

High Performance gas radiant tube

SolarHP^R

12, 23, 36



SOLARONICS Chauffage SA. 78 rue du Kemmel – CS20302 – 59429 ARMENTIERES CEDEX France

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TECHNICAL INSTRUCTIONS GAS RADIANT TUBE SOLARHPR – NT15005E-GB – 12/06/2017

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1. Introduction

In this manual, the warnings are used to point to specific information. We want to ensure the user safety, to avoid any problem and to ensure proper operation of the appliance.



WARNING

Indicates a potential hazard which can cause bodily injuries and/or material damage



Indicates important information.



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



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

1.1. General

1.1.1. Manufacturer's liability

Our products are manufactured in compliance with various applicable European directives requirements. They are thus supplied with EC markings and all necessary documents. With our commitment to quality products, we constantly seek to improve them. We therefore reserve the right at any time 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 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 installation in accordance with 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



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(change, removal...) of security components or parts automatically results in the appliance's CE marking becoming 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 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 in a qualified technician to carry out the installation and perform the initial commissioning.
- Obtain explanations about the installation by Installer.
- Carry out checks and required maintenance.
- Keep all documents in good condition and near the appliance.

1.2. Certifications

Appliance	Radiant tube
Directive	2009/142/CEE «Gas appliance»
NOx class	3 (NF EN 416-1)
Category	II2Er3P
Flue type	Ambient : A2
	Flue : B22
	Sealed : C12, C32



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2. Safety instructions and recommendations

2.1. Safety instructions



WARNING

The radiant tube is an electrical appliance and must be grounded during installation.

- It is not allowed to obstruct and/or reduce the space reserved for the room or the appliance vents
- Do not obstruct smoke exhaust or fresh air suction ducts,
- Do not make any change in the settings made by the qualified technician
- Do not spray water on the heater, or touch this appliance with wet body parts or bare feet,
- Do not touch the hot parts of the heating appliance, and/or moving parts,
- Do not place or hang anything on the device,
- Any work on the appliance is prohibited before it is unplugging it from the mains and cutting the gas supply.
- Do not change the used gas type, security systems or control settings, as this could lead to dangerous situations.
- Call a qualified technician in the case of gas replacement, change of gas pressure or modification of power supply.
- If the appliance doesn't operate for a long period, disconnect the power supply of the appliance. When commissioning, it is advisable to use the service of a professional technician.

Generally, all repair or maintenance works must be carried out exclusively by authorised and qualified personal.



Subscribing to a maintenance agreement is strongly recommended

2.2. Recommendations

SolarHP^R range High Performance radiant tubes are engineered for heating industrial and tertiary premises.

These appliances differ from traditional radiant tubes thanks to the optimisation of their performance:

- Combustion efficiency
- Radiant efficiency
- Seasonal efficiency
- Low noise

Greatest care shall thus be taken during their assembly, installation and setting.



Commissioning should be handed over to SOLARONICS CHAUFFAGE.

The appliances shall be overhauled every year, in order to guarantee their availability, their high performance level and also their safe functioning.



WARNING

Only qualified professionals are authorised to modify and install the appliance.

This information forms an integral part of the appliance and must always be kept always with the appliance, even in the event of transfer to another owner or user.

Do not remove or cover the labels and material safety data plates fixed to the devices. Labels and material safety data plates must be readable throughout the device life.



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Install the device in a sufficiently ventilated room, or outside.

Please contact us for any other application other than those described in this document

DON'Ts:

Do not install radiant tube appliances:

- Outside
- In environments with explosive risks,
- Premises containing corrosive products in the ambient air
- In extremely wet premises (electrical shock hazard).



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3. Description

Any object at a temperature above absolute zero emits energy in the form of electromagnetic radiation.

These rays travel in a straight line and may be reflected and converted into heat when hitting a solid.

These rays are called infrared wherever temperatures emitted are of the order of a few hundred degrees.

As it does not heat the air, the method is particularly well suited for:

- the heating of large buildings
- the heating of small or poorly insulated buildings,
- buildings where large quantities of air have to be changed,

and for :

- intermittent heating,
- area heating.

The SolarHP^R High Performance gas radiant tube is a direct overhead heating system, burning natural gas and propane, which complies with the European directive applicable to gas-fired appliances.

The SolarHP^R High Performance gas radiant tube heater burns gas inside a tube, an extractor fan creates a vacuum inside the tube:

- lengthens the flame produced by the atmospheric burner
- extracts the combustion products.

When heated, the tubes emit infrared rays directed downwards by a reflector.



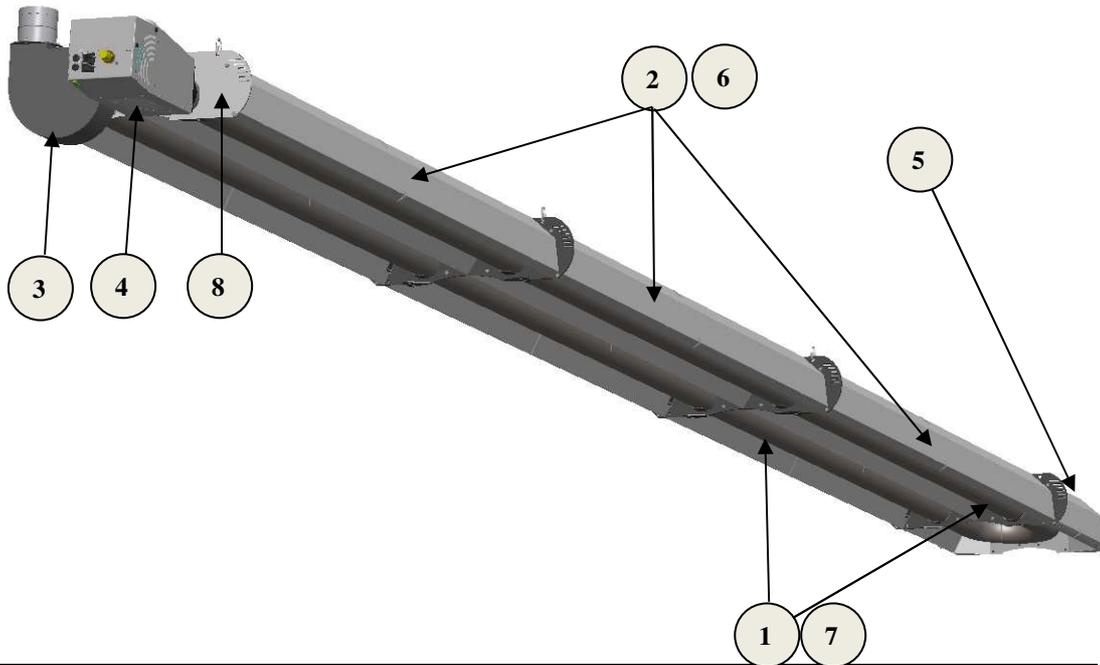
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3.1. Main components



REP	Designation	Quantity	Observations
1	Radiant tubes	2	
2	Reflector modules	1	SolarHP ^R 12
		2	SolarHP ^R 23
		3	SolarHP ^R 36
3	Extractor fan	1	
4	Burner housing	1	
5	Elbow module	1	
6	Housing and insulation	1	SolarHP ^R 12
		2	SolarHP ^R 23
		3	SolarHP ^R 36
7	Turbulators	2	1 for burner tube
			1 for extractor tube
8	End housing	1	



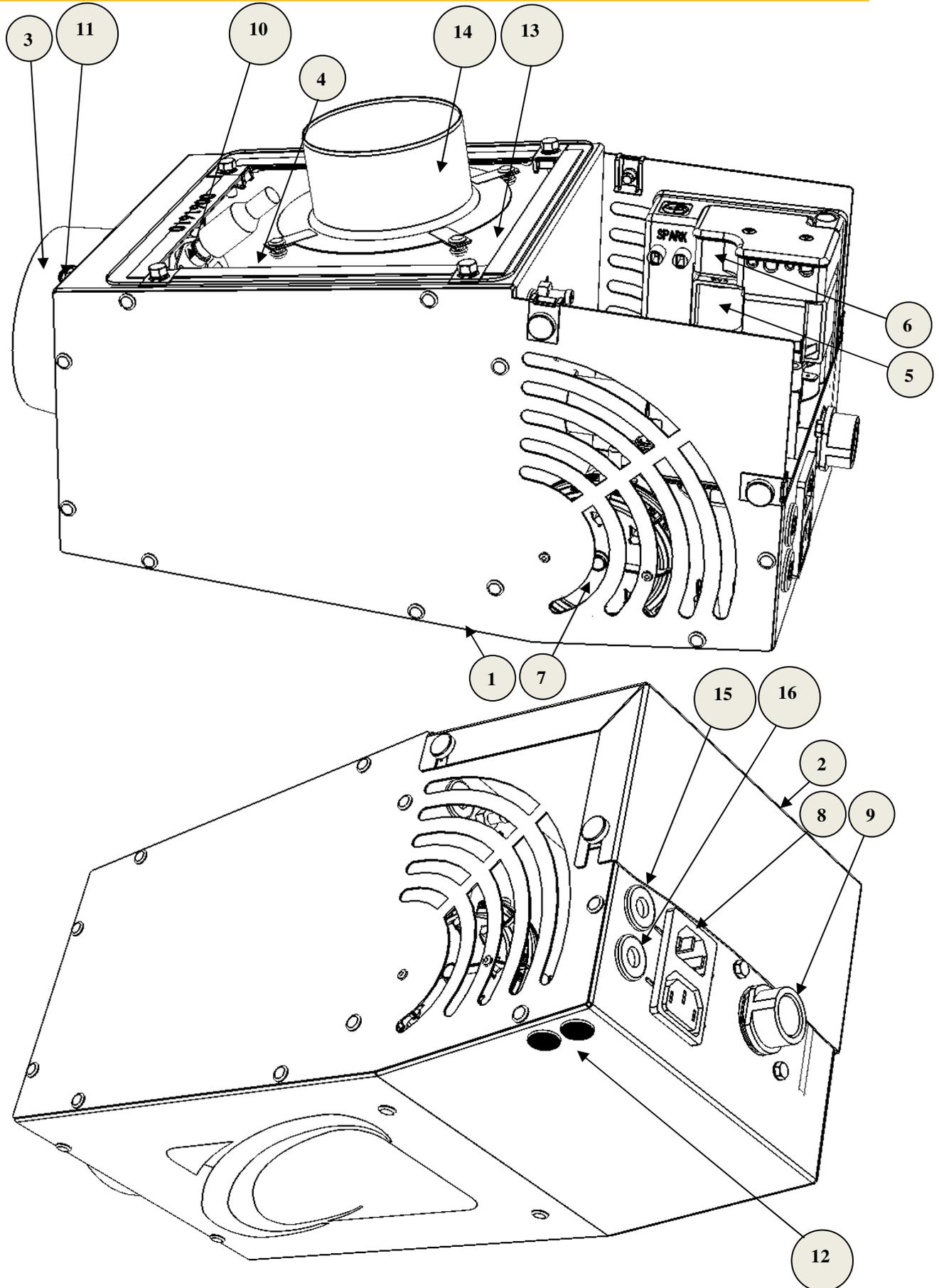
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3.2. Burner housing



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REP	Designation	Quantity	Observation
1	Housing	1	
2	Access cover	1	Removable without tools Access from above the housing
3	Flange	1	Housing connexion to radiant tube Cast iron
4	Burner	1	Atmospheric
5	Gas valve	1	2 shut-off valves class B + J with a pressure regulator
6	Gas burner control	1	HV sparking. Sparking and safety management
7	Pressure switch	1	Check of combustion air flow
8	Connector	1	Type CEE 22
9	Gas connexion	1	1/2" gas male connexion
10	Electrode	1	Spark and ionisation
11	Allen screw	2	Lock of the flange on the tube
12	Indicator lights	2	Orange : Voltage presence Red : Lock-out
13	Injector	1	Diameter as per table page 13
14	Air intake	1	Diameter 80 mm : SolarHPR ^R 12, 23 Diameter 100 mm : SolarHPR ^R 36
15	2 nd step command cable	2 m	
16	In operation signal cable	2 m	Appliances with option "in operation" signal



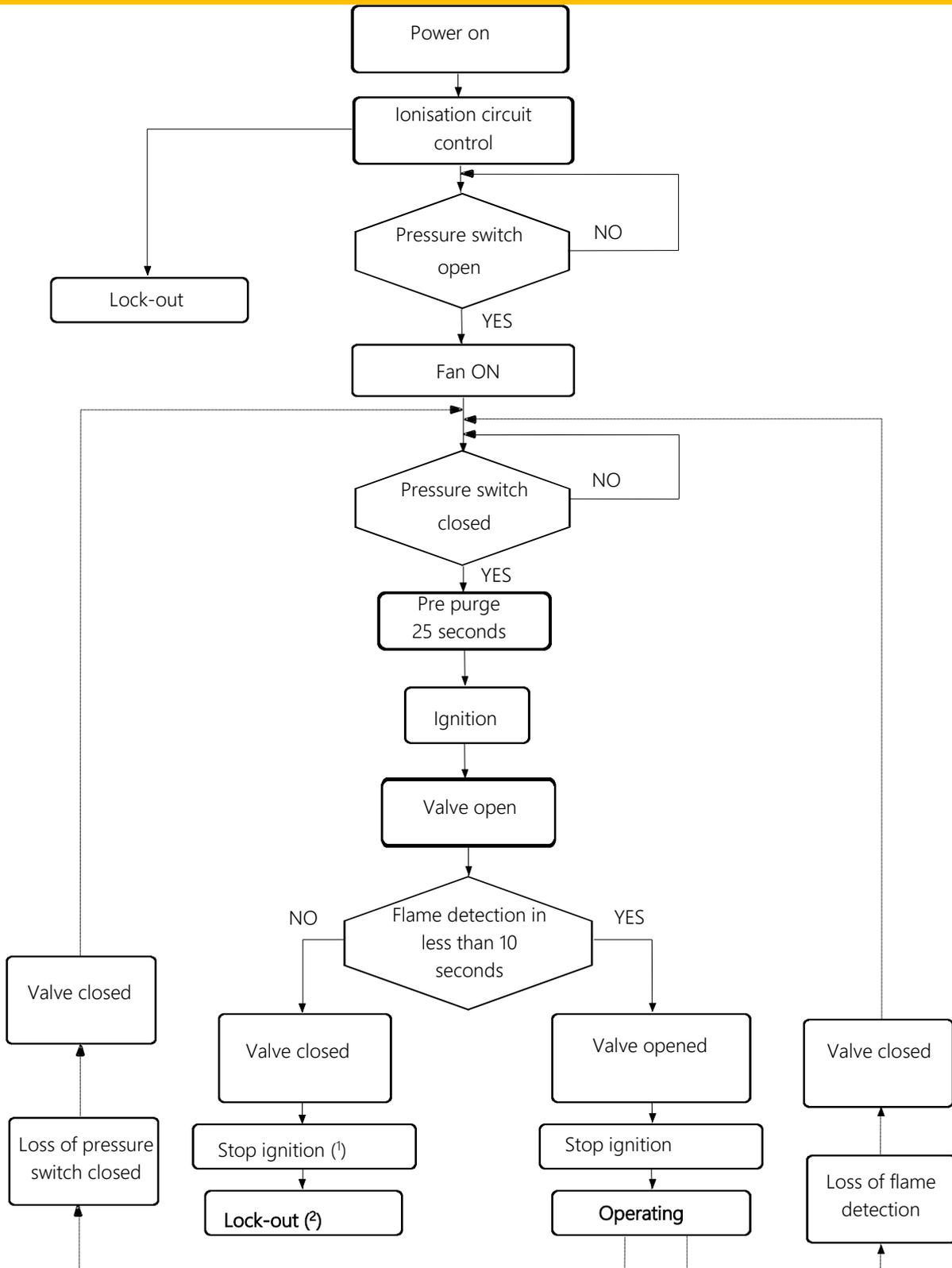
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3.3. Operating cycle



Nota:

- (!) and 25 seconds interpurge before attempts
 - (?) after 3 unsuccessful attempts
- Reset by power cut-off and then power on



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4. Technical specifications

Model	Unit	SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
Heat input	2 nd step kW NCV	10.5	20	32
Heat input	1 st step kW NCV	8	15.5	25.5
Combustion efficiency	%	95	94	94
Radiant efficiency	%	76	78	80
G 20 (H gas) Normal supply pressure: 20 mbar (17 mbar mini / 25 mbar maxi)				
Volume flow rate 15°C, 1013 mbar	m ³ /h	1.11	2.12	3.39
Injector diameter	1/100 of mm	280	380	490
G 25 (L gas) Normal supply pressure: 25 mbar (20 mbar mini / 30 mbar maxi)				
Volume flow rate 15°C, 1013 mbar	m ³ /h	1.29	2.46	3.94
Injector diameter	1/100 de mm	280	380	490
G31 (Propane) Normal supply pressure : 37 mbar (25 mbar mini / 45 mbar maxi)				
Mass flow rate	kg/h	0.82	1.56	2.5
Injector diameter	1/100 de mm	170	240	310
Gas connection		1/2" gas male connexion		
Electrical connection		230V 1N ~ 50Hz + 230V RAC 50Hz (*) CEE22 type connector 2 poles + ground		
Electrical consumption	A	0.25	0.6	1
Number of hanging points		4	6	8
Total weight	kg	65	105	155
Air inlet diameter Flue diameter	mm	100	100	100

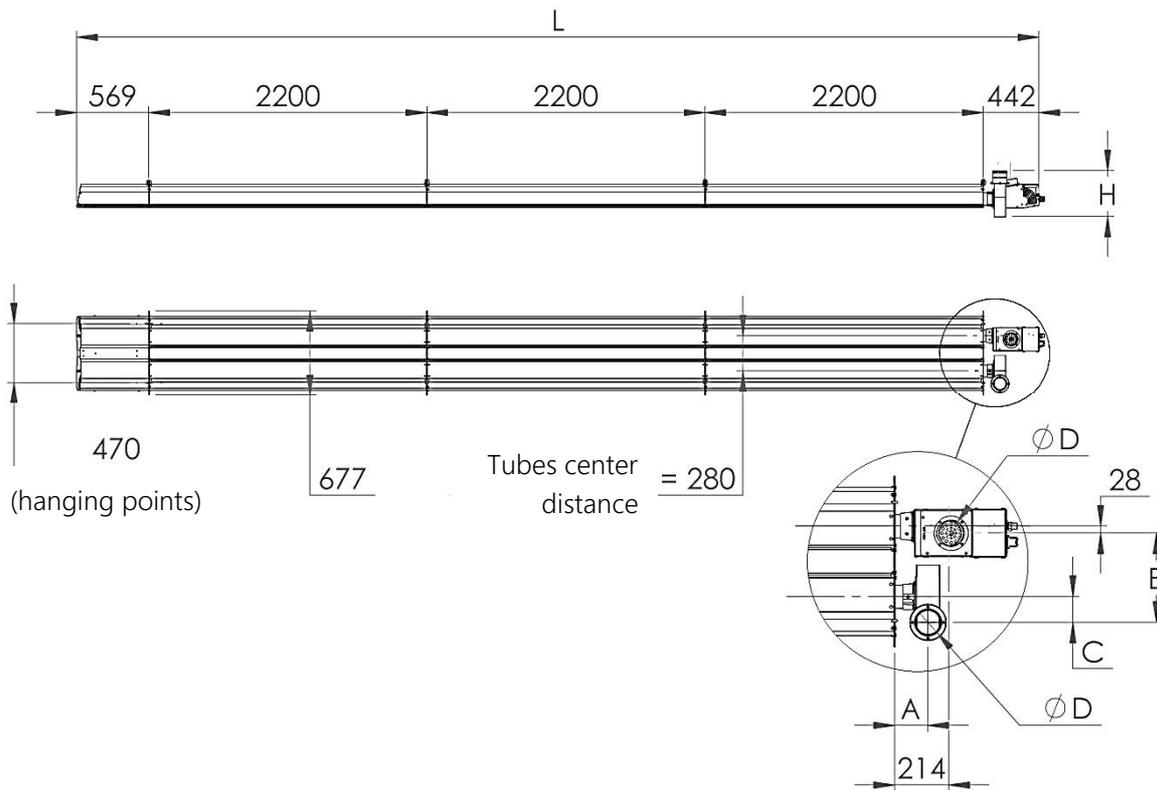


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5. Overall and interface dimensions

5.1. Appliances



Dimension [mm]	SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
L	3 211	5 411	7 611
H	278	284	366
Width	677		
Hanging points distance	470		
Beam interval	2 200	2 200 (x 2)	2 200 (x 3)
A	111	119	132
B (air inlet > flue)	305	327	355
C	53	75	102
ØD	100		



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5.2. Flue assembly

5.2.1. Tilted appliance



Extractor is positioned vertically to ease the flue pipes installation.

5.2.2. B22 (roof)

SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
<p>Typical assembly :</p> <ul style="list-style-type: none"> • (1) 90° elbow • (2) T 90° and a drain pot • (3) Flue pipe 1 m • (4) Rain cap • (5) Adaptor kit 80-100 (SolarHP^R12 only – supplied with the unit) 		



WARNING

The junctions between pipes must be tight and rigid, make sure all seals are present. For longest flues install a T 90° and a drain pot at the flue base.



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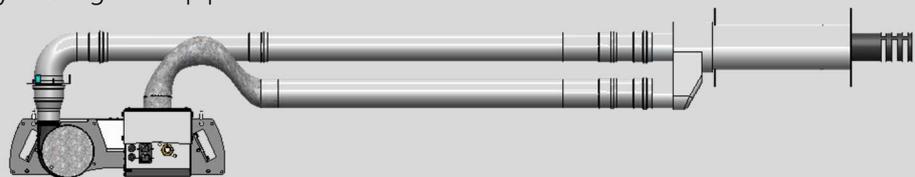
5.2.3. C12 (sealed – wall)

SolarHPR ^R 12	
SolarHPR ^R 23	
SolarHPR ^R 36	
<p>Typical assembly :</p> <ul style="list-style-type: none"> • (1) 90° elbow • (2) Flue pipe 0.5 m • (3) Flexible air pipe (cut to length) + 2 collars • (4) Wall concentric terminal • (5) Adaptor kit 80-100 (SolarHPR^R12 only – supplied with the unit) • (6)* Air inlet adaptor kit ø80/ø100 (SolarHPR^R12 and 23) 	<p>* Airtight connection with putty:</p>



WARNING

The flexible air pipe length must not exceed 80 cm.
Achieve the air supply mainly with rigid flue pipes.



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WARNING

The junctions between pipes must be tight and rigid, make sure all seals are present. Horizontal flue pipes must be mounted with a slight slope towards outside (ca 2°). For longest flues install a T 90° and a drain pot at the flue base.

5.2.4. C32 (sealed – roof)

SolarHPR ^R 12	SolarHPR ^R 23	SolarHPR ^R 36
<p>Typical assembly :</p> <ul style="list-style-type: none"> • (1) 90° elbow • (2) T 90° and a drain pot • (3) Flue pipe 0.5 m • (4) Flexible air pipe (cut to length) + 2 collars • (5) Vertical concentric terminal • (6) Adaptor kit 80-100 (SolarHPR^R12 only – supplied with the unit) • (7)* Air inlet adaptor kit ø80/ø100 (SolarHPR^R12 et 23) 		<p>* Airtight connection with putty:</p>
<p>* Flashing is outside scope of supply</p>		



WARNING

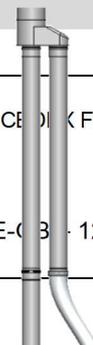


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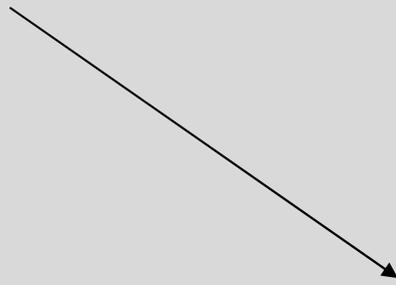
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The flexible air pipe length must not exceed 80 cm.
Achieve the air supply mainly with rigid flue pipes.



WARNING

The junctions between pipes must be tight and rigid, make sure all seals are present.
For longest flues install a T 90° and a drain pot at the flue base.



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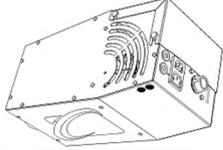
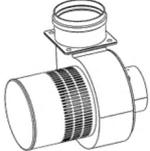
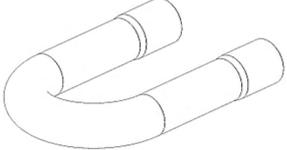
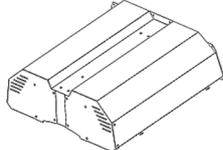
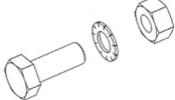
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6. Appliance installation

i Installation of gas appliances must be carried out by qualified personnel, it is determined the premises volume and location characteristics, equipment vent or ventilation device which may be installed on those premises.

Scope of delivery:

Designation	Quantity	View
Cardboard box	1	
Burner housing	1	
Extractor fan	1	
Adaptator kit 80-100	1 (SolarHPR ^R 12 only)	
Elbow	1	
Elbow reflector (insulated)	1	
Supply cord	1,5 m	
Hardware bag	1	
High temperature glue tube	1	
Fast link ø5	4 6 8	
Self drilling screws	12 20 28	
Bolts M6 (screw, washer, nut)	16 24 32	

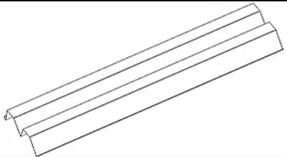
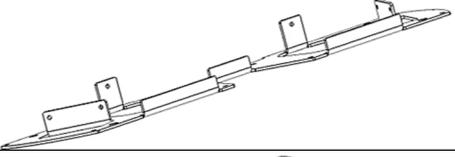
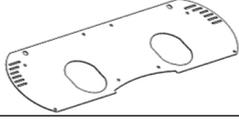
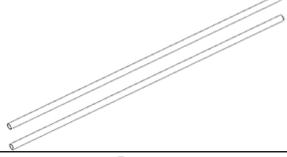


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Designation	Quantity	View
Reflector(s)	1 2 3	
Beams	2 4 6	
End plaque	1	
Radiant tubes (including turbulators)	1 Going / 1 Coming	
Insulating roll	1	
Housing(s)	1 2 3	

Reception – Storage

It is essential to check the delivered material status (even if the packaging is intact) and its compliance with the order.

In the event of damage or missing parts, report comments on the carrier's receipt as accurately as possible, the words "subject to unpacking" has no legal value, and then confirm the prejudice by letter within 48h to the carrier. The buyer is responsible to check the goods delivered, no appeal is possible if this procedure is not followed.

Store the material in a clean, dry place, protected from shock, vibration, temperature variations and in a room where humidity is less than 90 %.

Handling

Unpack the appliance using protective equipment as required. Handling must be performed by a person equipped with the proper equipment.



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6.1. General rules

SolarHP^R radiant tubes are installed inside the premises. However, this facility is subject to the national security rules depending on the fuel type used and the installation country. If in doubt, check with safety and inspection bodies

Ventilation:

Premises receiving gas appliances should be provided with permanent ventilation in accordance with the applicable rules in the country of installation.

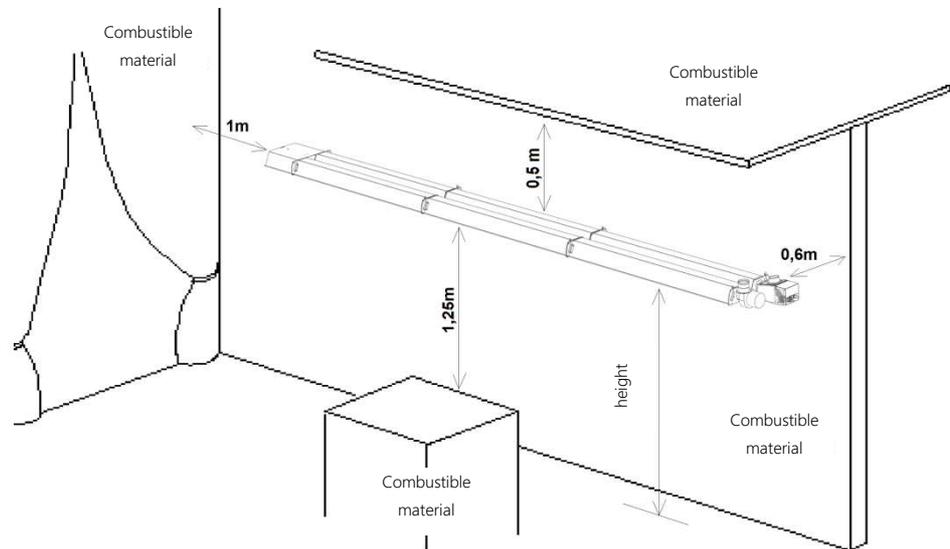
Gas connection:

Before installing the appliance, it is necessary to check that the local distribution conditions (gas type, pressure) are compatible with settings of the device to be installed.



WARNING

Minimum distances required for appliance maintenance and safety:



** Installation height: see §6.3.1.*



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6.2. Assembly

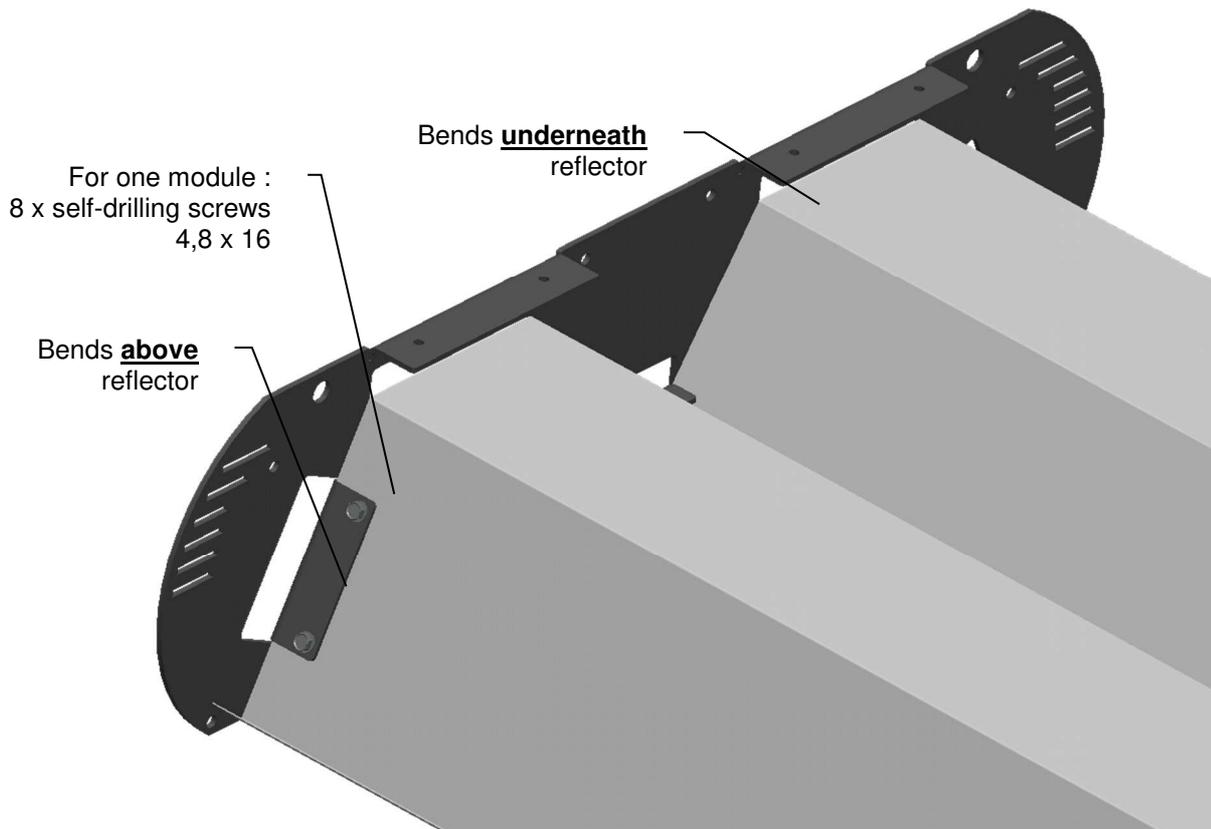
6.2.1. Necessary tooling

6 mm Allen key
Electric drill with 8 mm and 10 mm tips + extension
Cutter
Individual protections: glasses, gloves, shoes, etc

6.2.2. Operations

ON THE FLOOR:

Put the reflectors tightly against the beams and fix them together, in order to build 1, 2 or 3 identical modules



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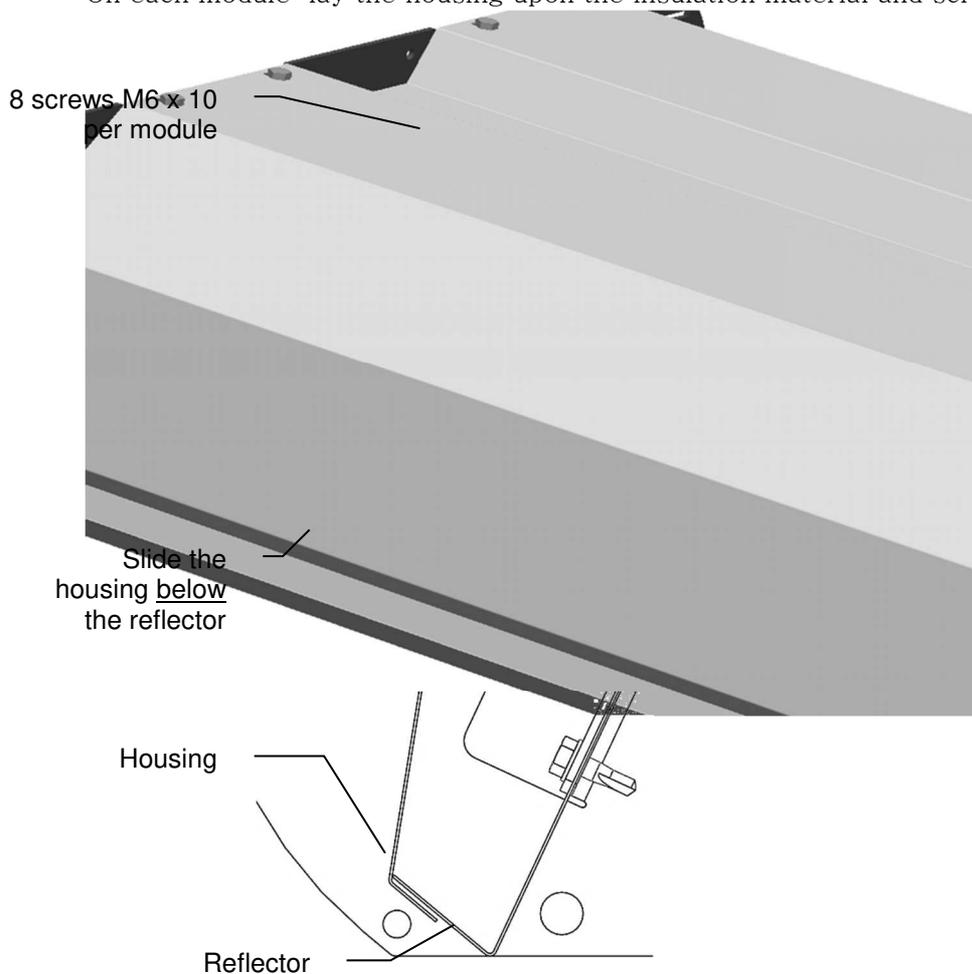
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Unroll the insulation material and cut it on each module



On each module: lay the housing upon the insulation material and screw it on the beams.



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Put the beams of first module on 2 wedges and slide the tubes inside the module

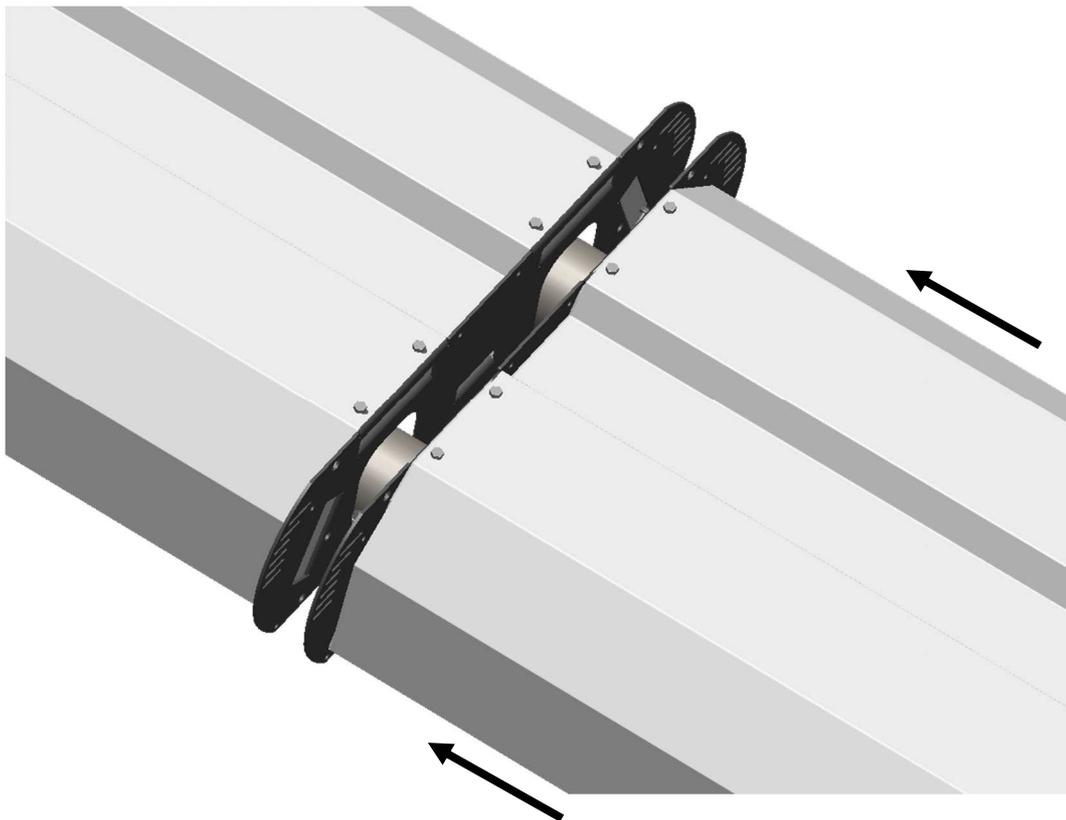


WARNING

Beware of flow direction and position of tube ends



Slide the following modules on the tubes



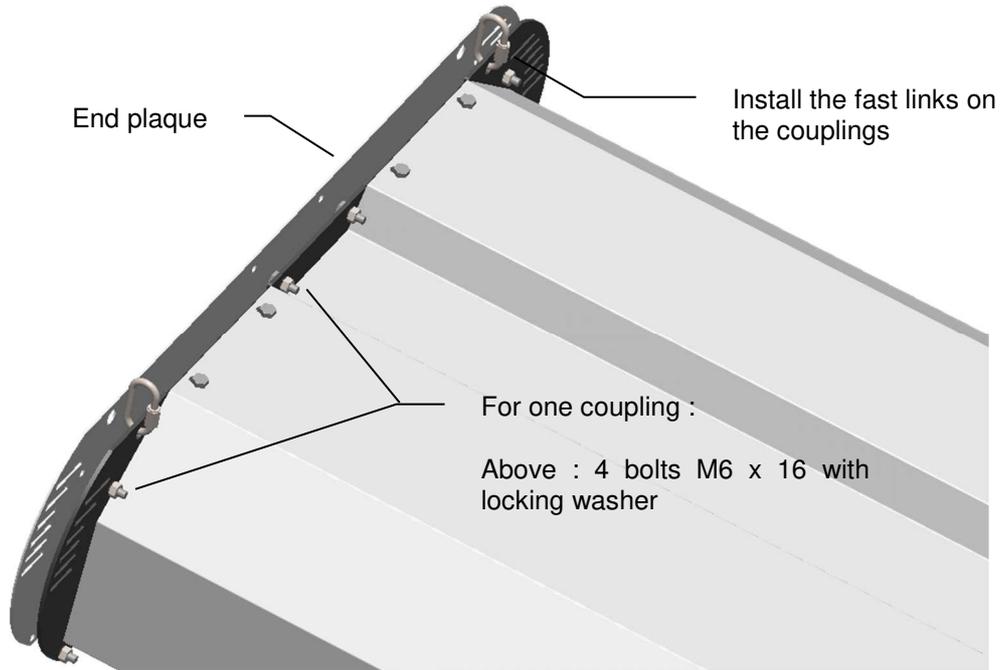
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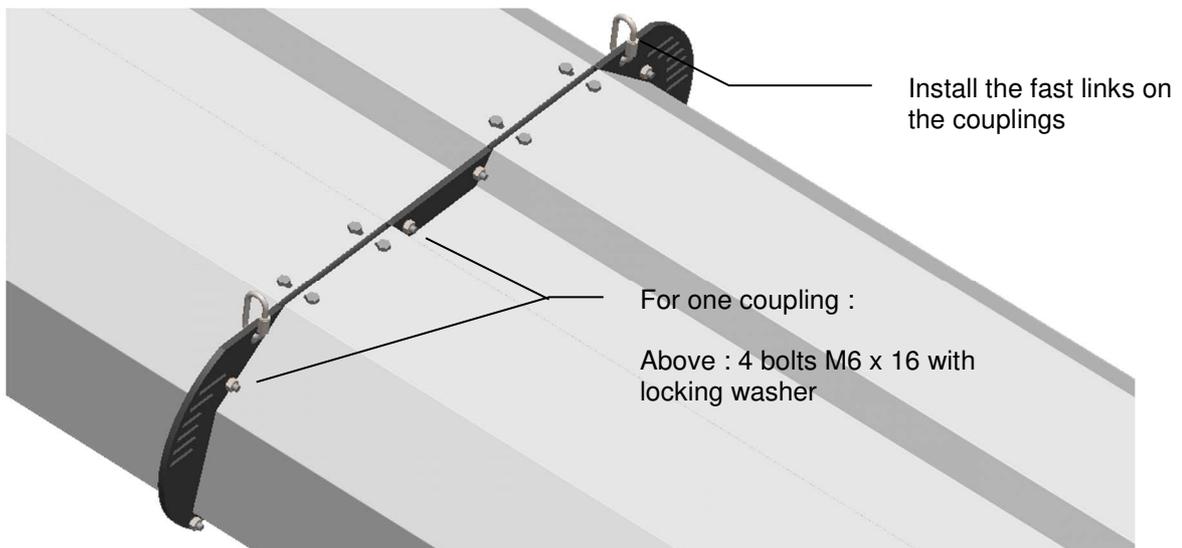
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Screw the end plaque on the first module (burner / extractor side)



Screw the beams together – repeat the operation for the third module



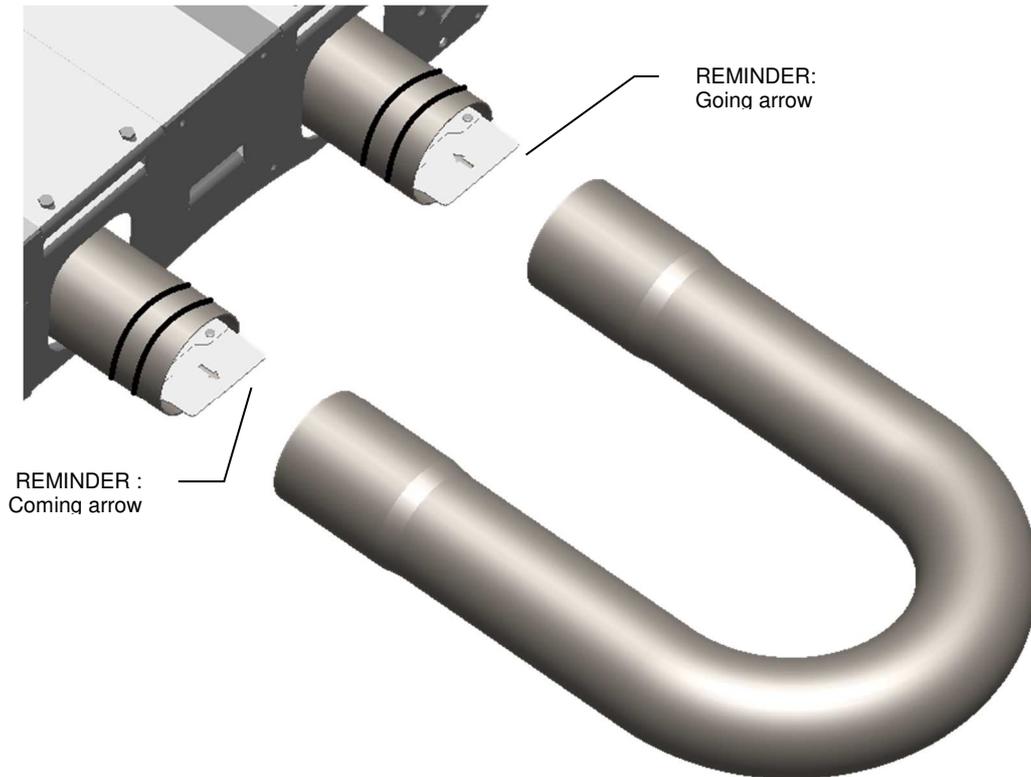
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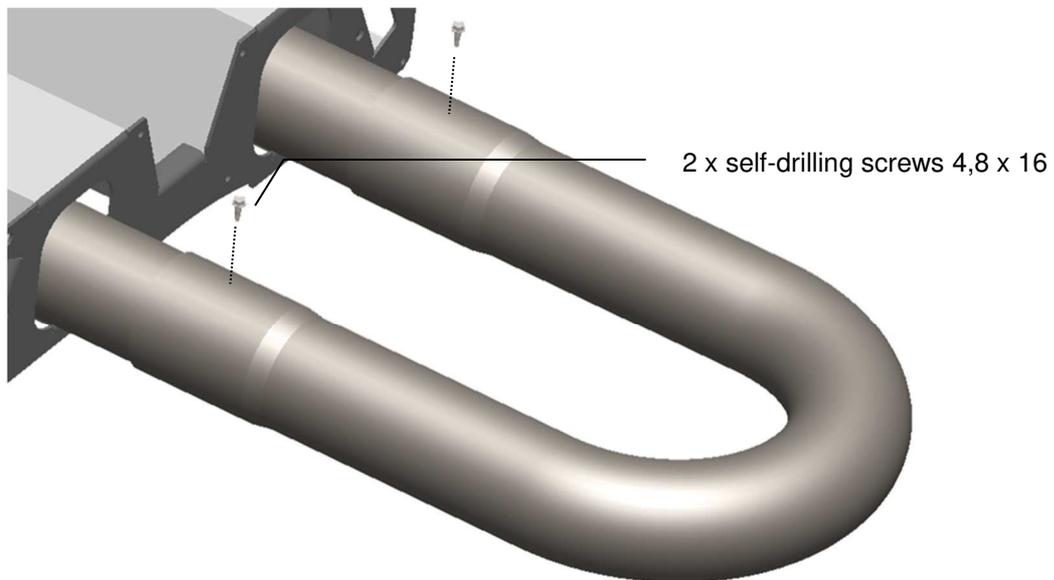
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At elbow end trace 2 continuous rings of high temperature glue, at 30 and 60 mm from tube end



Insert the 2 tubes inside the elbow as long as feasible
Screw the elbow on the tubes with 2 screws

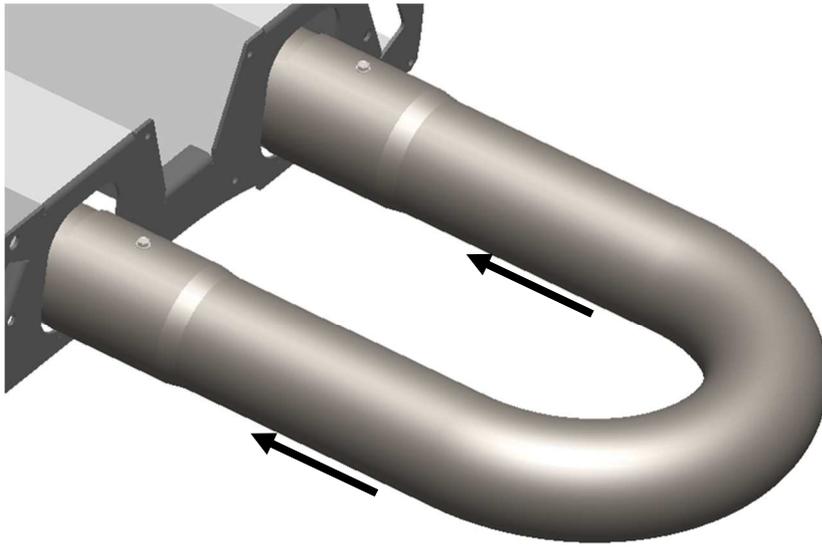


Slide the tubes inside the modules until the elbow edges touch the beam



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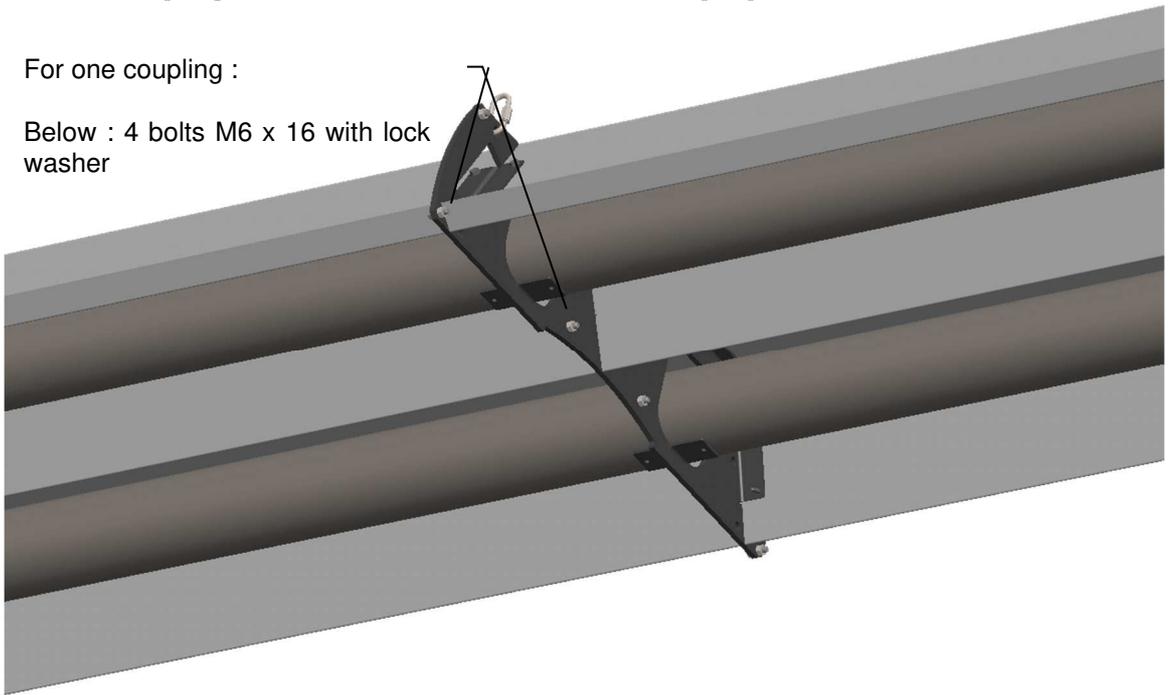
APPLIANCE IN HEIGHT:

Install and secure the appliance on a stable horizontal surface, adapted to its weight (trestles or other, minimum distance 0,5m from the floor)

Link the couplings between modules and also the end plaque

For one coupling :

Below : 4 bolts M6 x 16 with lock washer

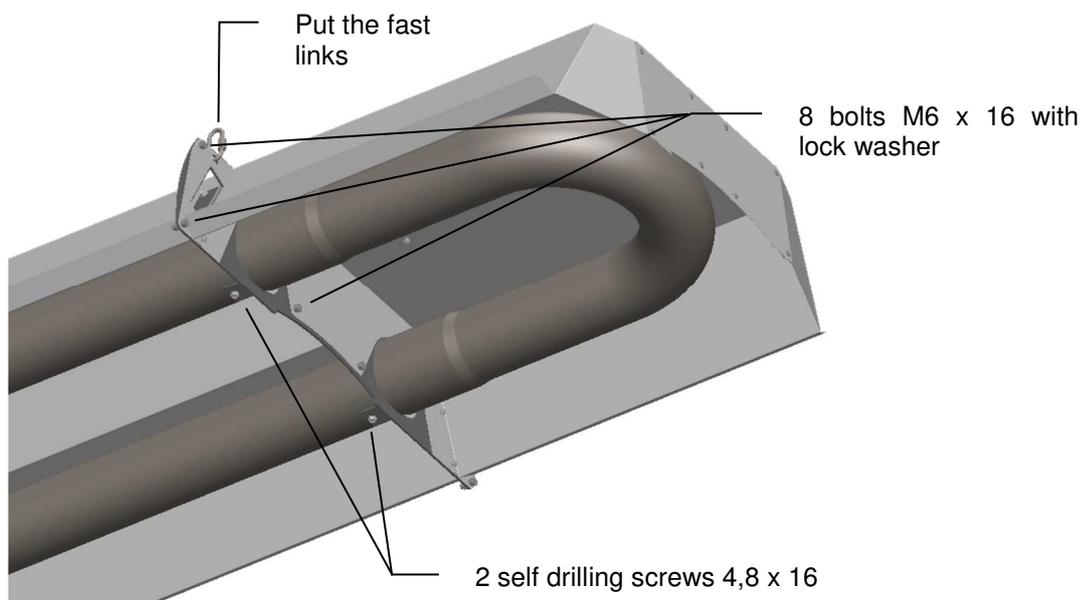


Put the elbow reflector, check that the elbow edges are against the beam.
Screw the 2 tubes only on the beam elbow side, inside the 2 holes.



AVERTISSEMENT

Do not screw on the other beams. This mistake can cause irreversible damages for the heater.



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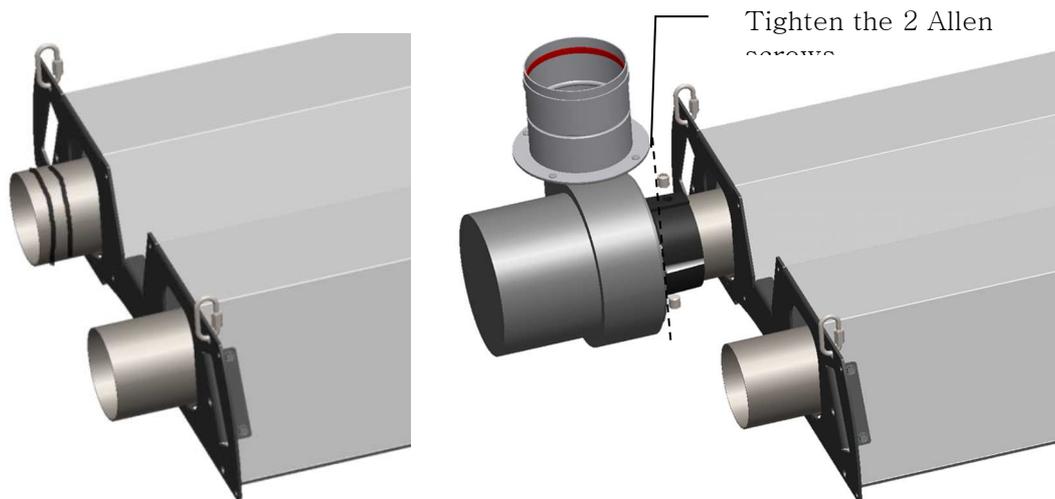
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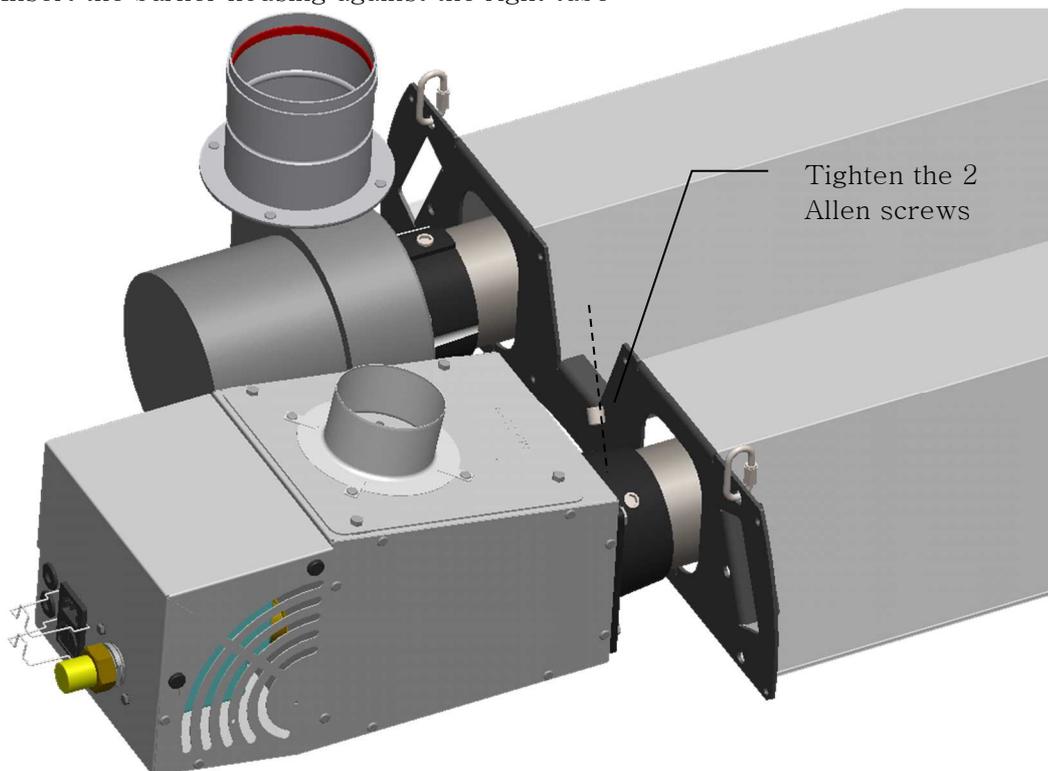
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Left tube only : trace 2 continuous rings of high temperature glue, at 20 and 40 mm from tube end.

Insert the extractor fan against the left tube



Insert the burner housing against the right tube



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6.3. Implantation

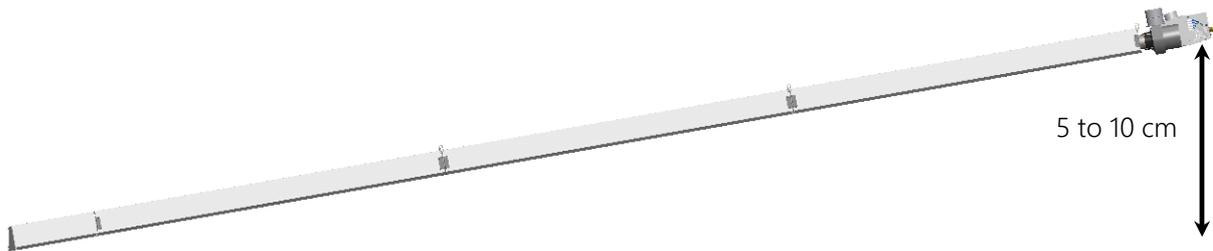
The power, number, height and position of the radiant tubes SolarHP^R have to be adjusted accordingly.

6.3.1. Recommended hanging heights

	SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
Min. recommended hanging height	3,5 m	5 m	7 m
Max. recommended hanging height	6 m	9 m	12 m

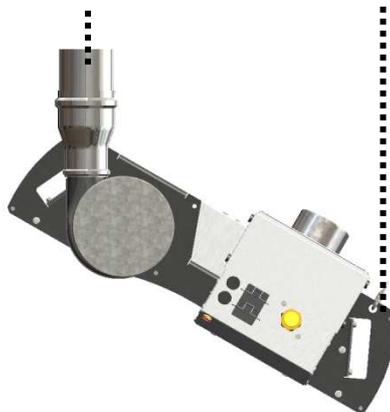
6.3.2. Tilt

A slope from 5 to 10 cm is recommended, with elbow in lower position.



If installed in a tilt position, a maximum tilt of 30° is recommended, with **extractor fan in upper position**. Extractor flue is then adjusted to vertical position in order to ease the flue pipes installation.

Each hanging point must be fixed with 2 vertical chains or cables.



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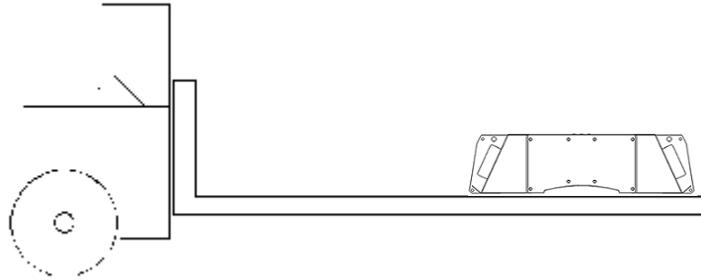
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6.3.3. Handling for hanging

Lift the modules with a forklift elevator or a suitable lift aerial (dimensions and weight)



WARNING

Anyway great care must be taken for the reflectors: install adequate protection on the lifting tool:

- install cardboard protections on the forks,
- **Install shims under the pipes in order to take up the load under the pipes** (the pipes constitute a rigid linear assembly unlike the reflectors).

6.3.4. Hanging

Before fixing devices, it is advisable to make sure of the resistance of the support. **Apply a safety coefficient of 4 : each hanging point must withstand a weight = 4 x appliance weight / number of points.**

Generally speaking, the suspensions must be flexible (chains, ropes or steel cables) and the tensions between hanging points must be balanced. If the premise is equipped with an overhead crane and/or subjected to important vibrations the use of chains is strongly recommended.

The lengths of the suspensions shall not be lower than 0.9 m.

1st step:

- Check the support resistance

2nd step:

- Fix the device in 4, 6 or 8 points
- Adjust the slope of the device if any



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6.4. Flue connection

The flue systems represented in this manual are those commonly used in the market. However, some of them are not usable in all countries. It is up to the installer or the building owners to ensure that the chosen flue system comply with the local installation rules.

Connection of the flue / air inlet shall be achieved:

- Either no connection to a flue or to a device for evacuating the products of combustion to the outside of the room in which the appliance is installed. (air flow ventilation must then be sufficient) - "A" type
- Either combustion air is taken from the building (air flow ventilation must then be sufficient) and the radiant tube is connected to a flue – "B" type
- Either the radiant tube is connected to a sealed flue ("C" type).



WARNING

Flues, terminals and accessories used must compulsorily be approved (n°001-MG-Alu-DOP - Wet system), use only suction and discharge terminals referenced by SOLARONICS CHAUFFAGE, the use of non-approved equipment results in cancelling of the warranty.

The flue pipes junctions must be tight so to ease the assembly without damaging the seals some non aggressive lubricant shall be used. For instance: soapy solution

Radiant tube	Available pressure	Flue diameter	Flue pressure drop
SolarHP ^R 12	40 Pa	100 mm	0.1 Pa / m (air inlet) 0.5 Pa /m (flue) 1 Pa (terminal)
SolarHP ^R 23	30 Pa	100 mm	0.3 Pa / m (air inlet) 0.5 Pa /m (flue) 3 Pa (terminal)
SolarHP ^R 36	40 Pa	100 mm	0.8 Pa / m (air inlet) 1.2 Pa /m (flue) 7 Pa (terminal)

6.4.1. A type



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This configuration is accepted in restrictive conditions. In particular the premise air flow ventilation must be sufficient.

Minimum air flow is:

	SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
Minimum ventilation air flow <u>for each</u> <u>installed appliance</u>	100 m ³ /h	200 m ³ /h	350 m ³ /h

6.4.2. B type flue connection

A flue evacuates the products of combustion to the outside of the room containing the appliance, through the roof or through a wall. The combustion air is drawn directly from the room.

The flue pipe should cross any room other than where the tube is installed.

Minimum air flow is:

	SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
Minimum ventilation air flow <u>for each</u> <u>installed appliance</u>	15 m ³ /h	30 m ³ /h	45 m ³ /h

6.4.3. C type flue connection

The combustion circuit is sealed with respect to the inhabitable area of the building in which the appliance is installed.

A flue evacuates the products of combustion to the outside of the room containing the appliance, through the roof or through a wall.

The flue pipe should cross any room other than where the tube is installed.

6.5. Gas connection

Firstly, you should check that the device you have received is consistent with the distributed gas group. To do this, you should refer to the information given on the heater data plate.

The gas supply must match the heater input and be equipped with all safety and control devices required in standards.

A detailed study will be carried out on pipe diameters depending on the nature of gas flow and the pipes length. It should ensure that pipes pressure drop does not exceed 5% of the supply pressure. The gas connections must be performed in accordance with indoor installations requirements regardless the type of gas, by qualified personnel having the applicable approvals.



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Before commissioning, ensure that the gas line is tight and clean all residues caused by the work



WARNING

Before opening the gas network, check the valve tightness to the appliance.

The connecting of the device to the gas network by a flexible hose is also compulsory for:

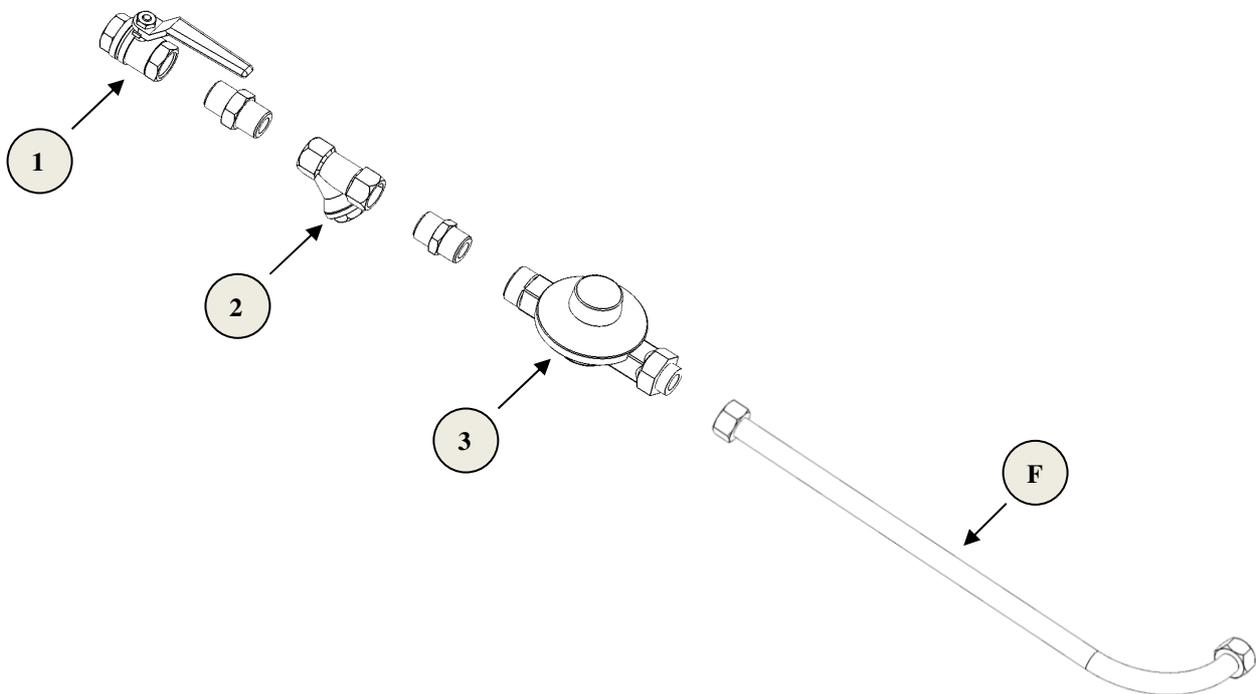
- facilitating the assembly / dismantling,
- avoiding the transmission of mechanical constraints.

The assembly of the flexible hose is made by tightening in the hand follow-up of a tightening of a quarter of turn maximum with a key.



WARNING

A manual stop valve must be installed on the gas network nearby every radiant tube.



(1) Manual gas stop valve - (2) gas filter - (3) gas regulator

(F) Flexible pipe

Example of gas connection



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7. Temperature control - electrical connection

7.1. Temperature control

The regulation of temperature is made in an on/off mode by switching the power supply of devices.

The temperature of comfort of the radiant devices is measured by a probe with black ball, which determines the resultant temperature between the air temperature and the radiation emitted by devices.

Solaronics Chauffage developed a range of specific regulation. These equipments are delivered cabled and with their electric drawing

Plan :

- 1 probe with black ball by zone
- 1 shielded cable 2 x 1 mm² by zone to connect the probe with the regulation

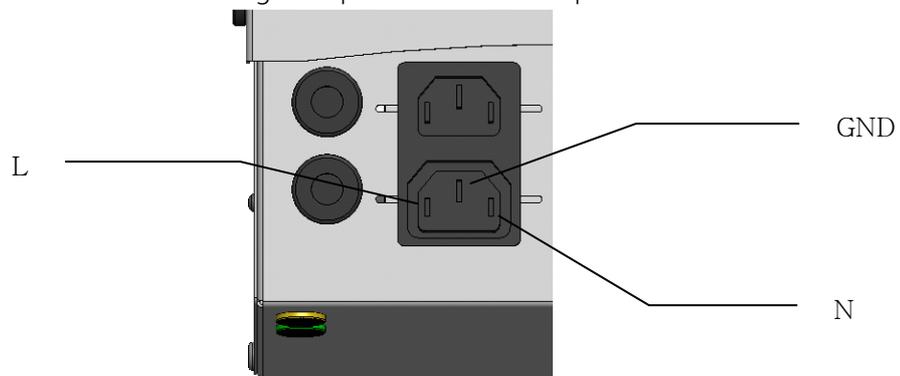
Besides the respect of instructions during the installation of a set of regulation, it is advisable of:

- Positioning the probe at head level in a zone not subjected to drafts and receiving a radiation in a homogeneous way.
- Fixing the probe on the heat insulator material of the wall, when this support is chosen. The wall emits a cold radiation, opposing the good measure of the probe

7.2. Electrical connections

7.2.1. Connections

- Check the power supply: 230 Volts (+10%,-15%) 50 Hz, no neutral impedance (i.e. 0V between neutral and earth). In case of neutral impedance, an isolation transformer is compulsory.
- Plug the extractor fan supply cord inside the burner housing female plug
- Plug the mains supply cord inside the male plug : Line; Neutral and Ground
- Plug the optional cord : flame presence



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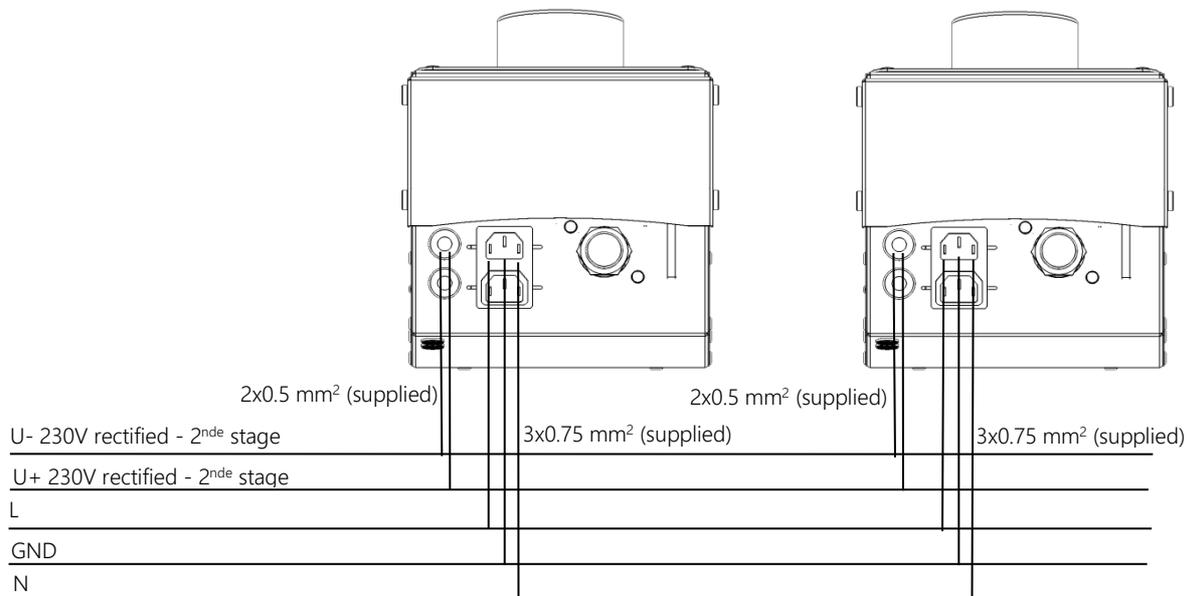


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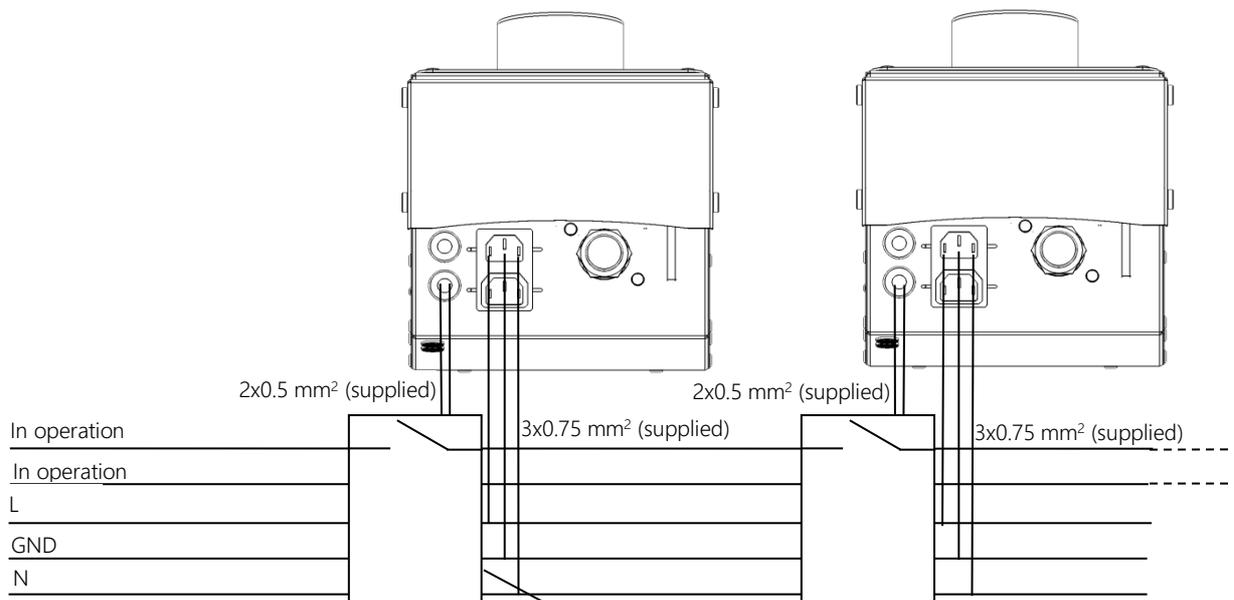


MAINS + ELECTRICAL PROTECTION

CONTROL

5G 1.5 mm² (size section according to the number of units)

Electrical connection for standard units



MAINS + ELECTRICAL PROTECTION

CONTROL

5G 1.5 mm² (size section according to the number of units)

Derivation box and in operation signal (supplied)

Electrical connection - In operation signal in option



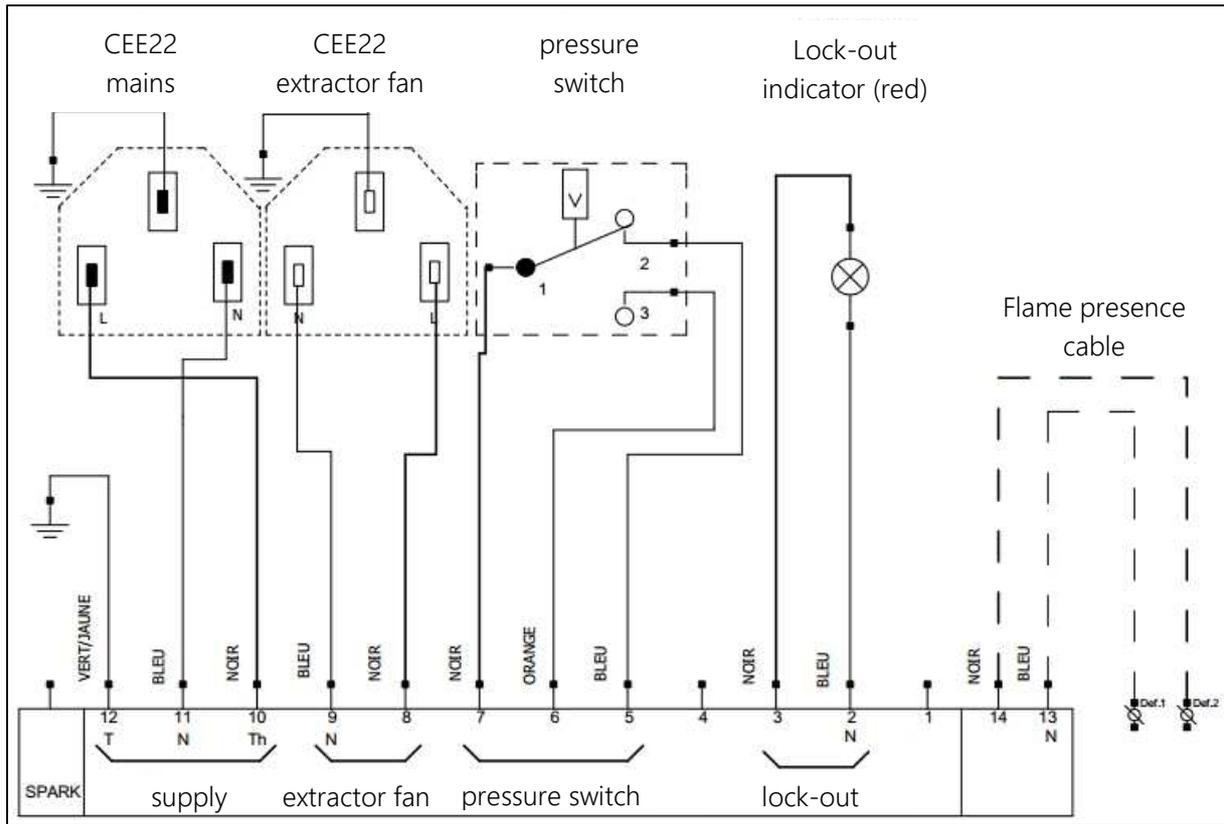
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7.2.2. Electrical drawing



----- Flame presence option: voltage (230V Line) indicates flame presence

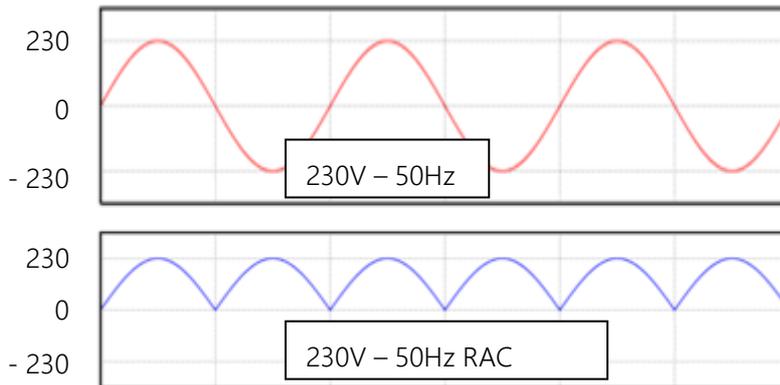
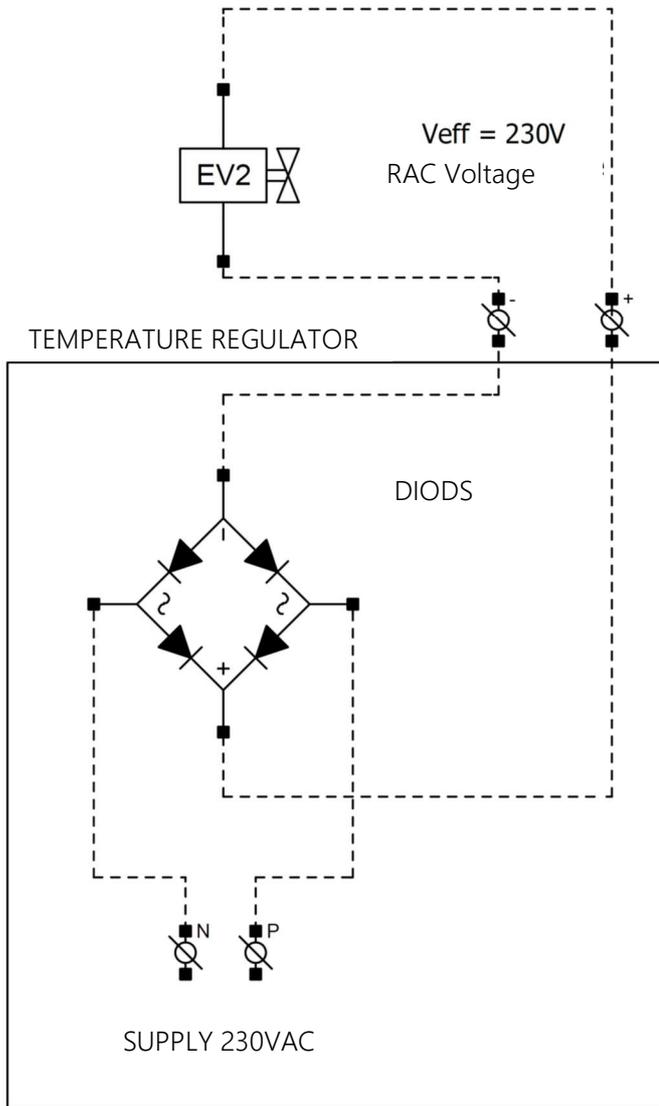


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----- Burner 2nd step is 230V RAC

Command cable – inside burner housing



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8. Commissioning

8.1. Start-up

1- Before commissioning and turning on the heater, check that all connections have been carried out as defined above:

- § "Flue connection"
- § "Gas connection"
- § "Electrical connection"

Check also:

- Distances around the heater are respected
- That all electrical components connections are made
- That earth connection is effective

2- Check the supply voltage at the heater terminals. The voltage value must be between 210 V and 230 V (AC).

3- Check that the gas type and supply pressure comply with the appliance. Check that the general gas valve is open, purge the gas line. Open manual stop valve upstream of each appliance.

4- Check on the temperature controller that no sensor is faulty

5- Switch on the heaters.

On the control, increase the set point temperature to a value higher by more than 1 °C to the room temperature, then switch to automatic mode

6- Set the controller (refer to the its instructions)

Nota: The appliances are factory pre-set, however the setting values can be corrected. This correction may be necessary when the appliances are installed at altitudes above 500 metres. Indeed, the atmospheric pressure is lower, the quality of combustion is affected. For this operation, refer to § "Burner Setting"

6- Set the controller ( refer to the its instructions)



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8.2. Burner setting

This operation must be performed by a qualified professional, equipped with a combustion analyser.

Before any work, disconnect the power and gas supplies.

Remark: When changing gas, the label "setting gas" located inside the heater door must be modified to indicate the new setting.



WARNING

Check for gas leaks after each intervention.

Tools needed:

- Screwdriver (slotted and cross)
- 10 mm wrench
- Combustion analyzer (CO₂ - CO - Flue gas temperature) set to the type of supply gas
- Gas gauge (max pressure 50 mbar)

Burner control and adjustment process:

- 1) Calibrate the combustion analyser and place the rod in the flue.
- 2) Check the gas supply pressure before ignition, in Off mode
- 3) Start the burner at full power ( refer to the controller specific instructions)
 - Check gas supply pressure (see table)
 - After 2 minutes of operation, check the gas pressure at the injector
 - Adjust if needed the injector pressure value with the screw/nut according to the table below
 - Once the first step setting also done, return to normal control

Gas	Supply pressure	Step	Injector pressure (mbar)		
			SolarHP ^R 12	SolarHP ^R 23	SolarHP ^R 36
G20 (H)	17 - 25 mbar	1 st	6	6	6
		2 nd	10	10	10
G25 (L)	20 - 30 mbar	1 st	9.5	9.5	9.5
		2 nd	15	15	15
G31 (LPG)	25 - 45 mbar	1 st	15	15	15
		2 nd	25	25	25

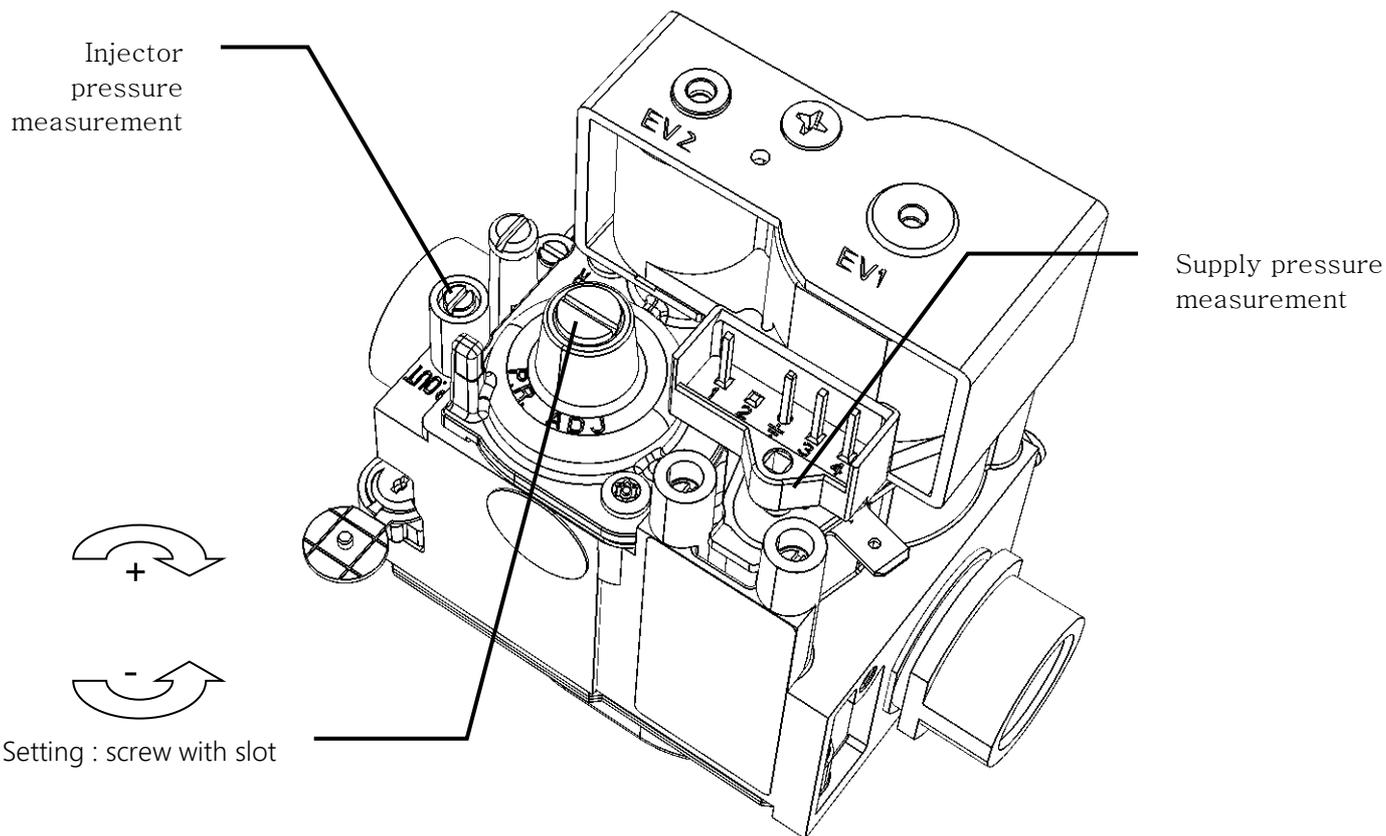


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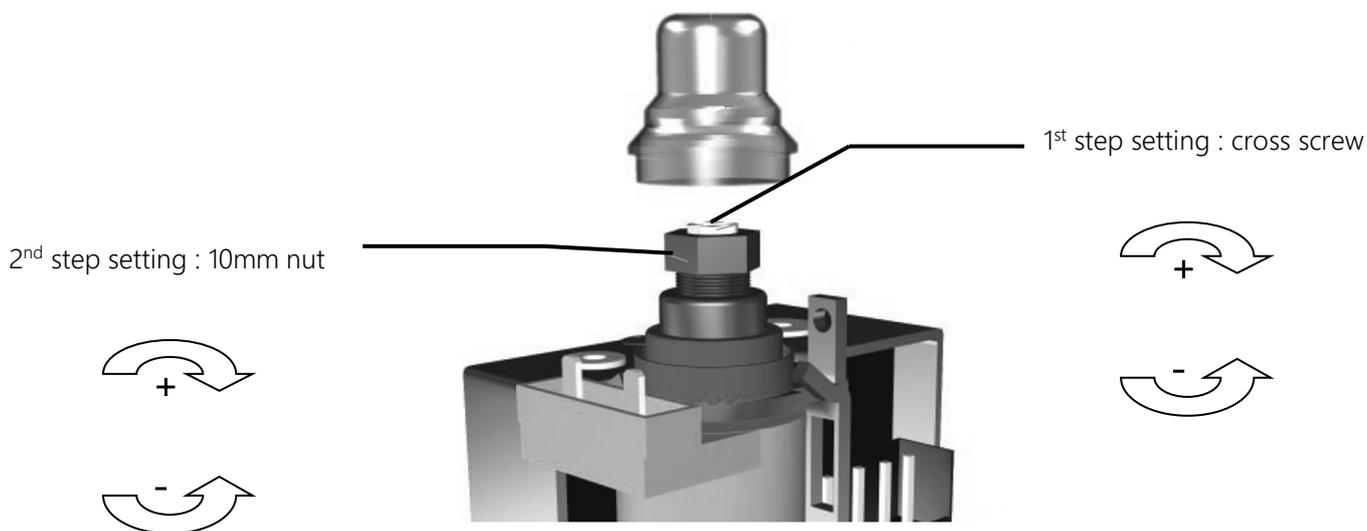
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1-step valve setting



- Set 2nd step **BEFORE** and 1st step after
- Keep the 10mm nut tightened with a key when setting the 1st step screw

2-step valve setting



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9. Troubleshooting

9.1. Troubleshooting

In case of problem, always check that prerequisites in the smooth running of unit ("Start up" section) are performed.
If the burner control is locked out (red indicator is switched on) reset it.



WARNING

All electrical or mechanical interventions should be made when the power is turned off and the gas supply closed.

Symptoms		Possible causes	Remedy
Lighting and flame control device	Burner and extractor fan		
No high voltage sparks between electrode and earth	Extractor is not working	<ul style="list-style-type: none"> - Red indicator OFF : no voltage - Extractor unplugged 	<ul style="list-style-type: none"> - Check power supply and plugs - Check the extractor plug
	Extractor is working	<ul style="list-style-type: none"> - Defective pressure switch - Tube unplugged - Electrode to the ground - Unplugged electrode or ground problem - Defective burner control 	<ul style="list-style-type: none"> - Replace - Plug the tube - Replace - Check connections - Replace
The light-up cycle proceeds normally with HV sparks between electrode and earth	Does not light up upon the first attempt	<ul style="list-style-type: none"> - Manual stop valve shut - Gas lines inadequately bled 	<ul style="list-style-type: none"> - Turn valve on - Bleed the gas lines
	Does not light up after several attempts	<ul style="list-style-type: none"> - Filter ahead the reducer clogged - Injector clogged or partially clogged - Ill-suited injector - Electrovalve jammed in 'off' position 	<ul style="list-style-type: none"> - Clean the filter - Clean the injector - Replace injector - Replace the electrovalve



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Symptoms		Possible causes	Remedy
Lighting and flame control device	Burner and extractor fan		
	The burner lights up but stops within 10 seconds upon light-up	<ul style="list-style-type: none"> - Overpressure at the injector - Ill-suited injector - Electrode badly positioned in relation to burner or earth - Poor grounding on burner control - The burner control is defective (ionisation control is too slack) - Phase-neutral inversion - Neutral impedance 	<ul style="list-style-type: none"> - Adjust the pressure - Replace the injector - Reposition the electrode - Clean point contact - Replace the burner control - Connect properly - Fit in an isolation transformer
	The burner lights up but stops within 30 seconds upon light-up	<ul style="list-style-type: none"> - Leaking tube assembly - Leaking flue assembly 	<ul style="list-style-type: none"> - Tighten tube assembly - Tighten flue assembly
	2 nd step valve coil is noisy (buzzing)	<ul style="list-style-type: none"> - Coil is supplied with 230Vac - Regulator connexion is wrong 	<ul style="list-style-type: none"> - Check electric connection of coil, burner and regulator



WARNING

Only genuine manufacturer parts ensure product and people safety. The use of parts other than genuine ones invokes the responsibility of the individual and will void the product warranty.



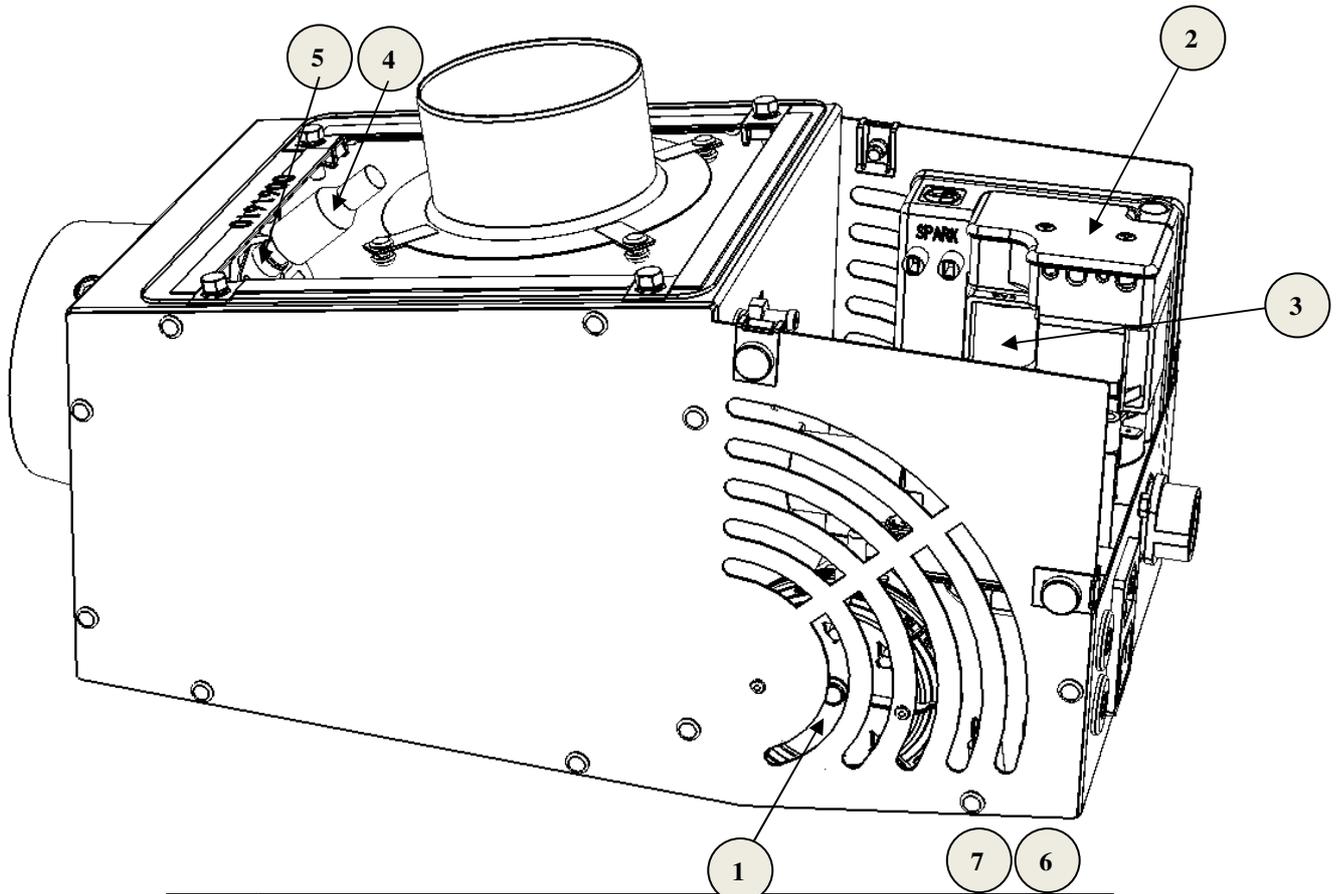
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9.2. Spare parts



N°	Designation	Reference
1	Pressure switch	9422018
2	Burner control	9424180
3	2 step gas valve	9421395
4	Electrode cable	9412008
5	Electrode	9412007
6	Orange indicator light	0074540
7	Red indicator light	0074544
8	Extractor SolarHP ^R 12	8011501
	Extractor SolarHP ^R 23	8011525
	Extractor SolarHP ^R 36	8011545



WARNING

Do contact SOLARONICS CHAUFFAGE before replacing any other parts.



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10. Maintenance

A proper and regular maintenance, at least once a year, determine an efficient and effective functioning, a minimum gas consumption and an important longevity.



WARNING

The gas device must be maintained cold and with electric power cut

These works can be performed by a qualified technician only

Part	Operation
Flue pipes	Check the air inlet and flue pipes. The pipes must be tight to flue gases and resistant to corrosion. The flue pipes must be swept every year.
Radiant tube	Inspection Cleaning when needed
Burner	Clean the burner and injector with a brush and/or vacuum cleaner
Electrode	Check aspect and clean with a solvent if needed
Extractor fan	Check aspect and free rotation
Pressure switch	Check good working
Combustion	Check gas pressures and analyse flue gases During checking make sure that the probe is tight at sampling point, the probe end should be at the center of the flue pipe



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11. Warranty

Your appliance has a contractual warranty against any manufacturing defect.

Solaronics Chauffage is not responsible for improper use of the device, failure or insufficient maintenance, or improper installation of the appliance (it is your responsibility to ensure that it is carried out by a qualified professional).

In particular, Solaronics Chauffage will not be liable for any damage, loss or injury caused by improper installation that does not comply:

- with rules in force or imposed by the local authorities
- with national, or even local and specific rules governing the installation
- with our technical instructions, in particular, for maintenance of the devices
- with the good engineering practice

Solaronics Chauffage warranty is limited to replacement or repair of defective parts only by our services excluding labor costs, travel and transport.

Our warranty does not cover replacement or repair of damaged parts by normal wear and tear, misuse, unskilled third party interventions, defect or failure in monitoring or maintenance, non-compliant power supply or use of an inappropriate fuel or of poor quality.

Subsets, such as motors, pumps, electric valves, etc ... are only guaranteed if they have never been removed.

Rights established by the European Directive 1999/44/CEE remain valid.



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12. Information

Model identifier : SolarHP^R 12							
Type of heating : Radiant tube							
Fuel		Fuel		Space heating emissions(*)			
				NOx			
Select fuel type		Gaseous		G20/G25 /G31		122 mg/kWh input(GCV)	
Characteristics when operating with the preferred fuel only							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Heat output				Useful efficiency (GCV) – Tube local space heaters only			
Nominal heat output	P _{nom}	9,9	kW	Useful efficiency (GCV) at nominal heat output	$\eta_{th, nom}$	85,1	%
Minimum heat output	P _{min}	7,5	kW	Useful efficiency (GCV) at minimum heat output	$\eta_{th, min}$	84,0	%
Minimum heat output (as percentage of nominal heat output)	..	75,1	%				
Nominal tube system heat output (if applicable)	P système	(N.A)	kW				
Nominal tube segment heat output (if applicable)	P heater	(N.A)	kW	Useful efficiency of tube segment at minimum heat output (if applicable)	η_i	(N.A)	%
(Repeat for multiple segment, if applicable)	..	(N.A)	kW	(repeat for multiple segments, if applicable)	..	(N.A)	%
Number of identical tube segments	n	(N.A)	(-)				
Radiant factor				Envelope losses			
Radiant factor at nominal heat output	RF _{nom}	71,8	(-)	Envelope insulation class	U	(N.A)	W/ (m ² K)
Radiant factor at minimum heat output	RF _{min}	71,8	(-)	Envelope loss factor	F _{env}	(N.A)	%
Radiant factor of tube segment at nominal heat output	RF _i	(N.A)	(-)	Heat generator to be installed outside the heated area		No	



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(repeat for multiple segments, if applicable)	..						
Auxiliary electricity consumption				Heat output control type (select one)			
At nominal heat output	el max	0,058	kW	Single stage	no		
At minimum heat output	el min	0,058	kW	Two stage	yes		
In standby mode	el SB	(N.A)	kW	Modulating	no		
Permanent pilot flame power requirement							
Pilot flame power requirement (if applicable)	P pilot	(N.A)	kW				
Contact details	SOLARONICS Chauffage SA. 78 rue du Kimmel - B.P. 30173 – 59428 ARMENTIERES CEDEX France						
(*) NOx = nitrogen oxides							



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Model identifier : SolarHP^R 23							
Type of heating : Radiant tube							
Fuel		Fuel		Space heating emissions(*)			
				NOx			
Select fuel type		Gaseous		G20/G25 /G31		135 mg/kWh input(GCV)	
Characteristics when operating with the preferred fuel only							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Heat output				Useful efficiency (GCV) – Tube local space heaters only			
Nominal heat output	P _{nom}	18,8	kW	Useful efficiency (GCV) at nominal heat output	$\eta_{th, nom}$	84,8	%
Minimum heat output	P _{min}	14,3	kW	Useful efficiency (GCV) at minimum heat output	$\eta_{th, min}$	83,3	%
Minimum heat output (as percentage of nominal heat output)	..	76,2	%				
Nominal tube system heat output (if applicable)	P système	(N.A)	kW				
Nominal tube segment heat output (if applicable)	P heater	(N.A)	kW	Useful efficiency of tube segment at minimum heat output (if applicable)	η_i	(N.A)	%
(Repeat for multiple segment, if applicable)	..	(N.A)	kW	(repeat for multiple segments, if applicable)	..	(N.A)	%
Number of identical tube segments	n	(N.A)	(-)				
Radiant factor				Envelope losses			
Radiant factor at nominal heat output	RF _{nom}	72,5	(-)	Envelope insulation class	U	(N.A)	W/ (m²K)
Radiant factor at minimum heat output	RF _{min}	72,5	(-)	Envelope loss factor	F _{env}	(N.A)	%
Radiant factor of tube segment at nominal heat output	RF _i	(N.A)	(-)	Heat generator to be installed outside the heated area		No	



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(repeat for multiple segments, if applicable)	..						
Auxiliary electricity consumption				Heat output control type (select one)			
At nominal heat output	el max	0,138	kW	Single stage	no		
At minimum heat output	el min	0,138	kW	Two stage	yes		
In standby mode	el SB	(N.A)	kW	Modulating	no		
Permanent pilot flame power requirement							
Pilot flame power requirement (if applicable)	P pilot	(N.A)	kW				
Contact details	SOLARONICS Chauffage SA. 78 rue du Kimmel - B.P. 30173 – 59428 ARMENTIERES CEDEX France						
(*) NOx = nitrogen oxides							



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Model identifier : SolarHP^R 36							
Type of heating : Radiant tube							
Fuel		Fuel		Space heating emissions(*)			
				NOx			
Select fuel type		Gaseous		G20/G25 /G31		128 mg/kWh input(GCV)	
Characteristics when operating with the preferred fuel only							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Heat output				Useful efficiency (GCV) – Tube local space heaters only			
Nominal heat output	P _{nom}	30,1	kW	Useful efficiency (GCV) at nominal heat output	η _{th, nom}	84,8	%
Minimum heat output	P _{min}	23,6	kW	Useful efficiency (GCV) at minimum heat output	η _{th, min}	83,3	%
Minimum heat output (as percentage of nominal heat output)	..	78,3	%				
Nominal tube system heat output (if applicable)	P système	(N.A)	kW				
Nominal tube segment heat output (if applicable)	P heater	(N.A)	kW	Useful efficiency of tube segment at minimum heat output (if applicable)	η _i	(N.A)	%
(Repeat for multiple segment, if applicable)	..	(N.A)	kW	(repeat for multiple segments, if applicable)	..	(N.A)	%
Number of identical tube segments	n	(N.A)	(-)				
Radiant factor				Envelope losses			
Radiant factor at nominal heat output	RF _{nom}	73,4	(-)	Envelope insulation class	U	(N.A)	W/(m ² K)
Radiant factor at minimum heat output	RF _{min}	73,4	(-)	Envelope loss factor	F _{env}	(N.A)	%
Radiant factor of tube segment at nominal heat output	RF _i	(N.A)	(-)	Heat generator to be installed outside the heated area		No	



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(repeat for multiple segments, if applicable)	..						
Auxiliary electricity consumption				Heat output control type (select one)			
At nominal heat output	el max	0,230	kW	Single stage	no		
At minimum heat output	el min	0,230	kW	Two stage	yes		
In standby mode	el SB	(N.A)	kW	Modulating	no		
Permanent pilot flame power requirement							
Pilot flame power requirement (if applicable)	P pilot	(N.A)	kW				
Contact details	SOLARONICS Chauffage SA. 78 rue du Kimmel - B.P. 30173 – 59428 ARMENTIERES CEDEX France						
(*) NOx = nitrogen oxides							



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APPENDIX

End of life of equipment

This device contains electrical and / or electronic components and should not be considered as household waste. Ensure compliance with applicable standards and regulations for waste disposal when dismantling.

The right thing for the safety

Keep ventilation in good condition:

- Keep free and clear air inlets and outlets (grids, vents ...)
- Check annually flues ducts.

Maintain equipment:

- Maintain or make maintain the equipment by a competent person at appropriate intervals, following the manufacturer's recommendations
- Check the gas appliance by a competent person in case of triggering of a safety device

Smell gas? Good reactions!

Flammable but non toxic, gas has been odorized to allow discovering any leak, even small. This smell allows you to react fast. If you smell gas, close the gas valve and check the equipment. If everything is normal and the smell persists, you have to have the good reflexes



WARNING

DO NOT PROVOKE ANY FLAME OR SPARK ... AND DO NOT USE ELECTRICAL APPLIANCES

- Do not call an elevator, use a phone, even mobile, press an electric switch, not to create a spark.
- Whatever the room where the gas smell is perceived, ventilate this room as much as possible by opening windows and doors...

"Gas troubleshooting" service is at your disposal 24/24 and 7/7 at the gas distributor. This service reacts free of charge and as soon as possible in case of gas leak or smell.

- The phone number is:, it is noted on the invoices

The number of the emergency services (fire) is:



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Catalogue Tarif
Professionnel



Pièces de rechange



Spare parts catalogue

On request

Headquarters

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