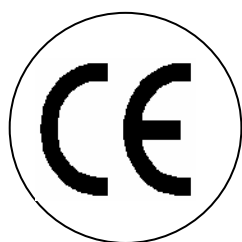
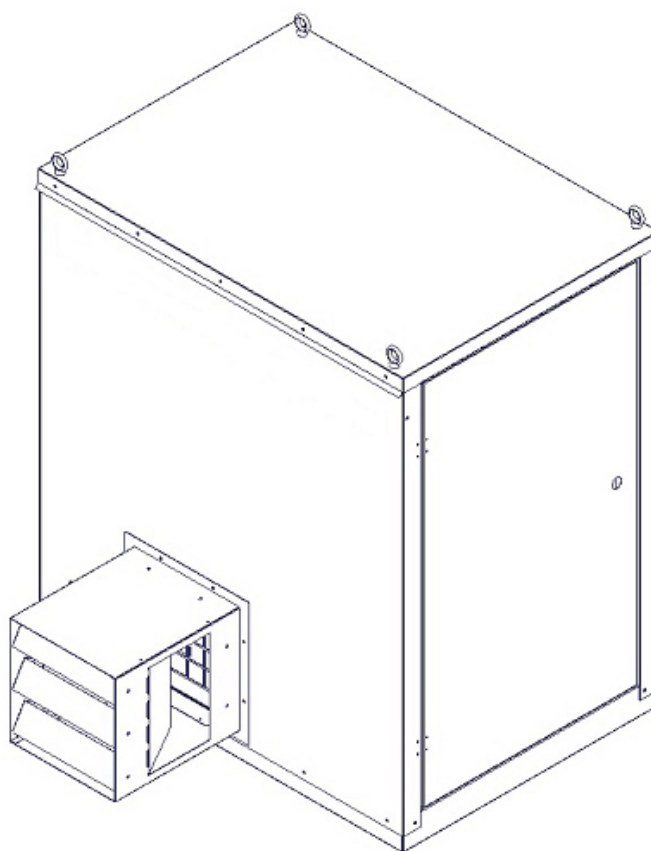


# TECHNICAL INFORMATION ASSEMBLY INSTRUCTIONS USE AND MAINTENANCE

## Warm air heater

### BOXER 80



*Dear Customer*

*Thank you for choosing a **BOXER 80 AIR HEATER**, an innovative and modern, quality and high performance product which will assure safe and silent operation for a long time. This is particularly the case if the **BOXER** is mentioned by the Manufacturer's Technical Assistance Department which is specially trained and equipped to keep it working at maximum efficiency with low running costs, and has a large number of original spares in stock.*

*This instruction manual contains important instructions and suggestions for simple installation and making the best possible use of the **BOXER** air heater.*

*Once again  
Thank you*

*PRIVA*

## COMPLIANCE

**BOXER 80** conform to the following:

- EEC directive 98/37/CEE
- EEC Gas directive 90/396/CEE
- EEC low tension directive 73/23/CEE
- EEC Electro Magnetic compatibility directive 89/336/CEE

## PIN NUMBER

The PIN number of CE Certification is written on the technical data label

## GUARANTEE

The **Boxer 80** air heater has a **SPECIFIC GUARANTEE** running from the date of purchase, of which the customer must notify the manufacturer. If he is unable to do so the guarantee shall run from the date of manufacture. The details of the guarantee conditions are given in the GUARANTEE CERTIFICATE supplied with the equipment, and which we suggest the customer reads with care.

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The following symbols are used in the manual:



**WARNING** = where the work to be carried out requires special care and suitable training



**FORBIDDEN** = where the action **MUST NOT** be carried out

## GENERAL WARNINGS



After removing the packaging check that all the equipment is present and intact. If there is any failure to correspond with order contact the **manufacturer** agent who sold the equipment..

The equipment must be installed by an accredited company; at the end of work it has to issue to the owner's machine the Conformity Declaration that the installation has done in accordance with locally and nationally applicable regulations and the instructions given by the **manufacturer** in this manual.

These machines are designed to heat buildings and must be used for this in accordance with their performance characteristics.

The **manufacturer** shall not be contractually or otherwise liable for any damage caused to persons, animals or things, by installation errors, failure to observe the rules or improper use.

If you smell gas do not use electrical switches, telephones or any other equipment which could cause sparks. Open doors and windows immediately for ventilation to clear the air, switch off gas at the mains (meter or tank) and request assistance from the **manufacturer's** Technicians.

Too high a temperature is harmful to health and is also a waste of energy. Do not keep the rooms closed for long periods. Periodically open windows to change air.

The first time the equipment is switched on there may be some smell or fumes caused by the evaporation of the liquid protecting the heat exchanger during storage; this is normal and will disappear after a brief period. It is advisable to keep the room ventilated.

If the equipment remains idle for long periods

- put the main electrical switch at "off"
  - close the main fuel supply tap.

This instruction manual is an integral part of the equipment and so must be carefully kept at all times and must **ALWAYS** accompany the equipment if it is goes to another owner or user or if it is transferred to another plant.

If the instruction booklet is damaged or lost ask for another one from **manufacturer's** local technical dept.

Repairs and maintenance must be carried out by **manufacturer's** technical dept. of by qualified staff as indicated in this booklet. Do not make modifications to or tamper with the equipment as this may cause dangerous situations to arise and the manufacturer will no longer be responsible for any damage caused.

The plant and utilities must be connected and affixed properly (i.e. gas piping, electrical supply etc.) and must not cause obstructions which may be tripped over.

The laws, standards, directives and technical rules referred to in this booklet are only for your information and shall be considered valid only as of the time of going to press. Any new provisions which come into effect, or any amendments to current provisions, shall not give rise to any obligations on the part of **manufacturer** as against third parties.

The **manufacturer** is responsible for its product's compliance with the laws, directives or building standards in force at the time of its sale. The design engineer, installer and user are respectively, and entirely, responsible for their awareness of and observance of the legislative provisions and standards dealing with plant design, installation, the working and maintenance of the equipment.

The **manufacturer** shall not be held liable for any failures to observe the instructions contained in this booklet, for the consequences of any handling or usage not specifically provided for or for any translations which may be subject to erroneous interpretation.

The equipments have to be equipped only with original accessories. The **manufacturer** shall not be held liable for any damage due to improper use of the equipment to the use of not original materials and accessories.

The electrical installation must foresees proper electrical protections **individual and independent** for every equipment, that in case of accidental damage, could operate on the single equipment, avoiding to interfere with other equipment possibly connected to the installation.

## BASIC SAFETY RULES



We remind you that the use of products using electrical energy, gas or heating oil require the observance of some basic safety rules, including the following::

The unassisted use of air heaters by children or other vulnerable persons is forbidden.

The equipment must not be touched with naked feet or wet or damp parts of the body.

Cleaning and maintenance operations on the equipment must be carried out only when the equipment is switched off with the main electrical switch in the "off " position, and with the fuel supply cut off.

It is forbidden to interfere with or alter the safety or regulatory systems without prior authorisation and without following the manufacturer's instructions.

It is forbidden to pull or twist the electric cables coming out of the equipment, even if the equipment is disconnected from the mains electricity supply. Before entering the access doors to the internal parts of the equipment the main switch must be turned to "off ".

It is forbidden to throw away, abandon or leave the packaging material (cardboard, fasteners, plastic bags etc.) within the reach of children, as they may be a source of danger.

It is forbidden to install the equipment near to inflammable materials or where there are aggressive agents in the atmosphere.

It is forbidden to install the equipment in rooms with inflammable atmosphere.

It is forbidden to install the equipment in rooms not enough airy.


It is forbidden to put objects on top of the equipment or push them inside the body shell grill and exhaust discharge ducts.

It is forbidden to touch the exhaust flue as it may reach temperatures which are dangerously high to the touch during normal working.

It is forbidden to use adapters, multiple sockets and extension cables for the equipment's electrical connection

## IDENTIFICATION OF THE EQUIPMENT

The equipment is identifiable by the Technical Plate bearing its main technical and performance details. If the plate is lost or damaged ask for a duplicate from **manufacturer's** technical assistance dept.

<b>IDENTIFICATION DATA OF MANUFACTURER</b>				
				
<b>WARM AIR HEATER</b>				
Model	<input style="width: 90%;" type="text"/>			
Registration n°	<input style="width: 90%;" type="text"/>			
Country	<input style="width: 50%;" type="text"/>	Cod. PIN	<input style="width: 50%;" type="text"/>	
Category	<input style="width: 50%;" type="text"/>	Codex	<input style="width: 50%;" type="text"/>	
Type	<input style="width: 50%;" type="text"/>	Year	<input style="width: 50%;" type="text"/>	
Nominal thermal capacity (1)	<input style="width: 50%;" type="text"/>	kW		
Fan electrical supply	<input style="width: 50%;" type="text"/>	kW		
Electrical suppli	<input style="width: 90%;" type="text"/>			
Max. current absorbed	<input style="width: 50%;" type="text"/>	A		
Air flow	<input style="width: 50%;" type="text"/>	m <sup>3</sup> /h		
Protection rating	<input style="width: 90%;" type="text"/>			
<b>GAS TYPE</b>				
Pressare supply	mbar	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>
Nozze supply	mbar	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>
Nozze diameter	mm	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>
Gas consumption	m <sup>3</sup> /h	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>	<input style="width: 50%;" type="text"/>
(1) Data referred to P.C.S.				

## DESCRIPTION OF THE EQUIPMENT

This equipment is a device which provides with a room air heating using the thermic power produced by the gas combustion.

The air to be heated is aspirated from the equipment through a centrifugal fan, then is mixed with combustion products, originated by a sophisticated burner, absorbing the heat. Seen that the treated air volume is much more higher than the real need of oxygen of the combustion, the hot air contains a very little concentration of carbon dioxide.

This system permits to obtain an equipment with:

- Max heating capacity;
- Low thermic inertia;
- contained dimensions and weight;
- Simple structure;
- Max reliability.

This equipment runs on gas fuel and is applied for:

- Livestock breeding farms
- Mushroom farms
- Greenhouses
- Emergency heating

### GENERAL STRUCTURAL CHARACTERISTICS

#### ***Externl casing***

The external casing consists of removable panels in pre-painted steel, it assures an electrical protection rate suitable also for outdoor installation. It also includes

- A burner compartment which is totally sealed off, with an inspection door.
- An inspection door to access the motor vain and electrical control box, to open with a tool.

#### ***Terminal delivery duct***

Such appliance, installed on the hot air outlet, allows a horizontal and vertical regulation of the flow, to adapt it to the geometric characteristics of the space to be heated.

#### ***Fan***

It is a radial fan with a high capacity and low sound pressure it is installed down stream of the burner.

#### ***Flow switch***

Located at the warm air outlet. It checks the correct function of the fan.

#### ***Security thermostats***

There are two thermostats and they are located near the hot air outlet.

- Regulation thermostat TR stops the running the burner in case of overheating. The recovery is automatic (bimetallic type), calibration 177°C)
- Security limit thermostat LM stops the running of the burner in case of overheating. The recovery is manual using a special button located on the right side of the electric b (liquid expansion type, calibration 200°C)

#### ***As solenoid valve***

The multifunctional safety and regulatory gas solenoid valve consists of:

- A safety solenoid valve
- A regulating solenoid valve
- A pressure regulator (depending on the country destination)
- A gas filter

***Burner assembly***

Consisting of:

- Gas injector
- Cast iron Multigas burner
- Ignition electrodes
- Flame detection electrode

***Control and protection equipment***

This is electronic with ionisation flame detection circuits and capacitive discharge ignition.

The equipment controls and monitors the working of the BOXER, taking care of the following tasks:

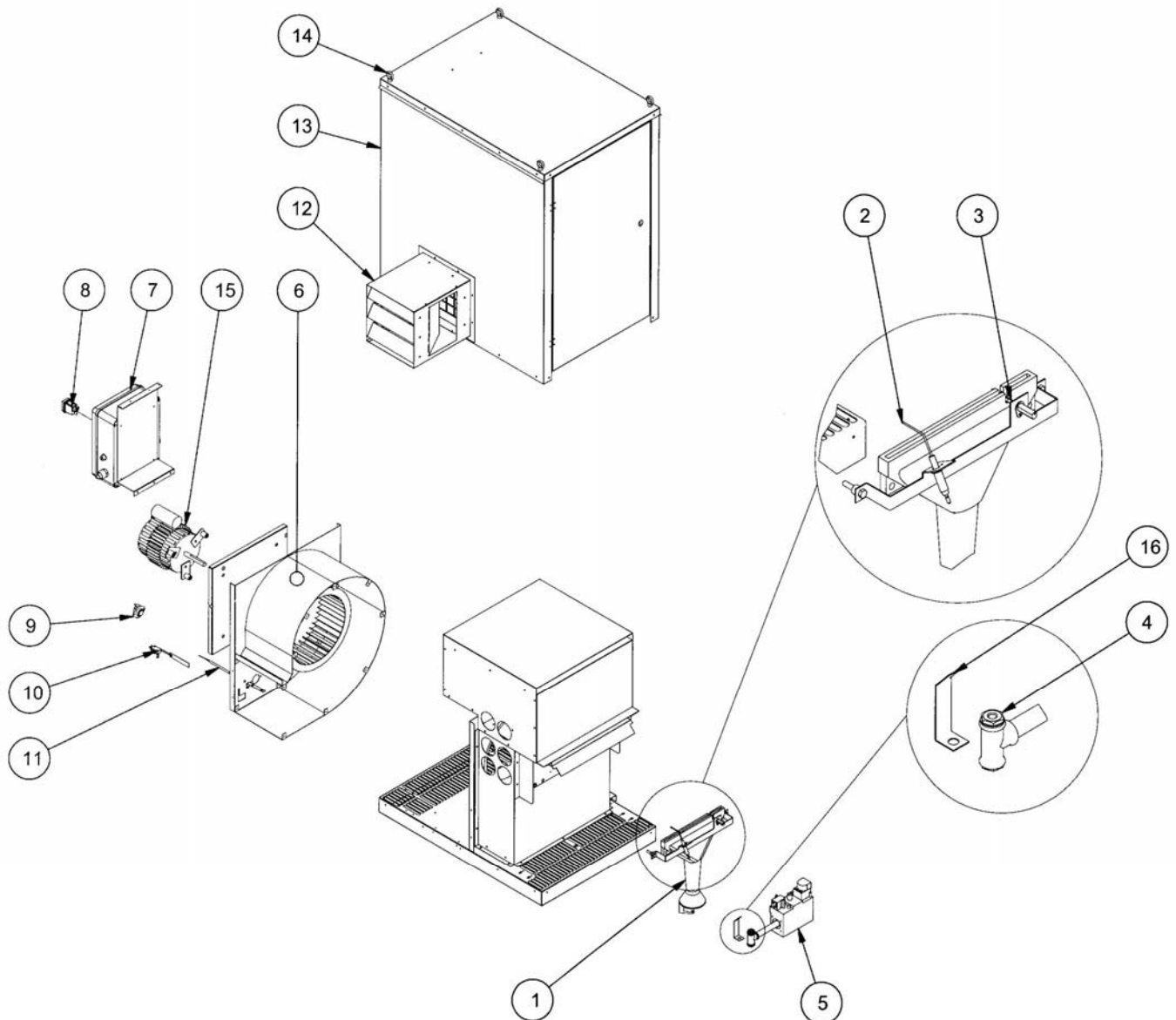
- Checks that flow switch is the rest position, to permit burner ignition only if the ventilator is working really
- Pre purges the combustion chamber
- Controls the gas solenoid valve
- Controls burner ignition
- Shuts off the gas valve if there is any fault in the monitored systems. In this case the equipment locks out and can be only be reset manually by pressing the red light on the front of the equipment.

The heater has been designed to be installed also at the exterior and the used materials have been chosen to satisfy this specific claim, it is moreover tested and calibrated in the factory and approved by an Internal Quality System



## STRUCTURE

The heater consists of:



- |           |                           |            |                             |
|-----------|---------------------------|------------|-----------------------------|
| <b>1.</b> | Multigas burner           | <b>9.</b>  | Automatic safety thermostat |
| <b>2.</b> | Flame detection electrode | <b>10.</b> | Flow switch                 |
| <b>3.</b> | Ignition electrodes       | <b>11.</b> | Manual safety thermostat    |
| <b>4.</b> | Gas injector              | <b>12.</b> | Hot air delivery duct       |
| <b>5.</b> | Gas solenoid valve        | <b>13.</b> | Casing                      |
| <b>6.</b> | Centrifugal fan           | <b>14.</b> | Hoisting eyebolts           |
| <b>7.</b> | Electric board            | <b>15.</b> | Fan motor                   |
| <b>8.</b> | Red light button          | <b>16.</b> | Device mixer air-gas        |

## TECHNICAL DATA

### Destination country:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>- Great Britain (<b>GB</b>)</li> <li>- Greece (<b>GR</b>)</li> <li>- Ireland (<b>IE</b>)</li> <li>- Iceland (<b>IS</b>)</li> <li>- Italy (<b>IT</b>)</li> </ul> | <ul style="list-style-type: none"> <li>- Portugal (<b>PT</b>)</li> <li>- Czech Republic (<b>CZ</b>)</li> <li>- Spain (<b>ES</b>)</li> <li>- Switzerland (<b>CH</b>)</li> </ul> |
|--|--|

DESCRIPTION	UNIT OF MEAS.	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	kW	80,0
	kcal/h	68.800
<b>Air flow</b>	M <sup>3</sup> /h	2.000
<b>Thermal haed</b>	°K	~ 145
<b>Throw distance</b>	m	30
<b>Sound pressare level</b> <sup>(2)</sup>	DB(A)	64
<b>Category</b>		II 2H 3+
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>RPM of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G20 ( <b>CH – CZ – ES – GB – GR – IT – IE – IS – PT</b> )	mbar	20
- Propane gas G31 ( <b>ES – GB – GR – IT – IE – IS – PT</b> )	mbar	37
- Propane gas G31 ( <b>CH</b> )	mbar	50
- Propane gas G31 ( <b>CZ</b> )	mbar	30-37
- Butane gas G30 ( <b>CZ – ES – GB – GR – IT – IE – IS – PT</b> )	mbar	30
- Butane gas G30 ( <b>CH</b> )	mbar	50
<b>Gas injector diameter</b>		
- Natural gas G20	mm	7,25
- Propane gas G31	mm	4,30 <sup>(6)</sup>
- Butane gas G30	mm	4,30 <sup>(6)</sup>
<b>Injector gas pressure</b>		
- Natural gas G20	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	7,62
- Propane gas G31 <sup>(4)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(5)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 125,81 MJ/m<sup>3</sup>
- 6) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. Is istalled.

### Note:

**For G.L.P. gas (mixture G31 and G30) the gas supply pressure has to be 30 mbar**

## TECHNICAL DATA

### Destination country:

- Austria (**AT**)
- Denmark (**DK**)
- Sweden (**SE**)
- Finland (**FI**)

DESCRIPTION	UNIT OF MEAS.	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	kW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		II 2H 3B/P
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G20 ( <b>AT – DK – FI – SE</b> )	mbar	20
- Propane gas G31 ( <b>AT</b> )	mbar	50
- Propane gas G31 ( <b>DK – FI – SE</b> )	mbar	30
- Butane gas G30 ( <b>AT</b> )	mbar	50
- Butane gas G30 ( <b>DK – FI – SE</b> )	mbar	30
<b>Gas injector diameter</b>		
- Natural gas G20	mm	7,25
- Propane gas G31	mm	4,30 <sup>(6)</sup>
- Butane gas G30	mm	4,30 <sup>(6)</sup>
<b>Injector gas pressure</b>		
- Natural gas G20	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	7,62
- Propane gas G31 <sup>(4)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(5)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 125,81 MJ/m<sup>3</sup>
- 6) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

## TECHNICAL DATA

### Destination country:

- Belgium (BE)

DESCRIPTION	UNIT OF MEAS.	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		I 2E(S)B I 3+
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G20	mbar	20
- Natural gas G25	mbar	25
- Propane gas G31	mbar	37
- Butane gas G30	mbar	30
<b>Gas injector diameter</b>		
- Natural gas G20	mm	7,25
- Natural gas G25	mm	8,00
- Propane gas G31	mm	4,30 <sup>(7)</sup>
- Butane gas G30	mm	4,30 <sup>(7)</sup>
<b>Injector gas pressure</b>		
- Natural gas G20	mbar	12,5
- Natural gas G25	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	7,62
- Natural gas G25 <sup>(6)</sup>	m <sup>3</sup> /h	8,87
- Propane gas G31 <sup>(4)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(5)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 6) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 32,49 MJ/m<sup>3</sup>
- 7) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

**The heater can be delivered with a solenoid gas valve, provided with flow regulator. This detail allows using indifferently Natural gas G20 with a feeding of 20mbar and Natural gas G25 with a pressure of 25 mbar, without the need of any setting and / or injector's replacement (category I 2E+).**

## TECHNICAL DATA

### Destination country:

- France (FR)

DESCRIPTION	UNIT OF MEAS.	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		II 2Esi3+
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G20	mbar	20
- Natural gas G25	mbar	25
- Propane gas G31	mbar	37
- Butane gas G30	mbar	28
<b>Gas injector diameter</b>		
- Natural gas G20	mm	7,25
- Natural gas G25	mm	8,00
- Propane gas G31	mm	4,30 <sup>(7)</sup>
- Butane gas G30	mm	4,30 <sup>(7)</sup>
<b>Injector gas pressure</b>		
- Natural gas G20	mbar	12,5
- Natural gas G25	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	7,62
- Natural gas G25 <sup>(6)</sup>	m <sup>3</sup> /h	8,87
- Propane gas G31 <sup>(4)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(5)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 125,81 MJ/m<sup>3</sup>
- 6) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 32,49 MJ/m<sup>3</sup>
- 7) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

## TECHNICAL DATA

### Destination country:

- Germany (DE)

DESCRIPTION	UNIT OF MEAS.	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		II 2ELL3B/P
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G20	mbar	20
- Natural gas G25	mbar	20
- Propane gas G31	mbar	50
- Butane gas G30	mbar	50
<b>Gas injector diameter</b>		
- Natural gas G20	mm	7,25
- Natural gas G25	mm	8,00
- Propane gas G31	mm	4,30 <sup>(7)</sup>
- Butane gas G30	mm	4,30 <sup>(7)</sup>
<b>Injector gas pressure</b>		
- Natural gas G20	mbar	12,5
- Natural gas G25	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	7,62
- Natural gas G25 <sup>(6)</sup>	m <sup>3</sup> /h	8,87
- Propane gas G31 <sup>(4)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(5)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 125,81 MJ/m<sup>3</sup>
- 6) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 32,49 MJ/m<sup>3</sup>
- 7) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

## TECHNICAL DATA

### Destination country:

- Holland (NL)

DESCRIPTION	UNIT OF MEAS.	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	M	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		II 2L3B/P
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G25	mbar	25
- Propane gas G31	mbar	30
- Butane gas G30	mbar	30
<b>Gas injector diameter</b>		
- Natural gas G25	mm	8,00
- Propane gas G31	mm	4,30 <sup>(6)</sup>
- Butane gas G30	mm	4,30 <sup>(6)</sup>
<b>Injector gas pressure</b>		
- Natural gas G25	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G25 <sup>(5)</sup>	m <sup>3</sup> /h	8,87
- Propane gas G31 <sup>(3)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(4)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 125,81 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 32,49 MJ/m<sup>3</sup>
- 6) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

## TECHNICAL DATA

### Destination country:

- Hungary (HU)

DESCRIPTION	UNIT OF MEAS	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		II 2H3P
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G25	mbar	25
- Propane gas G31	mbar	37
- Butane gas G30	mbar	30
<b>Gas injector diameter</b>		
- Natural gas G25	mm	8,00
- Propane gas G31	mm	4,30 <sup>(6)</sup>
- Butane gas G30	mm	4,30 <sup>(6)</sup>
<b>Injector gas pressure</b>		
- Natural gas G25	mbar	12,5
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Natural gas G25 <sup>(5)</sup>	m <sup>3</sup> /h	8,87
- Propane gas G31 <sup>(3)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(4)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity riferita a P.C.I = 72 kW

- 1) Data referred to P.C.S.
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 95,35 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 125,81 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 32,49 mj/M<sup>3</sup>
- 6) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.



## TECHNICAL DATA

### Destination country:

- Luxembourg (LU)

DESCRIZIONE	UNIT OF MEAS	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		II 2E3P
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-15 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Natural gas G20	mbar	20
- Natural gas G25	mbar	25
- Propane gas G31	mbar	37
<b>Gas injector diameter</b>		
- Natural gas G20	mm	7,25
- Natural gas G25	mm	8,00
- Propane gas G31	mm	4,30 <sup>(6)</sup>
<b>Injector gas pressure</b>		
- Natural gas G20	mbar	12,5
- Natural gas G25	mbar	12,5
- Propane gas G31	mbar	35
<b>Gas consumption</b>		
- Natural gas G20 <sup>(3)</sup>	m <sup>3</sup> /h	7,62
- Natural gas G25 <sup>(5)</sup>	m <sup>3</sup> /h	8,87
- Propane gas G31 <sup>(4)</sup>	m <sup>3</sup> /h	3,01

Nominal thermal capacity riferita a P.C.I = 72 kW

- 1) Data referred to P.C.S.
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 32,49 mj/M<sup>3</sup>
- 6) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

**The heater can be delivered with a solenoid gas valve, provided with flow regulator. This detail allows using indifferently Natural gas G20 with a feeding of 20mbar and Natural gas G25 with a pressure of 25 mbar, without the need of any setting and / or injector's replacement (category I 2E+).**

## TECHNICAL DATA

### Destination country:

- Norway (**NO**)

DESCRIPTION	UNIT OF MEAS	DATA
<b>Nominal thermal capacity</b> <sup>(1)</sup>	KW	80,0
	kcal/h	68.800
<b>Air flow</b>	m <sup>3</sup> /h	2.000
<b>Thermal head</b>	°K	~145
<b>Throw distance</b>	m	30
<b>Sound pressure level</b> <sup>(2)</sup>	dB(A)	64
<b>Category</b>		I <sub>3</sub> B/P
<b>Type</b>		A <sub>2</sub>
<b>Electrical supply</b>		230V 50Hz ~
<b>Power of centrifugal fan motor</b>	kW	0,373
<b>Centrifugal fan motor absorption</b>	A	3,0
<b>Condenser capacity</b>	microF	10
<b>Rpm of centrifugal fan</b>	U/min'	1.350
<b>Electrical protection rating</b>	IP	44
<b>Field of working</b>		
- Temperature	°C	-10 / +35
- Relative humidity (at 30°C not condensing)	%	95
<b>Net weight</b>	kg	63
<b>Gas supply pressure</b>		
- Propane gas G31	mbar	37
- Butane gas G30	mbar	30
<b>Gas injector diameter</b>		
- Propane gas G31	mm	4,30 <sup>(5)</sup>
- Butane gas G30	mm	4,30 <sup>(5)</sup>
<b>Injector gas pressure</b>		
- Propane gas G31	mbar	35
- Butane gas G30	mbar	26
<b>Gas consumption</b>		
- Propane gas G31 <sup>(3)</sup>	m <sup>3</sup> /h	3,01
- Butane gas G30 <sup>(4)</sup>	m <sup>3</sup> /h	2,29

Nominal thermal capacity referred to a lower thermic power (P.C.I) = 72 kW

- 1) Data referred to higher thermic power (P.C.S.)
- 2) Measured in a typical installation at a distance of 3 metres.
- 3) Consumption under the following conditions: 1013 mbar, 15°C, P.C.S. 37,78 MJ/m<sup>3</sup>
- 4) Consumption under the following conditions 1013 mbar, 15°C, P.C.S. 95,65 MJ/m<sup>3</sup>
- 5) To improve the reliability of the equipment, even under heavy running conditions (reduced air flow, combustion gas with different thermic power, etc), an injector with 4,05 mm. dia. is installed.

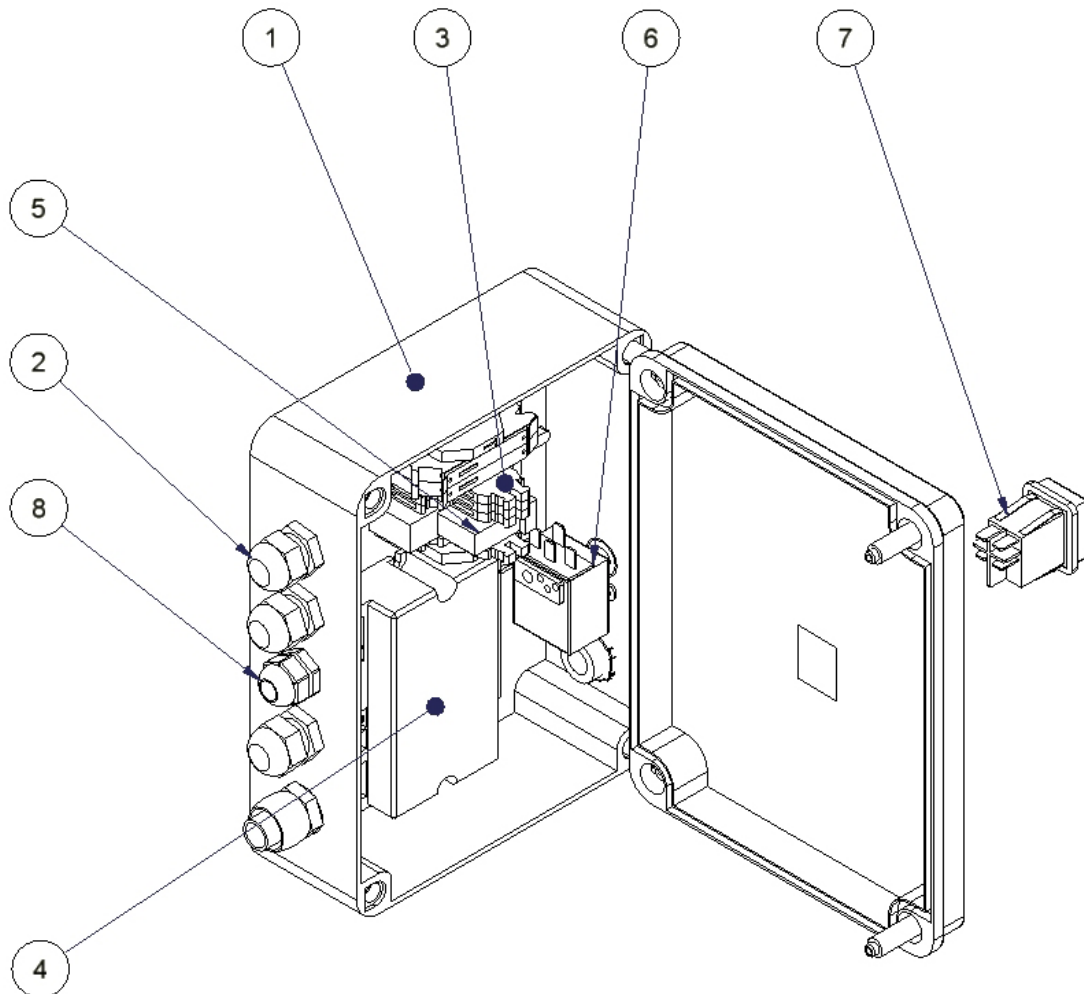
## ACCESSORY

The following accessories are available on request:

- Supporting brackets
- Sealed electronic room thermostat
- Air recirculating unit with air camper
- Outlet air duct with small overpressure air shutter

## ELECTRICAL PANEL COMPONENTS

II The BOX comes complete with the electrical panel which consists of the following components:

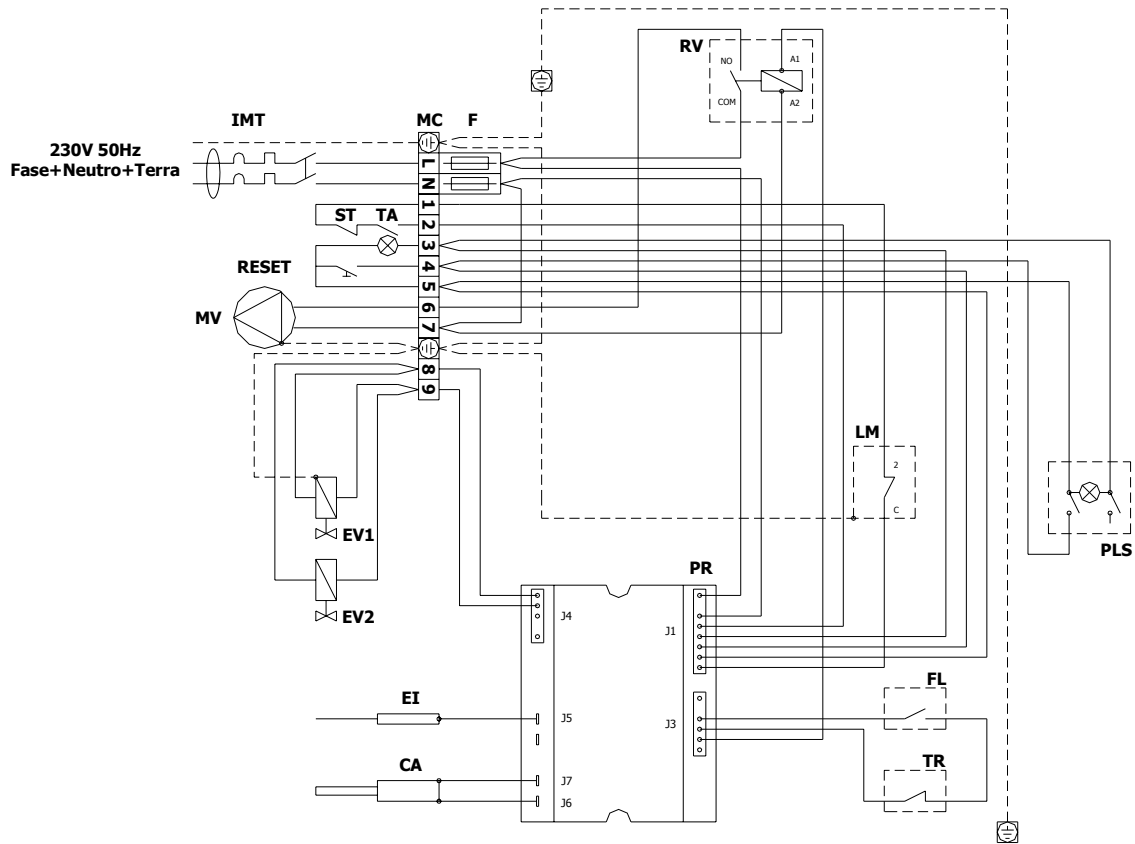


1. Box housing
2. Cable gripping glands
3. Terminal block
4. Electronic checking and control unit
5. Centrifugal fan power control relay
6. Manual reset safety thermostat
7. Luminous equipment release button
8. Cable for centrifugal fan entry cable

**In the version with selector switch a 3 position changeover switch and a supplementary relay.**

## WIRING DIAGRAM WITHOUT CHANGEOVER SWITCH VERSION

Electrical diagram for electrical supply single phase, phase-neutral



<b>MC</b>	Electrical terminal block
<b>F</b>	Safety fuse 6,3 A (Ø5 x 20) delayed for motors ignition
<b>PLS</b>	Luminous release button
<b>LM</b>	Manual reset limit thermostat
<b>PR</b>	Electronic control and checking unit
<b>RV</b>	Relay centrifugal power fan motor
<b>CA</b>	Hot surface ignition electrode
<b>EI</b>	Flame detection electrode
<b>MV</b>	Fan motor
<b>FL</b>	Flow switch
<b>EV1</b>	Gas solenoid valve 1
<b>EV2</b>	Gas soneloid valve 2
<b>TR</b>	Safety thermostat automatic reset
<b>ST (*)</b>	Eventual contact for eventual fire barrier lock
<b>RESET (*)</b>	Remote display and reset
<b>TA (*)</b>	Room thermostat contact
<b>IMT (*)</b>	Magnetothermic switch

(\*) Not included in the delivery , it should be installed by the customer or the fitter.

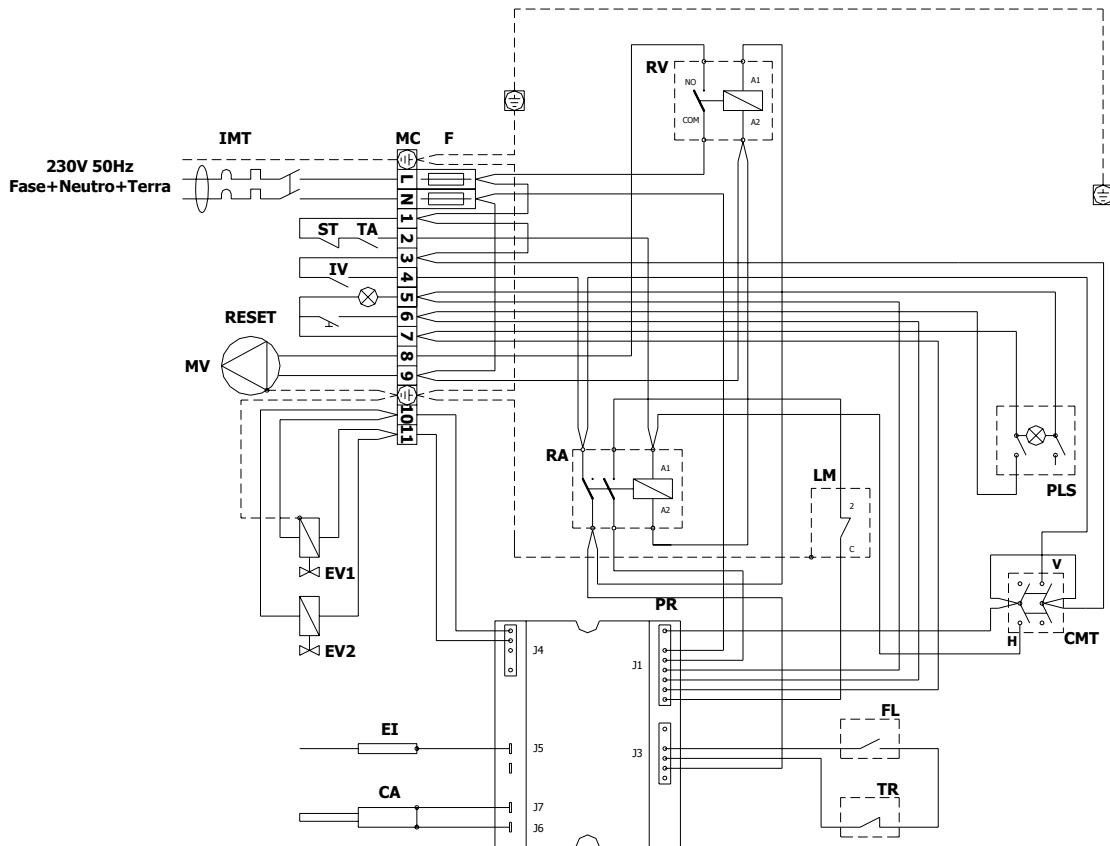


### Attention!

The electronic unit needs for a correct function an electric feed with neutral. Does this electrical line not exist; it is necessary to install an insulation transformer.

## WIRING DIAGRAM WITH CHANGEOVER SWITCH VERSION

Electrical diagram for electrical supply single phase, phase-neutral



<b>MC</b>	Electrical terminal block
<b>F</b>	Safety fuse 6,3 A (Ø5 x 20) delayed for motors ignition
<b>PLS</b>	Luminous release button
<b>LM</b>	Manual reset limit thermostat
<b>PR</b>	Electronic control and checking unit
<b>RV</b>	Centrifugal fan power control relay
<b>RA</b>	Auxiliary relay
<b>CMT</b>	Changeover switch (HEAT – AUTO – VENT)
<b>CA</b>	Hot surface ignition electrode
<b>EI</b>	Flame detection electrode
<b>MV</b>	Fan motor
<b>FL</b>	Flow switch
<b>EV1</b>	Gas solenoid valve 1
<b>EV2</b>	Gas soneloid valve 2
<b>TR</b>	Safety thermostat with automatic reset
<b>ST (*)</b>	Eventual contact for eventual fire barrier lock
<b>IV (*)</b>	Fan control
<b>RESET (*)</b>	Remote display and reset
<b>TA (*)</b>	Room thermostat contact
<b>IMT (*)</b>	Magnetothermic switch

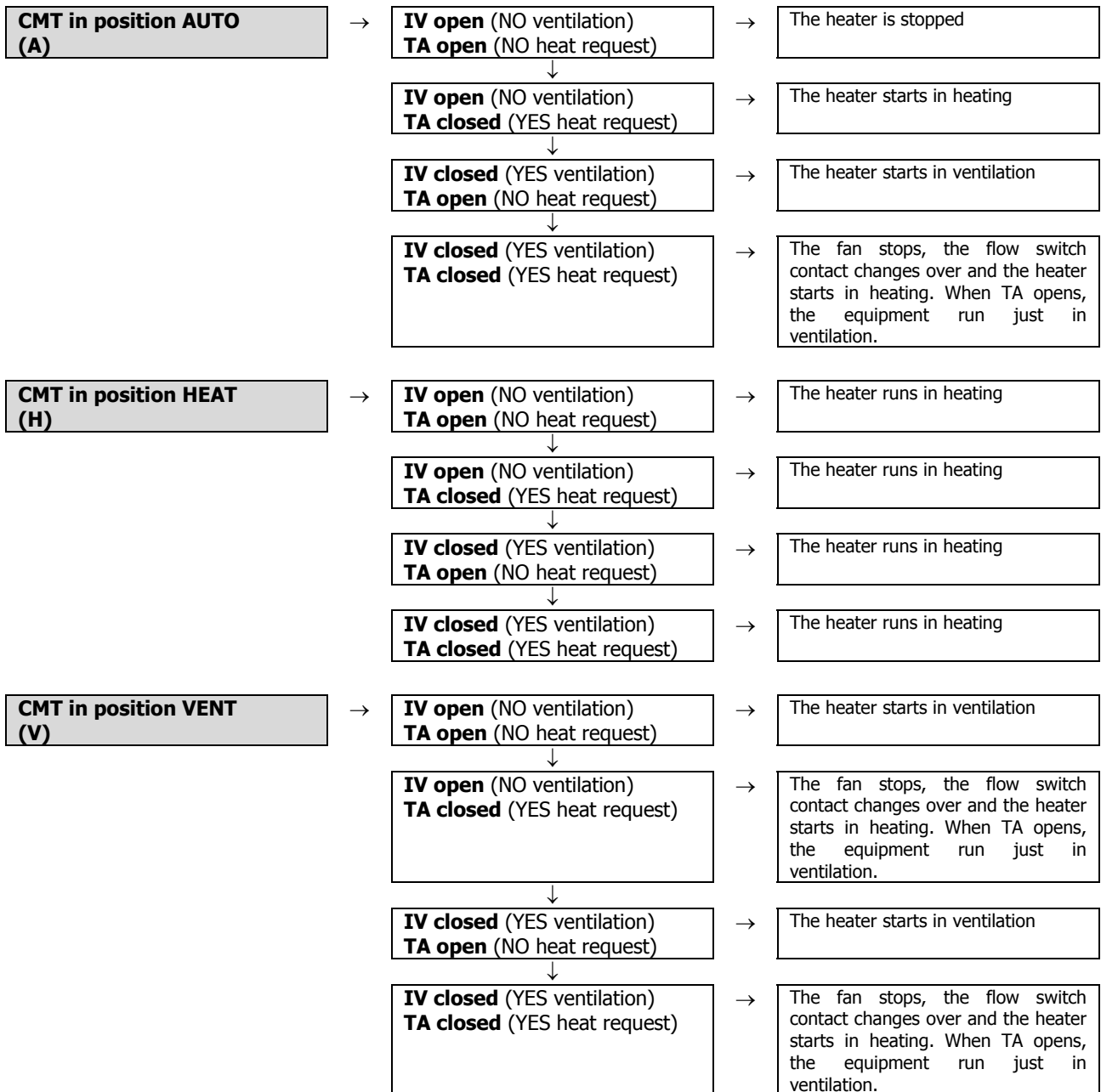
(\*) Not included in the delivery , it should be installed by the customer or the fitter.



### Attention!

The electronic unit needs for a correct function an electric supply line with neutral. If this neutral line doesn't exist, it is necessary to install an insulation transformer.

**Table for version with changeover switch.**



## SETTING UP

The heater after the first setting up, carried out by the Technical After-sales Service or authorized personnel, is pre-set for the running and no other intervention are needed.

The end-user has to carry out only the start and stop operations according to these points:

### START

- Verify that the gas taps are on position "open"
- Verify that the main switch is on position "open"
- Remove any locking systems (electronic equipment or manual reset safety thermostat)
- Choose the desired temperature on the room thermostat
- Now the function of the heater is completely automatic and the start and the turn off is regulated by the heating demand.

### TURNING OFF FOR SHORT PERIODS

- Set the room thermostat at antifreeze temperature or put the main switch on position "off"
- The heater will stop immediately

### TURNING OFF FOR LONG PERIODS

- Set the room thermostat at antifreeze temperature, or set the switch on position "off"
- The heater will stop immediately
- Close the manual gas valve
- Put the main switch on position "off"

## CLEANING

The only cleaning operation the user has to carry out is on the body panel of the equipment using a damp cloth with soap and water. If there are stubborn stains dampen the cloth with a 50% mixture of water and denatured alcohol or specific products. After cleaning dry the surfaces carefully.



The use of sponges with abrasive products or powder detergents is not permitted.



It is forbidden to carry out any cleaning operations before cutting off the electrical and fuel supplies at the heater.

## MANTEINANCE

Periodic maintenance is essential in order to keep the equipment efficient, safe and reliable at all times. The timing of some maintenance operations depends to the installation Typology; some other maintenance operations have to be carried out yearly. **Manufacturer's** Technical Assistance Dept. is technically trained for all kind of maintenance and has original spares available if they are needed

**Seller :**

Mr..:

Address:

Telephone number:

**Installer :**

Mr..:

Address:

Telephone number:

**Technical assistance dept. :**

Mr..:

Address:

Telephone number:

Date	Work done	Date	Work done

## RECEIPT OF PRODUCT

The heater is delivered with:

- Instruction manual
- Warranty certificate
- Output air duct Kit
- Gas conversion Kit (natural gas or LPG to work with its predisposition) and 4 hoisting eyebolts, which are enclosed in a transparent plastic bag inside the heater.

**The instruction manual is an essential part of the equipment and so, after the packaging has been removed, make sure that it has been collected and stored safety.**

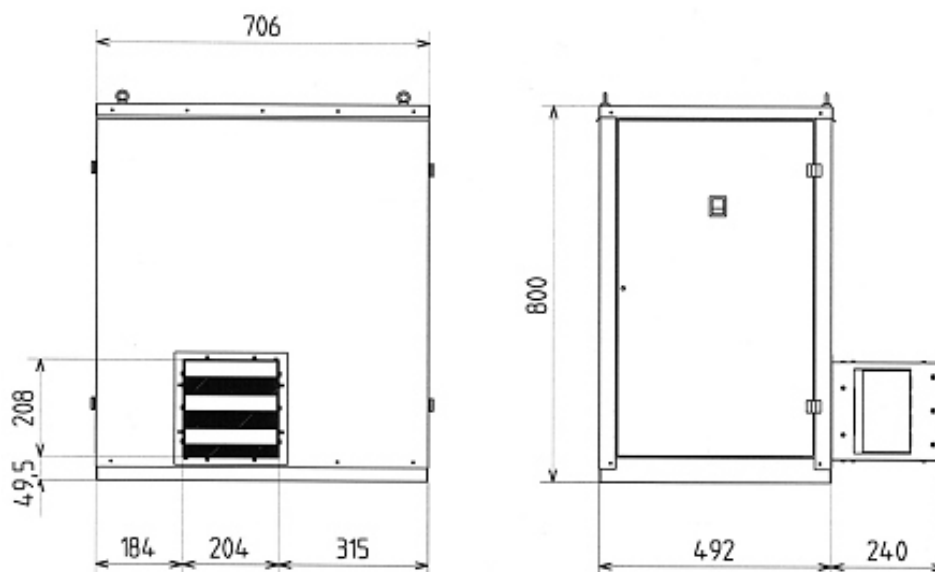
## EQUIPMENT HANDLING

The equipment must be moved by suitably equipped staff using tools which are suitable for the weight of the product. Moving (with or without packing) must only be carried out by lifting the equipment from the bottom.

⊖ It is forbidden to stay around the equipment when it is being moved.

⊖ The equipment must only be moved in a upright position.

## DIMENSIONS





## LOCATION

The location of the air heater must be determined by the plant engineer or by a competent person and must take both the technical and current legislative requirements into account, which may entail the obtaining of specific authorisations (e.g. fire prevention, urban planning, architectural, environmental pollution rules etc.). It is therefore advisable to obtain all necessary authorisation before carrying out the installation work.

The equipment may be installed, according to the demands of the case, either externally or within the room to be heated. The following minimum conditions must be respected in any case:

- Any gas tanks must be used and stored in accordance with law and regulations currently in force
- The location of the equipment must permit easy access for all normal maintenance and control operations.
- **There must be continuous ventilation in the room where the air heater is working**

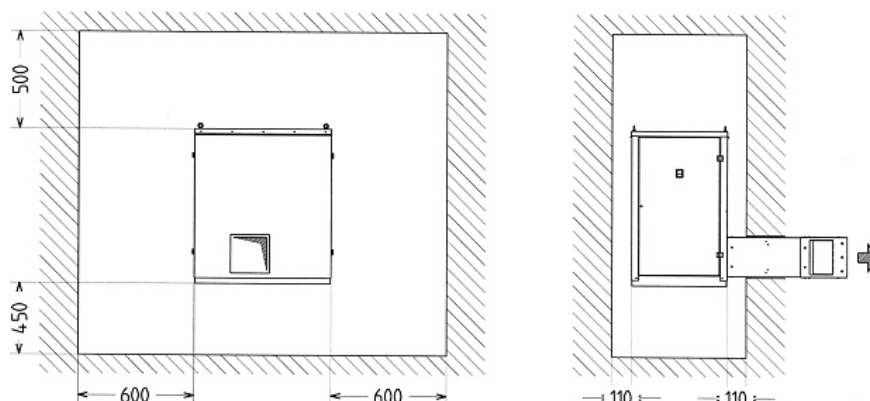
- ⊖ It is forbidden to install the equipment near to inflammable materials
- ⊖ It is forbidden to leave any material less than 2 meters from the equipment
- ⊖ It is forbidden to reduce the size of the equipment's Inlets and outlets.
- ⊖ It is forbidden to install the equipment in places where there are aggressive and/or inflammable atmospheric agents
- ⊖ It is forbidden to install the equipment in corners where dust, leaves and other such materials get deposited and which may obstruct the passage of air.

### SPECIAL WARNING FOR EXTERNAL INSTALLATION (Ref. Law EN 297/A6):

- The equipment has to be installed in a partially protected place.
- The equipment has to be used in the temperature range present in the chapter "technical data".
- The condensate formation within the equipment has to be avoided

## FREE AREA AROUND THE EQUIPMENT

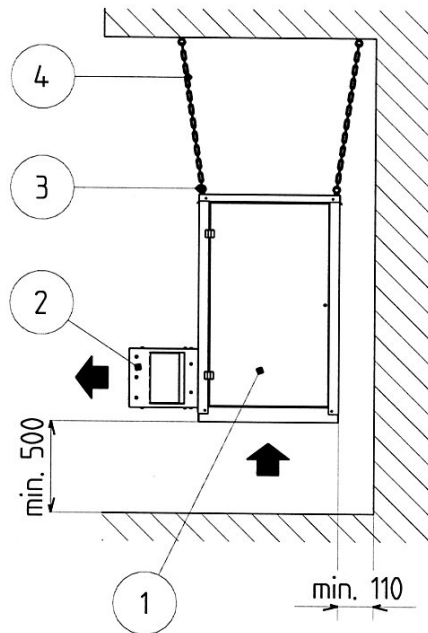
The heater must be located in a free area as shown in the figure below. The space indicated is necessary so that there will be no barriers for the air flow and that normal cleaning and maintenance operations can be carried out.



## INSTALLATION

Example of installation inside the room to be heated with complete air recirculation.

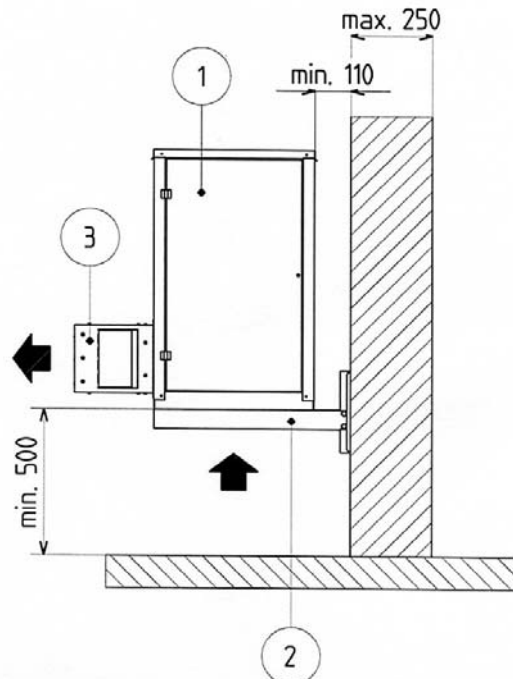
### Suspended heater with chains or steel wire



1. Air heater
2. Hot air intake
3. Hoisting eyebolt
4. Suspension chains – wires (\*)

(\*) not included

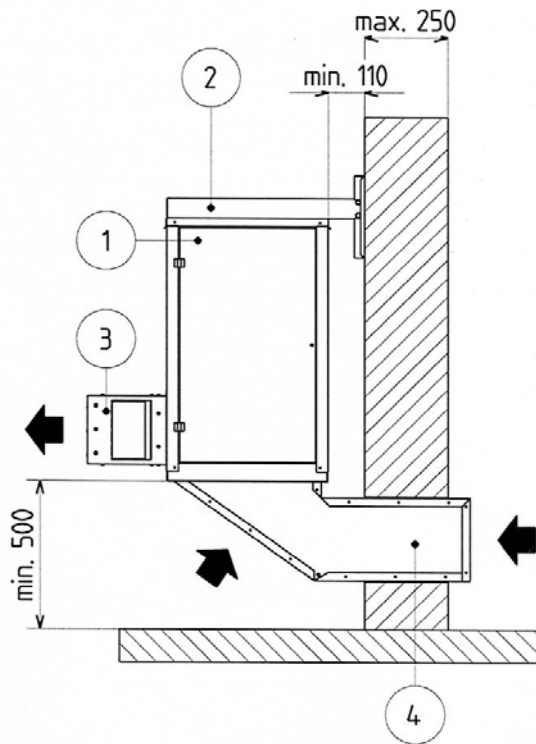
### Heater installed on support brackets



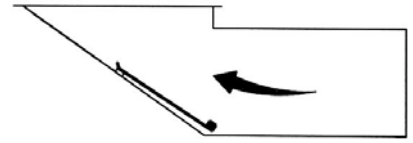
1. Air heater
2. support brackets (\*)
3. hot air inlet

(\*) not included

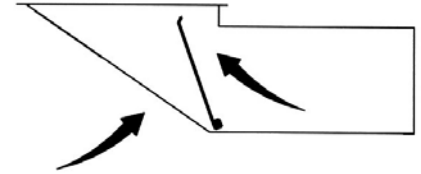
**Example of installation inside the room to be heated with complete or partial inlet of outside air:**



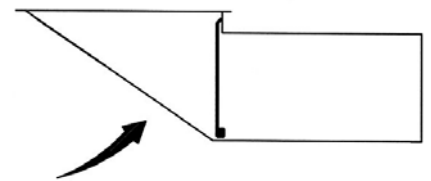
**Air inlet completely outside**



**Partial air inlet (inside and outside)**



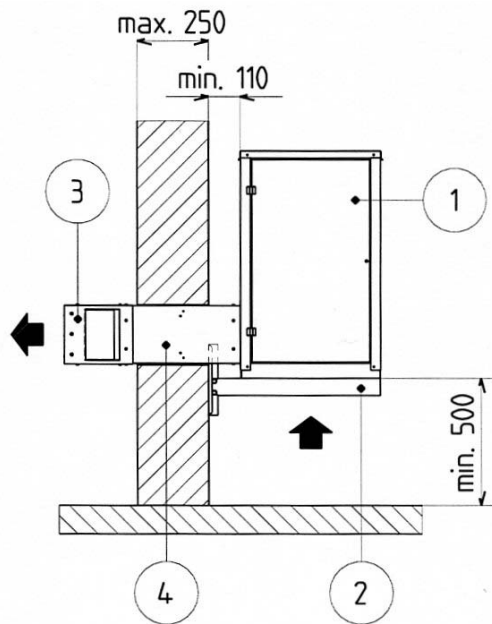
**Air inlet completely inside**



1. Air heater
2. Support brackets (\*)
3. Hot air intake
4. Air recirculating unit with air damper (\*)

(\*) Not included

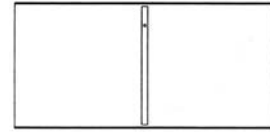
**Example of installation outside room to be heated, only with fresh air :**



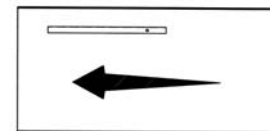
- 1.** Air heater
- 2.** Support brackets (\*)
- 3.** Final air diffuser
- 4:** Output air duct with overpressure air shutter (\*)

(\*) Not included

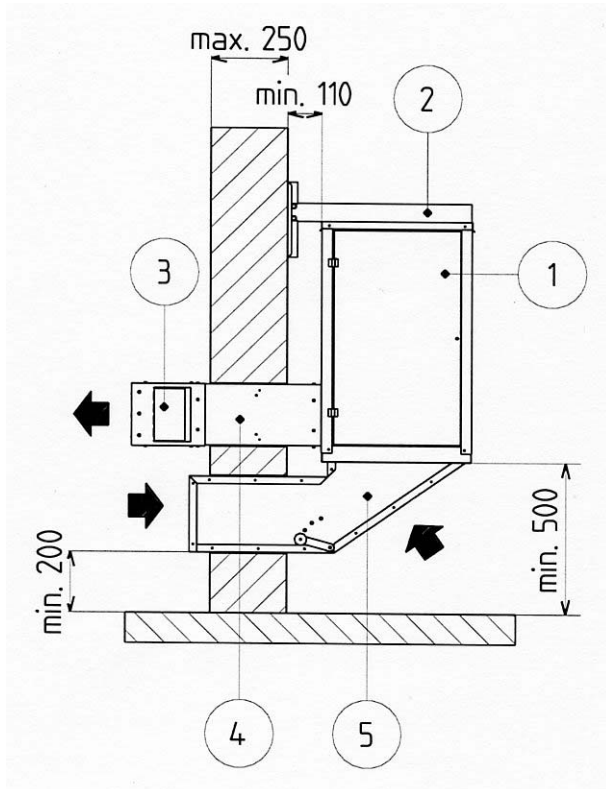
**Shutter position with no working fan**



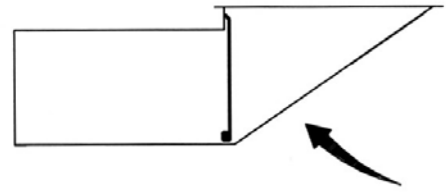
**Shutter position with working fan**



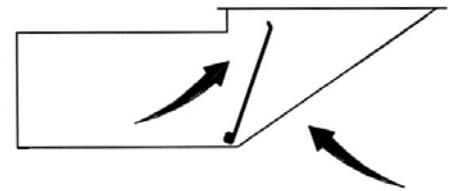
### Example of installation outside the room, with total or partial internal recirculating:



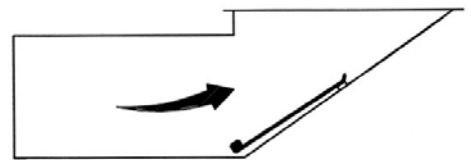
#### Air inlet completely outside



#### Air inlet partial (inside and outside)



#### Air inlet completely inside



1. Air heater
2. Support brackets (\*)
3. Final air diffuser
4. Output air duct with overpressure air shutter (\*)
5. Air recirculating unit with air damper (\*)

(\*) Not included

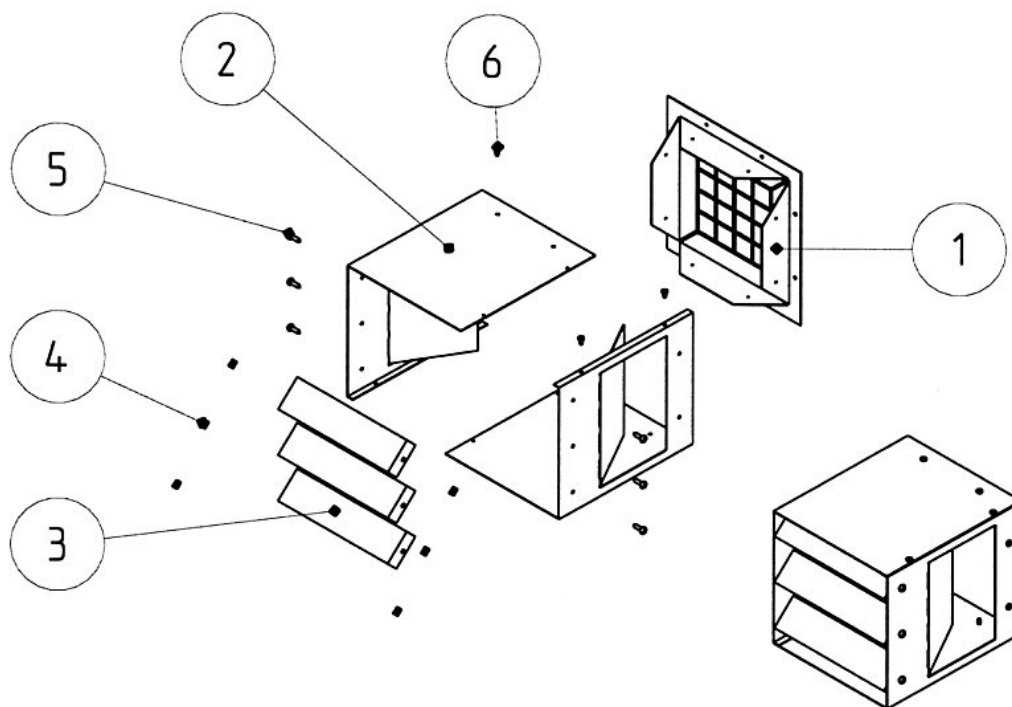
#### ATTENTION!

In this kind on installation the condensate formation within the equipment has to be prevented.

## FINAL AIR DIFFUSER

The equipment is always supplied with a hot air delivery and distribution duct.  
Also supplied are horizontal and vertical louvers, which can be adjusted to the needs of specific installation.  
Because the air duct needs space during transport, it needs to be assembled as shown below:

### Air duct assembly diagram



### Assembly instructions:

- a. Assemble the two semi-elements (**pos. 2**) using the four threaded screws 4,2 x 9 (**pos. 6**) enclosed
- b. Insert on the three flow louvers (**pos. 3**), the six friction springs (**pos. 4**) enclosed
- c. Install the three flow louvers (**pos. 3**) on the air duct assembled before, using the six threaded screws 4,8 x 16 (**pos. 5**) enclosed
- d. Assemble the final air diffuser on the warm air heater flange (**pos. 1**) using the eight threaded screws 4,2 x 9 (**pos. 6**) enclosed.
- e. Set by hand the horizontal and vertical flow louvers in the desired position

**⚠ An excessive closing of the horizontal flow louvers causes an excessive resistance with following intervention of the safety thermostats**

**⚠ During operation of the heater, the air diffuser should not be touched, since it will reach dangerous temperatures**

**⚠ The assembly and the installation of the final warm air diffuser is compulsory, as it avoids the accidental contact with the fan blades**

## OUTPUT AIR DUCT WITH OVERPRESSURE AIR SHUTTER (ACCESSORY ON REQUEST)

If the heater will be installed outside the room to be heated, it will be necessary to install an air duct through the wall.

This air duct is supplied with an air shutter working by gravity which closes the outlet of warm air when the heater is not working. When the heater is installed outside, this shutter prevents warm air to flow through the heater out of the heated room.

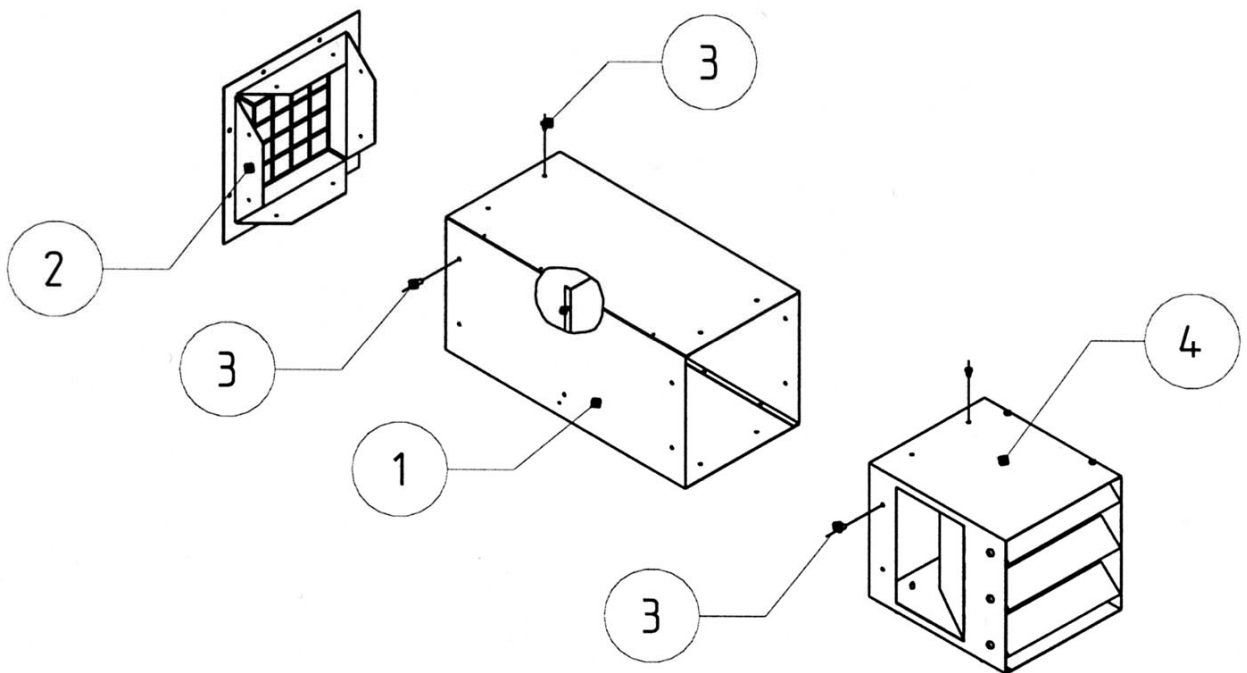


**The air shutter must be installed with the rotation axis upwards and it must have free movement in the outlet direction. Two threaded screws should be installed, so to work as a limit switch.**



**The assembly and the installation of the final warm air diffuser is compulsory, as it avoids the accidental contact with the fan blades**

### Output air duct assembly diagram

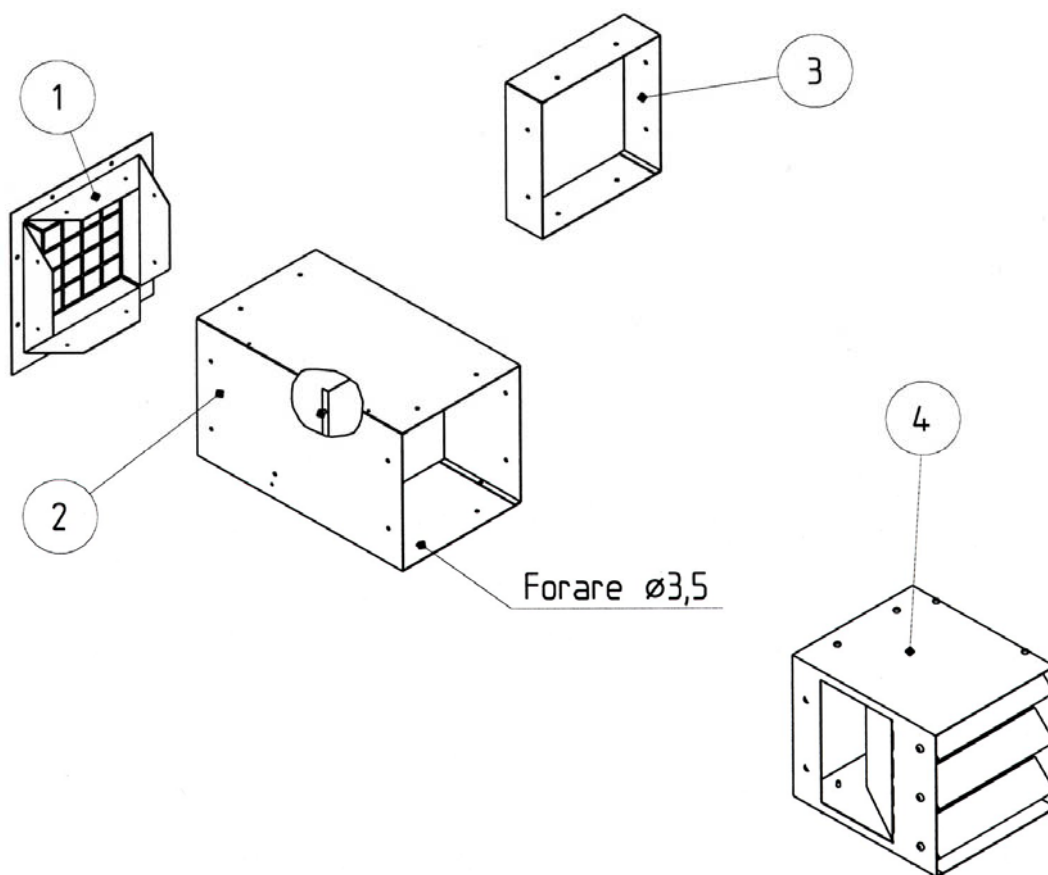


### Assembly instructions:

- a. Install the outlet air duct with overpressure air shutter (**pos. 1**) on the warm air heater flange (**pos. 2**) using the eight threaded screws 4,2 x 9 (**pos. 3**) enclosed
- b. Install the final diffuser assembled before (**pos. 4**) on the output air duct with air shutter (**pos. 1**) using the eight threaded screws 4,2 x 9 (**pos. 3**) enclosed
- c. Settle by hand the horizontal and vertical flow louvers in the desired position

## Suitable length output air duct

The outlet air duct may be shortened when necessary.  
Follow the instructions shown below:



- Cut with suitable equipment the output air duct with overpressure air shutter (**pos. 2**) to the desired length
- Discard the unwanted piece (**pos. 3**)
- Install the shortened output air duct with overpressure air shutter (**pos. 2**) on the warm air heater's flange (**pos. 1**) and install the final air diffuser (**pos. 4**)

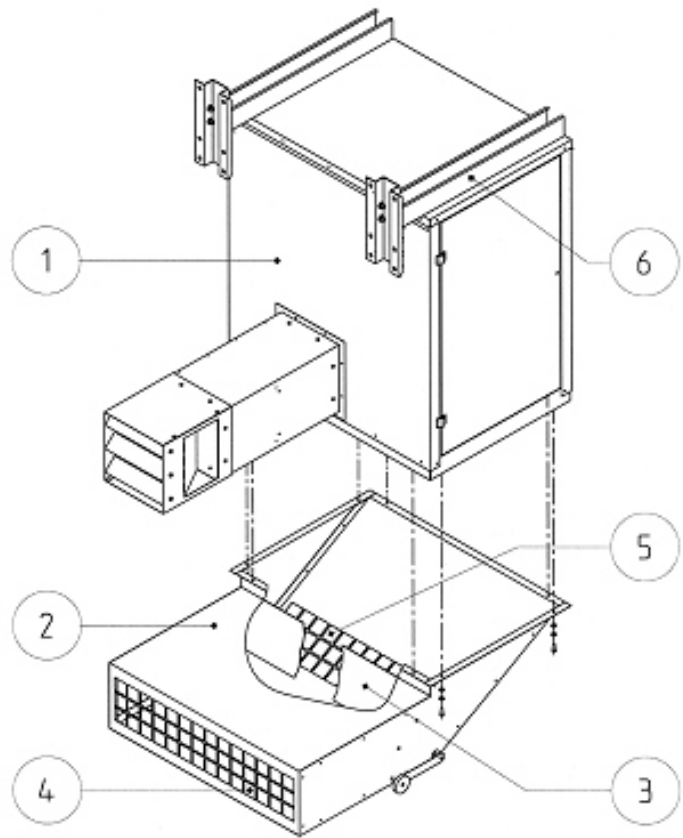


## AIR RECIRCULATING UNIT WITH AIR DAMPER (ACCESSORY ON REQUEST)

If the heater is to be installed outside of room, to be heated, but it is preferred to recycle the internal air it will be convenient to install the **air recirculating unit with damper**. It has a damper to mix the inside-outside air quantity, that can be set in several steps.

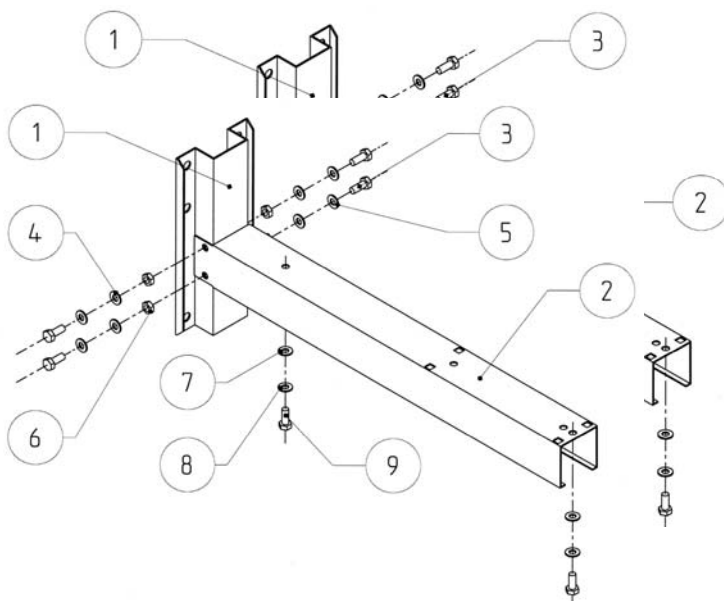
### Recirculating unit with air damper assembly diagram

1. Warm air heater
2. Recirculating duct
3. Regulating air shutter
4. Opening of aspiration internal air
5. Opening of aspiration external air
6. Supporting brackets (accessory)



## SUPPORTING BRACKETS (ACCESSORY ON REQUEST)

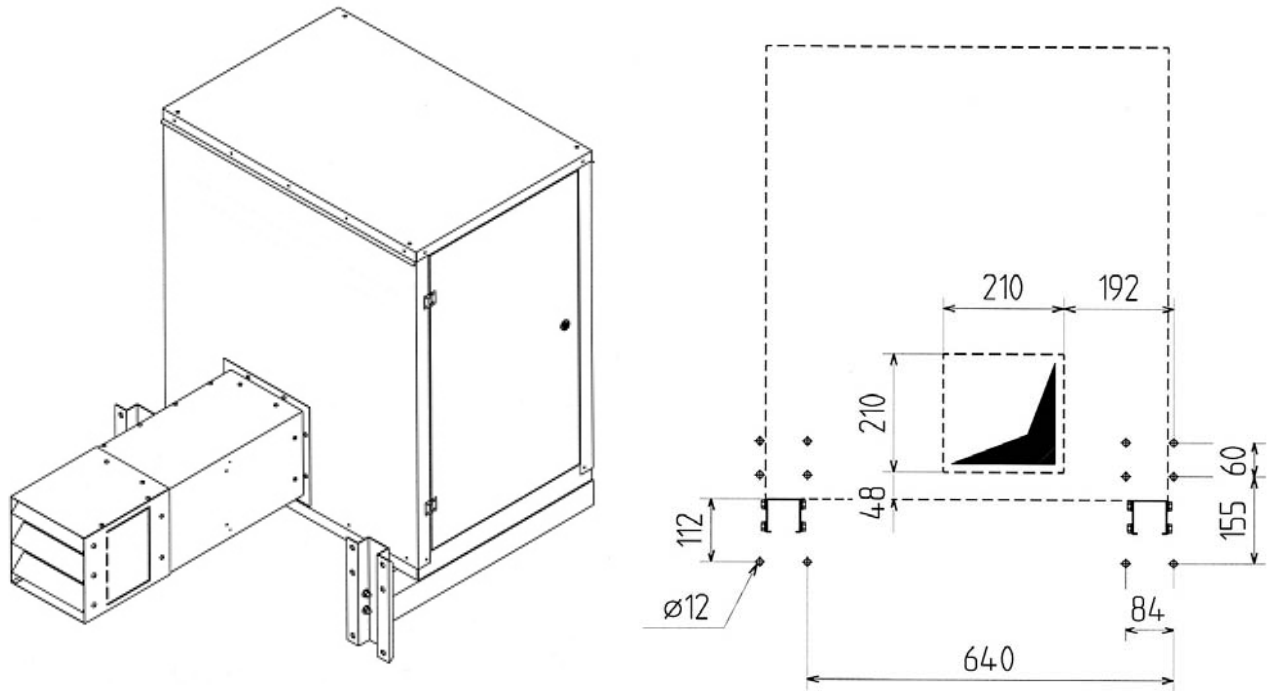
To anchor the heater on a perimeter wall, it's convenient using the supporting brackets. To reduce the space during the transport, separate components the space during transport, separate components will be send defused, to assemble as shown here below :



1. Anchor plate
2. Transverse
3. Screw TE M8 x 20
4. Flat washer Ø 8
5. Split washer Ø 8
6. Nut M8
7. Flat washer Ø 6
8. Split washer Ø 6
9. Screw TE M6 x 20

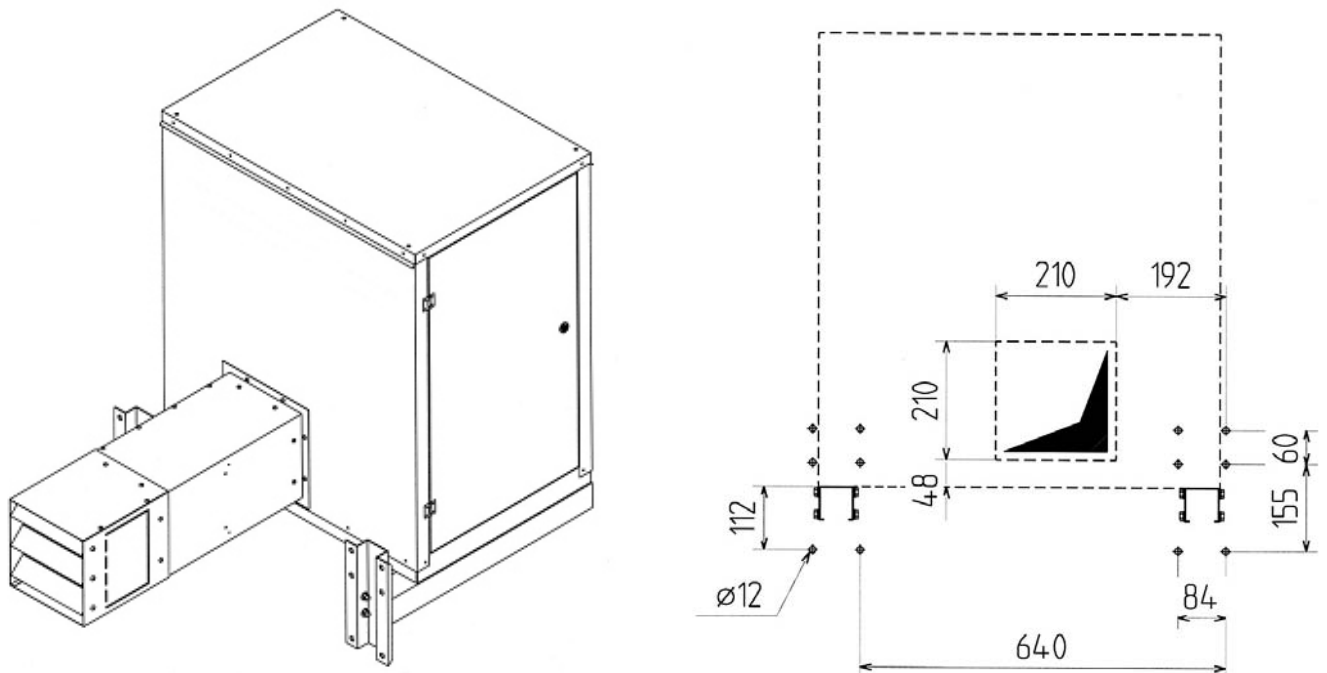
### Execution hole for output air duct installation, air recirculating unit and supporting brackets

 View holes from the outside of the wall where the heater is installed



### Execution hole for supporting brackets installation on the bottom of the heater and output air duct

 View holes from the outside of the wall where the heater is installed



## GAS LINE CONNECTION

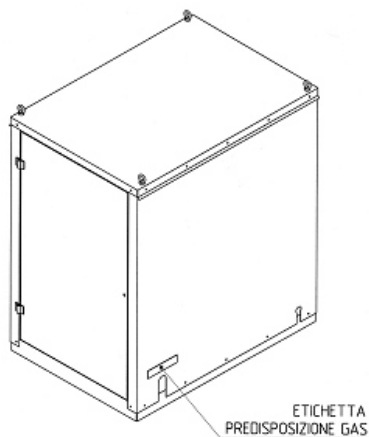
### Preregulating.

The heater is tested and regulated in the factory, so to work with the gas type as indicated on the label, which is positioned near the gas junction. A conversion kit, is also enclosed to change to other gas types present in the Country of destination.

The gas connection must be carried out only by **TECHNICAL STAFF WHO ARE AUTHORISED AND COMPETENT.**

Check the following before proceeding with the connection:

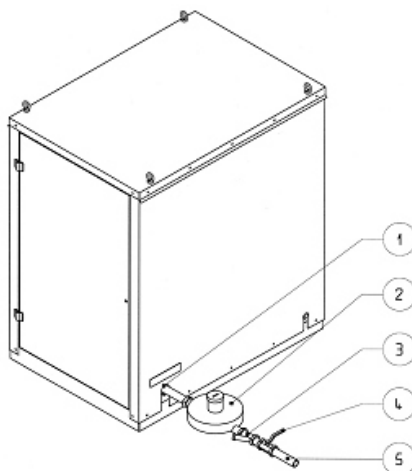
- compatibility with the mains gas supply
- the correct mains supply flow and pressure: it has to be in accordance with the table "TECHNICAL DATA" applicable for that Country



### Gas line connection

The connection is carried out by connecting the mains supply to the 1/2 female threaded pipe as shown in the diagram. Care must be taken to ensure that the tubing is suitably supported so that it does not rest on the heater.

1. **1/2 Threaded female pipe on the equipment.**
2. **Pressure stabiliser/reducer.** Necessary to ensure correct mains supply gas pressure
3. **Gas filter.** Necessary to avoid eventual impurities in the fuel supply line and to permit an easy inspection and maintenance
4. **Manual gate valve** Required for the isolation of the equipment during maintenance operations and periods when it is idle.
5. **Gas pipe**



**Notes for connecting liquid gas (propane G31, butane G30):**

When a propane or butane supply is used it is advisable to install a primary pressure reducer close to the liquid gas tank to reduce the pressure to 1.5 bars and a secondary pressure reducer near to the equipment, but outside its body, to bring the pressure down from 1.5 bars to 40 mbars.

A third reducer (see position ②) mounted in proximity to the equipment ensures the correct pressure is provided as in the table. Where fuel flows are high it is advisable to consult the plant's supplier to evaluate the mounting of any vaporiser which may be required.

To prevent any problems which could occur at the time of emptying the tank (fall in pressure), it is advisable to install a minimum pressure switch which will shut down the equipment if the gas pressure falls below a certain level.

## ELECTRICAL CONNECTION

The air heater is supplied with all the internal electrical connections already made. The installer only has to carry out the following connections:

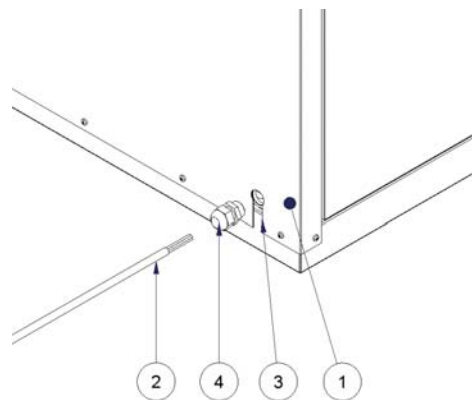
- Mains electricity supply 230V~50Hz
- Room Thermostat connection
- Possible connection of a fire barrier lock
- Optional remote reset and visual indication of lock-out.

### ELECTRICAL CHARACTERISTICS TABLE

Single phase voltage supply	Absorbed max. power [kW]	Absorbed maximum current [A]	Fuse [A]	Line conductors section [mm <sup>2</sup> ]	Earth conductors section [mm <sup>2</sup> ]
230 V 50Hz ~	0,650	3,0	6,3	1,5	1,5

The supply cables section ensures a fall in tension of less than 5% over a length of 30 meters

### ELECTRICAL CABLE ENTRY



1. Warm air heater
2. Electrical cable
3. Electrical cable entry hole
4. Cable grommet



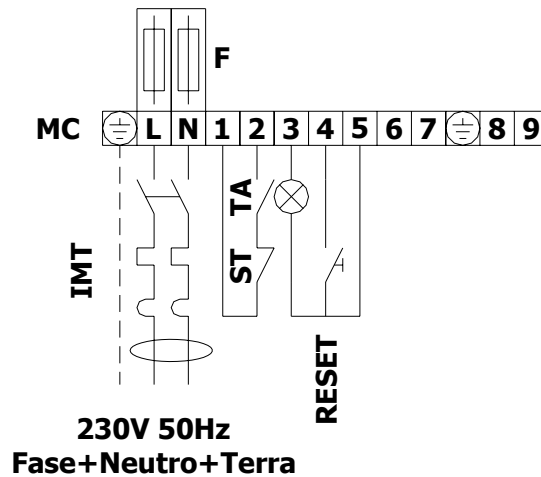
**It is forbidden to insert electrical cables inside the equipment other than in the positions specifically provided for in this manual.**

**Electrical connection**

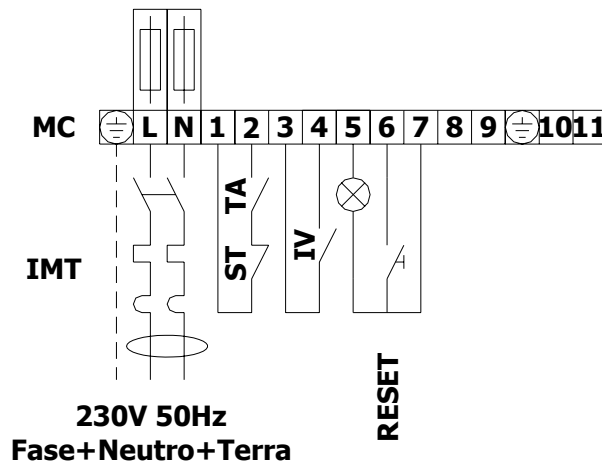
To connect up the mains supply, do as follows:

- Open the burner door
- Remove electrical panel cover
- Pass the cables through the cable channels and cable gummed
- Connect up as shown in the diagram
- When the connection have been made, lock them in place using the cable glands and replace the electrical panel cover securely.


**Electrical connection diagram (version without function changeover switch):**





**Electrical connection diagram (version with function changeover switch):**





<b>MC</b>	Terminal block
<b>F</b>	Safety fuse 6,3 A (Ø5 X 20) delayed for engine ignition
<b>IV (*)</b>	Fan control
<b>TA(*)</b>	Room Thermostat
<b>ST(*)</b>	Microswitch for a fire barrier lock
<b>RESET(*)</b>	Possible luminous remote release
<b>IMT(*)</b>	Bipolar magnetothermal switch
<b>(*)</b>	Not included in delivery, to be installed by the customer

 There must be an effective earth connection. The manufacturer may not be held liable for any damage caused by the equipment not being properly earthed.

 When placed, electrical cables must not touch warm and/or cold surfaces, or with cutting edge


 For cable section see the table ELECTRICAL CHARACTERISTICS.

 Leave the earth cable a little longer than the line wires so that if they are accidentally pulled it is the last one to get detached.

 For a good working of the equipment the connection polarity has to be respected


 **WARNING!**  
**Incorrect electrical connections may cause irreparable damage to the electronic control and checking equipment**

 **In Accordance with the installation electric rules it is necessary to preview a devices which can assure the complete disconnexion in the above-voltage III conditions (Rule EN 60335-1)**

 It is forbidden to use water pipes to earth the equipment.

## CONVERSION FOR OTHER GAS TYPES

The heater is tested and regulated in the factory, so to work with the gas type as indicated on the label, which is positioned near the gas junction. There is enclosed also a conversion kit, so to change in other gas types for different Country destination.

 **The gas connection must be carried out only by a technical staff who are authorised and competent respecting the rules, being in effect in the different destination countries of the product.**

Here below are tables which explain the configuration, as carried out by the Factory and the operation for changing the gas type.

### DESTINATION COUNTRY AUSTRIA (AT)

<b>Preregulation in the factory</b>	▶	Propane gas G31 (gas supply pressure 50 mbar)
<b>Gas conversion kit</b>	▶	Natural gas G20 Butane gas G30
<b><i>Instruction for gas conversion:</i></b>		
<b>From Propane gas G31 to Butane gas G30</b> <i>Same supplying pressure (50 mbar)</i> <i>Same gas injector dia. (4,05 mm)</i>	▶	Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injector of 26 mbar ▼ Replace the label sticker with sticker for new gas (Butane gas G30)
<b>From Propane G31 to Natural gas G20</b> <i>Same supplying pressure 20 mbar</i>	▶	Replace the spring with pressure regulator range of 0-50 mbar by one with a 0-30 mbar range ▼ Replace the gas injector diameter 4,05 mm by one with 7,25 mm ▼ Regulate and seal the pressure regulator of gas electro-valve on injector diameter of 12,5 mbar ▼ Replace the label sticker with suitable for new gas (Natural gas G20)

## DESTINATION COUNTRY BELGIUM (BE)

<b>Preregulation in the factory</b>	▶ Propane gas G31 (Gas supply pressure gas 37 mbar)
<b>Gas conversion kit</b>	▶ The conversion kit is not included with the heater, it should be requested to the authorized importer
<i>Instructions for gas conversion:</i>	
<b>From Propane gas G31 to Butane gas G30</b> Supply pressure (30 mbar) Same gas injector (4,05 mm)	▶ Check the supply pressure of Butane gas G30 either 30 mbar.  ▼ Replace the label sticker with sticker suitable for new gas (Butane G30)
<b>From Propane gas G31 to Natural gas G20-G25</b> Supply pressure 20-25 mbar	▶ Replace the gas injector diameter 4,30 mm by one with 7,25 – 8,00 mm  ▼ Check the supply pressure of Butane gas G20-G25 either 20-25 mbar  ▼ Replace the label sticker with suitable for new gas (Natural gas G20-G25)

## DESTINATION COUNTRY CZECH REPUBLIC (CZ)

<b>Preregulation in the factory</b>	▶ Propane gas G31 (Supply gas pressure gas 37 mbar)
<b>Gas conversion kit</b>	▶ Natural gas G20 Butane gas G30
<i>Instruction for gas conversion:</i>	
<b>From Propane gas G31 to Butane gas G30</b> Supply pressure (30 mbar) Same supply pressure (4,05 mm)	▶ Check the supply pressure of Butane gas G30 either 30 mbar.  ▼ Replace the label sticker with sticker suitable for new gas (Butane gas G30)
<b>From Propane gas G31 to Natural gas G20</b> Supply pressure 20 mbar	▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar  ▼ Replace the gas injector diameter 4,05 mm by one with 7,25 mm  ▼ Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar  ▼ Replace the label sticker with suitable for new gas (Natural gas G20)



## DESTINATION COUNTRY DENMARK (DK)

**Pre-regulation in the factory**

▶ Propane gas G31  
(gas supply pressure 30 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

Same supplying pressure (30 mbar)  
Same gas injector diameter (4,05 mm)

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane gas G30)

**From Propane G31 to Natural gas G20**

Same supplying pressure 20 mbar

▶ Replace the excluding pressure regulator of electro-valve with mainspring, 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injection 12,5 mbar

▼  
Replace the label sticker with suitable for new gas (Natural gas G20)

## DESTINATION COUNTRY FINLAND (FI)

**Pre-regulation in the factory**

▶ Propane gas G31  
(Supply gas pressure 30 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

Supply pressure (30 mbar)  
Same gas injector diameter (4,05 mm)

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane gas G30)

**From Propane gas G31 to Natural gas G20**  
Supply pressure 20 mbar

▶ Replace the excluding reducer of pressure of electro-valve with mainspring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with sticker suitable for new gas (Natural G20)

## DESTINATION COUNTRY FRANCE (FR)

<b>Pre-regulation in the factory</b>	▶ Propane gas G31 (gas supply pressure 37 mbar)
<b>Gas conversion kit</b>	▶ Natural gas G20 Natural gas G25 Butane gas G30
<i>Instruction for gas conversion:</i>	
<b>From Propane gas G31 to Butane gas G30</b> Supply pressure (30 mbar) Same gas injector diameter (4,05 mm)	▶ Check the supply pressure of Butane gas G30 either 30 mbar
	▼
	Replace the label sticker with sticker suitable for new gas (Butane gas G30)
<b>From Propane gas G31 to Natural gas G20</b> Supply pressure 20 mbar	▶ Replace the excluding pressure regulator of electro-valve by one spring with a regulating pressure of 0-30 mbar
	▼
	Replace the gas injector diameter 4,05 mm by one with 7,25 mm
	▼
	Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar
▼	
	Replace the label sticker with suitable for new gas (Natural gas G20)
<b>From Propane gas G31 to Natural gas G25</b> Supply pressure 25 mbar	▶ Replace the excluding reducer of pressure of electro-valve with mainspring of regulation pressure 0-30 mbar
	▼
	Replace the gas injector diameter 4,05 mm by one with 8,00 mm
	▼
	Regulate and seal the reducer of pressure of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar
▼	
	Replace the label sticker with suitable for new gas (Natural gas G25)

## DESTINATION COUNTRY GERMANY (DE)

### Pre-regulation in the factory

- ▶ Propane gas G31  
(Supply gas pressure 50 mbar)

### Kit Trasformazione di gas

- ▶ Natural gas G20  
Natural gas G25  
Butane gas G30

### *Instruction for gas conversion:*

#### From Propane gas G31 to Butane gas G30

Same supply pressure (50 mbar)  
Same gas injector diameter (4,05 mm)

- ▶ Regulate and seal the reducer of pressure of gas electro-valve, so to obtain a pressure on injection of 26 mbar

▼

Replace the label sticker with sticker suitable for new gas (Butane gas G30)

#### From Propane gas G31 to Butane gas G20

Supply pressure 20 mbar

- ▶ Replace the spring of pressure 0-50 mbar by one with a 0-30 mbar range

▼

Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼

Replace the gas injector diameter 4,30 mm by one with 8,00 mm

▼

Replace the label sticker with sticker suitable for new gas (Natural gas G20)

#### From Propane gas G31 to Natural gas G25

Supply pressure 25 mbar

- ▶ Replace the spring of pressure 0-50 mbar by one with a 0-30 mbar range

▼

Replace the gas injector diameter 4,05 mm by one with 8,00 mm

▼

Regulate and seal the reducer of pressure of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar

▼

Replace the label sticker with sticker suitable for new gas (Natural gas G25)

## DESTINATION COUNTRY GREAT BRITAIN (GB)

<b>Pre-regulation in the factory</b>	▶ Propane gas G31 (supply gas pressure 37 mbar)
<b>Gas conversion kit</b>	▶ Natural gas G20 Butane gas G30
<b><i>Instruction for gas conversion:</i></b>	
<b>Propane gas G31 to Butane gas G30</b> Supply pressure (30 mbar) Same gas injector diameter (4,05 mm)	▶ Check the supply pressure of Butane gas G30 either 30 mbar.  ▼ Replace the label sticker with sticker suitable for new gas (Butane G30)
<b>From Propane gas G31 to Natural gas G20</b> <i>Supply pressure 20 mbar</i>	▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar  ▼ Replace the gas injector diameter 4,05 mm by one with 7,25 mm  ▼ Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar  ▼ Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY GREECE (GR)

<b>Pre-regulation in the factory</b>	▶ Propane gas G31 (supply gas pressure 37 mbar)
<b>Gas conversion kit</b>	▶ Natural gas G20 Butane gas G30
<b><i>Instruction for gas conversion:</i></b>	
<b>From Propane gas G31 to Butane gas G30</b> <i>Supply pressure (30 mbar)</i> <i>Same gas injector diameter (4,05 mm)</i>	▶ Check the supply pressure of Butane gas G30 either 30 mbar.  ▼ Replace the label sticker with sticker suitable for new gas (Butane G30)
<b>Da Propane gas G31 a Natural gas G20</b> <i>Supply pressure 20 mbar</i>	▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar  ▼ Replace the gas injector diameter 4,05 mm by one with 7,25 mm  ▼ Regulate and seal the pressure regulator of gas electro-valve, so to obtain a pressure on injection of 12,5 mbar  ▼ Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY HUNGARY (HU)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (28 mbar)  
Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 28 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 8,00 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY ICELAND (IS)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (30 mbar)  
Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY IRELAND (IE)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (30 mbar)  
Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 30 mbar

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 8,00 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY ITALY (I)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (30 mbar)  
Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY LUXEMBOURG (LU)

**Pre-regulation in the factory**

- ▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

- ▶ Natural gas G20  
Natural gas G25

### *Instruction for gas conversion:*

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

- ▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar



Replace the gas injector diameter 4,05 mm by one with 7,25 mm



Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar



Replace the label sticker with the one suitable for the new gas (Natural gas G20)

**From Propane gas G31 to Natural gas G25**

*Supply pressure 25 mbar*

- ▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar



Replace the gas injector diameter 4,05 by one with 8,00 mm



Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar



Replace the label sticker with the one suitable for the new gas (Natural gas G25)

## DESTINATION COUNTRY OLANDA (NL)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 30 mbar)

**Gas conversion kit**

▶ Natural gas G25  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (30 mbar)*

*Same gas injector diameter (4,05 mm)*

▶ Regulate and seal the reducer of pressure of gas electro-valve, so to obtain a pressure of 26 mbar

▼

Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G25**

*Supply pressure 25 mbar*

▶ Replace the excluding reducer of pressure of electro-valve 0-50 mbar with spring of regulation pressure 0-30 mbar.

▼

Replace the gas injector diameter 4,05 mm by one with 8,00 mm

▼

Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼

Replace the label sticker with the one suitable for the new gas (Natural gas G25)

## DESTINATION COUNTRY NORWAY (NO)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (30 mbar)*

*Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼

Replace the label sticker with sticker suitable for new gas (Butane G30)



## DESTINATION COUNTRY PORTUGAL (PT)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (30 mbar)*

*Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## DESTINATION COUNTRY SPAIN (ES)

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 37 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Propane gas G31

### *Instruction for gas conversion:*

**From Propane gas G31 to Butane gas G30**

*Supply pressure (28 mbar)*

*Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 28 mbar

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**

*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

**DESTINATION COUNTRY SWEDEN (SE)**

**Pre-regulation in the factory**

▶ Propane gas G31  
(supply gas pressure 30 mbar)

**Gas conversion kit**

▶ Natural gas G20  
Butane gas G30

***Instruction for gas conversion:***

**From Propane gas G31 to Butane gas G30**  
*Supply pressure (30 mbar)*  
*Same gas injector diameter (4,05 mm)*

▶ Check the supply pressure of Butane gas G30 either 30 mbar.

▼  
Replace the label sticker with sticker suitable for new gas (Butane G30)

**From Propane gas G31 to Natural gas G20**  
*Supply pressure 20 mbar*

▶ Replace the excluding reducer of pressure of electro-valve with spring of regulation pressure 0-30 mbar

▼  
Replace the gas injector diameter 4,05 mm by one with 7,25 mm

▼  
Regulate and seal the pressure regulator of gas eletro-valve, so to obtain a pressure on injection of 12,5 mbar

▼  
Replace the label sticker with the one suitable for the new gas (Natural gas G20)

## INJECTOR AND GAS PRESSURE TABLE

### Warm ai heater destined to:

- Greece (GR)
- Great Britain (GB)
- Ireland (IE)
- Iceland (IS)
- Italy (IT)
- Portugal (PT)
- Spain (ES)

Gas type	Injector diameter (mm)	Gas pressure on the injector (mbar)	Gas supply pressure (mbar)
Natural gas G20	7,25	12,5	20
Propane gas G31	4,30	35	37
Butane gas G30	4,30	26	30

### Warm air heater destined for:

- Austria (AT)
- Switzerland (CH)

Gas type	Injector diameter (mm)	Gas pressure On the injector (mbar)	Gas supplying pressure (mbar)
Natural gas G20	7,25	12,5	20
Propane gas G31	4,30 *	35	50
Butane gas G30	4,30 *	26	50

### Warm air heater destined for:

- Belgium (BE)

Gas type	Injector diameter (mm)	Gas pressure On the injector (mbar)	Gas supplying pressure (mbar)
Natural gas G20	7,25	12,5	20
Natural gas G25	8,00	12,5	25
Propane gas G31	4,30 *	35	37
Butane gas G30	4,30 *	26	30

### Warm air heater destined for:

- Czech Republic (CZ)

Gas type	Injector diameter (mm)	Gas pressure On the injector (mbar)	Gas supplying pressure (mbar)
Natural gas G20	7,25	12,5	20
Propane gas G31	4,30 *	35	30-37
Butane gas G30	4,30 *	26	30

### Warm air heater destined for:

- Denmark (DK)
- Finland (FI)
- Sweden (SE)

Gas type	Injector diameter (mm)	Gas pressure On the injector (mbar)	Gas supplying pressure (mbar)
Natural gas G20	7,25	12,5	20
Propane gas G31	4,30 *	35	30
Butane gas G30	4,30 *	26	30

\* To improve the reliability of the heater, even under heavy working conditions (reduced air flow, combustion gas with a different heat power, etc.) a standard injector with a dia. 4,05 mm. Is installed.

**Warm air heater destined for:****- France (FR)**

<b>Gas type</b>	<b>Injector diameter (mm)</b>	<b>Gas pressure On the injector (mbar)</b>	<b>Gas supplying pressure (mbar)</b>
Natural gas G20	7,25	12,5	20
Natural gas G25	8,00	12,5	25
Propane gas G31	4,30 *	35	37
Butane gas G30	4,30 *	26	30

**Warm air heater destined for:****- Germany (DE)**

<b>Gas type</b>	<b>Injector diameter (mm)</b>	<b>Gas pressure On the injector (mbar)</b>	<b>Gas supplying pressure (mbar)</b>
Natural gas G20	7,25	12,5	20
Natural gas G25	8,00	12,5	25
Propane gas G31	4,30 *	35	50
Butane gas G30	4,30 *	26	50

**Warm air heater destined for:****- Hungary (HU)**

<b>Gas type</b>	<b>Injector diameter (mm)</b>	<b>Gas pressure On the injector (mbar)</b>	<b>Gas supplying pressure (mbar)</b>
Natural gas G20	7,25	12,5	20
Propane gas G31	4,30 *	35	30-37
Butane gas G30	4,30 *	26	28-30

**Warm air heater destined for:****- Luxembourg (LU)**

<b>Gas type</b>	<b>Injector diameter (mm)</b>	<b>Gas pressure On the injector (mbar)</b>	<b>Gas supplying pressure (mbar)</b>
Natural gas G20	7,25	12,5	20
Natural gas G25	8,00	12,5	25
Propane gas G31	4,30 *	35	37

**Warm air heater destined for:****- The Netherlands (NL)**

<b>Gas type</b>	<b>Injector diameter (mm)</b>	<b>Gas pressure On the injector (mbar)</b>	<b>Gas supplying pressure (mbar)</b>
Natural gas G25	8,00	12,5	25
Propane gas G31	4,30 *	35	30
Butane gas G30	4,30 *	26	30

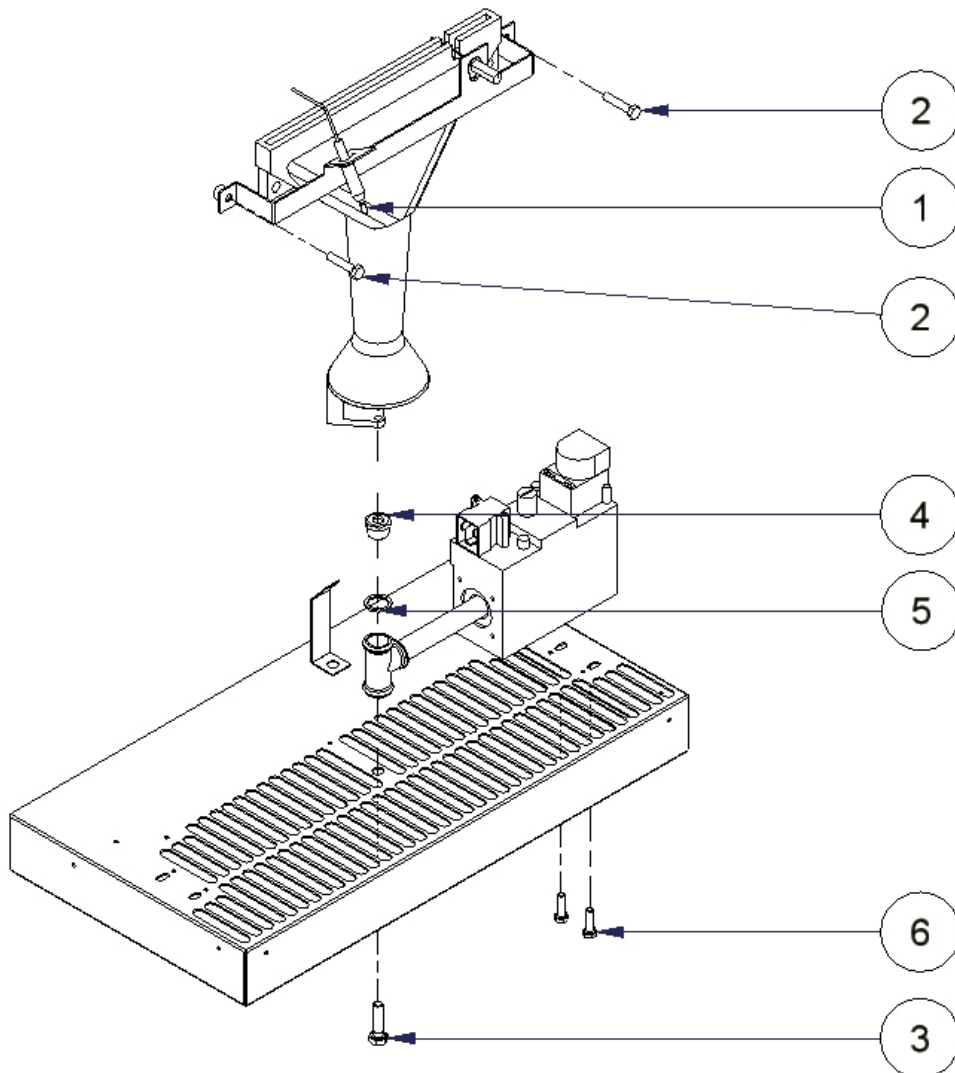
**Warm air heater destined for:****- Norway (NO)**

<b>Gas type</b>	<b>Injector diameter (mm)</b>	<b>Gas pressure On the injector (mbar)</b>	<b>Gas supplying pressure (mbar)</b>
Propane gas G31	4,30 *	35	37
Butane gas G30	4,30 *	26	30

\* \* To improve the reliability of the heater, even under heavy working conditions (reduced air flow, combustion gas with a different heat power, etc.) a standard injector with a dia. 4,05 mm. is installed.

## GAS INJECTOR REPLACEMENT

To replace the injector proceed as follows:



- |   |   |
|---|---|
| <p><b>a.</b> Cut off any forms of energy (gas and electricity) to the equipment.</p> <p><b>b.</b> Detach the connectors ① to the ignition and ionisation</p> <p><b>c.</b> Loosen the screws ②, ③ and ⑥ so remove the burner and the frame carrying the electrodes</p> | <p><b>d.</b> Remove the injector ④ with the gasket ⑤</p> <p><b>e.</b> Mount the new injector with its new gasket ⑤</p> <p><b>f.</b> Reassemble reversing the above steps and attach the sticker supplied for the new gas in use</p> |
|---|---|



**WARNING!**

The seal gasket must be checked after each nozzle change..

## SOLENOID VALVE ADJUSTMENT

### Setting the pressure regulator of the gas control valve

The gas control valve is supplied with a pressure regulator with a working range of 0-30 mbar, to set the correct pressure at the gas injector. It is used to work with Natural gas G20-25 (supply pressure 20 – 25 mbar), if Propane gas G31 and Butane gas G30 is supplied at a higher pressure of 50 or 37 – 30 mbar. In this case it is necessary to use a spring with an work range of 0-50 mbar.

To change the injector gas pressure:

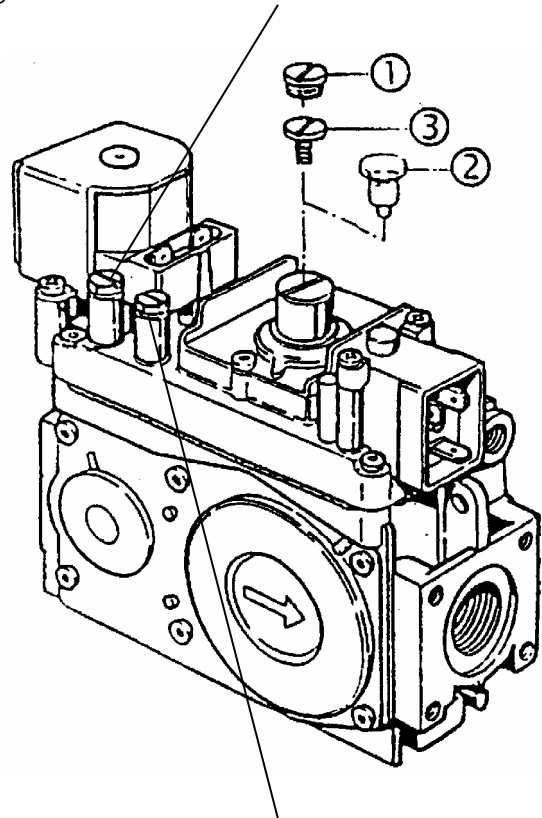
- Remove the metal plug (1).
- Turn the adjustment screw below (3). When turned clockwise the output pressure is increased and when turned anti-clockwise it is decreased
- Once adjusted the regulation screw is adjusted, fix the metal plug and seal it with a varnish drop.

### Excluding reducer of gas electro-valve pressure

The excluding reducer of gas electro-valve pressure has the function to exclude the pressure reducer of the gas electro-valve, so that the supply gas pressure is the same of the injector. This is applied at any time a change from Propane (37 mbar pressure) to Butan G30 (28 mbar pressure) is foreseen without any regulation.

**During control operation and gas pressure regulation do not touch cutting parties and/or the flame**

*Inlet pressure measuring point before the pressure regulator*



*Pressure take up point after the pressure regulator*

### **WARNING!**

**A SUPPLY GAS PRESSURE WHICH IS HIGHER THAN 60 mbar CAUSES IRREPARABLE DAMAGES TO THE GAS ELECTRO-VALVE GROUP WITH THE CONSEQUENT NEED TO CHANGE IT**

**After every gas conversion the label must be updated.**

## FIRST SETTING UP

The commissioning must be carried out by **THE TECHNICAL ASSISTANCE DEPT. OF THE MANUFACTURER OR BY A QUALIFIED TECHNICIAN.**

Once the equipment has been installed, and before it is started up, check the following:

- All the safety conditions have been observed
- The heater has been fixed correctly to the building structure.
- That the free area around the machine has been respected
- The gas connection have been properly carried out
- The gas pipes have been vented
- All the taps are open
- All the electrical connections have been properly carried out

### FIRST START UP

Per To start the equipment up for the first time, follow the instructions below:

- Remove the pressure measuring screw after the solenoid gas valve pressure reducer and attach a manometer with 0/50 mbar
- Open the gas tap
- Switch on mains supply to the equipment
- Close the room thermostat contact
- Remove any possible mechanical locks ( electronic equipment and/or manual reset safety thermostat

The equipment now carries out a pre-purge lasting about 5 seconds, the pressure switch contact is closed and the ignition discharges, the gas solenoid valve opens and the flame is ignited.

The equipment makes five ignition attempts before blocking

Check:

- The gas pressure at the injector by means of the manometer just connected and adjust if necessary in accordance with the plate indication
- Gas consumption by reading the gas meter
- The temperature of the intake air (see the charter Technical data), with a tolerance of  $\pm 10^{\circ}\text{C}$
- For any faults in the safety devices (flow switch , safety thermostat protection, etc.)
- For any gas leaks.

Now switch off the equipment and switch on the room thermostat contact, switch off mains electrical supply and close gas supply tap, detach the manometer pipe and fully insert the pressure take up screw to close it firmly.

Open the gas tap, switch on electrical mains supply and set the room thermostat to the desired temperature.

**THE HEATER IS NOW READY FOR USE.**

## ORDINARY MAINTENANCE

Periodic maintenance is essential for proper and energy efficient working of the equipment.

The maintenance plan which manufacturer's technical assistance dept. or dealer must observe on an annual basis includes the following operations and checks:

- Burner adjustment
- Checks on safety devices
- Electric supply
- Tightening of electrical connections
- Cleaning of body shell
- Cleaning of internal parts



in the case of equipment installed in heavy situation (for example dusty rooms), these maintenance operations have be done in reduced periods.



It is prohibited to use liquids to clean internal parts of the equipment.

**USE COMPRESSED AIR ONLY**

## TECHNICAL ASSISTANCE

The installation, setting up and maintenance of the heaters must be carried out by **AUTHORISED AND TECHNICALLY COMPETENT PERSONS**.

You can ask the technical assistance department of your manufacturer, for help and they will tell you where your nearest authorised centre is located.

## FAULTS AND SOLUTIONS

FAULT	CAUSE	SOLUTION
<b>The equipment shows no signs of life</b> <i>No signs</i>	▶ No electrical supply	▶ Check main switch Check fuses Check electrical line Check electrical connections
	▼ Flow switch vane locked	▶ Check the free movement of flow switch vane
	▼ Defective electrical contact of flow switch	▶ Replace the flow switch
	▼ Electronic fault	▶ Check electronic equipment Replace electronic control unit
<b>The ignition discharge does not take place</b> <i>The fan is not working</i>	▶ Room thermostat open	▶ Check room thermostat
	▼ Defective fan	▶ Replacce fan and/or capacitor
	▼ Defective electrical contact of flow switch	▶ Check the fuse Replace the electrical box
	▼ Defective flow switch	▶ Replace flow switch
<b>The ignition discharge does not take place</b> <i>The fan is working</i>	▶ Excessive pipe resistance	▶ Check regulation of flow switchman Check eventual impediment
	▼ Defective flow switch	▶ Replace flow switch
	▼ Defective fan (motor)	▶ Replace fan and/or condenser
	▼ Defective electronic equipment	▶ Check the fuse of electronic control unit Replace the electronic control unit



FAULT	CAUSE	SOLUTION
<b>The burner stops abnormally and casual</b>	Excessive resistance of outlet air duct	Check the hot air outlet for obstructions of flow switch
	Defective flow switch	Replace flow switch
	Room thermostat positioned near the warm air flow	Change its position
<b>LIMIT thermostat intervention</b>	Excessive gas pressure	Check injector gas pressure
	Incorrect injectors	Check diameter of injectors
	Dirty fan wheel	Clean fan wheel
	Too much resistance on the outlet air duct	Check regulation of flow deviators Remove eventual obstructions
	Faulty LIMIT thermostat	Replace LIMIT thermostat
<b>The electronic equipment locks out</b> The red light is burning	Air in the gas pipes	Vent the pipes
	Wrong gas pressure	Check the gas pressure
	Faulty ignition electrode Ionization electrode	Check the ignition electrodes and ionization electrodes
	Faulty ignition discharge	Check the position of ignition electrode and flame Check the ignition transformer
	Faulty gas electro-valve solenoid	Check the gas electro-valve
	Faulty electronic control unit	Check the fuse of electronic control unit Replace electronic control unit
	Polarity of electrical supply	Check phase-neutral-earth
<b>The electronic equipment will not unlock</b>	Faulty electronic unit	Check the fuse of electronic control unit Replace electronic control equipment
<b>The heater works continuously without reaching the desired temperature</b>	Insufficient heating power	Replace or add equipment of sufficient power
	The gas consumption is too low	Check the gas pressures and diameter of injectors







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Since the company is constantly seeking to improve all of its products' aesthetic appearance, dimensions, technical details, equipment and accessories, these may all be subject to changes.