
BALANCED FLUE GAS HEATERS

Installation, Maintenance and User Manual



SERIES Supercroma



 **ROBUR®**
COSCIENZA ECOLOGICA

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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.

Qualified service engineers are those having specific technical experience in the installation of heating units for residential applications, designated by a local authority.

This unit 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**.

Any repair to the products must be carried out only by the manufacturer's authorized service centers 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 carry 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 STRATING THE UNIT

Qualified personnel must check:

- that 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 and disconnect all electric supply.

WARNING: 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 Supercromo gas heater, is an independent heating product with an isolated combustion chamber and forced draught.

It can operate either with natural gas and liquid propane gas (category II_{2H3+}, type C₁₃, regulation EN 1266).

The combustion air intake and the exhaust of fumes are external to the system through two coaxial pipes and are drawn by the operation of an electric fan placed in the combustion circuit. Therefore, the unit will have to be installed on an external perimetral wall or close to it depending on the maximum extension of the coaxial pipe system (see section 2 "Installation").

The operation principle of the Supercromo range 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. Particularly models 3001, 3002, 4002, 5001, 5002, 8001 and 8002 are defined as "ventilated" since the movement of ambient air is due to the presence of a fan placed in the lower section of the unit. Except model 4001 which is defined as "static" since the convective motion is natural.

This is the reason why, for the correct operation of the unit, the grilles need to be free from clothes, newspapers or any other object that may obstruct the flow of air.

Additionally, make sure that curtains, chairs and any other pieces of furniture are always placed at a minimum distance of 300 mm from the unit. The operation of the unit is very simple and completely automatic thanks to the thermostatic regulation and the programmable timer (standard equipment on models 3002, 4002, 5002 and 8002). The end user only needs to start the unit, choose the desired temperature (to be selected on the thermostat) and, for models 3002, 4002, 5002 and 8002, set the operation period of the unit on the programmable timer.

The isolated combustion chamber is a best safety feature for the premises where the unit is to be installed as **there is no risk of leakage of the combustion products.**

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

Models 3002, 4002, 5002 and 8002 grant a higher comfort thanks to an air humidifier placed on the left hand side of the unit.

Additionally models 5002 and 8002 can also operate in summer time (the fan can work while the burner is off). This allows a pleasant summer ventilation (movement of room air).

1.2 TECHNICAL DATA

DESCRIPTION	U.M.	3001	3002	4001	4002
TYPE OF EQUIPMENT		C ₁₃			
UNIT CATEGORY		II _{2H3+}			
NOMINAL HEAT INPUT ¹	kW kcal/h	2,58 2218	2,58 2218	3,25 2795	3,62 3116
NOMINAL HEAT OUTPUT	kW kcal/h	2,32 2000	2,32 2000	2,92 2511	3,26 2803
NOMINAL NO _x VALUES	mg/kW	56,4	56,4	75,8	97
MAXIMUM COMSUMPTION ¹ NATURAL GAS	m ³ /h	0,273	0,273	0,344	0,383
L.P.G. G30	kg/h	0,203	0,203	0,256	0,285
L.P.G. G31	kg/h	0,199	0,199	0,251	0,280
EFFICIENCY (NET)	%	90%			
FEEDING PRESSURE WITH INJECTORS DIAMETERS					
MAX	mbar	25			
NOMINAL		20			
MIN		15			
FEEDING PRESSURE WITH L.P.G. (G30)					
MAX	mbar	35			
NOMINAL		30			
MIN		28			
FEEDING PRESSURE WITH L.P.G. (G31)					
MASSIMA	mbar	40			
NOMINALE		37			
MINIMA		30			
NOISE LEVEL (AT 3 METRES)	dB(A)	33	33	32	33
INJECTORS DIAMETERS NATURAL GAS	mm	see Table 5 - Table 6			
L.P.G.					
PRESSURE TO THE BURNER NATURAL GAS	mbar	10	10	10,5	10,5
MANIFOLD L.P.G. G30		28,8	28,8	28,7	28,8
L.P.G. G31		36,7	36,7	36,7	36,7
GAS CONNECTION (ISO 7/1)		Rp 3/8			
HOLE DIAMETER FOR INLET/OUTLET PIPE	mm	50			
POWER SUPPLY		230-240 V 50Hz single phase			
WATTAGE	W	45	45	20	45
MAX LENGTH COAXIAL PIPES	m	1			
WEIGHT	kg	17	17	24	25

Table 1 – TECHNICAL DATA 3001, 3002, 4001 AND 4002

PERFORMANCE DATA IN FULL ACCORDANCE WITH EUROPEAN STANDARDS EN 1266

- 1 THERMAL OUTPUT AND GAS CONSUMPTION DATA ARE MISURED WITH FOLLOWING CONDITION BASING TO THE STANDARD prEN 437, :
- GAS NATURAL: P.C.I. 34.02 MJ/m³ A 15°C 1013.25 mbar
 - BUTAN GAS (G30): P.C.I. 45.65 MJ/kg
 - PROPAN GAS (G31): P.C.I. 46.34 MJ/kg

TECHNICAL DATA

DESCRIPTION	U.M.	5001	5002	8001	8002
TYPE OF EQUIPMENT		C ₁₃			
UNIT CATEGORY		II _{2H3+}			
NOMINAL HEAT INPUT MAX ¹	kW kcal/h	4,65 4000	5,23 4500	7,70 6590	7,70 6590
NOMINAL HEAT OUTPUT MAX	kW kcal/h	4,19 3600	4,71 4050	6,98 6000	6,98 6000
NOMINAL HEAT INPUT REDUCED ¹	kW kcal/h	--- ---	3,60 3096	--- ---	5,36 4610
NOMINAL HEAT OUTPUT REDUCED	kW kcal/h	--- ---	3,18 2740	--- ---	4,77 4100
NOMINAL NO _x VALUES	mg/kW	154	158	95,7	95,7
MAX/MIN CONSUMPTION ¹	NATURAL GAS L.P.G. G30 L.P.G. G31	m ³ /h kg/h kg/h	0,492 0,367 0,360	0,553/0,381 0,412/0,284 0,405/0,278	0,811 0,604 0,593
EFFICIENCY (NET)	%	90%			
FEEDING PRESSURE WITH NATURAL GAS MAX NOMINAL MIN	mbar	25 20 15			
FEEDING PRESSURE WITH L.P.G. (G30) MAX NOMINAL MIN	mbar	35 30 28			
FEEDING PRESSURE WITH L.P.G. (G30) MAX NOMINAL MIN	mbar	40 37 30			
NOISE LEVEL (AT 3 METRES) MAX MIN	dB(A)	35 ---	39 35	41 ---	41 37
INJECTORS DIAMETERS NATURAL GAS L.P.G.	mm	see Table 5 - Table 6			
PRESSURE TO THE BURNER MAX CAPACITY NATURAL GAS L.P.G. G30 L.P.G. G31	mbar	10 29 37	9 28 35,5	7,1 28,5 36,5	7,1 28,5 36,5
PRESSURE TO THE BURNER REDUCED CAPACITY NATURAL GAS L.P.G. G30 L.P.G. G31	mbar	--- --- ---	5 14,7 19,7	--- --- ---	4,0 14 18
GAS CONNECTION (ISO 7/1)		Rp 3/8	Rp 1/2	Rp 3/8	Rp 1/2
HOLE DIAMETER FOR INLET/OUTLET PIPE	mm	50			
POWER SUPPLY		230-240 V 50Hz single phase			
WATTAGE	W	65	86	140	140
MAX LENGTH COAXIAL PIPES	m	1		0,8	
WEIGHT	kg	26	26	42	42

Table 2 – TECHNICAL DATA 5001, 5002, 8001 AND 8002

¹ SEE NOTE 1 PAGE 4

2 INSTALLATION

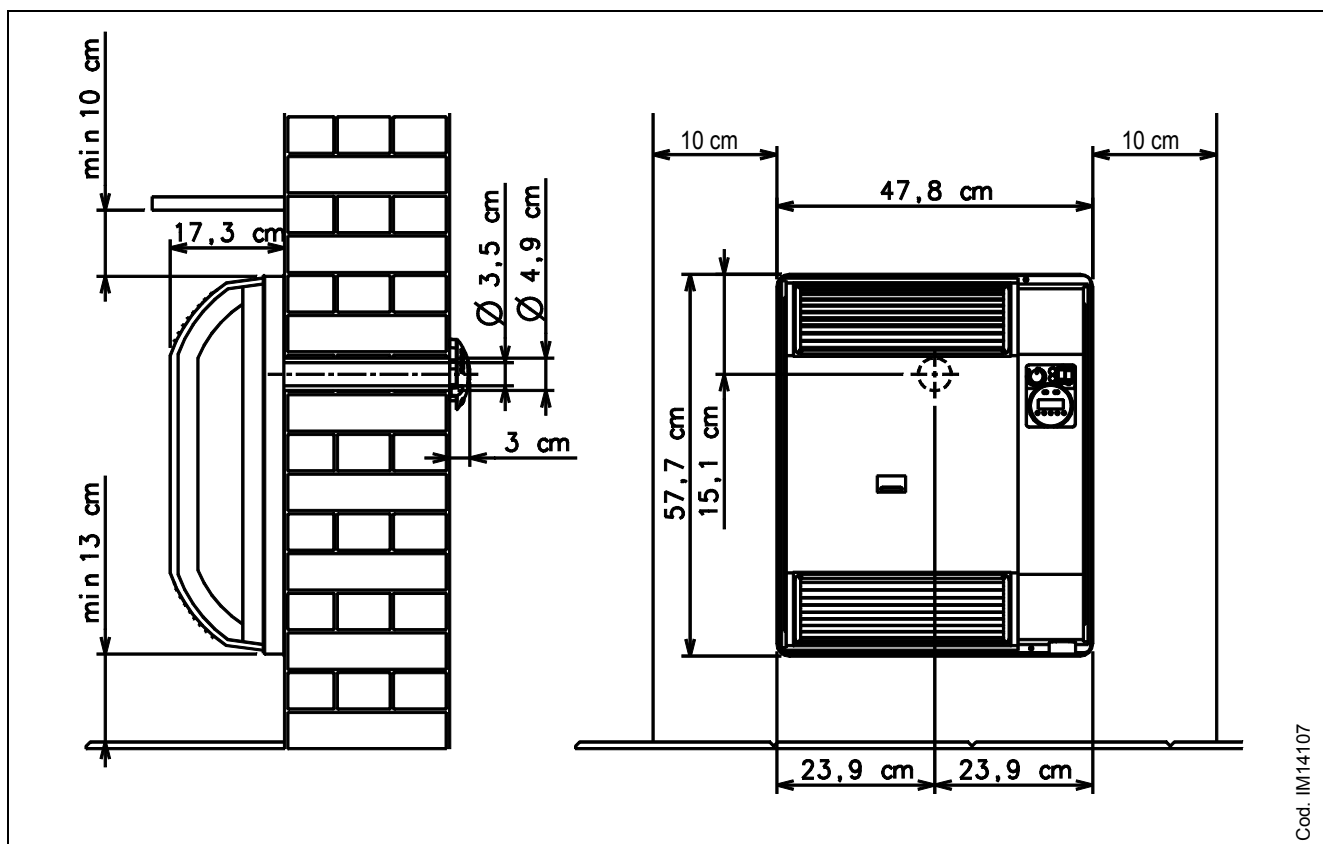


Figure 1 – EXTERNAL DIMENSIONS AND INSTALLATION LIMITS FOR MODELS 3001 AND 3002

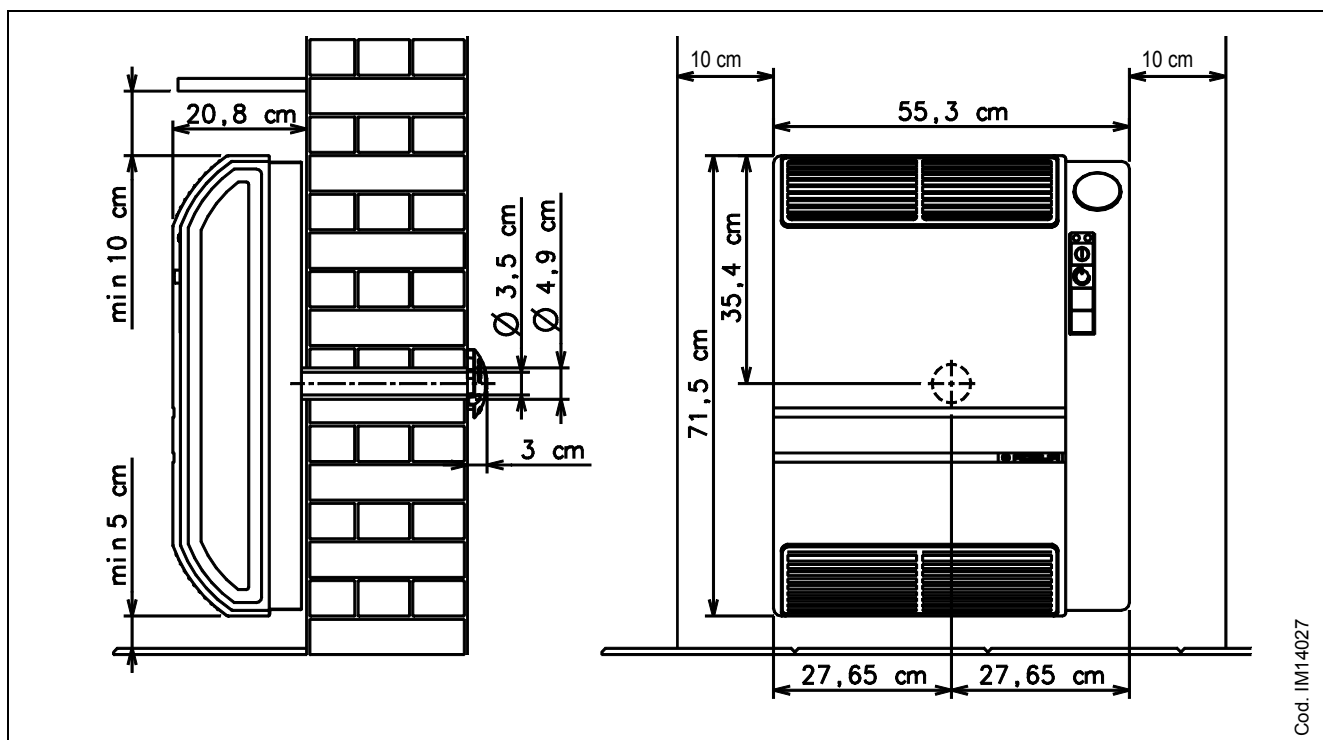


Figure 2 – EXTERNAL DIMENSIONS AND INSTALLATION LIMITS FOR MODELS 4001-5001 AND 4002-5002

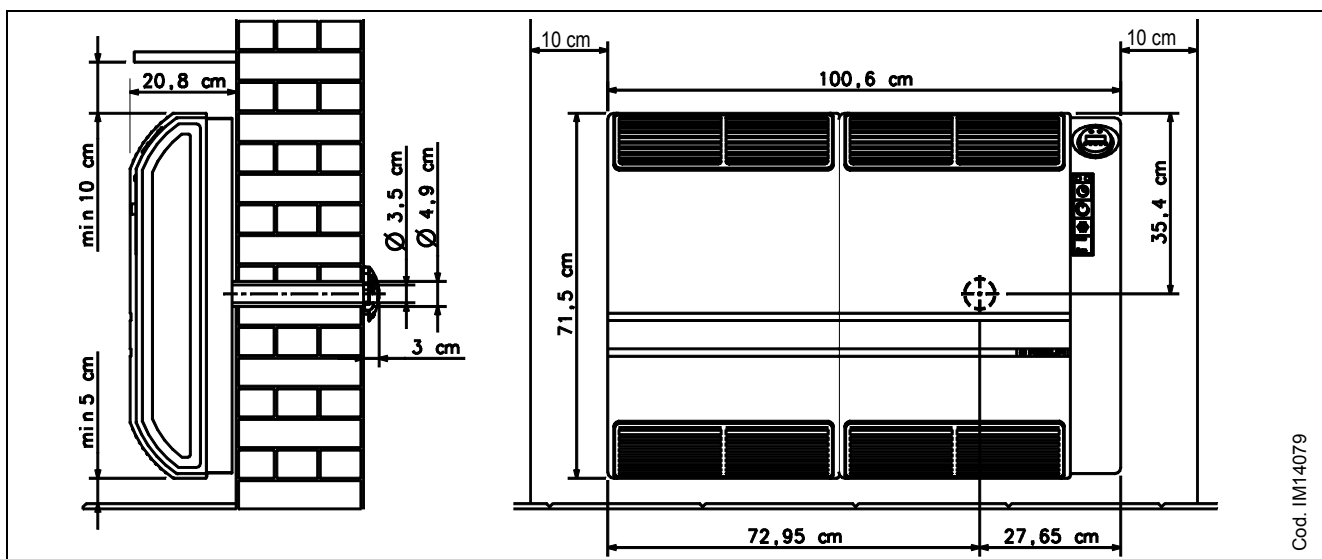


Figure 3 – EXTERNAL DIMENSIONS AND INSTALLATION LIMITS FOR MODELS 8001 AND 8002

Installation of this appliance must be in accordance with international and national regulations in force and carried out **by qualified engineers** following the instructions of the manufacturer.

The Supercromo fan convectors can be installed with coaxial flue with outlet on the installation wall (see Figure 4) or with separate flue (see Figure 5).

In case of separate flue installation, the use of approved pipes and components is required. Also when the installation is being made a special attention to the pressure loss of each component must be carefully evaluated since the total loss must be less than the maximum pressure loss allowed for the equipment (see Table 3).

DESCRIPTION	U.M.	3001 3002	4001	4002	5001	5002	8001 8002
PRESSURE LOSS ALLOWED FOR PIPE SYSTEM	Pa	25	20	30	28	35	44

Table 3 – MAX PRESSURE LOSS ALLOWED FOR PIPE SYSTEM

WARNING

In case of separate flue installation, if the flue is longer than 1,5 m use a on the pipe a flue for steam available as accessories (see accessories list) . To reduce the steam, it is suggested to insulate the pipe with height temperature resistant material.

Below is a table detailing the pressure loss values of bends and pipes with an internal diameter of 33 mm.

DESCRIPTION	U.M.	3001 3002	4001	4002	5001 5002	8001 8002
AIR INTAKE PIPE INTERNAL DIAM 33 MM	Pa/m	0,6	2	2	3	6
HORIZONTAL FLUE EXHAUST PIPE INTERNAL DIAM 33 MM	Pa/m	1,5	2,2	2	3,6	11
VERTICAL FLOW EXHAUST PIPE INTERNAL DIAM 33 MM	Pa/m	0,2	0,25	0,7	2	6
BEND FOR AIR INTAKE PIPE 90°	Pa	0,6	2	2	3	6
BEND FOR FLUE EXHAUST PIPE 90°	Pa	1	1,5	1,8	3,6	9

Table 4 – PRESSURE LOSS OF PIPES WITH INTERNAL DIAMETER 33 MM

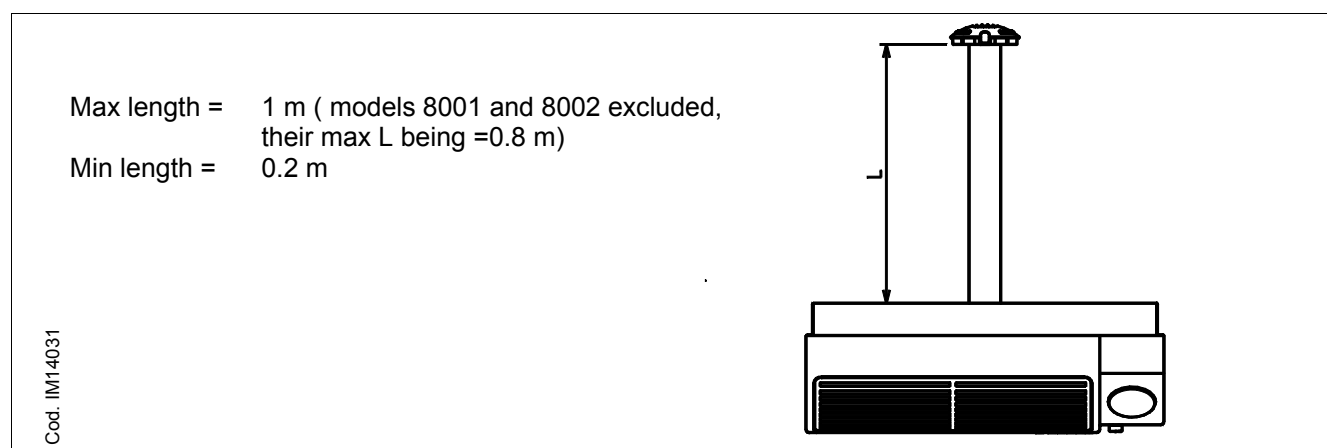


Figure 4 - INSTALLATION WITH COAXIAL PIPES

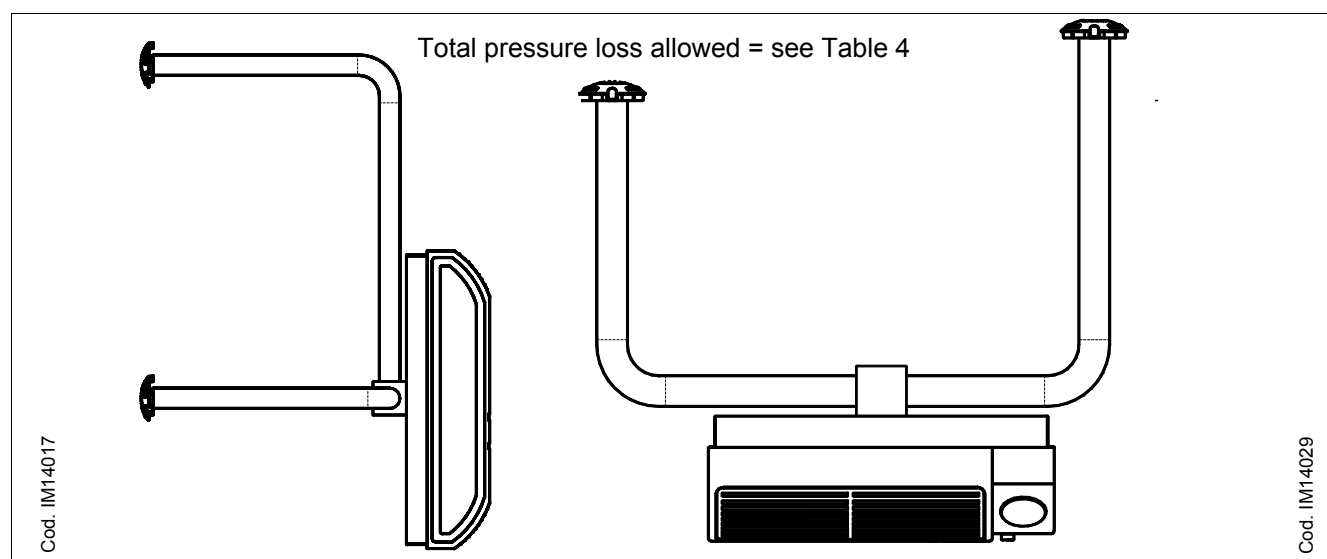


Figure 5 - INSTALLATIONS WITH SEPARATE PIPES

Furthermore, the following conditions need to be checked:

1. The unit has to be installed on a perimetral wall taking into account the maximum distances shown in Figure 1 (for 3001 and 3002 models) in Figure 2 (for 4001, 4002, 5001 and 5002 models) and in Figure 3 (for 8001 and 8002 models). This is in order to have the necessary access space should it be required. The minimum suggested bottom line from the floor is 50 mm or 130 mm depending on the model (see Figure 1, Figure 2 and Figure 3). The maximum installation distance should not exceed 350 mm. In case of installation over this distance the distribution of heat in the room will not be uniform.
2. Keep the sides of the unit clear and free from any obstruction to allow the removal and repositioning of the external casing (10 cm).

3. In case a shelf is to be installed above the unit, a minimum distance of 100 mm from the unit is to be needed. No further covering panels can be placed around the unit.
4. Make sure there is an adequate gas supply through a proper gas pipe network.
5. Make sure there is an adequate electric power supply (230 - 240 V 50 Hz).

2.1 INSTALLATION PROCEDURES

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.

Per l'installazione, procedere come segue:

1. Unpack the unit from its protection wrapping, slip off the inlet and outlet flues first. **DO NOT 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. Drill a hole (diameter 50 mm) to locate the main pipe as well as "A" holes to fix the support bracket (see Figure 7, Figure 8 and Figure 9). Drill 6 mm holes for the insertion of the support frame.
3. Adjust the inlet and outlet flue length depending on the actual thickness of the installation wall, cutting the excess parts. To precisely determine the exact length see Figure 6.

WARNING

Pipe diameter 49 mm: do not cut the side with an edged end that will be necessary to fix the pipe. Pipe diameter 35 mm: do not cut the side with a skirted end that will be necessary to connect the pipe to the unit.

4. Remove the template from the wall.

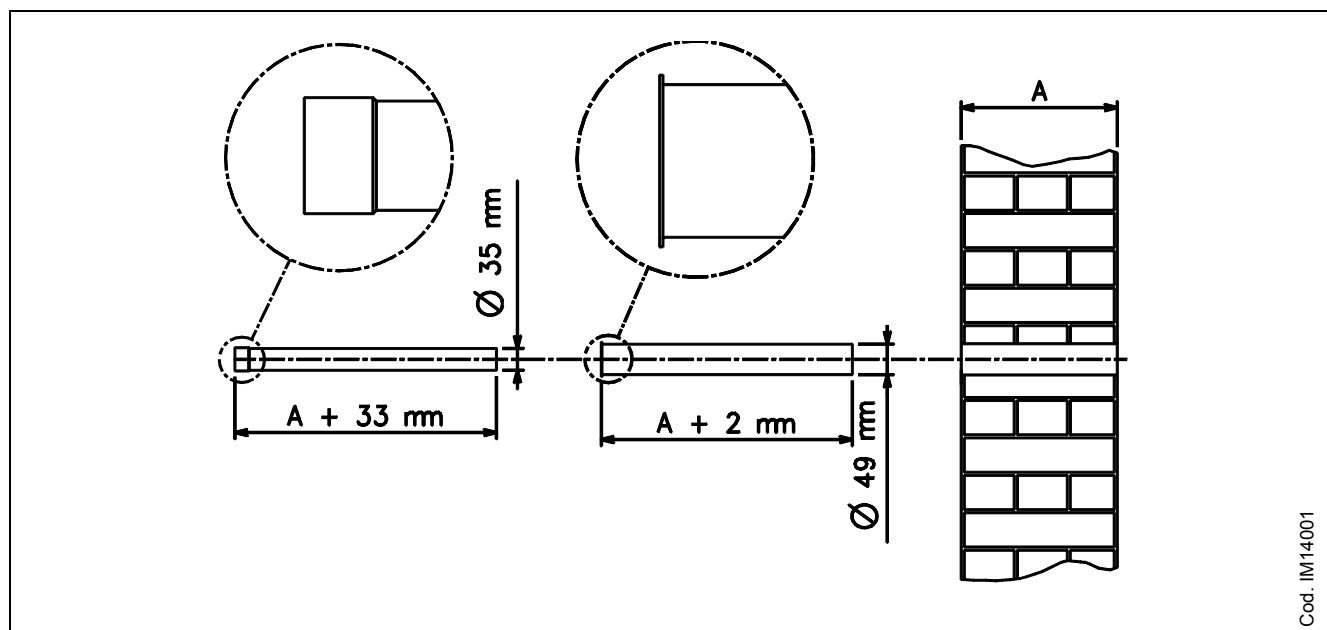


Figure 6 – PIPES CUTTING

Cod. IM14001

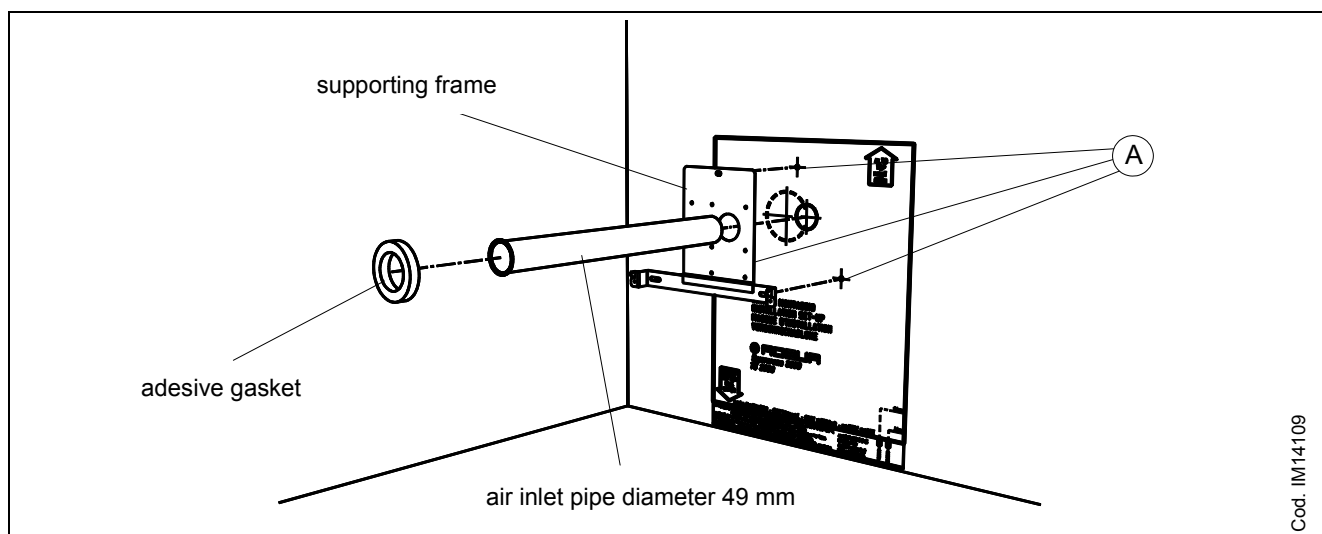


Figure 7 – POSITIONING OF SUPPORTING FRAME AND DRILLING PROCEDURE FOR 3001 AND 3002 MODELS

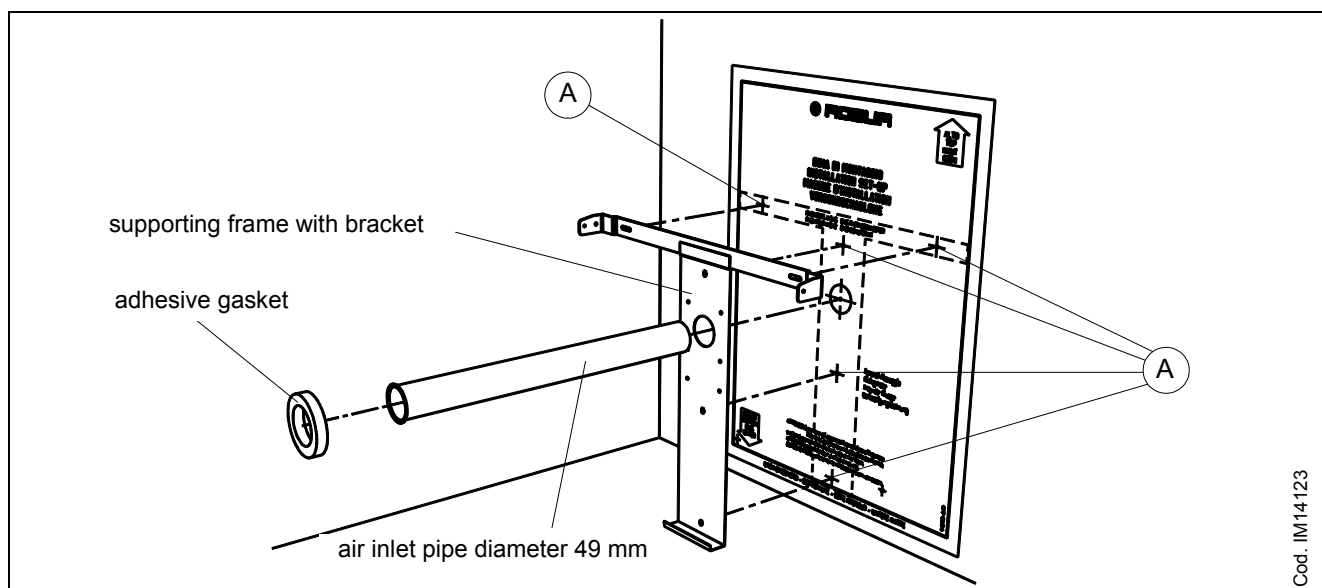


Figure 8 – POSITIONING OF SUPPORTING FRAME AND DRILLING PROCEDURE FOR 4001, 4002, 5001 AND 5002 MODELS

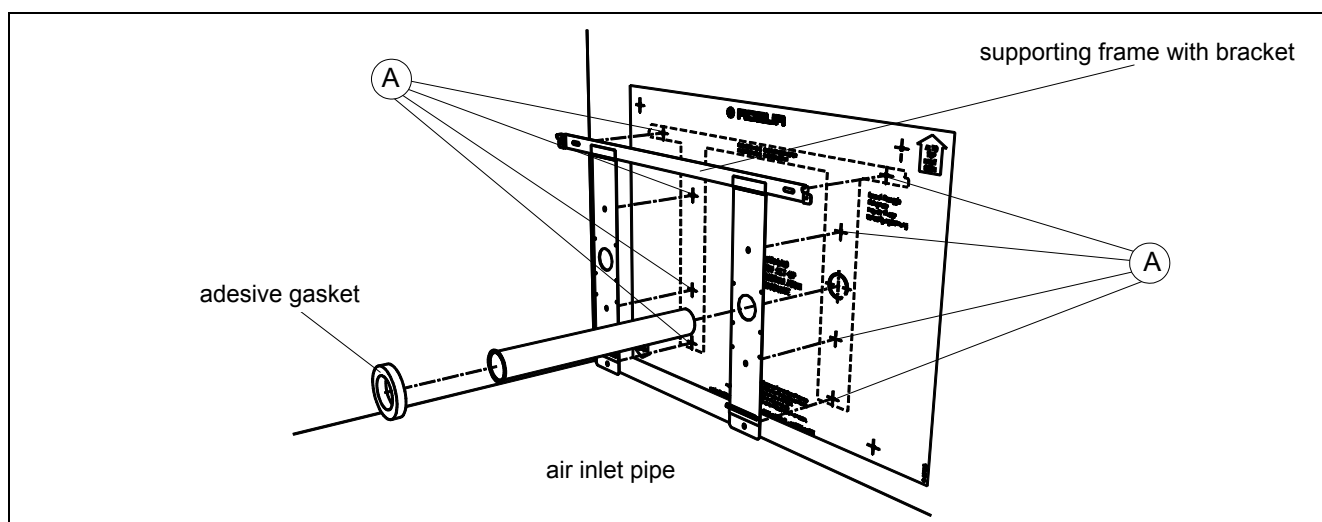


Figure 9 – POSITIONING OF SUPPORTING FRAME AND DRILLING PROCEDURE FOR 8001, 8002 MODELS

5. Locate the supporting bracket and the pipe diameter 49 mm, making sure that the pipe edge perfectly enters the matching hole in the supporting frame (see Figure 7, Figure 8 and Figure 9).
6. Fix the supporting bracket with the screws and place the adhesive seal around the air inlet pipe hole (see Figure 7, Figure 8 and Figure 9).

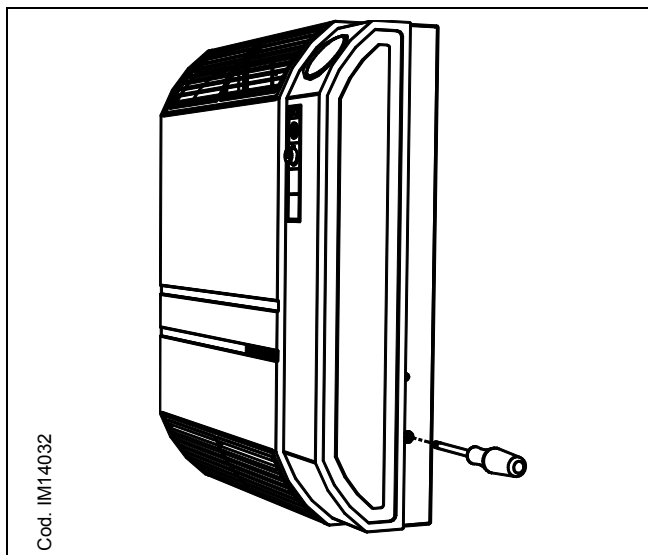


Figure 10 – FIXING SCREWS FOR EXTERNAL CASING 4001, 4002, 5001 AND 5002 MODELS

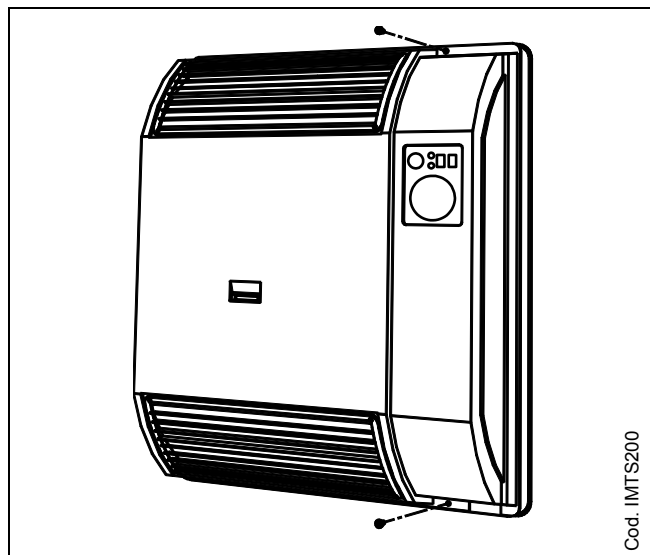


Figure 11 – FIXING SCREWS FOR EXTERNAL CASING- 3001 AND 3002 MODELS

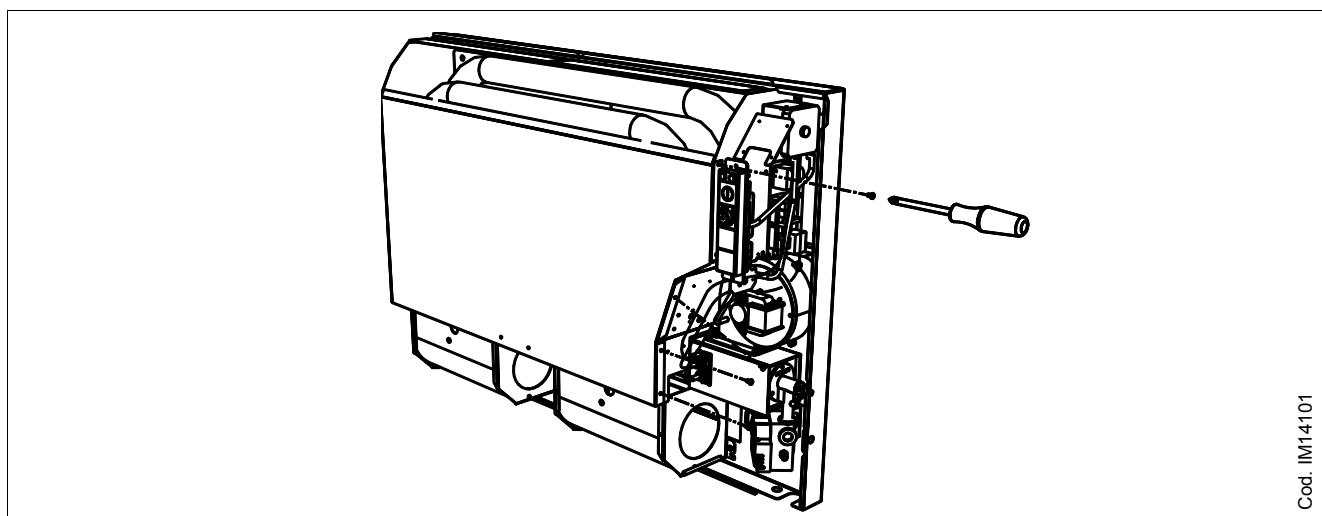


Figure 12 - FRONT SCREEN REMOVAL MODELL 8001 AND 8002

7. Remove the casing from the internal heating body frame unloosing the fixing screws (see Figure 10 and Figure 11) and disconnect the shell earthing cable.
8. For models, 8001 and 8002, remove the front screen unloosing the lateral fixing screws (see Figure 12).
9. Locate the adhesive spongy lining on the supporting frame placed behind the unit (see Figure 13). Try to do this operation in the proper way the first time and avoid repeated attempts which may result difficult.
10. Fix the fume exhaust flue end (diameter 35 mm) on the unit stub pipe (see Figure 14).
11. For 4001, 4002, 5001, 5002 models, install the unit to the wall leaning the upper edge of panel C (where the fan is located) to the supporting frame, as indicated in Figure 15). Fix the unit to the matching hooks A, with a light pressure against the wall (see Figure 16). Install the heating body of the unit to the supporting bracket with the two lateral screws (see reference B in Figure 16).
12. For 8001 and 8002 models, install the unit to the wall leaning the upper edge of panel C (where the fan is located) to the supporting frame, as indicated in Figure 17. Fix the unit to the matching hooks A, with a light

pressure against the wall (see Figure 17). Install the heating body of the unit to the supporting bracket with the two lateral screws (see reference B in Figure 17).

In case of special installations, also use the four screws located at the edges of the unit (see reference E - Figure 19).

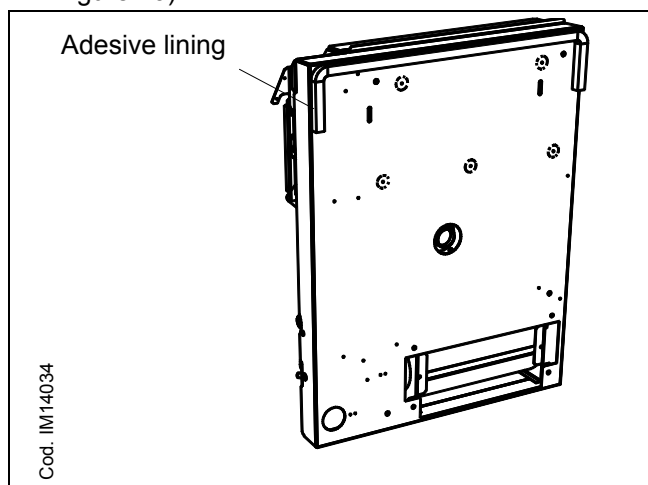


Figure 13 - POSITIONING OF ADHESIVE SPONGY LINING

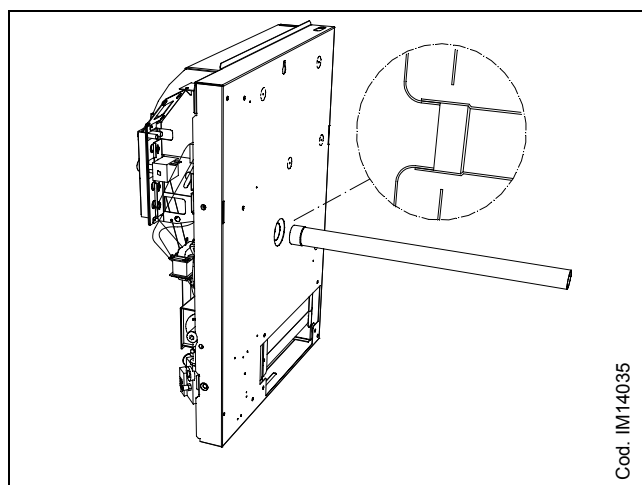


Figure 14 - POSITIONING OF FUME EXHAUST PIPE

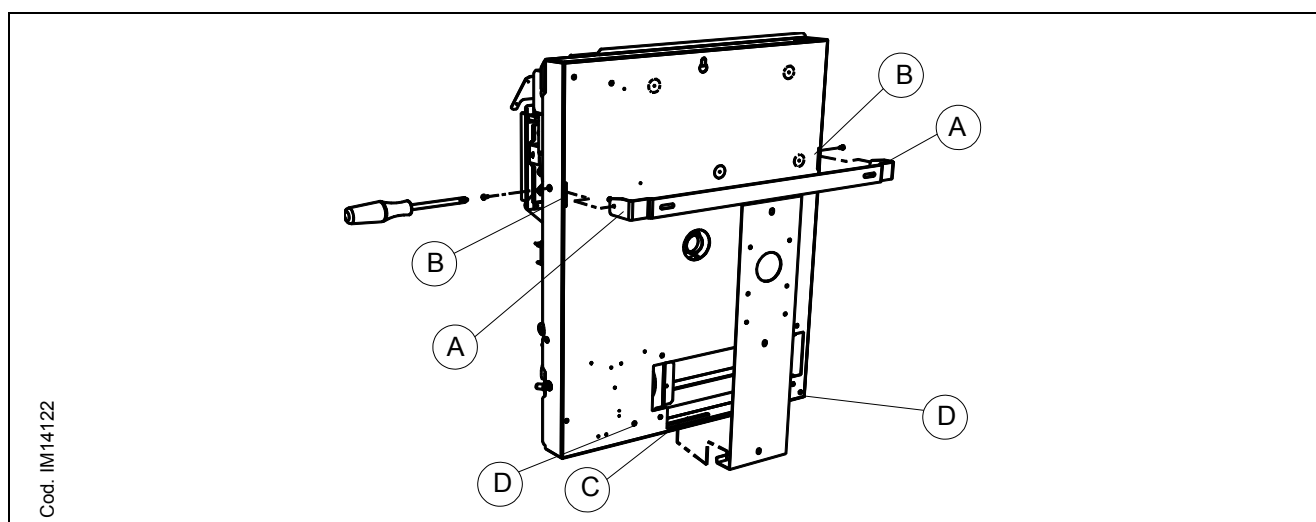


Figure 15 - FIXING OF THE UNIT TO THE SUPPORTING BRACKET 4001, 4002, 5001, 5002 MODELS

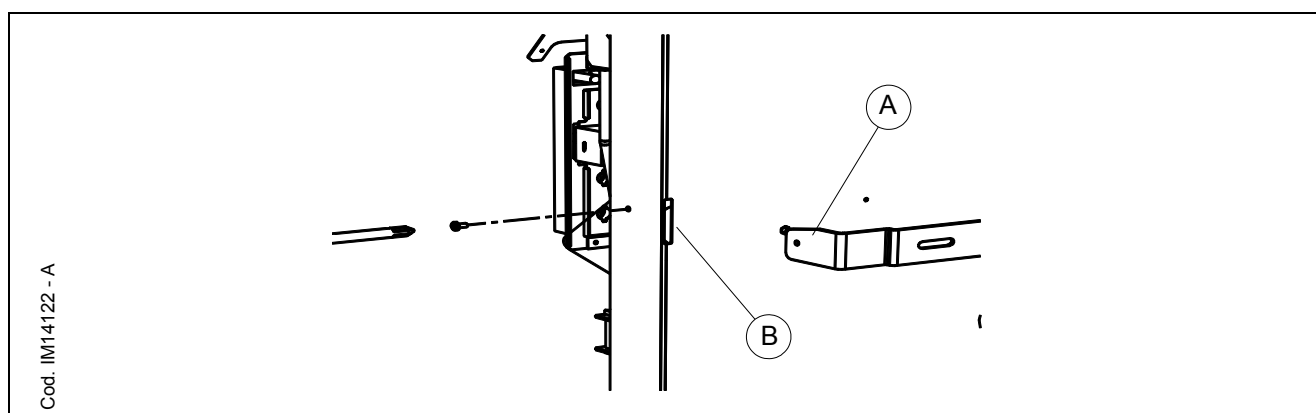


Figure 16 - MATCHING HOOKS 4001, 4002, 5001, 5002 MODELS

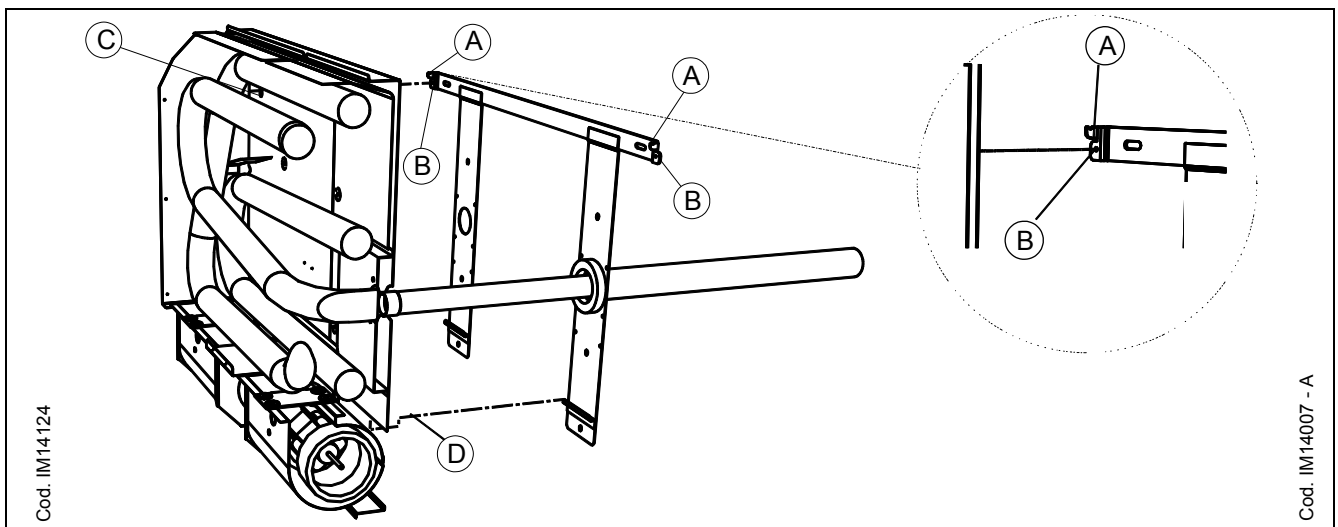


Figure 17 – FIXING OF THE UNIT TO THE SUPPORTING BRACKET 8001 AND 8002 MODELS

13. For models 3001 and 3002 fix the units to the support A (see details on Figure 17) with a light pressure on the wall. Fix the heating body to the supporting bracket with the side screw.
14. Arrange for unit connection to the electric supply system. Use a three-pole cable with fused 3 amp plug and make it go through the cable seat located in hole A and, for 3001, 3002, 4001, 4002, 5001 and 5002 models, also through the existing jumper F (see Figure 18, Figure 20 or Figure 22). Alternatively, an omnipolar switch with a minimum opening of contacts of 3 mm to be placed between the unit and the gas supply network can be used. An omnipolar isolating switch is a switch allowing both phase and neutral opening. This means that when it opens both contacts are opened.
The cable must be HO5 VVF 3x1 mm² type, with a maximum external diameter of 8,4 mm and it must be connected to the terminal board B (see Figure 18, Figure 20, Figure 21 or Figure 22). Mind the polarity on the terminal board (L=phase, N=neutral, \perp =earth).
If a tree pole plug is used, remember when re-plug it in, to mind correct polarity.

WARNING

The earth cable must be longer than voltage cables. In this way it will be the last cable to tear should the feeding cable accidentally be pulled. This will grant a proper and safe earthing.

NOTE

The electric safety of the unit can only be achieved if the unit is properly connected to a suitable earthed system in full accordance with safety CEI standards, Never use gas pipes to earth electric apparatus.

15. Connect the unit to the gas supply.
For 4001, 4002, 5001, 5002, 8001 and 8002 models the connection must be made with in copper or steel or stainless steel pipe and suitable fittings. Pipe must be connected to the gas valve through a threaded end.
16. For Models 5002 and 8002 connection to the gas valve the pipe has to go through hole (C) see Figure 18.
For Models 4001, 4002, 5001 and 8001 the pipe has to go through hole in the bottom right side of shell.
17. Model 3001 and 3002 are already equipped with a suitable pipe connection. For connection to the gas valve the pipe has to go through hole (C). See Figure 22.
18. For all models the connection pipe-valve must to be sealed in order to ensure resistance. The pipe gas valve connection must be sealed, with no risk of movement of piping system and the unit components. A gas cock has to be provided. It should be easy to see and to reach as prescribed by the gas equipment standards.
19. Reposition the front screen on 8001 and 8002 models (see Figure 12).
20. Connect the earth cable and relocate the casing on the unit frame (see Figure 10 or Figure 11).

21. When installation is complete proceed with the location of the aluminium terminal grid to the external wall. The terminal grid should perfectly match the pipe end. Draw the location of the three holes for the screw anchors (see Figure 23). The exhaust fumes grid must be installed vertically
22. Displace the terminal and drill all the necessary holes (diameter 6 mm for the screw anchors provided with the unit).
23. Relocate the terminal and fix it with the screws (see Figure 23).
24. Open gas supply. Insert the electrical plug or close the double pole isolating switch.
25. Carry out an operating test following the different procedures reported in section 3. **During this operation check with soapy water that there is no leakage at the gas supply connections.**

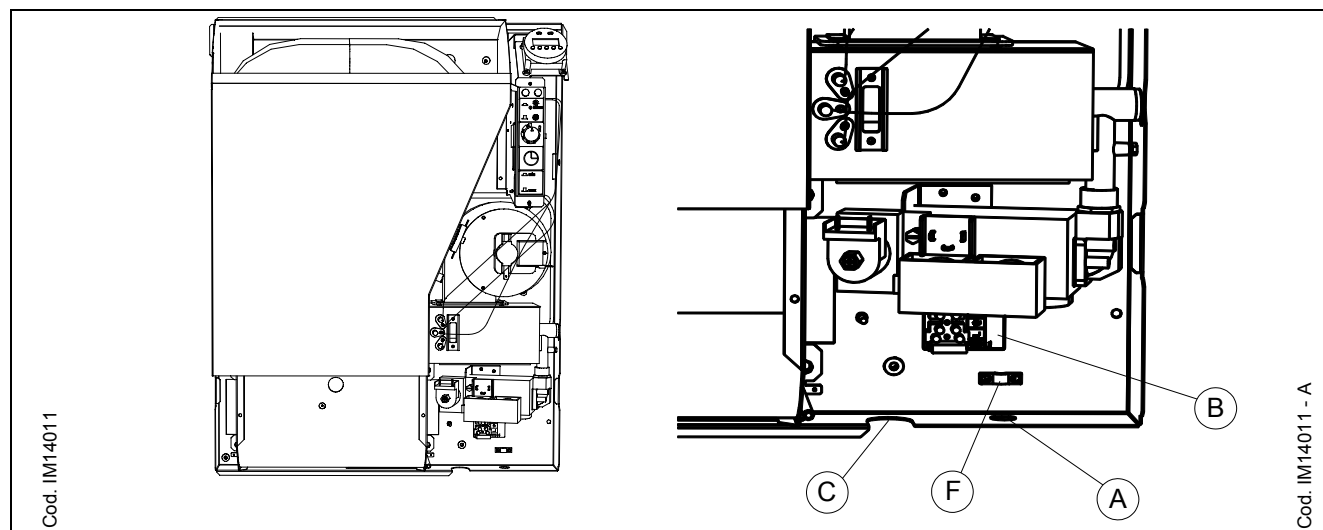


Figure 18 - SUPPLY LOCATIONS 5002 AND 8002 MODELS

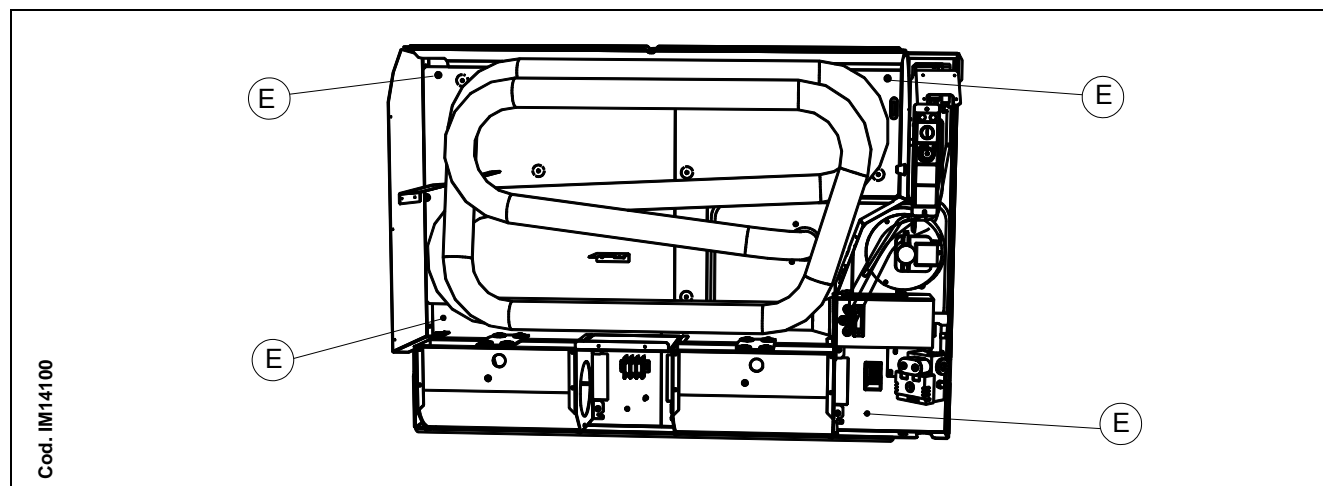


Figure 19 HOLE POSITION FOR FIXING 8001 AND 8002

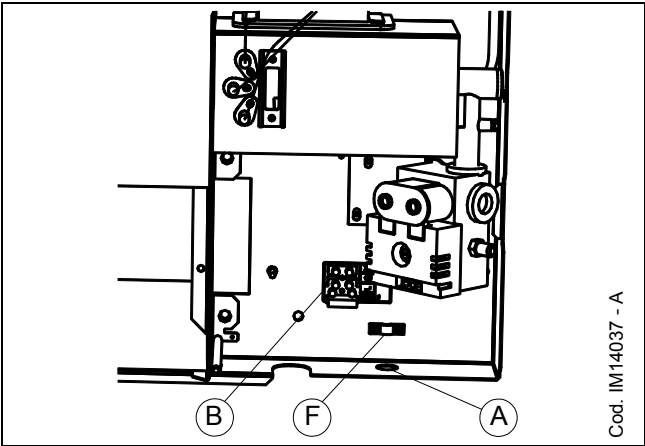


Figure 20– SUPPLY LOCATIONS 4001, 4002 AND 5001 MODELS

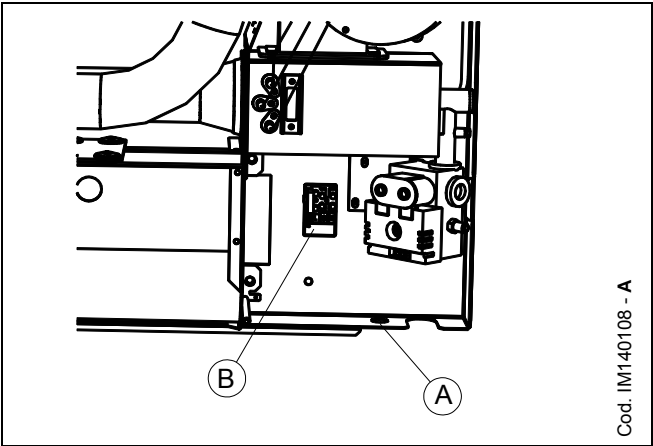


Figure 21 – SUPPLY LOCATIONS 8001 MODEL

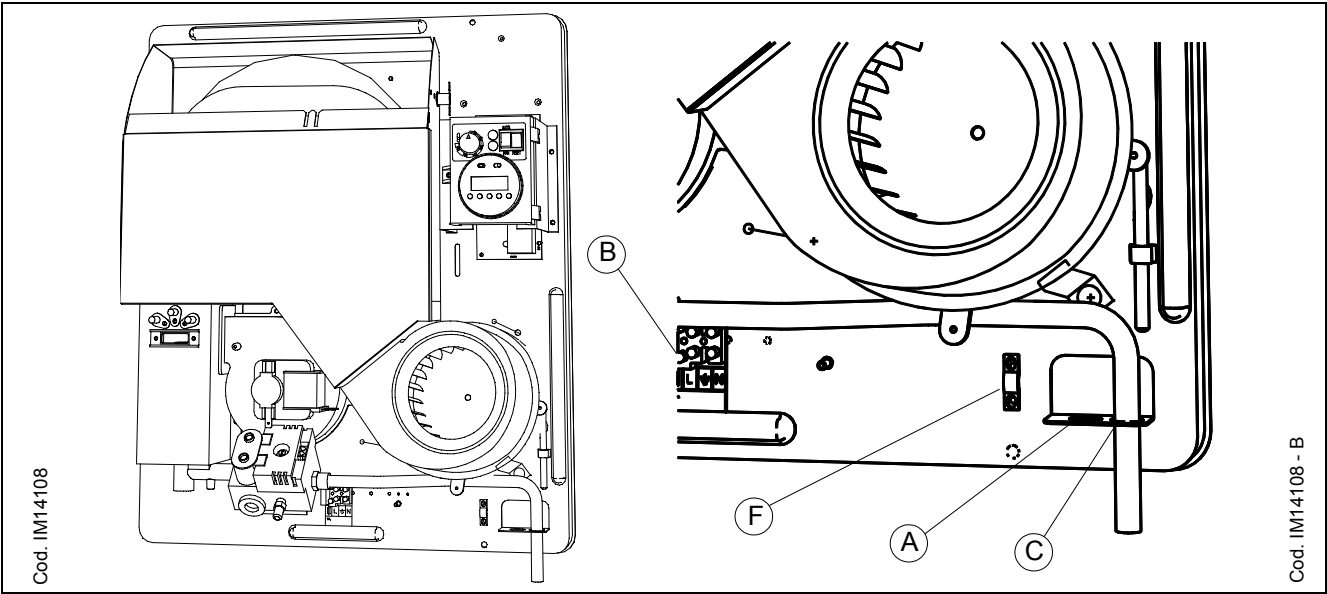


Figure 22 - SUPPLY LOCATIONS FOR 3001 AND 3002 MODELS

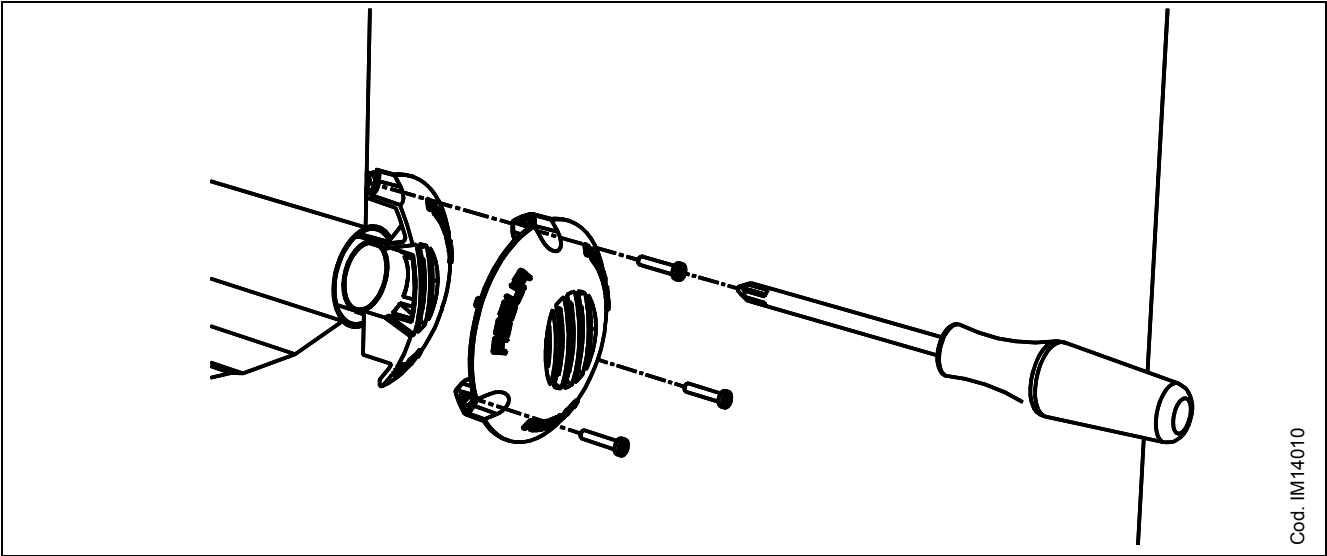


Figure 23 - TERMINAL GRID INSTALLATION

2.2 GAS PRESSURE ADJUSTMENT

WARNING

After accurate setting the valve pressure regulation screw must be safely sealed.

The gas feeding circuit is provided with a gas valve equipped with double knock and pressure regulator to control the gas inlet flow. All models are supplied to operate with natural gas and are equipped with an LPG conversion kit (see paragraph of conversion to another type of gas). During the final tests each unit is set to operate with natural gas. After installation it is necessary to check the pressure to the burner. All controls must be carried out with an operating unit free from its outer casing.

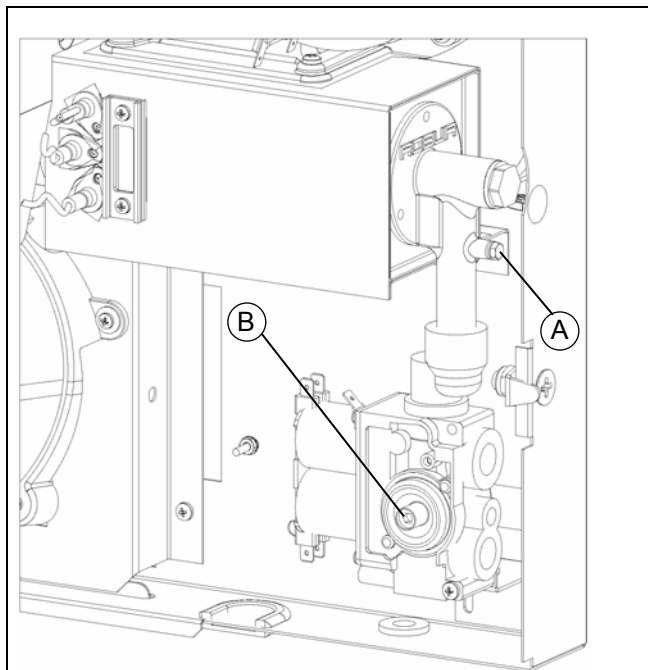


Figure 24 – VALVE MANIFOLD MODELS 4001, 4002, 5001 AND 8001

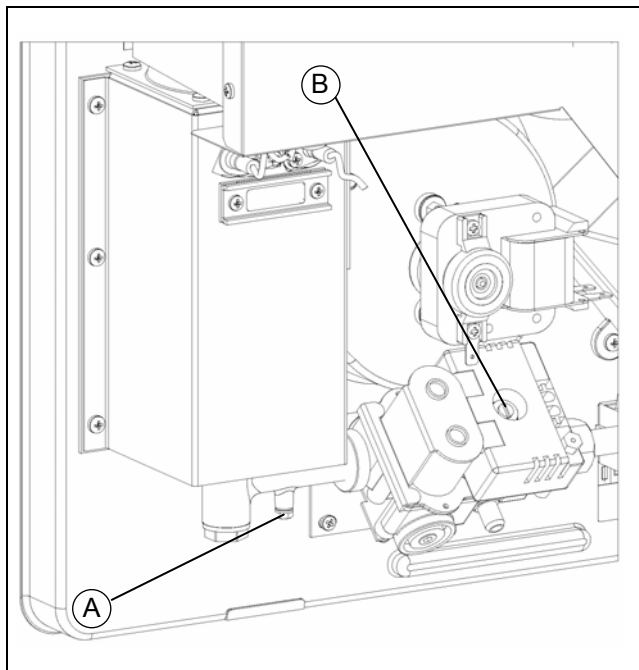


Figure 25 – VALVE MANIFOLD MODELS 3001 AND 3002

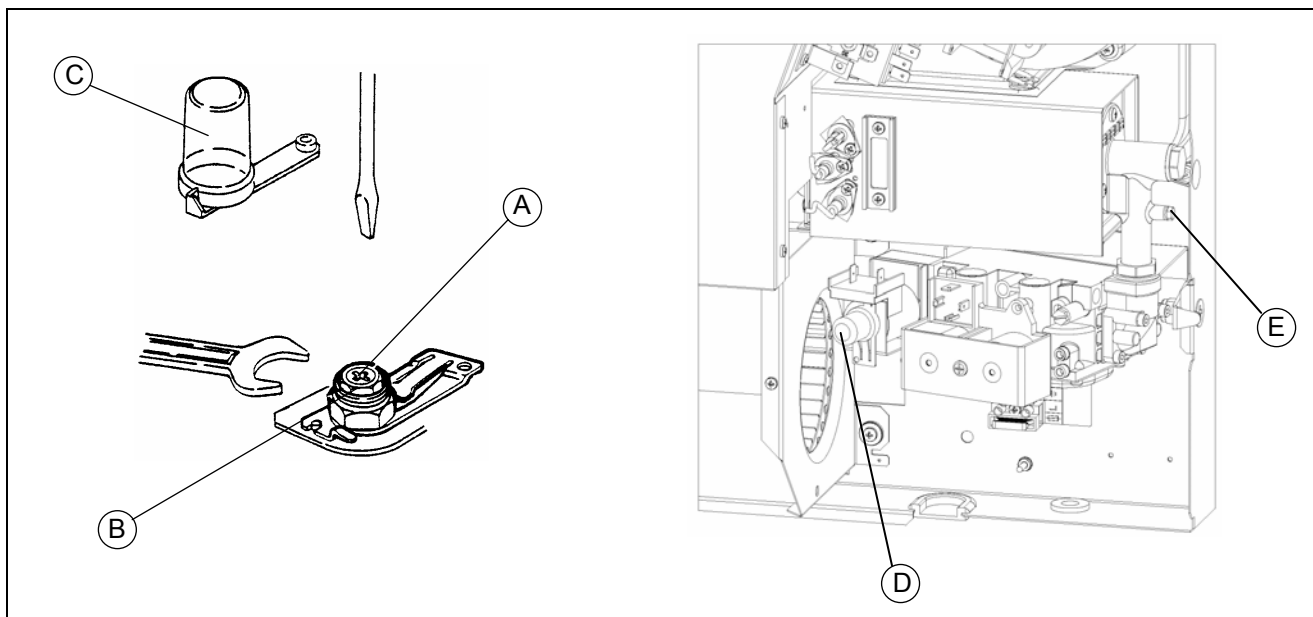


Figure 26 - VALVE MANIFOLD MODELS 5002 AND 8002

2.2.1 NATURAL GAS FEEDING

To regulate the unit, remove the casing (Figure 10 and Figure 11), check the fuel supply (natural gas) and proceed as follows:

PRESSURE REGULATION TO THE BURNER (3001, 3002, 4001, 4002, 5001 AND 8001 MODELS)

1. Remove the sealing screw, connect a pressure gauge in A (see Figure 24 or Figure 25).
2. Turn on the unit (see ignition operations paragraph).
3. Turn the thermostat to the highest heat demand.
4. Regulate the feeding pressure to the burner at the requested value (see Table 1 and Table 2) by means of a B regulator (see Figure 24 and Figure 25). Proceed clockwise to increase pressure and in the opposite way to decrease it (for operation, use hex socket wrench).
5. Turn off the unit, disconnect pressure gauge and re-fix the sealing screw.

REGULATION FOR MAXIMUM HEAT OUTPUT (5002 AND 8002 MODELS)

1. Shift the summer/winter key pad to a winter position (see Figure 31).
2. Take off the plastic cover of the gas valve (see Figure 26).
3. Connect a pressure gauge in position E (see Figure 26).
4. Turn on the unit (see paragraph "STARTING OF THE UNIT" of the manual).
5. Regulate the pressure to the burner using B screw (see Figure 26) up to 9 mbar (for 5002 model) and up to 7,1 mbar (for 8002 model). Move clockwise to increase the pressure values and in the opposite way to decrease them (use a setscrew wrench no. 10).

REGULATION FOR REDUCED HEAT OUTPUT (5002 AND 8002 MODELS)

6. Press the min/max key (see Figure 31). The unit will reach the pressure level for reduced consumption.
7. Keeping unmoved screw B, set by means of screw A, the pressure level for reduced output up to 5 mbar (for 5002 model) and up to 4 mbar (for 8002 model). Move clockwise to increase the pressure values and in the opposite way to decrease them (use a screwdriver for this operation).
8. Relocate the plastic cover C.

WARNING

When pressures adjustment operations have been completed, stop the unit and start it again. Check that the pressure to the burner is correct and if necessary repeat the operation.

2.2.2 L.P.G. CONVERSION

To change feeding from natural gas to LPG it is necessary to modify the unit using the LPG conversion kit that is supplied as standard supplied with the unit. Follow the instructions detailed in "conversion to another type of gas" section and proceed as follows:

PRESSURE REGULATION TO THE BURNER (3001, 3002, 4001, 4002, 5001 AND 8001 MODELS)

1. Remove the sealing screw, connect a pressure gauge in A (see Figure 24 or Figure 25).
2. Turn on the unit (see ignition operations paragraph).
3. Turn the thermostat to the highest heat demand.
4. The maximum operating pressure only depend on the distribution network pressure level which needs to be adequately regulated at 30 mbar (for G30 gas) or at 37 mbar (for G31 gas) by means of external stabilizers not connected to the unit. Therefore, the pressure regulator B (see Figure 24 or Figure 25) is not to be considered. If the desired setting can not be reached, try with the second stage regulator.
5. Turn off the unit, disconnect pressure gauge and fix again the sealing screw

REGULATION FOR MAXIMUM HEAT OUTPUT (5002 AND 8002 MODELS)

1. Shift the summer/winter key pad to a winter position - released (see Figure 31).
2. Take off the plastic cover of the gas valve (see Figure 26).
3. Connect a pressure gauge in position E (see Figure 26).
4. Turn on the unit (see paragraph "STARTING OF THE UNIT" of the manual)

5. Disconnect the pressure regulator tightening completely screw B (see Figure 26). In this way the pressure to the burner is directly depending on the distribution network pressure level. Make sure it is properly regulated at 30 mbar (for G30 gas) or at 37 mbar (for G31 gas). The network pressure level can be reduced by using a special first stage pressure reducers placed close to the liquid propane tank (for reduction down to 1,5 ate). While a second stage reducer is needed for further decrease to 0,03 or 0,037 ate. This second reducer should be located close to the unit but always outside the building.

REGULATION FOR REDUCED HEAT OUTPUT (5002 AND 8002 MODELS)

6. Check that B screw is completely tightened.
7. Press the min/max key (see Figure 32). In the way the unit will reach the pressure level for reduced output.
8. Keeping unmoved screw B, set by means of screw A, the pressure level for reduced output (see Table 1 and Table 2). Move clockwise to increase the pressure values and in the opposite way to decrease them (use a screwdriver for this operation).
9. Relocate the plastic cover C.

WARNING

When pressures adjustment operations have been completed, stop the unit and start it again. Check that the pressure to the burner is correct and if necessary repeat the operation.

2.3 REPLACEMENT OF THE BURNER INJECTOR

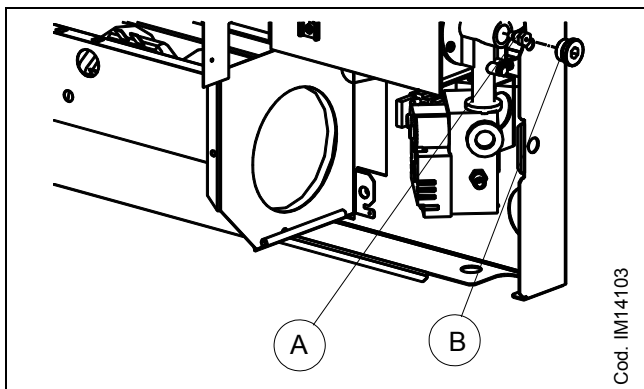


Figure 27 – BURNER ASSY DETAIL

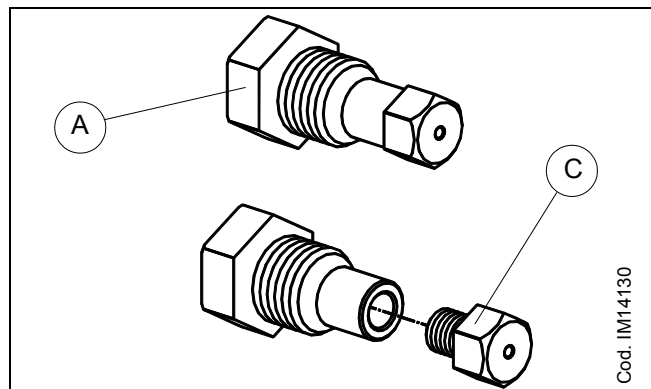


Figure 28 – NOZZLE SUPPORT DETAIL AND GAUGED NOZZLE

MODEL 8001 E 8002 (TIPE “one piece nozzle”)

Unit switch off:

1. Unscrew the “B” plug with the help of a no. 19 wrench (see Figure 27).
2. Unscrew the “A” injector with a socket wrench inserted in the opening.
3. Replace the injector (the injectors diameters for each unit model and the type of gas supply are listed in Table 5 and Table 6).
4. Relocate the “B” plug.
5. Start the unit and check the gas seal of the plug “B”.

MODEL 3001, 3002, 4001, 4002, 5001 E 5002 (TIPE “two pieces nozzle”)

Unit switch off:

1. With a n.º 19 wrench, unscrew plug B (see Figure 27).
2. With a socket wrench n.º 10 introduced in the opening, unscrew the “A” (see Figure 27 and Figure 28).
3. Unscrew the nozzle support A, the gauged nozzle C and substitute it (see Table 5 and Table 6).
4. Retighten the assemble nozzle support and the burner nozzle. Reassemble the plug B.
5. Switch on the unit and verify the gas seal of plug B.

NATURAL GAS	U.M.	3001 3002	4001	4002	5001	5002	8001 8002
DIAMETER NOZZLE	mm	1,45/1,70	1,75/1,80	1,85	2,10	2,30	2,45/3,30
PRINTED REFERENCE	--	053	054	055	056	057	025

Table 5 - GAUGED NOZZLES GAS NATURALE

L.P.G.	U.M.	3001 3002	4001	4002	5001	5002	8001 8002
DIAMETER NOZZLE	mm	0,8/0,95	1,0/1,05	0,95/1,25	1,1/1,3	1,2/1,35	1,5/3,2
PRINTED REFERENCE	--	050	058	059	060	061	038

Table 6 - GAUGED NOZZLES L.P.G.

2.4 CONVERSION TO ANOTHER TYPE OF GAS

WARNING

This operation must be carried out only by **qualified personnel**.

WARNING

After the completion of the calibration it is necessary to seal the screws of the valve's regulation..

For conversion to a type of gas different from the one for which the unit was originally pre-set proceed as follows:

CONVERSION FROM NATURAL GAS TO L.P.G.

1. Cut off electricity and gas supply.
2. Remove the casing from the frame and disconnect grounding cable.
3. Replace the burner nozzle with the one needed for L.P.G. (see paragraph 2.3 "REPLACEMENT OF THE BURNER INJECTOR").
4. Safely tighten the pressure regulator "B" (see Figure 24, Figure 25 or Figure 26).
5. Carry out a new regulation of the system as indicated in the previous paragraph.
6. Replace the label reporting the type of gas for which the unit was originally pre-set with another label indicating the type of gas actually used.
7. Connect the grounding cable and replace the unit external shell.

CONVERSION FROM LPG TO NATURAL GAS

1. Cut off electricity and gas supply.
2. Remove the external shell from the frame and disconnect grounding cable.
3. Replace the burner nozzle with the one needed for natural gas (see paragraph 2.3 "REPLACEMENT OF THE BURNER INJECTOR").
4. Carry out a new regulation of the system as indicated in the previous paragraph.
5. Replace the label reporting LPG with a new one indicating natural gas.
6. Connect the grounding cable and replace the unit external shell.

2.5 WIRING CONNECTIONS

All units are standard supplied for single phase operations at 230 - 240 V 50 Hz depending on the model. The absorbed power varies from model to model (see Table 1 and Table 2). When carrying out wiring connections pay attention to the correct polarity (see Figure 29 or Figure 30).

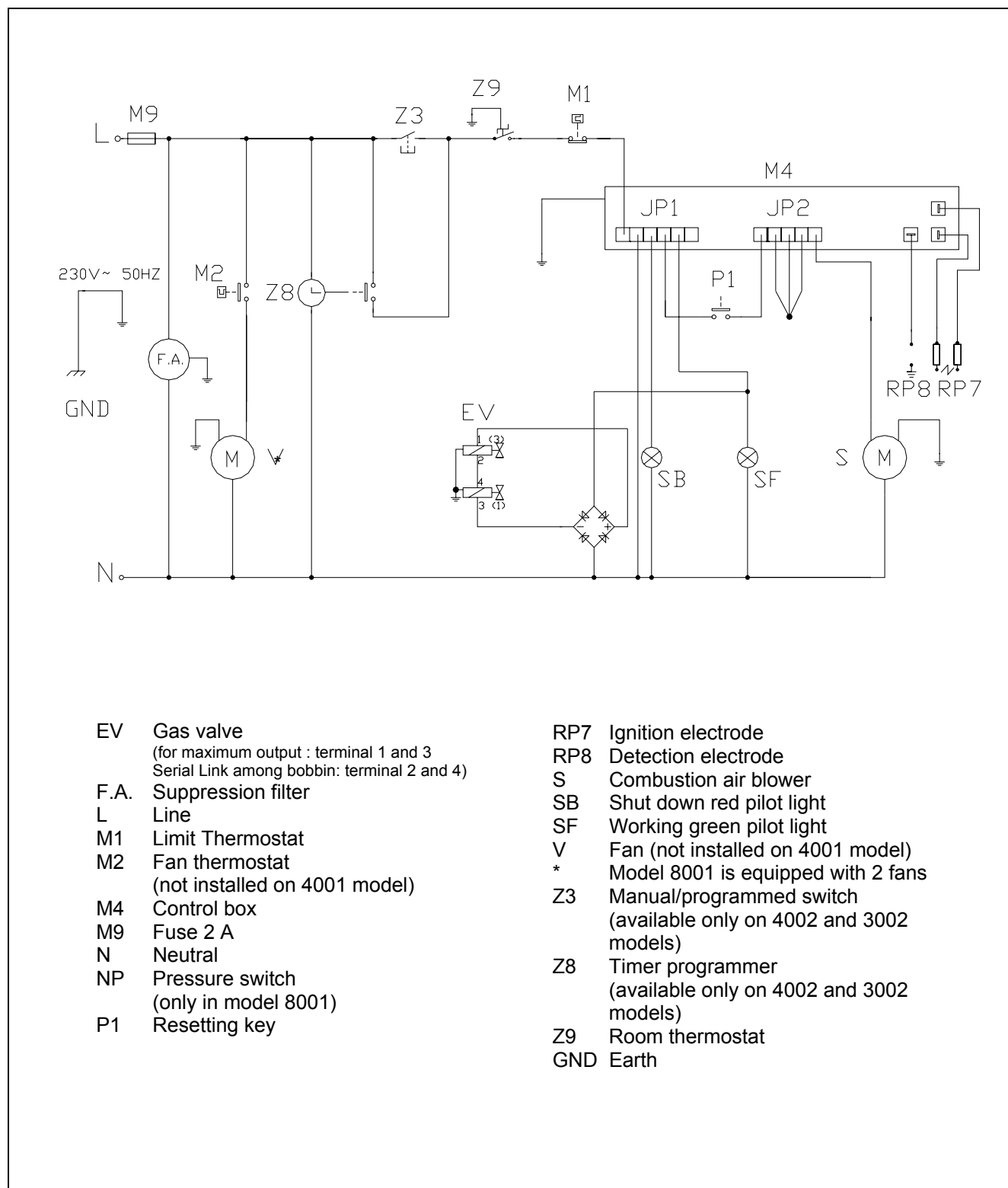
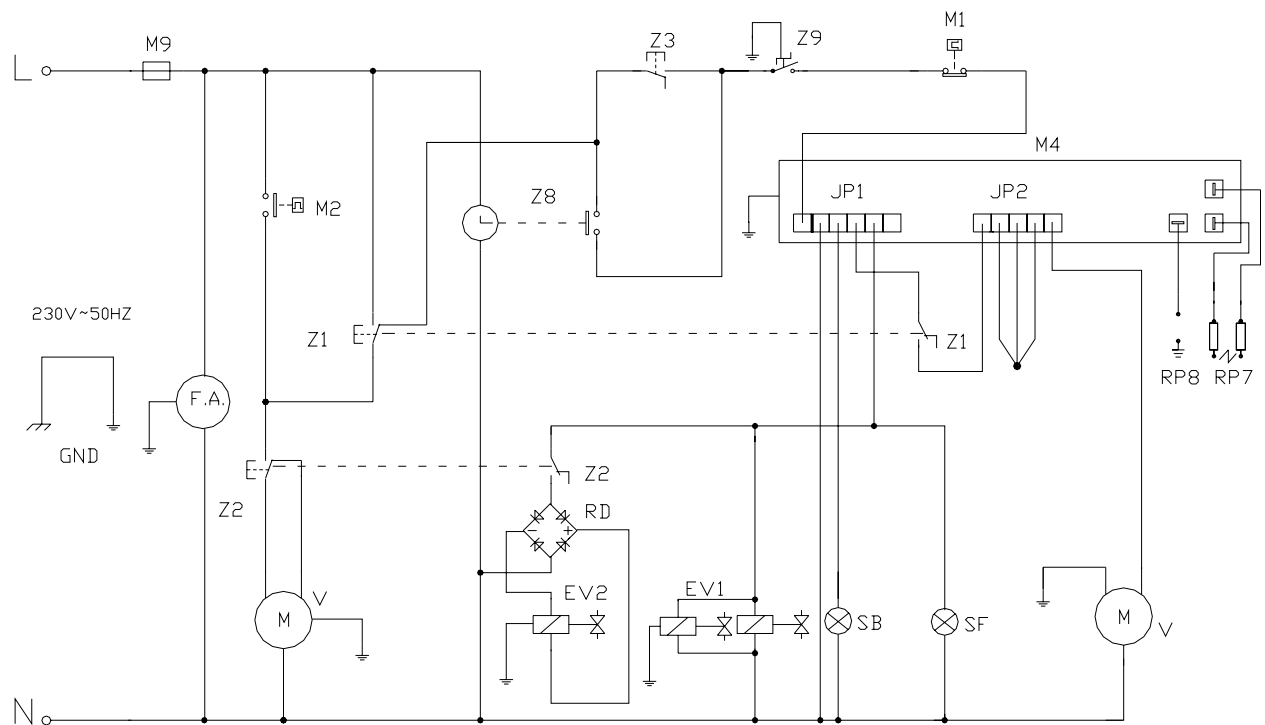


Figure 29 - WIRING DIAGRAM 3001,3002,4001,4002,5001 and 8001 MODELS



- | | | | |
|------|---------------------------------------|-----|------------------------------------|
| EV1 | Solenoid gas valve for maximum output | RP7 | Ignition electrode |
| EV2 | Solenoid gas valve for minimum output | RP8 | Detection electrode |
| F.A. | Suppression filter | S | Combustion air blower |
| L | Line | SB | Shutdownred pilot light |
| M1 | Limit Thermostat | SF | Working green pilot light |
| M2 | Fan thermostat | V | Fan |
| M4 | Control box | * | Model 8002 is equipped with 2 fans |
| M9 | 2 A Fuse | Z1 | Reset key winter/summer |
| N | Neutral | Z2 | Diverter I/II consumption rates |
| NP | Pressostat
(only on mod. 8002) | Z3 | Manual/programmed switch |
| RD | Rectifier | Z8 | Timer programmer |
| | | Z9 | Room thermostat |
| | | GND | Earth |

Figure 30 - WIRING DIAGRAM 5002 AND 8002 MODELS

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 electric and gas supply.
- 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).

3.1 STARTING OF THE UNIT

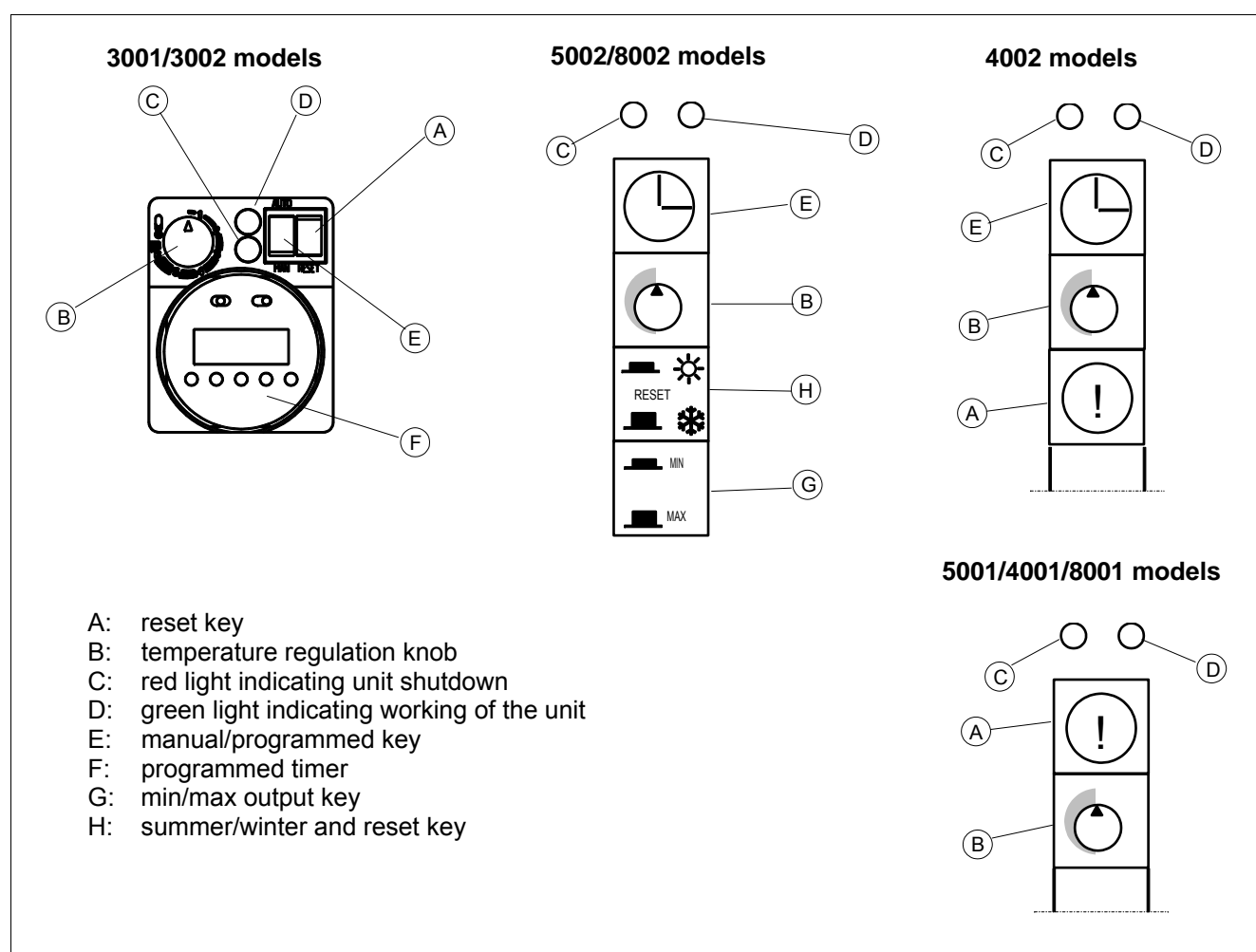


Figure 31 – MAIN PANELS

1. Open the gas supply valve.
2. Supply electricity (230-240 V 50 Hz depending on the installed model).
3. For models 3002, 4002, 5002 and 8002 set the timer according the end user specific requirements (see "programmed timer" section). Set "E" key (see Figure 31) manual/programmed on the desired system of operation of the unit (loose key - MAN position in case the unit is required to operate through the room thermostat or pressed key - AUTO position in case the unit is required to operate also by means of the programmed timer).

WARNING

For all models 3002, 4002, 5002 and 8002 make sure that the "A" commutator of the programmable timer (see Figure 32) is in position I in case the unit is required to operate under the control of the room thermostat or in position AUTO in where the unit is required to operate by means of the programmable timer.

4. Turn the B knob for temperature regulation at the highest desired temperature (see Figure 31).
5. After 30 seconds approx. the gas valve opens and the ignition electrode starts sparking for a max. of 10 seconds.
6. After 30 seconds approx. the gas valve opens and the ignition electrode starts sparking for a max. of 10 seconds.
7. If the above procedures do not occur, the control box stops the unit and the fans stop working. The C red light is illuminated. The unit reset operation must be carried out manually by pressing the A reset key for models 3001, 3002, 4001, 4002, 5001 and 8001. For models 5002 and 8002 the reset key to be pressed is indicated with an H.

NOTE

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

8. Once the unit is started, turn the thermostat knob clockwise to increase the room temperature and in the opposite way to decrease it.
9. In models 5002 and 8002, pressing the "G" key, a higher output can be selected for a quick warming of the room. Or a minimum output rate can be selected to maintaining the existing temperature value. The fan starts operating automatically only when it receives demand from the fan thermostat, and the exchanger is heated: This in order to avoid the cold air draught in the room. The fan will turn off when the exchanger is cold.

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.

3.2 TURNING OFF OF THE UNIT

1. To temporarily stop the unit (e.g. during the night) turn the thermostat knob to the minimum temperature. Turning the thermostat to the minimum values, temperature will be regulated some degrees above zero value. This will prevent freeze-up.
For all models equipped with time programmer (3002, 4002, 5002 and 8002) the unit can temporarily be stopped by turning the "A" commutator to the O position. (see Figure 32).

NOTE

Do not turn down power to switch off the units. This procedure can ruin the equipment.

2. For the seasonal standstill it is advisable to isolate the electricity and gas supply.

3.3 SUMMER VENTILATION FOR MODELS 5002 AND 8002

By pressing the summer/winter H key (see Figure 31), only the fan starts working. This will allow a light and pleasant ventilation of the ambient air.

4 PROGRAMMABLE TIMER

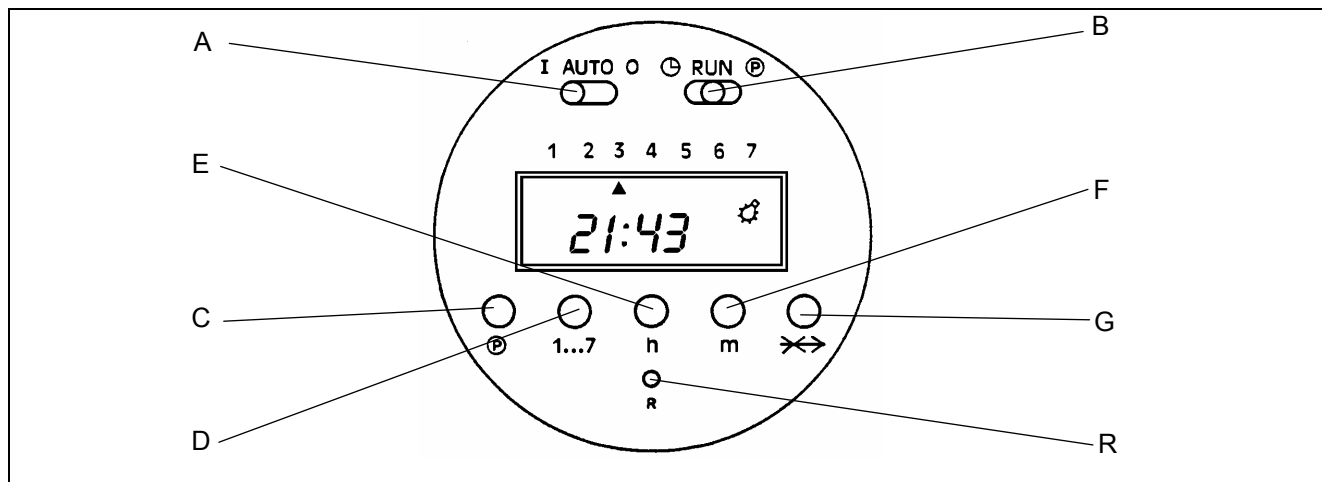


Figure 32 - PROGRAMMABLE TIMER

- A On / Off switch
 - Pos. I: The appliance is controlled by the room thermostat
 - Pos. AUTO: The appliance is controlled by the timer and the room thermostat
 - Pos. O: The appliance is turned off
- B Setting / regulation switch
 - Pos. : Time setting
 - Pos. RUN: Operation (the display shows the current time)
 - Pos. P: Setting of Programming
- C Programmes selection
- D Programmed day setting
- E Hours setting
- F Minutes setting
- G SKIP button (it temporarily deletes the programmed schedule)
- R Reset button

4.1 DESCRIPTION OF MAIN CHARACTERISTICS

- Long life lithium battery after a 48 hours recharge.
- Daily and weekly programmable.
- Minimum switching time: 1 minute.
- Quick progression: keeping pushed any setting key, the progression is quick until the button is released.
- Choice of programmes: 16 (8 for on - 8 for off).

4.2 FUNCTIONS

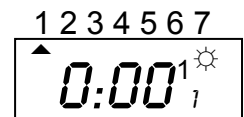
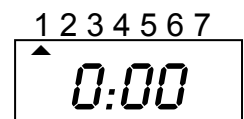
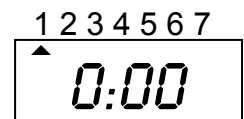
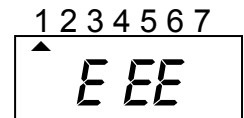
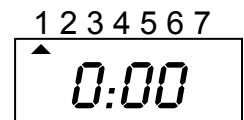
- Days of the week
- Hour of the day
- Programmable day blocks:

1-2-3-4-5	(Mon-Fri)
1-2-3-4-5-6	(Mon-Sat)
1-2-3-4-5-6-7	(Mon-Sun)
6-7	(Sat-Sun)

4.3 SETTING AND ADJUSTMENT

INITIAL CONDITIONS

- A) Make sure that the **B** selector is in **RUN** position. After pressing the reset button **R**, the display starts flashing.
- B) When the selector remains in **Ⓟ** position, after pressing the reset button, the notice of error **EEE** will appear on the display. Move the **B** selector to the **RUN** position: the notice will disappear; then reset the system.
- C) If the selector **B** is moved to **⌚** position the indication on the display is fix.
- D) If the selector **B** is moved to **RUN** position the indication on the display is fix.
- E) If the selector **B** is moved to **Ⓟ** position, the indication on the display is lighting: on the display it appears the lamp symbol (💡) and the word “1” and “1”.



MANUAL OPERATING DEVICE

Move the “**A**” left selector to position “**I**”.

- In this condition the heater is controlled by the room thermostat and is independent from the programs which are set on the timer.

Move the **A** selector to position **O**.

- In this condition the heater is inactivated (off).

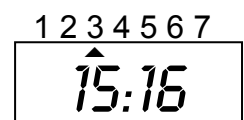
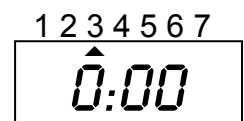
Move the **A** selector to **AUTO** position.

- The programmes function is activated. The operation of the unit now depends on the preset programmes. The heater is controlled both by the timer and by the room thermostat.

TIME SETTING

Example: Set Wednesday, 15.16 hours.

- A) The selector **B** is to be moved to **⌚** location.
- B) Set the day of the week. Press the day key 1....7, the triangular shaped indicator proceeds one unit at a time. **Number 1 stands for Monday, number 2 stands for Tuesday, etc.**
- C) Set the time (hours and minutes). To have 15.16 hours, press **h** key for the hours and **m** button for the minutes. Pressing the button once the movement is slow (one digit at a time). If the button is depressed for more than two seconds the movement is fast until the button is released.
- D) After setting the day and the time move the **B** right selector to **RUN**. Numbers are fixed on display and “:” is lightening.



PROGRAMMING THE TIMER

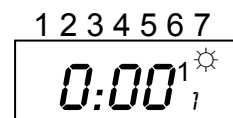
NOTE

16 different switch can be programmed on the timer:

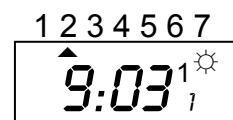
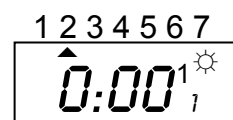
- 8 for "ON" (1-3-5-7-9-11-13-15) which are shown by a light on the right end of the display
- 8 for "OFF" (2-4-6-8-10-12-14-16) no light

When there is no light on the display means that the program is off.

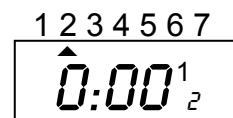
- A) Move the selector **B** to **Ⓟ** position. On the right side of the display the word "1" and "1", and the symbol of the light will appear, indicating that the ON switching time is to be set



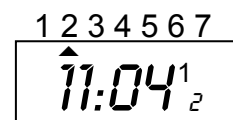
- B) Press the day **1.....7** button to set the day or the block of days during which the switching ON is required (no. 2 stands for Tuesday, etc.) To set the desired ignition time press the **h** button for the exact hour and the **m** button for the exact minutes (for example 09.03). Pressing one of the two buttons, the indication on the display will slowly progress. Keeping the button depressed for more than 2 sec the progression is fast until the button is released.



- C) Press the **Ⓟ** button (reference C - Figure 32). On the right side of the display will appear number 2 without the light symbol indicating that the OFF switching time is to be set.



- D) Press the **1...7** button to programme once again the same day or block of days previously selected for programme n. 1 (switch ON). To set the OFF time press button **h** and **m** (in the example 11.04 hours).



- E) To set further programmes repeat the same operations from item b) to d).

NOTE

Where the same ON and OFF time is required for different days of the week the setting procedure can be simplified:

- 1-2-3-4-5 (from Mon through Fri)
- 1-2-3-4-5-6 (from Mon through Sat)
- 1-2-3-4-5-6-7 (from Mon through Sun)
- 6-7 (Sat and Sun)

- F) When all setting operations have been carried out, check and ensure that the different programmes do not contrast one with the others in order to avoid undesired operations. You can check on the display the different settings (programmes) by simply pressing button **Ⓟ** many times.

- G) Move selector **B** to **RUN** position. The display will show the current day and time. The symbol "1" and the symbol of the light will appear or not, depending if it's a period of on or off.

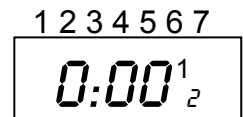
WARNING

All the programmes set will be activated **ONLY the "day after"** the setting has been carried out.

DELETE A SETTING

For deleting a single programme, proceed as follows:

- A) Move the right selector (see ref. B in Figure 32) in **P** position. Press the **P** button and select the programme it has to be changed.
- B) Press button **P** and button SKIP at the same time (see ref. G in Figure 32) for at least 2 seconds and the set programme will be cleared.
- C) The clear signal will appear on the display as **0:00**.

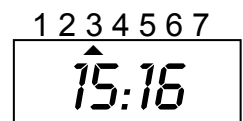
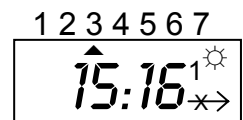


DELETING OF ALL PRE-SET TIMER PROGRAMMES

To delete all pre-set programmes press “**R**” for at least 2 seconds. All the pre-set programmes will be suddenly cancelled.

SETTING OF THE SKIP FUNCTION

- Move the **B** selector (see Figure 32) to **RUN** position.
- Press the SKIP key (see G in Figure 32) to skip the actual program. The function is shown on the display by the symbol of a crossed arrow (SKIP symbol).
- To go back to the program just press again SKIP button. The unit will restart with the previous program and SKIP signal disappears from display.



SKIP FUNCTION PROCEDURE DURING OPERATION

- The SKIP function can be activated only in **RUN** position.
- The SKIP function will be activated when you will press the button and it will stop automatically when you will require the next programme.
- The SKIP function can be interrupted manually, pressing the previous button. In this case the set program restarts functioning normally.

5 MAINTENANCE AND SERVICE

WARNING

Maintenance and Service must be carried out only by **qualified service personnel**.

5.1 SAFETY DEVICES

1. **Isolation of electrical supply:** the unit stops working and the gas valve closes, when electricity reconnected the unit will automatically re-start working
2. **Lack of gas supply or any other cause of the flame extinguishing:** the unit will automatically try to re-start for 10 seconds, afterwards in cases of lack of flame ignition the control box will stop the unit and the combustion air blower.

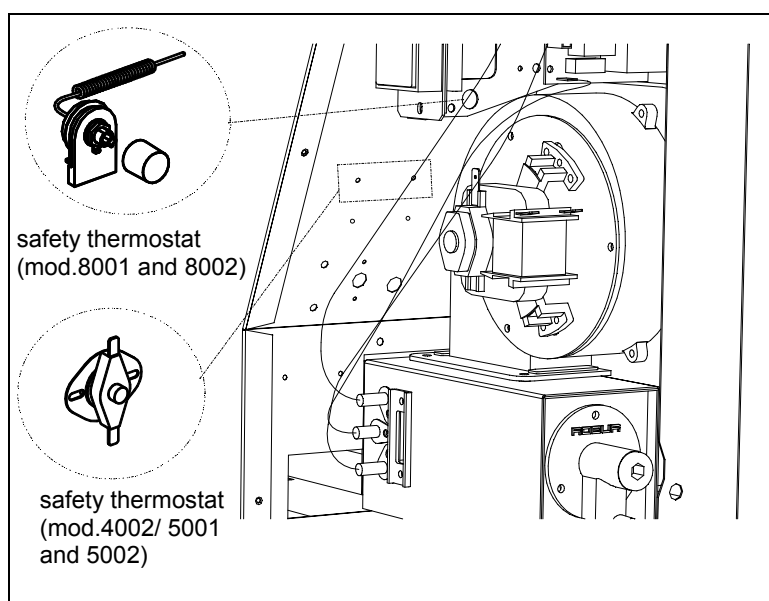


Figure 33 – LOCATION OF THE RESET KEY ON THE SAFETY THERMOSTAT (MODELS 4002, 5001, 5002, 8001 AND 8002)

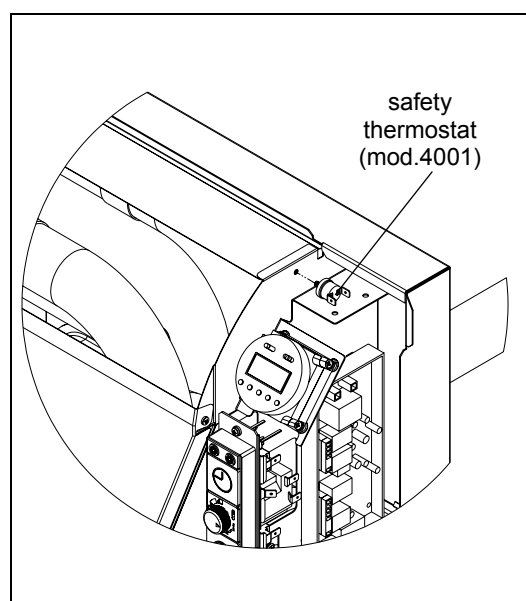


Figure 34– LOCATION OF THE RESET KEY ON THE SAFETY THERMOSTAT FOR MODELS 4001

3. **Overheating:** if during the operation of the unit the fan stops working or in case the upper heated air outlet should obstruct, the safety thermostat will immediately cut off the electricity supply to the valve, cutting off the gas flow to the burner. To restore the working operations wait 10 minutes approx. to let the temperature drop. Clear electric supply, remove the shell and reset the unit pressing the reset key positioned on the safety thermostat inside the unit (see Figure 35, Figure 36 or Figure 35). Should a similar failure occur again in a short period of time, a service qualified engineer should be contacted.

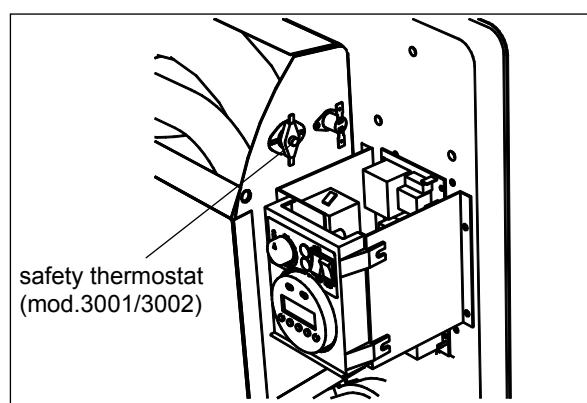


Figure 35 – LOCATION OF RESET KEY ON SAFETY THERMOSTAT (MODELS 3001, 3002)

5.2 IMPROPER OPERATING PROCEDURES

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

- There is a full electricity supply.
- There is a full gas supply.
- 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.

5.3 TYPE OF FAILURES AND SERVICING

WARNING

Before removing the casing isolate the power supply to the unit turning off the omnipolar switch or removing the electrical plug.

CASE 1: *The unit locks out during the first ignition procedure.*

- a) The gas flow is not enough. Verify that all manual valves and gas taps are open. In case the equipment has not been used for a long period, it could be due to the presence of some air in the pipe. Reset it 3 or 4 times and the unit restart.
- b) The plug polarity is not correct : verify it. In case you use an external plug remove it, turn 180° and plug in it.
- c) The ignition electrode is broken or improperly installed: replace it or reposition it properly.
- d) The flame sensor is broken or improperly installed: replace it or reposition it properly.

NOTE

For a correct ignition the distance between the ignition electrodes and the head burner should be 3-5 mm approx.

- e) The ignition electrode and the wire cable are in touch with the shell or any other metallic parts: check this possibility removing the shell.
- f) Ignition equipment failure: replace it.

CASE 2: *The unit locks out during operation.*

- a) The safety thermostat stopped the gas valve to avoid overheating caused by:
 - Obstruction on the upper heated air outlet: remove obstruction
 - Fan failure (3001, 3002, 4002, 5001, 5002, 8001 and 8002 models): replace the fan
- b) Failure to the ventilation thermostat (3001, 3002, 4002, 5001, 5002, 8001 and 8002 models). The ventilation thermostat does not make the fan work properly: replace it.
- c) Failure to the gas valve: replace the coil or the gas valve.
- d) Bad connection of safety thermostat: control wires and connections.

5.4 MAINTENANCE

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.

Every year, before use, the 8002 model needs an adequate cleaning of all filters positioned behind the lower grids (see Figure 36). They should be removed and cleaned with a vacuum cleaner or simply with water and soap.

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

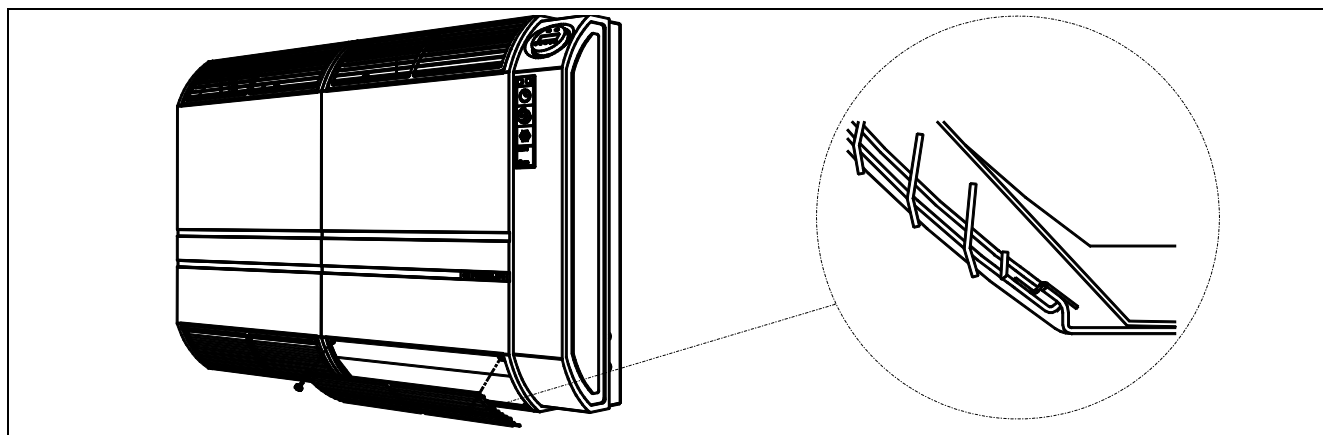


Figure 36 – MODEL 8002 LOWER GRIDS POSITIONS.

5.5 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

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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