SOLARONICS CHAUFFAGE

High Efficiency Warm Air Heater

MINIGAZ ECO 3

— Technical instructions —

MH 25/35/45/60/80 ECO3
MV 35/45/60/80 ECO3
MC 35/45/60/80 ECO3

Atmospheric Burner 2 stages
Without condensation

ERP Energy related product 2021

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Summary

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1. Introduction

In these instructions, warnings are used to draw attention to particular indications. This is to ensure the safety of the user, to avoid problems and to guarantee the correct functioning of the appliance.

WARNING

Indicates a possible dangerous situation that may result in personal injury and/or property damage.

Report important information.

Report a reference to other instructions or pages in the manual.

Before installing and commissioning the appliance, read the instructions carefully.

1.1. General

1.1.1. Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various applicable European directives and are therefore delivered with the CE(EC) label and all the necessary documents.
As we are concerned about the quality of our products, we are constantly seeking to improve them. We therefore reserve the right to modify the characteristics indicated in this document at any time. Our liability as manufacturer does not apply in the following cases:

- Non-compliance with the instructions for use of the appliance.
- Failure to maintain the appliance properly.
- Failure to follow the installation instructions for the appliance.

1.1.2. Installer's liability

The installer is responsible for the installation and initial operation of the appliance. The installer must observe the following instructions:

- Read and follow the instructions in the manuals supplied with the appliance.
- Carry out the installation in accordance with current legislation and standards.
- Carry out the initial commissioning and all necessary checks.
- Explain the installation to the user.
- Inform the user that he/she cannot make any changes to the design of the equipment and the installation. The slightest modification (exchange, removal...) of safety components or parts will systematically lead to the withdrawal of the CE(EC) label for the equipment.
- Warn the user of the obligation to check and maintain the equipment.
- Give all manuals to the user.

1.1.3. User's liability

In order to ensure optimal operation of the appliance, the user must observe the following instructions:

- Read and follow the instructions in the manuals supplied with the appliance.
- Use qualified professionals to carry out the installation and initial start-up.
- Have the installation explained by the installer.
- Have the necessary checks and maintenance carried out.
- Keep the instructions in good condition near the appliance.

A maintenance contract is strongly recommended and is compulsory for appliances installed in public buildings.

1.2. Certifications

The equipment complies with the essential requirements of Regulation (EU)2016/426 « Gas appliances ». It is registered under the number n° 1312DL6489, standards EN17082:2019.

The appliances covered by this annual also comply with the directives:

- Low voltage 2014/35/EU
- Electromagnetic Compatibility 2014/30/EU
- Eco-design 2009/125/CE, according to the requirements of Regulation (EU) 2016/2281-2282-2283 of 30 November 2016.

2. Safety instructions and recommendations

2.1. Safety instructions

WARNING

The gas heater is a live appliance and as such it must be connected to the installation's ground.

- It's forbidden to block and/or reduce the ventilation openings of the installation room or the appliance.
- Never block the smoke exhaust or the fresh air intake.
- Never make any changes to the settings made by the qualified professional.
- Never spray water on the heater, or touch the heater with wet body parts and/or bare feet.
- Do not place or hang any object on the heater.
- Do not work on the heater until it has been disconnected from the electrical supply and the gas supply has been cut off.
- Do not change the type of gas used, the appliance settings, the safety or control systems, as this could lead to dangerous situations.

Contact a qualified technician in the event of the change in gas, gas pressure or supply voltage.

If the appliance is not used for a long period of time, disconnect the power supply. When restarting the appliance, it is advisable to call in qualified personnel. In general, all repair and maintenance work must be carried out only by authorized and qualified personnel.

The subscription of maintenance contract is strongly recommended and is compulsory in the case of appliances installed in an establishment receiving the public.

2.2. Caution

Electrical components, drive mechanisms and fuel gas can cause injury. To protect against these inherent risks during installation or maintenance, the electrical supply must be disconnected and the gas supply valve closed. All persons involved in the installation or servicing of this equipment must comply with all relevant occupational health and safety standards.

2.3. Recommendations

Gas heaters are intended for heating in industrial and commercial premises.
The greatest care should therefore be taken during installation and adjustment.

We recommend that you entrust their commissioning to Solaronics Chauffage.

Maintenance of the appliances should be carried out every year to ensure their availability, maintain their high level of performance and also their operational safety.

WARNING

- Only a qualified professional is allowed to work on the unit and the installation.
- This manual is an integral part of the appliance and must always be kept with the appliance, even if it is transferred to another owner or user.
- Never remove or cover the labels and data plates attached to the appliance. The labels and data plates must be legible for the entire life of the appliance. The labels and data plates must be legible for the entire life of the appliance.
- Install the appliance in an adequately ventilated room.

Consult us for any other application than those described in this document.

NOT TO DO !

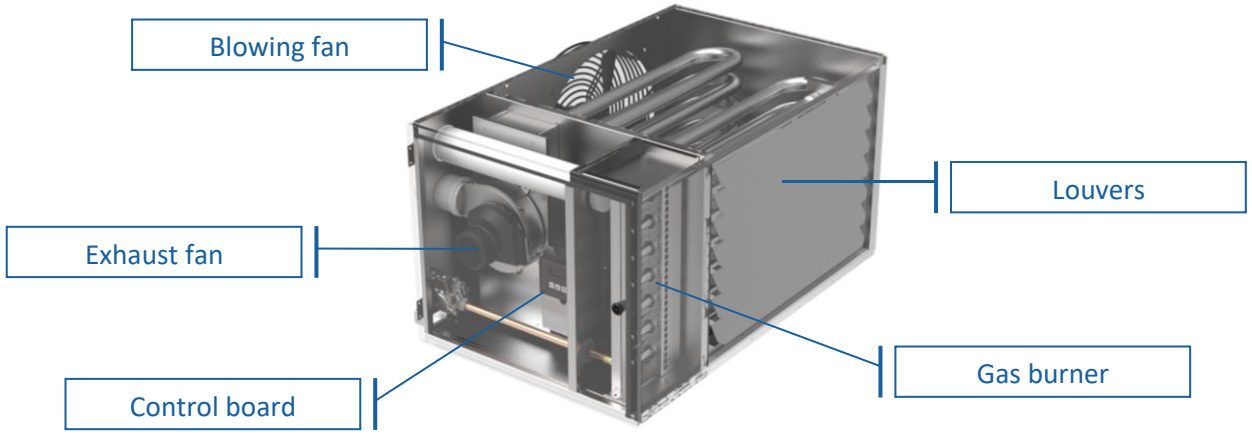
Do not install air heaters:

- In locals where there is a risk of explosion.
- In locals containing vapours from chlorinated compounds.
- In rooms with a high content of combustible dust.
- In rooms with high humidity (electrical hazard)
- In rooms with domestic use.

3. Description

The Minigaz Eco3 gas air heater is an independent warm air generator, running on natural gas or propane.
It is a « direct » gas air heating system; it is a heat production and emission device without intermediate heat transfer fluid.
For the entire range described in this manual, the combustion products are discharged from the room via an extractor. The combustion air is taken from the room or from the outside.
These appliances can be connected to a vertical or horizontal flue or to a chimney. They operate with the different gases indicated on their nameplate in accordance with the European directive.

3.1. Main components



3.2. Operation

When there is heating demand, the smoke extractor starts via the room thermostat.
After a few seconds of pre-ventilation, to ensure that there is no gas in the combustion chamber, the burner is ignited by the ignition electrode. The rise in temperature of the heat exchanger triggers the start-up of the blowing fan, located at the back of the appliance. The produced hot air then is blown into the room.
While the setpoint temperature is reached, the thermostat gives the stop command and the burner switches off. The blowing fan continues to blow for about 1 minute until the remaining heat in the heat exchanger has been removed.

3.3. Safety

The flame failure, during the ignition or during operation, is detected by the ionization sensor and the gas solenoid valve is immediately closed. This default can be reset remotely or on the appliance.

The thermal protection of the exchanger is ensured by two thermostats.
The first, with automatic reset, protects against insufficient air flow (obstructions, fan failure). The second, with manual reset, is set at a higher threshold than the first. It protects the appliance from severe overheating due to operating problems or improper use.

Make sure that the appliance can be normally supplied with combustion air at atmospheric pressure (any modification of the building after installation of the appliance must be carried out taking this into account). Excessive negative pressure in the room can disrupt the proper operation of the appliance by depriving it of the air necessary for combustion.

3.4. Switching off

To shut down the appliance for a short period of time, simply cut the thermostatic line (set the thermostat to a minimum setting or turn off the thermostat switch)
For a longer shutdown, cut the thermostatic line, close the gas valve and cut the electrical supply, taking care to wait for the ventilation to stop.
Gas and electricity should only be cut off in case of emergency or for long periods of time.

IMPORTANT: Never cut off the power supply to the appliance during the operating or cooling cycle of the exchanger. Failure to follow these instructions may cause premature deterioration of the exchanger and will result in loss of warranty.

3.5. Control board

These units are equipped with a control board that allows smart operating management. In the event of a default, the board indicates the source of the problem and facilitates the work of the technician for troubleshooting.

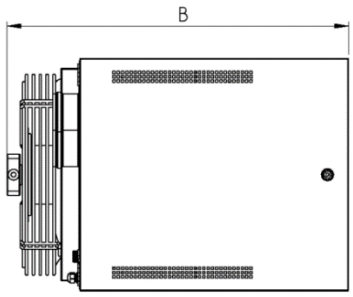
4. Technical Characteristics

4.1. MH ECO3 Model

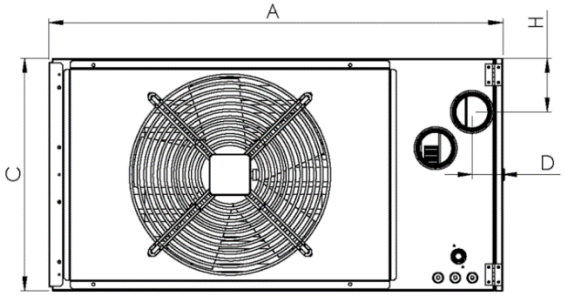
The **MINIGAZ MH ECO3** gas heaters are equipped with an axial fan and a two-stage gas burner.
The **MH ECO3** are available in 5 models from 25 to 80 kW and are designed for horizontal installation and direct blowing.

MODELS		MH25	MH35	MH45	MH60	MH80
Heat input HHV	kW	29.1	40.4	51.4	67.8	88.6
Heat input LCV	**kW**	**26.3**	**36.4**	**46.3**	**61.1**	**79.8**
Nominal output (P rated, h)	**kW**	**24.2**	**33.5**	**42.7**	**56.0**	**72.9**
Minimal power (P min)	**kW**	**13.8**	**19.1**	**24.4**	**32.3**	**42.1**
Efficiency at nominal heat output (ηnom)	**%**	**92.1**	**92.2**	**92.2**	**91.6**	**91.4**
Efficiency at minimal power (ηpl)	**%**	**94.8**	**94.8**	**95.1**	**95.2**	**95.2**
Gas flow at 15°C Natural G20 Groningen G25 Propane G31	 m^3/h m^3/h Kg/h	 2.50 2.68 2.05	 3.47 3.73 2.84	 4.41 4.74 3.61	 5.82 6.25 4.77	 7.60 8.17 6.23
Nox with 0 % O2	**mg/kWh**	**< 69**				
CO Value	ppm	< 120				
Seasonal energy efficiency (ηs,h)	%	78.7	78.1	78.5	78.6	78.5
Supply voltage		Single phase 230 V 50 Hz				
Amperage	A	1.05	1.75	2	3.25	3.95
Maximum electrical power with fan	W	230	380	430	700	850
Consumption at P Maxi with fan	W	18	32	47	58	77
Consumption at P Mini without fan	W	10	18	22	24	30
Standby consumption	W	3	3	3	3	3
Air flow at 15 °C	**m3/h**	**3 580**	**4 250**	**5 800**	**7 700**	**10 000**
Air temperature increase at maximum power P Maxi	°C	19.9	23.2	21.6	21.4	21.5
Air temperature increase at minimum power P Mini	°C	11.3	13.2	12.4	12.3	12.4
Acoustic power – Lw (+/- 4 dB)	dB(A)	71.2	79.5	77.5	86.7	83.4
Acoustic pressure at 5 m – Lp (+/- 4 dB)	dB(A)	49.2	57.5	55.5	64.7	61.4
Available pressure loss air/fumes	Pa	120	200	250	300	240
Maximum condensation produced	**l/h**	**No condensate**				

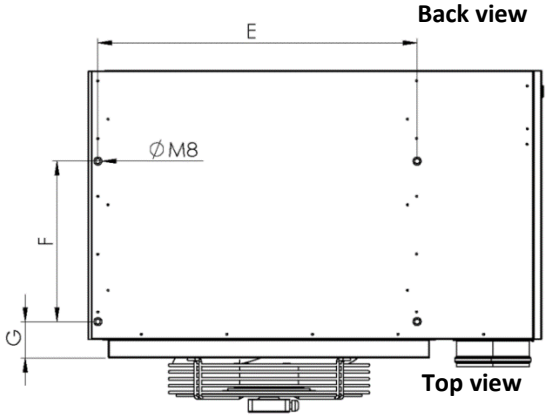
4.1.1. MH ECO3 Dimensions



Lateral view



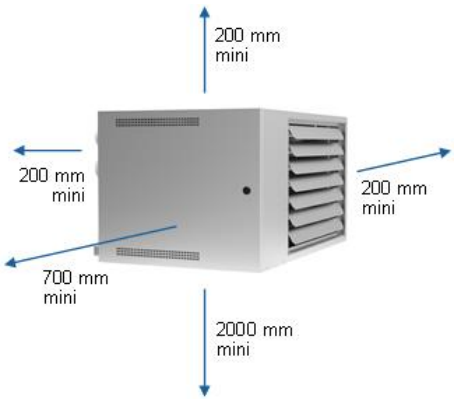
Back view



Top view

TYPES		MH 25	MH 35	MH 45	MH 60	MH 80
A	mm	1 060				
B	mm	800		875		
C	mm	495	545	600	710	912
D	mm	72				82
E	mm	746				
F	mm	250				
G	mm	170			249	
H	mm	100	125	153	208	273
Ø flue gas	mm	80				100
Ø Air	mm	80				100
Ø Gas	‘’	3/4				
Weight	kg	82	95	108	132	152

4.1.2. Installation recommendations for MH ECO3



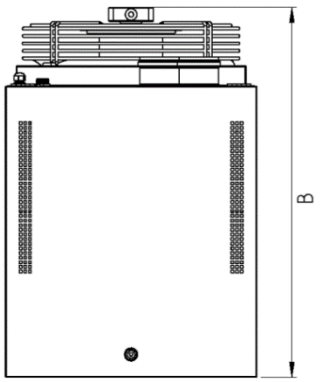
4.2. MV ECO3 Model

The **MINIGAZ MV ECO3** gas heaters are equipped with an axial fan and a two-stage gas burner.

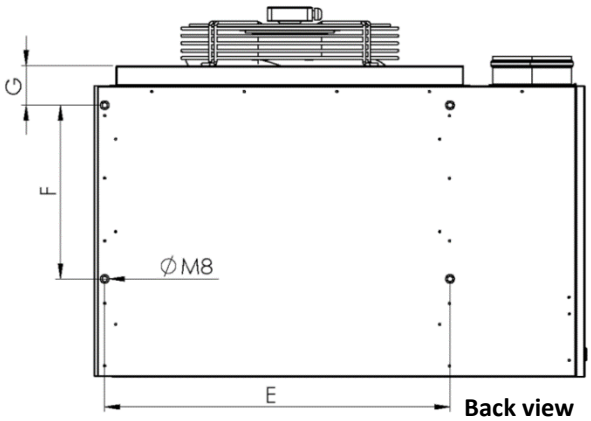
The **MV ECO3** are available in 4 models from 35 to 80 kW and designed for vertical installation and direct blowing.

TYPES		MV35	MV45	MV60	MV80
Heat input HHV	kW	40.4	51.4	67.8	88.6
Heat input LCV	**kW**	**36.4**	**46.3**	**61.1**	**79.8**
Nominal output (P rated, h)	**kW**	**33.5**	**42.7**	**56.0**	**72.9**
Minimal power (P min)	**kW**	**19.1**	**24.4**	**32.3**	**42.1**
Efficiency at nominal heat output (ηnom)	**%**	**92.2**	**92.2**	**91.6**	**91.4**
Efficiency at minimal power (ηpl)	**%**	**94.8**	**95.1**	**95.2**	**95.2**
Gas flow at 15°C Natural G20 Groningen G25 Propane G31	 m^3/h m^3/h Kg/h	 3.47 3.73 2.84	 4.41 4.74 3.61	 5.82 6.25 4.77	 7.60 8.17 6.23
Nox with 0 % O2	**mg/kWh**	**< 69**			
CO Value	ppm	< 120			
Seasonal energy efficiency (ηs,h)	%	78.1	78.5	78.6	78.5
Supply voltage		Single phase 230 V 50 Hz			
Amperage	A	1.75	2	3.25	3.95
Maximum electrical power with fan	W	380	430	700	850
Consumption at P Maxi with fan	W	32	47	58	77
Consumption at P Mini without fan	W	18	22	24	30
Standby consumption	W	3	3	3	3
Air flow at 15 °C	**m3/h**	**4 250**	**5 800**	**7 700**	**10 000**
Air temperature increase at maximum power P Maxi	°C	23.2	21.6	21.4	21.5
Air temperature increase at minimum power P Mini	°C	13.2	12.4	12.3	12.4
Available pressure loss air/fumes	Pa	200	250	300	240
Maximum condensation produced	**l/h**	**No condensate**			

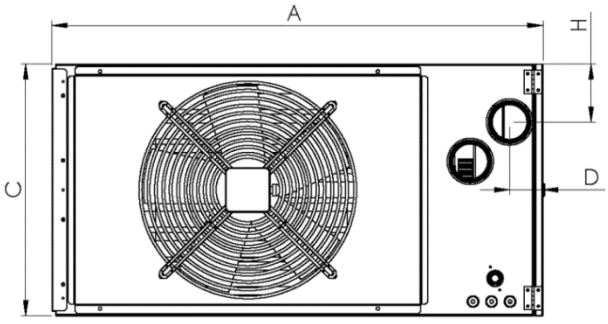
4.2.1. MV ECO3 Dimensions



Lateral view



Back view

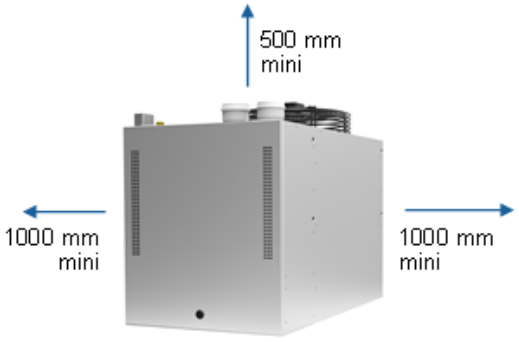


Top view

TYPES		MV 35	MV 45	MV 60	MV 80
A	mm	1 060			
B	mm	800	875		
C	mm	545	600	710	912
D	mm	72			82
E	mm	746			
F	mm	250			
G	mm	170		249	
H	mm	125	153	208	273
Ø Flue gas	mm	80			100
Ø Air	mm	80			100
Ø Gas	‘’	3/4			
Weight	kg	95	108	132	152

4.2.2. Installation recommendations for MV ECO3

Models	MV35	MV45	MV60	MV80
Height Mini	4m		5 m	6 m
Height Maxi	6m		8 m	10 m



4.3. MC ECO3 Model

The **MINIGAZ MC ECO3** gas heaters are equipped with a centrifugal fan and a two-stage gas burner.

The **MC ECO3** are available in 4 models from 35 to 80 kW and are designed for horizontal installation and ducting.

MODELS		MC35	MC45	MC60	MC80
Heat input HHV	kW	40.4	51.4	67.8	88.6
Heat input LCV	**kW**	**36.4**	**46.3**	**61.1**	**79.8**
Nominal output (P rated, h)	**kW**	**33.5**	**42.7**	**56.0**	**72.9**
Minimal power (P min)	**kW**	**19.1**	**24.4**	**32.3**	**42.1**
Efficiency at nominal heat output (ηnom)	**%**	**92.2**	**92.2**	**91.6**	**91.4**
Efficiency at minimal power (ηpl)	**%**	**94.8**	**95.1**	**95.2**	**95.2**
Gas flow at 15°C Natural G20 Groningen G25 Propane G31	 m^3/h m^3/h Kg/h	 3.47 3.73 2.84	 4.41 4.74 3.61	 5.82 6.25 4.77	 7.60 8.17 6.23
Nox with 0 % O2	**mg/kWh**	**< 69**			
CO Value	ppm	< 120			
Seasonal energy efficiency (ηs,h)	%	78.1	78.5	78.6	78.5
Supply voltage		Single phased 230 V 50 Hz			
Amperage	A	1.75	2	3.25	3.95
Maximum electrical power with fan	W	380	430	700	850
Consumption at P Maxi with fan	W	32	47	58	77
Consumption at P Mini without fan	W	18	22	24	30
Standby consumption	W	3	3	3	3
Air flow at 15 °C	**m3/h**	**4 250**	**5 250**	**7 000**	**9 000**
Air temperature increase at maximum power P Maxi	°C	23.2	23.9	23.5	23.9
Air temperature increase at minimum power P Mini	°C	13.2	13.7	13.6	13.8
Available pressure loss air/fumes	Pa	200	250	300	240
Maximum condensation produced	**l/h**	**No condensate**			

4.3.1. Pressure / Air flow ratio for MC ECO 3

4.3.1.1. MC 35 ECO 3

It is equipped with a double inlet centrifugal fan and a belt drive with a 90/118 gear ratio on a 750 W three-phase motor. (Rotation 1140 rpm)
The motor is connected to 230 V single phase input and 230 V three phase output frequency converter.
The frequency converter protects and regulates the speed of the motor to obtain the desired performance.

Airflow (m3/h)	Available pressure (Pa)	Delta T (°C)	Motor power (W)	dBa (LwoA)
4 500	190	22	770	82.0
4 250	**211**	**23**	**720**	**80.9**
4 000	226	25	670	80.0
3 750	241	26	600	79.0
3 500	250	28	540	78.2
3 250	259	30	485	77.5
3 000	267	33	475	76.8
2 750	270	36	400	75.8
2 500	271	39	350	75.0
2 250	275	44	300	74.4

4.3.1.2. MC 45 ECO 3

It is equipped with a double inlet centrifugal fan and a belt drive with a of 112/140 gear ratio on a 1 500 W three-phase motor.(Rotation 1140rpm)

The motor is connected to a 230V single phase input and 230V three phase output frequency converter
The frequency converter protects and regulates the speed of the motor to obtain the desired performance.

Airflow (m3/h)	Available pressure (Pa)	Delta T (°C)	Motor power (W)	dBa (LwoA)
6 000	180	21	1 400	87.0
5 750	208	22	1 330	86.4
5 500	226	23	1 250	85.8
5 250	**253**	**24**	**1 200**	**84.8**
5 000	273	25	1 050	84.1
4 750	289	26	980	83.3
4 500	304	28	880	82.2
4 250	312	30	820	81.4
4 000	326	31	780	80.4
3 750	332	33	700	79.4

4.3.1.3. MC 60 ECO 3

It is equipped with a double inlet centrifugal fan and a belt drive with a 112/170 gear ratio on a 1 500 W three-phase motor. (Rotation 940 rpm)

The motor is connected to a 230 V single phase input and 230V three phase output frequency converter.

The frequency converter protects and regulates the speed of the motor in order to obtain the desired performance.

Above a flow rate of 7 250 m3/h, consider the high flow rate option with three-phase frequency converter which requires a three-phase + neutral supply to the unit.

Airflow (m3/h)	Available pressure (Pa)	Delta T (°C)	Motor power (W)	dBa (LwoA)
8 000	175	21	1 800	87.0
7 750	206	21	1 700	86.7
7 500	222	22	1 600	85.8
7 250	238	23	1 500	85.0
7 000	**253**	**24**	**1 420**	**84.7**
6 750	264	24	1 340	84.0
6 500	274	25	1 275	83.5
6 250	284	26	1 220	82.7
6 000	294	27	1 140	82.1
5 750	298	29	1 070	81.6

4.3.1.4. MC 80 ECO 3

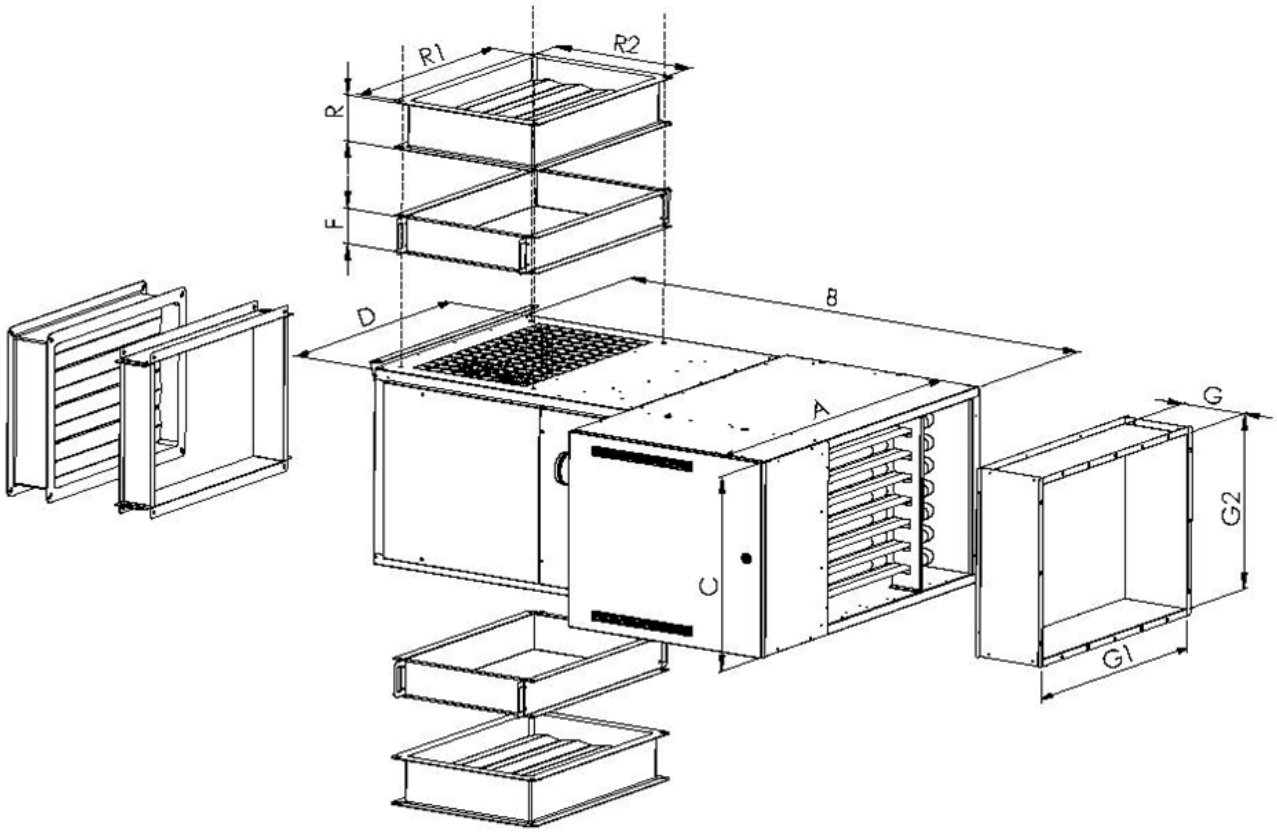
It is equipped with a double inlet centrifugal fan with a belt drive with a 118/224 gear ratio in a 2200W three-phase motor. (Rotation 745 rpm)

The motor is connected to a single 230V input and three 230V output frequency converter.

The frequency converter protects and regulates the speed of the motor in order to obtain the desired performance.

Airflow (m3/h)	Available pressure (Pa)	Delta T (°C)	Motor power (W)	dBa (LwoA)
10 500	180	20	2 150	88.0
10 000	209	21	1 950	86.9
9 500	228	23	1 800	86.0
9 000	**247**	**24**	**1 650**	**85.0**
8 500	264	25	1 500	83.8
8 000	277	27	1 400	82.9
7 500	289	29	1 280	81.7
7 000	296	31	1 150	80.8
6 500	302	33	1 050	79.8
6 000	307	36	900	79.0

4.3.2. MC ECO3 Dimensions



Models		MC 35	MC 45	MC 60	MC 80
A	mm	1 060			
B	mm	1 460		1 530	1 560
C	mm	545	600	710	912
D	mm	787			
F	mm	100		95	
G	mm	205			
G1	mm	700			
G2	mm	485	540	650	853
R	mm	130			
R1	mm	630			
R2	mm	430		530	
Ø Flue gas	mm	80			100
Ø Air	mm	80			100
Ø Gas	”	3/4			
Weight	kg	145		200	

4.3.3. Variable Speed Driver

MINIGAZ MC ECO3 range warm air heaters are fitted as standard with a variable speed driver. This protects the motor and adapts its rotation frequency to the pressure drop in the supply network. The differential pressure sensor monitors the ΔP in the fan box, enabling instant adaptation of the variable speed driver for greater airflow stability.

Variable speed driver

Group	Subgroup	Description	Examples of fonctions
P00	P0.00 – P00.18	Basic parameters	Execute order type, maximum frequency, ramp time
P01	P1.00 – P01.25	Order start / stop	DC injection braking, coast to stop, delayed start, automatic restart
P02	P02.00 – P02-26	Parameters of motor 1	Motor parameters, kW, current, speed
P09	P09.00 – P09-16	PID control parameters	PID, SV and encoder input parameters
P11	P11.00 – P11-16	Protection parameters	Execute protection function trip/exit levels

Factory settings

The drive is factory-set to deliver the nominal air flow rate specified in the technical data.

WARNING

The units are set up for optimum performance, but changing the factory settings may cause malfunctions or even damage to the unit. For example, increasing the air flow rate by +15% of the nominal air flow can lead to condensation in the heat exchanger, and ultimately to premature deterioration.gas heater is a live appliance and as such it must be connected to the installation's ground.

Code	Function	MC 35	MC 45	MC 60	MC 80
Basic parameters					
P00.01	Execution command channel	1	1	1	1
P00.06	Frequency control selection	7	7	7	7
P00.11	Acceleration time (s)	60	60	60	60
P00.12	Deceleration time (s)	60	60	60	60
Order start / stop					
P01.01	Starting frequency (Hz)	30	30	30	30
P01.18	Protection of powered terminal execution	1	1	1	1
Motor parameters					
P02.01	Motor rated power (kW)	0,7	1,5	1,5	2,2
P02.02	Motor rated frequency (Hz)	50	50	50	50
P02.03	Motor rated speed (rpm)	1 445	1445	1 445	1 445
P02.04	Motor rated voltage (V)	220	220	220	220
P02.05	Motor rated current (A)	2,8	5,6	5,6	8,2
PID control parameters					
P09.00	PID reference source	0	0	0	0
P09.01	Keyboard PID preset P17.20 = 0.50	32	36	34	20
	Keyboard PID preset P17.20 = 0.40	31	35	33	19
P09.02	PID retroactive source	1	1	1	1
P09.03	PID output function	0	0	0	0
P09.04	Proportional gain (%)	30	30	30	30
P09.05	Integral time (s)	5	5	5	5
P09.06	Differential time(s)	0	0	0	0
P09.07	Sampling cycle (s)	0,1	0,1	0,1	0,1
P09.08	PID control deviation limit (%)	0,6	0,6	0,6	0,6
P09.09	PID upper output limit (%)	100	100	100	100
P09.10	PID lower output limit (%)	60	60	60	60
P09.11	Off-circuit feedback detection value (%)	0	0	0	0
P09.12	Off-circuit feedback detection time (s)	0	0	0	0
Protection parameters					
P11.06	Current limit level (%)	69	74	74	82

5. Fixing the devices

The appliances can be fixed to the wall or to the buildings frame. Before fixing the devices, the strength of the support must be ensured. It is possible to make your own fixing but a preliminary study must be carried out to ensure the strength of the structures.
For the use of our brackets, always refer to the instructions supplied with the brackets.

5.1. Summary of existing supports

5.1.1. Rotating wall bracket

For MH helicoidal	25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
SMR Rotating wall bracket	3500341				*Not compatible*
SMR IPN fixing kit	3500047				

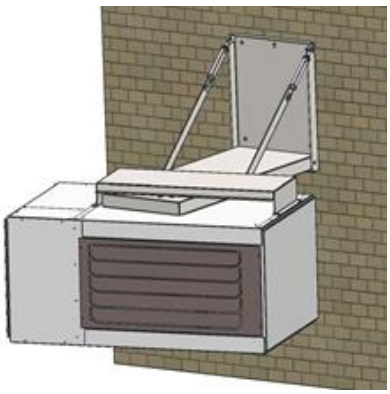
5.1.2. Fixed wall bracket

For MH helicoidal	25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
SMF Fixed wall bracket	3500340				
SMF IPN fixing kit	3500074				

5.1.3. Suspension bracket

For MV helicoidal	35 ECO3	45 ECO3	60 ECO3	80 ECO3
SDS Suspension bracket	3500343			3500344

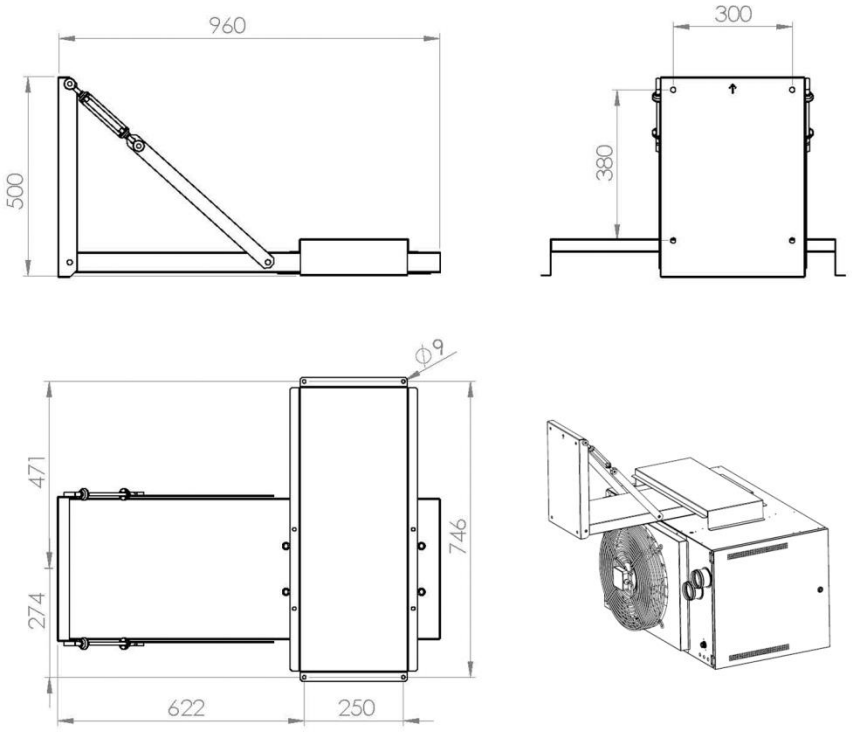
5.2. SMR rotating wall bracket



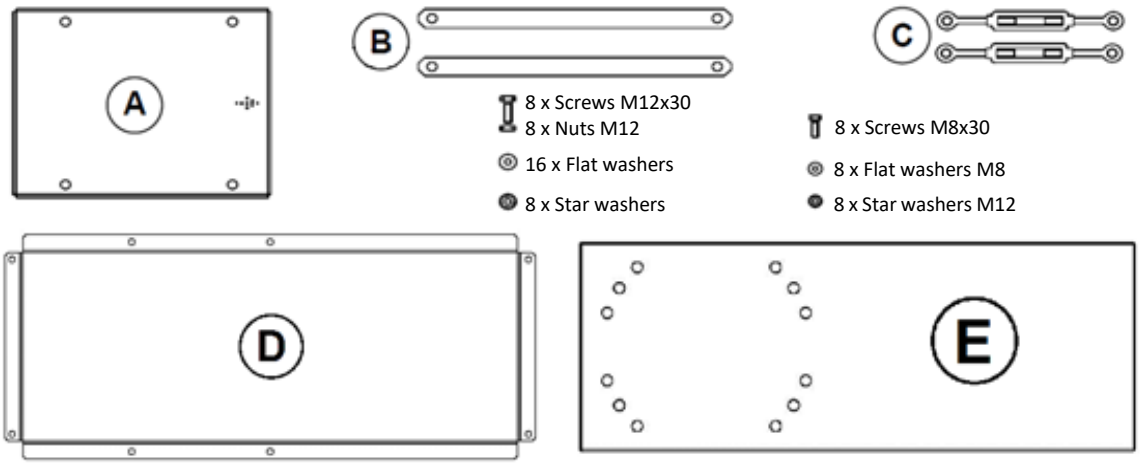
The « SMR rotating wall bracket » kit (code 3500341) is a rotating wall bracket for **MH 25 ECO3** to **MH 60 ECO3** gas heaters.
It can be combined with the **SMR IPN Fixing Kit** (code 3500047) for fixing to a metal frame.

The MH 80 Eco3 model is not compatible with the SMR Kit.

5.2.1. SMR dimensions



5.2.2. SMR furniture



5.3. SMF fixed wall bracket

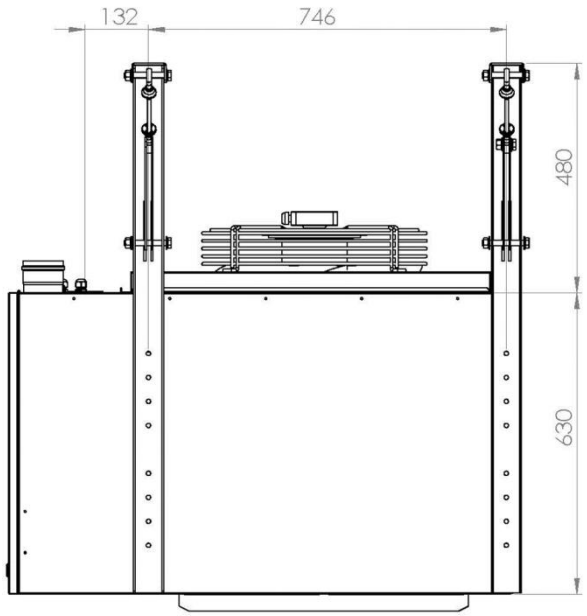
SMF on MH 25 to 60 Eco3

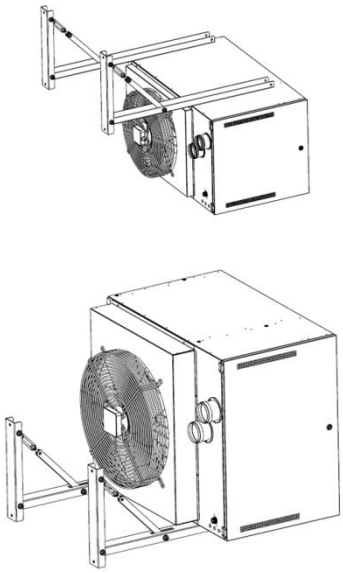
SMF on MH 80 Eco3

The **« SMF Fixed wall bracket »** kit (code 3500340) is a fixed wall bracket for **MH 25 ECO3 to MH 80 Eco3.**

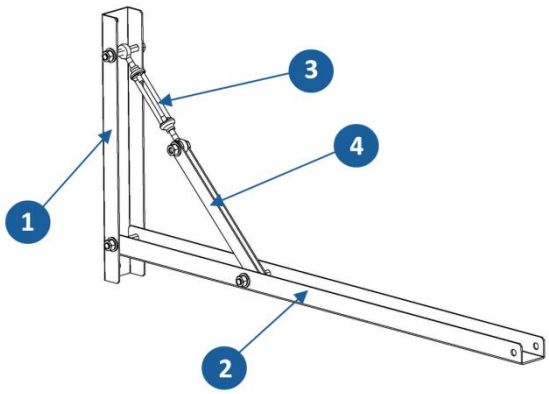
It can be combined with the **SMF IPN Fixing Kit** (code 3500074) for fixing to a metal frame.

5.3.1. SMF dimensions



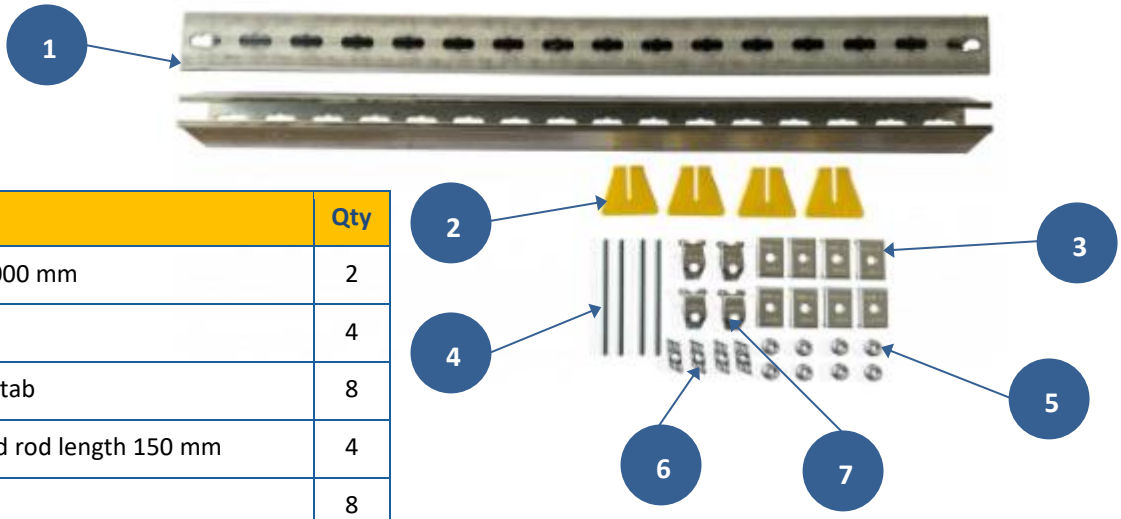


5.3.2. SMF furniture

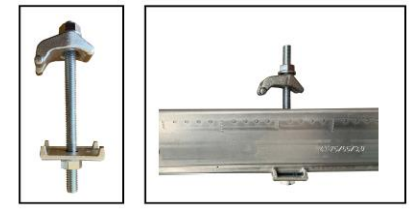


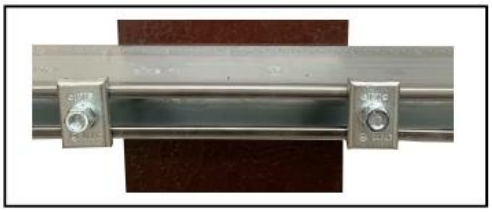
REP	Description	Qty
1	Wall support	2
2	Air heater support	2
3	Tensioning M10	2
4	Spreader	2
-	Screws Kit	1

5.4. IPN fixing kit



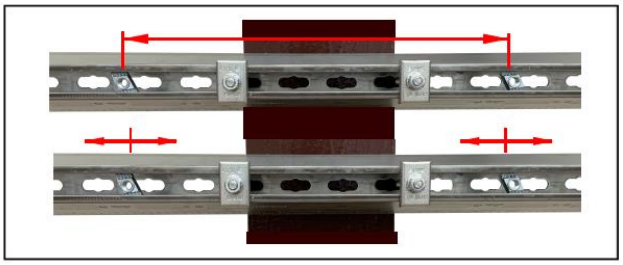
REP	Description	Qty
1	Rail length 1 000 mm	2
2	Safety cap	4
3	HK27 Locking tab	8
4	M10 Threaded rod length 150 mm	4
5	M10 nut	8
6	M10 grooved rail nut	4
7	hook	4


Pass the threaded rod through the rail

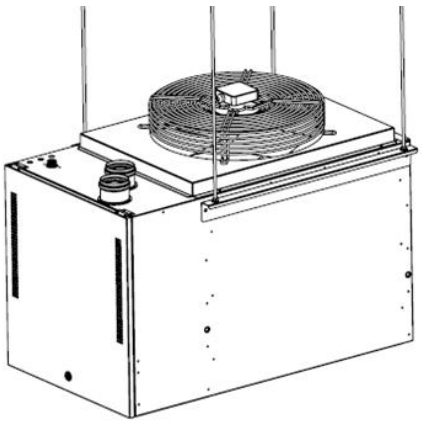

Locking tabs on the opening side of the rail


Hook's tip on the IPN


Tighten the 8 nuts


Adjustable center distance

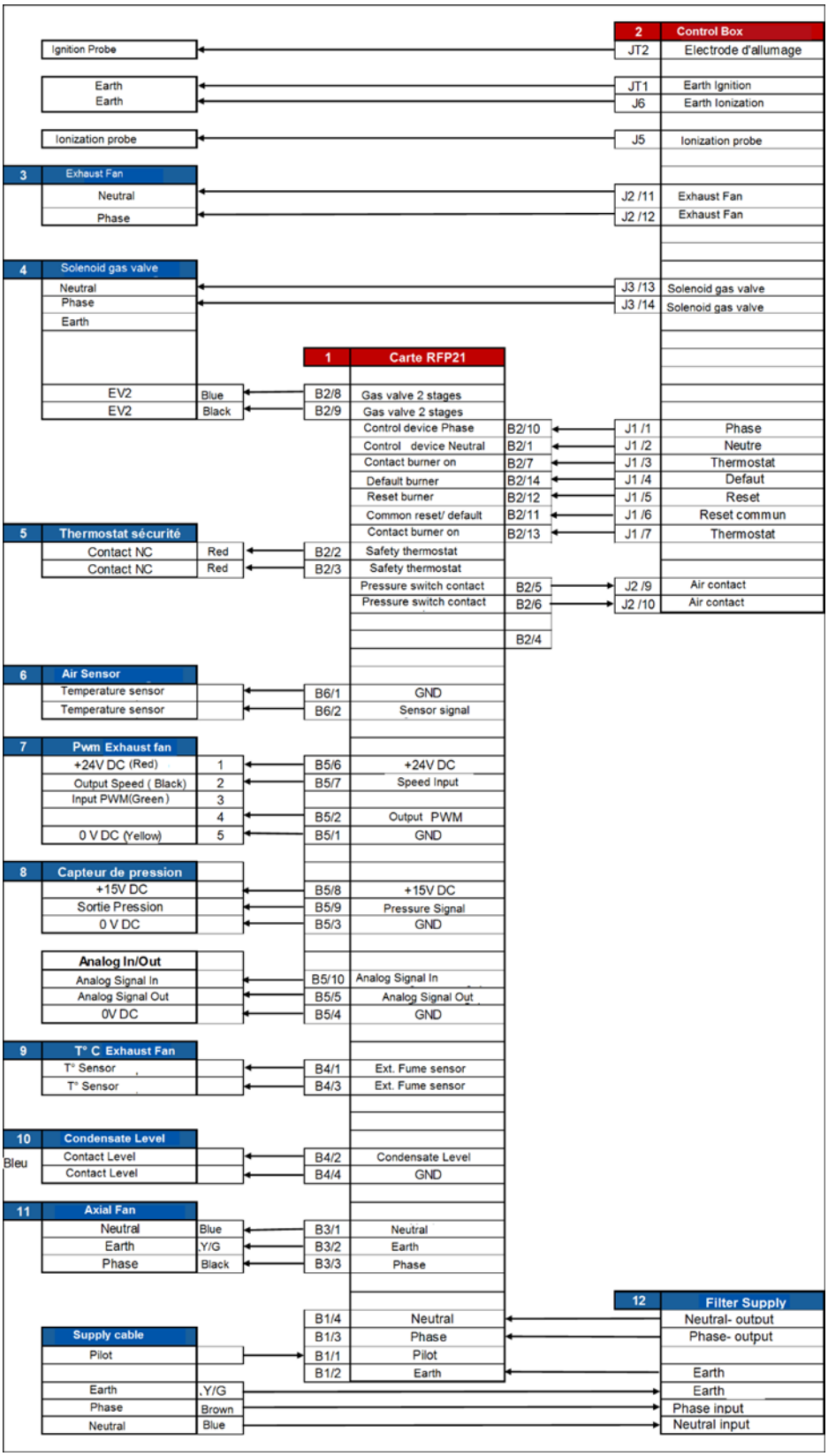
5.5. SDS suspension support



The « SDS Suspension bracket » kits (codes 3500343/3500344) allows ceiling mounting of gas heaters type **MV 25 ECO3 to MV 80 ECO3.**

6. Electrical Wiring

6.1. Internal wiring diagram of ECO 3 heaters



Note : The neutral wire coming out of the power cable of the devices can be blue or grey.

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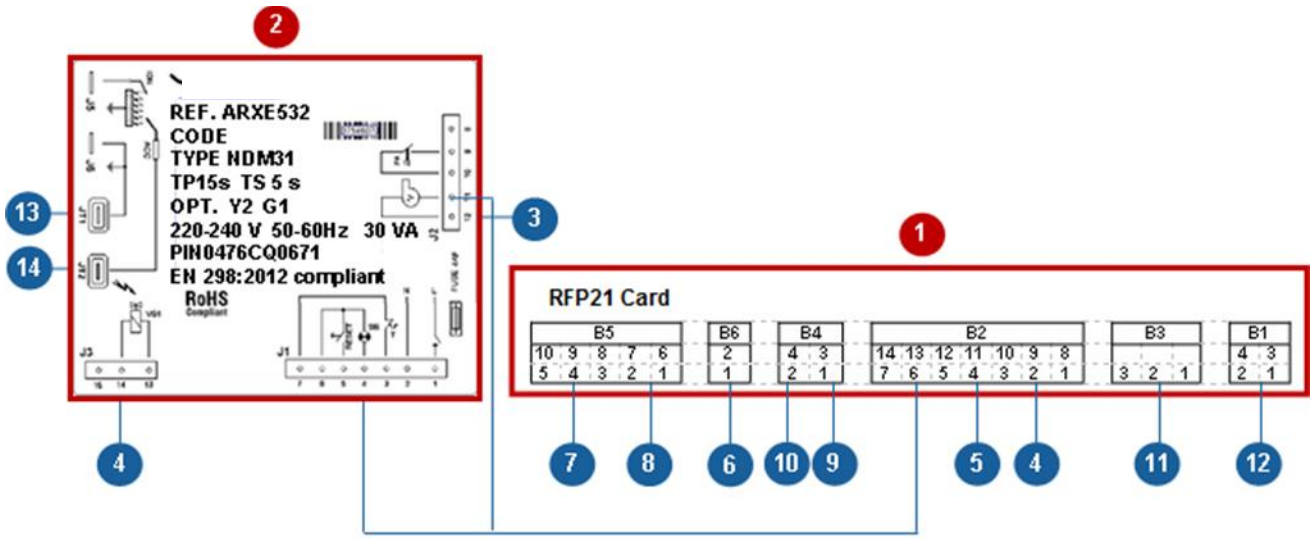
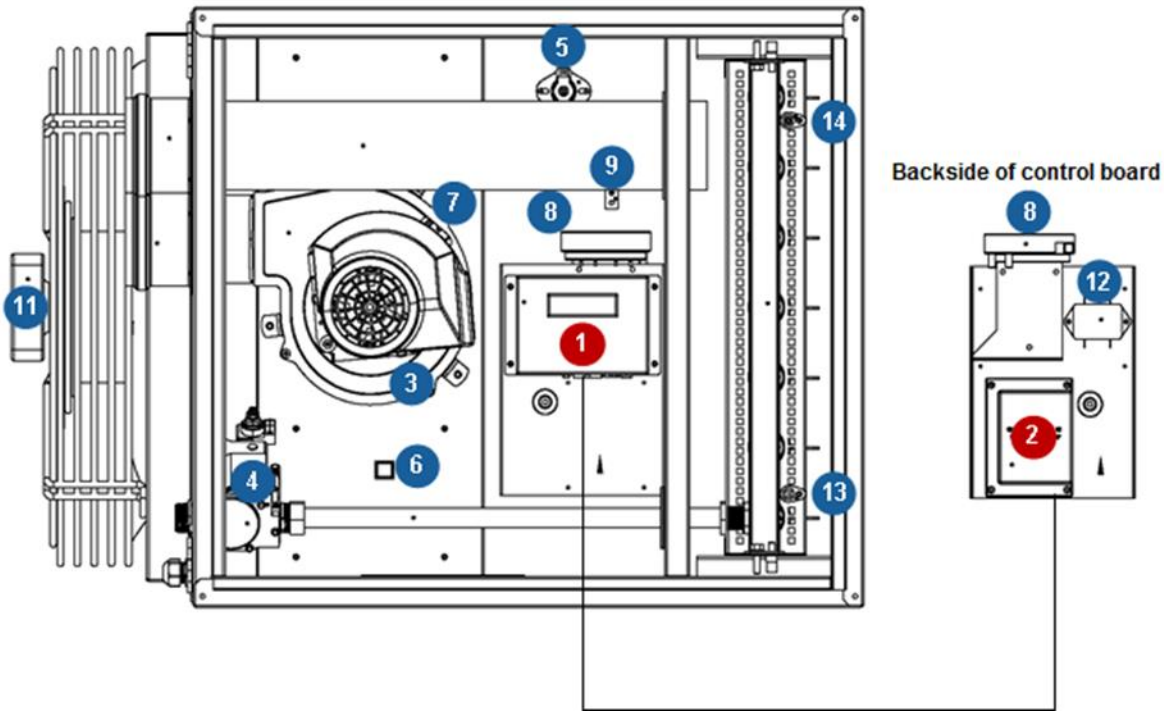
6.2. Electrical connection between internal components





6.3. Pilot wire principle

WARNING

The air heaters cannot be controlled by a traditional thermostat(with the dry contact).

Only the specific « pilot wire » thermostats supplied by Solaronics can control the air heaters.

The purpose of the pilot wire is to limit the number of wires to be connected.

One and the same pilot wire allows to transmit an order:

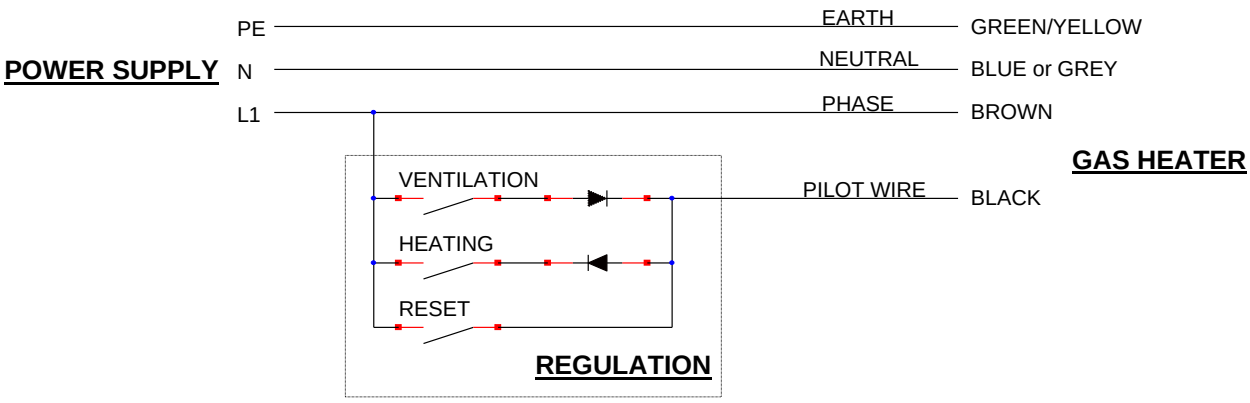
- Ventilation
- Heating
- Reset

The control principle of the gas heaters is described below:

Waveform emitted by yhe temperature controller	Order understood by the heater
No wave	Stop
Positive alternation	Ventilation
Negative alternation	Heating
Full Wave*	Reset

**The reset command is a temporary impulse and should not be permanent.*

6.3.1. Pilot wire principle diagram



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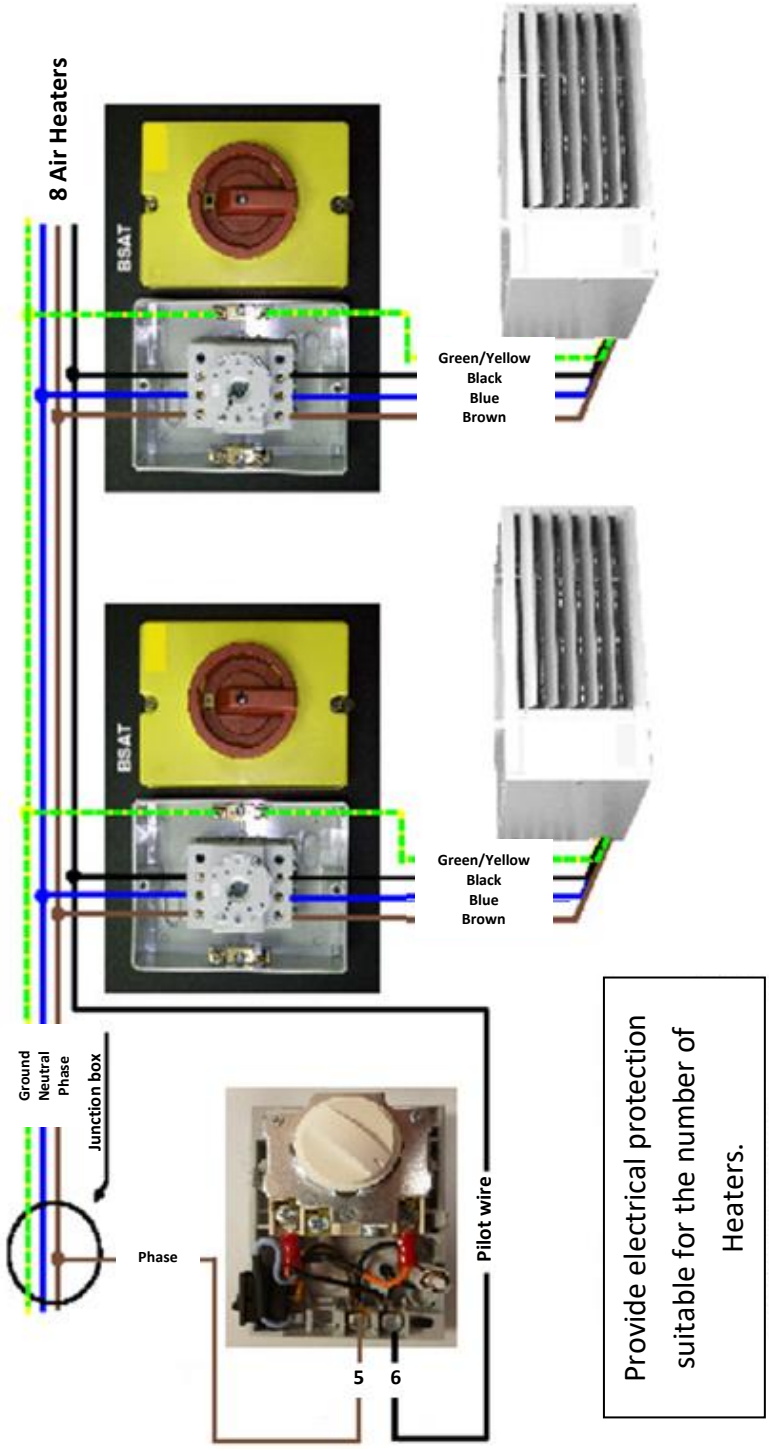
6.4. Connection of standard controllers

6.4.1. TM1 EVO simple Thermostat

Provide electrical protection suitable for the number of heaters.



Note : The neutral wire coming out of the power cable of the devices can be blue or grey.

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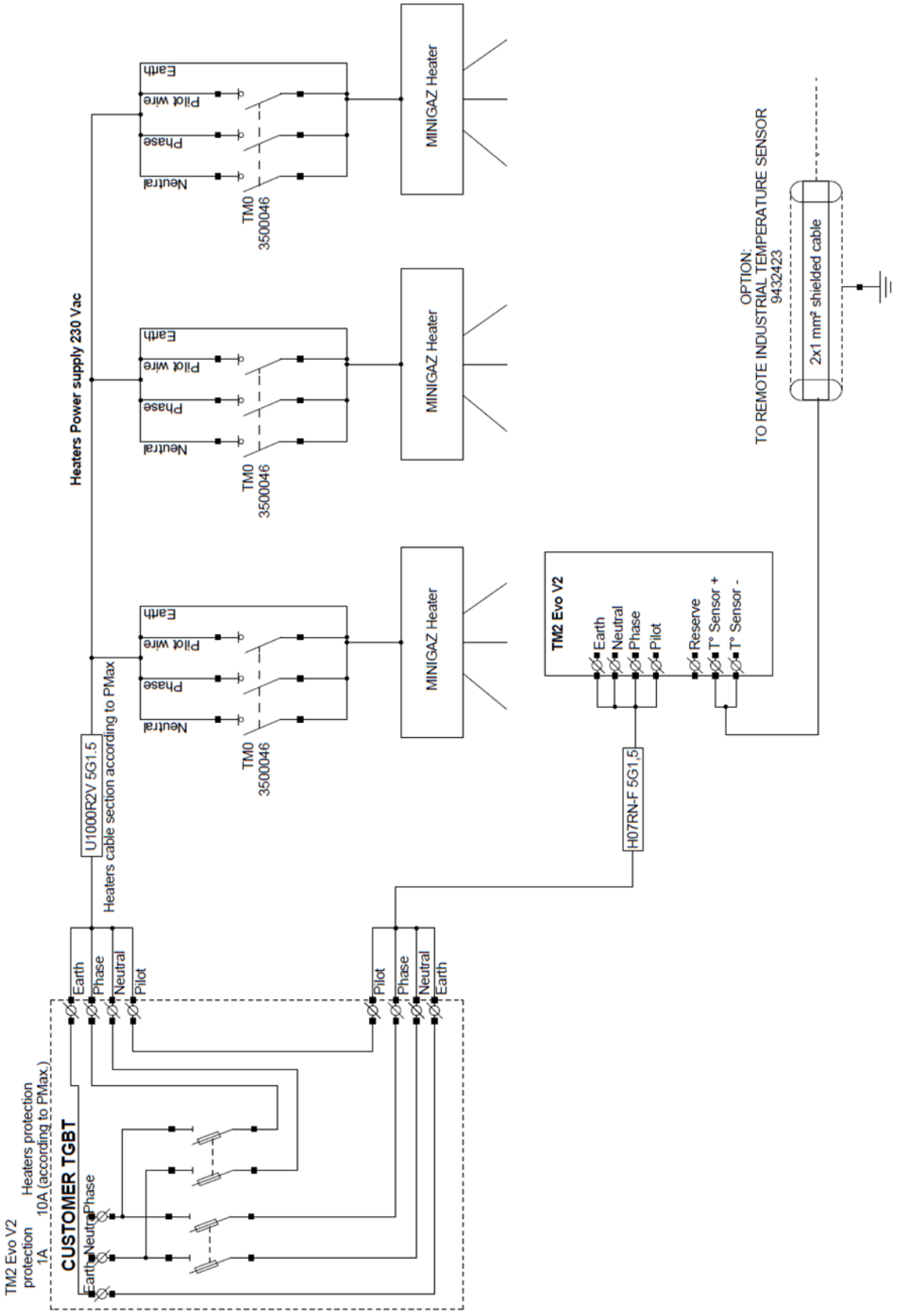
6.4.2. TM2 EVO V2 Touchscreen multi setting thermostat

Provide electrical protection suitable for the number of heaters.



The neutral wire coming out of the power cable of the devices can be blue or grey.

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7. Connections flue pipes

7.1. General information

When commissioning the installation and during maintenance operations, it must be ensured that:

- the combustion air intake and the smoke exhaust are not obstructed;
- for installation with balanced flue, that the 2 circuits (combustion air supply and smoke evacuation) are separate and tight: check the assembly of ducts, and the gaskets;
- the gaskets have not been damaged during assembly of the pipes between them or on the appliance;
- the ductwork is installed in such a way that no water can enter the appliance (electrical risks): use a draining tee, condensate trap, etc. ;
- for long lengths, it is essential to provide a condensate trap, including for installation with balanced flue.

7.2. Summary of existing flue kits

Type of connections	MH/MC .. ECO3		MV .. ECO3	
	Ø80 (Models 25 à 60)	Ø100 (Model 80)	Ø80 (Models 35 à 60)	Ø100 (Model 80)
B22 Installation	3500300	3500303	3500301	3500304
C32 Installation	3500312	3500315	3500313	3500316
C12 Installation	3500306	3500309	*Not available*	

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7.3. B22 kit connection

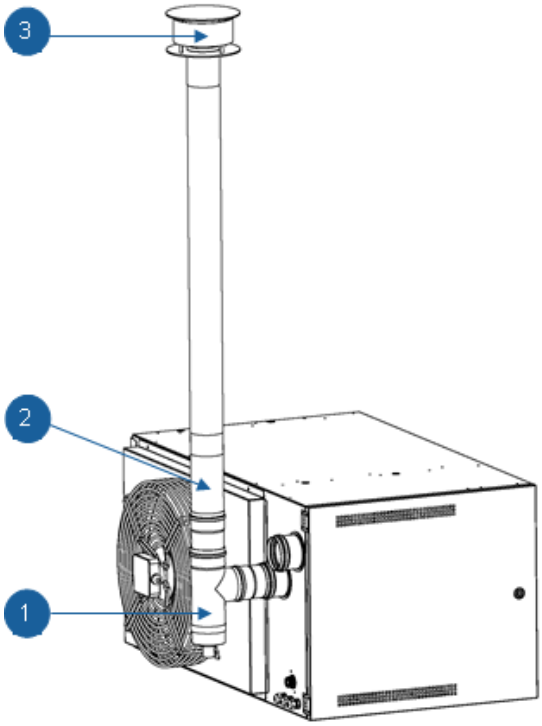
7.3.1. Description

The combustion air is drawn directly into the room and the flue gas is exhausted to the outside via a vertical chimney through the roof.
If a roof outlet is used, the combustion air must be taken from the room where the appliance is installed.

WARNING

Provide sufficient ventilation for the room, the fresh air supply required for combustion must be at least twice the power of appliance. *Ex: model 80 kW/h: 80 x 2 = 160 m3/h mini*

The tee positioned in the lower part of the flue allows the possible recovery of condensates from the flue and access for its cleaning.



B22 kit Composition

(1) 1 tee with drain and removable plug
(2) 1 single pipe length 1 m
(3) 1 roof terminal with drip cap

Additional accessories

Single pipe elbows
1 meter lengths

The composition of the kit is given as an indication and there may be differences.

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7.3.2. Pressure drop calculation

Air Heater	Units	25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
Flue pipe diameter	mm	80				100
Available flue pressure drops	**Pa**	**120**	**200**	**250**	**300**	**240**
Pressure drop of B22 Kit	Pa	30	50	80	135	60
Pressure drop of an additional 1 meter straight length	Pa	2	4	7	12	5
Pressure drop of an additional 90° elbow	Pa	2	4	7	12	5

WARNING

Cumulative pressure drops must not exceed the available pressure drops.

For long flue pipe lengths, a condensate drain connection at the bottom of the inspection tee may be necessary.

The pressure drops indicated correspond to the accessories marketed or recommended with our range of heaters.

Example for air heater MV 35 ECO3 :

Composition of the flue system	Quantity	Pressure Drop per unit 35 ECO3	Total pressure drop
B22 Kit	1	50 Pa	50 Pa
Additional straight length 1 metre	4	4 Pa	16 Pa
Additional 90° elbow	2	4 Pa	8 Pa
Total pressure drop			**74 Pa**
Available flue pressure drops			**200 Pa**

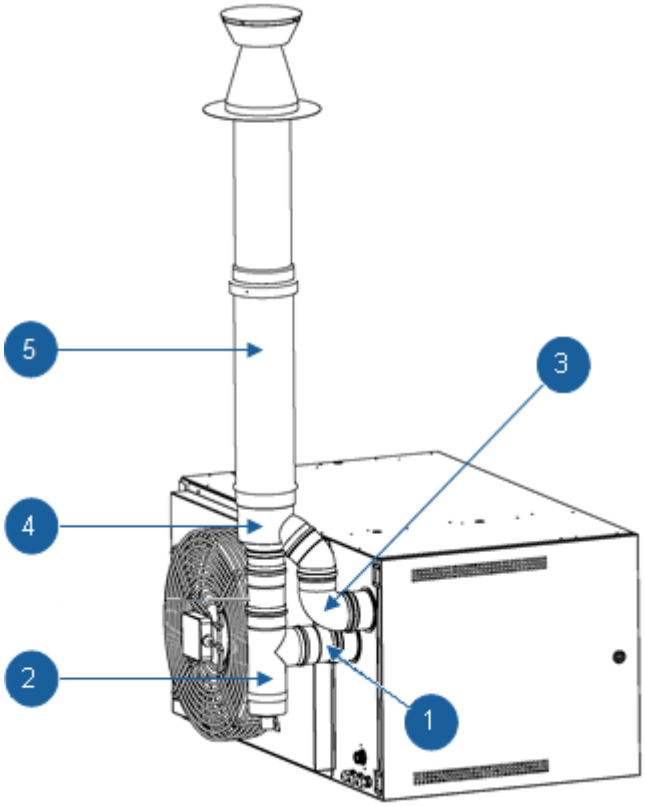
The total pressure drop in the flue (74 Pa) is lower than the pressure drop available for a MV 35 ECO3 (200 Pa).

The permissible flue gas length for the air heater is respected.

7.4. C32 Kit Connection

7.4.1. Description

Combustion air and flue gas exhaust are directed to the outside via a vertical chimney through the roof. The tee fitting positioned in the lower part allows the possible recovery of condensates from the flue and an access for its cleaning.



C32 kit Composition

(1) 1 single-pipe length 0,14m

(2) 1tee fitting with drain and removable plug

(3) 1 single pipe elbow at 90°

(4) 1 coaxial> bi-tube* adaptor

**of which telescopic pipe to be adjusted on site*

(5) 1 roof terminal with drip cap

Additional accessories

Concentric elbows

Single pipe elbows

1 metre single pipe

1 metre concentric pipe

It's possible to extend or deviate the balanced flue with approved accessories. The use of watertight ducts implies a perfect watertightness of the joints, so to facilitate the assembly it is essential to use a non-aggressive lubricant for the seal, ex. Soapy water.

The composition of the kit is given as an indication and there may be differences.

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7.4.2. Pressure drop calculation

Air heater	Units	25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
Flue pipe diameter	mm	80				100
Available air/flue pressure drop	**Pa**	**120**	**200**	**250**	**350**	**240**
C32 Kit Pressure drop	Pa	30	50	80	135	60
PD* for additional 1-meter single pipe	Pa	2	4	7	12	5
PD* for additional 1-meter concentric pipe	Pa	4	6	9	15	10
PD* for an additional 90° single pipe elbow	Pa	8	15	25	40	15
PD* for an additional 90° concentric pipe elbow	Pa	10	18	33	50	25

**PD = Pressure drop*

WARNING

Cumulative pressure drops must not exceed the available pressure drops.

For long flue pipe lengths, a condensate drain connection at the bottom of the inspection tee may be necessary.

The pressure drops indicated correspond to the accessories marketed or recommended with our range of heaters.

For two-pipe lengths, add up the PD* of the suction and the flue gas.

Example for an MH 60 ECO3 air heater :

Composition of the flue gas system	Quantity	PD Per unit 60 ECO3	Total PD
C32 Kit	1	135 Pa	135 Pa
Additional 1-meter single pipe	4	12 Pa	48 Pa
Additional 1-meter concentric pipe	5	15 Pa	75 Pa
Additional 90° single pipe elbow	0	40 Pa	0 Pa
Additional 90° concentric elbow	2	50 Pa	100 Pa
Total pressure drop			**358 Pa**
Available flue pressure drop			**350 Pa**

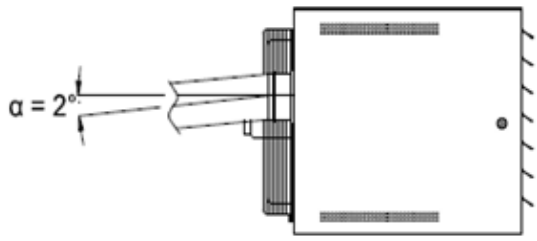
The total pressure drop in the flue (358 Pa) is higher than the available pressure drop for MH 60 ECO3 (350 Pa).

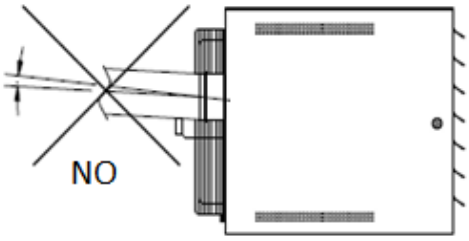
It is essential to shorten the length of the flue to achieve a pressure drop below 350 Pa.

7.5. C12 Kit connection

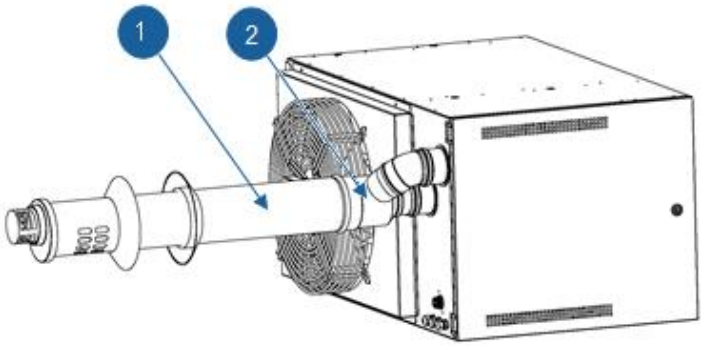
7.5.1. Description

Combustion air and flue gas are going horizontally to the outside of the building.





For a direct connection to the wall, the installation must be done with a minimum slope of 2° opposite the appliance.



Composition of a C12 kit

(1) 1 wall terminal with rosettes

(2) 1 coaxial>bi-tube* adaptor

**including telescopic pipe to be adjusted on site*

Additional accessories

Concentric elbows

Single pipe elbows

1-meter single pipe

1-meter concentric pipe

It is possible to extend or deviate the flue pipes with approved accessories.

The use of watertight ducts implies a perfect watertightness of the joints, so to facilitate the assembly it is essential to use a non-aggressive lubricant for the seal, ex: soapy water.

The composition of the kit is given as an indication and there may be differences.

7.5.2. Pressure drop calculation

Air heater	Unit	25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
Diameter of the flue pipe	mm	80				100
Available air/flue pressure drop	**Pa**	**120**	**200**	**250**	**350**	**240**
C12 Kit pressure loss	Pa	30	50	80	135	60
PD* for additional 1-meter single pipe	Pa	2	4	7	12	5
PD* for additional 1-meter concentric pipe	Pa	4	6	9	15	10
PD* for an additional 90° single pipe elbow	Pa	8	15	25	40	15
PD* for an additional 90° concentric pipe elbow	Pa	10	18	33	50	25

**PD = Pressure Drop*

WARNING

Cumulative pressure drops must not exceed the available pressure drops.

For long flue pipe lengths, a condensate drain connection at the bottom of the inspection tee fitting may be necessary.

The pressure drops indicated correspond to the accessories marketed or recommended with our range of heaters.

For two-pipe units, add the suction and flue gas PD.

Example for air heater MH 25 ECO3 :

Smoke system composition	Quantity	PD per unit 25 ECO3	Total PD
C12 Kit	1	30 Pa	30 Pa
Additional 1-meter single pipe	0	2 Pa	0 Pa
Additional 1-meter concentric pipe	3	4 Pa	12 Pa
Additional 90° single pipe elbow	0	8 Pa	0 Pa
Additional 90° Concentric elbow	2	10 Pa	20 Pa
Total pressure drop			**62 Pa**
Available flue pressure drop			**120 Pa**

The total pressure drops in the flue (62 Pa) is lower than the pressure drop for an MH 25 ECO3 (120 Pa).
The permissible flue length of the unit is respected.

8. Gas connection

A precise study must be carried out on the diameters of the gas pipes according to the nature of the gas flow and the length of the pipes.
Ensure that the pressure drop in the gas pipe does not exceed 5 % of the supply pressure.
Gas connections must be made in accordance with the requirements for indoor installations for all gas types.

8.1. Air heaters connection

The air heaters operate with an inlet pressure 20 or 25 mbar for Natural Gas and 37 mbar for Propane versions.

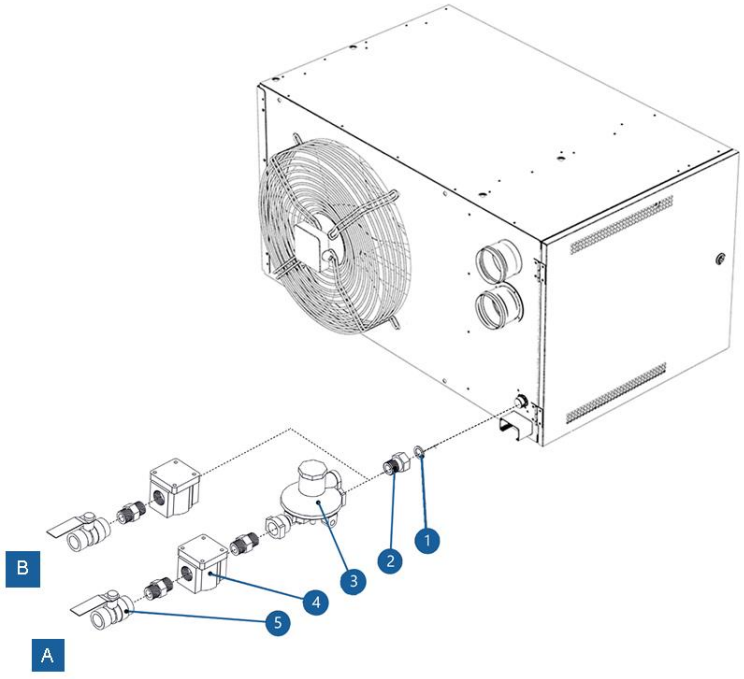
Configuration A : The pressure of the gas supply network is higher than the inlet pressure of appliance.
In this case, connect each appliance with block valve **(5)**, and a gas filter **(4)** and a pressure regulator **(3)**, to relieve the inlet pressure of the heater.

WARNING

Any supply pressure higher than the maximum inlet pressure tolerated by the gas solenoid valve will cause irreparable damage to the valve.

Configuration B : The pressure of the gas supply network corresponds to the inlet pressure of the unit.
In this case, connect each appliance with a block valve **(5)** and a gas filter **(4)**.

To connect the heater to the gas supply, use the gas connector **(2)** and gasket **(1)** supplied with the heater. Screw the connector to the gas network before connecting it to the heater.



Composition of the gas connection kit

(1) Gasket (supplied with the heater)
(2) 3/4''-1/2'' connection (supplied with appliances up to 45 kW)
(3) Gas regulator
(4) Gas filter
(5) Gas quarter-turn valve

For details of the components, please refer to the instructions supplied with the connection kits.

9. Gas circuit

WARNING

These operations must be carried out by qualified professional.

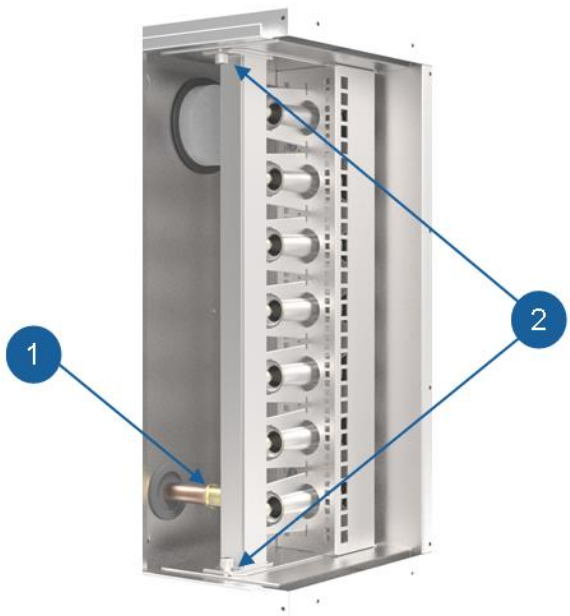
9.1. Gas change over

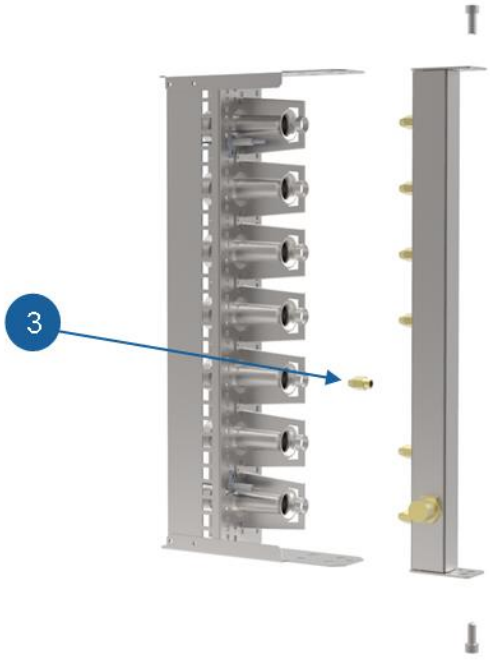
The air heaters are equipped with burners with injectors allowing operation with G20, G25 or G31.
The injector orifices are designed to ensure good combustion and flame stability.

1. Disconnect the electrical supply connector and close the gas supply.
2. Disconnect the ignition and ionisation electrode cable.
3. Unscrew the gas line connector **(1)** and the lower screws **(2)** for fixing the manifold.
4. Replace the injectors according to the gas used (see adjustment table).
5. Screw on the new injectors **(3)** without sealing with a tightening torque of 20 Nm.
6. Refit the gas manifold secured by the two screws **(2)** and then the gas line connection.
7. Reconnect the ignition and ionisation electrode cables.

WARNING

Be careful not to damage the gasket. Replace it if necessary and check for leaks. This operation must be carried out with gas and electricity switched off.





9.2. Gas manifold adjustment table

Model	Setting G20 et G25					Setting G31		
	Gas Injectors	Gas pressure G20 [mbar]		Gas pressure G25 [mbar]		Gas Injectors	Gas pressure G31 [mbar]	
		Power Min	Power Max	Power Min	Power Max		Power Min	Power Max
25 ECO3	5 x AL 1.9	4.0	13.0	6.5	17.0	5 x AL 1.3	10.0	25.0
35 ECO3	7 x AL 1.9	4.0	13.0	6.5	17.0	7 x AL 1.3	10.0	25.0
45 ECO3	9 x AL 1.9	4.0	13.0	6.5	17.0	9 x AL 1.3	10.0	25.0
60 ECO3	12 x AL 1.9	4.0	13.0	6.5	17.0	12 x AL 1.3	10.0	25.0
80 ECO3	16 x AL 1.9	4.0	13.0	6.5	17.0	16 x AL 1.3	10.0	25.0

9.3. Burner combustion adjustment

To carry out this adjustment it is necessary to have the following tools:

1– A calibrated combustion analyser with O2 or CO2, CO, flue gas temperature and ambient temperature readings.

2– A PZ2 cross-headed screwdriver and a 10mm hexagonal key.

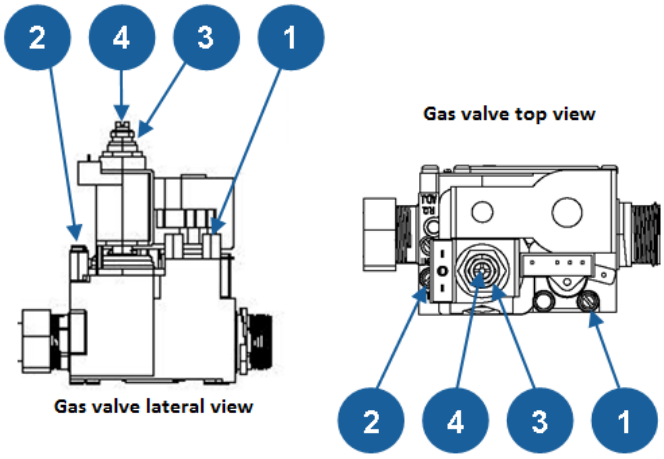
3– A calibrated gas pressure gauge with a scale of 0 to 60 mbar.

This adjustment is made with the burner in operation.

The combustion setting is done by adjusting two elements:

1 – The nozzle pressure on the solenoid valve according to the type of gas and its rate (P mini and P maxi).

2 – The air pressure set point at P max and P min on the heater control board.



(1) Upstream gas pressure tap

(2) Gas solenoid valve outlet pressure tap

(3) Hexagonal adjustment screw P max (screw in for more pressure)

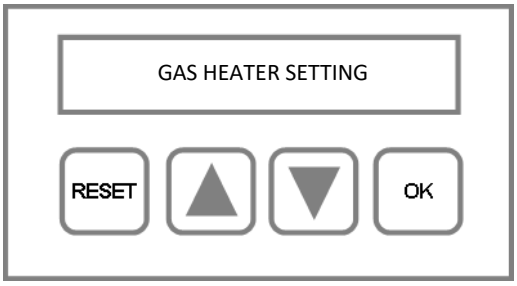
(4) Cross-headed adjustment screw P min (screw in for more pressure)

To adjust the pressures, connect the gas pressure gauge to the pressure connection of the solenoid valve outlet **(2)**.

Adjust the pressure on the screw corresponding to the power of the regulator. P max **(screw 3)** and P min **(screw 4)**.

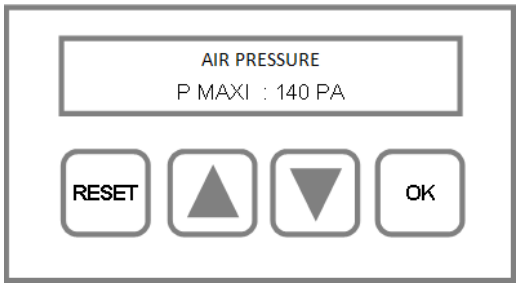
WARNING

Be careful to tighten the pressure tap screws (1) and (2).



- Once the burner is on (via the ambient thermostat or the manual mode of the control box), move to the «Gas heater settings» screen with the ▲ key.
- Press « OK » for 5 seconds.

Use the ▲ key to move to the display « Air pressure P Maxi »

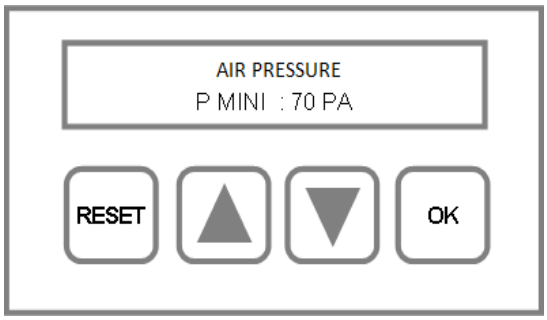


Press « OK ».

The exhaust fan increases its speed to stabilize the air pressure at the displayed set point. The factory setting is 150 Pa.
- Check the pressure P max at the gas solenoid valve outlet.
- Adjust the O2 value of the flue gas (keys ▼ and ▲).

The O2 value must be between 7.5% and 10 %.
(Target value = 8%)
- Confirm with «OK» when the setting is correct.

Use the ▲ key to move to the display « Air Pressure P Mini »

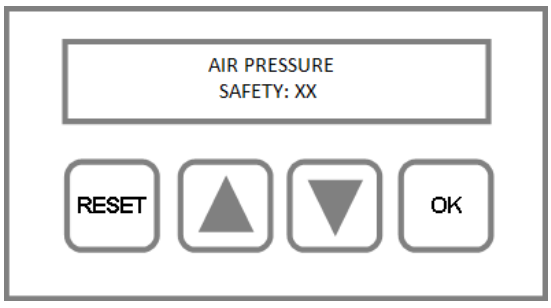


Press « OK ».

The exhaust fan reduce its speed to stabilize the air pressure at the displayed set point. The factory setting is 60 Pa.
- Check the pressure P mini gas solenoid valve outlet.
- Adjust the O2 value of the flue gas (keys ▼ and ▲).

The O2 value must be between 7.5% and 10 %.
(Target value = 8%) - Confirm with «OK » when the setting is correct.

Use the ▲ key to move to the display « Air pressure safety »

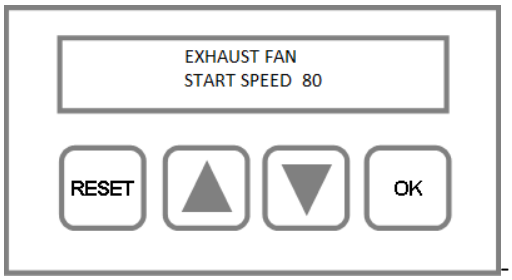


- Set the minimum pressure at which the control box cut off the exhaust fan for lack of combustion air.

The factory setting is 15 %.

WARNING This value cannot be changed without the express consent of Solaronics Chauffage.

Use the ▲ key to move to the display « Exhaust fan start speed »



set the exhaust fan start speed at which the control box start-up the exhaust fan.

WARNING

This value cannot be changed without the express consent of Solaronics Chauffage.

SOLARONICS Chauffage SAS. ZI n°3, 78 rue du Kemmel – CS 20302 – 59429 ARMENTIERES CEDEX
Phone : 03.20.10.59.59 - Fax : 03.20.35.57.22
Web site : www.solaronics.com

10. Commissioning and adjustment of the control setpoints

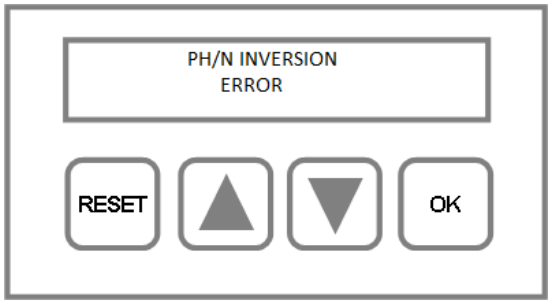
10.1. Preliminary check

1- Before switching on the unit, check the following:

- The tightness of the air intake and flue exhaust connections.
- The tightness of the gas circuit up to the appliance.
- The section of the gas pipe according to the type of gas and its pressure.
- The gas type and its supply pressure according to the setting of the heater.
- The ground connection of the appliance, the neutral phase polarity and the correct connection of the pilot wire.
- The removal of protective films from the panels of the heater.
- Respect the distances around the heater.

2- Check the supply voltage, which must be between 210 V and 230 V.

Check that the neutral/phase polarity is correct. If the polarity is reversed, this error is indicated on the display of the appliance's control box.



It is therefore necessary to cut off the power supply to the appliance and invert the phase with the neutral of the general power supply of the heater. This message will disappear once the operation has been carried out.

In case of an "impedant" neutral, install an isolation transformer on the unit's power supply.

3- Check that the type of gas and the supply pressure correspond to the appliance.

4- Check and adjust, if necessary, the gas pressure at the injector.

See paragraph "9.3 Burner combustion adjustment".

5- Check and adjust, if necessary, the combustion quality.

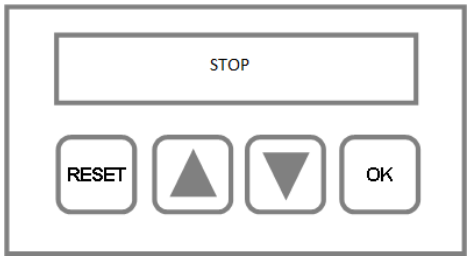
See paragraph "9.3 Burner combustion adjustment".

10.2. Use of the control board

WARNING

These operations must be carried out by a qualified professional.

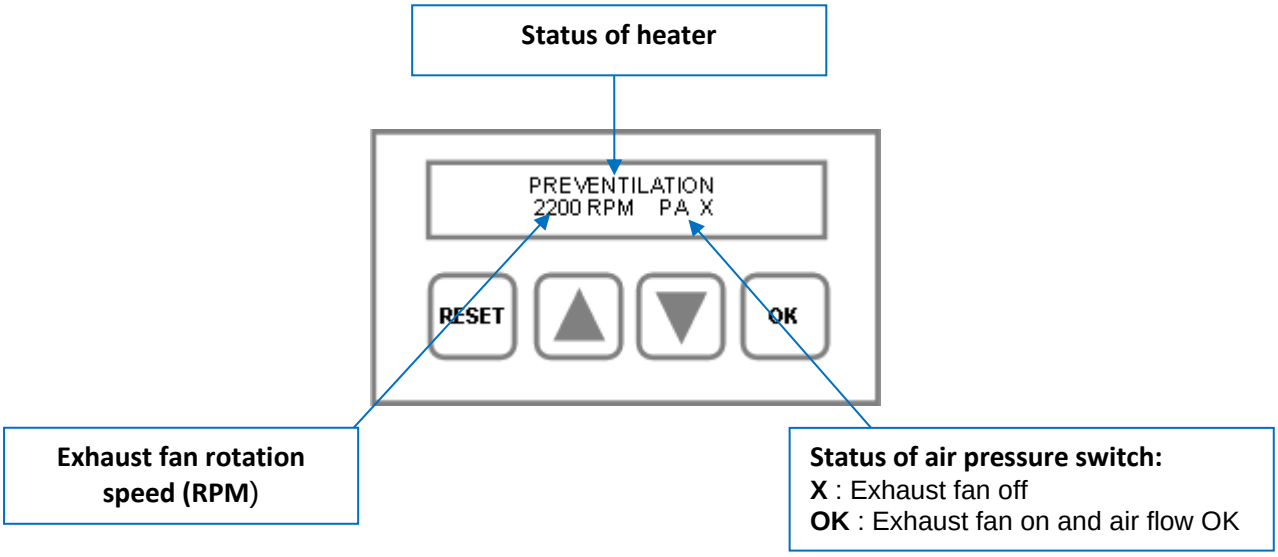
The gas heaters are equipped with a control panel that allows you to check the status of the appliance and to set its parameters.

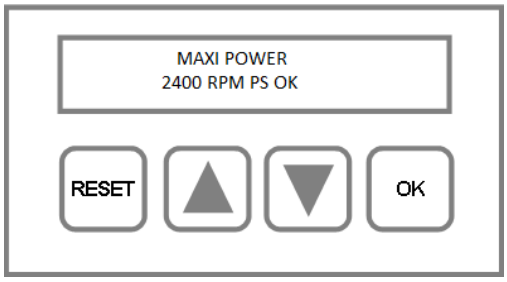


When the appliance is switched on, the status of the heater is indicated:
- STOP
- VENTILATION
- PREVENTILATION
- MINIMUM POWER
- MAXIMUM POWER
- ERROR OR DEF

In case of a default, see chapter 13. TROUBLESHOOTING

When the appliance is switched on and in demand for operation:

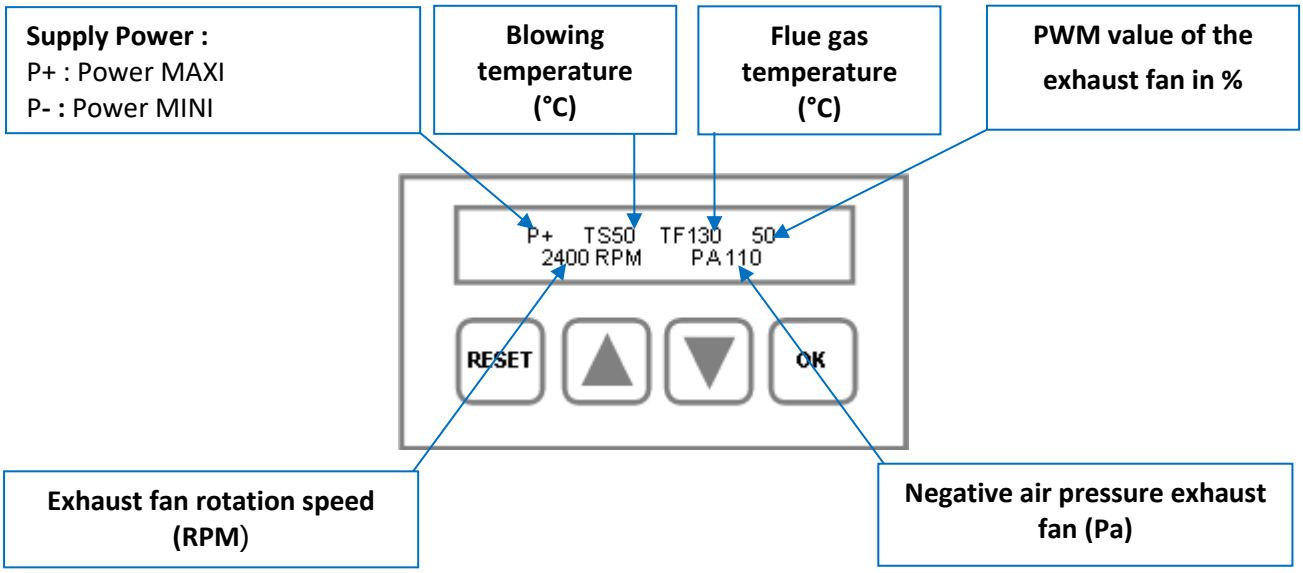




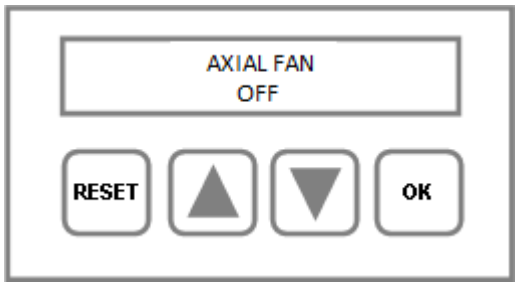
Once the burner is switched on, the display indicates whether the burner is at Mini or Maxi power. It also indicates the exhaust fan speed and the status of the air pressure switch.

Use the ▲ key to move to the next display

Operating parameter information:



Use the ▲ key to move to the next display



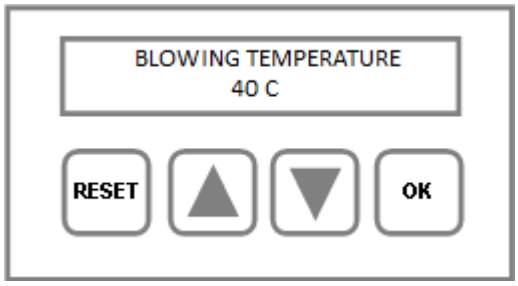
Status of the blowing fan (OFF or ON).

The fan activation is managed in two simultaneous ways:
According to the switch-on temperature set at 45 °C by the factory.
- Depending on a time delay when the burner is switched on, regardless of the blowing air temperature.

When the burner is switched off, only the temperature can maintain or restart the fan if its value is higher than the set point.

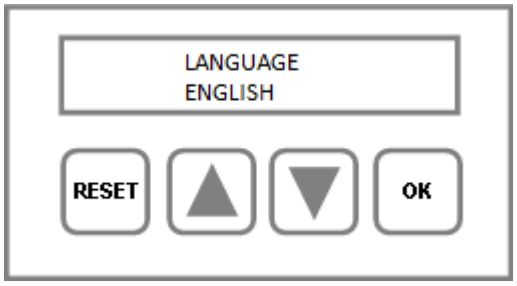
☞ *(For the setting, see paragraph "10.3. Adjustment of the unit via the control panel").*

Use the ▲ key to move to the next display

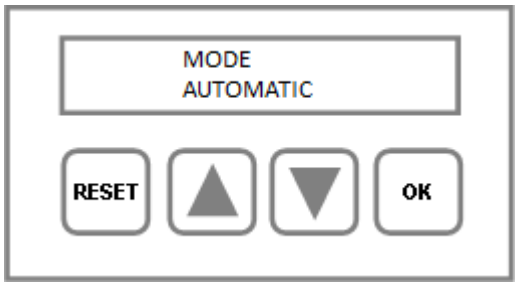


Blowing average temperature (in °C).

Use the ▲ key to move to the next display



Display Language.
Several languages are available such as:
French, English, German, Spanish
*To change the language: **press "OK" for 3 seconds,** select the new language with the **▼ and ▲ keys** and confirm with **"OK".***



Operating mode of the air heater.

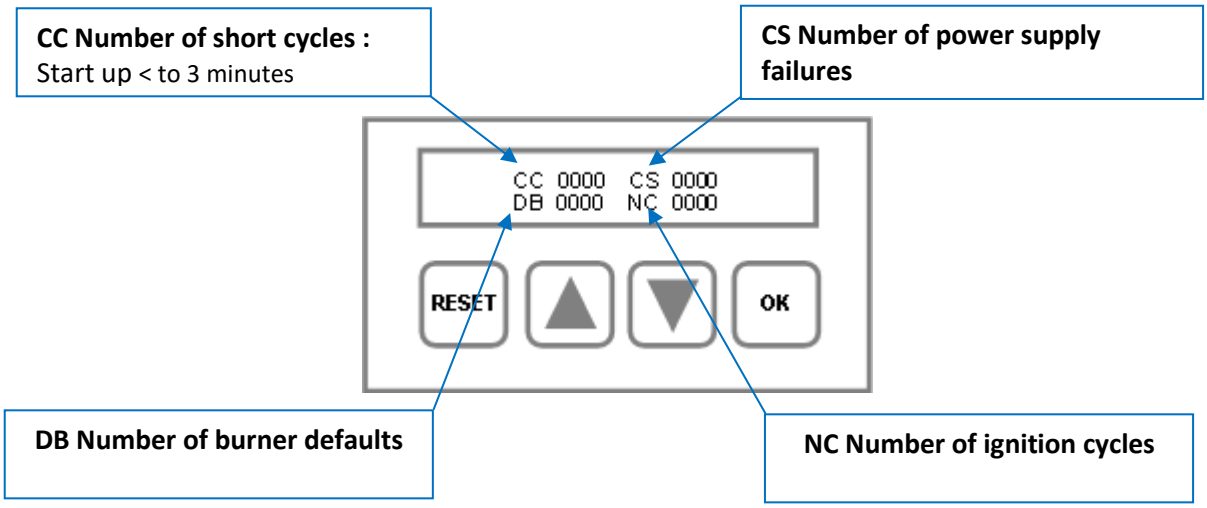
For testing purposes, it is possible to simulate the Stop, Ventilation and ON functions of the ambient thermostat without having to intervene on it.

To select the mode:
- press "OK" for 3 seconds,
- move with the ▼ and ▲ keys,
- confirm with "OK".

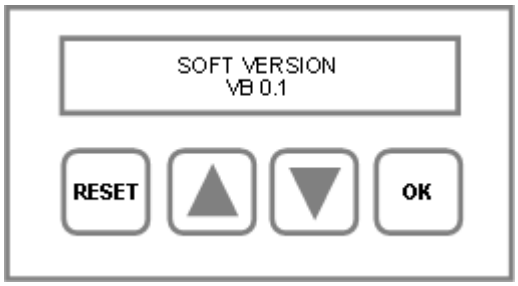
The system will return to automatic mode after 5 minutes if the manual mode is no longer used.

Use the ▲ key to move to the next display

Diagnostic of the latest events on the heater:



Use the ▲ key to move to the next display



Version of the software used

Use the ▲ key to move to the next display

Modification of the gas heater settings

WARNING

This part of the program is strictly reserved for people qualified in gas combustion.

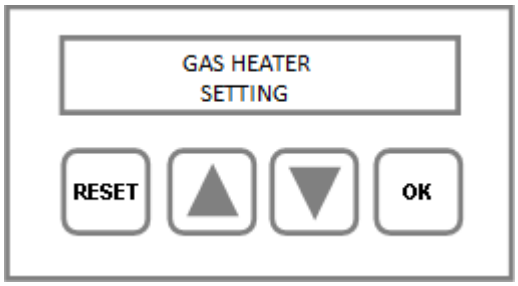
For setting, see paragraph "10.3 gas heater settings via the control panel".

10.3. Gas heater settings via the control board

WARNING

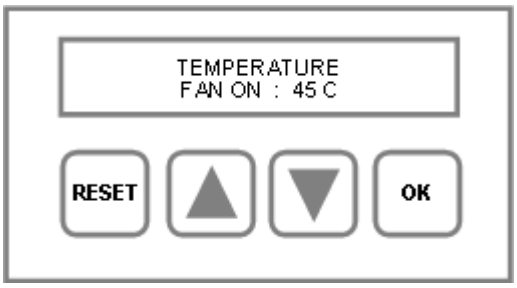
These operations must be carried out by a qualified professional.

Incorrect settings can have serious consequences for the installation.



Once on the "Gas heater Settings" screen:
Press the "OK" button for 5 seconds to access the different programming screens.

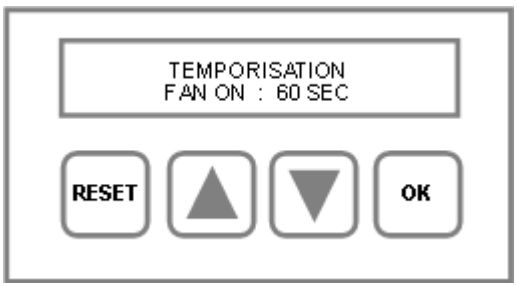
Use the ▲ key to move to the next display



<u>Blowing fan switch-on temperature</u>
The factory setting is 45°C

The blowing fan switches on when the blowing air temperature is above the set value.
It stops when the blowing air temperature is 3°C below the set temperature.
(ON 45°C / OFF 42°C)
To make the setting:
- press "OK",
- adjust the desired setpoint (buttons ▼ and ▲),
- Confirm with "OK".

Use the ▲ key to move to the next display

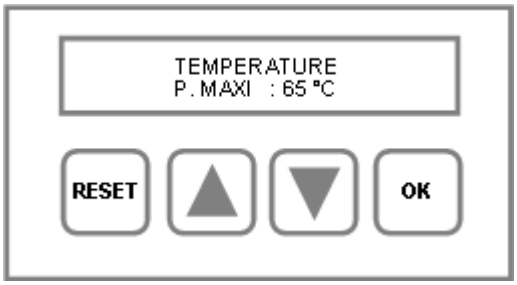


<u>Switch-on delay for supply air fan</u>
The factory setting is 60 seconds.

The blowing fan is switched on 60 seconds after the burner is switched on regardless of the blowing air temperature.
It will stop when the burner stops unless the blowing air temperature is above the programmed " blowing air fan switch-on temperature".

To make the settings :
- Press "OK",
- Adjust the desired setpoint (buttons ▼ and ▲),
- Confirm with "OK".

Use the ▲ key to move to the next display



Controlling the maximum output

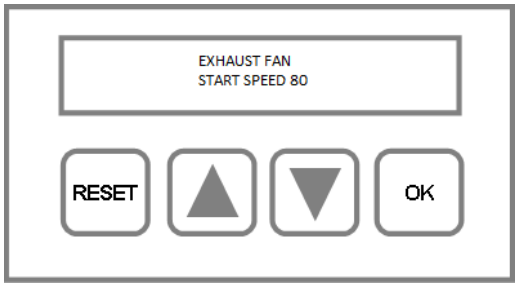
The factory setting is 65°C.

The burner switches to minimum output when the Blowing temperature is above the set value.
The burner switches to maximum output when the blowing temperature is 5°C below the set value.
(P MINI 65 °C / P MAXI 60 °C)

To make setting:

- press « OK » ,
- adjust the desired setpoint (buttons ▼ and ▲),
- confirm with « OK ».

Use the ▲ key to move to the next display



Fan speed at startup

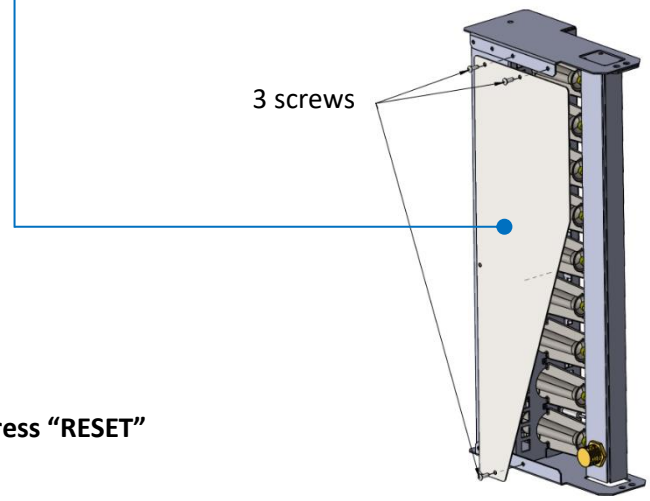
This parameter defines the speed of the extractor at ignition.

To make setting:

- press « OK »,
- adjust the desired setpoint (buttons ▼ and ▲),
- confirm with « OK ».

The factory settings are as follows:

TYPES	25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
Factory setting without deflector	**60**	**45**	**45**	**50**	**60**
Factory setting with deflector	**80**	**80**	**80**	**80**	**80**



To exit setting mode, press “RESET”

☞ *For the functionality and setting of the following parameters, see section "9.3. Burner combustion settings".*

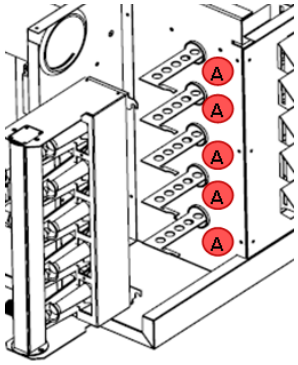
11. Maintenance

Correct and regular use and maintenance of the heater ensures rational and efficient operation, minimum consumption and a long service life. A maintenance contract is strongly recommended.

WARNING

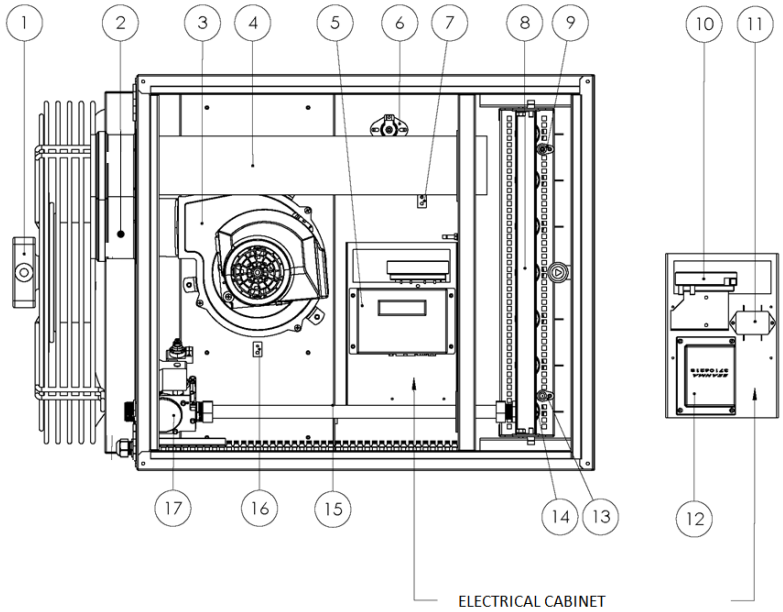
Maintenance operations must be carried out by qualified professionals

Incorrect maintenance can have serious consequences for the installation.

Parts	Maintenance operations
Air heaters	Check that all safety devices are working properly and that all screws are tight.
Heat Exchanger	From the outside, dismantle the blowing air grid and check that the exchanger is in good condition. Access the exchanger by removing the burner and the NOx catalysts, the smoke box and the smoke baffles and clean it. Check the condition of the flue baffles before refitting them, and replace them if necessary.
NOx catalyser (A)	Check their condition regularly and replace them every two years. replace them every two years. If necessary, replace them more often. 
Burner torches	Dismantle the burner bar, check the condition of the torches and clean them.
Injectors	Clean the gas injectors.
Exhaust fan and venturi	Check the condition of the exhaust fan, its rotation, clean it.
Ionisation probe and electrodes	Check their condition, replace them if necessary.
Fan	Clean with compressed air.
Flue gas duct	Check for leaks and sweep it out.
Body and blowing grill with orientation adjustable blades	Clean with a dust cloth.
Gas filter	Remove the dirty cartridge and clean it with compressed air.
Combustion	Carry out an annual combustion check.

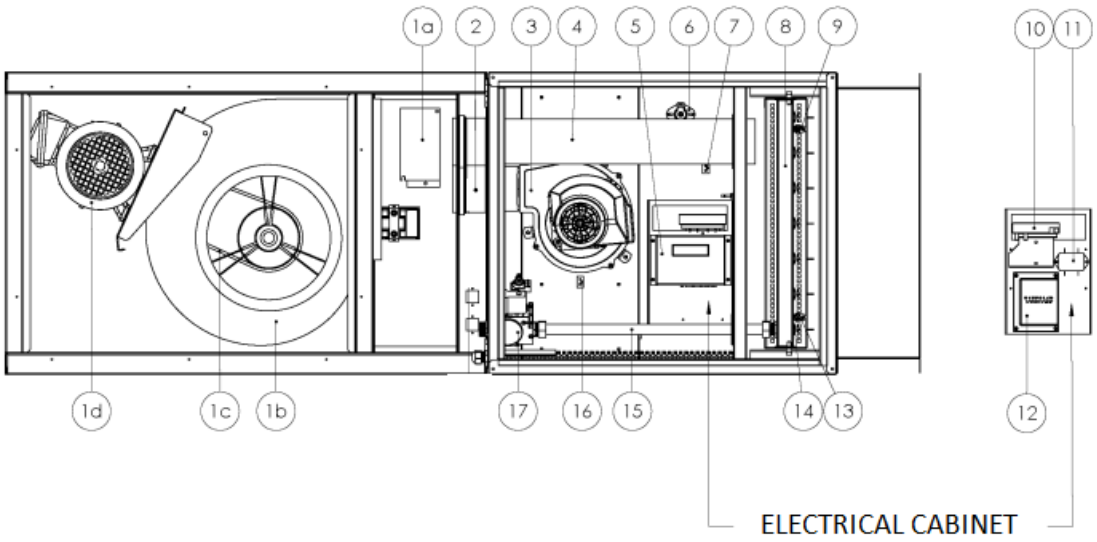
12. Spare parts

12.1. MH and MV ECO 3 Models



Nº	Description	Spare parts reference				
		25 ECO3	35 ECO3	45 ECO3	60 ECO3	80 ECO3
1	Axial fan	3510073	3510074	3510068	3510067	3510069
2	Flue gas connector	3510342				3510343
3	EC exhaust fan	3510097	3510098			
4	Air inlet pipe	3500371				3500373
5	Pilot-wire card RFP21	3510225				
6	Safety thermostat	3510088				
7	Air blowing sensor	3510290				
8	Gas ramp	3510331	3510332	3510333	3510334	3510335
9	Ionization electrode + Ionization cable	3510291			3510292	
10	Differential pressure sensor	3510295				
11	Supply filter	3510296				
12	Safety control box	3510248				
13	Ignition electrode + Ignition cable	3510293				
14	NOx Catalyser	3510100	3510101	3510102	3510103	3510104
15	Gas pipe	3510341				
16	Flue gas temperature sensor	3510294				
17	2-stage gas valve	3510023				

12.2. MC ECO 3 Model



Nº	Description	Spare parts reference			
		35 ECO3	45 ECO3	60 ECO3	80 ECO3
1a	Variable speed driver	3510365	3510366		3510367
1b	Centrifugal fan	3510350		3510351	3510352
1c	Transmission belt	3510360	3510361	3510362	3510363
1d	Fan motor	3510355	3510356		3510357
2	Flue gas connector	3510342			3510343
3	EC exhaust fan	3510098			
4	Air inlet pipe	3500371			3500373
5	Pilot wire card RFP21	3510225			
6	Safety thermostat	3510088			
7	Air blowing sensor	3510290			
8	Gas ramp	3510332	3510333	3510334	3510335
9	Ionization electrode + Ionization cable	3510291		3510292	
10	Differential pressure sensor	3510295			
11	Supply filter	3510296			
12	Safety control box	3510248			
13	Ignition electrode + Ignition cable	3510293			
14	NOx Catalyser	3510101	3510102	3510103	3510104
15	Gas pipe	3510341			
16	Flue gas temperature sensor	3510294			
17	2-stage gas valve	3510023			

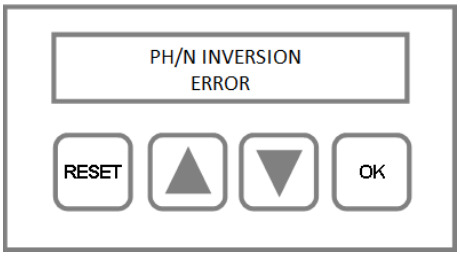
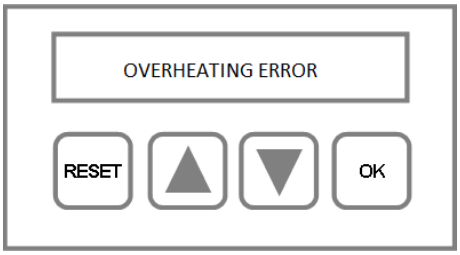
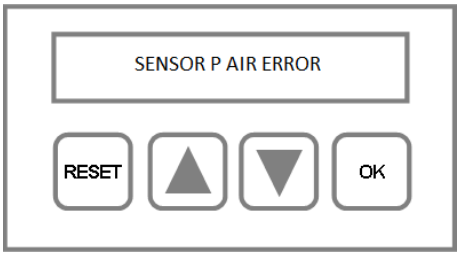
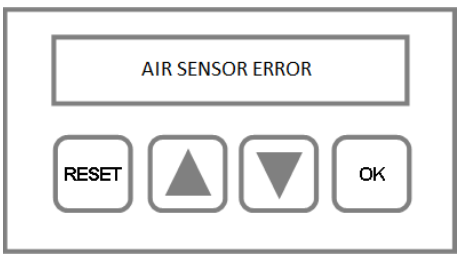
13. Troubleshooting

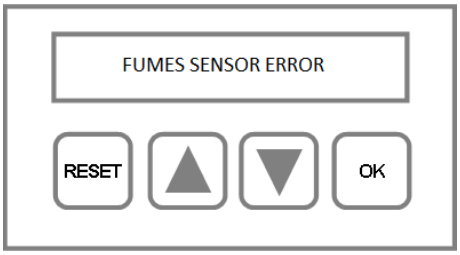
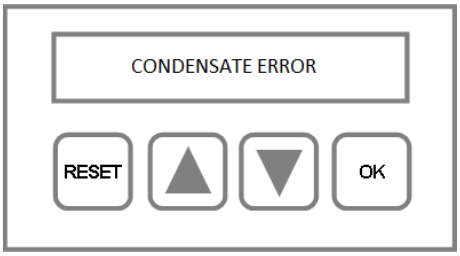
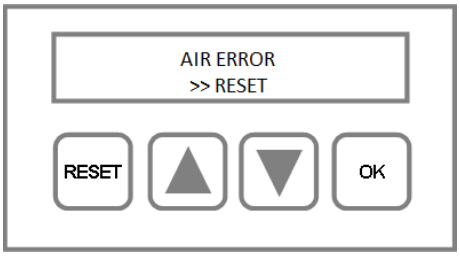
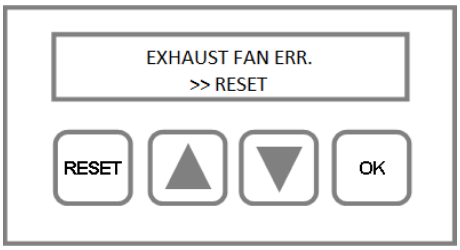
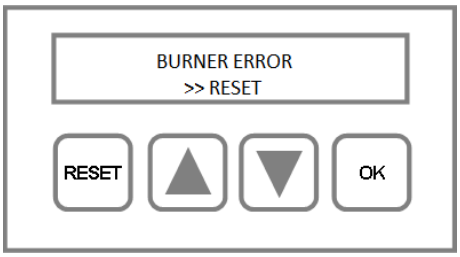
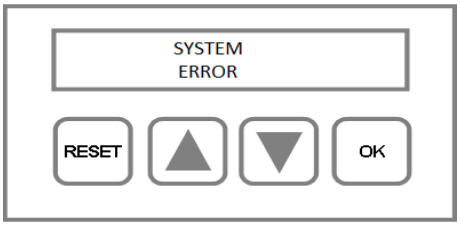
WARNING

Any electrical or mechanical work must be carried out with the power supply cut off and the gas supply closed.

In case of problems, make sure that all the conditions for the correct operation of the appliance are met (electrical supply, gas supply and pressure, flue gas pipe, thermostat in heating mode, etc.).

13.1. Failure list and solutions

Default	Causes	Solutions
	- Reverse polarity.	- Switch off the electrical supply to the appliance - Reverse the phase with the neutral of the general power supply of the heater. This message will disappear once the operation has been carried out.
	- Safety thermostat with manual reset in default. *Cause of the safety stop :* - Main power failure while the unit was heating. - Blowing fan out of order. - Safety thermostat out of order. - Control box out of order.	- Press the thermostat button. - If necessary, replace the component that caused the safety stop.
	- The analogue air pressure switch is disconnected or defective.	- Check the connection or replace the pressure switch.
	- The blowing air temperature sensor is disconnected or defective.	- Check the connection or replace the blowing air temperature sensor.

Default	Causes	Solutions
	- The flue gas sensor is disconnected or defective.	- Check the connection or replace the flue gas temperature sensor located under the exhaust fan.
	- This default does not concern the ECO3 range but it may be displayed	- Check the shunt on the connector as this model does not have a condensate level sensor - Reset the default (RESET button)
	Lack of air; possible causes: - pressure switch tubes blocked or disconnected - blocked air or flue gas connections - defective flue gas exhaust fan - Defective pressure switch	- Check these points opposite and proceed to the possible corrections and/or replacement of components - Reset the default (RESET button)
	- The exhaust fan does not rotate or its control is disconnected	- Check the connection of the control cable or check the correct rotation when starting the exhaust fan - If the exhaust fan does not turn, replace it
	- Burner control box default (located behind the control box plate) The default can be related to different problems	-Contact Solaronics Chauffage
	- Control box system default	Replace and set up new control box

13.2. List of general problems

Defaults	Causes	Solutions
The appliance does not start up	Wrong wiring.	Check the wiring.
	Lack of voltage.	Check the power supply.
	The ambient thermostat is not switched on.	Increase the ambient thermostat setpoint.
	The switch of the pilot wire receiver is not in the automatic position.	Reposition the switch.
The burner always pre-ventilate	Exhaust fan out of order.	Replace the exhaust fan.
	Air pressure switch disconnected.	Reconnect air pressure hoses.
Ignition electrode sparks, burner ignites, control box switches to safety	Defective gas solenoid valve.	Replace it.
	Defective control box .	Replace it.
	Ionisation sensor incorrectly set or faulty.	Adjust or replace.
	Air in the gas pipe.	Drain the gas pipe.
	No gas.	Check pressure.
The appliance switch to safety during operation.	Gas supply interrupted.	Reset by pressing the red push button on the control box.
Cold air at start-up.	Wrong setting of the internal thermostat.	Check the setting of the ventilation temperature.
Appliance does not heat sufficiently	Wrong location of the thermostat.	Change his location.
	Wrong thermostat setting.	Adjust the thermostat.
	Insufficient gas pressure.	Check the gas supply pressure.
	Unsuitable injectors.	Check the correct selection of the injectors and replace them if necessary.
The appliance never stops.	Thermostat set too high or out of order.	Lower the set point or replace it.
	Wrong wiring.	Check the wiring.

14. Warranty

(Extract from the general terms and conditions of sale, chapter WARRANTY)

The appliances must be installed by qualified professionals, in accordance with the regulations in force, the state of the art and the instructions given in our installation manuals.
SOLARONICS CHAUFFAGE offers a 1-year parts and "factory" labour warranty valid from the date of delivery of the appliances.
This guarantee is only valid if the recommendations in this manual, which constitutes the manufacturer's recommendations, are followed and the guarantee form supplied with each appliance is returned

We decline all responsibility and no guarantee would be applicable in case of negligence of the customer, of defective installation, badly adapted or not in conformity with the standards in force. Only manufacturing or raw material defects are covered.
The warranty is limited to the replacement of parts recognised as defective by identical or similar parts; the costs of labour, travel, transport and access to the equipment are excluded.

Any replacement carried out during the warranty period, even if it requires the equipment to be immobilised, may not under any circumstances extend the warranty period. No damages and interest can be claimed for direct or indirect loss.

Installation, maintenance and any repairs must be carried out by qualified professionals. Any intervention must be carried out in accordance with the state of the art and therefore in accordance with the standards in force and the indications provided by our company in this manual. The correct operation of the appliance depends on correct installation and commissioning. Failure to comply with the rules will result in the immediate release of our company from all liability.

The appliances may only be fitted with original flue gas chimney and air pipes.

If accessories other than those offered by our company are used, the compatibility with the appliances must be checked. Our company shall not be liable for any damage or prejudice resulting from the improper use of the appliances.

Knowledge of and compliance with the legal provisions and standards inherent in the design, layout, installation, start-up and maintenance are the sole responsibility of the design office, installer and user.

Our guarantee does not cover damage caused by:

- External phenomena
- Negligence on the part of the user
- Non-compliance with the instructions in our technical manuals
- Immediate or delayed deterioration resulting from poor handling during transport or incorrect operation
- The use of accessories other than those originally supplied
- Lack of maintenance and supervision

Our company shall not be held responsible for any physical or material damage of any kind that may be caused by our products or that may be the direct or indirect consequence of the use of the said products, whether to the purchaser or to any other person.

ANNEX

End of life of the equipment

This device contains electric or electronic components, it should not be considered as household waste. Respect the waste disposal standards and regulations in force when dismantling the unit.

Good safety practice

- Keep ventilation in good condition:
- Leave air inlets and outlets free and unobstructed (grids, air vents, etc.)
- Have the flue gas ducts checked every year

Maintain appliances:

- Maintain the appliances or have them maintained by a competent person at appropriate intervals, in accordance with the manufacturer's recommendations.
- Have the gas appliance checked by a competent person if a safety device is triggered.

A smell of gas, the right reflexes

Gas is flammable, but not toxic, and has been odorised to enable you to detect any leak, however small. This very characteristic smell allows you to intervene quickly. If you smell gas, isolate the gas valve and check the appliances. If everything is normal and the smell persists, you must have the right reflexes.

WARNING

DO NOT CAUSE FLAMES OR SPARKS… AND DO NOT USE ELECTRICAL APPLIANCES

- Do not call a lift, nor use a telephone, even a mobile phone, nor press an electrical switch, so as not to create a spark.

Whatever the room where the smell of gas is perceived, ventilate the room as much as possible by opening doors and windows.

A « gas breakdown service » is available 24/7 from the gas distributor. This service will intervene free of charge and as quickly as possible in the event of gas leak or smell.

- Its telephone number is : ……, and it is mentioned on the bills.

The number of the emergency services (fire brigade) is : ……

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