

# **USE AND MAINTENANCE SERIES 100**

Translation of the original instructions

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# 1. Introduction



*Before using the machine, carefully read all of the instructions contained in this machine.*

## 1.1 Using the manual



*This manual contains all information required for the installation, use and maintenance of the coffee machine.*

*This manual is an integral part of the machine; always keep it intact together with the appliance.*

## 1.2 Warnings



- *Do not operate the machine or carry out routine maintenance before reading this manual. La San Marco S.p.A. reserves the right to make any technical changes on the machine considered necessary without advance notice.*

### 1.2.1 Installation - warnings

- *The installation must be carried out by authorized La San Marco technical personnel.*
- *This machine must be installed only in places where its use and its maintenance are made by trained personnel.*
- *The coffee machine is delivered in a suitable packing. The packing contains the machine and its accessories, the user manual and the conformity declaration. After opening the packing, check the proper condition of the coffee machine and its components. In case of doubt, do not use the appliance, and contact La San Marco S.p.A.*
- *All of the packaging must be carefully conserved in case the machine needs to be transported in the future.*
- *The machine should be placed on a perfectly horizontal plane at a height of not less than 800 mm above the floor. The horizontal plane must be sufficiently sturdy to support the weight of the machine, with a sufficient clearance around it to dissipate the heat generated during its operation.*
- *The device must be connected to the local water mains using a flexible pipe fitting in compliance with national standards, if these are applicable. Furthermore, the equipment must be installed with suitable "reflux protection" in order to comply with the applicable national and local regulations.*
- *Connect the appliance to the water main supply using only the equipment provided.*
- *Do not install the espresso coffee machine in places where cleaning is likely to be carried out with jets of water.*
- *For safety against hazards related to electrical currents, keep the machine away from sinks, tubs, aquariums, taps, and areas that are wet or where water may splash.*
- *The machine creates heat. Therefore it needs to be placed in a room that is sufficiently ventilated to ensure heat dissipation.*
- *Keep the machine away from sources of direct heat.*
- *Make sure that the voltage of the power socket does not differ from that indicated on the technical data and on the identification tag on the machine. If the voltage is different, do not connect the machine. This may be dangerous and may damage the unit.*
- *The electrical connection must be carried out in accordance with the regulations of the country of installation.*

### 1.2.2 Use of the machine - warnings

- *The machine must never be switched on before connecting it to the water supply. The user must make sure that the water supply valve remains open when the machine is switched on.*
- *This machine is designed and built for serving espresso coffee, hot water (for the preparation of beverages and infusions) and steam (used to heat liquids). The use of the machine for any other than its intended purposes is considered to be improper and unauthorized. The manufacturer declines any liability for damage resulting from the improper use of the machine.*
- *The user must be a responsible adult, who is expected to comply with local safety rules and accepted common sense procedures. For a proper and safe use of the machine, the operator must always comply with applicable accident prevention and other work safety and health regulations.*
- *This appliance is not designed for use by persons (including children) with limited physical, sensory or mental abilities, or lacking in experience and knowledge, unless they are controlled and taught to use the appliance by a person responsible for their safety. Children must be supervised to make sure they do not play with the appliance.*
- *Do not immerse the unit in water to clean it.*
- *Place only empty cups in the cup holding shelf.*

- *The machine in operation must never be covered, as there must be a proper air circulation around it.*
- *The machine must never be used with the fixed and/or mobile guards removed or with the safety devices cut off. The safety devices must absolutely never be removed or tampered with. The panels covering the machine must not be removed, as the machine contains live parts (there is the risk of electric shock).*
- *When cleaning the machine, avoid using products such as alcohol, petrol or solvents in general; use water or neutral detergents.*
- *To clean the machine frame, it is sufficient to use a moist cloth or a sponge. Avoid using abrasive products that could damage the elements on the body. To clean the coffee serving units, the filter-holding cups, the grills and the trays, follow the instructions of the Routine Maintenance chapter.*
- *For better product quality, replace the hot water in the boiler and circulate the water in the pipes upon first turning the machine on in the morning. If the machine is expected to remain idle for a few hours during the day, we also recommend changing the water by running it through the hot water tap and the coffee serving units.*

### 1.2.3 Maintenance - warnings

- *Strict compliance with the routine maintenance instructions of this manual is required for a safe and efficient operation of the appliance.*
- *The use of the appliance and the routine maintenance and cleaning operations may only be carried out by authorized personnel, under the responsibility of the client.*
- *The scheduled maintenance and repair should only be performed by authorized and qualified personnel.*
- *Before carrying out any machine cleaning or maintenance operations, unplug the power cable, if possible, or disconnect the omnipolar switch upstream of the machine.*
- *Don't clean the appliance with a jet of water.*
- *If the power cord is damaged its replacement should be performed only by authorized and qualified personnel.*
- *The safety devices must always be in a perfectly efficient state, as regularly maintained by the authorized La San Marco service personnel.*
- *The hot parts of the machine (serving units, boiler, piping, etc.) can cause serious burns due to accidental contact with the skin. It is therefore necessary to use safety gloves, aprons, etc., during maintenance or repair operations.*
- *In case of malfunctions or failure of any machine component, contact the authorized service centre and request original La San Marco spare parts. The use of any other than original spare parts voids the conformity certifications and the warranty that accompany the machine.*
- *Any changes carried out on the machine and/or failure to carry out the scheduled maintenance will release the Manufacturer from any liability for any resulting damages and voids the conformity declaration and the warranty.*
- *Unauthorised operations or operations whose methods of execution are not exactly clear or unauthorised interventions on the machine are strictly prohibited; contact the manufacturer for any information, spare parts or accessories that you may need.*
- *Should the appliance be moved outdoors or to premises where the temperature might drop below 0°C, it is vital that the exchangers circuit be emptied, cutting off the water supply to the appliance and draining all water from the units until they only emit steam. Omitting to perform this procedure could lead to the exchangers breaking, due to the water inside them freezing.*
- *For a proper disposal of the machine when it is to be discarded, contact the supplier or the authorized firms specialized in the collection and disposal of solid urban waste. Do not discard the appliance in the environment.*

### 1.3 Starting the coffee machine


Ambient temperature: 5 ÷ 45° C (drain the water system in case of frost)

Water pressure: 80 ÷ 800 kPa (0.8 ÷ 8.0 bar)

Water hardness: between 5 °f and 9 °f

Noise level emitted by the machine: The weighted sound pressure level A is below 70 db(A), under normal conditions of use of the machine.

## 1.4 Technical characteristics

100 S/E		COFFEE SERVING UNITS	COFFEE SERVING UNITS DTC (OPTIONAL)	STEAM WANDS	HOT WATER WANDS	BOILER CAPACITY (L)	WEIGHT (KG)	WIDTH (CM)	HEIGHT (CM)	DEPTH (CM)	INSTALLED POWER (W)				
											BOILER HEATING ELEMENT		BUILT-IN MOTOR - PUMP	EXTERNAL MOTOR-PUMP (OPTIONAL)	CUP HEATER (OPTIONAL)
											MONO-PHASE	TREE-PHASE			
	<b>100 PRACTICAL</b>	1	no	1	1	3	41	41	51,5	57	2000	no	275	300	no
	<b>100 SPRINT</b>	2	no	1	1	5	53	65	51,5	57	3000	4500	275	300	no
	<b>100 SPRINT 10L</b>	2	no	1	1	10	55	65	51,5	57	2800	4200	275	300	no
	<b>100 2</b>	2	2	2	1	12	62	73,5	51,5	57	3500/4500		275	300	100
	<b>100 3</b>	3	3	2	1	19	75	97,5	51,5	57	5500	5500/7000	275	300	125
	<b>100 4</b>	4	4	2	1	25	97	121,5	51,5	57	no	7000/9000	275	300	150
ACCESSORIES: WATER SOFTENER; MANUAL MILK FROTHER; AUTOMATIC STEAM WAND; LED LIGHT WORKING SURFACE SYSTEM.															

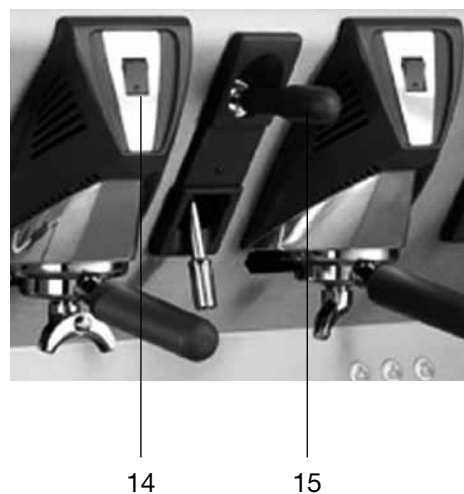
## 2. Description of the machine

*Note: The terms used in this description will commonly be used throughout the following pages.*

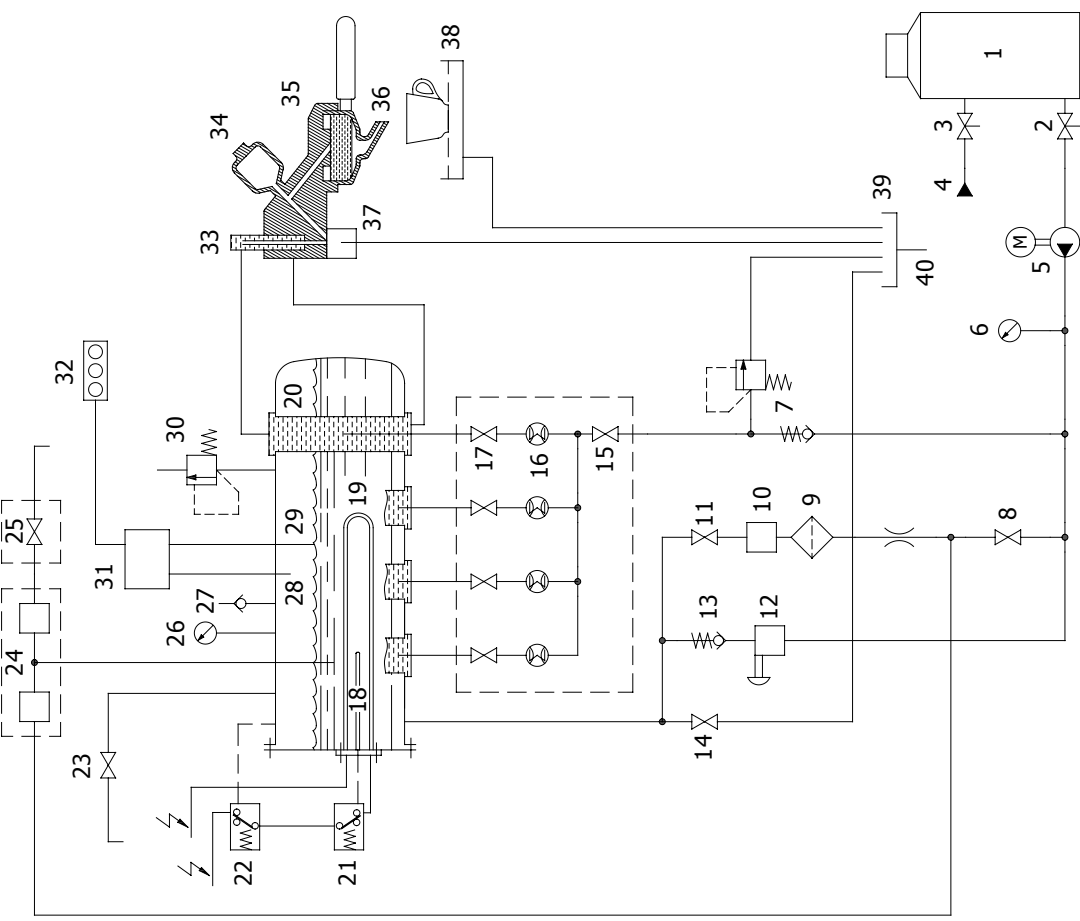
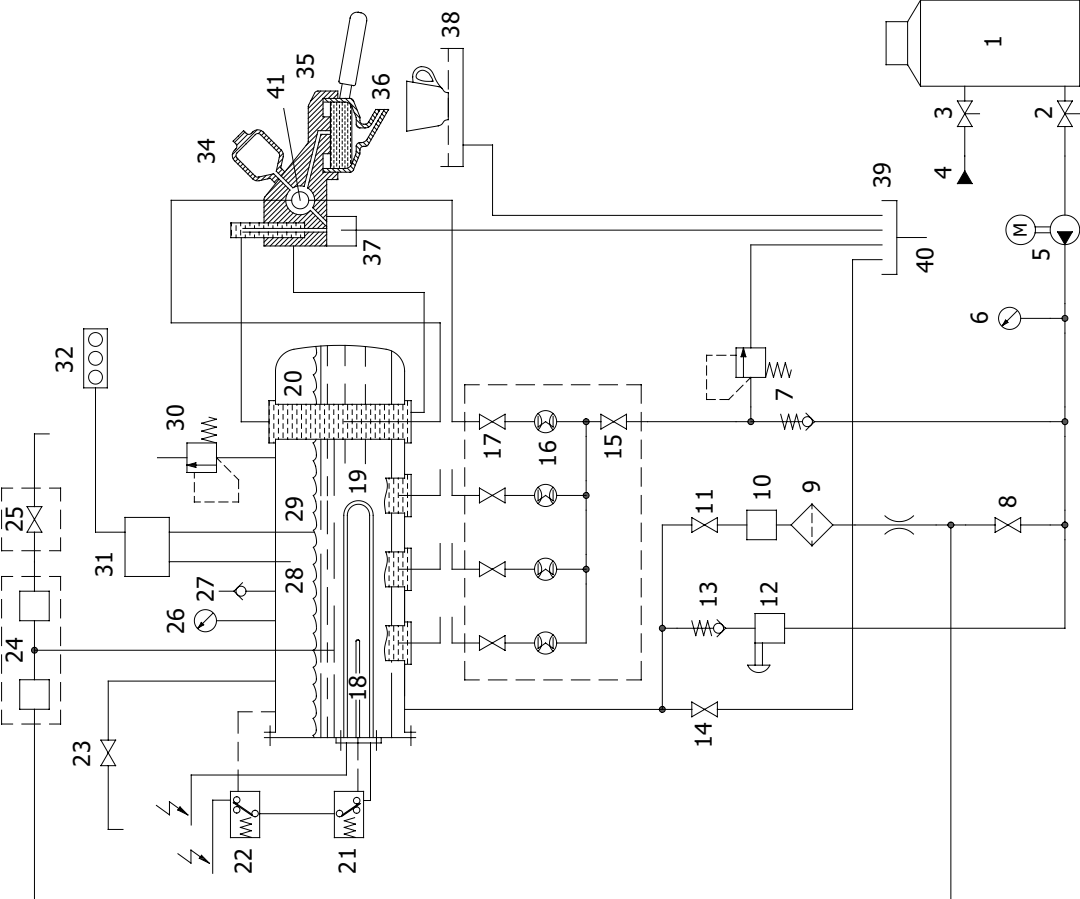


### LEGENDA:

- 1) Main switch
- 2) Main switch indicator light
- 3) Double-scale pressure gauge
- 4) Cup heater switch (optional)
- 5) Espresso coffee serving unit
- 6) Filter cup with handle
- 7) Serving unit push button panel (100 E)
- 8) Push button panel for hot water serving valve (100 E)
- 9) Hot water spout
- 10) Lever of tap for drawing steam
- 11) Steam spout
- 12) Burn protection sheath
- 13) Foot
- 14) Coffee serving button (100 S)
- 15) Lever of tap for drawing hot water (100 S)
- 16) Tray and cup support grill
- 17) Electronic level
- 18) Upper cup support tray
- 19) Rubber bumper



## 2.1 General water system diagram



## 2.2 Water system diagram key:

- 1) Water softener
- 2) Water softener outflow valve
- 3) Water softener inflow valve
- 4) Supply from water mains
- 5) Electric motor pump
- 6) Pressure gauge
- 7) Non-return and safety valve
- 8) Automatic level control valve
- 9) Filter
- 10) Automatic level solenoid valve
- 11) Automatic level control valve
- 12) Boiler water filling valve
- 13) Non-return valve
- 14) Boiler water drain valve
- 15) Manifold tap
- 16) Volumetric counter (100 E)
- 17) Exchanger tap
- 18) Safety thermostat probe
- 19) Electric heating element
- 20) Heat exchanger
- 21) Safety thermostat
- 22) Pressure switch
- 23) Steam valve
- 24) Hot water mixer (100 E)
- 25) Hot water serving valve (100 S)
- 26) Pressure gauge
- 27) Vacuum valve
- 28) Maximum level probe
- 29) Level probe
- 30) Safety valve
- 31) Electronic control unit
- 32) Electronic level
- 33) Temperature adjustment of serving units (not available on models 100 DTC).
- 34) Infusion device
- 35) Serving unit
- 36) Filter cup
- 37) Serving unit solenoid valve
- 38) Tray and cup support grill
- 39) Drain tray
- 40) Drain tube
- 41) Cooling tube (100 DTC)



## 3. Installation



- The installation must be carried out by authorized La San Marco technical personnel.
- The coffee machine is delivered in a suitable packing. The packing contains the machine and its accessories, the user manual and the conformity declaration. After opening the packing, check the proper condition of the coffee machine and its components. In case of doubt, do not use the appliance, and contact La San Marco S.p.A.
- All of the packaging must be carefully conserved in case the machine needs to be transported in the future.
- The machine should be placed on a perfectly horizontal plane sufficiently sturdy to support the weight of the machine, with a sufficient clearance around it to dissipate the heat generated during its operation.
- Do not install the espresso coffee machine in places where cleaning is likely to be carried out with jets of water. Do not immerse the unit in water to clean it.
- For safety against hazards related to electrical currents, keep the machine away from sinks, tubs, aquariums, taps, and areas that are wet or where water may splash.
- The machine creates heat. Therefore it needs to be placed in a room that is sufficiently ventilated to ensure heat dissipation. Keep the machine away from sources of direct heat.
- Make sure that the voltage of the power socket does not differ from that indicated on the technical data and on the identification tag on the machine. If the voltage is different, do not connect the machine. This may be dangerous and may damage the unit.

### 3.1 Equipment provided

The machine packing contains the equipment kit, which includes the following items:

- filter cups with filter restraint ring
- filters for filter cups (single and double doses)
- blind filter for filter cup
- spouts for filter cups (single and double doses)
- press for ground coffee
- rubber tube with stainless steel mesh for water connection (water circuit - water softener)
- rubber drain hose with steel coil for water drain
- 3/8" nipples for hose connection to water supply tube
- cleaning brush for serving units
- inclined cup grip protection

### 3.2 Water mains set-up

#### FEEDING LINE

Bring the water feeding tube (of at least 3/8" diameter) up to the machine and install an on-off valve (preferably of 3/8" ball type) that allows a rapid opening and closing operation. The machine should be connected to the water mains using the tube supplied with it. Do not connect the machine with used tubes.

#### DRAIN LINE

Provide an inspectable drainage pit on the floor connected with the sink drainage line, suitable for receiving the machine gravity drainage tube. The drain tube must be positioned so that the water flows out freely, without possibility for the pipe to clog up during the operation.

### 3.3 Water softener (optional)



*The water softener for softening the mains water can be manual or automatic, depending on customer's request.*



*Before connecting the water softener to the coffee machine, the resins contained in it should be washed off as described in the user's manual supplied with the appliance.*

#### Note:

*The water softener is considered an essential device to guarantee a proper operation of the espresso coffee machine. A water softening system should be provided in order to guarantee the efficiency, performance and duration of the components in the machine.*

## 3.4 Installation of water system

### INTERNAL PUMP

- 1) Use the pipe **a** (900 mm, provided with the machine) to connect the cut-off valve of the mains to the tap **1** for water inlet to the water softener (figure 3).
- 2) Connect the pipe **b** for internal pump suction to the tap **2** of the water softener (figure 4).

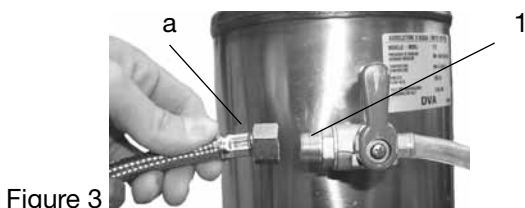


Figure 3

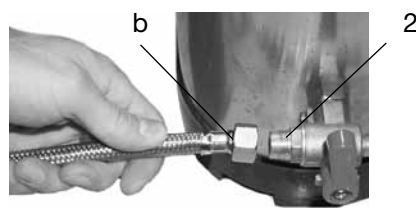


Figure 4

### EXTERNAL PUMP (OPTIONAL)

- 1) Use the pipe **a** (900 mm, provided with the machine) to connect the cut-off valve of the mains to the tap **1** for water inlet to the water softener (figure 5).
- 2) Connect pipe **c** (600 mm, provided with the external pump) to the pump suction with tap **2** of the water softener (figures 6-7).
- 3) Connect pipe **d** (of the water system of the coffee machine) to the pump delivery (figure 7).

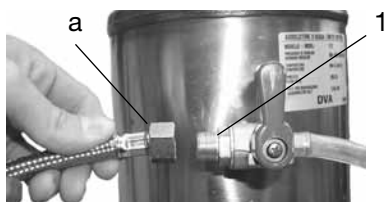


Figure 5



Figure 6

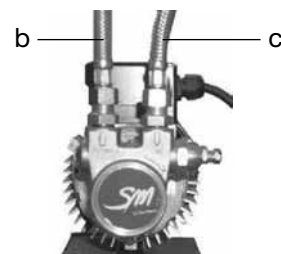


Figure 7

## 3.5 Drain line

Connect the drainage tube to the grounds collecting tray and to the water drainage system.

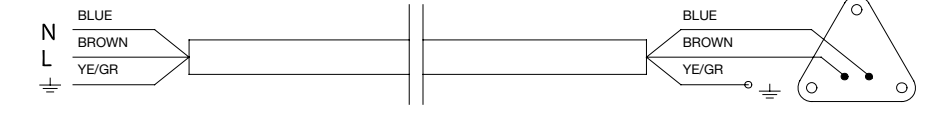
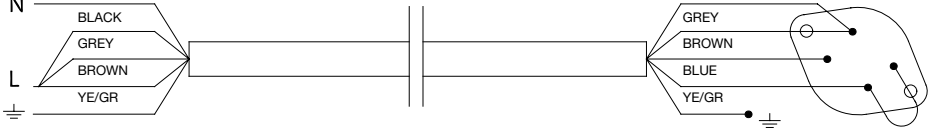
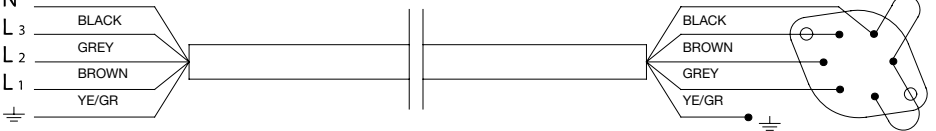
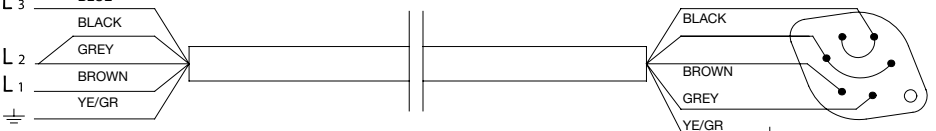
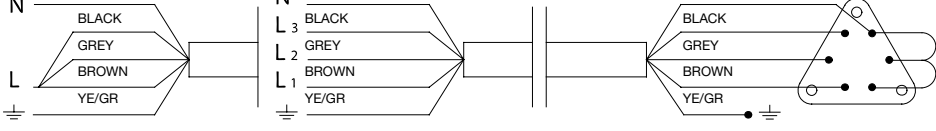
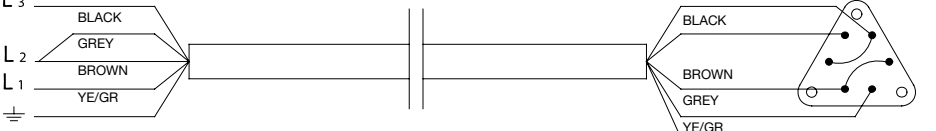
## 3.6 Electrical connection



*Instructions for a proper electrical connection of the espresso coffee machine:*

- Before connecting the unit to the electrical mains, make sure that the data on the data plate corresponds to the electrical mains.
- The tag is located on the left side of the machine (and can be accessed by removing the lower tray).
- The electrical system provided by the client must comply with current standards. The power socket must be equipped with a working earth connection. LA SAN MARCO SPA will not in any way be held liable if legal requirements are not met. An improper installation can cause injury or damage for which the manufacturer cannot be held liable.
- For the electrical connection, it is necessary to install an omnipolar main switch upstream of the power supply; this switch should be rated according to the electrical characteristics (power and voltage) shown on the rating tag. The omnipolar switch must disconnect the power supply with a contact gap of at least 3 mm.
- If it is necessary to use adapters, multiple plugs and extensions, only products meeting applicable safety standards must be used.
- To avoid any overheating of the power cable, unwind it completely.

Connect the power cord to the electrical mains as shown in the attached diagram:

<p>ONLY FOR MODELS 100 PRACTICAL</p>	<p>110V/ 230 MONO-PHASE</p> <p>1 HEATING ELEMENT</p> 
<p>ONLY FOR MODELS 100 SPRINT</p>	<p>230V MONO-PHASE</p> <p>2 HEATING ELEMENTS</p> 
	<p>400V-3 TRI-PHASE</p> <p>3 HEATING ELEMENTS</p> 
	<p>230V-3 TRI-PHASE</p> <p>3 HEATING ELEMENTS</p> 
<p>REMAINING MODELS</p> <p>NOTES: * The power absorbed by the electric heating elements can be reduced to 2/3 by eliminating one of the black wires.</p>	<p>230V MONO-PHASE* 400V-3N TRI-PHASE</p> <p>3 HEATING ELEMENTS</p> 
	<p>230V-3 TRI-PHASE</p> <p>3 HEATING ELEMENTS</p> 

### 3.7 Connection to the equipotential clamp



Machine is provided with an equipotential clamp placed under the tray and the bottom support cup grid. The terminal is identified by the equipotential symbol reported here on the side. Connect only cables of 2.5 mm to 6 mm with ring lugs for screw M8.



*The connection to the equipotential clamp must be performed by LA SAN MARCO SPA authorized qualified personnel.*



To make the connection remove the bottom tray. On the left side of the frame, indicated by the equipotential symbol there is the screw-clamp to be used to connect a cable of 2.5 mm to 6 mm with ring lugs for screw M8.

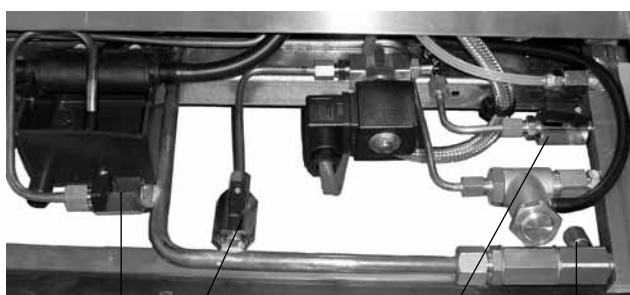
## 4. Start-up



- The coffee machine must be started by qualified technical personnel approved by La San Marco.
- Once the electric and hydraulic connections are completed, the user is urged to start the espresso coffee machine with the following procedure in order to avoid damaging the appliance.

### 4.1 Charging the water in the boiler

- 1) Check that the machine main switch **1** (figure 1) is in position 0 (zero).
- 2) Remove the tray and the cup support grill and make sure that:
  - a) The boiler drain valve **a** is closed (figure 8).
  - b) The taps of the automatic level valve **b-c** must be open (figure 8).
  - c) MODELS 100 S: The taps for the cold water dispensers **d** must be open (figure 9).
  - d) MODELS 100 E: The taps for the volumetric counters **e** must be open (figure 10).



a b Figure 8 c f



Figure 9

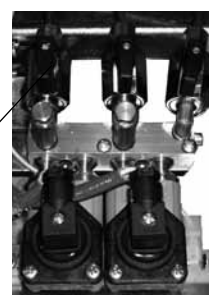


Figure 10

- 3) Open the water supply on-off valve.
- 4) Open a steaming tap **6** (figure 1) to allow the exit of the air in the boiler filling phase.
- 5) Reinstall the tray and cup support grill in its place.
- 6) Turn the knob of the main switch to position **1** so as to carry out automatic filling of the boiler with water. In models 100 Practical, when water reaches the level probe, filling stops and the green "MAX" LED of the electronic level control comes on. In other models of the 100 series, when water reaches the level probe, filling stops and the blue "OK" LED of the electronic level control comes on.

#### Note:

when the boiler is filled with water, it may take longer than 150 seconds, after which the automatic level alarm trips (see the chapter on display of alarms). If this happens, turn the main switch to **0** (zero) and then back to **1**. Then perform automatic filling of the boiler again (as described in point 6).

To keep the automatic level alarm from occurring, just speed up automatic filling of the boiler using the manual filling button **f** (figure 8).



The main switch can be turned to two positions (**1** and **2**). Position **1** starts the electronic automatic level function to fill the boiler and excludes the operation of the heating elements. Position **2** starts the heating elements to heat the water. Never start the coffee machine by turning the main switch to position **2** (in order to work, the heating elements must always be immersed in the water).

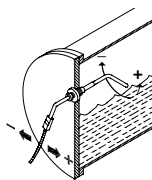
## 5. Adjustments



Any adjustments to the coffee machine must be carried out by qualified and authorized staff from LA SAN MARCO SPA.

## 5.1 Adjustment of the boiler water level probe

The level probe is normally placed in a standard position for all models of the 100 series. However, if the client so desires, it is possible to increase or decrease the amount of water in the boiler by adjusting the level probe as shown in the figure.



## 5.2 Adjustment of pump serving pressure

In models of the 100 series, the pump is located inside the coffee machine.

*Note:*

*On request, an external pump can be installed on the external pump.*

Calibration of the pump operating pressure is set by LA SAN MARCO SPA at 9 bar. If you want to change this value, proceed as follows:

- 1) The standard location for the pump is the right side of the machine (looking at it from the work zone). To access it, the right side must be removed (figure 11).
- 2) Press the coffee serving button in the models 100 S or the continuous serving button in the models 100 E to dispense water from a serving group.
- 3) On the lower graduated scale of the gauge, read the pump operating pressure.
- 4) Adjust the pressure using the adjustment screw of the internal pump (figure 11) or an external pump (figure 12). To increase the pressure, tighten the screw and read the corresponding value on the lower scale of the gauge. To decrease the pressure, loosen the adjustment screw.



Figure 11

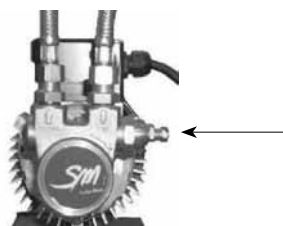


Figure 12

- 5) Once the desired pressure has been set, stop serving water and close the side of the machine.

*Note:*

*The suggested calibration of the pump to obtain proper serving is 9 bar.*

## 5.3 Adjustment of steam pressure in boiler

The steam pressure in the boiler is shown on the upper graduated scale of the pressure gauge. The calibration of the steam in the boiler is set by LA SAN MARCO SPA at 1.0 bar. If you wish to modify this value, you will need to turn the pressure switch adjustment screw on the inside of the machine, which can be accessed directly from the work zone (figure 13-14). Using a suitable screwdriver, the pressure switch can be adjusted without having to remove any panels. To increase the pressure in the boiler, turn the screw counter-clockwise. To decrease the pressure, turn the screw clockwise. Read the pressure on the upper scale of the gauge.



Figure 13



Figure 14

## 5.4 Adjustment of temperature of dispenser groups: (models 100)

In models 100 (except for models 100 DTC) the temperature can be adjusted for the serving of espresso coffee without changing the internal pressure of the boiler. At the head of the serving group, there is a valve (flow variator) that controls the flow of hot water coming from the exchangers. This valve is accessible from the upper tub, by removing the plastic cup support grille (figure 15). Four numbered notches are imprinted on the upper tub (2, 3, 4, 5) for each serving group (figure 16). The valve is normally set to number 3 (this is the default setting provided by LA SAN MARCO SPA). If you want to change the serving temperature, you will need to use the valve (flow variator) of the group. To increase the temperature, turn the valve towards the higher numbers. Contrarily, to decrease, turn the knob towards lower numbers.



## 5.5 Additional notes for models 100 DTC (Dual Temperature Control)

The cooling system of the models 100 DTC has the purpose of ensuring thermal stability of the water used for serving espresso coffee. This system uses a special serving group in which the cold water from the mains passes through a small tube located in a compensation chamber. The hot water from the heat exchanger of the boiler passes through the serving group and comes into contact with the cooling tube. As a result it loses heat.



## 5.6 Adjustment of temperature of hot water (100 E)

Models 100 E with 2/3/4 groups include a mixer that makes it possible to adjust the temperature of the hot water for the preparation of infusions. The mixer can be calibrated by turning the adjustment screw, which is accessed from the upper tub (figure 17). The mixer undergoes standard calibration by LA SAN MARCO SPA. If you want to adjust the temperature of the hot water drawn, turn the screw clockwise. On the contrary, to decrease the water temperature turn the screw counter-clockwise.

### Note:

*The mixer must be adjusted with the coffee machine running in normal operating conditions. The steam pressure in the machine is 1.0 bar (standard value set by LA SAN MARCO SPA). If the steam pressure in the boiler is modified (as described in the related paragraph), the mixer must be calibrated again.*





Figure 15



Figure 16



Figure 17

## 6. Operating instructions



*During the flow of espresso coffee, tea or steam, these substances can cause burns due to accidental skin contact.*

### 6.1 Serving of espresso coffee

- 1) Remove the filter-holding cup from the serving unit and fill it with a dose of ground coffee (filter cup with one spout) or with two doses of ground coffee (filter cup with two spouts). Press the ground coffee using the relative coffee presser and then insert the filter cup into the serving unit.
- 2) Place one or two cups under the serving spouts.

#### Models 100 S

The flow of espresso coffee is produced by pressing button 1 once (the led inside the button lights up). When the desired serving quantity is reached inside the cup, the flow is stopped by pressing button 1 again.

#### Models 100 E

Each serving group has a keypad with seven keys (six for the programmed servings and one for manual servings or to stop automatic serving at any time). A LED bar also simulates the coffee serving in the cup during this procedure. The flow of espresso coffee is produced automatically when the button for the desired dose is pressed (the amount of coffee in the cup is controlled electronically).

#### Note:

*Make sure that serving into the cup has taken place correctly. If serving has not occurred correctly, see the chapter "PROBLEMS AND SOLUTIONS".*

### 6.2 Drawing steam

A jet of steam, which can be used to foam milk or to heat other liquids, comes out of the steam drawing spout as follows: by raising or lowering the lever you attain the maximum flow (the lever stops in the maximum position. To stop the flow of steam, place the lever back in its original position).



*The steamer must be used with care: the contact of the skin with the steam spout or with the jet of steam itself can cause serious burns. Grip the anti-burn sheath to change the position of the steam drawing spout. Never aim the jet of steam at persons or at objects which do not have to do with the use as described in this manual.*

#### Note:

*Before using the spout for drawing steam, drain out into the tub any condensation which may have formed in it. After using the spout, clean it properly with a moist cloth, and if necessary discharge any residue remaining inside it into the tray.*

## 6.3 Drawing hot water

Hot water is drawn by the appropriate spout and can be used to prepare infusions, tea, camomile tea, to heat cups, to add water to an espresso and to obtain American-style coffee, and so on.

### Modelli 100 S

Use the hot water drawing lever (lowering it, raising it or moving it to the side) to dispense hot water from the spout.

### Modelli 100 E

Drawing of hot water from the spout takes place automatically by pressing the key for the desired serving (the amount of hot water is controlled automatically). The keypad has three keys. Two are for the programmed servings and one is for manual servings or to stop automatic serving at any time.

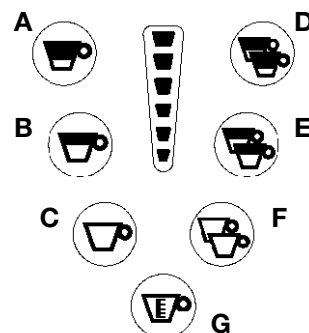
## 6.4 Cup heater (optional)

The cup heater is used to increase heating of the upper cup support surface (by means of an electrical heating element). Use the appropriate switch to activate or de-activate the cup heater. The cup heater heating element is equipped with a working thermostat that controls the temperature of the cup support surface.

# 7. Programming the 100 E models

## 7.1 Programming of servings: espresso coffee and hot water

- 1) Turn the knob **1** of the main switch to position **0** (zero).
- 2) Press key **G** (continuous serving of first serving group) and while holding it down, turn the knob of the main switch to position **2**. Release key **G**; the machine will enter programming. Push button **G** and the same key of all groups will flash.  
Programme the espresso coffee servings using keys **A, B, C, D, E, F**:
- 3) Prepare the machine to dispense a single or a double coffee based on the serving to be programmed. Place the cups under the serving spout.
- 4) Press once on the key for the serving to be programmed. Once the desired amount of coffee has been reached, stop serving by pressing once on push button **G**.



### Note:

The "ideal" espresso serving is obtained with 7-8 grams of ground coffee per cup with a time of 25-35 seconds and a volume of 25-30 cm<sup>3</sup>

- 5) Repeat steps **3** and **4** for all of the keypads. If you want to programme the servings for all of the other groups by copying the servings programmed on the first keypad, press once on the continuous serving key for each serving group. The LED in the keys will remain on.

Programming of amounts of hot water using keys **H, I**:

- 6) Press once on key **H** (small tea) and dispense hot water. Press once on button **L** (continuous serving) when the desired amount is reached.
- 7) Programme in the same way the amount for push button **I** (large tea).
- 8) Upon completion of programming, press once on key **G** (continuous serving of first group) to save the settings. The espresso coffee machine is now ready for use.



# 8. Routine maintenance



- No panel or fixed guard of the frame may be removed from the machine to carry out the routine maintenance.



- Do not use harsh or harmful detergents such as alcohol, petrol or solvents to clean the coffee machine; use water and neutral detergents.

*Note:*

*The daily cleaning operations must be carried out in order to maintain the efficiency of the machine and to guarantee the safety of the user and of the persons around it.*

## 8.1 Cleaning the serving units and the filter holder

- 1) To clean the dispensing unit use the filter-cup with blind filter supplied.



*Nota: For cleaning of the dispensing unit use only the cup with blind filter supplied.*

- 2) With the brush supplied clean the dispensing unit where you insert the filter cup.
- 3) Place the cup in the dispensing unit, don't locking completely, press the continuous button for dispensing.
- 4) Allow to drain the water from the filter-cup (in this way you clean the dispensing unit).



*The continuous flow of water from the unit can cause burns due to accidental skin contacts.*

- 5) Stop the dispensing of water and lock the filter-cup on the dispensing unit.
- 6) Start the continuous dispensing of coffee and after a couple of seconds press the button again to stop. Repeat this a few times (so that you clean the drain channel and the solenoid valve of the dispensing unit).
- 7) Remove the blind filter-cup from the dispensing unit.
- 8) Repeat the same operation on all dispensing unit.
- 9) Clean the filter drilled and put it back in the filter-cup. Dispensing water for a couple of seconds to clean the filter and the cup spouts.

*Note: Special commercially available detergents can be used to effectively clean the serving units.*

## 8.2 Cleaning the tray and the cup support grill

The lower cup support grill **5** must be kept clean at all times; during the normal use of the machine, it is sufficient to clean it with a sponge or a moist cloth. At the end of the working day, clean the tray and the grill also in the internal areas using warm water and neutral detergent.

## 8.3 Cleaning the steam spout

Clean the steam spout with a sponge or a moist cloth at the end of the working day to remove all traces of milk or other substances that inevitably form during the normal operation of the machine. Open the steam tap, placing the spout in the tub, to remove any residues which may have accumulated in the spout.

## 8.4 Substitution of boiler water

To change the water inside the boiler, proceed as follows:

- 1) Cut off the power supply to the machine by turning the main switch **1** to position **0** (zero).
- 2) Remove the tub and the cup support grille and open the boiler drain tap.
- 3) Open a steam drawing valve to facilitate the draining of the water until the end of the operation.
- 4) When water no longer comes out of the boiler, close the boiler drain and the steam drawing tap.
- 5) Charge the machine with water following the instructions of paragraph "Charging the water in the boiler"
- 6) To improve product quality, it is recommended to replace the water in the boiler and to change the water contained in the water circulation pipes when starting the machine every day.

## 9. Idle periods

If the machine is to remain idle for long periods (weekly closing days, holidays, etc.), take the following precautions:

- 1) Turn the main switch to **0** (zero) and as necessary disconnect the power cord or the main switch of the electrical mains.
- 2) Close the cut-off valve of the water mains.
- 3) If you think the temperature might drop below 5 °C, completely drain the water system of the machine.
- 4) Wash the components of the machine as described in the paragraph on routine maintenance.
- 5) Cover the machine if necessary.

## 10. Display of alarms

### 10.1 Volumetric counter alarm (100 E)

On models 100 E, all equipped with six-LED bar, if there is no detection of impulses of the volumetric counter for 5 seconds, the LED's that are already on will start flashing to indicate the anomaly. If the anomaly is detected before any of the LED's on the bar come on, only the LED of the short coffee key for the concerned group will flash.

If no impulses of the volumetric counter are detected for 45 consecutive seconds, the amount of coffee being served is automatically interrupted.

*Note:*

*Make sure that serving into the cup has taken place correctly. If serving has not occurred correctly, see the chapter "PROBLEMS AND SOLUTIONS".*

### 10.2 Autolevel alarm

If the water level in the boiler is below normal and the pump is not able to restore that level after 150 seconds, the electronic control unit of the machine will stop automatic filling and signal the problem via simultaneous flashing of the double short coffee button of all groups plus the large tea key and the first of the three LED's of the electronic level control.

*Note:*

*If the boiler is not properly filled with water, see the chapter on problems and solutions .*

### 10.3 Maximum water level in boiler alarm

If the level of water in the boiler is over the safe level, the electronic control unit will stop automatic filling and signal the problem through simultaneous flashing of the serving buttons plus the three LED's of the electronic level control.

*Note:*

*If the maximum boiler level alarm trips, see the chapter on problems and solutions*

## 11. Safety devices

### 11.1 Manual reset safety thermostat

The safety thermostat is located next to the control unit and can be accessed by removing the left side panel from the machine. The thermostat probe, placed inside the electric heating elements, cuts the electric power supply any time there is an abnormal increase in temperature. The heating elements will no longer heat the water in the boiler and it will not be possible to use the machine correctly. Contact a technician from the LA SAN MARCO SPA technical service centre.



*The safety thermostat will have to be reset by the specialized technician LA SAN MARCO SPA, who must first remove the cause of the malfunction.*

## 11.2 Safety valve

The safety valve is installed on the upper part of the boiler, in the part corresponding to the area occupied by the steam. The valve is activated if there is a considerable pressure increase inside the boiler. The valve rapidly lowers the pressure by expelling the steam in the atmosphere (the valve trips in at  $2 \div 2.5$  bar). If the safety valve trips in, the steam is held and dissipated inside the machine frame, so as to avoid hazards for the persons around the machine.



*In case of activation of the safety valve, switch off the machine and immediately contact the specialized technician. If the safety valve is set off, switch the machine off and immediately contact the authorized La San Marco technician.*

## 12. Information for users in the european community

Pursuant to European Directive 2012/19/EU on electrical waste (WEEE), users in the European community are advised of the following.



- The symbol with the crossed-out dustbin on the appliance or its packaging indicates that at the end of the product's life cycle, it must be collected separately from other waste.
- Suitable separate collection of the equipment for subsequent recycling, treatment and disposal contributes to preventing possible negative consequences for the environment and health, and favours the recycling of materials that the unit is made of.
- In accordance with European Directive 2012/19/EU, abusive disposal of the product by the user will result in application of penalties as set forth by local law.



## 13. General warranty conditions

1. The warranty lasts 12 months starting from the date of the invoice.
2. For warranty the free substitution of the components of the machine are intended, which have to be recognized by La San Marco to have manufacturing defects. The warranty applies only to the original components, and it falls in case of the use of unoriginal components or of an the machine itself.
3. The warranty doesn't apply to the substitutions or to the reparations that result by a normal functioning usury of the device, from deterioration or accidents provoked by a negligence or carelessness in the use.
4. The electric parts, and all the parts that result to be defective because of damage linked to transport, wrong installation, bad maintenance operated by non authorized staff, by the missing or improper use of the water softener system or the water entrance filler, by the improper use of the machine or a different use from the one the machine was built for or, lastly, by circumstances that can't be attributed to manufacturing defects.
5. The labour and the technical interventions linked to the installation of the machine, the parts subjected to normal usury and all the consuming material are excluded from the warranty service.
6. The components are covered by the warranty only if they are rendered complete in all their parts, they must not result to be altered and the manufacturing defects mustn't be cancelled, removed or made illegible.
7. The substitution of the machine and the extension of the warranty is excluded after a malfunction occurred. The reparation, change or substitution of the pieces during the warranty period can't have the effect to extend the warranty period. All the actions and claims are excluded from the warranty's coverage, especially those that tend to the reparation of the direct or indirect damage caused by people or other objects that are different from the delivered products, and also the refund of the eventual missed profits.
8. La San Marco S.p.A declines every responsibility for eventual damage that could derive, directly or indirectly to people, animals of things as a consequence of the missing observance of all the prescriptions indicated in the user manual that accompanies every product and concerning, especially, the warnings about the installation, use and maintenance of the machine.
9. The warranty concerns the free substitution of the defective pieces with the relative free dispatch of the pieces of substitution to the buyer; the warranty doesn't cover the labour. The dispatch of the defective pieces to the supplier is charged to the buyer.
10. Every returned component of which the substitution covered by the warranty is asked for, has to be agreed with the client and approved by the commercial office of La San Marco to be accepted.
11. La San Marco S.p.A declines every responsibility for eventual damage caused, directly or indirectly, from the improper use of the machine, from the wrong installation or bad maintenance, excluding what explicitly previewed by the law.

12. La San Marco S.p.A doesn't answer to warranty conditions , beyond those listed , conceded by the importers/dealers to their clients Also the obligations of labour are excluded from the warranty of La San Marco , travel and added costs relative to the reparation or substitution of the defective components of the machine.
13. If, after a examination of La San Marco the returned component didn't result defective, the client will be charged with the management costs, technical control and possible tests. Also the charges for the shipping and the restitution of the material will be charged.

## 14. Declaration of conformity C€

The manufacturer:

**La San Marco S.p.A.**



34072 Gradisca d'Isonzo (GO) Italy – Via Padre e Figlio Venuti, 10

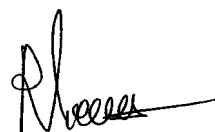
phone (+39) 0481 967111 – fax (+39) 0481 960166 – <http://www.lasanmarco.com>

declares under its own responsibility that the ESPRESSO COFFEE MACHINE (as identified by the data on the tag located on the machine) is compliant with the following European directives: 2006/42/EC, 2014/35/EU, 2014/30/EU, Regulation (EC) no. 1935/2004, 2012/19/EU, 2011/65/EU.

For verification of compliance with said directives, the following harmonized standards have been applied: EN ISO 12100, EN 60335-1, EN 60335-2-75.

AUTHORISED PERSON A  
COMPILE THE TECHNICAL FILE  
Eng. Roberto Nocera  
Via Padre e Figlio Venuti,10  
34072 Gradisca d'Isonzo - ITALY

Mr. Roberto Nocera  
C.E.O.



Gradisca d'Isonzo, November 2017

## 15. Problem solving

	PROBLEM	CAUSE	SOLUTION
1.	<ul style="list-style-type: none"> <li>The boiler is full of water and the water flows out of the safety valve.</li> </ul>	<ul style="list-style-type: none"> <li>One of the routes of boiler load or a group circuit has a leak.</li> </ul>	<ul style="list-style-type: none"> <li>Check the autolevel circuit, the manual charging button, and the boiler heat exchangers.</li> <li>Replace worn or damaged parts to eliminate the leak.</li> </ul>
2.	<ul style="list-style-type: none"> <li>The safety valve trips in and vents the steam.</li> </ul>	<ul style="list-style-type: none"> <li>Malfunction of electrical system (the electrical heating element is always connected).</li> <li>Pressure increase in the boiler (the safety valve trips in at 2-2.5 bar).</li> </ul>	<ul style="list-style-type: none"> <li>Check the wiring that feeds the heating element and the pressure switch.</li> </ul>
3.	<ul style="list-style-type: none"> <li>The machine was started properly but the water in the boiler does not warm up.</li> </ul>	<ul style="list-style-type: none"> <li>The electric heating element is defective or is not connected.</li> <li>Main switch turned to position 1.</li> </ul>	<ul style="list-style-type: none"> <li>Check if the heating element is connected to the power supply.</li> <li>Check if the heating element safety thermostat has tripped in and check its proper operation.</li> <li>The main switch must be turned to position 2</li> </ul>

	PROBLEM	CAUSE	SOLUTION
4.	<ul style="list-style-type: none"> <li>There is no water flowing from a serving unit.</li> </ul>	<ul style="list-style-type: none"> <li>Coffee ground too fine or excessive quantity for type of filter used.</li> <li>Clogged water circuit.</li> <li>Defective solenoid.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust the grinding coarseness and/or the quantity of ground coffee.</li> <li>Check that the injector, the upper circulation pipe, the valve (flow variator) of the group, the water dispenser and the solenoid valve of the group are not clogged.</li> <li>In the machines with electronic metering, check the displacement meter and its valves.</li> <li>Check the solenoid of the unit, its wiring and the fuse in the electronic control unit.</li> </ul>
5.	<ul style="list-style-type: none"> <li>The programmed servings of espresso coffee are not constant or vary on the different units.</li> </ul>	<ul style="list-style-type: none"> <li>Abnormal operation of the electronic control unit or of the displacement counters.</li> <li>Leak from serving unit solenoid valve.</li> <li>Water dispensers clogged.</li> </ul>	<ul style="list-style-type: none"> <li>Program the serving quantities separately on each serving unit. If the problem persists, replace the displacement meter of the serving unit affected.</li> <li>Replace the solenoid valve of the serving group.</li> <li>Check the water dispenser.</li> </ul>
6.	<ul style="list-style-type: none"> <li>It is not possible to program the serving quantities on unit 1 and to copy them on the other units.</li> </ul>	<ul style="list-style-type: none"> <li>Abnormal operation or defective displacement meter of unit 1.</li> </ul>	<ul style="list-style-type: none"> <li>Check the control unit-displacement meters electrical wiring.</li> <li>Replace the displacement meter.</li> </ul>
7.	<ul style="list-style-type: none"> <li>Displacement meters alarm.</li> </ul>	<ul style="list-style-type: none"> <li>Displacement meters jammed or defective.</li> <li>Defective wiring.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the volumetric counter.</li> <li>Check the wiring and its connections, the control unit and the fuses.</li> </ul>
8.	<ul style="list-style-type: none"> <li>Autolevel alarm.</li> </ul>	<ul style="list-style-type: none"> <li>Water circuit of automatic level without water.</li> <li>Main water supply valve closed.</li> <li>Faulty autolevel solenoid.</li> </ul>	<ul style="list-style-type: none"> <li>Check the hydraulic circuit of the autolevel.</li> <li>Check if the on-off valve on the water supply is open.</li> <li>Replace the autolevel solenoid.</li> </ul>
9.	<ul style="list-style-type: none"> <li>Overfill alarm</li> </ul>	<ul style="list-style-type: none"> <li>Malfunction in automatic level circuit.</li> <li>Leak in button for manual water filling.</li> <li>Leak in heat exchangers.</li> </ul>	<ul style="list-style-type: none"> <li>Check the hydraulic circuit of the autolevel.</li> </ul>
10.	<ul style="list-style-type: none"> <li>The machine is switched on (the main switch is in position 1 or 2 and the signal light is lit) but the electronic control is out of order.</li> </ul>	<ul style="list-style-type: none"> <li>The electric wiring of the electronic control unit is defective.</li> <li>The electronic control unit is defective.</li> </ul>	<ul style="list-style-type: none"> <li>Check the electrical wiring, the electronic control unit and its components.</li> <li>Replace the electronic control unit.</li> </ul>
11.	<ul style="list-style-type: none"> <li>The machine feeds water from one serving unit although the serving has not been selected.</li> </ul>	<ul style="list-style-type: none"> <li>Solenoid and/or pump fed continuously.</li> </ul>	<ul style="list-style-type: none"> <li>Control unit relay powered continuously.</li> <li>Replace the electronic control unit.</li> </ul>
12.	<ul style="list-style-type: none"> <li>105 S models one unit serves water continuously.</li> </ul>	<ul style="list-style-type: none"> <li>Electric circuit of unit improperly connected.</li> </ul>	<ul style="list-style-type: none"> <li>Check the connection and correct it (see wiring diagram).</li> </ul>
13.	<ul style="list-style-type: none"> <li>The steamer discharges only small quantities of steam or water droplets.</li> </ul>	<ul style="list-style-type: none"> <li>Tap needs adjustment.</li> <li>Worn gasket on tap.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust tap.</li> <li>Replace the gasket.</li> </ul>

	PROBLEM	CAUSE	SOLUTION
14.	<ul style="list-style-type: none"> <li>Small drops flow out of the water tap.</li> </ul>	<ul style="list-style-type: none"> <li>Tap requires adjustment (100 S).</li> <li>Worn gasket on tap (100 S).</li> <li>Leak in solenoid valve (100 E).</li> </ul>	<ul style="list-style-type: none"> <li>Adjust tap (100 S).</li> <li>Replace gasket (100 S).</li> <li>Check the solenoid valves (hot and cold water) and replace as necessary (100 E).</li> </ul>
15.	<ul style="list-style-type: none"> <li>The unit emits a whistle after serving the coffee.</li> </ul>	<ul style="list-style-type: none"> <li>Faulty operation of expansion valve.</li> <li>High pump pressure.</li> </ul>	<ul style="list-style-type: none"> <li>Check the expansion valve and if necessary replace it. Calibrate the valve at 12 bar.</li> <li>Check the pump operating pressure. Calibrate the pump at 9 bar.</li> </ul>
16.	<ul style="list-style-type: none"> <li>The filter cup comes off the serving unit.</li> </ul>	<ul style="list-style-type: none"> <li>Worn gasket under the filter cup.</li> </ul>	<ul style="list-style-type: none"> <li>Replace gasket.</li> <li>Clean the serving unit and the filter cup.</li> </ul>
17.	<ul style="list-style-type: none"> <li>When coffee is being served, some of it drips out of the edge of the filter cup.</li> </ul>	<ul style="list-style-type: none"> <li>Gasket under holder is worn.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the gasket.</li> <li>Clean the serving unit and the filter cup.</li> </ul>
18.	<ul style="list-style-type: none"> <li>Water leaking from the drain of the serving unit solenoid.</li> </ul>	<ul style="list-style-type: none"> <li>Malfunctioning unit solenoid.</li> <li>Water leaking from unit cooling system.</li> </ul>	<ul style="list-style-type: none"> <li>Check the unit solenoid. Check the plunger on the solenoid and clean the solenoid.</li> <li>Replace the automatic level solenoid valve.</li> <li>Check the small cooling tube and the related seals of the serving group (100 DTC).</li> </ul>
19.	<ul style="list-style-type: none"> <li>Light cream (the coffee flows out of the spout rapidly).</li> </ul>	<ul style="list-style-type: none"> <li>Coarse grinding.</li> <li>Low pressing pressure.</li> <li>Small quantity of ground coffee.</li> <li>Water temperature below 90°C</li> <li>Pump pressure above 9 bar.</li> <li>Sprinkler filter on unit clogged.</li> <li>Filter holes widened (filter cup).</li> </ul>	<ul style="list-style-type: none"> <li>Finer grinding.</li> <li>Increase the pressure.</li> <li>Increase the quantity of ground coffee.</li> <li>Adjust valve (flow variator) of the group to a higher number or increase boiler pressure.</li> <li>Decrease the pump pressure.</li> <li>Check and clean with blind filter or replace.</li> <li>Check and replace filter.</li> </ul>
20.	<ul style="list-style-type: none"> <li>Dark cream (the coffee drips out of the spout).</li> </ul>	<ul style="list-style-type: none"> <li>Fine grinding.</li> <li>High pressing pressure.</li> <li>Large quantity of ground coffee.</li> <li>Excessive temperature.</li> <li>Pump pressure below 9 bar.</li> <li>Sprinkler filter on unit clogged.</li> <li>Filter holes clogged (filter cup).</li> </ul>	<ul style="list-style-type: none"> <li>Coarser grinding.</li> <li>Reduce the pressure.</li> <li>Decrease the quantity of ground coffee.</li> <li>Adjust valve (flow variator) of the group to a lower number or decrease boiler pressure.</li> <li>Increase the pump pressure.</li> <li>Check and clean the solid filter or replace.</li> <li>Check and replace filter.</li> </ul>
21.	<ul style="list-style-type: none"> <li>Presence of grounds in coffee cup.</li> </ul>	<ul style="list-style-type: none"> <li>Coffee ground too fine.</li> <li>Worn grinders in grinder-dispenser unit.</li> <li>Pump pressure above 9 bar.</li> <li>Sprinkler filter on unit clogged.</li> <li>Filter holes widened (filter cup).</li> </ul>	<ul style="list-style-type: none"> <li>Coarser grinding.</li> <li>Replace the grinders.</li> <li>Decrease the pump pressure.</li> <li>Check and clean with blind filter or replace.</li> <li>Check and replace filter.</li> </ul>

	PROBLEM	CAUSE	SOLUTION
22.	<ul style="list-style-type: none"> <li>Coffee with too little cream in cup (sprurts out of spout).</li> </ul>	<ul style="list-style-type: none"> <li>Sprinkler filter on unit clogged.</li> </ul>	<ul style="list-style-type: none"> <li>Check and clean with blind filter or replace.</li> </ul>
23	<ul style="list-style-type: none"> <li>The cream in the cup is too thin (it disappears after a few seconds).</li> </ul>	<ul style="list-style-type: none"> <li>Coffee extraction takes a long time due to clogged filter.</li> <li>Coffee extraction too fast due to clogged sprinkler filter.</li> <li>Water temperature too high.</li> </ul>	<ul style="list-style-type: none"> <li>Clean or replace the filter.</li> <li>Clean or replace the sprinkler filter.</li> <li>Lower the temperature in the boiler.</li> <li>Adjust valve (flow variator) of serving group.</li> </ul>
24.	<ul style="list-style-type: none"> <li>Presence of depressions in the coffee grounds (looking inside the filter cup).</li> </ul>	<ul style="list-style-type: none"> <li>Sprinkler filter partly clogged.</li> </ul>	<ul style="list-style-type: none"> <li>Clean or replace the sprinkler filter.</li> </ul>

**Note:**

*If it is not possible to solve the problem as described above, or if other malfunctions develop, contact the authorized La San Marco service centre.*

