

# Installation, use and maintenance manual

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## Radiators Line TS2000 Series

Natural draught system gas convectors for heating of small  
size rooms, with no need of electrical power supply

Natural gas/LPG fired





## TABLE OF CONTENTS

<b>SECTION 1</b>	<b>GENERAL INSTRUCTIONS</b> .....	3
1.1	PRODUCT DESCRIPTION AND MAIN OPERATING CHARACTERISTICS .....	4
1.2	TECHNICAL DATA.....	5
<b>SECTION 2</b>	<b>INSTALLATION OF THE HEATER</b> .....	6
2.1	SEQUENCE OF INSTALLATION .....	7
2.2	CONNECT THE CONVECTOR TO THE GAS NETWORK .....	9
2.2.1	NATURAL GAS FEEDING .....	9
2.2.2	L.P.G. GAS FEEDING .....	10
2.3	HOW TO REPLACE THE BURNER INJECTOR.....	10
2.4	GAS CONVERSION .....	10
<b>SECTION 3</b>	<b>USE AND OPERATION OF THE UNITS</b> .....	11
3.1	STARTING OF THE UNIT .....	11
3.2	OPERATION OF THE UNIT .....	11
<b>SECTION 4</b>	<b>MAINTENANCE AND SERVICE</b> .....	12
4.1	TURNING OFF OF THE UNIT.....	12
4.2	IMPROPER OPERATING PROCEDURES .....	12
4.3	TYPE OF FAILURES AND SERVICING .....	12
4.4	MAINTAINANCE.....	13
4.5	SERVICING .....	13

### NOTE

All the instructions contained in this manual should be carefully read. They contain important instructions regarding installation, use, maintenance and safety. Keep this manual for any further need of information. The manufacturer cannot be held responsible for any damage due to improper, erroneous or irrational use.



## 1 GENERAL INSTRUCTIONS

This manual is an integral and essential part of this product and must be given to the end user.

This unit (Direct-Vent Wall Gas Convector) must be exclusively used for the purpose it was intended. Any other use is to be considered improper and therefore dangerous.

The manufacturer cannot be held responsible for any damage resulting from incorrect installation or failure to comply with the manufacturer's instructions.

In case of failure and/or bad/poor operation, stop the unit (shut off the gas supply) do not attempt any repair or direct servicing. Call only qualified service engineer. **Qualified service engineers** are those having specific technical experience in the installation of heating units for residential applications, designated by a local authority.

The service on the unit should be carried out only by a technical centre authorized by the manufacturer, using only original spare parts.

Any misapplication of the above instructions can compromise the safety of the unit.

To ensure the efficiency of the unit and its proper operation, it is essential that a **qualified service engineer** carries out annual maintenance in accordance with the manufacturer's instructions.

Should the unit be sold or transferred to another owner, ensure that the manual remains with the unit for the use of the new owner and/or the installer.

### BEFORE STARTING THE UNIT

**Qualified personnel** must check:

- that the electrical and the gas supply ratings do exactly correspond to those shown on the original rating plate.
- that the exhaust flue and the inlet air supply are properly installed.
- that the combustion air feed and exhaust are properly fitted in accordance with the existing standards..
- the proper internal and external sealing of the combustion apparatus.
- that fuel flow control is in accordance with the unit power requirements.
- that the unit is fed with the specific type of fuel for which it has been pre-set.
- that the fuel supply pressure is within rated limits.
- that the fuel supply system is suitable for the unit and that all safety and control devices required by the existing standards are duly installed.

Do not use gas pipes to earth electric apparatus.

Avoid unnecessary supply when the unit is not in use and always close the gas valve.

In case of prolonged absence isolate the main gas inlet valve to the unit.

### IF YOU SMELL GAS

- do not activate electric switches, telephones or any other object or device that may cause sparks.
- immediately open doors and windows to create drafts of air that purify the room.
- shut off gas supply.
- call for **Qualified Servicing Engineer**.

## 1.1 PRODUCT DESCRIPTION AND MAIN OPERATING CHARACTERISTICS

The TS2000 gas heater is an independent heating product with an isolated combustion chamber and balanced flue natural draught.

It can operate either with natural gas and liquid propane gas (category II<sub>2H3B/P</sub>, type C11, regulation EN 613).

The intake of combustion air and the exhaust of fumes are external to the system through two coaxial pipes. Therefore, the unit will have to be installed on an external perimeter wall.

Precisely because of the dual function (the intake and flue exhaust) of the coaxial pipe, you cannot make a connection with a traditional chimney.

The operation principle of TS2000 heater is based on a convective movement of the ambient air. The air going through the unit is drawn upwards and heated then diffused in the ambient through the outlet grille. This convective motion is natural.

For this reason, you should not place on the grid clothing, newspapers or any other object that could obstruct the air flow: also make sure that curtains, backs of chairs or furniture are not placed at a distance of less than 30 cm from the unit.

The operation of the unit is very simple and completely automatic thanks to the thermostatic regulation: the end user only needs to start the unit and choose the desired temperature (to be selected on the thermostat).

Since the combustion chamber of the unit is completely sealed (C-type unit), **the installation of grids or holes in the room, for ventilation, are not necessary.**

The Room sealed combustion circuit is the best safety feature for the premises where the unit is to be installed: there is no risk of leakage of the combustion products and neither the oxygen necessary for the combustion has been taken from indoor.

A special flame detection device, that operates through a thermocouple, immediately stops the gas supply in case the flame accidentally goes off.

## 1.2 TECHNICAL DATA

DESCRIPTION		U.M.	VALUE
TYPE OF EQUIPMENT			C <sub>11</sub>
UNIT CATEGORY			II <sub>2H3B/P</sub>
MAXIMUM NOMINAL HEAT INPUT		kW	1,97
MAXIMUM NOMINAL HEAT OUTPUT		kW	1,69
GAS CONSUMPTION (15°C - 1013 mbar)	NATURAL GAS (G20)	m <sup>3</sup> /h	0,20
	L.P.G.* (G30)	kg/h	0,15
EFFICIENCY (EFFICIENCY CLASS NO.1 "ONLY HEATING")		%	86
BURNER PRESSURE NATURAL GAS (G20)	MAX	mbar	15,2
	REDUCED	mbar	6,8
BURNER PRESSURE L.P.G. (G30 BUTANE )	MAX	mbar	29
	REDUCED	mbar	14
BURNER PRESSURE L.P.G. (G31 PROPANE)	MAX	mbar	29
	REDUCED	mbar	18
FEEDING PRESSURE	NATURAL GAS (G20)	mbar	20
	L.P.G. (G30)	mbar	30
MAIN BURNER NOZZLE DIAMETER	NATURAL GAS (G20)	mm	1,30
	L.P.G. (G30)	mm	0,75/0,80
PILOT NOZZLE DIAMETER	NATURAL GAS (G20)	mm	0,30
	L.P.G. (G30)	mm	0,30
Ø HOLE DIAMETER FOR CONCENTRIC INLET/OUTLET PIPE	AIR INLET	mm	100
	FLUE GAS	mm	60
WALL THICKNESS	MAX	mm	500
	MIN	mm	150
GAS CONNECTION		"	3/8
WEIGHT		kg	16,8

\* VALUE WITH A PROPANE - BUTANE MIXTURE (70% PROPANE - 30% BUTANE)  
ACCORDING TO EU NORM EN 613

**Table 1** – TEHCNICAL DATA

## 2 INSTALLATION OF THE HEATER

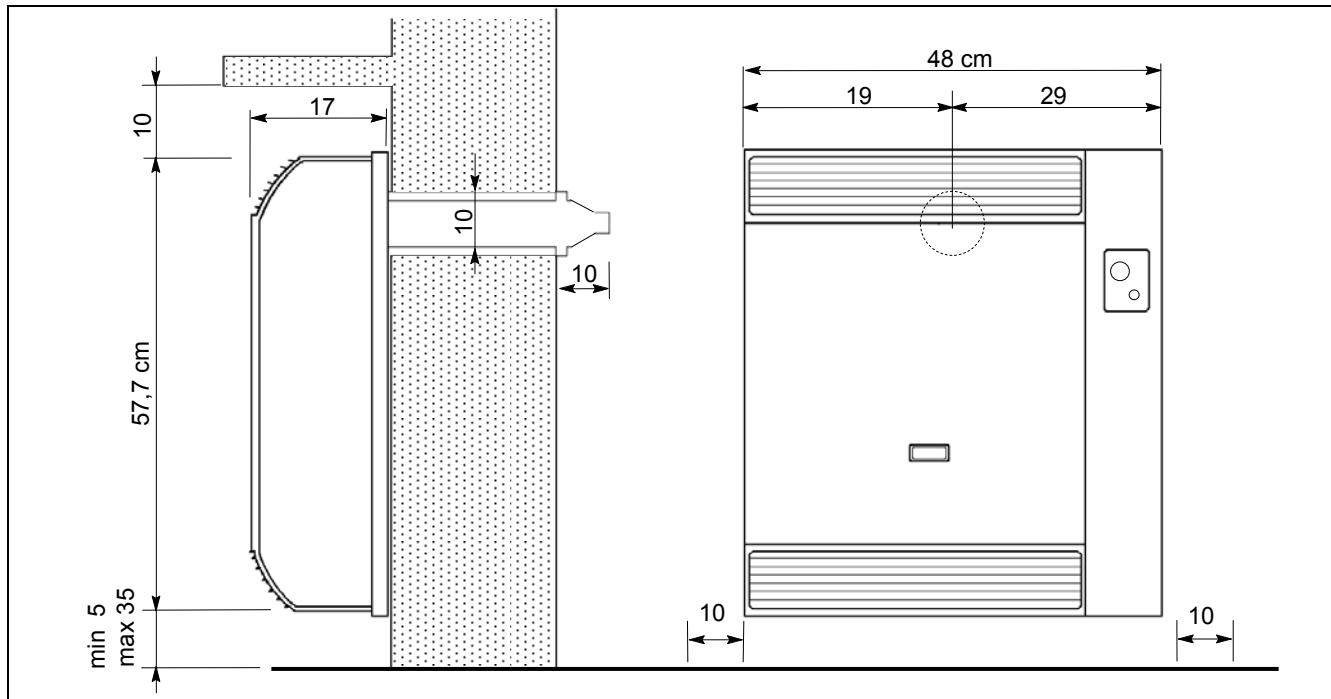


Figura 1 – EXTERNAL DIMENSIONS AND INSTALLATION LIMITS

The installation shall be made, according to the Manufacturer's instructions, by **qualified service engineers**. An incorrect installation can cause damages to people, animals and property. In case of erroneous installation, the Manufacturer cannot be held responsible for such damages.

The installation must be performed in compliance with the existing European laws, rules and regulations referred to gas and electrical appliances.

In particular it must be respected all related to the distance between the external flue terminal and windows, balconies, gutters, etc., and distances to the soil or to the sidewalk.

### NOTE

The unit is delivered with concentric pipes for walls with max thickness 50 cm.

For the correct installation is required to respect the following conditions:

1. The gas convector must be installed indoor on an external perimeter wall, respecting the distances indicated in Figura 1, so that a minimum space for technical service and maintenance is foreseen. The minimum recommended distance from the basement is 5 cm and possibly not superior to 35 cm because, for bigger height, there will be a non uniform distribution of the heat in the building.
2. Keep a minimum distance of 10 cm between the sides of the gas convector and any type of object in order to permit the dismounting and remounting of the panel.
3. If a bracket, shelf etc. would be installed above the unit, a space of 10 cm (at least) between the top of the unit and the bracket must be considered. **MOREOVER DO NOT INSTALL ANY KIND OF COVERAGE ON THE UNIT.**
4. The external flue terminal must not be nearer than 40 cm to obstruction like: angles, pipes, gutter-pipes, bushes, wires, etc.
5. If the exhaust terminal should come out at a lower height than 2 metres from the ground, you should install a protection grid (Cod.O-12456340).
6. Make sure that adequate furniture and network of gas exists.



## 2.1 SEQUENCE OF INSTALLATION

Before unpacking the unit check that the external packaging is in good condition and that no damage has occurred during transportation, if so promptly contact your supplier.

Then proceed like follows:

1. Unpack the unit from its protection wrapping, slip off the inlet and outlet flues first. **DO NOT DAMAGE OR THROW AWAY THE TEMPLATE** where a drilling guide for the correct installation of the unit is given.
2. Fix the template to the wall where the unit is to be installed making sure it is perpendicular to the floor, and then point on the wall the holes where to locate the inlet/exhaust pipe and the support bracket.
3. Drill a hole ( $\varnothing$  100 mm) to locate the main pipe on the wall with max. thickness 500 mm. The hole can be realised by a rotary cutter. Drill also the holes  $\varnothing$  6 mm to fix the support bracket (for the insertion of the support frame).

### WARNING

If the unit must be installed on a wall with flammable material on it (such as upholstery, etc.) it is necessary to remove part of this material on the wall till a diameter of 130 mm around the flue hole, in order to reach the bare wall. If it's not possible to remove the only the flammable layer (for example: walls made entirely of wood) it will be necessary to break through the wall near the pipes to a depth of 30 mm (see Figura 2).

4. Through the plastic anchors provided, fix the support bracket on the wall, being sure that the holes placed on the two sides are positioned in the lower part of the bracket (see Figura 3). Be also sure that the bracket is horizontal.
5. Adapt the length of the pipes (exhaust outlet and intake air) to the effective depth of the wall, cutting the exceeding part: for the exact length see Figura 4.
6. Remove the casing from the heater body, unscrewing the two mounting screws. (see Figure n.5).

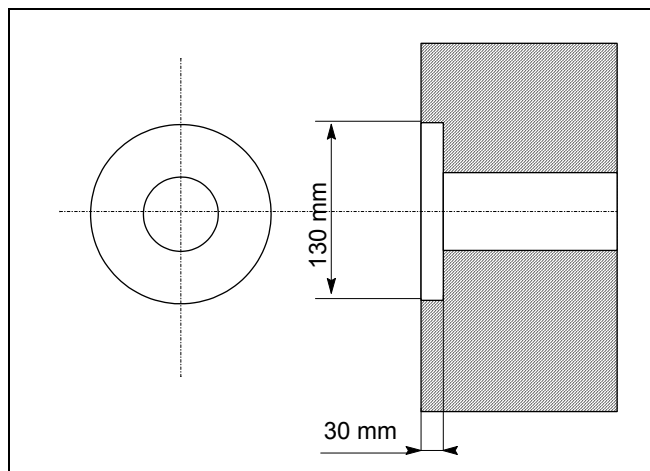


Figura 2

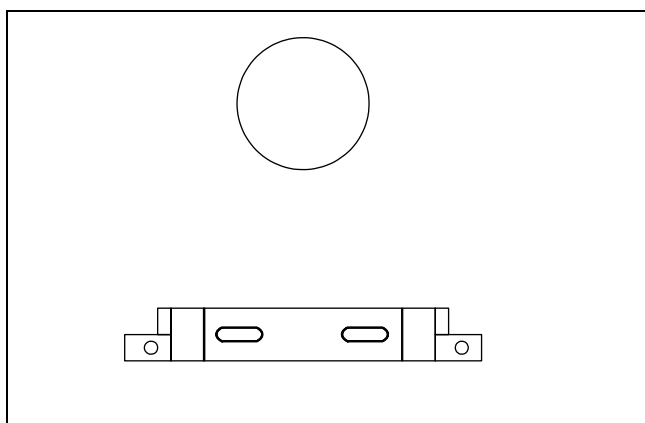


Figura 3

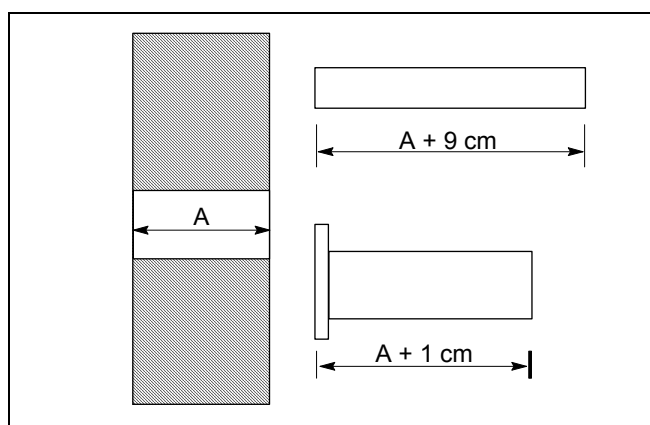


Figura 4

7. Insert the smallest tube (diameter  $\varnothing$  60 mm) in the combustion chamber (see Figura 6). Mount the largest tube ( $\varnothing$  100 mm) and the gasket on the unit frame with the screws provided. (see Figura 7).
8. Position the heater on the wall inserting the inlet/outlet flue in the hole previously drilled. Make sure that the edges of the support bracket perfectly match the existing holes in the back on the unit (see Figura 8).

9. Attach the heater the support bracket with the two screws provided. During this operation make all necessary adjustments to have a correct installation of the unit.
10. Mount the vent cap on the flue pipe and fix it with the three self-tapping screws provided. (see Figura 9).

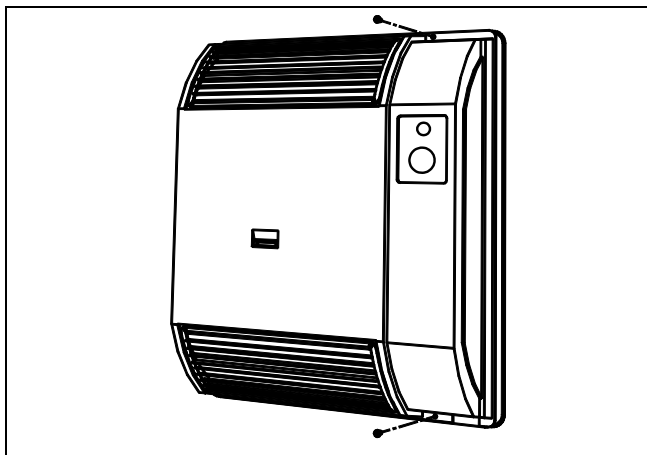


Figura 5

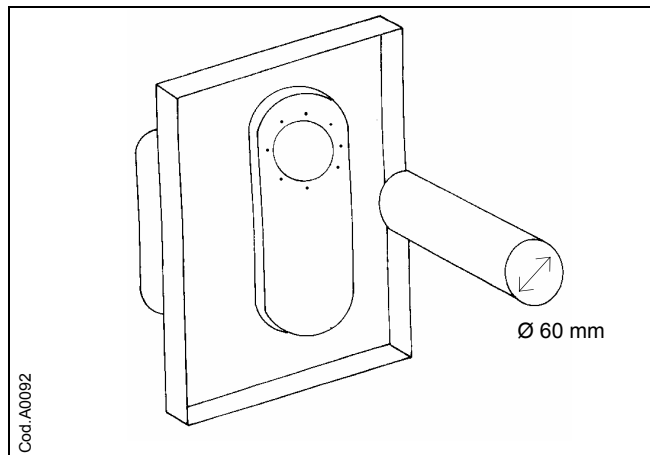


Figura 6

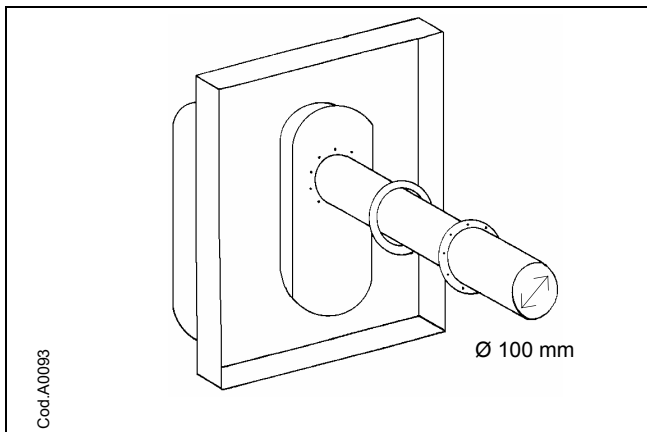


Figura 7

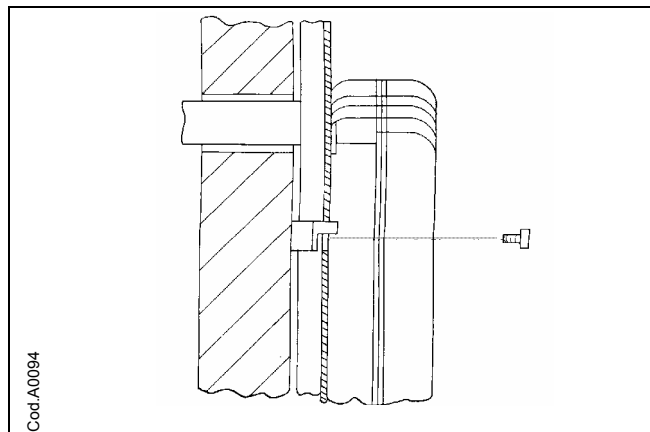


Figura 8

11. Connect the gas supply line.
12. Reinstall the external casing by tightening the relevant screw (see Figura 5).
13. Turn on gas supply and check the correct functioning according to the next paragraph **“CONNECT THE CONVECTOR TO GAS NETWORK”**.

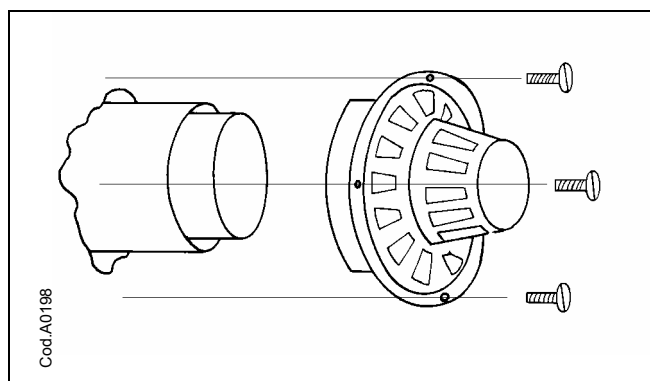


Figura 9

## 2.2 CONNECT THE CONVECTOR TO GAS NETWORK

The wall gas convector TS2000 is supplied to operate with natural gas and is equipped with an LPG conversion kit. During the final quality tests in the factory each unit is set to operate with natural gas. The gas valve is produced by SIT model EUROSIT (see Figura 10). Subsequent adjustments can be carried out on the spot, following these instructions.

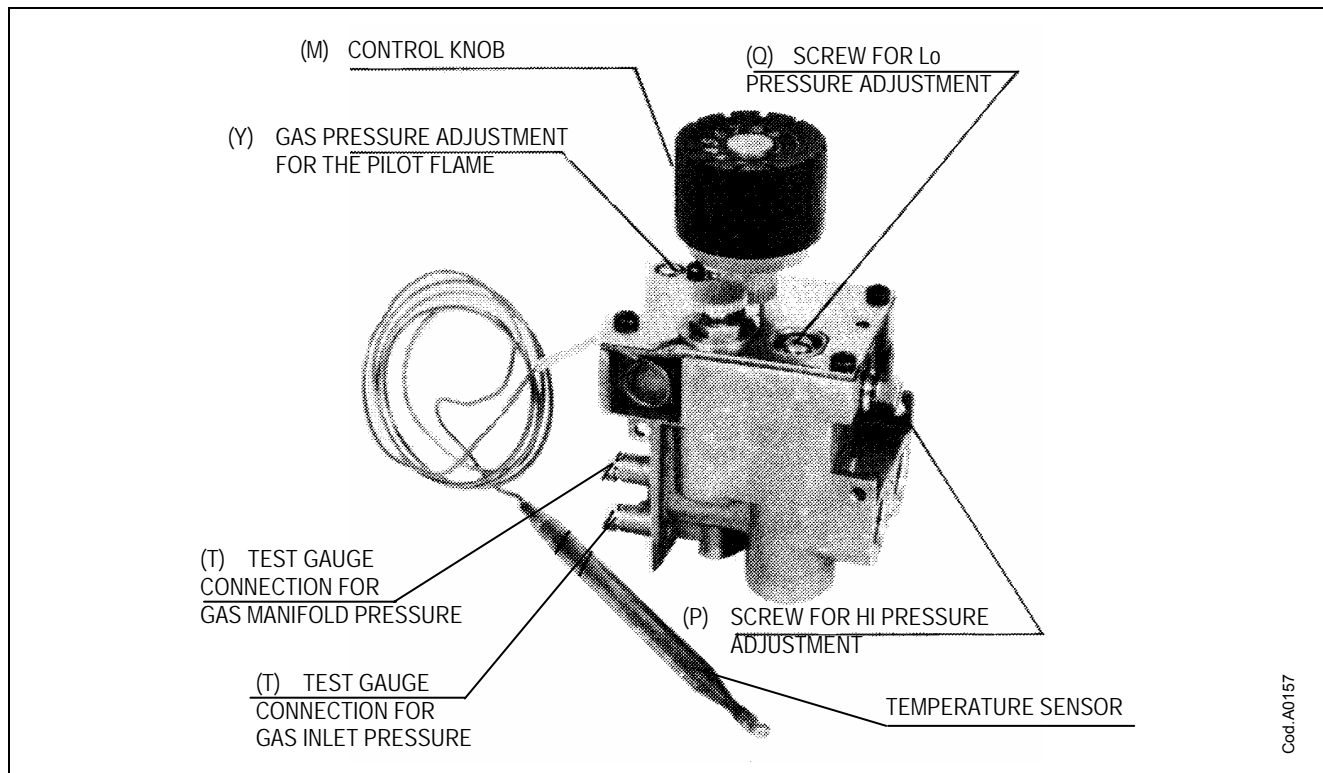


Figura 10 – VALVOLA EUROSIT

### 2.2.1 NATURAL GAS FEEDING

In order to adjust the gas valve, after having removed the casing and checked if the unit is prepared to operate with natural gas (if you need to operate with LPG please see next paragraph; if you need to change the nozzle please see paragraph 2.3 & 2.4), please proceed like it follows:

#### REGULATION FOR MAXIMUM AND REDUCED HEAT OUTPUT

The regulation for maximum heat output must be carried out with an operating unit in a room with an ambient temperature not higher than 20° C and after having positioned the temperature regulation knob on the max value (position 7).

In case of installations with ambient temperatures above 20° C, you should dip the sensor bulb into cold water, after having detached it from the related supports.

1. Connect a pressure gauge to outlet pressure (T) placed on the valve (see Figura 10).
2. Make sure that the value is 15.2 mbar.
3. Regulate the pressure to the burner by means of the screw for hi pressure adjustment (P) in clockwise sense to increase it and in counterclockwise to decrease it, and set the pressure at the requested value.

Proceed now to the pressure regulation at the reduced heating power as indicated here below:

4. With the pressure gauge connected and the unit operating, slowly turn the knob to the position as close as possible to shutdown position.
5. Make sure that the value is 6.8 mbar.
6. Regulate the pressure to the burner by means of the screw for LO pressure adjustment (Q) in counterclockwise sense to increase it and in clockwise sense to decrease it, and set the pressure at the requested value.
7. Check the pressure value, after removal of the screwdriver from the pressure adjustment screw.

### 2.2.2 L.P.G. GAS FEEDING

In order to adjust the gas valve, after having removed the casing and checked if the unit is prepared to operate with L.P.G. (if you need to operate with natural gas see previous paragraph; if you need to change the nozzle please see paragraph 2.3 & 2.4), please proceed like it follows:

1. Excluding the pressure regulator by tightening completely the screw (P).
2. The maximum operating pressure depends only on the supply pressure, which must be calibrated to 30 mbar (G30) through a pressure reducer before the unit.
3. Tighten in clockwise sense the screw for low pressure adjustment (Q).

## 2.3 HOW TO REPLACE THE BURNER INJECTOR

With OFF unit (not operating):

1. Disconnect the gas pipe from the burner
2. Unscrew the nozzle support.
3. Change the nozzle.
4. Retighten the assemble nozzle support and the burner nozzle.

## 2.4 GAS CONVERSION

### WARNING

The gas replacement operation must be performed by **qualified personnel**.

If the type of gas indicated on the label does not match that to be used, the appliance must be converted and adapted to the desired type of gas. Do to this operation, please proceed as follows:

### CONVERSION FROM NATURAL GAS TO LPG

After having replaced the burner injector with the L.P.G one (see previous paragraph "How to replace the burner injector"), proceed as follows:

1. Excluding the pressure regulator by tightening completely the screw (P).
2. The maximum operating pressure depends only on the supply pressure, which must be calibrated to 30 mbar (G30) through a pressure reducer before the unit.
3. Tighten in clockwise sense the screw for low pressure adjustment (Q).
4. Remove the sticker "METANO/NATURAL GAS" and replace with the sticker "L.P.G. / G.P.L."

### CONVERSION FROM LPG TO NATURAL GAS

After having replaced the burner injector with the natural gas one (see previous paragraph "How to replace the burner injector"), proceed as indicated in the paragraph "2.2.1. Regulation for maximum and reduced heat output", remove the sticker "L.P.G." and replace it with the sticker "Natural gas".

### 3 USE AND OPERATION OF THE UNITS

#### WARNING: FIRST UNIT START UP

The first start up of the unit must be carried out by qualified service engineer.

Before turning the unit on the qualified service engineer must check:

- That the values shown on the unit plate are exactly the same as the ones of the gas supply.
- That the unit adjustment actually responds to the unit operating capacity.
- The proper working of air inlet and fume exhaust flue system (in accordance with the existing regulations)

#### NOTE

Pay attention to the front grid (see following Figura 11) because it is particularly warm.

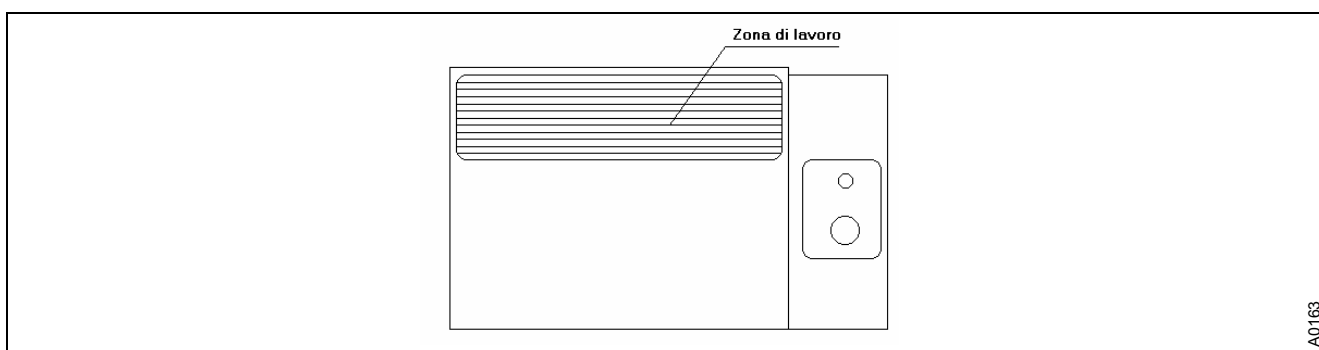



Figura 11

#### 3.1 STARTING OF THE UNIT

1. Open the main gas supply (this must be done only once, in the beginning of the heating season).
2. Turn the gas control knob to position  (see Figura 12).
3. Push the same control knob all the way and hold in.
4. While holding the knob, press the piezo igniter to the end of the stroke until the flame appears in the flame view.
5. Wait for some seconds and then release the knob. The pilot flame should remain lit.

#### NOTE

The first start up operation of the units can be somehow difficult due to the presence of air in the supply pipes.

#### 3.2 OPERATION OF THE UNIT

Once the unit is started, turn the thermostat knob counterclockwise to increase the room temperature and in the opposite way to decrease it.

Put the knob in position 7 in order to have the max desired ambient temperature; knob in position 1 corresponds to the minimum desired ambient temperature.

#### NOTE

The values shown on the thermostat knob are typical. The temperature value is dependent upon the environment where the unit has been installed. An actual relationship between the thermostat value and the room temperature can be achieved by measuring the temperature of the room at a certain thermostatic regulating value.

## 4 MAINTENANCE AND SERVICE

After choosing your desired temperature, the TS 2000 operation becomes fully automatic and the set value is kept constant.

### WARNING

In case of accidental or intentional shutdown of the unit, wait 3 minutes before restarting the unit, so that unburned gas can go out of the combustion chamber.

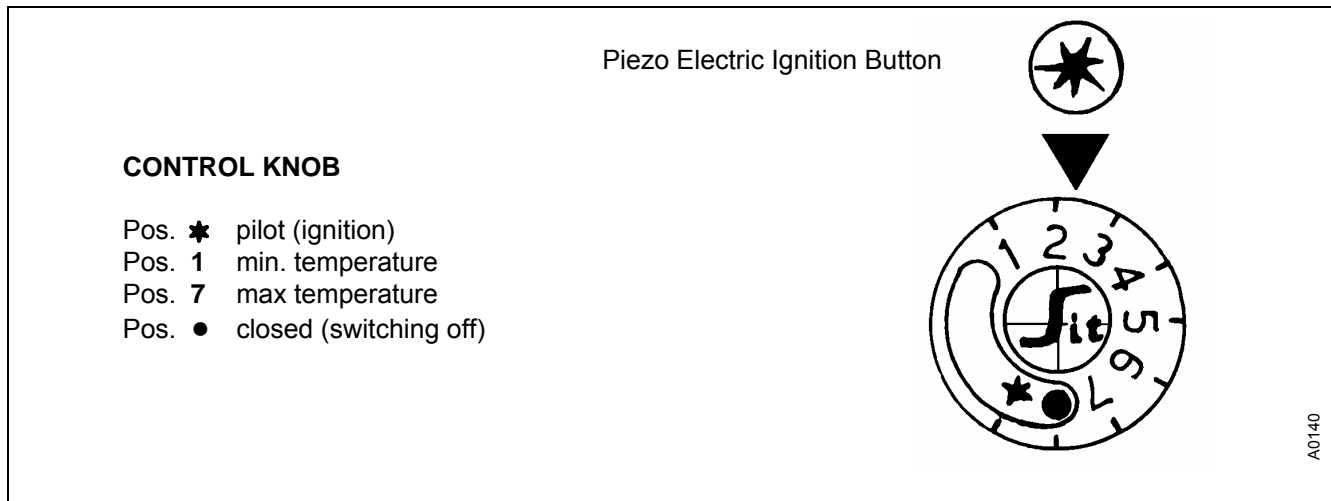


Figura 12

### 4.1 TURNING OFF OF THE UNIT

1. In order to turn off the unit, turn the thermostat knob till the position ★. In this way, only the pilot flame will be lit.
2. In case of long inactivity of the unit, turn the knob to the position ●. x. Then close the gas inlet valve.

### WARNING

All maintenance and service operation must be performed by **qualified personnel**.

### 4.2 IMPROPER OPERATING PROCEDURES

Before making any direct control on the unit, make sure that:

- a) There is a full gas supply.
- b) The feeding pressure to the burner is within the tolerances given.

Only after all the above checks have been successfully carried out, should a specific trouble shooting procedure commence.

### 4.3 TYPE OF FAILURES AND SERVICING

**CASE 1:** *Absence of ignition spark.*

- a) Check the connection of the ignition cable and the electrode.
- b) Check the correct operating of the piezo igniter and its contact with the unit surface.

**CASE 2: Pilot does not light.**

- a) there is air in the gas pipe: press and hold the control knob and continue pressing and releasing the piezo ignition button (with the control knob pressed down).
- b) Check the flame through the flame view that is located on the external casing.

**CASE 3: Pilot lights but the flame extinguishes.**

- a) Check the connections between thermocouple and the gas valve and assure that they are well done.
- b) Check that the sensor of the thermocouple is reached by the flame.

**CASE 4: The gas convector does not guarantee the desired comfort.**

- a) First check that the room dimensions are not too big for the performances of the unit (in that case, the comfort is not enough even if the unit is working at maximum power).
- b) After that, check that the temperature sensor (see image at page 9) is correctly positioned in its support.

## 4.4 MAINTAINANCE

The only maintenance activity required is a periodical and proper cleaning of the external panel (to be carried out when the unit is cold). Periodically clean from dust on heat exchanger and fan.

If you intend to use spray products, please remember that you should not use them on warm bodies or heat sources in general.

An annual maintenance service carried out by qualified service engineer is highly recommended. It will assure safety, saving and reliability.

## 4.5 SERVICING

For all installation, start up and servicing operation contact qualified service engineer.

Before calling for servicing, make sure that the manual as well as all the unit technical data is available namely:

- product serial number
- unit model
- type of gas
- brief description of the installation

**Table 1**  
**COMMISSION REGULATION (EU) 2015/1188**  
**Information requirements for gaseous/liquid fuel local space heaters**

Model identifier(s):				TS 2000					
Indirect heating functionality: [yes/no]				no					
Direct heat output: [kW]				1,69					
Indirect heat output: [kW]									
<b>Fuel</b>				Space heating emissions (*)					
				NO <sub>x</sub>					
Select fuel type [gaseous/liquid]				gaseous		162		[mg/kWh <sub>input</sub> ] (GCV)	
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit		
<b>Heat output</b>				<b>Useful efficiency (NCV)</b>					
Nominal heat output	P <sub>nom</sub>	1,69	kW	Useful efficiency at nominal heat output	η <sub>th, nom</sub>	86,0	%		
Minimum heat output (indicative)	P <sub>min</sub>	1,20	kW	Useful efficiency at minimum heat output (indicative)	η <sub>th, min</sub>	86,0	%		
<b>Auxiliary electricity consumption</b>				<b>Type of heat output/room temperature control (select one)</b>					
At nominal heat output	e <sub>l, max</sub>	0,000	kW	single stage heat output, no room temperature control			no		
At minimum heat output	e <sub>l, min</sub>	0,000	kW	two or more manual stages, no room temperature control			no		
In standby mode	e <sub>l, SB</sub>	0,000	kW	with mechanic thermostat room temperature control			yes		
				with electronic room temperature control			no		
				with electronic room temperature control plus day timer			no		
				with electronic room temperature control plus week timer			no		
				<b>Other control options (multiple selections possible)</b>					
				room temperature control, with presence detection			no		
				room temperature control, with open window detection			no		
				with distance control option			no		
				with adaptive start control			no		
				with working time limitation			no		
				with black bulb sensor			no		
<b>Permanent pilot flame power requirement</b>									
Pilot flame power requirement (if applicable)	P <sub>pilot</sub>	0,200	kW						
Contact details	Robur SPA Via Parigi 4/6 I-24040 Zingonia (BG)								

(\*) NO<sub>x</sub> = nitrogen oxides



With the aim of continuously improving the quality of our products, Robur reserves the right to vary the above instructions and drawings without any prior notice.

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