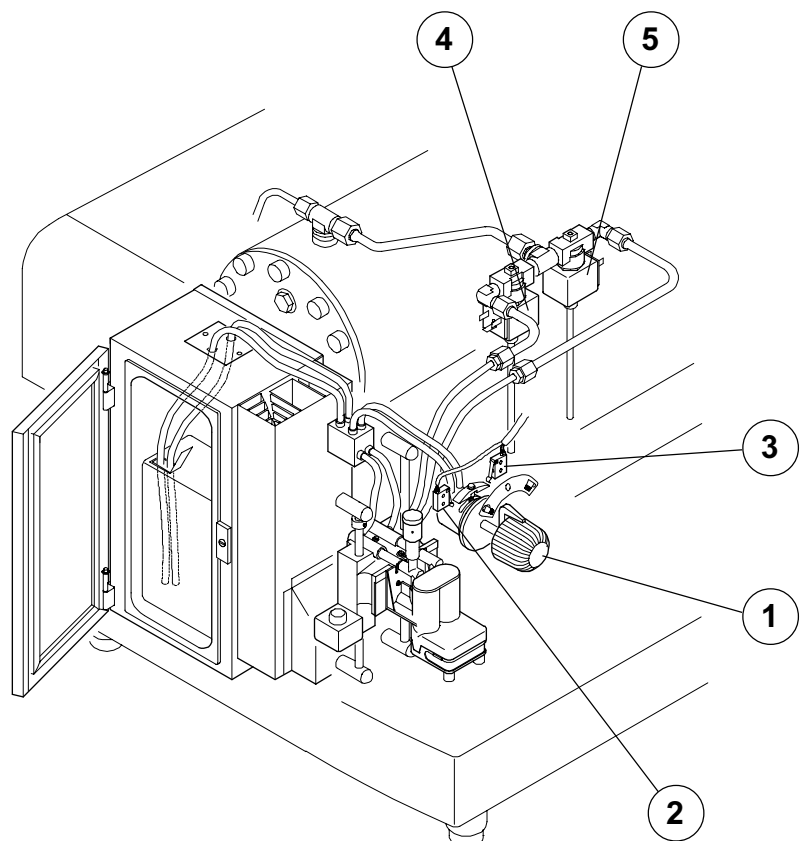


fig.29

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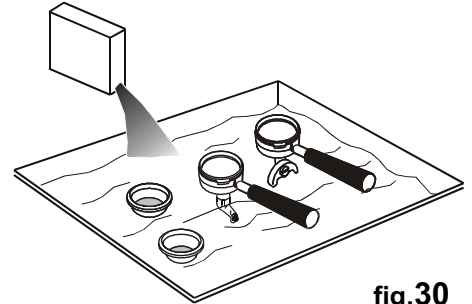
## 10. CLEANING

A few simple cleaning operations of the functional parts, accessories and body panels are all that's needed to keep the coffee maker perfectly efficient and hygienic.

### ***Cleaning filters and filter holders (fig.30)***

The filters and filter holders must be cleaned daily with hot water. The best thing is to leave them to soak in hot water over night which will give coffee fat deposits time to dissolve.

It is advisable to add a sachet or tab of specific detergent to the water and then rinse well with clean water.



**fig.30**

### ***Cleaning the steam nozzles***

The steam nozzles must be kept clean at all times. Once a month check the tips and clean them, unclogging the holes with a small needle.

### ***Cleaning the units***

The internal parts of the dispensing units must be cleaned once a week as follows:

- substitute the normal filter of the filter holder with a blind one;
- put the specific detergent in the blind filter and hook the filter holder to the unit;
- switch the dispenser on, making the unit work;
- repeat this operation several times until perfectly clean water comes through the drain;
- turn the dispenser off and remove the filter holder from the unit;
- rinse one last time to remove all soap residuals.

### ***Cleaning the body***

Clean the body panels with a cloth and warm water. Do not use abrasive detergents as they could ruin the panels.

### ***Grinder-doser***

Once a week clean the outside and inside of the hopper and doser with a cloth and warm water.

### ***Refrigerator***

Clean the refrigerator once a day with a damp, disinfected cloth.

Once a week check the cooling fan, cleaning it if necessary.

---

## CLEANING THE CAPPUCCINO MAKER

### Each evening

1. Substitute the milk receptacle in the fridge with one containing 300 ml of hot water and 30 ml of a special detergent for cappuccino makers see fig.31 (do not use soda or other detergents).
2. Rinse the pipes with this mixture of detergent and water switching the cappuccino maker on (turn the knob to the right or left several times).

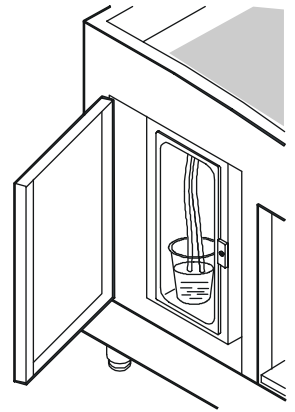
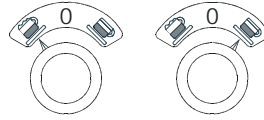


fig.31

3. Fill the receptacle in the refrigerator with 400 ml of cold water and rinse the cappuccino maker making sure that all the detergent has been removed from inside the milk compartment.

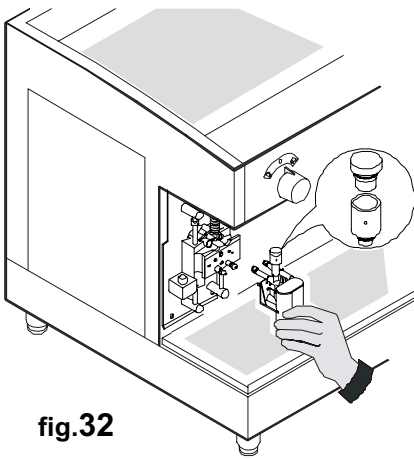


fig.32

4. Remove the cappuccino maker and clean all the components thoroughly (fig.32). Dip the components in a mixture of 400 ml of warm water and 40 ml of the special detergent and leave them to soak for one hour. Rinse all parts with hot water.

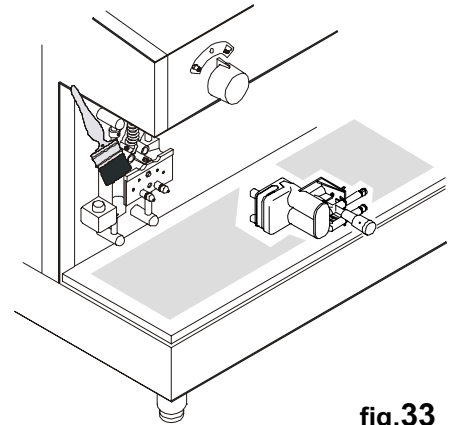
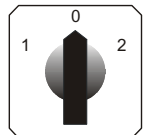


fig.33

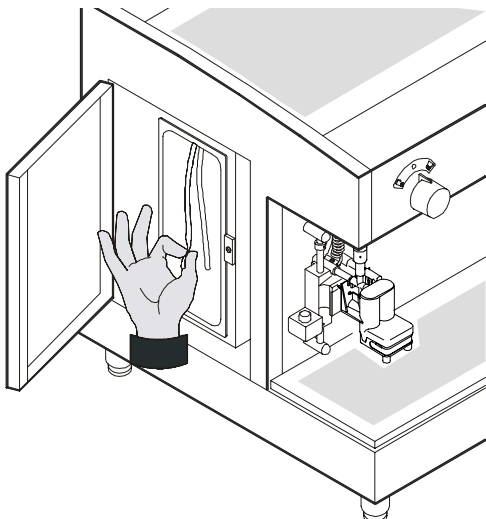
5. It's possible that some milk can get in between the various parts of the mechanism when you're using the cappuccino maker. Clean the whole mechanism with the special brush provided (fig.33).

6. Reassemble the cappuccino maker and put it back in position.
7. Remove the milk receptacle and clean the inside of the refrigerator. Put the receptacle back. Whenever the machine is not being used, or over night, we suggest removing the milk receptacle and turning the switch round to position 1 to switch the refrigerator off.



### Weekly cleaning

Check all the pipes and clean the various components if necessary with the bristle brush available in the accessories.



### ATTENTION

**Regularly clean the heatsink of the fridge so it remains free of dust.**

### Cleaning during the day (fig.34)

We advise cleaning the cappuccino maker at the beginning of the day or whenever it has not been used for more than an hour. Remove all residuals of condensed milk fat from inside pipes.

Turn the cappuccino maker's knob to the right and left several times so that the steam cleans it. Then turn the knob back into position 0.

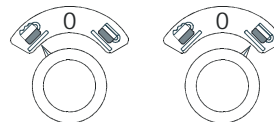


fig.34

## 11. CHECKS AND MAINTENANCE

To ensure perfect efficiency and safety of the machine over time, routine, preventive and extraordinary maintenance jobs are necessary.

### Machine

- Carry out the daily cleaning jobs described in chapter 10;
- Every 6 months change the filter and undercup seal on the dispensing unit (use original spare parts only!) proceeding as follows:
  - unscrew screw (1);
  - remove and replace the filter unit (2) and the rubber undercup seal (3);
  - reassemble the components.
- At least once a year check that the anti-vacuum, pressure limiter and blowdown-check valves are all working properly. In the case of malfunctions they must be replaced. For the checks proceed as follows:

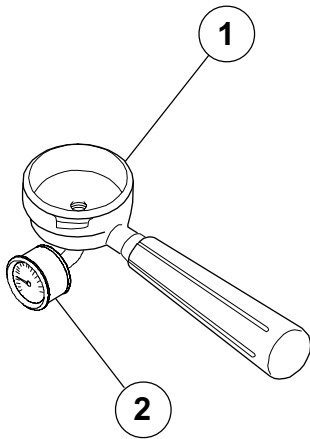
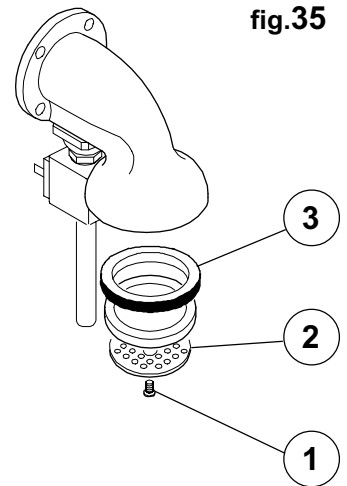


fig.36

#### anti-vacuum valve

- Switch the machine off;
- using the steam cocks, let off all the pressure inside the boiler;
- switch the machine back on and check the valve is shut.

#### pressure limiting valve

- Lock the pressure switch contacts;
- wait for the pressure to rise inside the boiler and see that the valve triggers at the maximum pressure of 2 bar.

#### blowdown-check limiting valve

- Switch the dispensing units on for about 30 seconds;
- hook a filter holder with gauge to the dispensing unit (1) (available on request);
- switch the dispensing unit on checking the increase in pressure on the gauge (2) up to 8 - 9 bar;
- check the increase in pressure due to the expansion effect of the heated water, up to a value of approximately 12 bar: when this value is reached it means the valve and both the seals and solenoid valves are working properly;
- switch the dispensing unit off;
- repeat this check on the other dispensing units.

- Check regularly the pressure of water during coffee dispensing: check the pressure shown on the gauge which should be between 8 and 9 bar;
- Keep boiler pressure under control which should be between 1 and 1.3 bar;
- Check regularly wear of the filters, if the filter edges are in good condition or damaged and if there are coffee grouts at the bottom of the coffee cup.

### Grinder-doser

Check the dose of coffee regularly (between 6 and 7 g per dose) and then check grinding. The grinders must always be perfectly sharp and their deterioration is a sign that there is too much powder in the ground coffee. We recommend changing the grinders every 500/600 kg of coffee.

### Refrigerator

Pay particular attention to the seal that must always ensure perfect tightness. Replace it if this is not the case. If there is an excessive quantity of ice or frost inside the refrigerator, switch it off by turning the main switch round to position 1, wait for it to defrost, dry the inside and check its temperature, adjusting the fridge thermostat.

Check the efficiency of the Peltier cell cooling fan regularly, replacing it if it is malfunctioning.

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### **Softener**

Mains water contains insoluble salts which are the cause of furring inside the boiler and in other parts of the coffee maker. The resin softener traps these salts. For this reason, after a certain period of time, they become saturated and are regenerated with coarse kitchen salt (NaCl, sodium chloride) or specific salt for softeners. It is very important to regenerate the softener at the established times. The formation of scale inside the water circuit occurs when regeneration is neglected; this results in long periods of machine shutdown for overhauling, no longer covered by the guarantee.

Regeneration should be done regularly every 15 days. However, in places where the water is extra hard it will be necessary to regenerate at shorter intervals. This same rule applies when a lot of hot water is used for making teas or other drinks.

### **ATTENTION**

***Scale prevents thermal exchange, undermining machine performance. If there is a thick layer of scale inside the boiler it nullifies any guarantee because it means that regeneration was neglected.***

## **12. LIST OF RISKS**

In this chapter we have listed some of the risks the user can come up against if the specific safety rules and regulations are not complied with (described in this manual).

### ***The appliance must be effectively earthed.***

Failure to do this can mean that the appliance is a source of dangerous electric discharges seeing as it cannot discharge any electricity losses to earth.

### ***Do not use running water for washing.***

Pressurised water used directly on the machine can seriously damage the electrical components. Never use jets of water to clean any part of the appliance.

### ***Pay attention to the steam and hot water nozzles.***

When the steam and hot water nozzles are used they get very hot and are a potential hazard source. Handle these parts with extreme care. Never direct jets of steam or hot water on body parts.

### ***Do not work on the machine when it is powered.***

Before attempting any work on the machine it must be switched off via the main switch or, better still, take the plug out of the mains socket. Never remove any of the body panels while the machine is powered.

### ***Never work on the water system until it has been emptied.***

Avoid all work on the water system and boiler if there is still water and pressure. Empty it first, closing the mains cock and letting the dispensing unit run for a while empty. Switch the machine off and open all the steam and water cocks. With pressure at zero, empty the boiler completely by opening the cock at the bottom of it.

If this is not done correctly and some part of the water system is opened it could cause the sudden exit of hot, pressurised water.

### ***Using the appliance***

This espresso coffee machine is designed for professional use only. Any other use is to be considered wrong and therefore dangerous. Never let children or uncapable people use it.

Non compliance with the above instructions can lead to serious bodily harm as well as damage to animals and things.

Never work on the electronic equipment when the machine is powered.

Disconnect the machine completely from the mains before embarking on any work.

### **ATTENTION**

***Any work done by a technician on the appliance's electronic elements while the machine is still powered from the mains will automatically nullify any guarantee.***

***The technician should be aware that the machine is powered and therefore act cautiously.***

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## 13. TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
<b>POWER IS NOT REACHING THE MACHINE</b>	<ol style="list-style-type: none"> <li>1) Machine switch on 0 or not working</li> <li>2) Mains switch OFF or not working</li> <li>3) Connection to the electricity mains is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1) Switch the machine's main switch on and check it is working properly</li> <li>2) Check the mains switch</li> <li>3) Check connection to the electricity mains</li> </ol>
<b>NO WATER IN THE BOILER</b>	<ol style="list-style-type: none"> <li>1) The mains cock is closed or the mains is not supplying water</li> <li>2) The self-level exclusion cock is in the closing position</li> <li>3) The pump filter is clogged</li> <li>4) The electric pump is either disconnected or blocked</li> <li>5) The H2O loading solenoid valve is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1) Open the mains cock</li> <li>2) Open the self-level cock</li> <li>3) Change the pump filter</li> <li>4) Check the electric pump</li> <li>5) Check the H2O loading solenoid valve</li> </ol>
<b>TOO MUCH WATER IN THE BOILER</b>	<ol style="list-style-type: none"> <li>1) The manual valve stays connected</li> <li>2) The self-level solenoid valve is faulty</li> <li>3) The exchanger is perforated</li> </ol>	<ol style="list-style-type: none"> <li>1) Check the level probe and earthing of the frame and check effectiveness of the electronic control unit</li> <li>2) Clean or change the self-level solenoid valve</li> <li>3) Change the exchanger</li> </ol>
<b>NO STEAM IS COMING FROM THE NOZZLES</b>	<ol style="list-style-type: none"> <li>1) Faulty heating element</li> <li>2) Pressure switch contacts have corroded</li> <li>3) Heating element protection not connected</li> <li>4) The steam nozzle spray is clogged</li> </ol>	<ol style="list-style-type: none"> <li>1) Change the electric heating element</li> <li>2) Clean the contacts of the pressure switch or change it</li> <li>3) Check and reset the heating element protection</li> <li>4) Clean</li> </ol>
<b>STEAM MIXED WITH WATER IS COMING FROM THE NOZZLES</b>	The level of water in the boiler is too high	Check the level probe: see if it is positioned correctly inside the boiler and if there is lime on its surface
<b>UNIT DISPENSING ABSENT</b>	<ol style="list-style-type: none"> <li>1) No water in the mains</li> <li>2) Unit solenoid valve with interrupted coil</li> <li>3) Pump blocked</li> <li>4) Blown fuse on the electronic control unit</li> <li>5) Injector clogged</li> <li>6) Unit solenoid valve clogged or dirty</li> <li>7) Dispensing unit filter clogged</li> <li>8) Volumetric doser blocked</li> </ol>	<ol style="list-style-type: none"> <li>1) See if there is water in the mains</li> <li>2) Change the unit solenoid valve</li> <li>3) Check and, if necessary, change the pump</li> <li>4) Change the solenoid valve control unit fuse (1 ampère)</li> <li>5) Clean or change the injector</li> <li>6) Clean or change the solenoid valve</li> <li>7) Clean or change the filter unit</li> <li>8) Check the volumetric doser</li> </ol>
<b>WATER IS LEAKING FROM THE MACHINE</b>	<ol style="list-style-type: none"> <li>1) Drain clogged</li> <li>2) Drain coupling pipe is broken or has come away and it's difficult for water to circulate through the pipe</li> <li>3) Water leaking from the water circuit</li> </ol>	<ol style="list-style-type: none"> <li>1) Check the drainage system</li> <li>2) Check connection between the drainpipe and tray</li> <li>3) Check and restore water tightness</li> </ol>
<b>COLD ESPRESSO</b>	<ol style="list-style-type: none"> <li>1) Electric heating element faulty</li> <li>2) Electrical connection faulty</li> <li>3) Lime in the exchangers (regeneration has been neglected)</li> <li>4) Pressure switch contacts corroded</li> <li>5) Heating element protection thermostat interrupted</li> <li>6) Dispensing units are not hot enough</li> </ol>	<ol style="list-style-type: none"> <li>1) Change the electric heating element</li> <li>2) Check the electrical connection to the mains</li> <li>3) Overhaul the machine</li> <li>4) Clean the pressure switch's contacts</li> <li>5) Reset the thermostat</li> <li>6) Remove all air from the water circuit as follows: <ul style="list-style-type: none"> <li>- disconnect the pump electrically</li> <li>- close the softener's water outlet cock</li> <li>- dispense while empty for a few minutes</li> <li>- reconnect the pump electrically</li> <li>- open the softener's water outlet cock</li> <li>- dispense until water comes through</li> <li>- wait a few minutes for heating up</li> </ul> </li> </ol>
<b>THE ESPRESSO IS TOO HOT</b>	Pressure switch erroneously calibrated or units with flow reducer whose diameter is too big.	Adjust the pressure switch by turning the screw and check the reducer
<b>COFFEE IS BEING DISPENSED TOO QUICKLY</b>	<ol style="list-style-type: none"> <li>1) Coffee grinding is too coarse</li> <li>2) Injector diameter is too big</li> </ol>	<ol style="list-style-type: none"> <li>1) Adjust coffee grinding</li> <li>2) Change the injector</li> </ol>
<b>COFFEE IS BEING DISPENSED TOO SLOWLY</b>	<ol style="list-style-type: none"> <li>1) Coffee grinding is too fine</li> <li>2) Filter holder dirty (cleaning has been neglected)</li> <li>3) Unit solenoid valve and/or injector clogged</li> <li>4) Dispensing unit clogged</li> </ol>	<ol style="list-style-type: none"> <li>1) Adjust coffee grinding</li> <li>2) Change the filter and clean filters and units regularly</li> <li>3) Change the injector</li> <li>4) Check the unit</li> </ol>
<b>COFFEE GROUTS ARE WET</b>	<ol style="list-style-type: none"> <li>1) Unit solenoid valve drain clogged</li> <li>2) Dispensing unit is not hot enough</li> <li>3) Coffee grinding is too fine</li> </ol>	<ol style="list-style-type: none"> <li>1) Clean the unit's drain</li> <li>2) Wait for it to heat up completely</li> <li>3) Adjust coffee grinding</li> </ol>
<b>THE GAUGE IS NOT SHOWING THE CORRECT PRESSURE</b>	<ol style="list-style-type: none"> <li>1) Gauge faulty</li> <li>2) Erroneous pressure switch calibration</li> <li>3) Erroneous electric pump calibration</li> </ol>	<ol style="list-style-type: none"> <li>1) Change the gauge</li> <li>2) Adjust pressure switch calibration</li> <li>3) Adjust electric pump calibration</li> </ol>
<b>DISPENSING WORKS ONLY WITH THE AUXILIARY SWITCH (SAE)</b>	<ol style="list-style-type: none"> <li>1) Fuse blown on the electronic control unit</li> <li>2) Solenoid valve coil shortcircuited</li> </ol>	<ol style="list-style-type: none"> <li>1) Change the solenoid valve protection unit fuse (1 ampere)</li> <li>2) Change the solenoid valve coil</li> </ol>



<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
<b>ELECTRONIC MACHINES:</b> <b>FAULTY DISPENSING</b> <b>THE DOSE OF COFFEE IS NOT WHAT IT SHOULD BE</b> <b>THE CHOSEN DOSE KEY LED IS FLASHING</b>	1) Faulty volumetric doser connection 2) Faulty connection of the electronic control unit cabling of the volumetric dosers 3) Water or humidity on the volumetric doser connector 4) Volumetric doser failed: when coffee is being dispensed the doser LED fails to flash 5) The coffee is too finely ground: not enough water is getting through to the volumetric doser 6) The check valve is losing pressure (short dose) 7) The blowdown valves fail to hold pressure (short dose) 8) The solenoid valve leaks water while coffee is being dispensed or when resting	1) Check the perfect connection of the volumetric doser's connector 2) Check the perfect connection of the electronic control unit's (8-pole) connector 3) Remove the doser's connector, dry the contacts accurately, spray some anti-corrosion spray and reconnect 4) Replace the doser's electronic heads 5) Adjust grinding accordingly 6) Check the check valves 7) Check the blowdown valves 8) Clean or replace the solenoid valve
<b>ELECTRONIC MACHINES:</b> <b>ALL LEDS ON ALL PUSH BUTTON PANELS ARE FLASHING</b> <b>SEMI-AUTOMATIC MACHINES:</b> <b>THE FRONT LED IS FLASHING</b>	Two minutes after water is automatically being pumped in, it stops: - no water in the mains - self-level cock is closed - the pipes are clogged - the probe or earth is disconnected	See why there is no water. Reconnect the probe or earth
<b>THE ELECTRIC PUMP ONLY WORKS WITH THE AUXILIARY SWITCH</b>	The control unit's fuse has blown (pump)	Change the fuse (10 ampere)
<b>THE ELECTRONIC SYSTEM IS BLOCKED</b>	Either the control unit's general fuse has blown or the doser's positive pole wire has short circuited with the earth	Change the main fuse (125 milliampere) and check the doser
<b>WATER LEAKING FROM THE PUMP</b>	1) Bad mechanical tightness of the shaft or O ring 2) Inlet and outlet fittings are loose 3) The hexagon nut of the limiting valve or filter is loose 4) The seal or O ring of the limiting valve or filter is faulty	1) Check the pump 2) Tighten fittings 3) Tighten the loosened hexagon nut 4) Change the seal or O ring. Take care not to tamper with the limiting valve's calibration
<b>THE MOTOR STOPS SUDDENLY OR THE THERMAL CUTOUT PROTECTION TRIGGERS DUE TO AN OVERLOAD</b>	1) Lime and mineral deposits inside the pump have caused jamming 2) The pump and motor are not aligned 3) The motor is faulty 4) The motor is connected with the wrong voltage	1) Change the pump 2) Remove the pump from the motor taking care to align it correctly 3) Change the motor 4) Make sure that the supply voltage corresponds to motor specifications
<b>THE PUMP IS WORKING UNDER ITS NOMINAL CAPACITY</b>	1) The entrance is obstructed or partly clogged 2) The pump is turning in the wrong direction 3) The limiting valve has become uncalibrated 4) The inside of the pump is wearing because abrasive materials have got inside 5) The motor is turning at a low number of revs/minute	1) Clean or change the filter 2) Check the motor 3) Recalibrate the valve 4) Change the pump 5) Check correct supply voltage or change the motor
<b>THE PUMP IS NOISY</b>	1) The pump and motor are not aligned 2) The seal or O ring of the limiting valve or mains filter is faulty 3) The joint, the coupling screw, or the V clamp is loose 4) The inlet is obstructed or partly clogged 5) The hexagon nut of the limiting valve or filter is loose	1) Realign motor-pump 2) Change the pump 3) Align and close the loosened component 4) Clean or change the inlet filter 5) Tighten the loosened hexagon nut
<b>THE REFRIGERATOR FAILS TO COOL</b>	1) The thermostat is wrongly calibrated 2) The thermostat is faulty 3) The safety thermostat triggers	1) Recalibrate the thermostat 2) Change the thermostat 3) Wait for automatic resetting of the thermostat and check if the cooling fan has stopped