

***Instructions and maintenance***

***SATURNO MAX L. 24***

***SATURNO MAX/S L. 51***

***SATURNO MAX/S L. 102***

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# USER MANUAL AND OPERATING INSTRUCTIONS

## SATURNO MAX L. 24 - SATURNO MAX/S L. 51 - SATURNO MAX/S L. 102

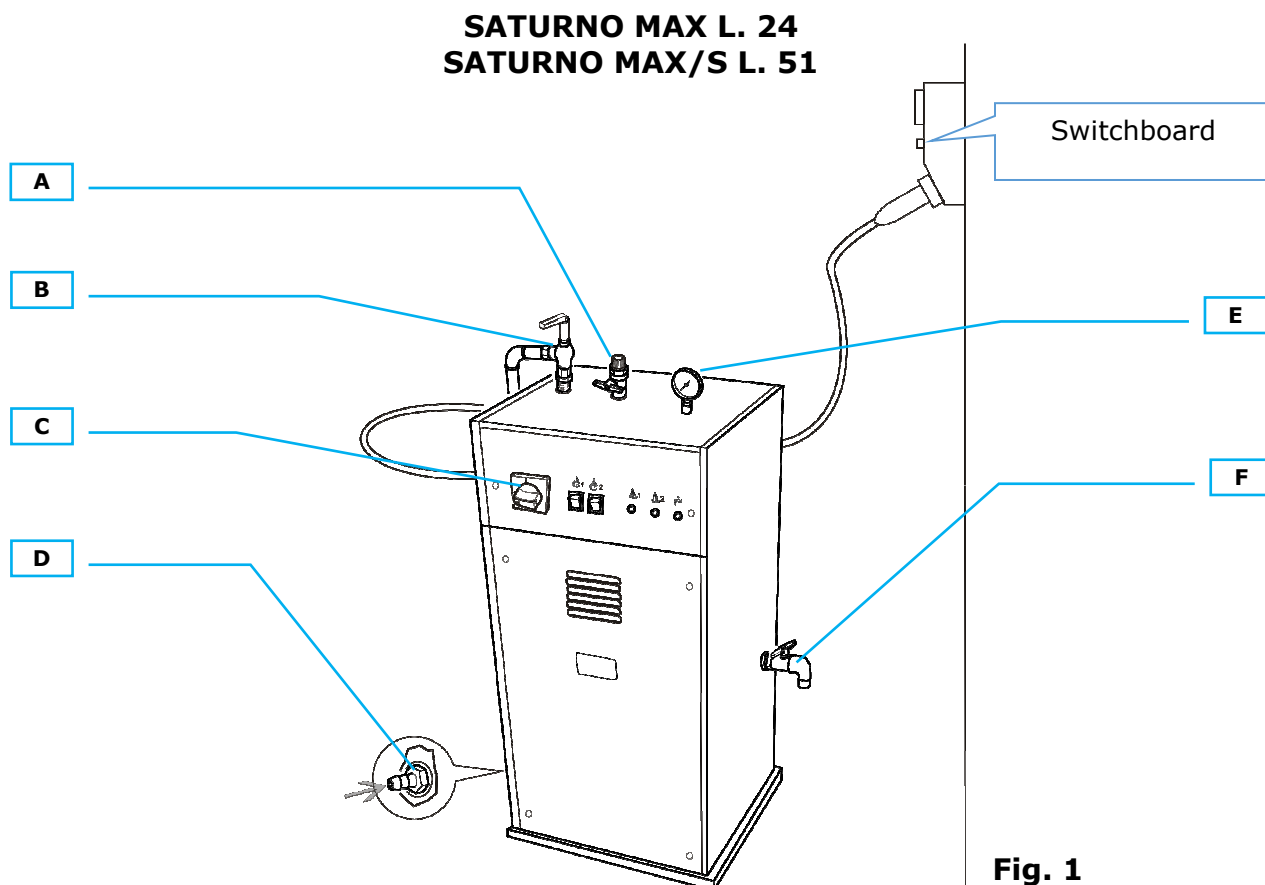
**Before commissioning the machine, read this manual carefully and follow the instructions.**

**Do not use the product in a manner different than the one specified in this manual.**

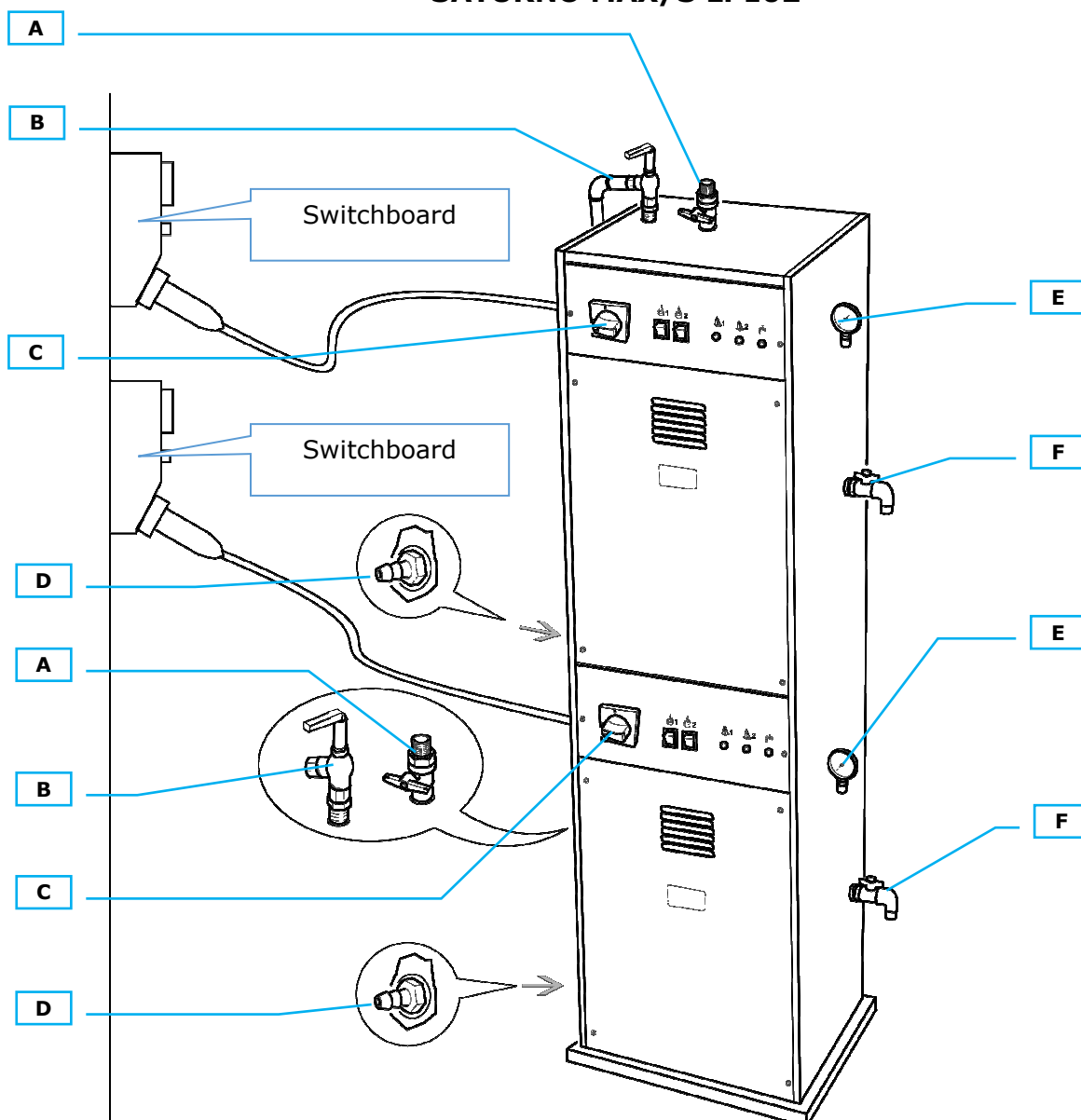
### 1. MACHINE FEATURES

MODEL:	SATURNO MAX L. 24	SATURNO MAX/S L. 51	SATURNO MAX/S L. 102
ELECTRICAL POWER:	400 V+N-50Hz	400 V+N-50Hz	2 x 400 V+N-50Hz
TOTAL INSTALLED POWER:	18.680 W	36.680 W	2 x 48.680 W
STANDARD BOILER POWER:	18.000 W	36.000 W	2 x 48.000 W
PUMP POWER:	0,7 Hp	0,7 Hp	2 x 0,7 Hp
BOILER CAPACITY:	24 L.	51 L.	2 x 51 L. (102 L.)
IRONING AUTONOMY:	CONTINUOUS	CONTINUOUS	CONTINUOUS
WORKING PRESSURE:	6 BAR	6 BAR	6 BAR
WEIGHT:	90 kg	110 kg	230 kg
OVERALL DIMENSIONS:	70x60x105 h. cm	70x60x105 h. cm	80x66x200 h. cm
BRUSH (upon request):	500 W	500 W	500 W

**MADE IN ITALY**



## SATURNO MAX/S L. 102



**Fig. 2**

KEY			
<b>A</b>	Steam outlet valve	<b>D</b>	Water inlet hose
<b>B</b>	External safety valve	<b>E</b>	Pressure gauge
<b>C</b>	Master switch	<b>F</b>	Drain cock

### **2. IMPORTANT**

The operator must carefully follow the recommendations provided and the warnings given below for a better use and preservation of the machine and to avoid injury to people or damage to property.




This device must not be used by individuals (including children) with reduced physical, sensory and mental capacities, or inexperienced, unless supervised and instructed

with regard to the use of the equipment by a person responsible for their safety. Children must be supervised to make sure that they do not play with the device.


Concerning pressure equipment and assemblies, the user must comply with the current laws and general provisions in force in the country where the equipment will be installed, regarding:

putting into service, use, safety of workplace, periodical monitoring and closure of in-service pressure equipment and assemblies.

To make the hazards more obvious, adhesive symbols whose meaning is explained below, are placed on the critical points of the machine:

	<p>Hot surfaces. Burns hazard. Pay attention.</p>
	<p>Dangerous electrical voltages. Electric shock hazard. Be careful not to come into contact with parts under voltage. Cut off the power supply of the machine before removing the protection panels.</p>
	<p>Indicates the presence of the tank drain cock. Caution steam emission - boiling water! Burns hazard. Follow the instructions given in the manual for the safe drainage of the boiler.</p>

### 3. PACKAGING OPENING

1. Open the box containing the machine on the side marked with HIGH  and carefully read the instructions given below (carefully preserve this manual for any further reference).
2. Remove the steam generator from the box.

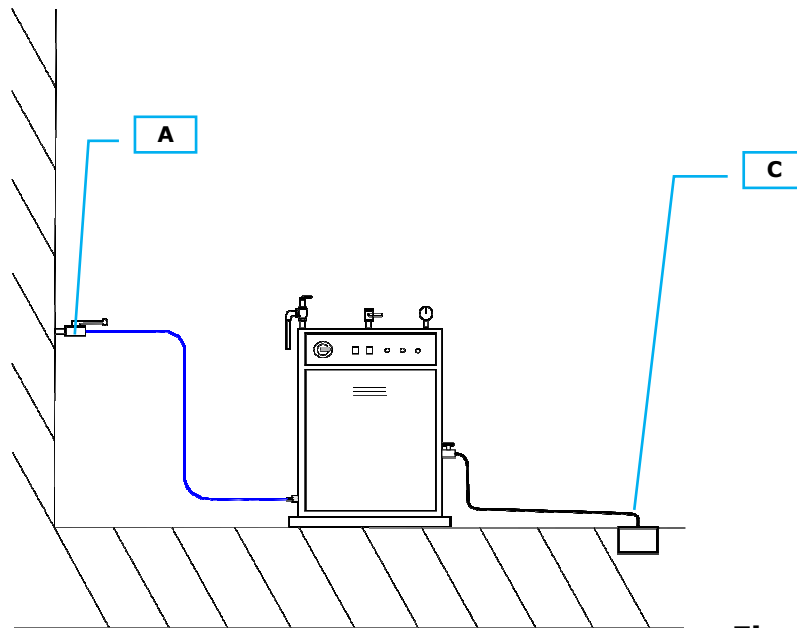
### 4. WATER CONNECTION

Connect the machine to the drinking water main. Water pressure must not exceed 4 BAR.

In order to carry out the connection, make sure that a cock (fig. 3-A) and a hose that resists the pressure of the water main are installed nearby. The hose must be inserted and fixed on the 10 mm diameter "WATER INLET HOSE" (fig. 1-D/fig. 2-D) of the machine by means of two hose clamps.

Water temperature must not exceed 40° C.

**N.B.:** before connecting the machine to the water main, drain a few liters of water to clean the system pipes.



**Fig. 3**

**If a connection to the water main is not available and the machine must be fed by a tank/small tank, request information on the changes to be made from the manufacturer or the retailer.**

It is recommended to use only drinking water. Do not use distilled water or water with a hardness less than 12° french; this type of water causes malfunctions to the machine (e.g. corrosion, black water leakage, etc ...).

If excessive hardness of water is detected (higher than 20° french) it is recommended to install a water softener that reduces the dissolved salts in the water.

As for turning off the machine, when the work is finished, close the water cock and remember to open it before turning on the machine.

**Warning:** do not operate the machine with the water cock closed as it will cause permanent damage to the pump.

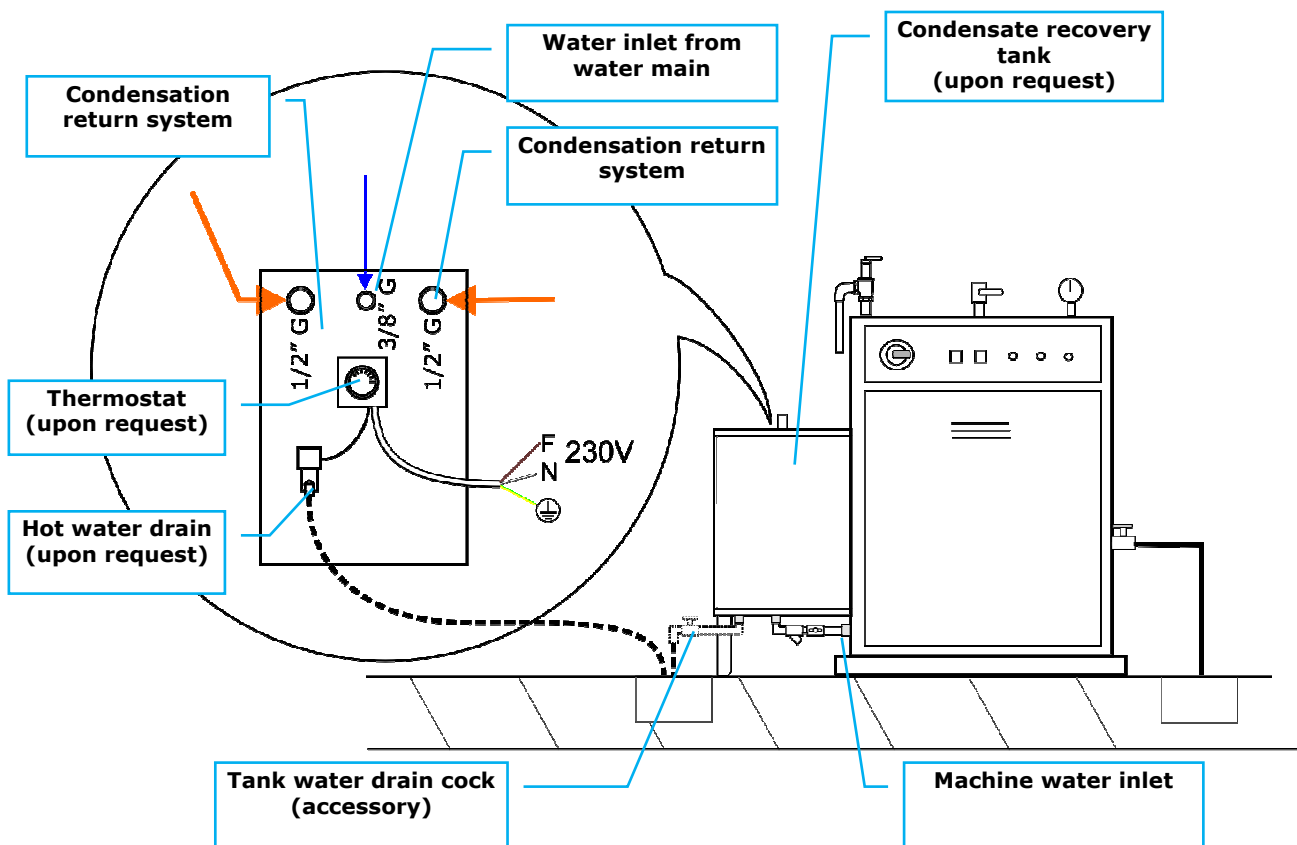
**5. CONDENSATE RECOVERY TANK CONNECTION (upon request)**

The machine can be connected to a stainless steel tank to recover the condensate of the system (tank supplied upon request).

The condensate recovery tank (fig. 4) is equipped with:

- Two 1/2" G joints for the steam system condensation inlet;
- One 3/8" joints for the water main inlet. Inside the tank there is a float that provides automatic water supply when the level is low;
- **UPON REQUEST:** One Ø8 hot water outlet joint, to be connected to a drain. The tank is equipped with a thermostat and a solenoid valve which opens if the water temperature exceeds 40°C, to avoid damaging the machine's pump.

The water tank can also be filled manually with water, removing the lid. It is recommended to always replace the lid to avoid getting dusty and dirty.



**Fig. 4**

**6. ELECTRICAL CONNECTION**

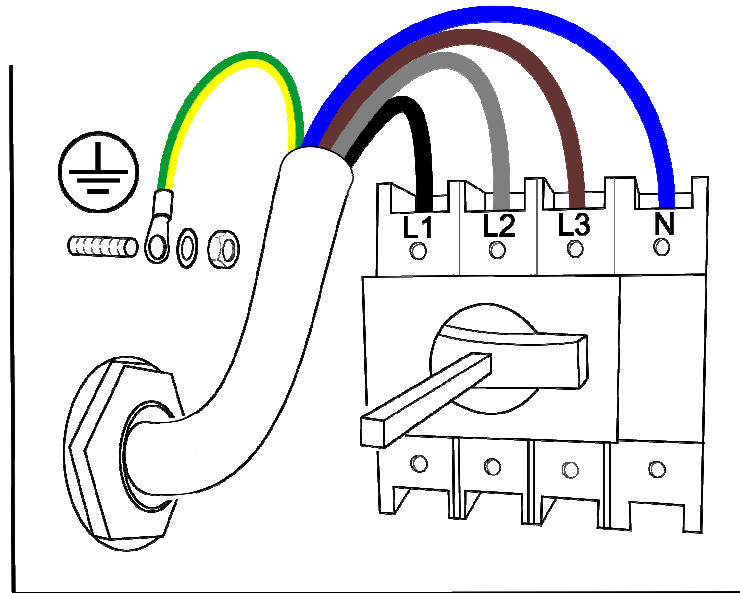
Set the master switch to 0 and open the blue panel. Connect an electric cord to the machine master switch by passing it through the cable gland as shown in the table below. Once the cable is plugged, the machine must be connected to a protected socket with a differential magnetothermal switch in compliance with current regulations and with a capacity corresponding to the features of the steam generator.

Make sure that the line voltage and frequency correspond to the information indicated on the machine's label.

It is mandatory to connect the device to a proper grounding and have the connection performed by qualified personnel.

<b>NEUTRAL (N)</b>	—————>	<b>BLUE</b>
<b>PHASE (L1)</b>	—————>	<b>BROWN</b>
<b>PHASE (L2)</b>	—————>	<b>GRAY</b>
<b>PHASE (L3)</b>	—————>	<b>BLACK</b>
<b>GROUND</b>	—————>	<b>YELLOW/GREEN</b>

The machine is not supplied with a power cord. Respect the colors indicated for connecting the machine cable to the electrical system/plug.



**Fig. 5**

<b>Machine</b>	<b>Power (kW)</b>	<b>Minimum recommended section of the power cord</b>	<b>Plug</b>
Saturno Max	18kW (9+9)	Cable type FG7R - 5G6 mm <sup>2</sup>	4 Poles+ground /32 A
	24kW (12+12)	Cable type FG7R - 5G10 mm <sup>2</sup>	4 Poles+ground /63 A
Saturno Max/S	36kW (18+18)	Cable type FG7R - 5G16 mm <sup>2</sup>	4 Poles+ground /63 A
	48kW (24+24)	Cable type FG7R - 5G16 mm <sup>2</sup>	4 Poles+ground /100 A
Saturno Max/S L 102	2 x 48kW	2 cables type FG7R - 5G16mm <sup>2</sup>	2 plugs 4 Poles+ground 100 A

## **7. STEAM SYSTEM**

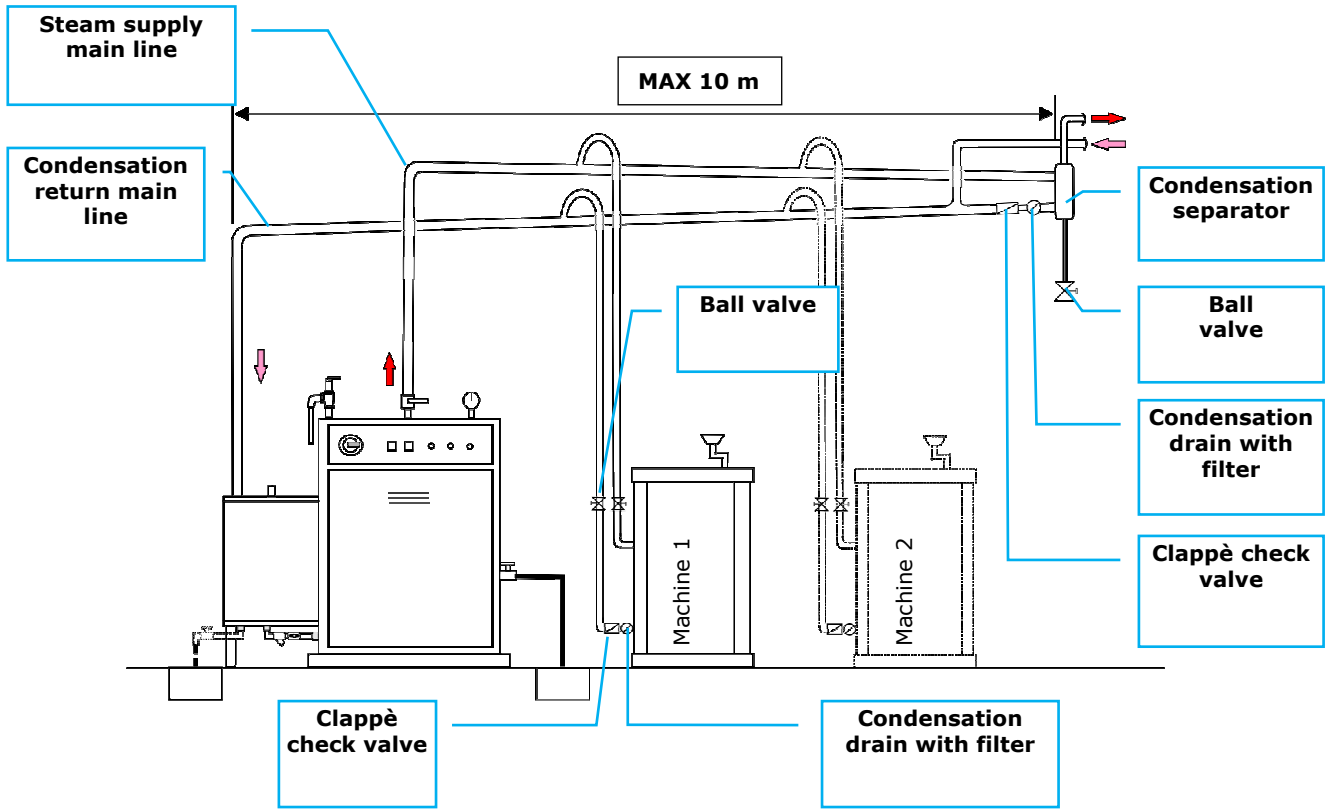
The following is an example of the description and diagram of a "typical plant" for the steam supply (fig. 6).

1. Prepare a main steam supply line and a main condensation return line.
2. The steam pipe and the condensation return pipe are used to supply the machines (machine 1, machine 2, etc.) from the main steam supply and condensation return lines.
3. Install a condensate drain with filter, followed by a Clappè check valve near the machine. It is recommended to install a cock both in the steam supply line and in the condensate drain, in order to isolate the machine in case of maintenance or breakdown.



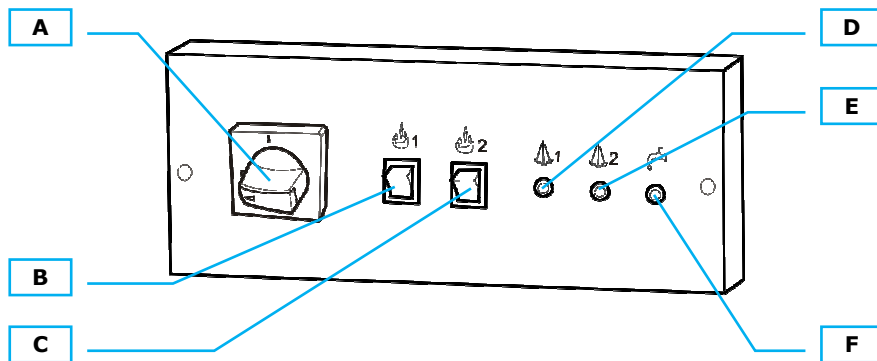
Do not bend the pipes at a right angle, but at least at radius of 50 mm. Make sure that the pipes have a uniform tilt, in particular those of the condensation return. It is recommended to isolate all the various pipes of the system to protect the operator from burns when touching the pipes.

**“STEAM SYSTEM” example diagram**



**Fig. 6**

**8. IGNITION**



**Fig. 7**

KEY			
<b>A</b>	Master switch	<b>D</b>	First heating elements set light
<b>B</b>	Heating elements set switch 1	<b>E</b>	Second heating elements set light
<b>C</b>	Heating elements set switch 2	<b>F</b>	Pump working light

It is recommended to drain the boiler when the machine is first commissioned and each time the device is put into operation after a break of more than one week. This operation allows the boiler to be rinsed so as to eliminate any deposits and prevent the dark water and steam release.

1. Turn the master switch (fig. 7A) to position 1 (on). Turn on the heating elements set switch 1 and 2 (fig. 7B and 7C) and open the steam outlet cock (fig. 1A/fig. 2A). Wait for the heating elements set lights 1 and 2 (fig. 7D and 7E) to turn off; at this point the pressure gauge (fig. 1E and fig. 2E) should indicate a pressure of about 6 BAR.

It is possible to halve the energy consumption, in case the full power of the generator is not necessary, by switching on only one heating elements set switch.

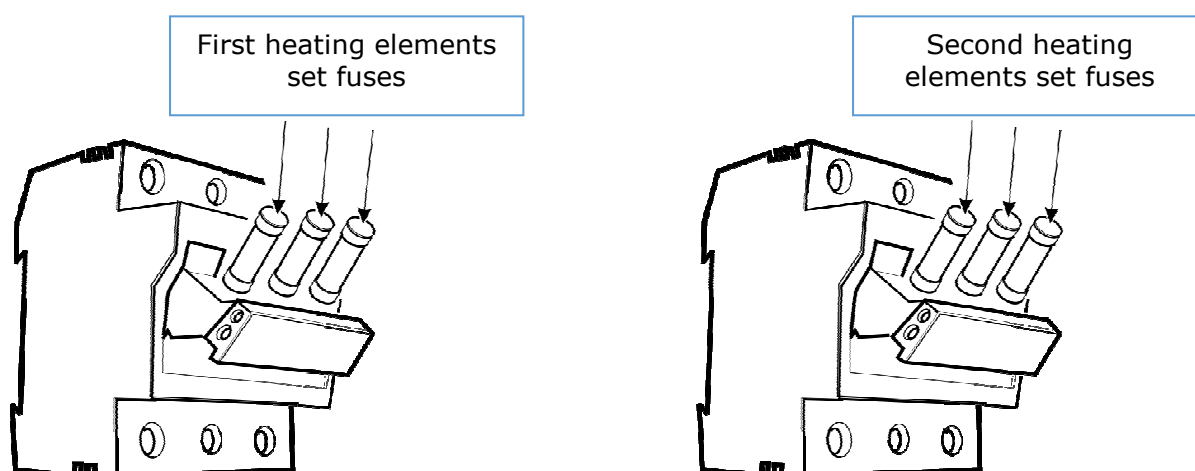
## 9. CHECK AND REPLACEMENT OF FUSES

There are 2 sets of fuses inside the machine. The fuses check is the first operation to do in case something does not work. Replacing the fuse(s) becomes necessary as a result of a short circuit or overload; in any case, before replacement it is recommended to eliminate the cause of the break.

To access the fuses it is necessary to turn the master switch to 0 and remove the two fixing screws from the blue panel. The position of the various fuses is shown in fig. 8. To replace the fuses, simply open the door.

**Warning:** replace the fuses only with identical fuses of the same capacity.

MACHINE	POWER (kW)	FUSE		
		DIMENSION	TYPE	FEATURES
Saturno Max	9+9	10x38	gG	500V / <b>20 A</b>
	12+12	10x38	gG	500V / <b>20 A</b>
Saturno Max/S	18+18	14x51	gG	500V / <b>50 A</b>
	24+24	14x51	gG	500V / <b>50 A</b>
Saturno Max/S L 102	2 x (24+24)	14x51	gG	500V / <b>50 A</b>



**Fig. 8**

## **10. GENERAL WARNINGS**

1. Connect the machine to power lines designed for its power.
2. Keep children away from the machine, both when the device is on and off.
3. The appliance must be used and left to rest on an indoor flat and stable surface, at a temperature between  $+10^{\circ} \div +40^{\circ}\text{C}$ . Do not place it outdoors or expose it to atmospheric agents.
4. The user must not leave the appliance unattended when it is connected to the mains.
5. Do not bring the appliance near thermolabile or inflammable parts when it is running.
6. Always switch off the machine using the master switch before disconnecting it from the mains.
7. Always disconnect the machine from the mains if it is not used and before any maintenance and cleaning operation.
8. Keep the power supply cord away from hot surfaces and make sure it is not crushed by doors or trampled.
9. Use only normal water from the drinking water mains.
10. Do not add additives of any kind in the water.
11. Do not drain the boiler during machine operation (see "boiler drainage" chapter).
12. Make sure that the water supply pipes do not freeze during winter.
13. During long periods of inactivity, turn off the water supply, completely drain the boiler and disconnect the machine from the power grid.

## **11. BOILED DRAINAGE**

Drain the boiler at least once a week.

Connect the drain cock (M 1/2" GAS connection) to the drainage system by means of a thermal-insulated rigid pipe (copper or steel) (fig. 3-C). As an alternative it is possible to collect the waste water in a heat-resistant tank.

Perform the following operations:

1. disconnect the machine from the power grid after finishing work;
2. wait half an hour after switching off to allow the machine to cool down (the ideal pressure for safe drainage is 0,5 bar);
3. slowly open the drain cock located on the side of the machine, wait for all the water to come out and finally close it.

If the drained water still contains dirt, repeat the operations until the water is clean.

During operations, wear work gloves to avoid possible burns and pay the utmost attention to prevent splashes of boiling water from reaching the operator!

## **12. ELECTRICAL RISKS**

The operator must pay attention to the following situations defined as hazardous from the electrical point of view:

1. when the differential switch (circuit breaker) intervenes;
2. when using the machine during a thunderstorm;
3. when using the machine without proper feet protection (without shoes ...) or with wet hands or feet;
4. when electric cables are damaged;
5. when the power cord touches hot parts of the appliance;
6. in case of water and/or steam leaks from the machine;
7. when the machine is not connected to a proper grounding according to the regulations in force.

## **13. MECHANICAL RISKS**

The operator must pay attention to the following situations defined as hazardous from the mechanical point of view:

1. when using the machine outside the normal ironing mode;
2. when you continue using the machine after the safety valve has been activated (in this case the steam pressure inside the boiler is too high (check the pressure gauge)).

## **14. THERMAL RISKS**

The operator must pay attention to the following situations defined as hazardous from the thermal point of view:

1. when the external safety valve is touched with the machine running;
2. when the boiler is drained without following the instructions given in the manual;
3. in case of steam loss from the safety valve;
4. when the pipes connected to the steam cock are not thermally insulated.

Some parts of the appliance may become extremely hot: be very careful during use and switch off the power supply when not using the machine.

It is also necessary to allow the appliance to cool down before cleaning it.

## **15. INTERVENTIONS AND SMALL REPAIRS**

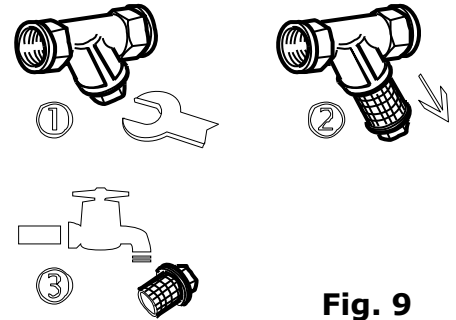
1. If the power cord is damaged, replace it immediately. Do not use the appliance with damaged cable.
2. Check the tightness of the drain cock. If there are any leaks, replace it.

## 16. WATER FILTER CLEANING

It is recommended to clean the water filter (fig. 9) every six months. If there are many impurities in the water, more frequent cleaning may be necessary.

To clean the water filter:

1. close the general water cock;
2. open the front panel and locate the filter;
3. unscrew the cock as indicated using a wrench;
4. remove the filter;
5. clean the filter with running water, removing all traces of impurities;
6. reassemble the filter, fix the cock with the wrench and open the water making sure that there are no leaks;
7. close the rear panel.



**Fig. 9**

## 17. SOLUTIONS TO POSSIBLE PROBLEMS

The most common problems that can occur and their possible solutions are shown in the table below. Before intervening we recommend to:

- disconnect the machine from the power supply;
- always switch off the boiler and reset the pressure if you operate on the boiler or the steam system.

<b>PROBLEM</b>	<b>SOLUTION</b>
<b>1.</b> The pump light is always on and the pump runs continuously	<ul style="list-style-type: none"> <li>• make sure that the water cock is open;</li> <li>• make sure that there is water in the water main. For machines with condensate recovery tank, make sure that there is water in the tank;</li> <li>• check that the water filter of the machine is not clogged by dirt residues and that the water inlet pipe of the boiler is not clogged by limestone;</li> <li>• check the proper functioning of the level regulator, including the floating ball.</li> </ul>
<b>2.</b> The heating elements set lights 1 and 2 remain on and/or the boiler does not reach the working pressure	<ul style="list-style-type: none"> <li>• check that the drain cock is tightly closed;</li> <li>• check the correct functioning of the remote control switches and resistors;</li> <li>• check that the fuses are intact and the machine reaches the three phases (L1, L2, L3).</li> </ul>

<b>3.</b> The machine does not work, no lights turn on	<ul style="list-style-type: none"> <li>• check that the master switch, provided on the power supply, is on;</li> <li>• check that the power line is under voltage and make sure that the power cord is correctly connected to the machine;</li> <li>• check the fuses located inside the machine.</li> </ul>
<b>4.</b> With the machine off and cold, the pressure gauge indicates pressure in the boiler	<ul style="list-style-type: none"> <li>• check the solenoid valve located near the pump.</li> </ul>
<b>5.</b> There is steam in the safety valve and the boiler exceeds the established pressure	<ul style="list-style-type: none"> <li>• check the operation of the pressure switches.</li> </ul>

## **18. SCHEDULED PREVENTIVE MAINTENANCE**

**(To be carried out exclusively in the service centers, at the manufacturer's facility or by a specialized technician)**

Maintenance and cleaning of the machine must be carried out according to the instructions below (see table).

Contact the dealer, the authorized service centers or the manufacturer to carry out the necessary checks and maintenance.

The time interval for carrying out the scheduled preventive maintenance is calculated approximately and refers to a machine that works in "normal" conditions. The user must establish the exact frequency of the maintenance operations, based on the following parameters:

- water hardness;
- number of hours of use;
- other special conditions.

<b><u>REGULARITY</u></b>	<b><u>CONTROL</u></b>
<b>Every 1000 hours or maximum 6 months</b>	<ul style="list-style-type: none"> <li>• check the functionality of the safety valves and replace them if necessary.</li> </ul>
<b>Every 12 months</b>	<ul style="list-style-type: none"> <li>• check the efficiency and integrity of the safety and control devices (pressure gauge, pressure switches and level regulator);</li> <li>• disassemble the copper pipes from the pressure gauge and from the pressure switches and clean the limestone deposits and scale;</li> <li>• clean the limestone deposits from the boiler and the heating elements;</li> <li>• check that the pump pipe and the boiler drain pipe are not clogged;</li> <li>• remove the level regulator and clean the limestone deposits;</li> <li>• check the tightness of all the joints and, clean the filter and the water inlet valve.</li> </ul>

The machine has been designed to be used 8 hours per day for 5 days a week.

## 19. PACKAGING

The steam generator is wrapped in a cellophane packaging, loaded on a pallet and covered with a cardboard box fastened to the wooden platform by means of supports. Not being a rigid package, it is not very resistant to shocks (fragile material), therefore pay the utmost attention when handling the packaged device; do not use it as a stool or as a support surface.

The packaging elements (plastic bags, boxes, polystyrene etc.) must not be left within reach of children as they are potential sources of danger.

## 20. TRANSPORT

Transport the packed machine close to the installation point and proceed with unpacking. The appliance must not be carried manually by people, but by means of forklift trucks.

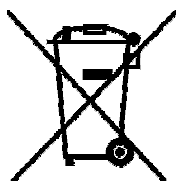
It is recommended not to place the machine too close to the walls and other machines, in order to guarantee the operator an easy use and perfect maintenance.

## 21. WARRANTY TERMS

The manufacturer's warranty becomes void:

- in the event of repairs carried out by unauthorized personnel or service centers;
- total or partial failure to follow the instructions contained in this manual;
- for poor storage, lack of maintenance/cleaning or incorrect assembly;
- when there are damages caused by the customer;
- when there are failures or damages that do not derive from a manufacturing defect;
- when there are damages deriving from a fortuitous event (fire, short circuit) or due to third parties (tampering);
- when there are damages caused by limescale;
- when the damage has been caused by the use of water different from that indicated in the instructions (see "WATER CONNECTION" chapter);
- when using the machine for a purpose different than the one specified in this manual;
- when using non-genuine spare parts or accessories, modified or not suitable for the appliance.

## 22. DISPOSAL



According to the directive 2012/19/UE on waste of electrical and electronic equipment, do not treat this product as urban waste.

This appliance is marked according to the directive 2011/65/UE on restriction of use of specific dangerous substances in electrical and electronic equipment.

This symbol on the product or on its packaging indicates that this product shall not be treated as urban waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment.

Ensuring this product is disposed of correctly will help prevent potential negative consequences for the environment and human health which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.

The abusive disposal of the product by the user may lead administrative sanctions.