

Radiant strip

RayLine



SOLARONICS Chauffage SA. 78 rue du Kemmel - B.P. 30173 – 59428 ARMENTIERES CEDEX France

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RAYLINE RADIANT STRIP USERS MANUAL – NT13002B-GB – 18/04/2004

Contents

1. Introduction	4
1.1. General	4
1.1.1. Manufacturer's liability	4
1.1.2. Installer's liability	4
1.1.3. User's liability	5
1.2. Certifications	5
2. Safety instructions and recommendations	5
2.1. Safety instructions	5
2.2. Recommendations	6
3. Description	7
4. Technical specifications	8
5. Overall and interface dimensions	9
5.1. Burner	11
5.2. Operating cycle	12
6. Installing the appliance	13
6.1. Content of delivery	13
6.2. General rules	14
6.3. Assembly	15
6.3.1. Tooling	15
6.3.2. Burner installation	15
6.3.2.1. External wall	16
6.3.2.2. Roof	17
6.3.2.3. Inside the premise	18
6.3.3. Straight modules assembly	18
6.3.4. Strip hanging	21
6.3.4.1. Preliminary stage – Setting-up of the guiding flame device	22
6.3.4.2. Stages 1 and 6 – Setting-up and screwing	23
6.3.4.3. Stages 2 and 7 - Hanging	23
6.3.4.4. Stages 3 and 8 - Preparation of the clamps collars	24
6.3.4.5. Stages 4 and 9 – Setting-up of pipes	24
6.3.4.6. Stages 5 and 10 – Tightening of the collar clamps	25
6.3.5. Expansion modules	25
6.3.6. Bended, upwards and downwards modules	25
6.4. Setting-up	26
6.4.1. Lifting for hanging	26
6.4.2. Hanging	26
6.5. Flue connection	27
6.5.1. Chimney kit \varnothing 130 mm	28
6.5.2. Burner installed inside – B type connection	29
6.5.3. Burner on the side wall	29
6.5.4. Roof mounted burner – with 45° angle	29
6.6. Gas connection	30
6.6.1. General	30
6.6.2. Gas connexion kits	30
7. Temperature control – Power connection	31



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RAYLINE RADIANT STRIP USERS MANUAL – NT13002B-GB – 18/04/2004

7.1.	Temperature control.....	31
7.2.	Power connection.....	31
7.2.1.	Wiring.....	31
7.2.2.	Electrical drawing.....	32
7.2.2.1.	RSB 65-75.....	32
7.2.2.1.	RSB 110 - 220.....	34
8.	Commissioning.....	36
8.1.	Start.....	36
8.2.	Burner adjustment.....	37
9.	Repair.....	39
9.1.	Repair.....	39
9.2.	Spare parts.....	41
10.	Maintenance.....	42
11.	Warranty.....	43
APPENDIX	44
	End of life of equipments.....	44
	The right thing for safety.....	44
	Smell gas? Good reactions.....	44



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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 (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.



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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/EEC « Gas appliance »
NOx class	2-3 (NF EN 416-1)
Category	I2ESi
Flue type	B22

2. Safety instructions and recommendations

2.1. Safety instructions



WARNING

The radiant strip burner 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



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2.2. Recommendations

RayLine range radiant strips are engineered for heating industrial and tertiary premises.

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

- Combustion 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.

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 strip appliances:

- In environments with explosive risks,
- Premises containing vapours of chlorinated products
- 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 RayLine gas radiant strip is a direct overhead heating system, burning natural gas, which complies with the European directive applicable to gas-fired appliances.

The RayLine radiant strip heater burns gas inside a tube, forming a closed loop inside the building.

A recirculation fan creates a vacuum inside the tube:

- lengthens the flame produced by the atmospheric burner
- recirculates 90% of the combustion products
- extracts the extra combustion products.

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



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4. Technical specifications

Model	Unit	RSB		RSB			RSB	
		65	75	110	130	165	200	220
Thermal capacity - high	kW HHV	61	75	106	134	162	192	220
	kW LHV	55	65	95	120	145	175	200
Thermal capacity - low	kW LHV	-	-	55	70	90	115	120
Maximum combustion efficiency	%	92		92			92	
G 20 (H gas) Nominal supply pressure : 20 mbar (17 mbar mini / 25 mbar maxi)								
Nominal flow 15°C, 1013 mbar	m3/h	5.8	6.9	10.1	12.7	15.3	18,5	21.2
Injector pressure - high	mbar	5	8	9	9	9	9	9
Injector pressure - low	mbar	-	-	2	2	2	2	2
G 25 (L gas) Nominal supply pressure : 25 mbar (20 mbar mini / 30 mbar maxi)								
Nominal flow 15°C, 1013 mbar	m3/h	6.8	8.0	11.7	14.7	17.8	21.5	24.6
Injector pressure - high	mbar	8.5	12.5	15.8	15.8	15.8	15.8	15.8
Injector pressure - low	mbar	-	-	3.8	3.8	3.8	3.8	3.8
Gas connection		3/4"		1"			1"	
Injector diameter	mm	7.4	7.4	8	8.8	9.6	10.8	11.4
Electrical connection		3 x 400V / 50Hz + N + Ground						
Electric consumption	A	1.7		3.2			4.6	
	W	950		1800			2600	
Burner weight	kg	116		119			129 - 134	
Motor								
Mechanical power	W	0.75		1.5			2.2	
Speed	rpm	2800		2800			2800	
Cos phi / Efficiency		0.83 / 0.81		0.83 / 0.81			0.83 / 0.81	
Flue connection	mm	130		130			130	
Maximum flue length	m	6		6			6	
Circuit length	mini-maxi							
1 x 250 mm circuit	m	90-150		130-190			170-250	
2 x 250 mm circuit	m	50-80		70-100			90-130	



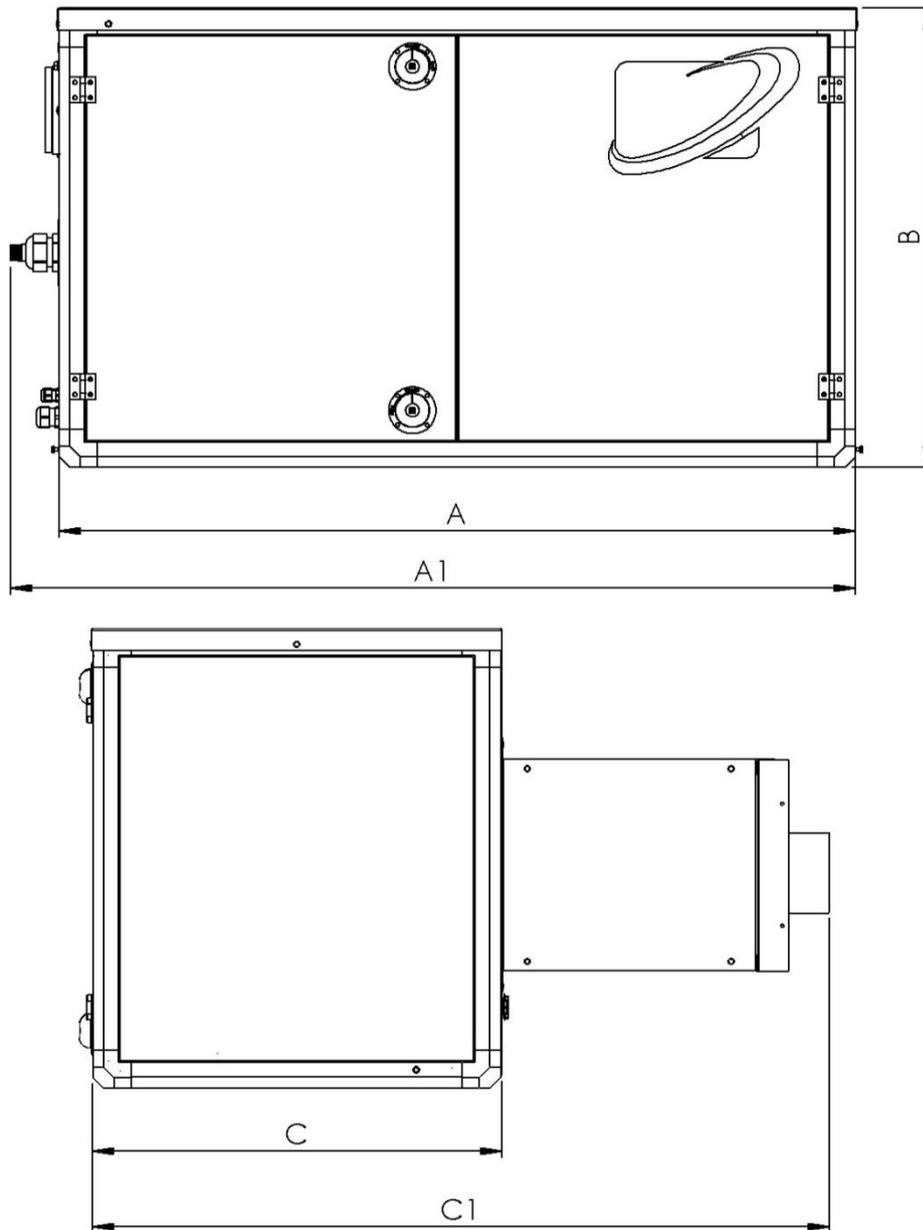
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5. Overall and interface dimensions



Dimension	RSB	RSB
	65 - 75	110 - 130 - 165 - 200 - 220
A	1250 mm	1250 mm
A1	1330 mm	1330 mm
B	730 mm	775 mm
C	645 mm	745 mm
C1	1160 mm	1245 mm

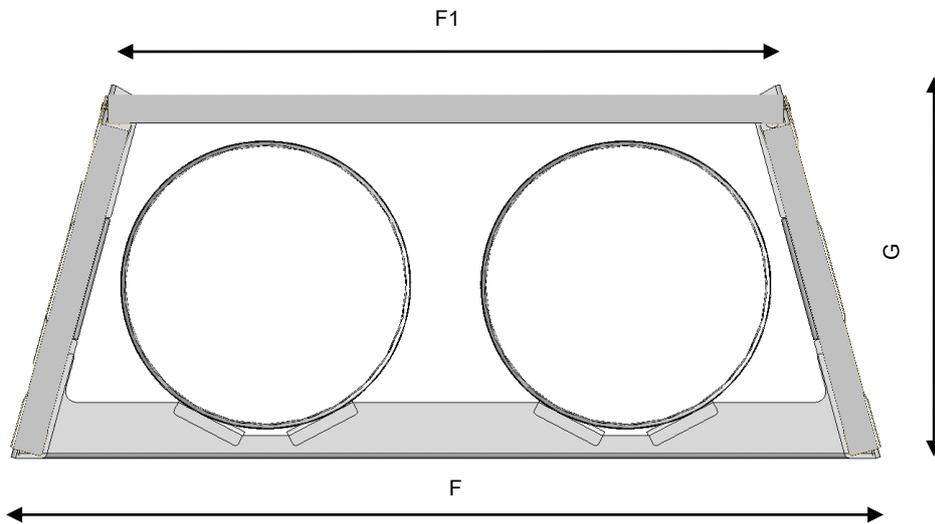


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Dimension	1 x tube	2 x tube
F	452 mm	772 mm
F1	273 mm	593 mm
G	334 mm	334 mm
Tube diameter	250 mm	250 mm
Fixation diameter	12 mm	12 mm
Weight	12 kg/m	17 kg/m



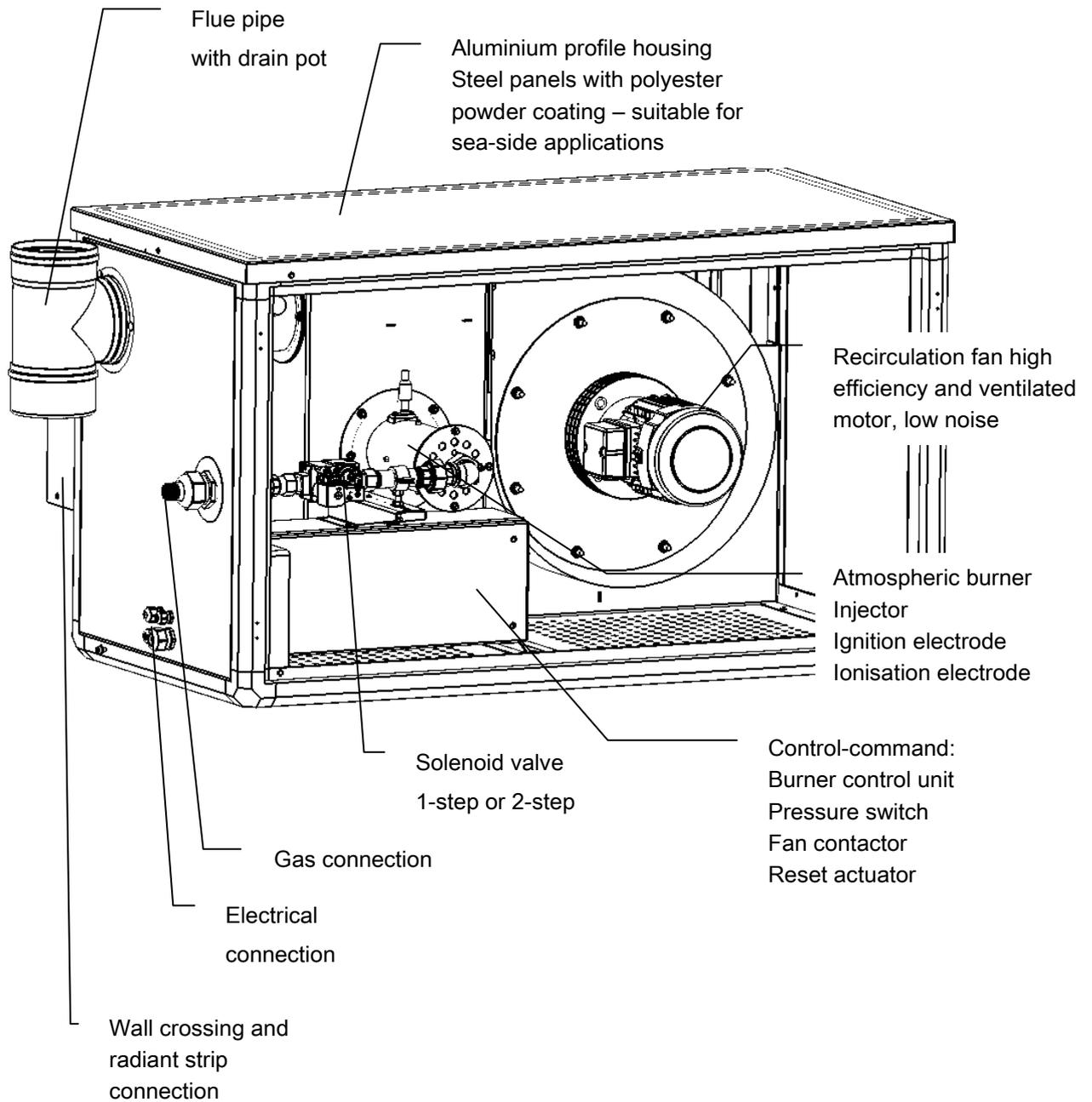
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5.1. Burner



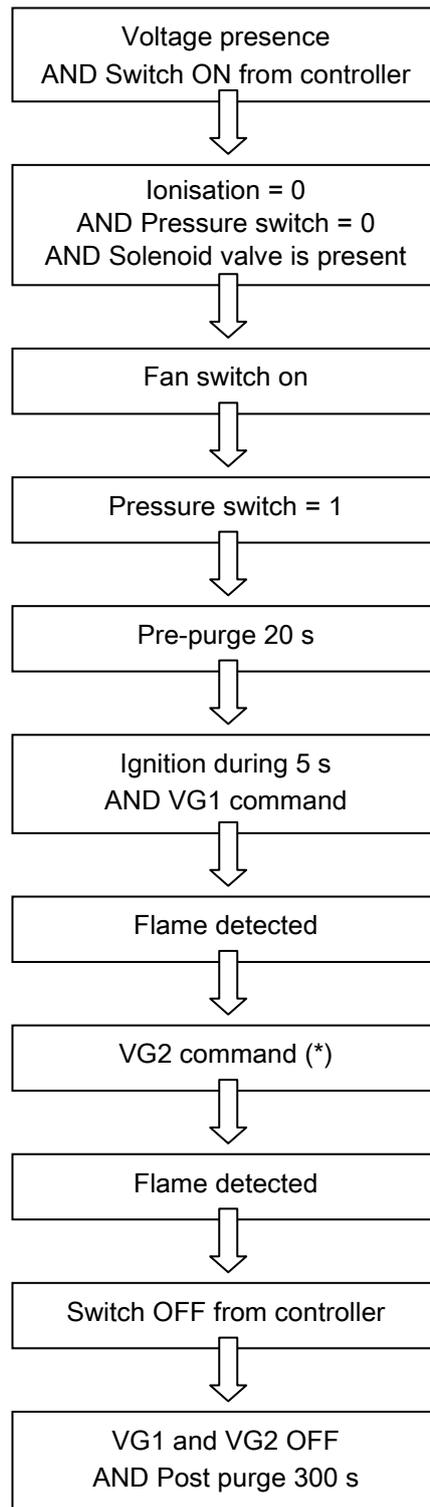
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5.2. Operating cycle



When flame is no more detected the burner tries once to re-start. In case of failure the burner control unit is locked-out, the indicator light switches on and reset is necessary.

(*) for models from RSB 110 and above: in case the high-power contact is closed



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6. Installing the appliance

6.1. Content of delivery



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.

A detailed study of the premises and of the project will make it possible to optimise the modules configuration and offer the most economical solution.

Configuration examples:

- 2-tube circuits
- 1-tube circuits
- Multi-branches circuits
- Multi-level circuits

Scope of delivery for one network:

- 1 burner packaged on a wooden palette
- 1 Wall support
- Seal paste
- Flue terminal B22 kit ϕ 130
- 1 mastic sealing compounds cartridge for wall mounting
- mastic sealing compounds cartridges for pipes connexion
- Modules in kit (length: 1m, 2m or 4 m):
 - Sides
 - Reinforcing supports
 - Tubes
 - Collars
 - Insulation
 - Screws
- Complete modules:
 - Direction changes (elbows horizontal / vertical)
 - Expansion control system
 - End module
- 1 Clamping tool to tighten collars of modules

Accessories:

- Flue pipes
- Gas filter



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- Gas pressure governor / regulator
- Power switch (3 phases + N)
- Building temperature controller
- 45° roof support for burner
- Double wall stainless steel duct
- Ball impact guard screen (for gymnasium, etc.)
- Ray protective screen

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.

6.2. General rules

The radiant strip is installed inside the premises. The burner is installed, according to the configuration:

- On the wall outside the building
- On the roof
- Inside the premise

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 (Burner inside the premises) :

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.



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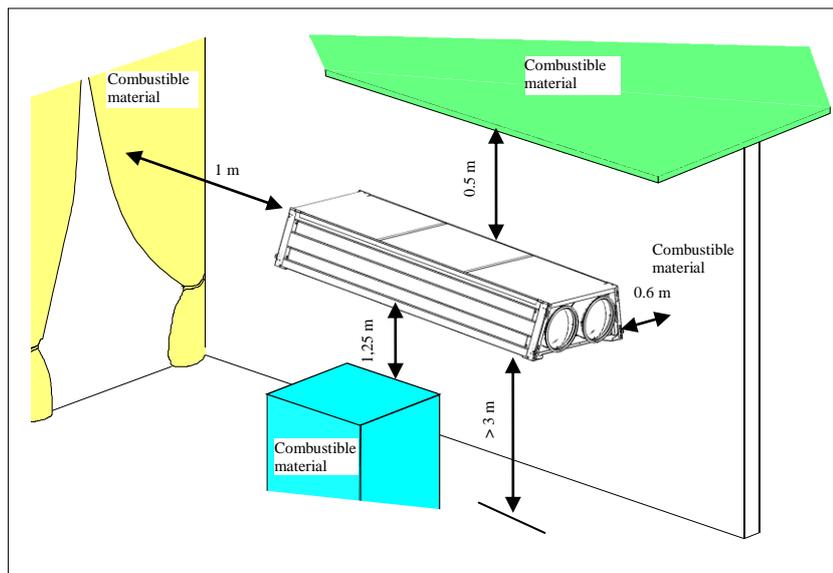
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WARNING

Minimum distances required for appliance maintenance and safety:



6.3. Assembly



If SOLARONICS CHAUFFAGE delivered a plan of assembly for the project, it is recommended to follow it scrupulously for the implementation of the product.

6.3.1. Tooling:

- Electric drill with 8 mm tip
- Mallet
- Collar screwing tip (specific tooling)
- Pistolet pour cartouches de mastic d'étanchéité
- Cutter
- Equipements de mesure (niveau,...)
- Individual protections: glasses, gloves, shoes, etc
- Lifting devices

6.3.2. Burner installation

- Lifting: use straps and lifting block
- The burner housing is the reference for the thermal expansion of the tubes. Thus it must be rigidly fixed.



The combustion air is taken from the bottom face of the burner housing: do not install the burner on the floor but on a largely apertured support



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Always foresee the access to the burner for the maintenance operations:

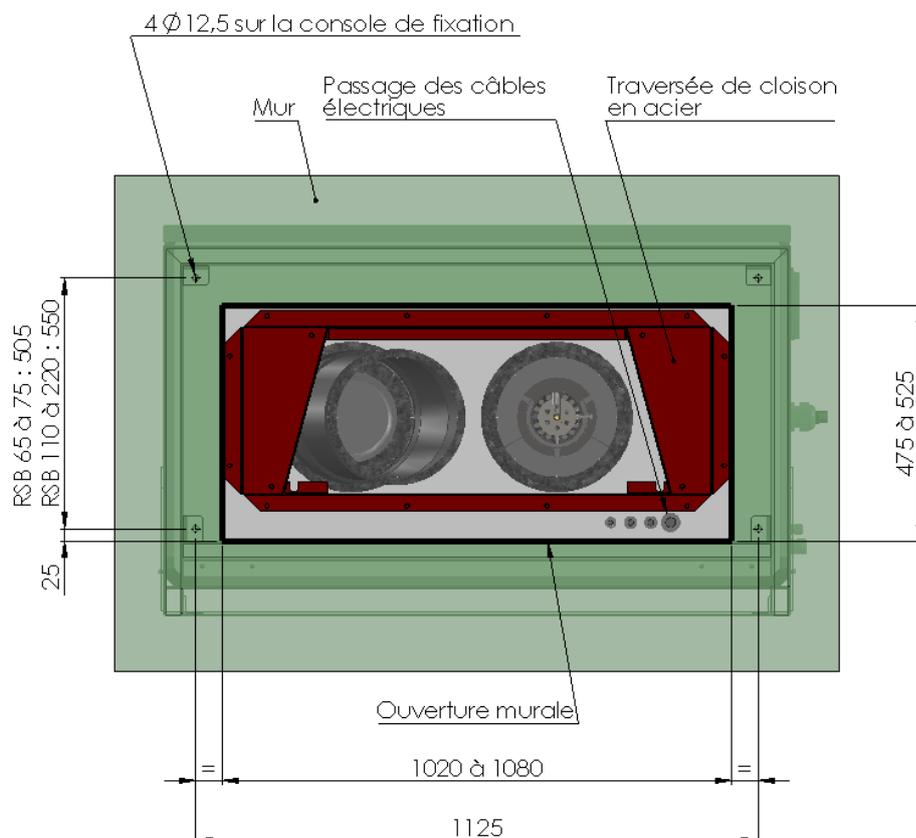
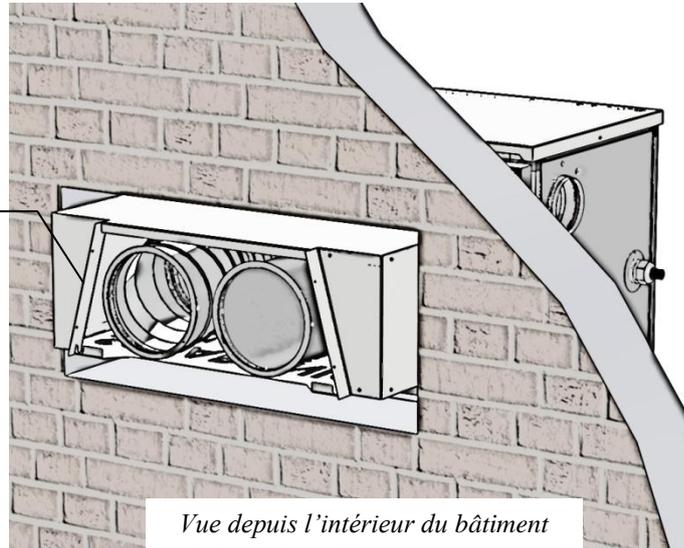
- Take into account the burner doors opening
- Firm floor and road access for lift access

6.3.2.1. External wall

Accurately determine the burner position in reference to the radiant strip, and open the wall in front of the strip.

Caution: the wall crossing is not centred on the burner

Prepare the opening on the wall



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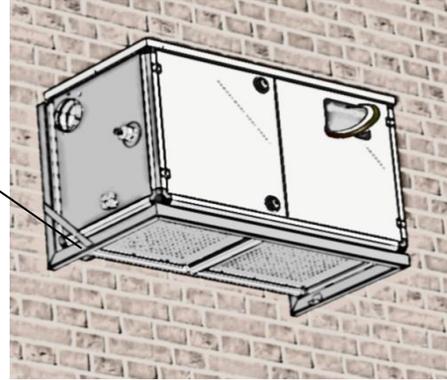
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Tighten firmly the wall support and prepare the water tightness with the wall (use the supplied seal paste). Install the burner on the support. Ensure the tightness between the wall and the burner box thanks to the provided mastic sealing compounds

Fix the support on the wall with 4 pegs.
Secure the burner on the support with 4 screws.

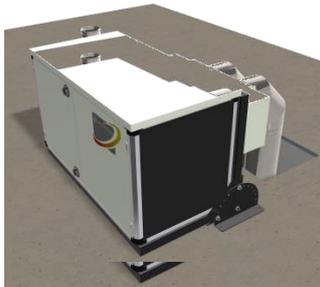


NB: the burner is prepared for the electric cables passing through the wall opening.

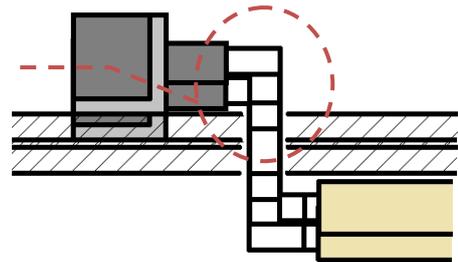
6.3.2.2. Roof:

By default SOLARONICS CHAUFFAGE offers 2 ways of installing the burner on the roof:

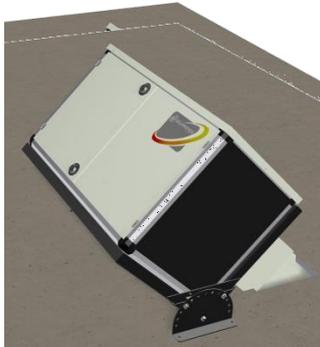
1. Burner laid flat, vertical start of radiant strip:



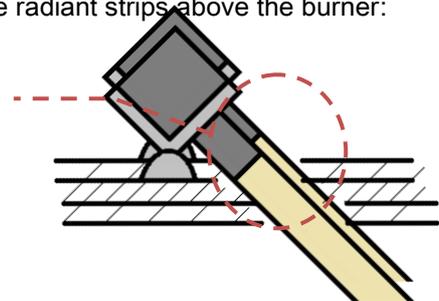
Box housing and tightness remain of the responsibility of the installer



2. Burner tilted, start of the radiant strips above the burner:



Box housing and tightness remain of the responsibility of the installer



Position of the burner regarding the radiant strip is given in the study. Design of aperture and installation of strong and watertight box housing are of the responsibility of the installer.

Accurately determine the burner position in reference to the radiant strip, and open the roof and ceiling in front of the strip.

i The tilting of the burner implies the use of the “rotation fixing kit” (optional)



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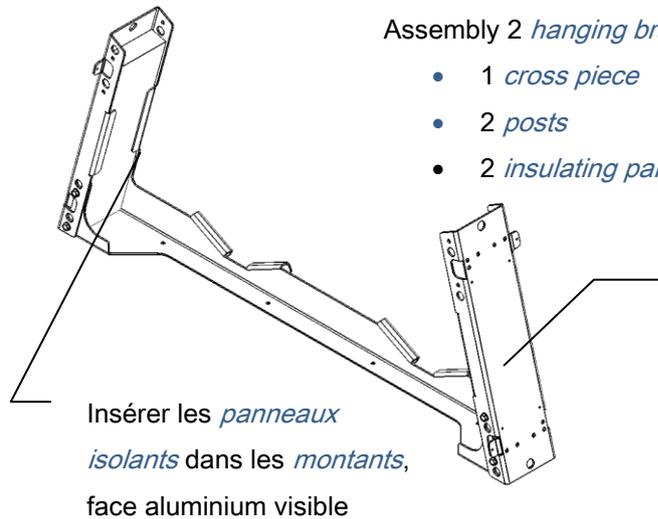
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6.3.2.3. Inside the premise

Firmly fix the burner to the building structure so that no move is possible due to radiant strip thermal expansion.

6.3.3. Straight modules assembly

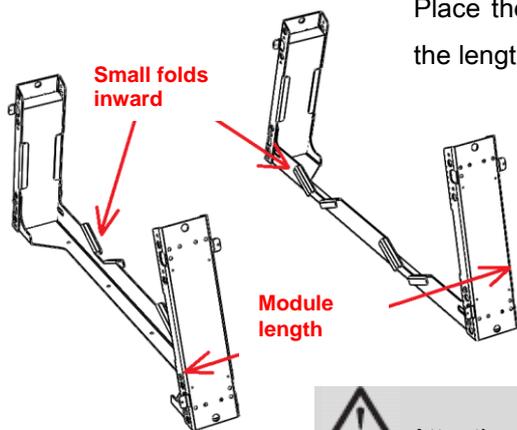
i SOLARONICS CHAUFFAGE recommends to assembly, at breast height, on a support surface of length and width at least equal to the dimensions of the radiant strip module.



Assembly 2 *hanging brackets*, each made of:

- 1 *cross piece*
- 2 *posts*
- 2 *insulating panels*

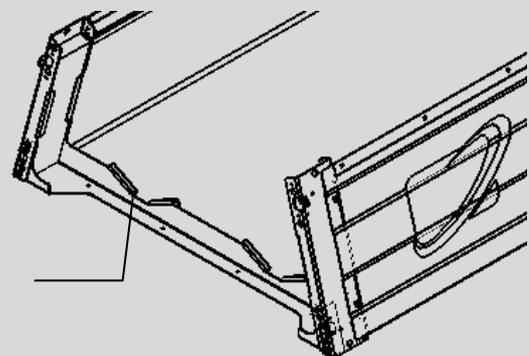
Assembly the 2 *posts* on the *cross piece* with the 8 sheet metal screws.



Place the 2 *hanging brackets* at a distance approximately equal to the length of the modules (1m, 2m or 4m), small folds inward.



Attention on direction of the *hanging brackets*:



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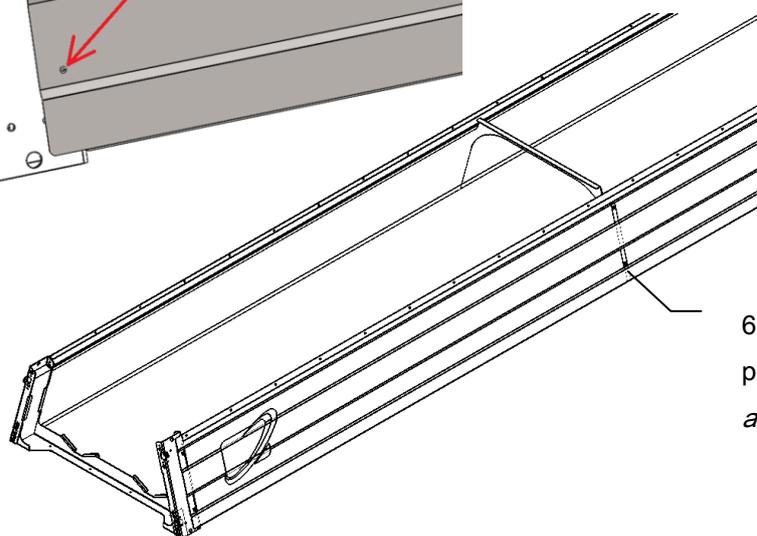
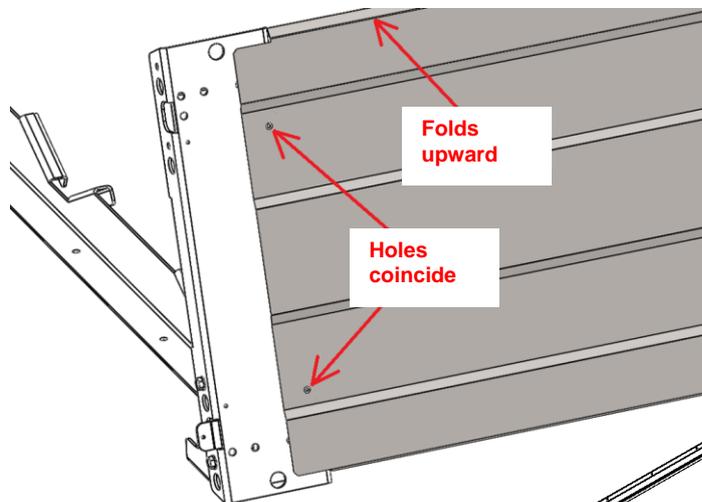
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Before fixing *the side parts*, remove *the protective film*.

Melting risk – the film is plastic made

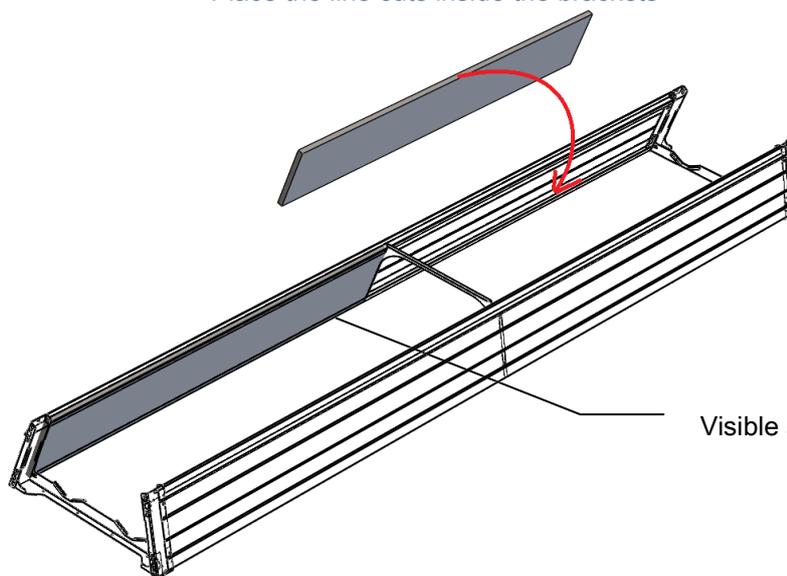
Assembly les *sides* on *the hanging supports* and the *reinforcing intermediate support*. (*reinforcing intermediate support* only for 4m modules)



6 sheet metal screws
per *side* (4 for 2m
and 1m modules)

Insert *the insulating panels* (300mm width) inside the *sides*.

Place the line cuts inside the brackets



Visible aluminium face



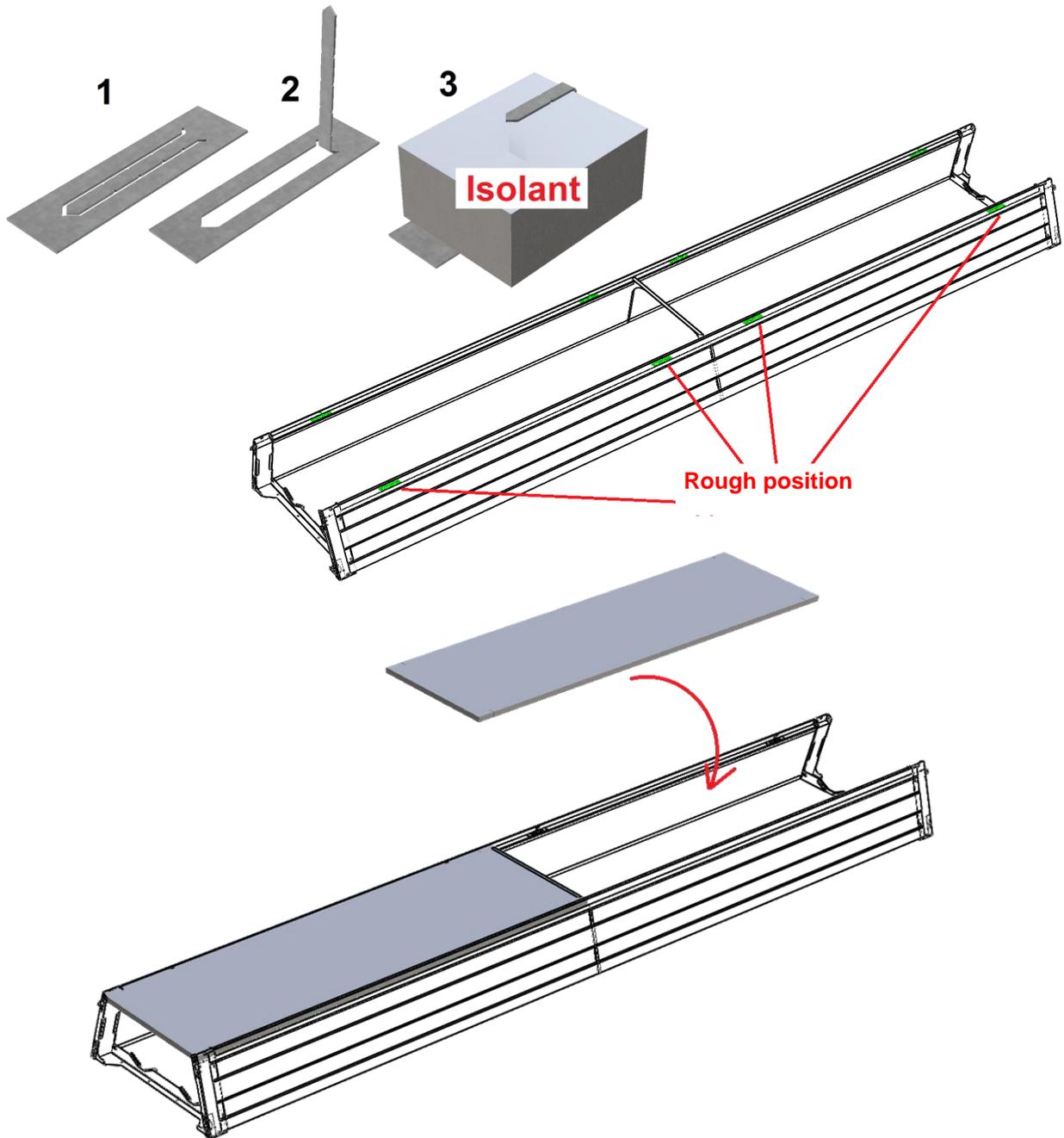
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Degrease the upper face of the sides and stick *the adhesive*. Unwind the *upper insulating material* (single tube: width 280mm / twin tube: width 600mm) by broaching them on the *adhesive*, then fold the *adhesive* on *the insulating material*.



i So as to make the handling easier, SOLARONICS CHAUFFAGE recommends to **hang the radiant strip modules without the tubes**, and then to slide these ones in the **hanging brackets**. This procedure is described hereafter.



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- 20 -

6.3.4. Strip hanging

It is recommended to take care of the vertical and horizontal alignment of the hangings of the radiant strips.

i Start the hanging from the burner position. The installation process is the following one:

1. Positioning and screwing of the 1st radiant strip module on the burner box.
2. Hanging on the first module (4 points).
3. Preparation and prepositioning of the 2 clamp collars of pipes.
4. Setting up of the 2 pipes in the 1st module.
5. Tightening of the clamp collars
6. Positioning and screwing of the following radiant strip module.
7. Hanging on 2 points, at the opposite side of the burner.
8. Preparation and prepositioning of the clamp collar(s) of pipe(s)
9. Setting up of the pipe(s) in the module
10. Tightening of the clamp collar(s)
11. Repetition of the stages 6 - 10 until end module(s) of the radiant strips.



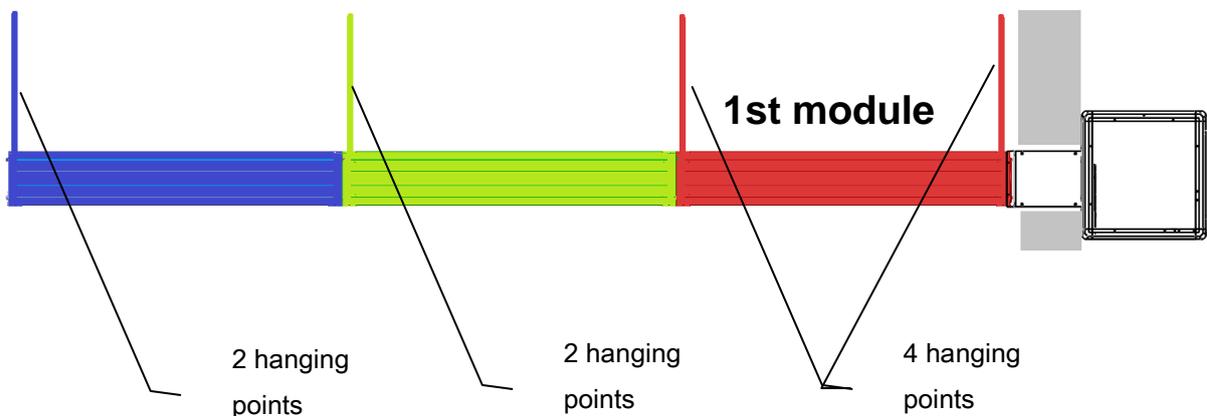
Authorized hanging devices for hanging:

>Cables of 45 kg mechanical strength

>Chains



For more details regarding the hanging, see § « Setting-up ».



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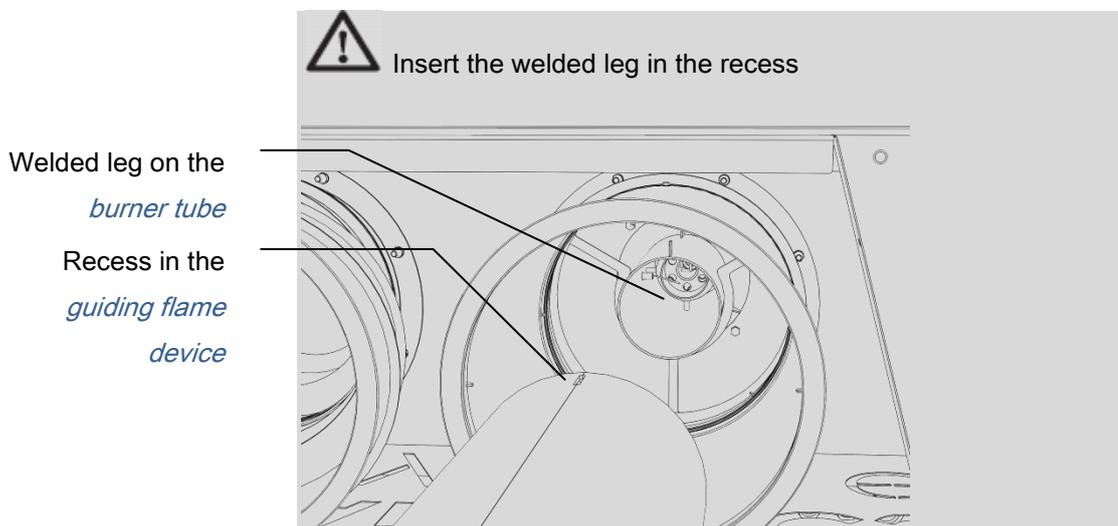
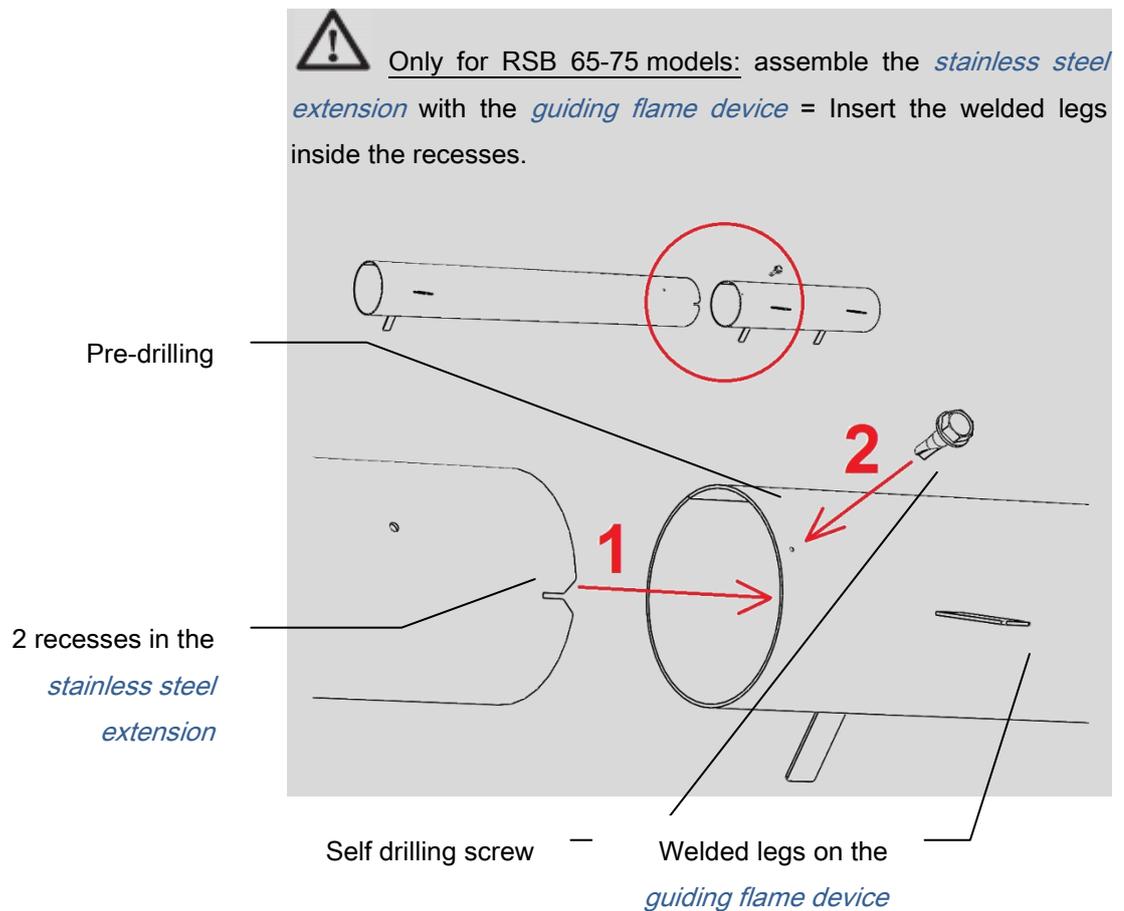
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- 21 -

6.3.4.1. Preliminary stage – Setting-up of the guiding flame device



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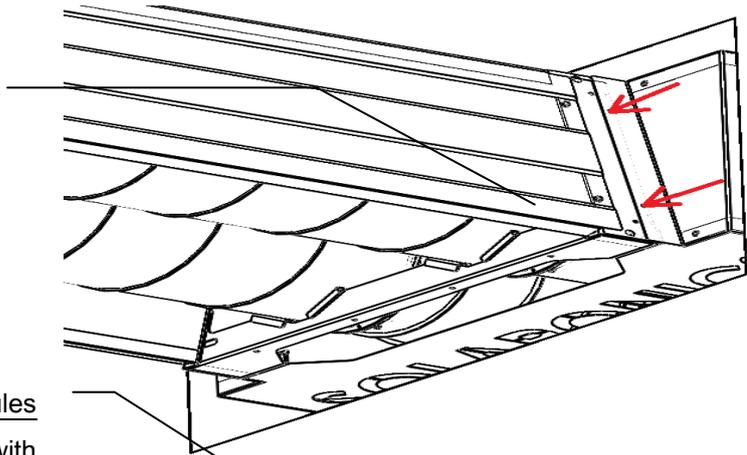
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6.3.4.2. Stages 1 and 6 – Setting-up and screwing

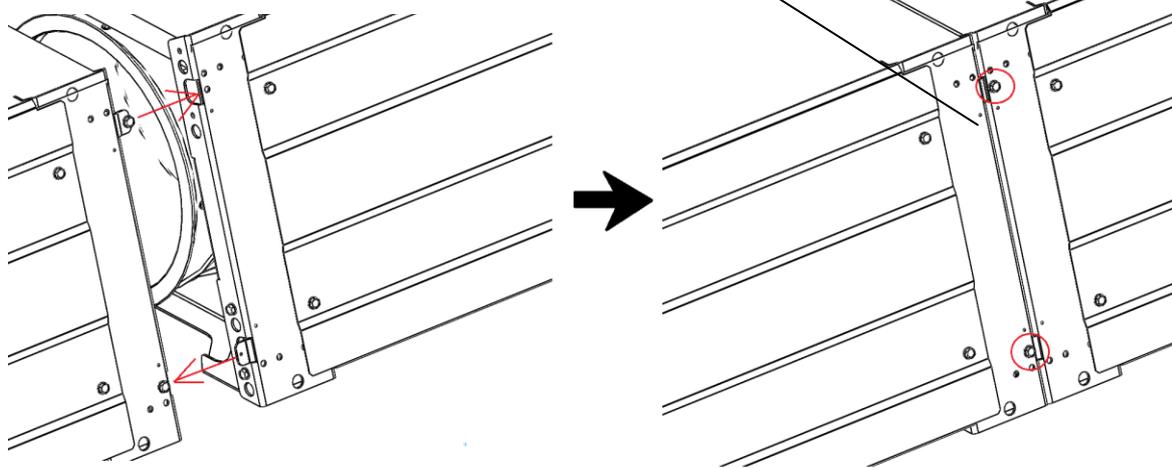
1st STAGE – 1st module

Place the module inside the *folds of the bulkhead connector*, then lock with sheet metal screw on both sides



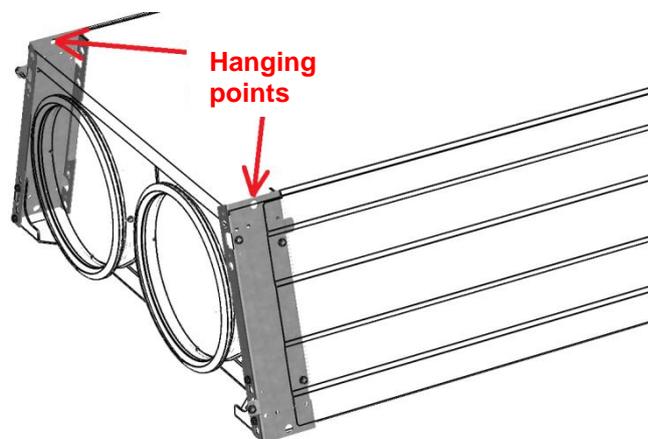
6th STAGE – Following modules

Insert the *steel tongues*, then lock with 2 screws on each side



6.3.4.3. Stages 2 and 7 - Hanging

The hanging of the modules is made via holes of 12 mm of diameter, located in the *posts* of the *hanging brackets*.



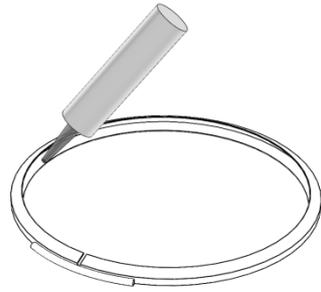
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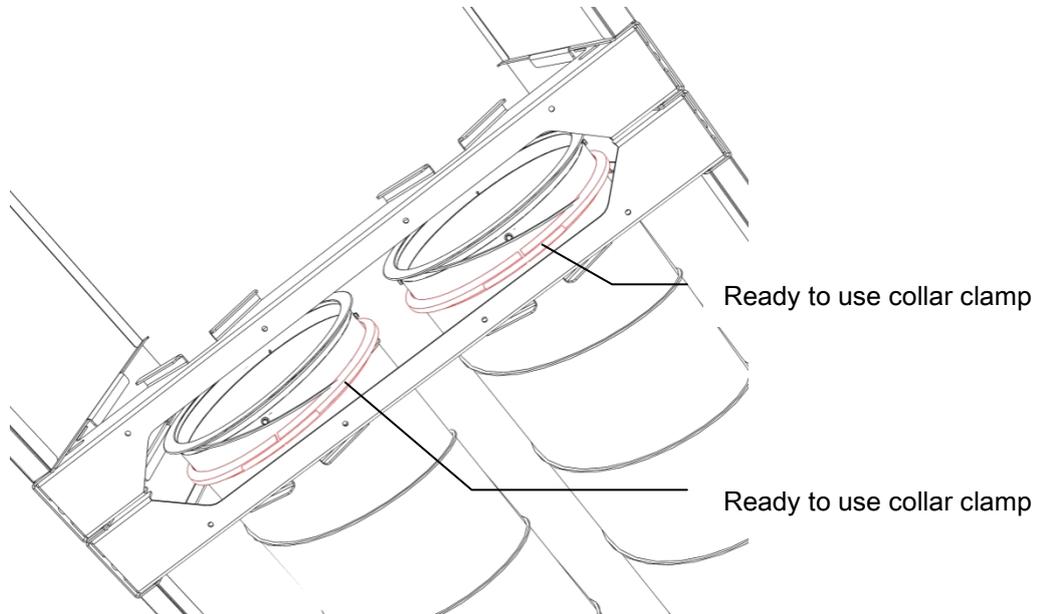
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6.3.4.4. Stages 3 and 8 - Preparation of the clamps collars



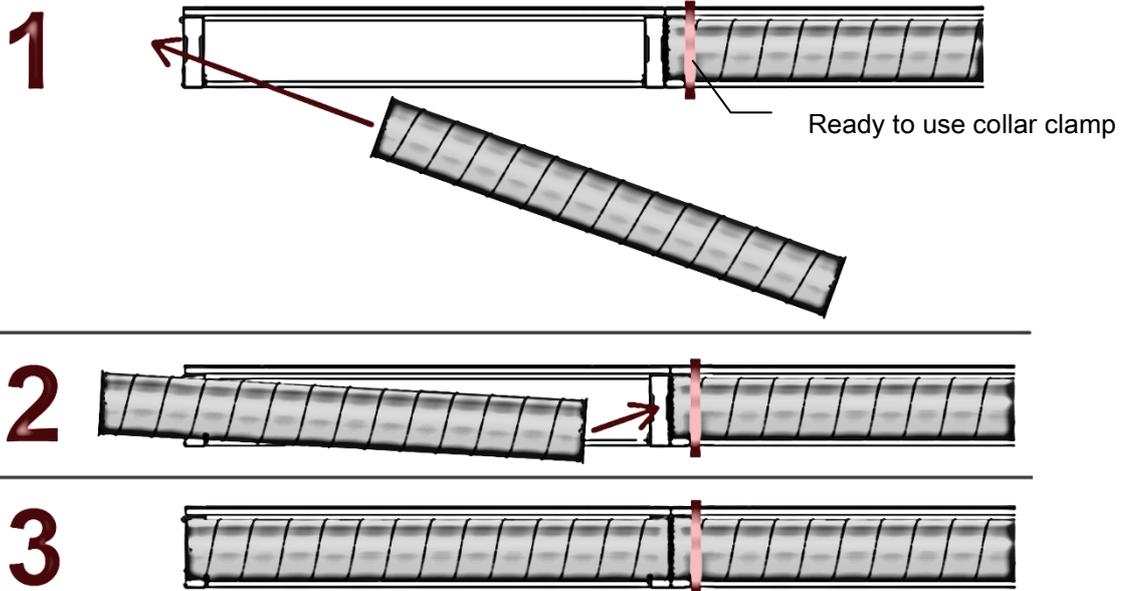
Make a continuous mastic joint inside each *clamp collar*.

Insert the *clamp collar(s)* thus prepared in the *pipe(s) of the radiant strip module(s)* before installing the *pipes(s) of the following module*.



6.3.4.5. Stages 4 and 9 – Setting-up of pipes

Pipes are set up by the bottom:



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6.3.4.6. Stages 5 and 10 – Tightening of the collar clamps

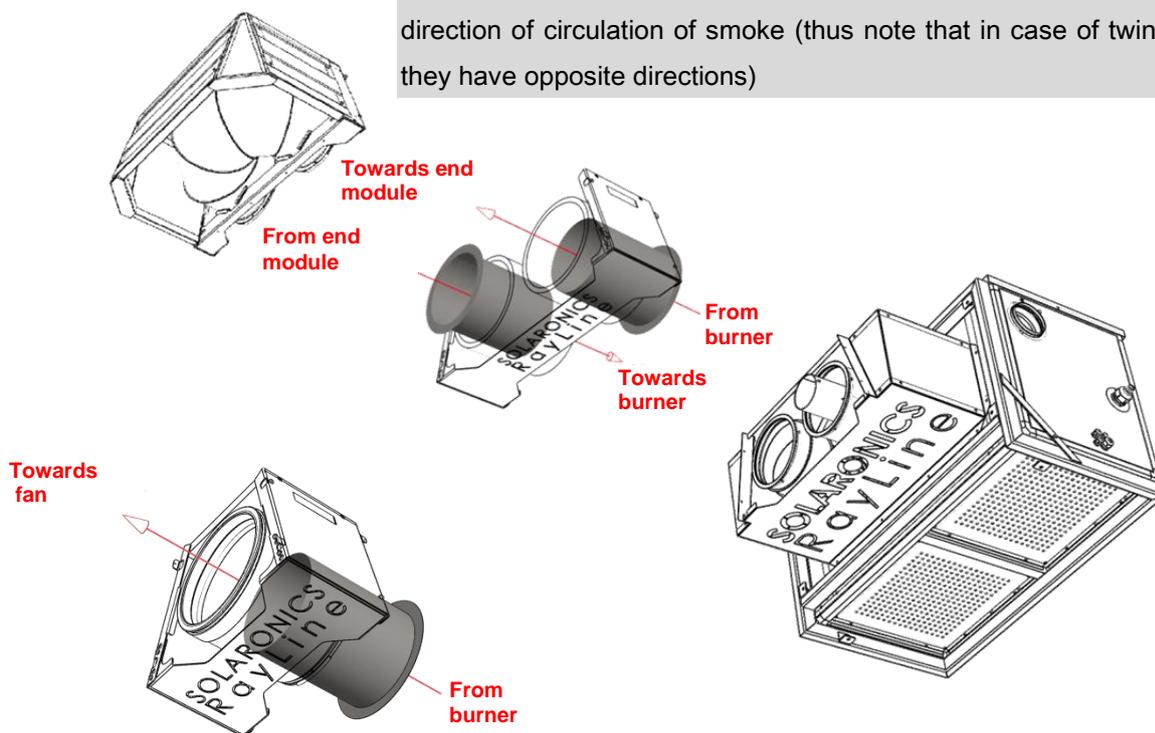
The tightening is made by the bottom by means of the specific *screwing tool* (supplied by SOLARONICS CHAUFFAGE).

For expansion modules sandwich the flange of the *reflector* in the collar (See § « Expansion modules »).

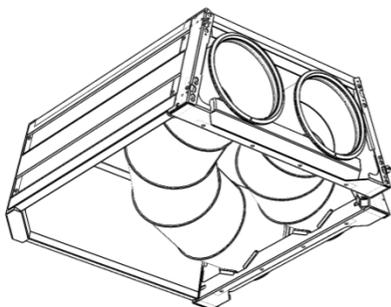
6.3.5. Expansion modules

i SOLARONICS CHAUFFAGE recommends installing an expansion module every 12m for straight line networks, especially on the first tens of meters of the network (the temperature of tubes and thus their expansion are there higher).

! It is imperative to make sure that *reflectors* respect the right direction as described below: they have to be fit in the same direction of circulation of smoke (thus note that in case of twin-tube they have opposite directions)



6.3.6. Bended, upwards and downwards modules



The bended modules (end 180 ° / 90 ° / 45 ° / "T" shape/ "L" shape), upwards and downwards are delivered assembled. Consequently, their setting is made in a single operation.

These modules are provided with a series of hanging points. It will be advisable to choose points suited for:

- making easy the setting,
- making a right leveling of the module.

However, a minimum of 2 suspension points is imperative.



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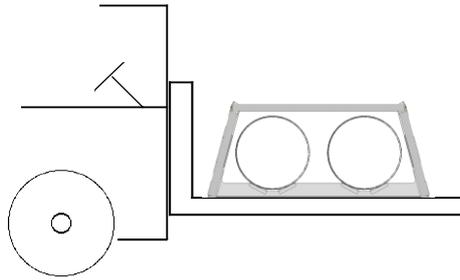
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6.4. Setting-up

6.4.1. Lifting for hanging

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



Anyway great care must be taken for the paint of the sides: install adequate protection on the lifting tool.

6.4.2. Hanging

Before hanging the modules the support resistance must be adequately validated and ensured.

On a general basis the suspensions must be flexible (chains or cables) and the tensions between all hanging points must be balanced.



Authorized hanging devices for hanging:

>Cables of 45 kg mechanical strength

>Chains

If the building is equipped with a lifting crane and/or suffers from structure vibrations then chains are highly recommended.

The suspension length should be > 0.9 m.

Pour chaque module, procéder à un essai de résistance préalable.



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- 26 -

6.5. 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 shall be achieved:

- Either the burner is installed inside the premise (air flow ventilation must then be sufficient) and combustion air is taken from the building ("B" type).
- Either the burner is on the side wall
- Either the burner is installed on the roof (45°)

i Flues, terminals and accessories used must compulsorily be approved, 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



Exhaust ducts must be fixed to the structure of the building, the burner RayLine must not be used as support.



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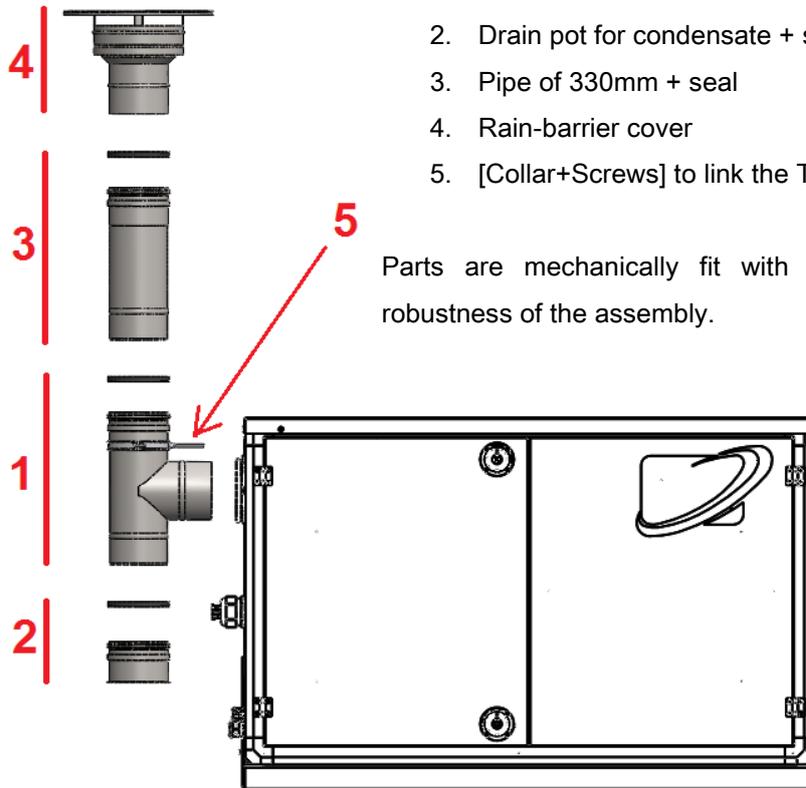
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- 27 -

6.5.1. Chimney kit $\varnothing 130$ mm

At least the burner shall be equipped of *Chimney kit $\varnothing 130$ for RayLine*. This kit includes:

1. T outlet + seal
2. Drain pot for condensate + seal
3. Pipe of 330mm + seal
4. Rain-barrier cover
5. [Collar+Screws] to link the T to the burner



Parts are mechanically fit with collars, this to guarantee the robustness of the assembly.



WARNING

The junctions between pipes must be tight and rigid, make sure all seals are present and all flue pipe collars are tightened

i It is possible to extend the smoke disposal by lengths of 1m, by respecting however the limits fixed in § "technical specifications".

i A variant kit of $\varnothing 200$ mm is also available: the choice of the diameter of the smoke disposal is to be determined during the study.



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6.5.2. Burner installed inside – B type connection

Circuit de combustion non étanche par rapport à l'ambiance.

The combustion air is taken from inside the premise and the flue exhaust is performed outside with a vertical flue pipe, crossing the roof or with a horizontal one, crossing the wall.

The flue pipe must not cross any other room than the one where the burner is installed

The necessary air flow for combustion is as follows:

RSB	65-75	110-130-165	200-220
Minimum fresh air flow <u>for each burner</u>	200 m3/h	300 m3/h	400 m3/h



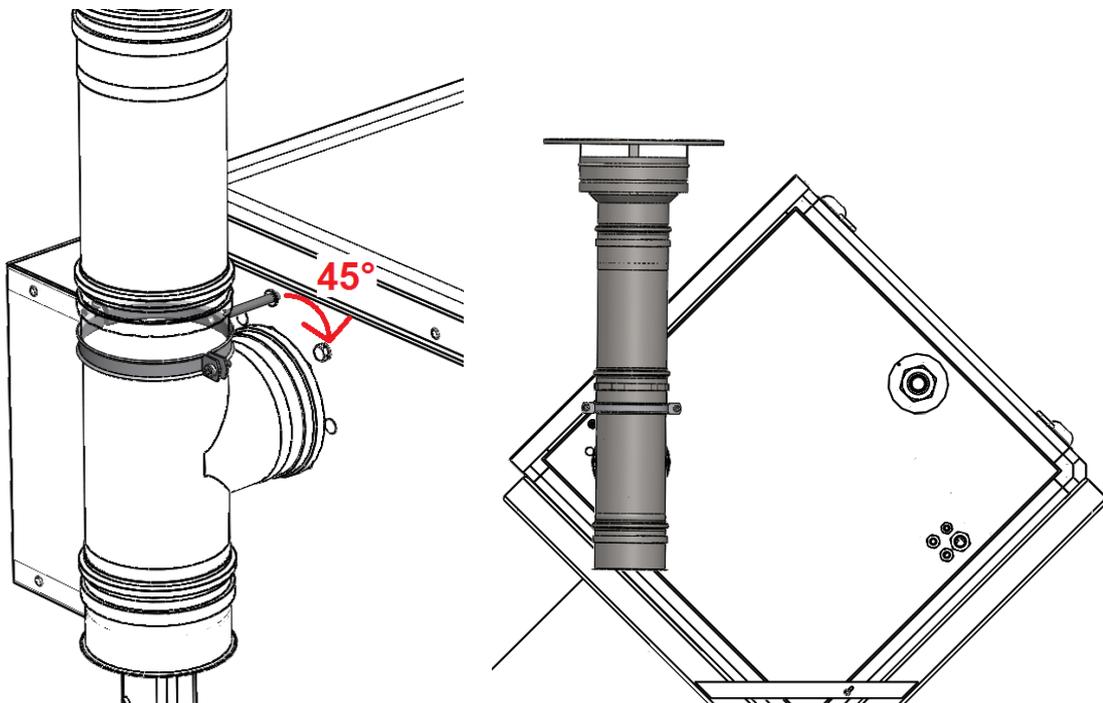
Horizontal flue pipes must be installed with a slight slope (2°) towards the outside for condensate drain.

6.5.3. Burner on the side wall

No particular specification

6.5.4. Roof mounted burner – with 45° angle

Have the T-connection rotated so that it is in a vertical position, then connect the 0.33 flue pipe and the terminal



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6.6. Gas connection

6.6.1. General

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

The gas supply must match the heater output and be equipped with all safety and control devices provided by standards.

A detailed study will be carried out on duct diameters depending on the nature of gas flow and the ducts length. It should ensure that ducts 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.

A stop manual valve must be installed just besides the appliance so that the burner can be complete separate from the gas network for maintenance and repair operations.



WARNING

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

When the burner is installed outside the building, ensure all gas line components (manual stop valve, filter, regulator) supporting negative temperatures and protect them adequately against rain and snow.

6.6.2. Gas connexion kits

Depending on gas pressure, appliance power and installation, Solaronics proposes a range of gas accessories including:

- Manual stop valves
- Filters
- Pressure regulators



1



2



3

(1) Manual stop valve - (2) Gas filter - (3) Pressure regulator

Typical gas connection



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- 30 -

7. Temperature control – Power connection

7.1. Temperature control

Comfort temperature for radiant heaters is measured through a black ball sensor, which determines the resulting temperature between ambient air temperature and radiation from the appliances.

SOLARONICS CHAUFFAGE developed a specific range of temperature controllers. These controllers are delivered wired and with their electrical diagram. Must be additionally foreseen:

- One black ball sensor per burner
- 2 x 1mm² shielded cable to connect the sensor to the controller

The sensor must be installed at man height in a zone protected from cold drafts and also located inside the radiated flux. If the sensor is installed on a cold wall insulate the wall behind the sensor.

7.2. Power connection

7.2.1. Wiring

- Check the available power voltage: 3 x 400V 50 Hz + N + Ground. No voltage between N and ground.
- Install the power supply manual switch (4 poles) near the burner
- Connect the cables to the terminal inside the burner :
 - 3 x 400V 50Hz + N + Ground
 - 1st step contact
 - 2nd step contact (models RSB 110 and above)
 - Burner feedback
 - Remote reset
 - Thermal protection remote reset (optional)



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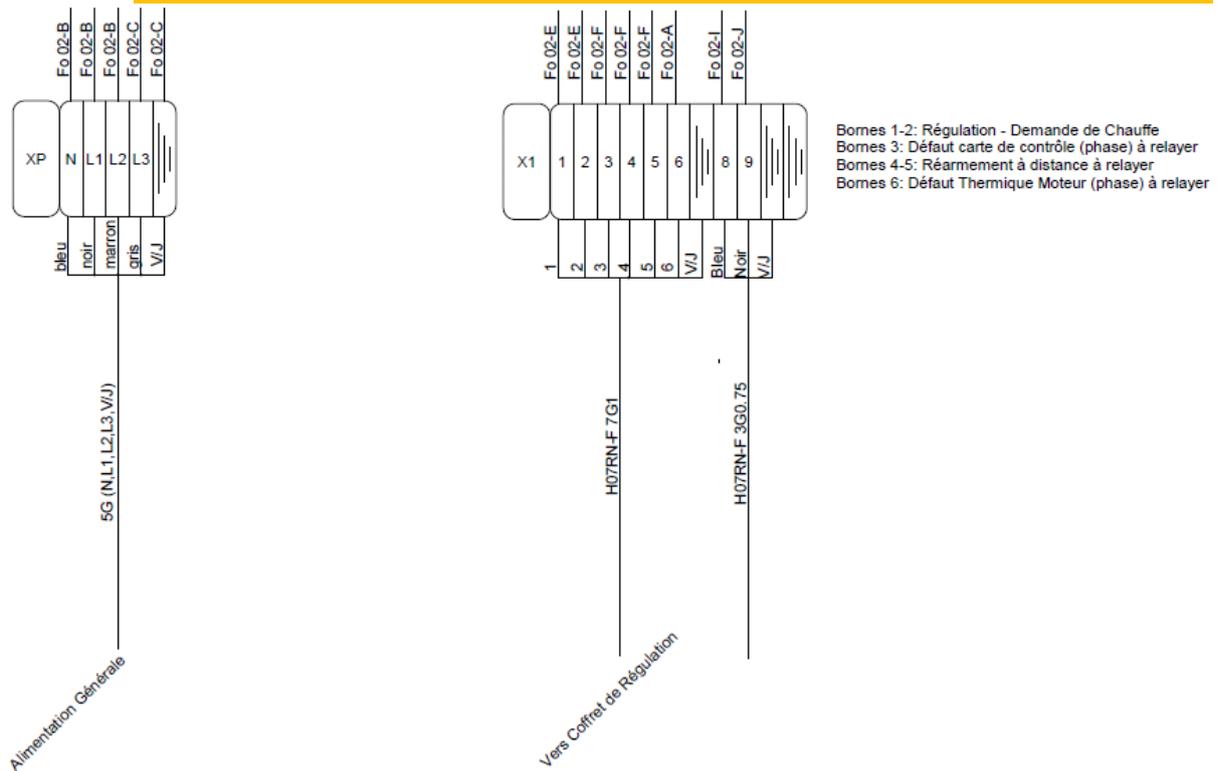
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- 31 -

7.2.2. Electrical drawing

7.2.2.1. RSB 65-75



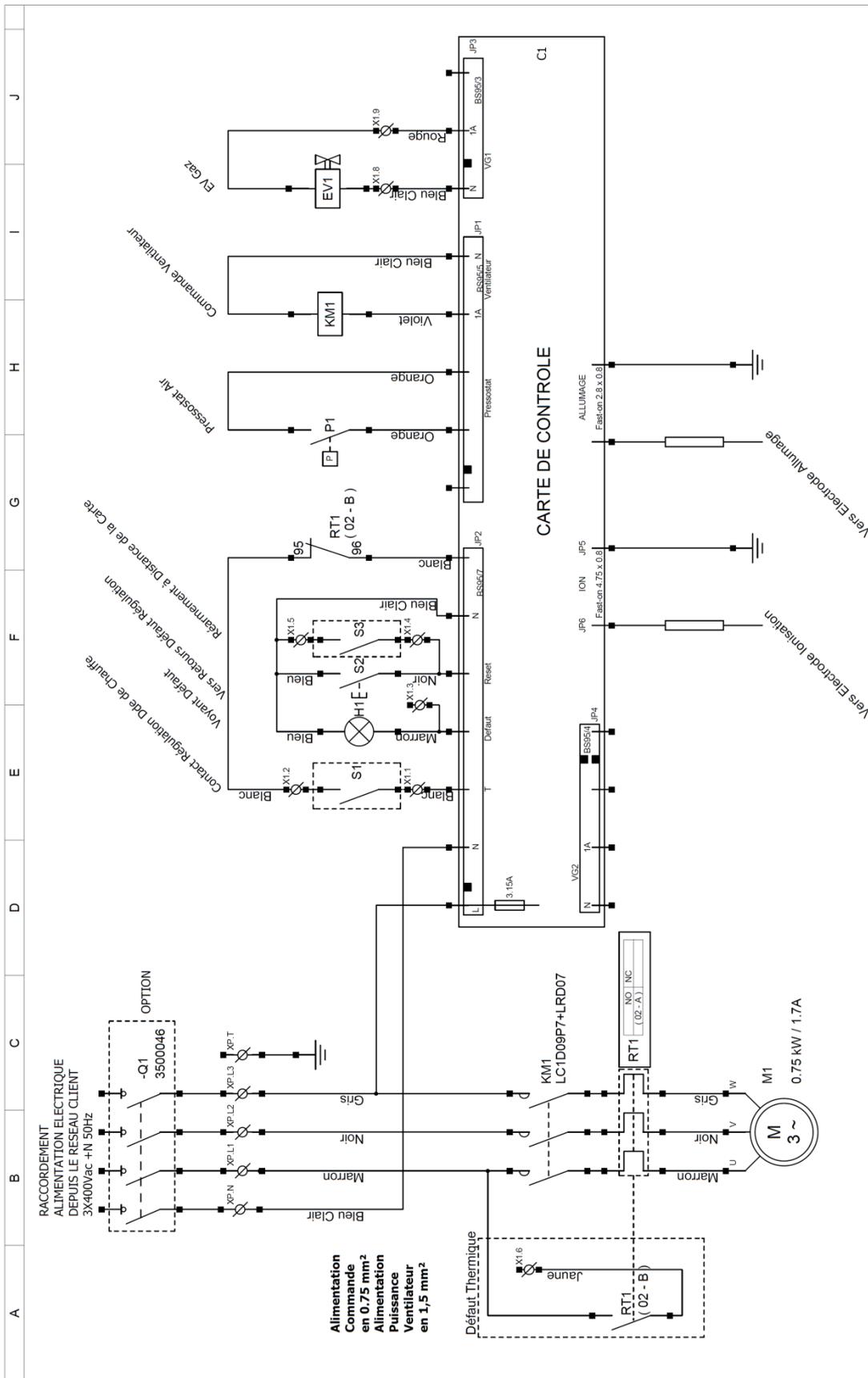
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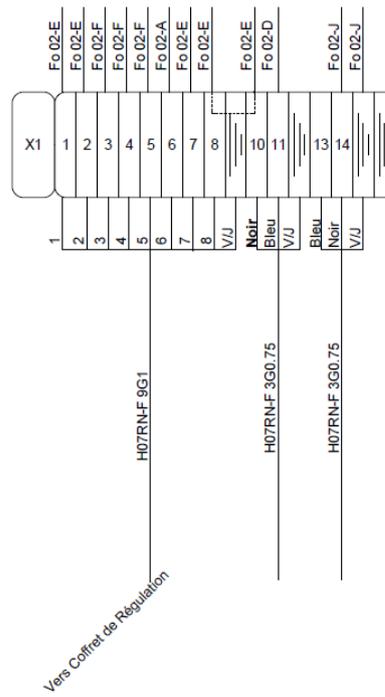
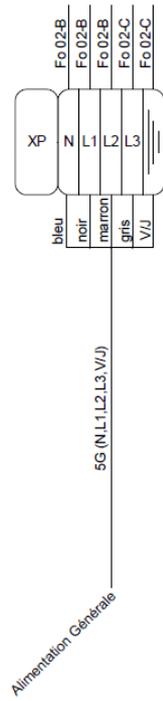
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7.2.2.1.



<p>PRODUIT: BANDE RADIANTE RSB 65-75</p>	
<p>DESIGNATION: BOITIER DE CONTROLE</p>	
<p>8710903D</p>	<p>02 / 04</p>



Bomes 1-2: Régulation - Demande de Chauffe
 Bomes 3: Défaut (phase) à relayer
 Bomes 4-5: Réarmement à distance à relayer
 Bomes 6: Défaut Thermique Moteur (phase) à relayer
 Bomes 7-8: Régulation - 2nde Allure de Chauffe



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8. Commissioning

8.1. Start

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

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

Check also:

- Distances around the radiant strip and burner are respected
- That all electrical components connections are made
- That earth connection is effective

2 - Check that the power supply is switched on. Check the supply voltage at the heater terminals. The voltage value must be between 340 V and 440 V (AC). Check that no voltage is present between neutral and earth. Check the fan rotation direction (anticlockwise)

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 valve upstream of the appliance.

4 - Check the premise temperature controller and that no sensor is faulty

5 - Switch on the heater

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

- The heater starts and goes full power.

Note: The appliances are factory preset, however the setting values can be corrected. This correction may be necessary when the devices 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 Adjustment

6 - Set the controller ( refer to the specific manual)



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- 36 -

8.2. Burner adjustment

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.

Remark: the only adjustment is injector pressure at nominal maximum power, do not modify the settings of progressive start or first step without written agreement from SOLARONICS CHAUFFAGE



WARNING

Check for gas leaks after each intervention.

Tools needed:

- Screwdriver (slotted)
- 8 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)

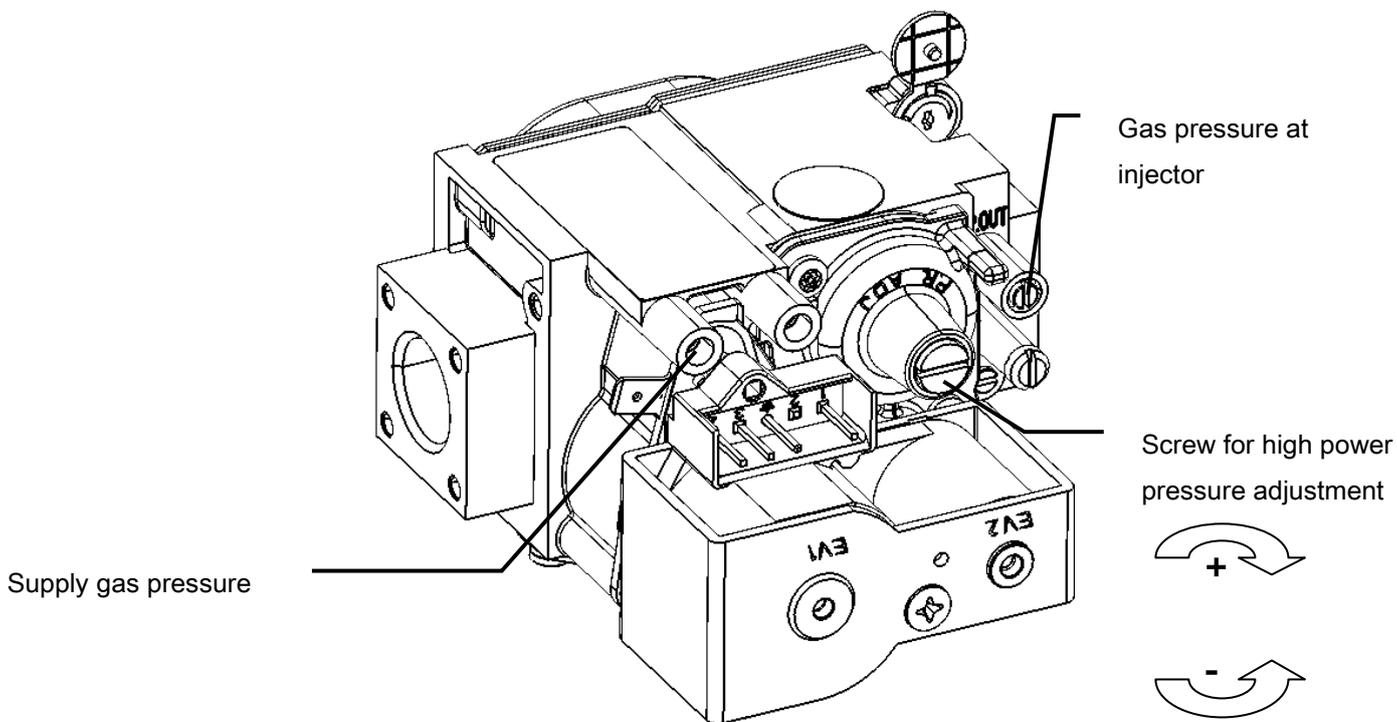
- Check gas supply pressure (see table)
- After 2 minutes of operation, check the gas pressure at the injector
- Adjust the injector pressure value with the screw/nut according to the table below.
- Once the low flow setting done, return to normal control



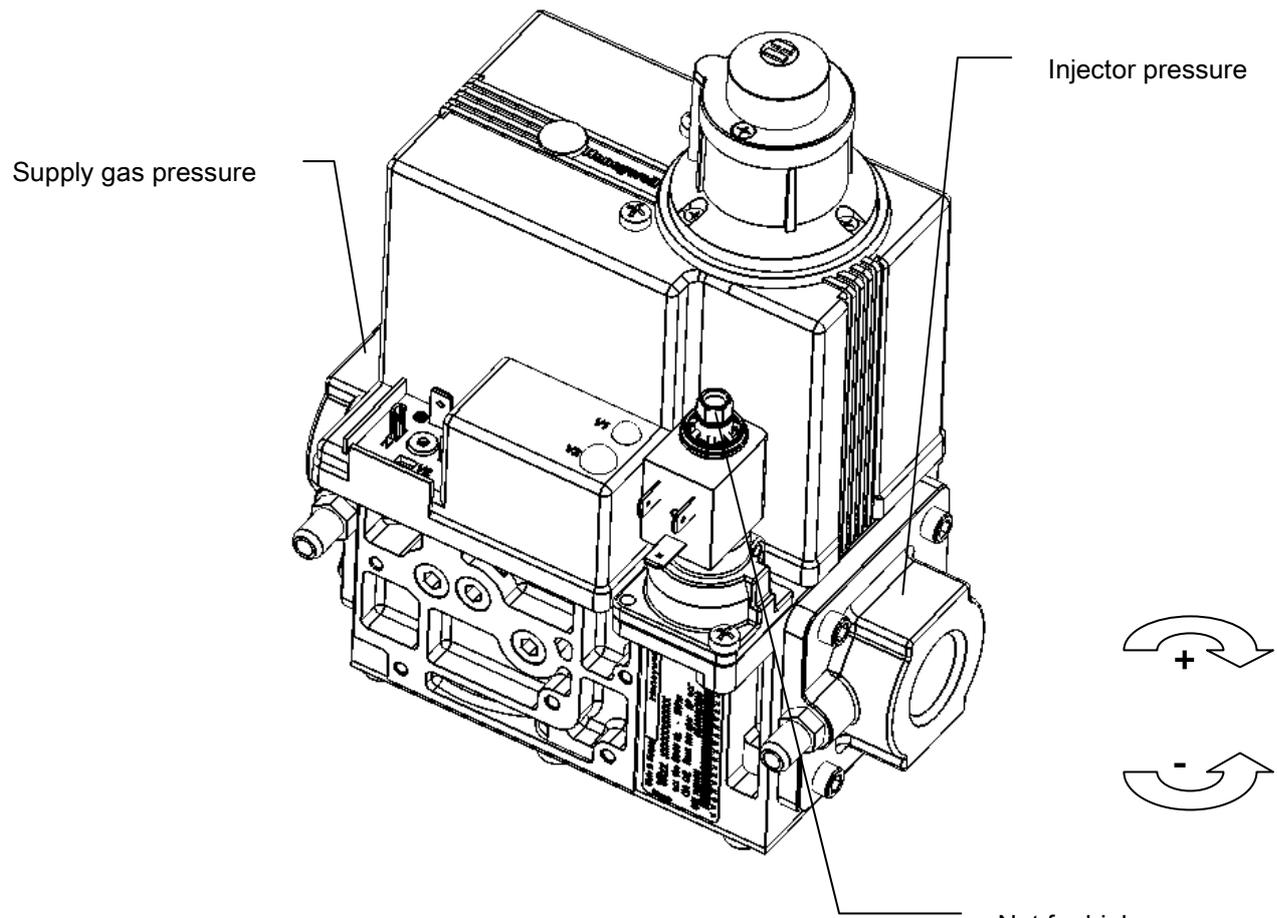
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RSB 65 – 75 burners



RSB 110 – 130 – 165 – 200 – 220 burners

9. Repair

9.1. Repair

In case of problems, the prerequisites for the proper functioning of the RayLine § "Start" must be met.

If the burner control is locked out, reset the burner with the switch (or remote through the controller)



WARNING

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

Troubles		Causes	Solutions
Burner control unit and ignition	Burner and fan		
Burner defect immediately after first step contact is closed		<ul style="list-style-type: none"> - Solenoid valve not plugged or defective - Ionisation electrode defective 	<ul style="list-style-type: none"> - Check the wiring, check coil impedance - Replace the electrode
No sparks between ignition electrode and ground	Fan is not running	<ul style="list-style-type: none"> - No voltage - Thermal protection tripped 	<ul style="list-style-type: none"> - Check power supply and appliance connection - Check calibre and reset the protection
	Fan is running	<ul style="list-style-type: none"> - Defective pressure switch - Pressure switch tube unplugged - Ignition electrode at ground - Ignition electrode wrong plugged or ground problem - Defective burner control unit 	<ul style="list-style-type: none"> - Replace pressure switch - Plug the tube - Replace the ignition electrode - Check the connexions - Replace BCU
Ignition cycle is correct with sparks between ignition electrode and ground	Burner does not ignite at first try	<ul style="list-style-type: none"> - No gas 	<ul style="list-style-type: none"> - Open the manual valve - Purge the gas piping from air
	Burner does not ignite at second try : defect	<ul style="list-style-type: none"> - Wrong gas pressure - Clogged gas filter - Clogged injector - Wrong injector - Solenoid valve defective 	<ul style="list-style-type: none"> - Check/adjust gas pressure at inlet - Clean the injector - Check injector diameter according to the table - Replace the solenoid valve



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Troubles		Causes	Solutions
Burner control unit and ignition	Burner and fan		
	Burner ignites, and shuts off after less than 60 seconds	<ul style="list-style-type: none"> - Wrong pressure at injector - Wrong injector - Wrong position of ionisation electrode - Ground problem - Defective burner control unit - Neutral is not at ground 	<ul style="list-style-type: none"> - Check/adjust pressure at injector - Check injector diameter according to the table - Correct the position - Check the connections - Replace the BCU - Correct the electrical installation
	Burner ignites, and shuts off after more than 120 seconds	<ul style="list-style-type: none"> - Radiant strip is not air tight - Flue pipe is not air tight 	<ul style="list-style-type: none"> - Check for leakages and repair - Check for leakages and repair



WARNING

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

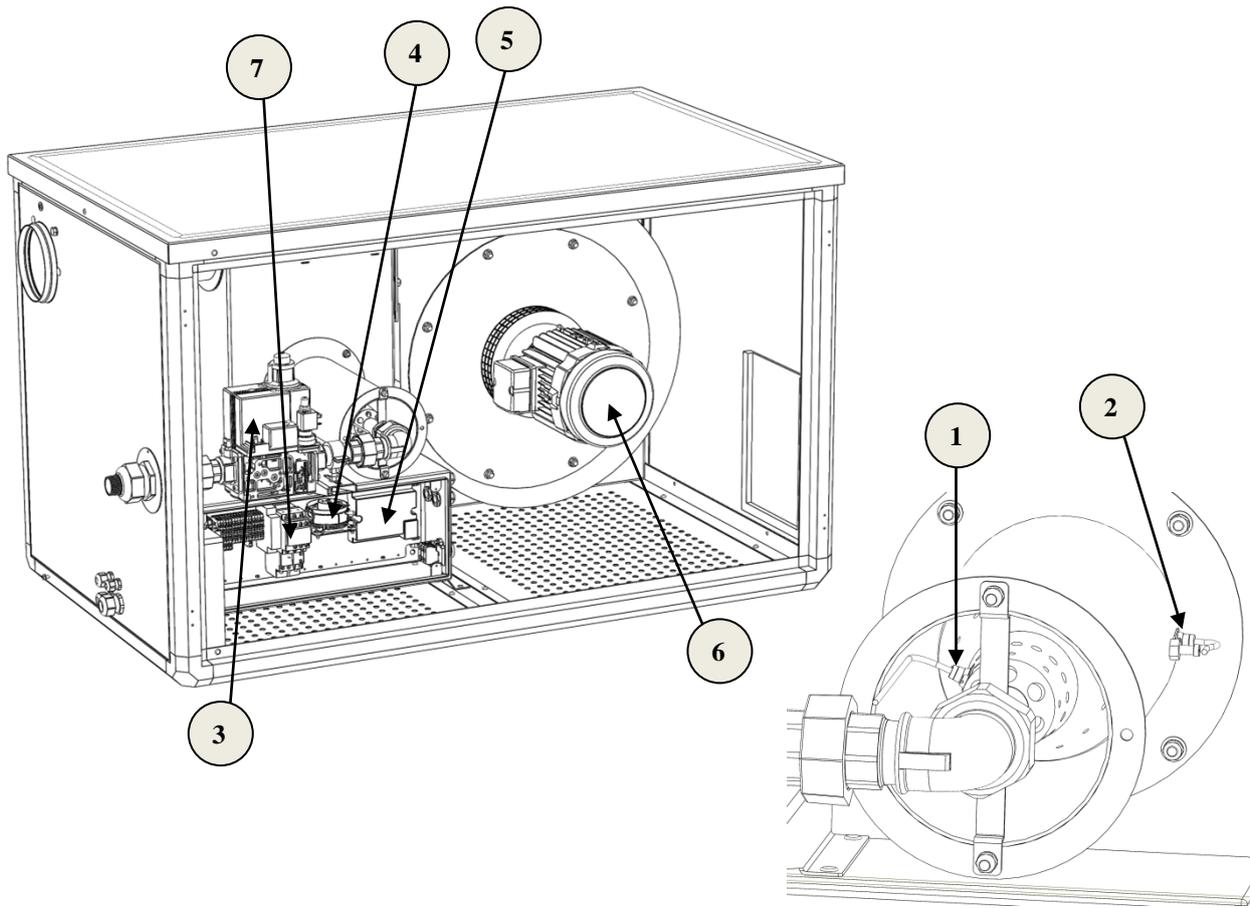


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9.2. Spare parts



N°	Désignation	RSB 65-75	RSB 110	RSB 130	RSB 165	RSB 200-220
1	Ignition electrode	9412007	8750006			
2	Ionisation electrode	8750005				
3	Solenoid valve	9421380	8750030			
4	Pressure switch	9422012	9422021	9422022	9422023	9422024
5	Burner control unit	8750000				
6	Electric fan	8720061	8720071			8720070
7	Fan contactor	0074745				
8	Fan thermal protection	0074746	0074747			0074748



WARNING

Please contact SOLARONICS CHAUFFAGE before replacing any other part.



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10. Maintenance

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

Always fill-in the maintenance book that is inside the burner: trace all maintenance operations and replaced parts



WARNING

The gas device must be maintained cold and with electric power cut
These works can be performed only by a qualified technician.

Parts	Maintenance operations
Flue	Check the flue pipes and empty the pot. Flues shall be smoke-tight and corrosion-resistant. They shall be yearly inspected
Radiant strip	Visual inspection: no damaged heating tubes inside the premise.
Burner	Clean the burner and injector using a brush or vacuum cleaner.
Ignition / Ionisation	Check the clogging state and clean electrodes with a solvent if required.
Fan	Check aspect, free rotation without any resistance. Replace the bearings every 5 years.
Pressure switch	Check it functions properly.
Combustion	Check the gas pressures at supply and injector, and compare to previous inspection report. During the control make sure that the sensor is tightly connected to the analysis hole and sensor in the axis of the flue pipe.



WARNING

Always set the unit back in function after the maintenance operations.



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11. Warranty

Your appliance has a contractual guaranty 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:

- legal and regulatory provisions or imposed by the local authorities,
- national, or even local and specific guidelines governing the installation,
- our manuals and installation instructions, in particular, for maintenance of the appliance,
- with the technological standards.

SOLARONICS CHAUFFAGE warranty is limited to replacement or repair of defective parts only by our services excluding labour 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/EC remain valid.



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- 43 -

APPENDIX

End of life of equipments

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 safety

Keep ventilation in good condition:

- Keep free and clear air inlets and outlets (grilles, vents ...)
- Check yearly flue pipes.

Maintain the appliance:

- 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 good reflexes

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 premise where the gas smell is perceived, ventilate this premise 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
Available upon request**



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