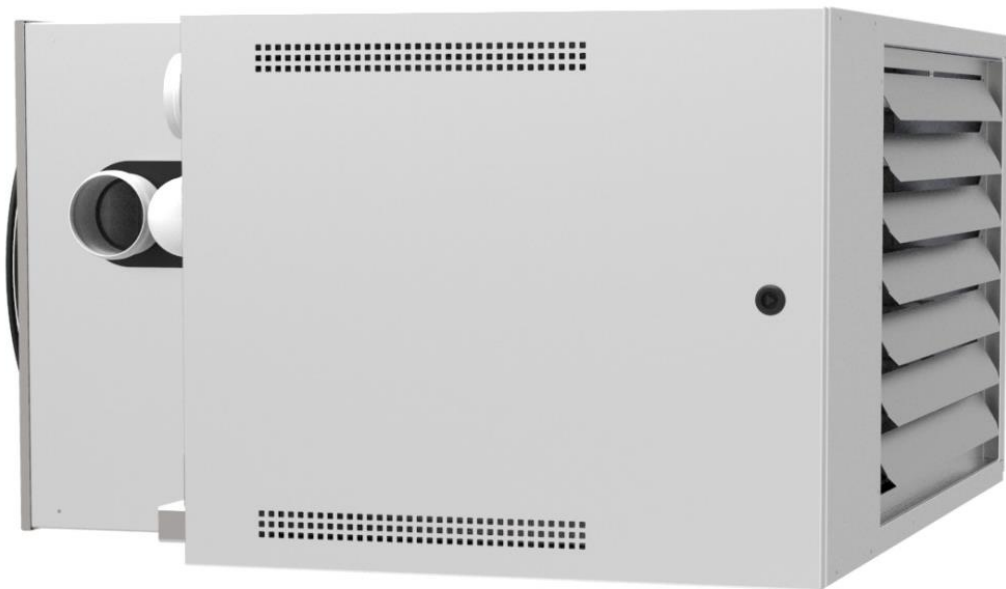


**Ultra-High Efficiency Warm Air Heater
Condensing MINIGAZ MHX
- Technical instructions -**



MHX 25/35/45/60/80

**Atmospheric Burner 2 stages
with condensation**



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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.



Indicates important information.



Indicates a reference to other notices or other pages of the manual.



Before installing and commissioning the device, read all enclosed notices carefully.

1.1. General

1.1.1. Manufacturer's liability

Our products are manufactured in compliance with various applicable European directives requirements. They thus supplied with CE (EC) label and all necessary documents. With our commitment to quality products, we constantly seek to improve them. Therefore, we reserve the right to modify the characteristics stated in this document. Our liability as a manufacturer does not apply in the following cases:

- Failure to follow operating instructions for the appliance.
- Failure to maintain or insufficiently maintain the appliance.
- Failure to follow installation instructions for the appliance

1.1.2. Installer's liability

The Installer is responsible for the installation and first commissioning of the device. The Installer must observe the following:

- Read and follow the instructions given in the instruction manuals provided with the device.
- Carry out the installation by the applicable legislation and standards
- Carry out the first commissioning and carry out all necessary controls.
- Explain the installation to the User.
- Inform the User that he cannot make changes in the appliance's design and to the installation by himself. The slightest modification (change, removal) of security components or parts automatically results in the appliance's CE (EC) label being invalid.
- Alert the User about the obligation to control and maintain the device.
- Hand all documents to the User.

1.1.3. User's liability

To ensure the correct operation of the appliance, the User must observe the following :

- Read and follow the instructions given in the instructions manuals provided with the device .
- Call a qualified technician to carry out the installation and perform the initial commissioning.
- Obtain explanations about the building from Installer.
- Keep all documents in good condition and near the appliance.



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

- Keep the instructions in good condition near the appliance.



1.2. Certifications

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

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

- Low voltage 2014/35/UE,
- Electromagnetic Compatibility 2014/30/EU,
- Ecodesign 2009/125/EC, according to the requirements of Regulation (UE) 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 is 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 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, appliance settings, the safety or control systems, as this could lead to dangerous situations.

Contact a qualified technician in the event of a 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 qualified personnel. In general, all repair and maintenance work must be carried out only by authorized and qualified personnel.



The subscription of a 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 use 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 appliance 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.
- 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 unit heaters :

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



3. Description

The Condensing Minigaz MHX gas heater is an independent warm air generator, operating on natural gas or propane.

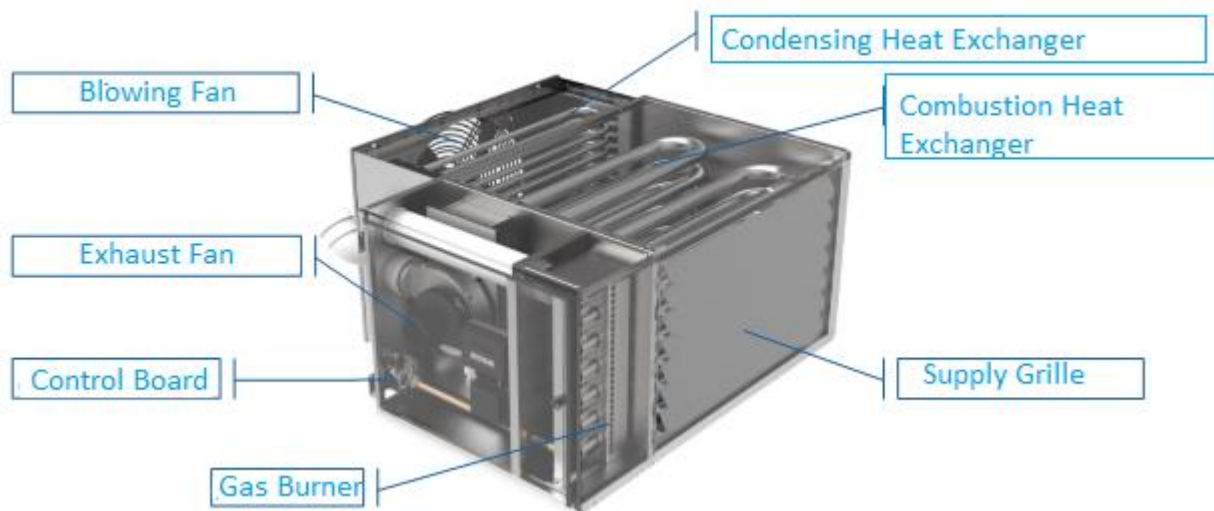
It is a « direct » gas heating system; it is a heat production and emission device without intermediate heat transfer fluid.

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 local or from the outside. These appliances can be connected to a vertical or horizontal flue or to 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 a heating demand, the exhaust fan starts via the thermostat's local.

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, the located at the back of the appliance. The hot air produced is then blown into the room

When the set 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.

The very high performance of the MHX condensing range is obtained by adding a condensation exchanger to the firebox. The combustion production i.e. the flue gases, pass through this second exchanger where their temperature is lowered to recover the energy that would otherwise be lost and thus allow a better combustion efficiency.



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 fault 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 supplied with normal 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 interfere with 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 fan 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.

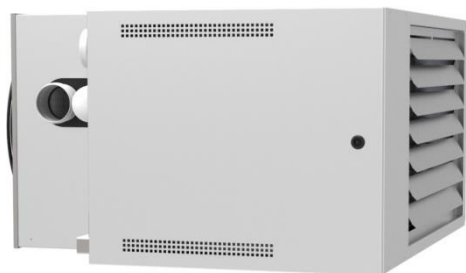
3.5. Control Board

These appliances are equipped with a control board that allows intelligent management of the operation. In the event of a fault, the board indicates the source and facilitates the work of the technician.



4. Technical characteristics

4.1. MHX Model

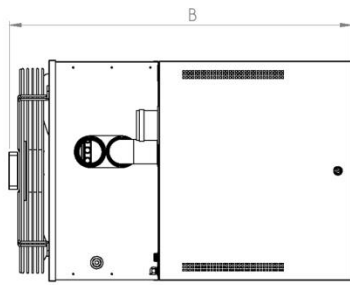


The **MINIGAZ MHX** gas unit heaters are equipped with an axial fan, a two-stage gas burner and a condensing exchanger. The MHX is available in 5 models from 25 to 80 kW and is designed for horizontal installation and direct blowing

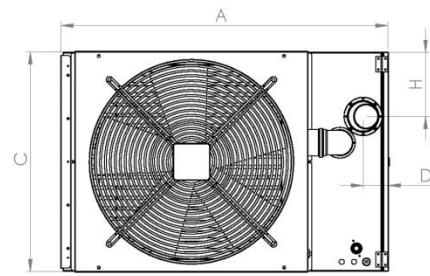
MODELS		MHX25	MHX35	MHX45	MHX60	MHX80
Nominal heat input HHV	kW	29.1	40.4	51.4	67.8	88.6
Nominal heat input LCV	kW	26.3	36.4	46.3	61.1	79.8
Heating capacity at P. Maxi	kW	27.4	38.0	48.1	63.6	82.3
Heating capacity P. Mini	kW	15.6	21.7	27.4	36.3	47.0
Combustion efficiency at P. Maxi	%	104.2	104.5	103.9	104.0	103.1
Combustion efficiency at P. Mini	%	107.1	107.6	106.8	107.1	106.2
Gas flow at nominal heat output at 15°C						
Natural gas G20	m ³ /h	2.50	3.47	4.41	5.82	7.60
Groningen gas G25	m ³ /h	2.68	3.73	4.74	6.25	8.17
Propane gas G31	kg/h	2.05	2.84	3.61	4.77	6.23
NOx with 0 % O2	mg/kW	< 70 / Classe 5				
CO value	ppm	< 120				
Seasonal efficiency (ηs,h)	%	88.4	89.1	87.7	88	86.2
Supply voltage		Monophased 230 V 50 Hz				
Nominal current	A	1.05	1.75	2	3.25	3.95
Max. electrical power with ventilation	W	230	380	430	700	850
Electrical power at P Max without ventilation (elmax)	W	22	38	56	70	92
Electrical power at P mini without ventilation (elmin)	W	12	22	26	28	36
Electrical power in standby mode (elsb)	W	3	3	3	3	3
Fan air flow rate at 15 °C	m ³ /h	3 320	5 000	5 400	7 200	7 800
Air temperature rise at P Maxi	°C	24.2	22.4	26.2	26.0	31.0
Air temperature rise at P Mini	°C	13.9	12.8	14.9	14.8	17.7
Acoustic power – Lw (+/- 4 dB)	dB(A)	72.0	79.8	78.6	87.0	85.6
Acoustic pressure at 5 m – Lp (+/- 4 dB)	dB(A)	50.0	57.8	56.6	65.0	63.6
Available air/flue pressure drop	Pa	120	200	250	300	240
Maximum hourly condensate volume	l/h	1.35	1.87	2.38	3.15	4.11



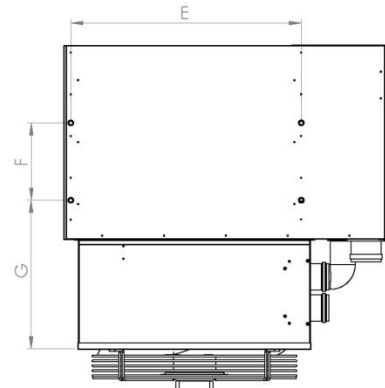
4.1.1. Dimensions of MHX



Lateral view



Back view

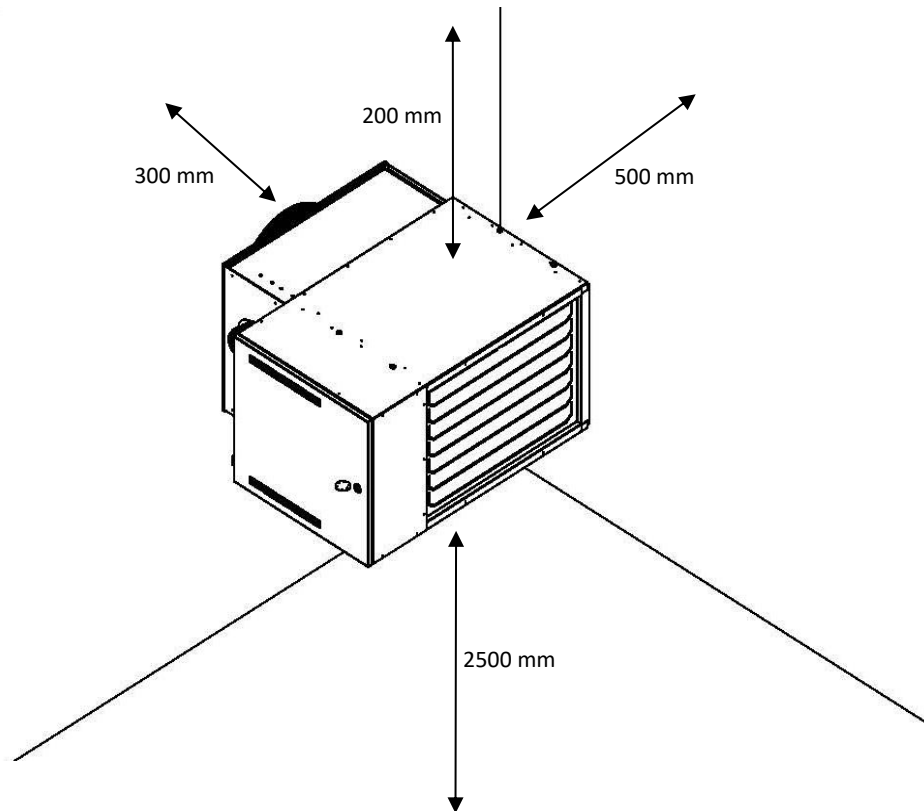


Top view

Types		MHX 25	MHX 35	MHX 45	MHX 60	MHX 80
A	mm	1 060				
B	mm	1 100				
C	mm	495	545	600	710	912
D	mm	72				82
E	mm	746				
F	mm	250				
G	mm	485				
H	mm	100	125	153	208	276
∅ Flue	mm	80				100
∅ Air	mm	80				100
∅ Gas	"	3/4				
Weight	kg	105	115	140	180	200



4.1.2. Recommendations for MHX installation



5. Fixing the devices

The appliances can be fixed to the wall or frame of buildings. Before fixing the units, 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 structure.

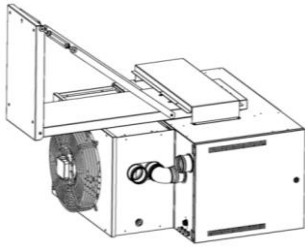
For the use of our brackets, always refer to the instructions supplied with the brackets.

5.1. Summary of existing supports

For MHX air heater	25	35	45	60	80
Rotating wall bracket SMR	3500346			<i>Not compatible</i>	
IPN fixing kit for SMR	<i>Not available</i>				
Fixed wall bracket SMF	3500345			3500347	
IPN fixing kit for SMF	3500074			<i>Not compatible</i>	



5.2. Rotating wall bracket SMR

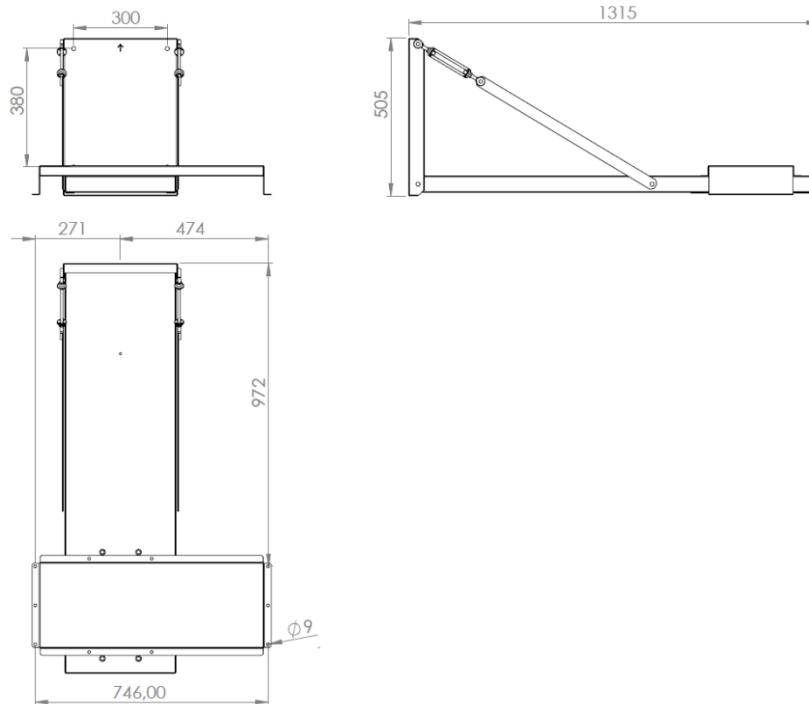


The kit «Rotating wall Bracket » (code 3500346) is a rotating wall bracket for type **MHX 25 to MHX 45**.

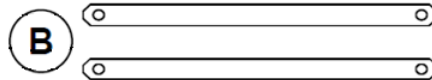
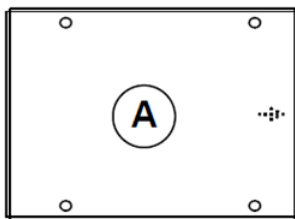
i The models MHX 60 et 80 are not compatible with SMR kit.

i There are no IPN fixing kit compatible with SMR kit.

5.2.1. SMR Dimensions



5.2.2. SMR Furniture



i 8 x Screw M12x30
8 x Nut M12

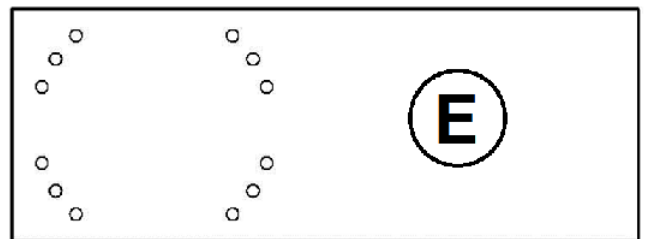
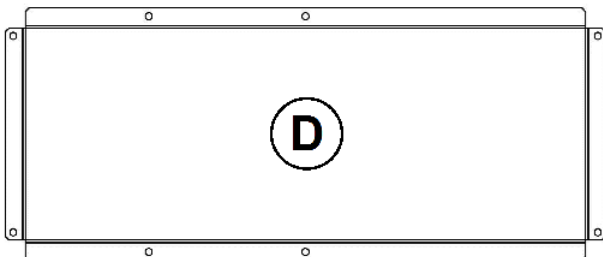
⊙ 16 x Flat washer M12

⊙ 8 x Star washer M12

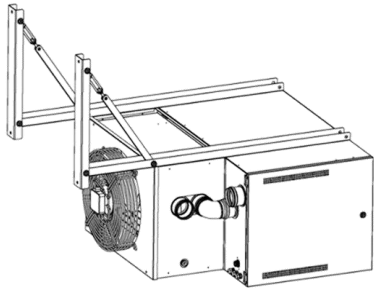
i 8 x Screw M8x30

⊙ 8 x Flat washer M8

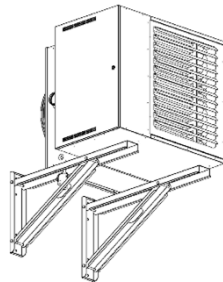
⊙ 8 x Star washer



5.3. SMF Fixed wall brackets



SMF 25/35/45



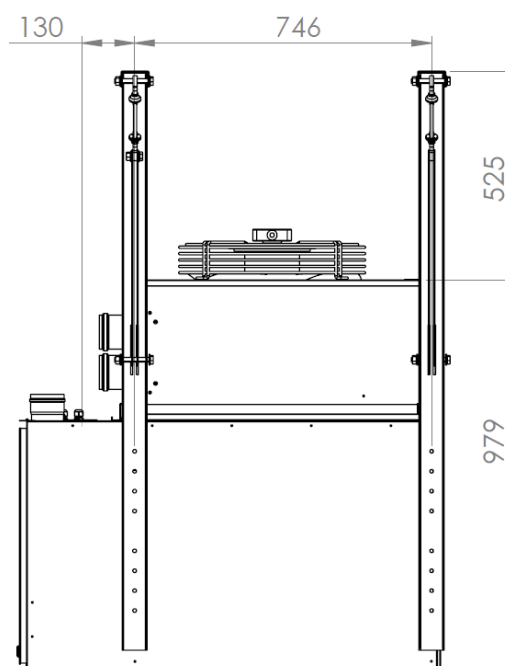
SMF 60/80

The kits « **fixed wall bracket** » (code 3500345 and 3500347) are fixed wall brackets for the **MHX 25 to MHX 80 models**.

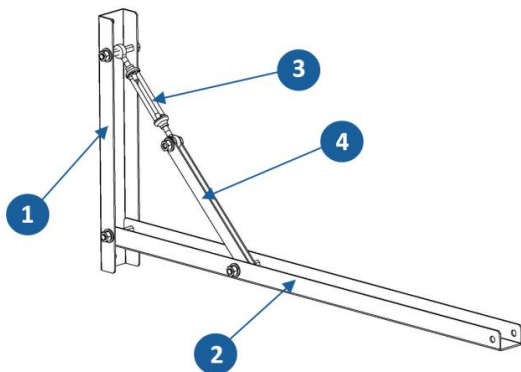
The SMF 25/35/45 model can be combined with the **IPN fixing kit** (code 3500349) for fixing to a metal frame.

i The MHX 60 et 80 are not compatible with the IPN fixing kit.

5.3.1. SMF 25/35/45 Dimensions



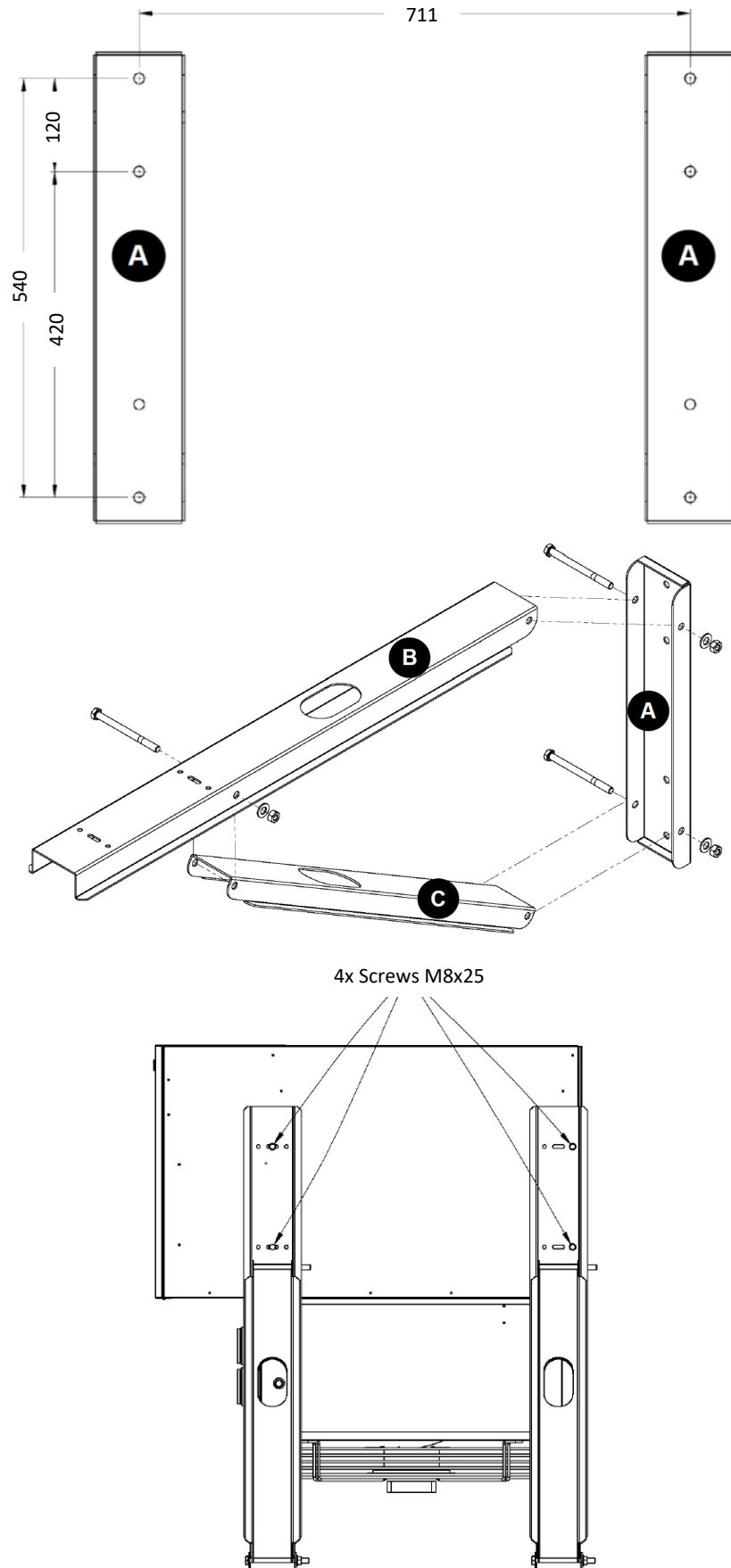
5.3.2. SMF 25/35/45 Furniture



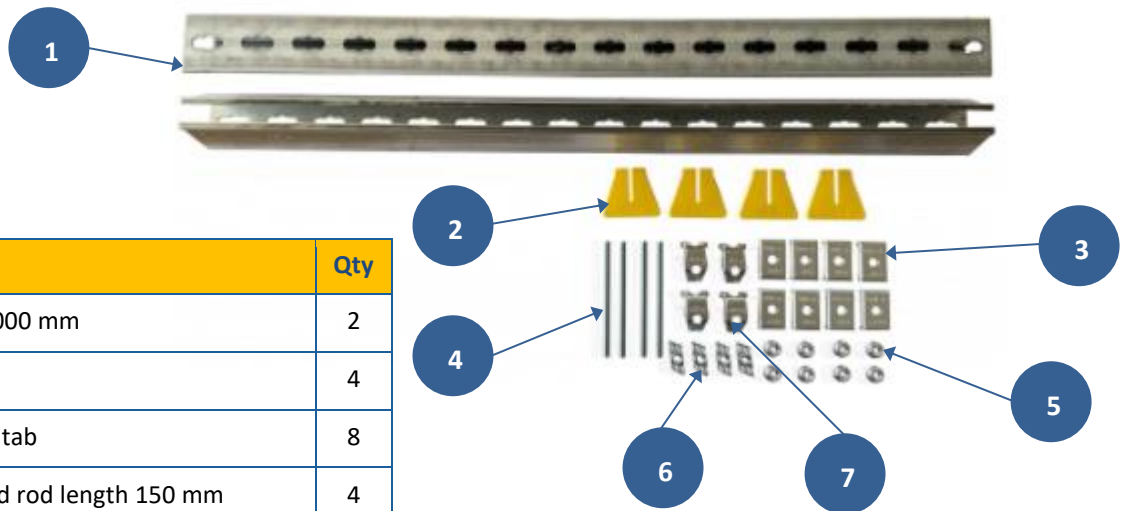
REP	Description	Qty
1	Wall bracket	2
2	Air heater support	2
3	Tensioning M10	2
4	Spreader	2
-	Screws Kit	1



5.3.3. SMF 60/80 Dimensions and mounting instructions



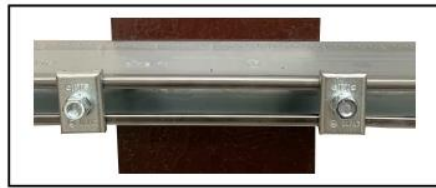
5.4. IPN Fixing kit



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



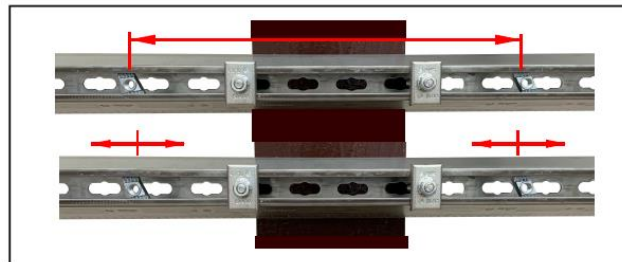
Locking tabs on the opening side of the rail



Hook's tip on the IPN



Tighten the 8 nuts

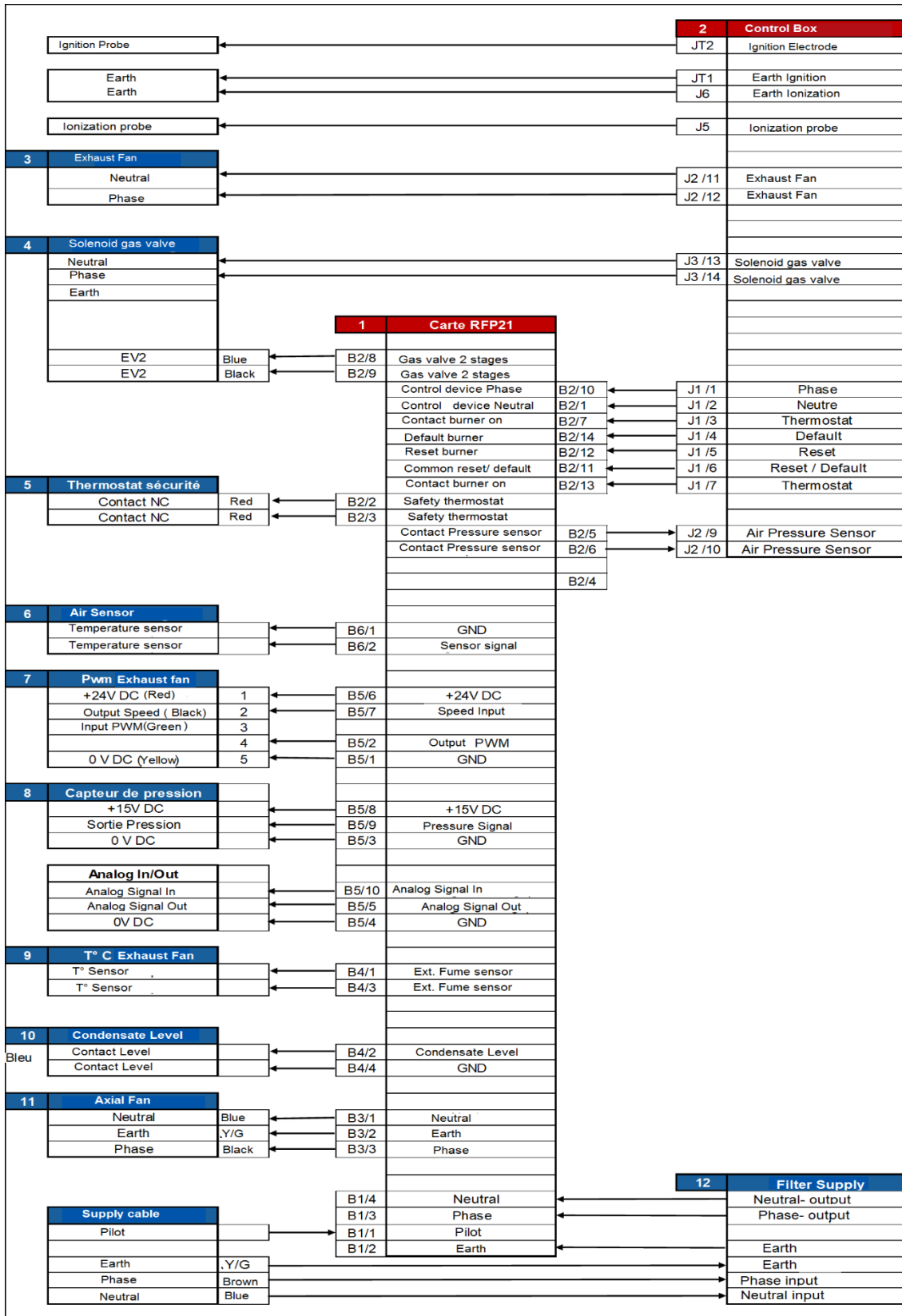


Adjustable center distance



6. Electrical Wiring

6.1. Internal wiring diagram of MHX



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

TECHNICAL INSTRUCTIONS – **Condensing warm air heater MHX**– NT20006F-GB – 27/10/2023

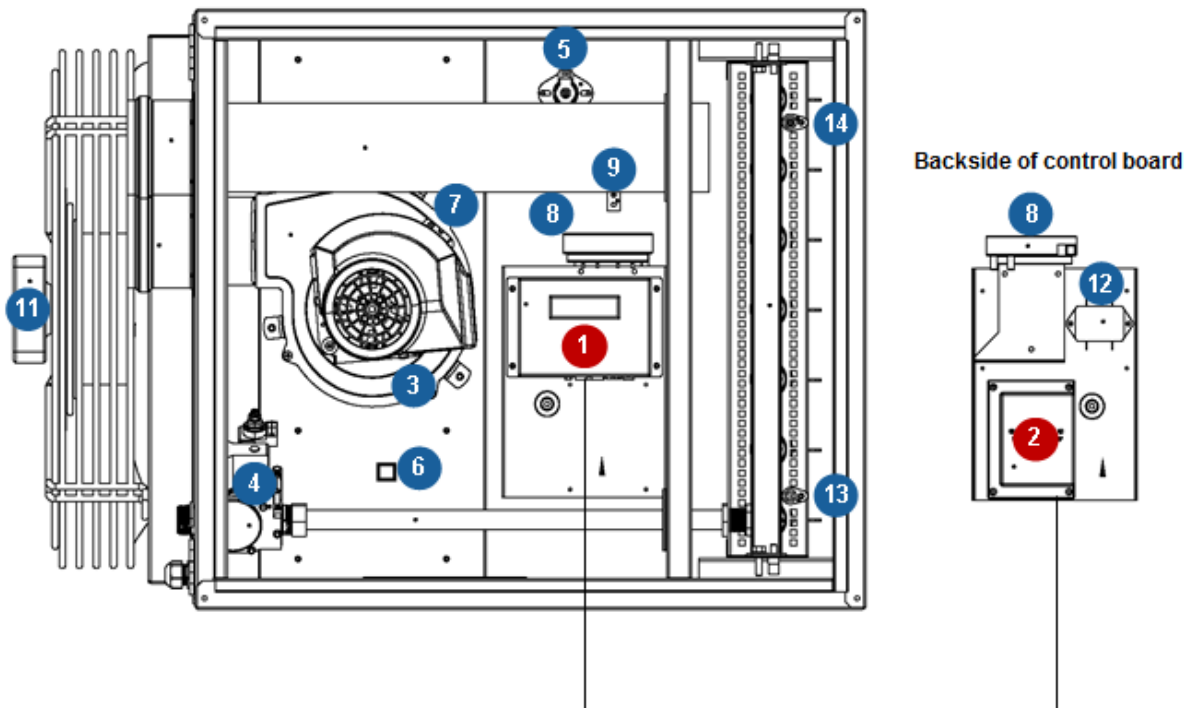
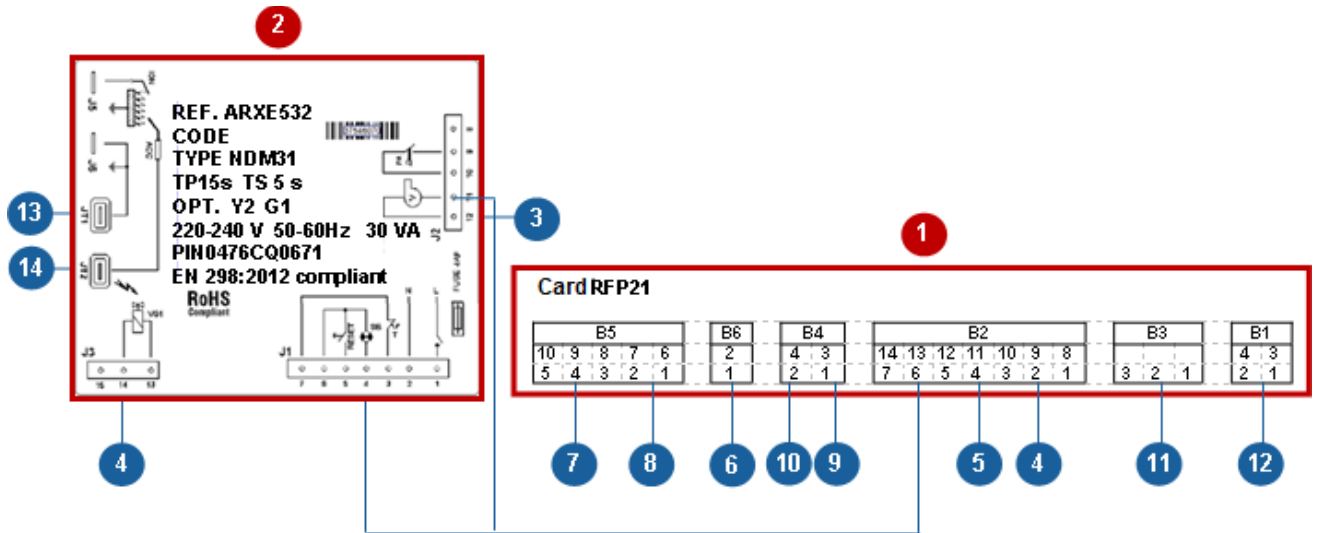
SOLARONICS Chauffage SAS. ZI n°3, 78 rue du Kemmel – CS 20302 – 59429 ARMENTIERES CEDEX - FRANCE

Phone : +33.(0)3.20.10.59.59 - Fax : +33.(0)3.20.35.57.22

Web site : www.solaronics.com



6.2. Electrical connection between interne components



6.3. Pilot wire principle







WARNING

The air heaters can not be controlled by a traditional thermostat (with dry contact)
Only the specific « pilot wire » thermostats supplied by Solaronics can control the heaters.

The purpose of the pilot wire is to limit the number of conductors to be connected.
One and the same pilot allows to transmit an order:

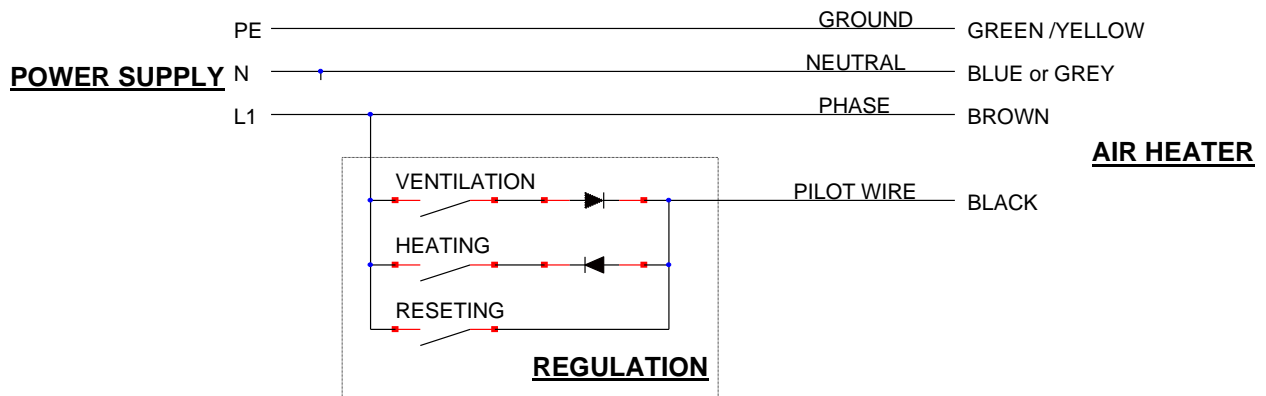
- Ventilation
- Heating
- Reset

The control principle of the air heaters is described below:

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

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

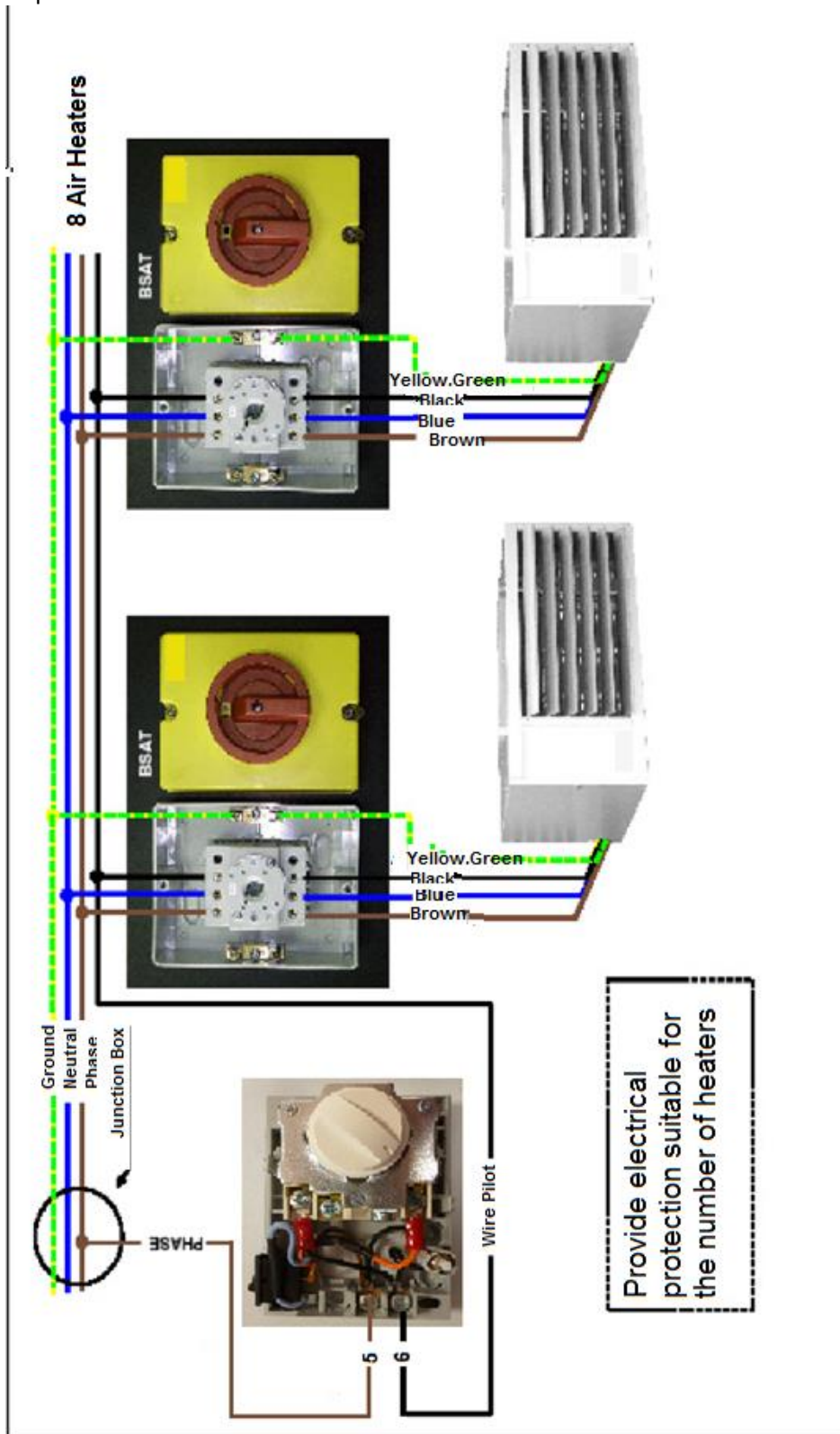
6.3.1. Pilot wire principle diagram



6.4. Connection of standards controllers

6.4.1. TM1 EVO Simple Thermostat

Provide electrical protection for the number of heaters.

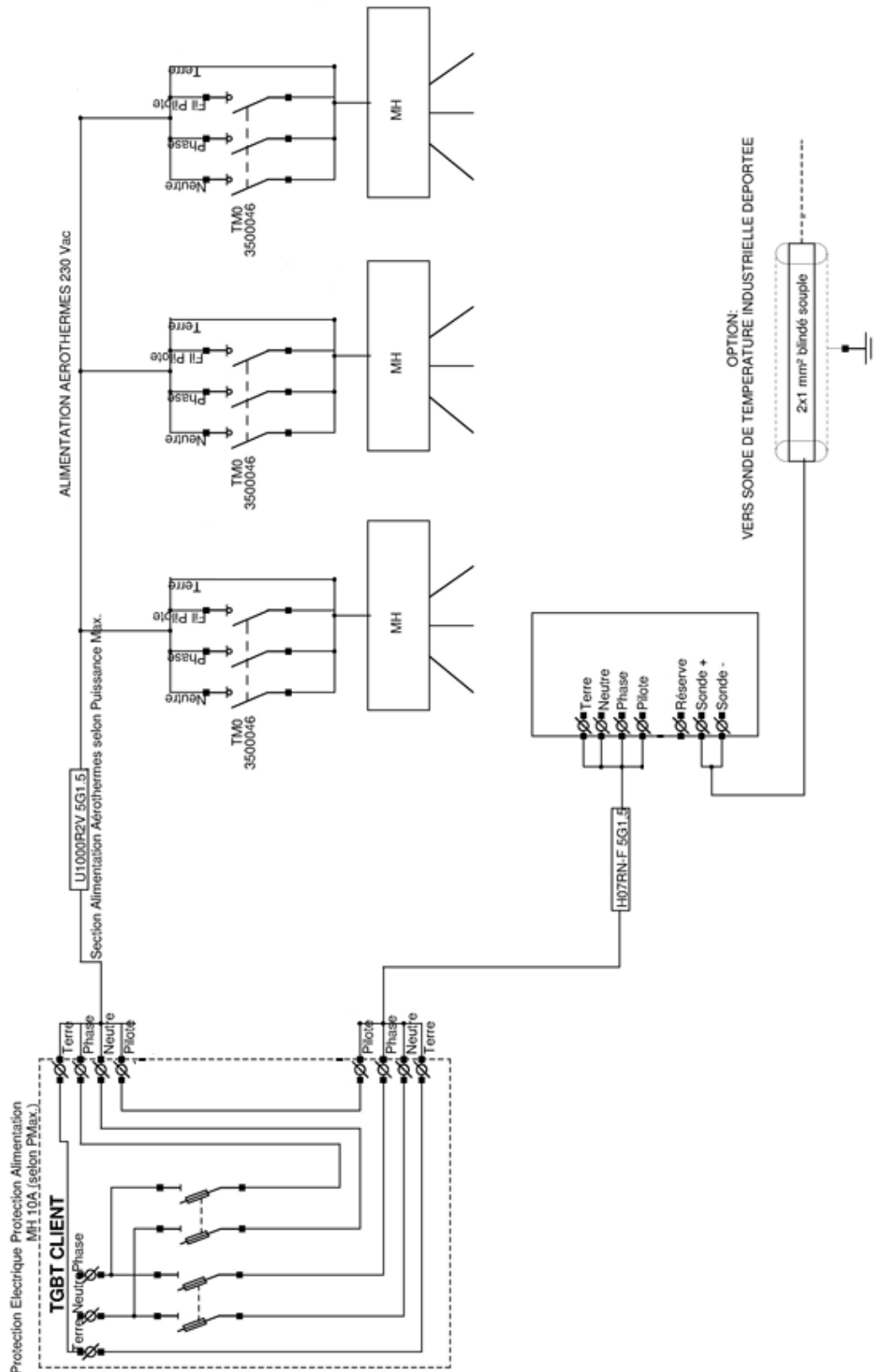


Note : The neutral conductor coming out of the power cable of the devices can be blue or grey.



6.4.2. TM2 EVO V2 Touchscreen multi setting thermostat

Provide electrical protection for the number of heaters.



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

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 suction cups, that the 2 circuits (combustion air supply and smoke evacuation) are separate and tight: check the assembly of ducts, 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 venting tee, condensate trap, etc.
- For long lengths, it is essential to provide a condensate trap, including for installation with suction cups.

7.2. Summary of existing flue kits

Type of connections	MHX	
	Ø80 (Models from 25 to 60)	Ø100 (Models 80)
Installation B22	3500302	3500305
Installation C32	3500314	3500317
Installation C12	3500308	3500311



7.3. B22 kit connections

The combustion air is drawn directly into the room and the smoke is exhausted to the outside via a vertical chimney through the roof.

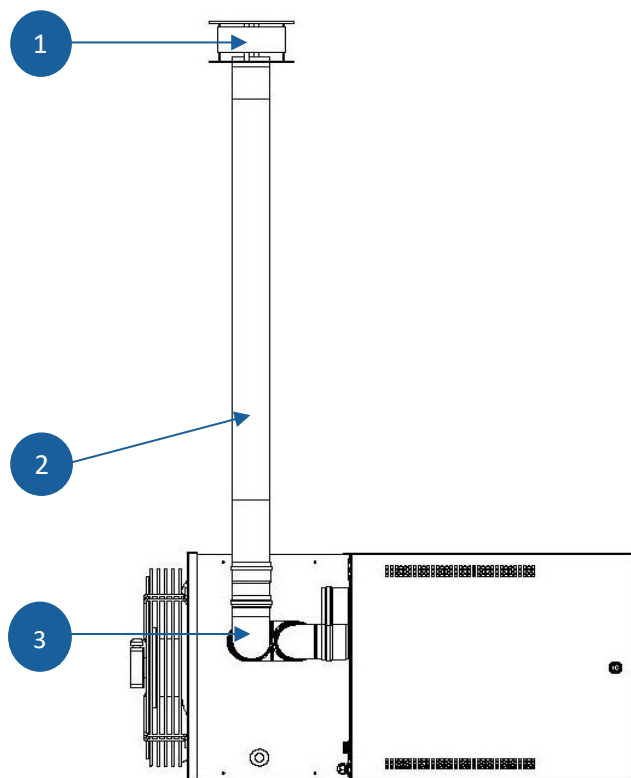
If a roof outlet is used, the combustion air must be taken from the room where the appliance is installed.



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 soit 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 roof terminal with drip cap
- (2) 1 single pipe length 1m
- (3) 1 elbow at 90°

Additional accessories

- Single pipe elbows
- 1 meter lengths



The kit composition is indicative and may vary.



For condensate drainage: see chapter "Condensate connection".



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

*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 required.

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

Example for air heater MHX 35 :

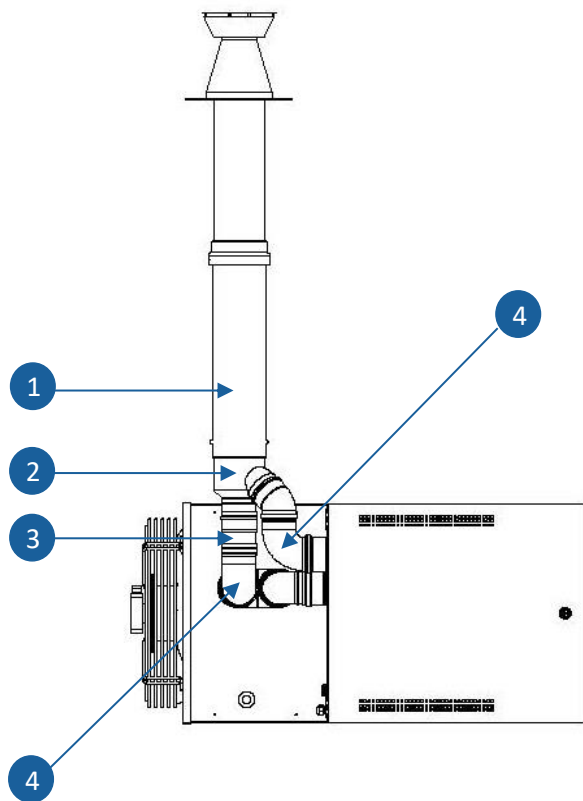
Composition of the flue gas system	Quantity	PD per unit 35 ECO3	PDC total
Kit B22	1	50 Pa	50 Pa
Additional straight length 1 meter	4	4 Pa	16 Pa
Additional 90° elbow	2	4 Pa	8 Pa
Total pressure drop			74 Pa
Available flue pressure drops			200 Pa

*The total pressure drop in the flue (74 Pa) is lower than the pressure drop available for a MV 35 ECO3 (200Pa).
The permissible flue gas length for the gas heater is respected.*



7.4. C32 Kit Connection

Combustion air and smoke exhaust are directed to the outside via a vertical chimney through the roof.



C32 kit Composition

- (1) 1 roof terminal with drip edge
- (2) 1 coaxial/bitube adaptor
- (3) 1 single pipe length to be adjusted
- (4) 2 singles pipe elbows for 90°

Additional accessories

Concentric elbows
Monotube elbows
Single pipe lengths of 1 meter
Concentric lengths of 1 meter

i It's possible to extend or deviate the suction outlet with approved accessories. The use of airtight ducts implies a perfect airtightness of the joints, so to facilitate the assembly it is essential to use a lubricant, not aggressive for the seal, ex. Soapy water.

i The kit composition is indicative and may vary.



For condensate drainage: see chapter "Condensate connection".



MHX air heater	Units	25	35	45	60	80
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	
PD* extra length 1 metre Monotube	Pa	2	4	7	12	
PD* extra length 1 metre Concentric	Pa	4	6	9	15	
PD of an additional 90° elbow Monotube	Pa	8	15	25	40	
PD* of one additional 90° bend Concentric	Pa	10	18	33	50	

*PD = Pressure drop



WARNING

The cumulative pressure drop must not exceed the available pressure drop.

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

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

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

Example MHX 60 air heater:

Composition of the flue gas system	Quantity	PD per unit 60 ECO3	PD total
C32 Kit	1	135 Pa	135 Pa
Length 1 additional meter single tube	4	12 Pa	48 Pa
Extra length 1 meter Concentric	5	15 Pa	75 Pa
Additional 90° elbow Monotube	0	40 Pa	0 Pa
Additional 90° elbow Concentric	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 (350Pa).

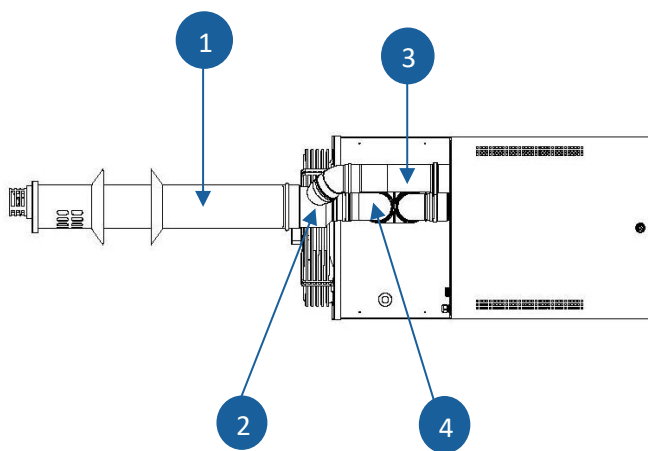
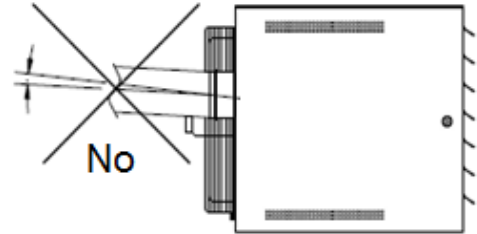
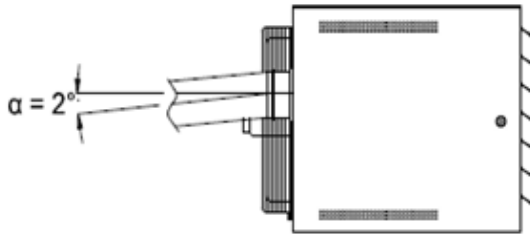
It is essential to shorten the length of the flue to achieve a pressure drop below 350 Pa.



7.5. C12 kit Connection

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

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



Composition of a C12 kit

- (1) 1 wall terminal with rosettes
- (2) 1 concentric/bitube adaptor
- (3) 1 meter single tube lengths 0,5m to be adjusted
- (4) 1 elbow of 90°

Additional accessories

- Concentric elbow
- Single tube elbow
- Single tube length of 1 meter
- Concentric length of 1 meter

i It is possible to extend or deviate the suction with approved accessories. The use of airtight ducts implies a perfect airtightness of the joints, so to facilitate the assembly it is essential to use a lubricant, not aggressive for the seal, ex: soapy water.

i The kit composition is indicative and may vary.

👉 For condensate drainage: see chapter "Condensate connection".



MHX Air heater	Units	25	35	45	60	80
Diameter of the flue pipe	mm	80				100
Available air/flue pressure drop	Pa	120	200	250	350	240
C12 Kit pressure drop	Pa	30	50	80	135	
PD* straight length 1 additional meter Single pipe	Pa	2	4	7	12	
PD* extra length 1 meter Concentric	Pa	4	6	9	15	
PD* of an additional 90° elbow Single tube	Pa	8	15	25	40	
PD* of one additional 90° bend Concentric	Pa	10	18	33	50	

*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 flue, add up the PD* of the suction and the flue gas.

Example for MHX 25 air heater :

Composition of the flue gas system	Quantity	PD per unit MHX25	PD total
C12 kit	1	30 Pa	30 Pa
Length 1 meter additional Single-pipe	0	2 Pa	0 Pa
Length 1 meter additional Concentric	3	4 Pa	12 Pa
Additional 90° elbow Single tube	0	8 Pa	0 Pa
Additional 90° elbow Concentric	2	10 Pa	20 Pa
Total pressure drop			62 Pa
Available flue gas pressure drops			120 Pa

The total pressure drops in the flue (62 Pa) is lower than the available pressure drop for an MHX 25 (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 pipes according to the nature of the gas flow and the length of the pipes.

Ensure that the pressure drop in the pipework does not exceed 5% of the supply pressure.

Gas connections must be made in accordance with the requirements for indoor installations for all types of gas.

8.1. Connection of air heaters

The gas heaters operate with an inlet pressure of 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 a block valve (5), a gas filter (4) and a pressure regulator (3), to relieve the pressure to the supply pressure of the heater.



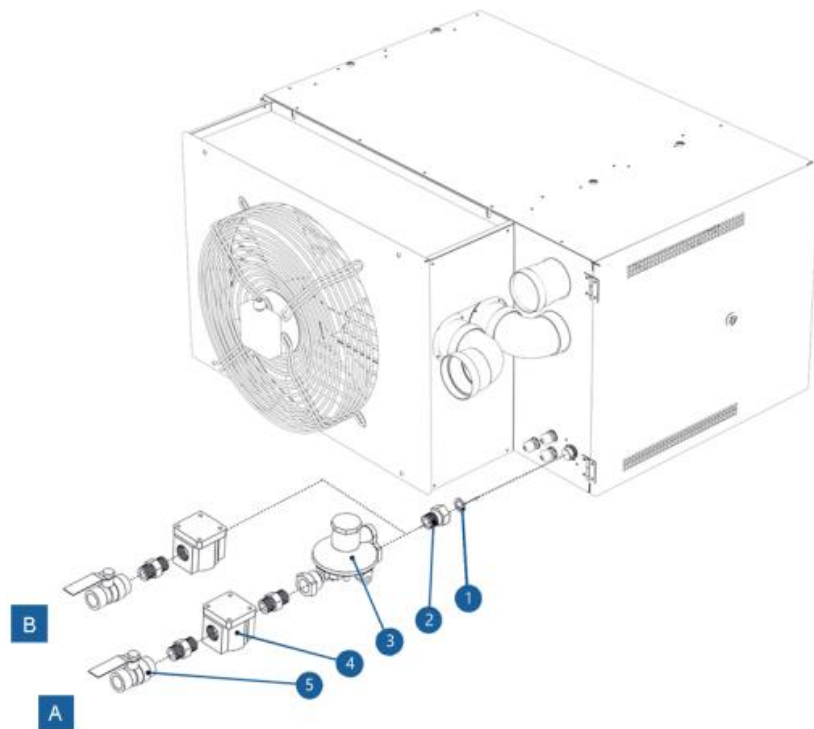
WARNING

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.



Gas kit composition

- (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.



8.2. Condensate Connection

The condensation air heaters are equipped with a siphon which allows condensation water to drain from the rear of the unit. The siphon is supplied separately to be assembled during installation.



WARNING

The drainage must be realised with materials resistant to acid waters with a PH of 3.
Never use copper or galvanised iron pipes.

- For the condensation drainage system, use PVC pipes with a diameter at least equal to that of the appliance (PVC dia.25). Make sure that the piping is always installed lower than the higher point of the siphon.
- Verify that the condensation drainage pipes are watertight.
- **Before using the appliance**, fill the siphon with water through the filling plug. This prevents smoke from escaping into the water outlet during start-up.

Frost protection

The condensate drain, including the siphon, must be protected from freezing. It is better to keep the drain pipe as much as possible inside a frost-free room. If it is outside the building, the part of the pipe behind the siphon should be open to avoid possible ice formation blocking the discharge. Take all the necessary measures to avoid such an incident, as it could cause irreversible damage to the heater.

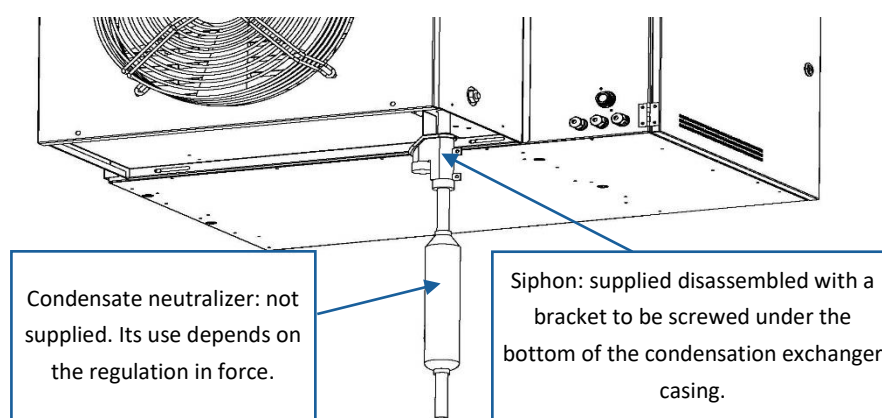
Neutralizing condensation water

The acidity of the water obtained from the combustion of natural gas is 3,5-3,8 PH. Depending on the region of installation, some regulations require the treatment of condensate; in this case, provide a condensate neutralization kit. Contact the after-sales service for more information.

Maintenance

Verify the condensate drain trap, it must be filled with clean water at the installation. It must allow the condensate to drain freely.

The condensation exchanger of the unit is equipped with a condensate level sensor. If the condensate drain is obstructed, the appliance switches off.



9. Gas circuit



WARNING

These operations must be carried out by a qualified professional.

9.1. Gas change over

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

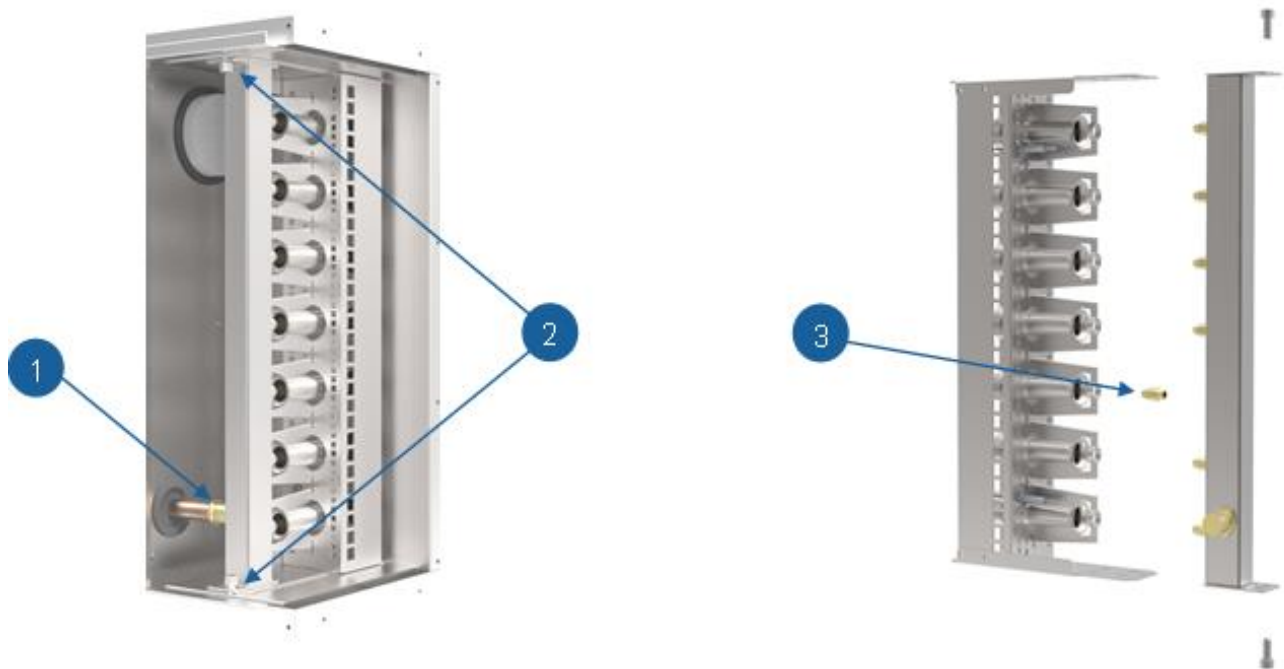
1. Disconnect the electrical supply connector and close the gas supply.
2. Disconnect the ignition and ionization electrode cable.
3. Unscrew the gas line connector (1) and the lower screws (2) for fixing the manifold.
4. Replace the injectors according to the gas used (see adjustment table).
5. Screw on the new injectors (3) without sealing, with 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 ionization 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

MHX Model	G20 & G25 settings					G31 settings		
	Gas Injectors	Gas pressure at G20 [mbar]		Gas pressure at G25 [mbar]		Gas Injectors	Gas pressure at G31 [mbar]	
		Power Mini	Power Maxi	Power Mini	Power Maxi		Power Mini	Power Maxi
25	5 x AL 1.9	4.0	13.0	6.5	17.0	5 x AL 1.3	10.0	25.0
35	7 x AL 1.9	4.0	13.0	6.5	17.0	7 x AL 1.3	10.0	25.0
45	9 x AL 1.9	4.0	13.0	6.5	17.0	9 x AL 1.3	10.0	25.0
60	12 x AL 1.9	4.0	13.0	6.5	17.0	12 x AL 1.3	10.0	25.0
80	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 settings

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

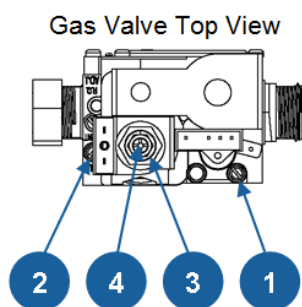
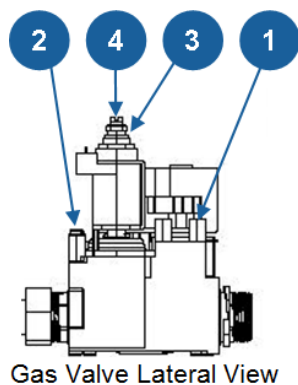
1. A calibrated combustion analyser O2 or CO2, CO, T°C flue gas temperature and ambient temperature readings.
2. A PZ2 screwdriver and 10mm hexagonal key.
3. A calibrated gas pressure gauge with a scale of 0 to 60 mb.



This adjustment has to be made with the running burner.

The combustion adjustment is done by intervening on two elements:

1. By adjusting the nozzle pressure on the solenoid valve according to the type of gas and its rate (P. mini & P maxi).
2. By adjusting the air pressure set point at P max and P min on the heater management 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) Hexagonal adjustment screw Pmin (Screw in for more pressure)

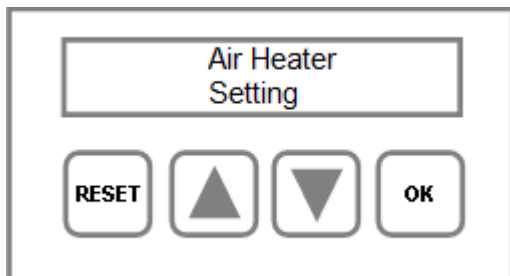
To adjust the pressures, connect the gas pressure gauge to pressure connection of the solenoid valve outlet (2). Adjust the pressure on the screw corresponding to the power of the regulator. P maxi (screw 3) & P mini (screw 4).



WARNING

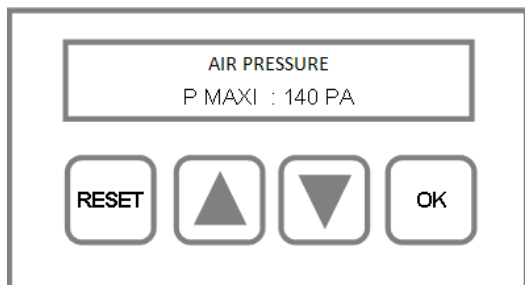
Be careful to tighten the pressure tap screws (1) and (2).





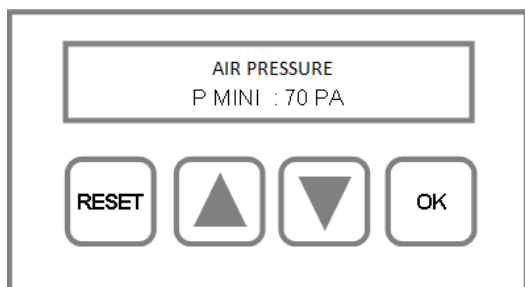
- Once the burner is on (via the room thermostat or the manual mode of the control box), move to the “ Air heater settings” screen with ▲ key.
- Press « OK » for 5 seconds.

Use the ▲ to move to the « Air Pressure P Maxi » screen



- Press « OK ».
- The extractor increases its speed to stabilize the air pressure at the displayed set point.*
- Check the pressure P max at the gas solenoid valve outlet.
- Adjust the O2 value of the flue gas (buttons ▼ and ▲).
- The O2 value must be between 7.5% and 10%. (Target value: 8%)*
- Confirm with « OK » when the setting is correct.

Use the ▲ to move to the « Air Pressure P Mini » screen



- Press « OK ».
- The extractor reduces its speed to stabilize the air pressure at the displayed set point*
- Check the pressure P mini at the outlet of the gas solenoid valve.
- Adjust the O2 value of flue gas (buttons ▼ and ▲).
- The O2 value must be between 7.5% and 10%. (Target value: 8%)*
- Confirm with « OK » when the setting is correct.

Use the ▲ to move to the « Air Pressure Safety» screen



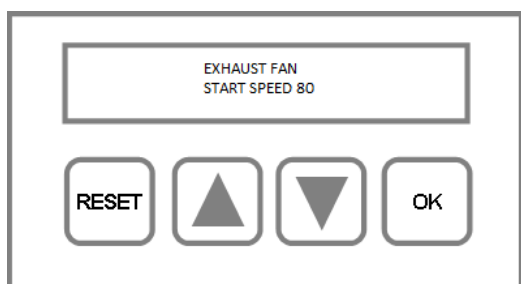
- Define the minimum pressure at which the control box cuts out for lack of combustion air.



WARNING

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

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



- Set the speed at which the control box starts the exhaust fan.



WARNING

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



10. Commissioning and adjustment of the control setpoints

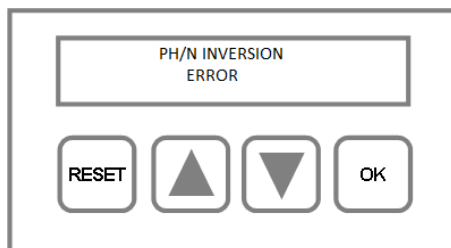
10.1. Preliminary check

1- Before switching on the generator, 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 type of gas and its supply pressure according to the setting of the heater.
- The ground connection of the appliance, 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.

i Check that the 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.

i In case of 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.

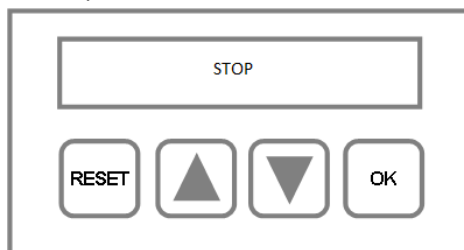
 See paragraph "9.3 Burner combustion adjustment".

10.2. Use of the control unit

WARNING

These operations must be carried out by a qualified professional.

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



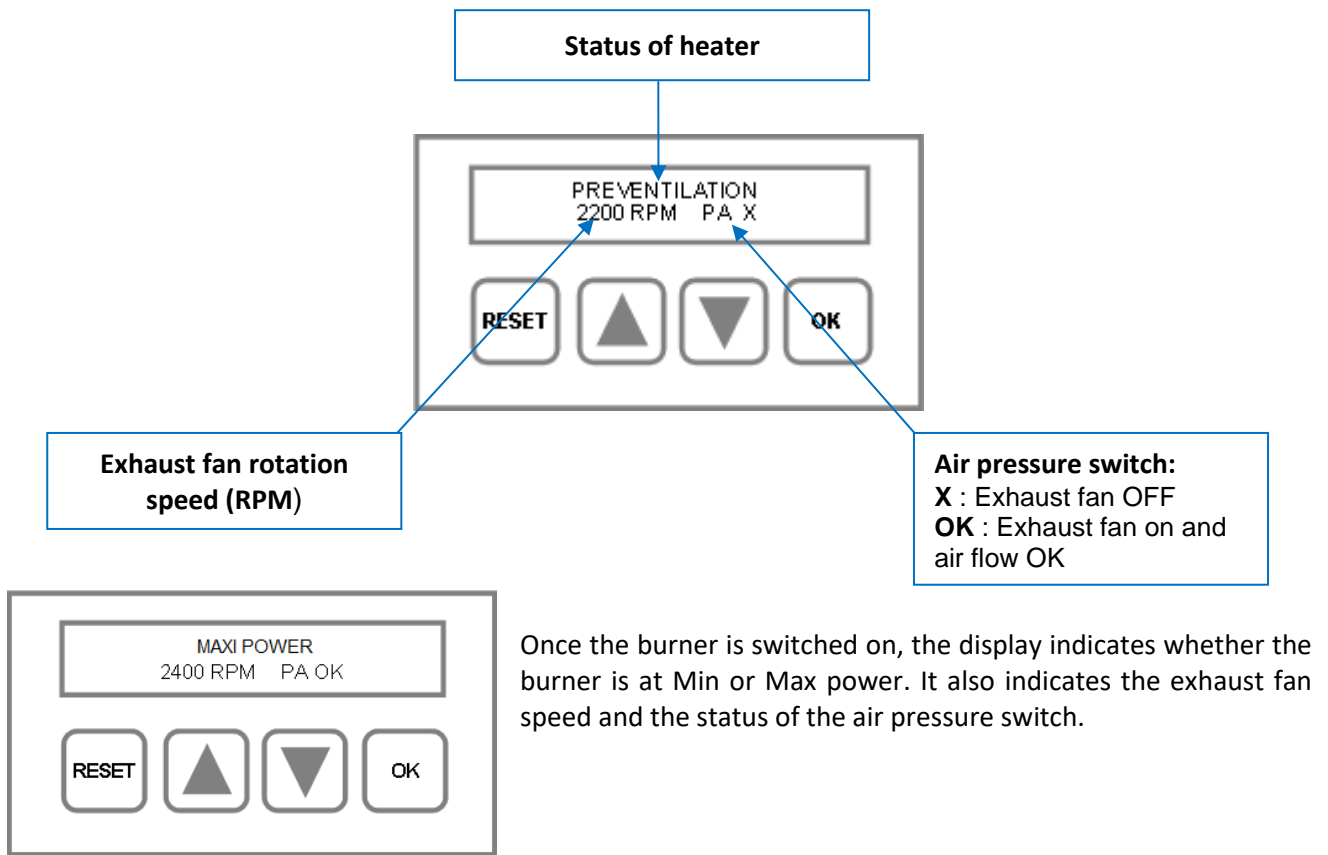
When the appliance is switched on, **the heater status is indicated**

- OFF (STOP)
- VENTILATION
- PREVENTILATION
- MINIMUM POWER
- MAXIMUM POWER
- FAULT

 In case of a fault, see chapter 13. TROUBLESHOOTING.

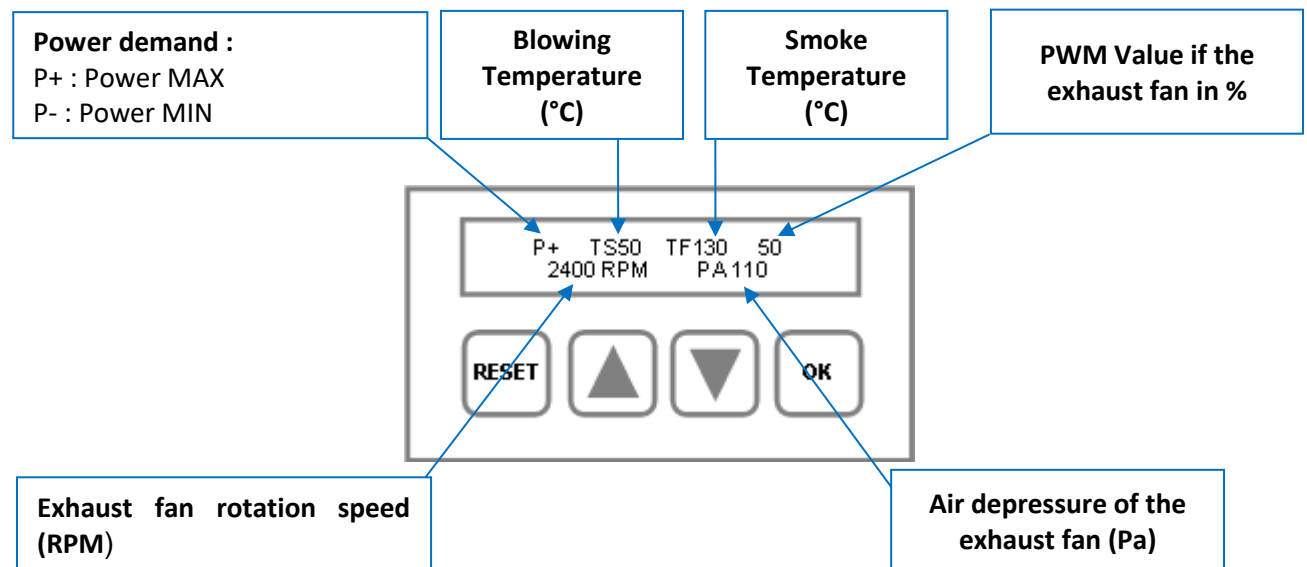


When the appliance is switched on and in demand for operation:



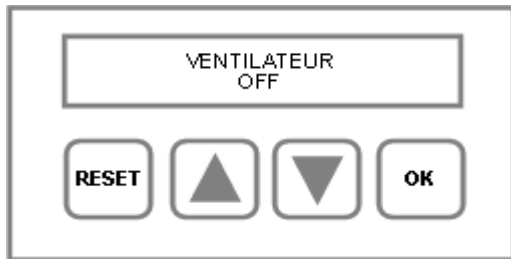
Use the ▲ to move to the next display

Operating parameter information:



Use the ▲ to move to the next display






Status of the blowing fan (OFF or ON)

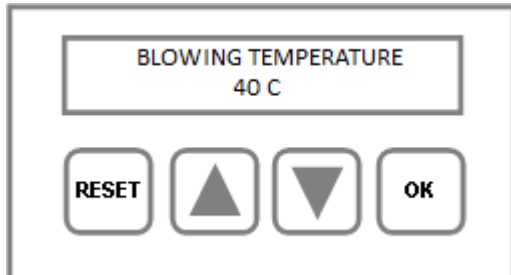
The fan activation is managed in two simultaneous ways:

- 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 supply 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 ▲ to move to the next display



Average blowing air temperature (in °C)

Use the ▲ to move to the next display

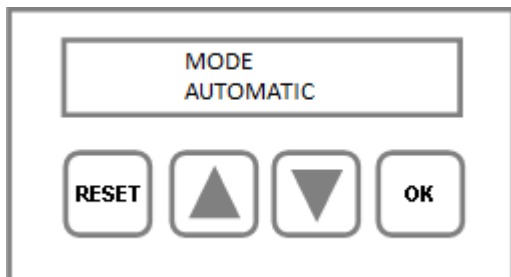


Display language

Several languages are available such as: French, English, German, Spanish.

To change the language : press « OK » 3 seconds, select the new language with ▼ and ▲ buttons and confirm with « OK ».

Use the ▲ to move to the next display



Operating mode of the heater

For tests or checks, it is possible to simulate the Stop, Ventilation and On functions of the room thermostat without having to intervene on it.

To select the mode :

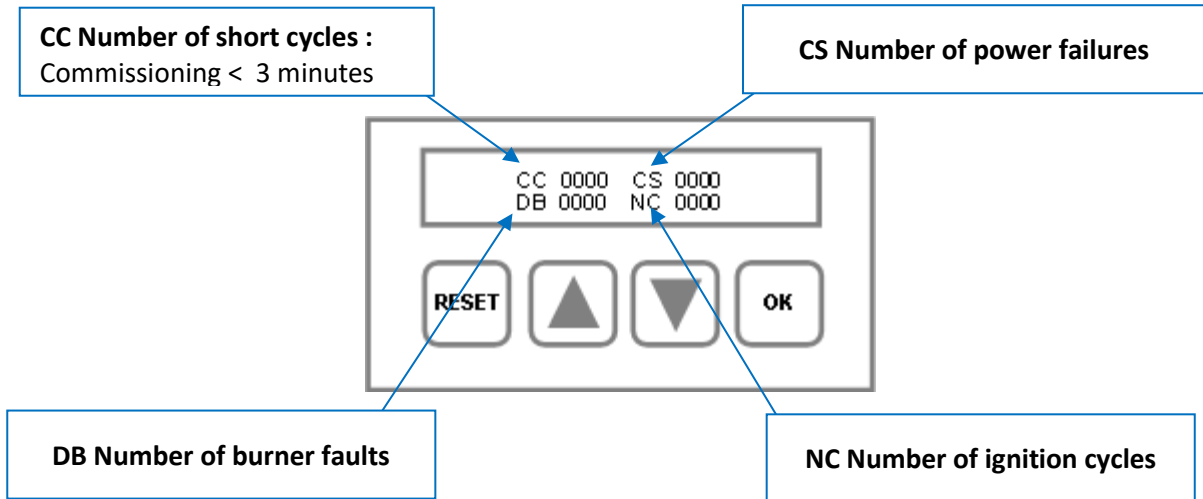
- press « OK » for 3 seconds
- move with the ▼ and ▲ buttons
- confirm with « OK ».

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

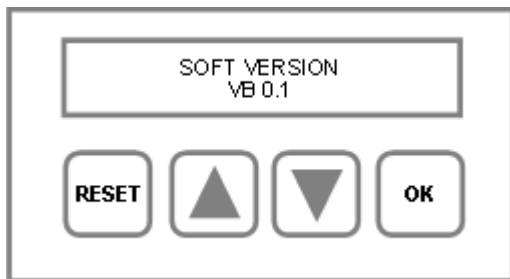
Use the ▲ to move to the next display



Diagnostic of the events that have occurred on the device

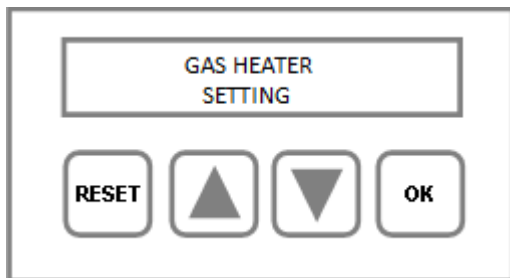


Use the ▲ to move to the next display



Indication of the software version used

Use the ▲ to move to the next display




Intervention on the heater setting



WARNING

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

 For the setting, see paragraph « 10.3. Setting the heater via control panel ».



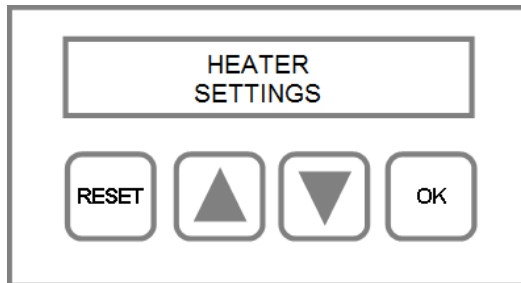
10.3. Setting the heater via the control panel



WARNING

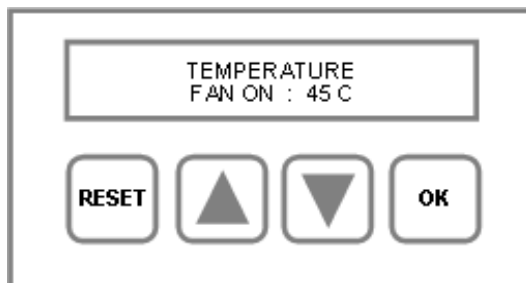
The adjustments indicated below must be carried out by qualified professionals.

Incorrect settings can have serious consequences on the installation.



Once on the « Heater settings » screen :
Press the « OK » for 5 seconds to access the different programming screens.

Use the ▲ to move to the next display



Supply air fan switch on temperature

The factory setting value is 45°C.

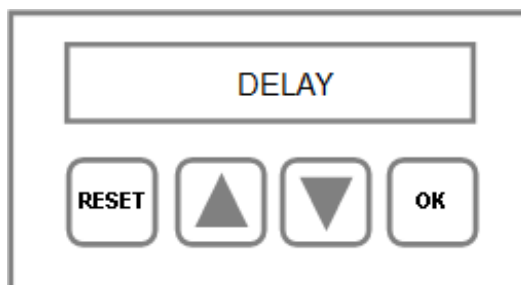
The supply air fan switches on when the supply air temperature is above the set value.

It stops when the supply air temperature is 3°C below the set temperature. (ON 45°C / OFF 42°C)

To make setting :

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

Use the ▲ to move to the next display



Switch-on delay for supply air fan

The factory setting is 60 seconds.

The supply air fan switches on 60 seconds after the burner is switched on, regardless of the supply air temperature.

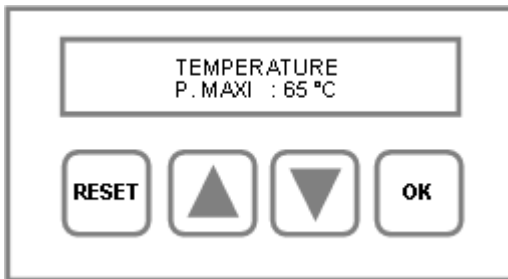
It will stop when the burner stops unless the supply air temperature is above the programmed value « Supply air fan switch-on temperature »

To make settings :

- Press « OK »,
- Adjust the desired setpoint (buttons ▼ and ▲),
- Confirm with « OK ».

Use the ▲ to move to the next display





Controlling the maximum power

The factory setting is 65°C.

The burner switches to minimum output when the supply air temperature is above the set value.

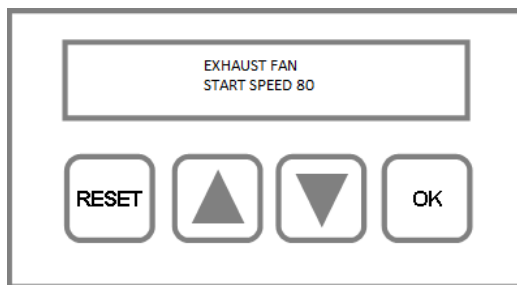
The burner switches to maximum output when the supply air temperature is 5°C below the set value.

(P MINI 65 °C / P MAXI 60 °C)

To make setting:

- Press « OK »,
- Adjust the desired setpoint (buttons ▼ and ▲),
- Confirm with « OK ».

Use the ▲ to move to the next display



Exhaust fan start speed

This parameter set the start speed of the exhaust fan

To make setting:

- Press « OK »,
- Adjust the desired setpoint (buttons ▼ and ▲),
- Confirm with « OK ».

The factory settings are:

MHX Air heater	25	35	45	60	80
Setting	50	65	70	80	70

To exit the setting mode, push the “Reset” button.



For functionality and setting of the following parameters, see section « 9.3. Burner combustion settings ».



11. Maintenance

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

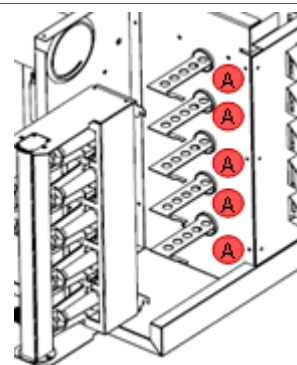


WARNING

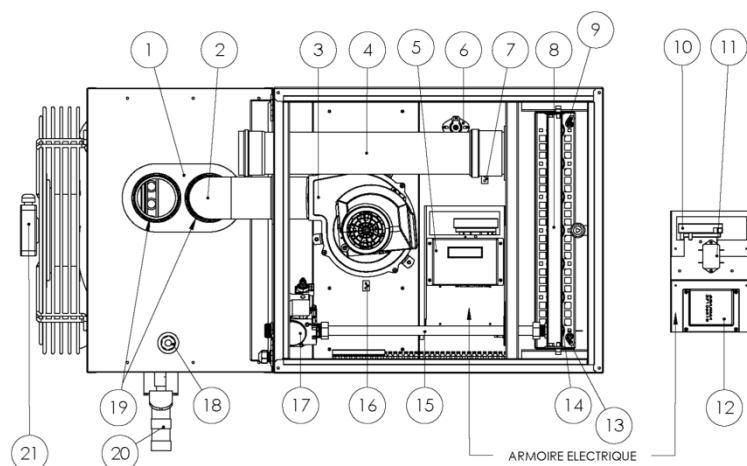
Maintenance operations must be carried out by qualified professionals.

Incorrect maintenance can have serious consequences for the installation.

Pieces	Maintenance operation
Air heater	Check that all safety devices are working properly and that all screws are tight.
Main exchanger	From outside, dismantle the supply air grid and check that the exchanger is in good condition. Access the exchanger by removing the burner and the NOx catalyser, the smoke box and the smoke baffles and clean it Check the condition of the smoke baffles before refitting them, and replace them if necessary.
Catalyser NOx (A)	Check their condition regularly and replace them every two years. If their condition requires, replace them more often.
Burner jet	Dismantle the burner ramp, check the condition of the burner jets and clean them.
Nozzles	Clean the gas injectors.
Exhaust fan and venturi	Check the condition of exhaust fan, its rotation, and clean it.
Ionization sensor and ignition electrode	Check their condition, replace them if necessary.
Fan	Clean it with compressed air.
Flue pipe	Check for leaks and sweep it out.
Body, supply grid, louvers	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



N°	Description	Spare parts references				
		MHX 25	MHX 35	MHX 45	MHX 60	MHX 80
1	Covering gasket	3510344				
2	90° elbow	3510345				
3	EC exhaust fan	3510098			3510099	
4	Air intake tube	3500371			3500373	
5	Pilot wire card	3510225				
6	Safety thermostat	3510088				
7	Air supply sensor	3510290				
8	Gas manifold	3510331	3510332	3510333	3510334	3510335
9	Ionization electrode + Ionization cable	3510291			3510292	
10	Differential pressure sensor	3510295				
11	Electrical supply filter	3510296				
12	Safety control box	3510248				
13	Ignition electrode + Ignition cable	3510293				
14	NOx catalyser kit	3510100	3510101	3510102	3510103	3510104
15	Gas supply pipe	3510341				
16	Flue gas temperature sensor	3510284				
17	2-stage gas solenoid valve	3510023				
18	Condensate level sensor	3510283				
19	Flue gas connectors	3510342			3510343	
20	Siphon	3510282				
21	Axial fan	3510073	3510074	3510068	3510069	

13. Troubleshooting



WARNING

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

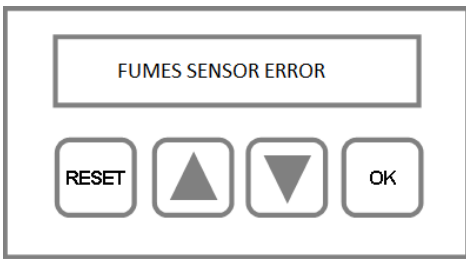
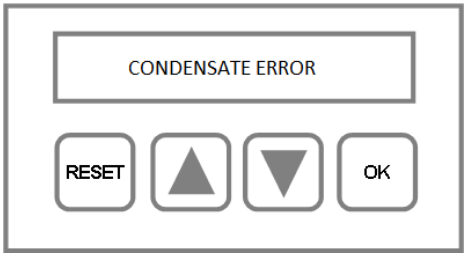
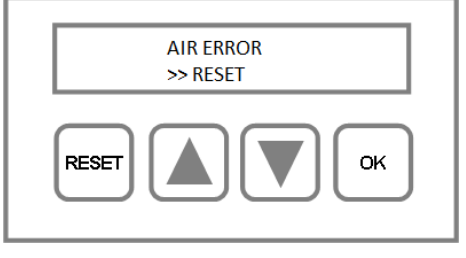
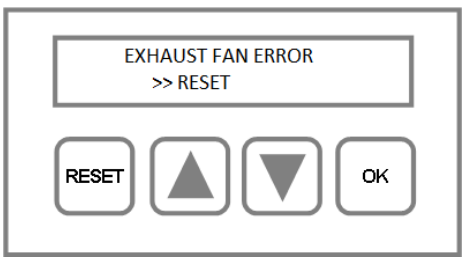
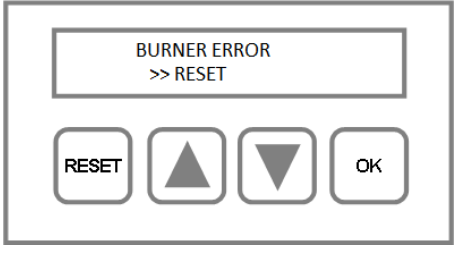
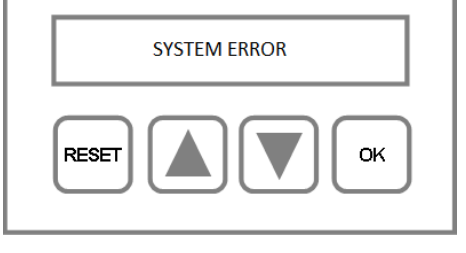


In case of problems, make sure that all conditions for the correct operation of the appliance are met (electrical supply, gas supply and pressure, Smoke pipe, Thermostat in heating mode).

13.1. Defaults list of control panel

Defect	Causes	Remedies
	<ul style="list-style-type: none"> - Reverse polarity 	<ul style="list-style-type: none"> - Switch off the electrical supply to appliance - Reverse the phase with the neutral of the general power supply of the heater. <p>This message will disappear once the operation has been carried out.</p>
	<ul style="list-style-type: none"> - Safety thermostat with manual reset in default. <p><i>Cause of the trip:</i></p> <ul style="list-style-type: none"> - Mains power failure while the unit heating. - Blower fan out of order. - Safety thermostat out of order. - Control box out of order. 	<ul style="list-style-type: none"> - Press the thermostat button. - If necessary, replace the component that caused the trip.
	<ul style="list-style-type: none"> - The analogue air pressure switch is disconnected or defective. 	<ul style="list-style-type: none"> - Check the connection or replace the pressure switch.
	<ul style="list-style-type: none"> - The blowing air temperature sensor is disconnected or defective. 	<ul style="list-style-type: none"> - Check the connection or replace the air temperature sensor.



Defect	Causes	Remedies
 <p>FUMES SENSOR ERROR</p> <p>RESET ▲ ▼ OK</p>	<ul style="list-style-type: none"> - The smoke sensor is disconnected or defective. 	<ul style="list-style-type: none"> - Check the connection or replace the smoke temperature sensor located under the exhaust fan.
 <p>CONDENSATE ERROR</p> <p>RESET ▲ ▼ OK</p>	<ul style="list-style-type: none"> - Obstruction in the condensate drain of the heat exchanger - Bad connection of the float. 	<ul style="list-style-type: none"> - Check the connection and clean the evacuation, and the siphon on heater outlet.
 <p>AIR ERROR >> RESET</p> <p>RESET ▲ ▼ OK</p>	<p>Lack of air:</p> <ul style="list-style-type: none"> - The tubes of pressure switch are disconnected or obstructed - Connection of air combustion or fumes is obstructed - Exhaust fan defective - Pressure switch defective 	<ul style="list-style-type: none"> - Check the different causes and proceed to maintenance or replace the defective components - Reset the default (RESET button)
 <p>EXHAUST FAN ERROR >> RESET</p> <p>RESET ▲ ▼ OK</p>	<ul style="list-style-type: none"> - The exhaust fan does not work or is disconnected. 	<ul style="list-style-type: none"> - Check the connection of the cable or check the good rotation when the exhaust fan starts. - if the exhaust fan does not rotate, replace it.
 <p>BURNER ERROR >> RESET</p> <p>RESET ▲ ▼ OK</p>	<ul style="list-style-type: none"> - Default on the burner control device (located on the rear side of the control board plate). <p>This error can be linked to different problems.</p>	<ul style="list-style-type: none"> - Contact Solaronics Chauffage.
 <p>SYSTEM ERROR</p> <p>RESET ▲ ▼ OK</p>	<ul style="list-style-type: none"> - System default of the control board. 	<ul style="list-style-type: none"> - Replace the control board and configure the new control board.



13.2. General problems list

	Causes	Remedies
The appliance does not start up.	Wrong wiring.	Check wiring.
	Lack of voltage.	Check power supply .
	The room thermostat is not switched on.	Increase the room thermostat setpoint.
	The switch on the pilot wire receiver is not in the automatic position.	Reposition the switch.
The burner is constantly pre-ventilating.	Exhaust fan out of order.	Replace it.
	Air pressure switch disconnected.	Reconnect the air pressure pipes.
Ignition electrode sparks, burner ignites, control box trips	Defective gas solenoid valve.	Replace it.
	Defective control box.	Replace it.
	Ionization sensor incorrectly set or faulty.	Adjust it or replace it.
	Air in the gas pipe.	Drain the gas pipe.
	No gas.	Check pressure.
The appliance trips during operation.	Gas supply interrupted.	Reset by pressing the red push button on the control box.
Cold air at the start-up.	Wrong setting of the internal thermostat.	Check the setting of the ventilation temperature.
The appliance does not heat sufficiently.	Thermostat at the wrong place.	Change its location.
	Wrong setting of the thermostat.	Adjust the thermostat.
	Insufficient gas pressure.	Check the gas supply pressure.
	Wrong selection of 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 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 rules of the trade and the instructions given in our installation manuals.

SOLARONICS CHAUFFAGE offers a 1-year "factory" parts and 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 recognized 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 rules of the trade 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 smoke and air vents.

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 designer, 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 appliance contains electrical and/or electronic components and should not be treated as household waste. When dismantling the equipment, please ensure that the applicable waste disposal regulations and standards are observed.

Good safety practice

- Keep ventilation in good condition:
- Leave air inlets and outlets free and unobstructed (grills, air vents, etc.)
- Have the smoke ducts checked every year.
- 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 odourised 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 any 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 a gas leak or smell.

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

The number for the emergency services (fire brigade) is :







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