



## TECHNICAL INSTRUCTION

### RADIANT STRIP

# TUB-ONE

80 - 200



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TECHNICAL INSTRUCTION – RADIANT STRIP  TUB-ONE 80-200 - NT09002A-GB

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## SECTION 0 – GENERAL INFORMATION

### Introduction

We thank you for choosing a **SOLARONICS Chauffage** product and inform you that:

- The aim of this guide is only informative and can be subject to variation without warning;
- This guide cannot be partially or entirely reproduced, diffused, copied or saved in a storage system in any form or in any media, mechanical, magnetic, optical, chemical or others, without written authorisation by **SOLARONICS Chauffage**.
- This guide must be kept until the final decommissioning of the product and, in case of change of ownership of the heater, must be handed over to the new owner.
- In case of damage and consequent failure of the product, **SOLARONICS Chauffage** will not accept liability for any consequential failure or loss due to failure of the product and will not extend the warranty.

**This installation and service manual should be considered part of the product and must be kept for the entire life of the product.**

These instructions should be carefully read before installation and or use of the product.

### Information for users

This guide is an integral part of the product and must be easily accessible to both user and authorised maintenance personnel.

The authorised maintenance personnel are obliged to understand the contents of this guide before putting the product into use.

In case of loss or damage of this guide please contact the Technical Department of **SOLARONICS Chauffage** for a copy. Please quote the identification data for the system as found on the product data plate.

**SOLARONICS Chauffage does not accept any liability for damage or loss caused by:**

- *incorrect or inappropriate use of this product,*
- *incorrect installation,*
- *inappropriate electrical or gas supply,*
- *inappropriate or modified installation environment from the one given at order stage,*
- *poor maintenance, unauthorized modifications, use of incorrect and/or unauthorized spare parts, removal of active and passive protection of the appliance,*
- *lack of observance of the user instructions, carelessness, etc.*

The product is manufactured in accordance with the following CE directives:

- *Machine directive 98/37/CE,*
- *Low Voltage Directive 73/23/CE,*
- *Electromagnetic Compatibility Directive 89/336/CE,*
- *Gas Devices Directive 90/396/CE.*

It is absolutely forbidden to modify the products and its application.



## SECTION 1 – TECHNICAL DATA

### 1.1 Product identification data

The main identification data of the product (serial number, model, etc) is recorded on the data plate on the product.

*In case of technical assistance or spare parts request, please quote the product model and serial number.*

### 1.2 TUB- ONE radiant strip introduction

The RCF 80 - 200 series is an independent heating system that can be installed both on the ceiling and on the wall. The range consists of heaters with burners giving outputs between 80 and 200 kW and a maximum length of 120 metres. They take advantage of the electromagnetic heat wave transmission principle in the infrared spectrum, heating solid elements and avoiding heat absorption by the layer of air between the floor and the heater during start up.

The thermal energy flux directly heats people, floors and structures that return heat by convection to the air around them, guaranteeing a comfortable microclimate.

Even though the Tub-one uses the same principle as modulated radiant tube heaters, it differs from them by the lower surface temperature of the radiant strips and by the different horizontal geometrical formations possible. Moreover the advanced combustion and flue recycling system employed by Tub-one means that it produces very low atmospheric emissions of CO and NOx, and makes the system very fuel-efficient.



### 1.3 Technical characteristics

Burner type			RCF 80	RCF 100	RCF 150	RCF 200
Nominal thermic capacity (P.C.I.)		kW	80	100	150	200
Heat Output		kW	72	90	135	180
Type of flues discharged			B <sub>22</sub>			
Category	G20 (gaz naturel)		I2H			
	G31 (Propane)		I3P+			
NOx class		G20 (gaz naturel)	3	3	3	4
		G31 (Propane)	3	3	2	3
Consumption	Natural gas H - G20 (Hi) 9,45 kW/m <sup>3</sup>	m <sup>3</sup> /h	8,5	10,4	15,6	20,8
	Propane - G31 (Hi) 12,88 kW/kg	kg/h	6,0	7,6	11,0	15,0
Ø Gas connection		“	1“	1“	1“ <sup>1/2</sup>	1“ <sup>1/2</sup>
Ø Nozzles	Natural gas - G20	mm	9,00 <sup>(3)</sup>	9,00 <sup>(3)</sup>	12,00 <sup>(2)</sup>	12,00 <sup>(2)</sup>
	Propane - G31		5,30	5,30	9,00 <sup>(3)</sup>	9,00 <sup>(3)</sup>
Gas burner Pressure	Natural gas - G20	Mbar	5,5	9,5	7,0	14,0
	Propane - G31		22,0	30,0	6,0	12,0
<b>Partition</b>	Natural gas - G20	mm	-	-	10,5	10,5
	Propane - G31		-	-	9,6	9,6
Ø Flues duct		mm	100		150	
Net pressure flues discharge		Pa	60	40	60	40
Mass flues flow – Natural gas		g/s	120	120	234	242
Mass flues flow - Propane		g/s	126	160	273	248
Supply voltage		-	400V. - 50 Hz (3N ~)		400V. - 50 Hz (3N ~)	
Maximum current		A	3		10	
Maximum electrical power absorbed total		W	1 200		4 500	
Protection grade		IP	43		43	
Weight – Burner		kg	85		170	
Weight – 4 meters radiant section		kg	80		80	
Weight – 2 meters radiant section		kg	40		40	
Total section length ( Min. – Max.)		m	50-70	50-70	70-100	80-120

**Table 1 – Technical characteristics**

Nominal pressure Gas Supply	2 <sup>nd</sup> family gas, G20 – Natural gas	20 mbar
	3 <sup>rd</sup> family gas, G31 – Propane	37 mbar
Do not use this product if gas pressure is not between:	G20 – Natural gas	17 ÷ 25 mbar
	G31 – Propane	25 ÷ 45 mbar
Do not use this product if gas pressure is not between:	G20 – Natural gas	17 mbar
	G31 – Propane	25 mbar
If the pressure is higher than: <b>It is necessary to install</b> pressure regulators to bring the pressure in line with the required values.	G20 – Natural gas	25mbar
	G31 – Propane	45 mbar

**Table 2 – Gas network supply pressures**

NOTES: 1) – the data refers to the maximum length of the radiant strips  
2) – without nozzle (direct)  
3) – Threaded hole G 1/8 “

## 1.4 Application

TUB One radiant strip is an independent suspended gas fired radiant heater, designed to heat industrial and commercial premises, sports centres and any large volume non-domestic environments subject to current legislation.

The heat output, quantity of units, height of installation (minimum 4 metres from the floor) and the position of the heaters have all to be established through heat loss calculations derived from the system project, and observing current legislation.

***This product must not be used for any application other than the ones it has been designed for.***

***For the system design it is recommended that you contact competent and qualified (Planning offices and/or qualified).***

## 1.5 Description of TUB-ONE Radiant strip

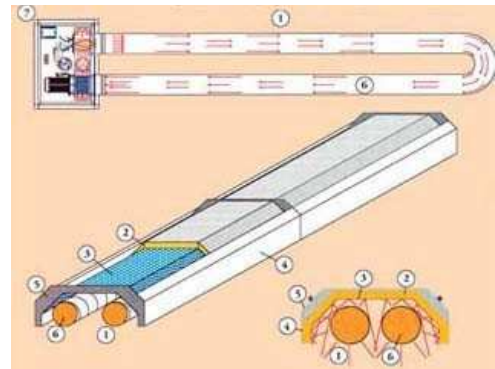
TUB One radiant strip is an independent suspended radiant gas heater, using methane or propane gas. It is composed of a burner, and a radiant heat distribution system, consisting of special radiant sections.

The burner, main structure made of steel and side panels of stainless steel, contains the combustion group, the ventilation group and the electric switchboard with control and security organs; it is supplied complete of hanging brackets made of stainless steel necessary for its internal or external installation.

The radiant section is composed of a series of modules of variable lengths (2÷4 metre each) that connect together through appropriate brackets inserted in the modules.

Every module is made with special tubes, realised in aluminised steel, on which is positioned a special aluminium insulation panel with high reflective power; the main structure is made of painted laminated steel, it sustains and contains all the components.

The steel tubes are connected with special nipples (patented system). These are provided with special high temperature resistant elastic that is kept into position through collars hooked to the main structure of the section. This solution permits to compensate the expansion due to the module heating, so that they do not cause dangerous expansion and tensions without using sealing compounds or putties and obtaining a long duration guarantee.



## 1.6 Working principle

Heat production occurs through a special air vein burner, assisted by security and command systems, it has been preset and tested in the factory. The ventilator was studied and built purposely to put the entire radiant tube system in depression against the environment, to draw the necessary air for combustion, to recycle the combustion products (to even the temperature inside the tubes) and to expel the combustion flues through a flues discharge duct.

The combustion system is constantly controlled by an electronic device that at every request of heat starts the electro ventilator, to verify the depression inside the radiant circuit, to light the burner, to verify the correct presence of the flame and in case of anomalies to stop immediately the burner's gas flow putting it into a security block.

The radiant section, kept at an average temperature of 250°C, transmits to the surrounding environment the requested heat, helped by a glass wool panel covered on both side by aluminium with high reflection capacity that is positioned on top of the radiant tubes, the latter are treated with special black paint with high radiant emission coefficient.

Temperature regulation will be handled by an electronic data acquisition device, through a black bulb sensor positioned in the heated environment, controlling the temperature by managing the burner's phases depending on the set parameters and the working hours.

## 1.7 Electrical network

*Electrical network shall comply with regulation and norms.*

*It is absolutely forbidden to modify the switch-board.*

*It is absolutely forbidden to extinguish fires with water.*

*During the use of the system, do not touch the tubes – Burns danger.*

*During the use of the product, do not touch the ventilator – Mechanical danger.*

## 1.8 Improper use

**The unit can't be used for different scopes than the one stated in the paragraph 1.3 of this guide.**

*It is absolutely forbidden to install the product in environments with danger of explosion and highly inflammable materials.*

## 1.9 Standard accessories

The unit is provided with the following equipments:

### 1) Combustion group

Complete of special air vein combustion head, stainless steel combustion chamber, double shutter multifunctional gas group, air pressure switch, fume recycle ventilator, fume discharge valve, security and control electronic module, wired internal electric network, containment box and stainless steel protection with sealed inspection opening.



## **2) *Straight radiant sections***

Lengths of 2 or 4 meters, each one is composed by 2 exchange tubes made of aluminium steel that have  $\Phi$  250 mm, aluminium reflecting panel to optimise the heat reflection, top glass wool insulation, suspension and containing external structure, special tube connection devices. \*

## **3) *90° radiant sections***

Each one with 2 exchange tubes made of aluminised steel that have  $\Phi$  250, aluminium reflecting panel to optimise the heat reflection, top insulation made of mineral wool, suspension and Containing external structure, special tube connection devices. \*

*\* The number of straight and curved radiant sections is established taking into consideration the development of the system and the power of the burner in relation to the dimensions of the premises to be heated.*

## **4) *Fume discharge terminal made of stainless steel***

## **5) *Fume duct* L.250 mm. with fume drawing, made of stainless steel**

## **6) *Burner's support bracket* made of stainless steel**

## **7) *External grey putty cartridge* for sealing**

## **8) *High temperature resistant black painting* for touching up**

## ***Optional accessories:***

- *Fume duct*
- *Temperature control and electronic switchboard*
- *45° curved radiant sections*
- *Special radiant sections*
- *Aluminium reflector* for straight and curved sections



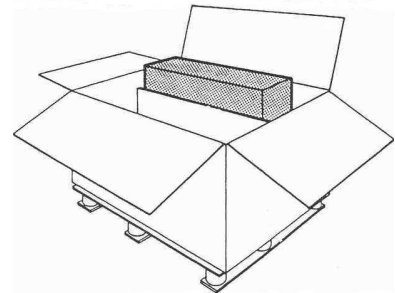


## SECTION 2 – PACKING, LOGISTIC AND TRANSPORT

### 2.1 Equipment receiving

When the package is delivered to the client, the latter is obliged to control the integrity of the product.

Control the package and its contents, in case of damage due to the transport, the client has to tick damage claim box on the transport document, this has to be countersigned by the carrier and a copy has to be sent to **SOLARONICS Chauffage**.



### 2.2 Logistic and transport

Pay high attention handling the TUB-ONE units during the phases of downloading from the carrier, logistics and positioning, to avoid damages to carpentry and to the most delicate components (tubes, fans, etc.).

### 2.3 Lifting

Ensure that the maximum lifting power of the lifter is adequate to the products weight. The product has to be lifted only by qualified personnel. Pay maximum care in handling the radiant strips while downloading from the carrier, positioning and the assembling the sections, to avoid damages.

*If lifting people the machinery has to be specifically certified and used by qualified personnel.*

**It is absolutely forbidden to stay under the hanging loads and inside the action area of the lifter.**

### 2.4 Unpacking

Carry the radiant tubes units in the installation area. Free all the wrapped components from the packaging and collect everything to prevent the potential danger of fire and suffocation of people or animals.

***Packaging material discharge has to be done in specification to the norms applicable in the destination Country of the TUB One.***

### 2.5 Storage

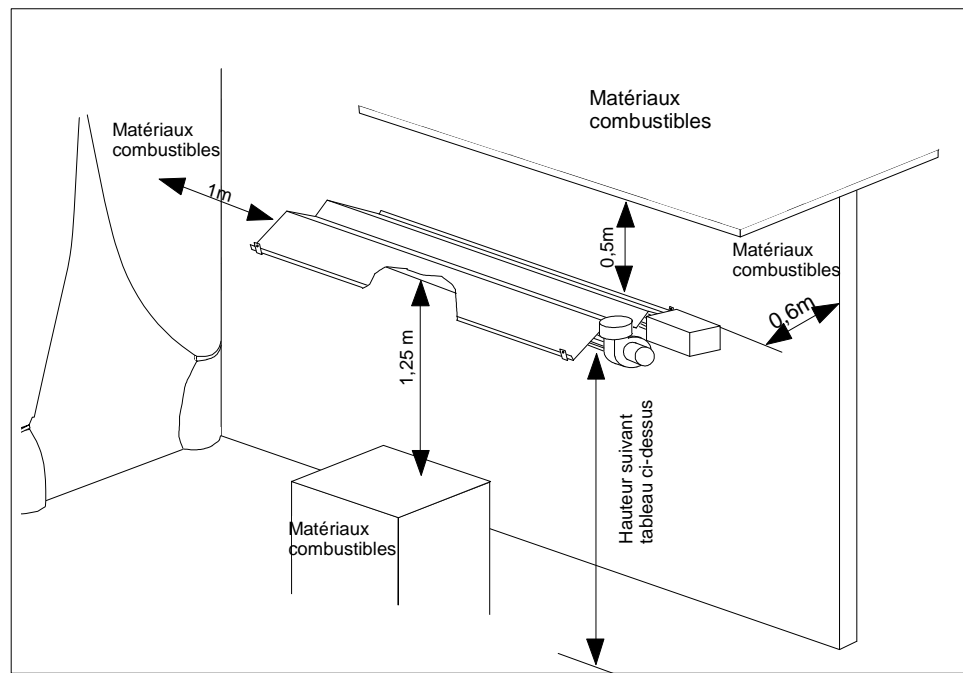
The temperature during transport and storage has to be between -10 and 50 °C. Whenever the TUB-ONE units are stored, it has to be ensured that the relative humidity in the storage is between 5% and 95%..



## SECTION 3 – INSTALLATION and TESTS

### 3.1 General warning for installation

The installation of the TUB-ONE should be performed by qualified personnel following the instructions in this manual and the usual rules and standards



The distance between the ground and the radiant must be at least 4 meters.

Before starting the installation of radiant systems TUB-ONE it is necessary to ensure that all components have been unpacked and are in good condition.

### 3.2 Installation

The materials and personal lifting machinery must be available on the settlement and have a lifting capacity sufficient.

*The staff for the facility will be trained, must wear and use protective equipment in accordance with existing regulations, safety shoes, gloves, helmet, harness, goggles etc ...*

*Before positioning the elements, check that they are not in contradiction with the use of wrecking cranes, cranes ...*



### 3.3 Positioning the burner Box

**To install the unit follow the instructions below:**

The burner has to be installed by using the provided suspension bracket, in case of impossibility to use it or if it is necessary to modify it, consult **SOLARONICS Chauffage**.

Do not position the unit directly on the floor, roofs, etc. keep the burner lifted of at least 50 cm., height depends by the weather of the installation area (it is necessary to take into consideration eventual snow falls). On the bottom part of the unit there are the openings for the combustion air to enter: do not block or reduce these openings, they are essential for a correct functioning of the unit.



Identify the height and position of the radiant strip by comparing it with the internal plan of the premises; sign the correct positioning of the combustion group on the external wall.

Reproduce the measures indicated in the attachment section on the wall: drilling template: sign the referral holes for the fischers (or tiranti through the wall) and the opening for the tubes to pass through.

Carry out the holes to put in the fischers taking care to chose the correct ones relating to the wall composition, taking into consideration the weight of the combustion group (see page 5).

(It is suggested the use, for example, threaded bars Ø 12mm. through the wall and counter plates on the internal wall)

Firmly fix the bracket to the wall and seal with putty in the external contact area with the wall to avoid possible water infiltrations.



Lean the burner on the bracket and push it to the shoulder, inserting through the hole in the wall the combustion group.

Fix the burner to the bracket with the plates at the side of it and seal with putty on the external area of contact with the wall to avoid possible water infiltrations.

Set up the fume discharge duct, fixing it firmly to the wall and positioning at its extremity the discharge terminal; ensure that the tubes are perfectly sealed.

Predispose the anchor points internally to the building, to the ceiling or to other building's structures, hang precise length chains to sustain the radiant sections. (An anchor point every 4 meters\* starting from the combustion group).

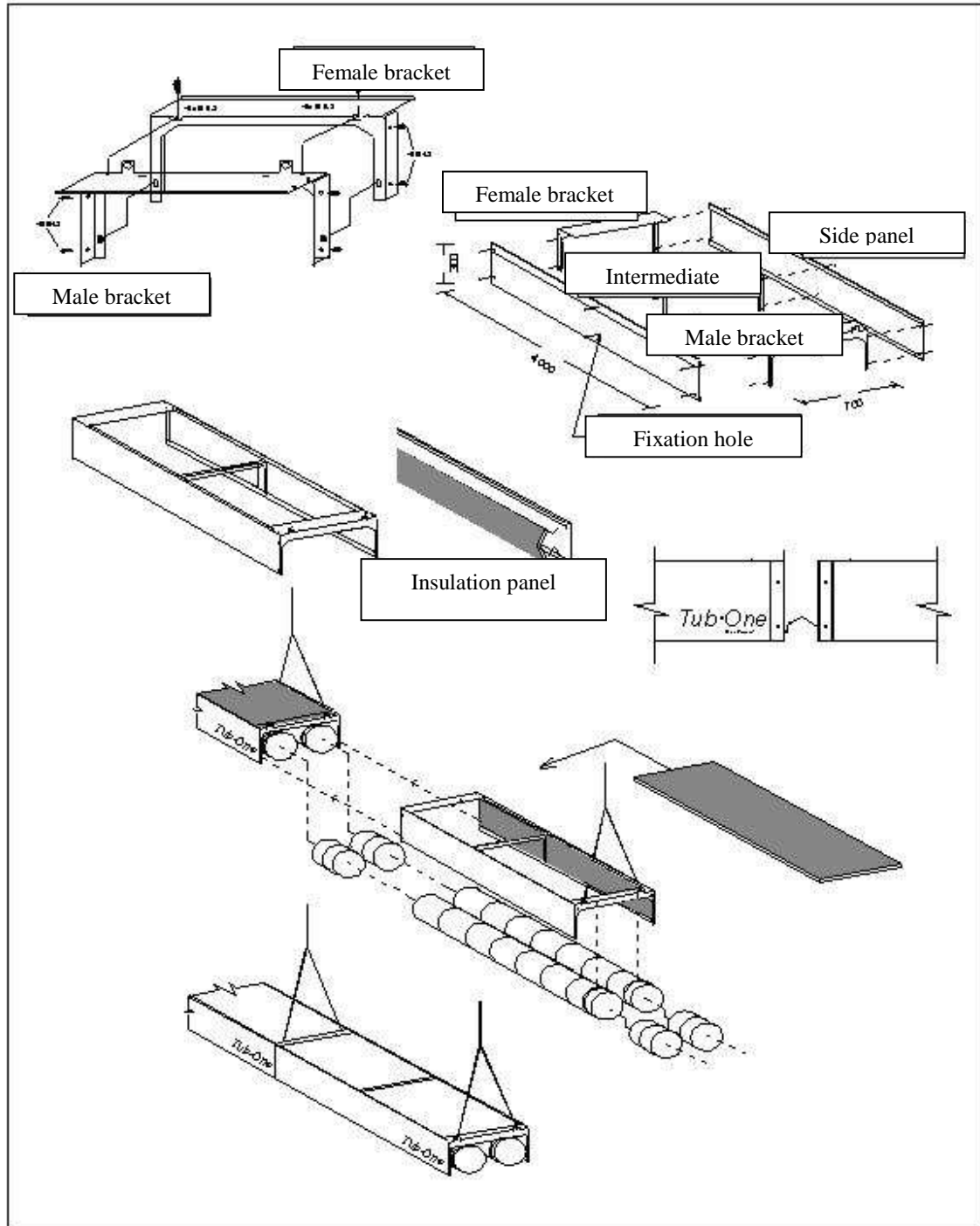
\* (2 meters in case the radiant section is 2 meter long)

***The anchor points have to be chosen in a way that the sustaining chains do not cause excessive strain to the connecting brackets and to the supports of the sections: avoid to create higher angles than 15° compared with the vertical line.***



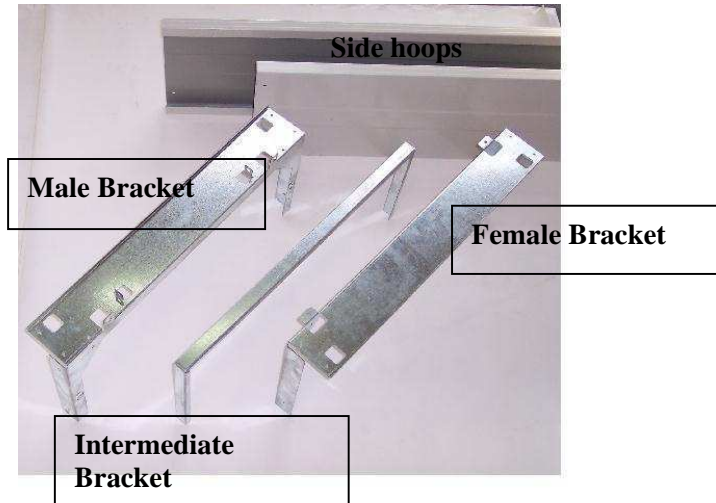
### 3.4 Assembly / Installation of the radiant sections

General pattern assembly



### Details of the process of assembling

Assemble on the floor the radiant section structure by using a male bracket, an intermediate bracket, a female bracket and two side panels.



Realise the matches (bracket – side panel) through the self performing screws provided.



Complete the assembly by inserting the insulation sandwich panels in the sides. Insert at 2 meters (referral: side insulation panel dimension) the intermediate bracket fixing it with the self performing screws

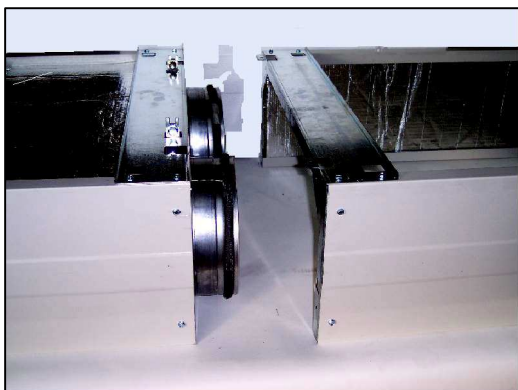


**Peel the eventual protective layer from the assembled components (example: side panels)**





Lift to the installation height the assembled radiant section and hook the female bracket to the male bracket of the burner previously installed, hook the other side to the chains previously prepared.



Fix the brackets with the screws provided.

Before assembling the tubes and inserting the nipple verify that the tubes do not have any deep deformations, squashed borders, metallic burrs; in these cases regenerate the circular status with an suited utensil .

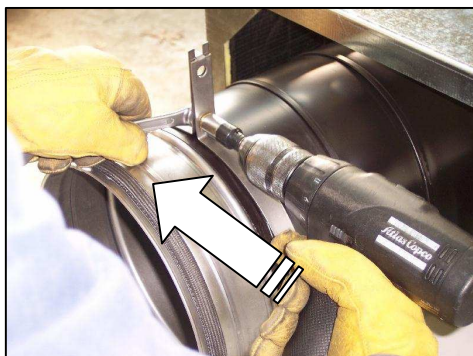
If they are too damaged for use, contact **SOLARONICS Chauffage** for a possible replacement.



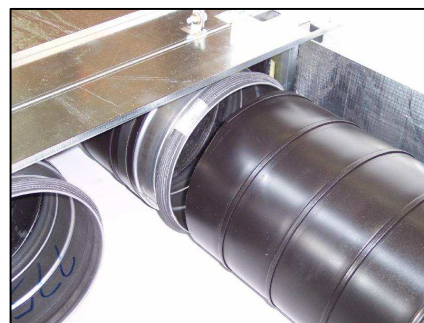
Proceed by inserting the connecting nipple: firstly insert slightly inclined the nipple respect to the tube and proceed to completely insert it by applying alternate pressure with both hands. The connecting nipples have to ensure the sealing of the tubes with the special gaskets, for this reason they have to be of hard insertion in the tube .



On the same side as the nipple assemble the suspensions collars (one for each tube) in correspondence of the edge of the tube.



Block the collars (clamps) to the tube with the bolts and nuts provided.



Lift the tubes at the height of the previously assembled ones; assemble by inserting the free side in the nipple available on the previous section..





Fix the tubes on the opposite side (to the male bracket of the radiant section) with the connecting bolts of the collars previously assembled on them.



The emitter tubes are shorter than the sections ( $1.5 \div 2.5$  cm) so it is not necessary to push them to the shoulder of the previous nipple.



Complete the section by overlapping the superior insulation panel.

Control that the sections are perfectly horizontal and eventually correct their set up with connecting rods to the suspension chains.

Repeat the procedure for the successive radiant sections.

When the assembly is finished control that the single section is horizontal, that the suspension chains are perfectly anchored (both to the section and to the building's structure) and that the tubes anchoring bolts and collars are sufficiently tightened.



### 3.5 Connection to the electric and gas network

***The first start and testing of the electric and gas network connections have to be done by qualified personnel.***

***All the components used for the electric/gas network have to be certified and homologated.***

#### 3.5.1 Gas network connection

The gas supplied to the burner has to be the one indicated on the gas indicator plate, and has to be connected through the predisposed attachment on the burner. (Before attaching take off the closing tap!)

The gas supply pressure has to respect the values indicated in the table in this guide. (Page 5)

If the gas pressure is over the limit of the one indicated in the table, install pressure reducers.

The gas supply system has to be proportional to the gas' nature related to the maximum input power of the burner/s and has to have all the control and security devices prescribed by in force norms relatively to the available user devices, to do this it is necessary to consult with qualified personnel in this field. Any unit has to have the gas-intercepting cock that has to be easily reachable in case of maintenance operations.

To avoid eventual vibration transmittance from the burner to the gas pipes, it is suggested to use a special stainless steel flexible junction.

All the connections have to be sealed with gaskets or other sealing materials suited to the gas used. Before injecting the fuel in the ducts, accurately clean the ducts from any residual material, it is suggested to install an adequate filter.

Once finished the installation of the system test the sealing and eventually eliminate the leaks.

***It is absolutely forbidden to use fire to look for eventual gas leaks during the seal test.  
Do not smoke, use lighters or other fire sources – Fire and explosion danger.***

Before lighting the burner, run off the air that is in the tubes.

TUB One burner units are equipped with gas electro valves suited to work with different network's pressure,

depending on the type of gas used and of the destination country as indicated on the burner's plate and on this guide.

The range of allowed input pressures is stated in "1.3 Technical Data" page 5.





### 3.5.2 Electrical network connection

**In case of power burners at two levels of power, stick with the following instructions but respect the electrical connections shown in the chart on page 29, section 8.6.**

The foreseen supply voltage is:

- **400 V 3N ~ 50 Hz**

Verify that the burner's electric supply corresponds to the one stated on the burner's plate and on this guide..

***The electric connections have to be done by qualified personnel.***

***Before operating on the electric supply cable, be sure that the network has been severed.***

***Foresee an efficient earthing using the terminals.***

Total electric security of the unit is reached only when the latter is correctly connected to an efficient earthing system, carried out as requested by the norms in force.

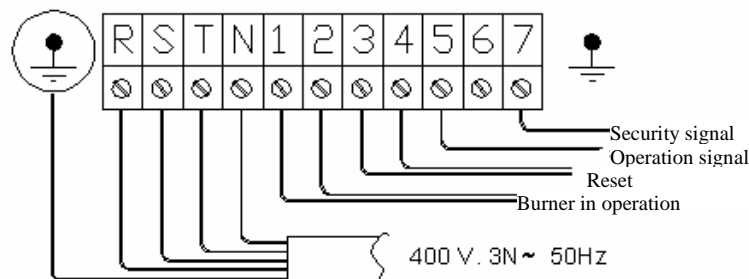
It is necessary to verify this requirement. Do not use gas tubes as earthing of electric devices.

The electric system has to be adequate to the maximum power absorbed by the unit, this is stated on the data plate and in this guide, make sure that the cable diameter is suited to the power absorption of the unit.

Insert between the radiant strip and electric network a main switch having a minimum distance between the contacts of 3 mm for each pole in accordance to the CEI-EN norms, predisposing it in an easily reachable position by the user

Verify the electrical scheme inside the burner and/or in this guide and execute the connection indicated above.

For the unit to work properly it is necessary to respect the phases and neutral as indicated in the scheme.



Terminals 1-2 : operation dry contact

Les bornes 3-4 : reset dry contact

Les bornes 5 et 7 : to be connected to any signals (max 0.5 A)

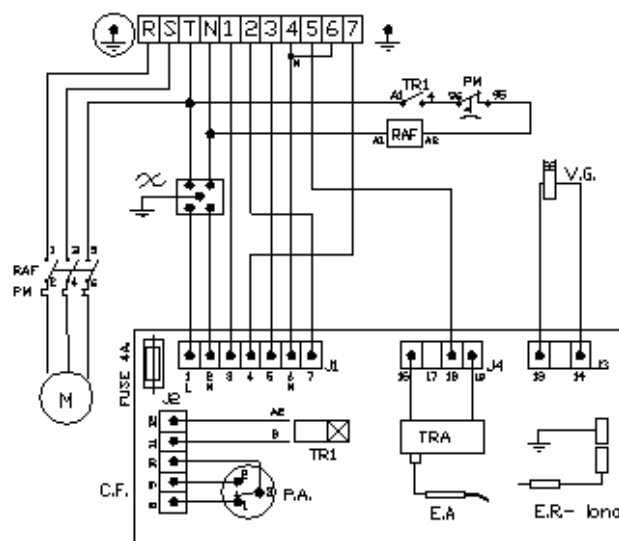
Near the main switch install the following devices:

- An environment temperature controller (black bulb sensor);
- A burner unblocking button (normally open type); \*
- An eventual illumination sign for when the burner is blocked \*
- An eventual illumination sign for the start up of the system \*.

\* if not available on the temperature controller



TA	Room thermostat
VG	Gas valve
PA	Air Pressure switch
PM	Flame control
CF	Contrôle de flamme
	EMC Filter
TR1	Relay timer
RAF	Contactor motor fan
LR	Witness up security
LV	Tell-tale
TRA	Ignition transformer
EA	Ignition electrode
ER	Ionization electrode



### 3.5.3 Système de sortie de fumée

Every unit has to discharge combustion products directly into the external environment through an evacuation duct made of metallic material.

The evacuation duct has to have the same diameter as the one on the burner box (it is eventually accepted a larger diameter).

The evacuation ducts can be maximum 4 metres long, including two 90° bends. The distance between the connection of the burner and the first elbow should be at least 4 times the diameter of the chimney flue. For example for a diameter of 150 mm minimum distance between the connection of the burner and the first bend is 600 mm.

The installation of the duct has to be done so that its weight does not strain the burner.

In case the duct goes through a wall, the latter has to be protected from the heat.

Use only flues with a smooth surface.

When the burner is installed externally, the ducts longer than 2 meters have to be insulated.



### 3.6 Testing and starting of the burner

**These operations have to be done by qualified personnel**

**Ensure that operations below have been made.**

- The protective layer has been peeled from each external surface;
- All the legislations in force have been respected;
- All the connection have been done in specification to the instructions reported in this guide;
- The gas connections and discharge duct are well sealed.
- The suspension devices are effective

**Before starting the unit control that:**

- The gas nature correspond to the one indicated on the burner's plate;
- The electric supply is the one indicated on the burner's plate;
- The gas ducts have been blooded from eventual residual materials and air presence;
- The intercepting gas cock is open

Bring the electric supply to the unit with the general switch and adjust the temperature controller (positioning the environment thermostat to the maximum temperature).

With the fan in function (the pre ventilation phase lasts 30÷40 seconds) verify the correct direction of the rotation, if it is not rotating in the correct direction switch off the unit and do the apply changes to the electric system.

Verify that the product does not produce strange noises due to friction or movement of objects in the tubes, in these cases switch immediately off the unit and identify the cause.

With the burner on, verify the nominal power: control the consumption in a unit of time and transform it in the equivalent for an hour; compare it with the data reported in the technical characteristics table.

Air the premises: during the first use, it is possible that flues create inside the premises due to the manufacturing residuals (these flues will not create in the next uses).

Verify the functioning of the environment thermostat.

Keep in mind that the fan continues to work for a few minutes after the burner is switched off for the cleaning operation, after this the burner can be restarted.

Verify the functioning of the "Block":

When the burner is working, close the gas cock, the burner has to put itself into a block state, the fan has to continue working to fulfil the cleaning operation, after this the burner can be restarted by pushing the unblock/reset button.

Let the system work for at least one hour, so that the flues due to the manufacturing lubricant finishing, before doing eventual combustion controls.

**In any case, do not let the system work if there are anomalies and contact immediately the After Sales Service of SOLARONICS Chauffage.**



### 3.7 Change in settings

The manufacturer has made the setting of the burner after manufacture. To make these settings, it is necessary to contact the qualified people.

### 3.8 Gas switching

The transformation of one family gas to another family gas can be easily done even with the burner already installed.

This operation has to be done by authorised personnel.

The burner is provided to function with Natural or Propane gas as requested in the order; the type of gas expected is stated on the products plate..

For the operations of gas switching to refer to the instructions included with the kit change of gas delivered by *SOLARONICS Chauffage*.

## SECTION 4 – PROTECTION SYSTEMS

### 4.1 Clothing

As the unit has to be installed at least 4 metres of height, so it is not reachable by users during the normal functioning, there is no particular clothing restrictions.

The maintenance personnel have to wear correct clothing and individual personal protections.

### 4.2 Risques résiduels

During function, the radiant tubes reach temperatures higher than 50 °C.

**While the system is in function do not touch the tubes – Burning danger.**

**In case of need of maintenance and/or operations near the radiant tubes, switch off the system allowing some time to pass to make sure that the heat of the tubes cannot cause damage to the personnel.**

**When moving objects pay attention to not hit the radiant tubes when lifting them, this could cause the objects to fall and damage to the suspension devices.**

**Pay attention to the fan movement. Do not introduce limbs. – Mechanical danger**

### 4.3 Emergency situations

In case of emergency:

- Stop immediately the system, sever the gas line and open the electric circuit with the main switch
- Identify and eliminate the problem, check the original cause
- Contact the Technical Assistance Service of Solaronics Chauffage.

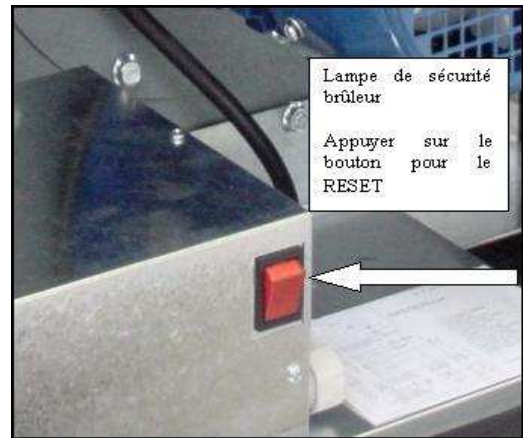
**It is absolutely forbidden to use water to estinguish fires.**



#### 4.4 Indications de mise en sécurité du brûleur

La mise en sécurité du brûleur est indiquée par la lampe rouge dans le caisson brûleur ou à proximité du thermostat d'ambiance (si l'indicateur de défaut a été reporté).

Pour remettre en fonctionnement le brûleur en sécurité, appuyer sur le bouton reset.



## SECTION 5 – USE OF THE PRODUCT (FOR THE USER)

### 5.1 Starting of the system

Give voltage to the unit with the general switch.

Set the temperature desired with the predisposed control device (environment thermostat); if the set temperature is higher than the environment's temperature the fan will switch on and when finished the cleaning operation (around 30 ÷ 40 sec.) the burner's flame will lit.

In case the system does not switch on, this is indicated by the predisposed light on the switchboard (blocked unit), restart the burner by pressing the reset switch on the switchboard. (See point 5.4)

The burner will be managed automatically by the temperature control device or by eventual programmed times to maintain the desired temperature in the premises



## 5.2 Switching of the system

To switch off the system for a short period it is sufficient to lower the temperature of the environment thermostat to the minimum.

When the temperature set on the thermostat is lower than the one in the premises the burner will switch off, the fan will continue to work for a few minutes (4÷7) to do the cleaning operation of the flues circuit and radiant tubes: during this phase do not cut off the voltage with the general switch.

***Do not use the general switch but lower the thermostat temperature to switch off the system***

## 5.3 Switching off at the end of the heating season

At the end of the use period, the system can be stopped for the end of the season following these instructions:

- Lower the temperature of the environment thermostat to the minimum;
- Close the gas interception cock;
- Cut off the voltage with the general switch after 10 minutes to permit the cleaning operation of radiant tubes and flues system to be complete.

## 5.4 Abnormal operation

In case of functioning anomalies proceed as follows:

- Verify the presence of gas in the network (example: gas interception valve is closed) ⇒ open the gas interception valve
- Verify the presence of voltage (example: general switch is open) ⇒ close the general switch
- Verify the temperature set on the environment thermostat ⇒ higher the value set
- Verify the eventual programmed clock (example: inserted programme off) ⇒ modify the clock program
- Verify that the burner is not in block condition (environment thermostat's red light is on) ⇒ press the reset/unblock switch. (**RST**)

In case of repeated blocks of the burner do not insist over 2 ÷ 3 manual unblocking procedures but contact qualified personnel.

In case none of the above conditions took place:

- Switch off the system;
- Close the gas interception valve;
- Sever the electric supply;
- Contact the Technical Assistance Service of **SOLARONICS Chauffage**, the system's installer or a qualified technician.

## 5.5 Warnings and security

- If the system works with Propane gas (L.P.G.), during the operations of tank refuelling the burner has to be previously switched off; switch it back on after having finished the refuelling operation.
- In case of intervention or maintenance on structures near the burner or flues discharge duct, switch off the unit. When finished the intervention have the efficiency checked by qualified personnel.
- In case of intervention or maintenance on structures near the radiant sections, switch off the burner at least half an hour before the intervention, if the temperature of the radiant tube surface is higher than 50°C there is burns danger; switch on the unit only when the interventions are completed.
- If the characteristic gas smell is sensed, do not action electric switches, telephone and other products that can cause sparkles, do not smoke, do not light fires, do not use free flame equipment etc.
- Open doors and windows to air the premises, close manually the external gas interception valve and contact qualified personnel to intervene.

## SECTION 6 – MAINTENANCE

### 6.1 Maintenance security norms

*Maintenance personnel have to be qualified.*

*Before applying any maintenance operation, carefully read this section of the guide. For any necessity contact the Technical Assistance of Solaronics Chauffage.*

**Solaronics Chauffage declines any responsibility for any damage or dysfunction if due to lack of application of the indications in this section of the guide**

Maintenance personnel doesn't have to wear clothes with large sleeves, laces or belts that could cause danger; furthermore, they have to use the personal protection devices in specification to the legislations in force.

- Before undertaking any cleaning and maintenance operation previously switch off the unit and wait that the surface of the radiant tubes and flues discharge duct cool down (wait at least an hour), cut off the electric voltage with the general switch.
- Do not clean the unit or any parts of it with easily inflammable substances (example fuel, alcohol, etc.)
- Do not clean the panels, painted parts and plastic parts with paint diluents.

Before the beginning of the heating season it is necessary to verify that the product works properly, so that in case of malfunctioning there is time to do eventual maintenance/repairs.





Once a year check:

- ☞ The general condition and functioning of the burner;
- ☞ The general condition of the radiant sections;
- ☞ The gas supply pressure;
- ☞ The environment thermostat's functioning;
- ☞ The cleanliness and condition of the flues evacuation duct;
- ☞ The condition of the suspension devices;
- ☞ The security devices' functioning.

During maintenance, expose the “work in progress” signs in a way that they are visible by all access areas.

Record on a register all the maintenance carried out, making sure to sign: date, hour, type of maintenance and name of the personnel that carried out the maintenance.

The eventual use of cleaning solvents has to be done without touching the electric cables.

It is forbidden to:

- Deposit combustion materials near the switchboards.
- Operate on the electric parts without having previously selected the electrical supply line.
- Operate on any part of the unit without having switched off the system
- Operate with the security systems deactivated or disconnected.
- Deactivate or trick the alarm signals applied on the product.

Once finished the maintenance, before restoring the electric supply and switch on the system, accurately control that no equipment and/or various materials have been forgotten near or inside the unit and especially near moving organs.

## 6.2 Technical assistance request

For any technical assistance request, contact immediately the Hot Line of **SOLARONICS Chauffage**.

**+33 (0) 891 701 802**

**Solaronics Chauffage**

**Département Services**

**BP30173**

**ZI n°3**

**78 rue du Kemmel**

**59428 Armenières**

## SECTION 7 – DISMANTLING

The dismantling of the system has to be done by specialised personnel with correct instruments and personal protection devices.

Do not smoke and not use free flames

In case of dismantling or alienation of the system, it is necessary to recover all the materials and send them to the respective collection centres, possibly referring to specialised companies.

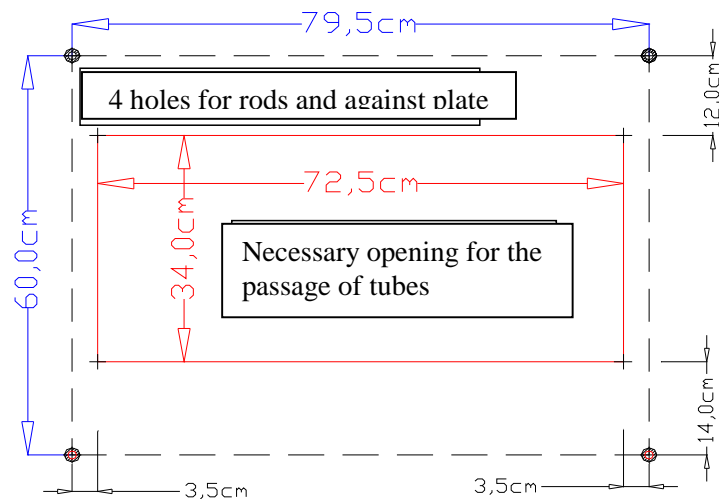




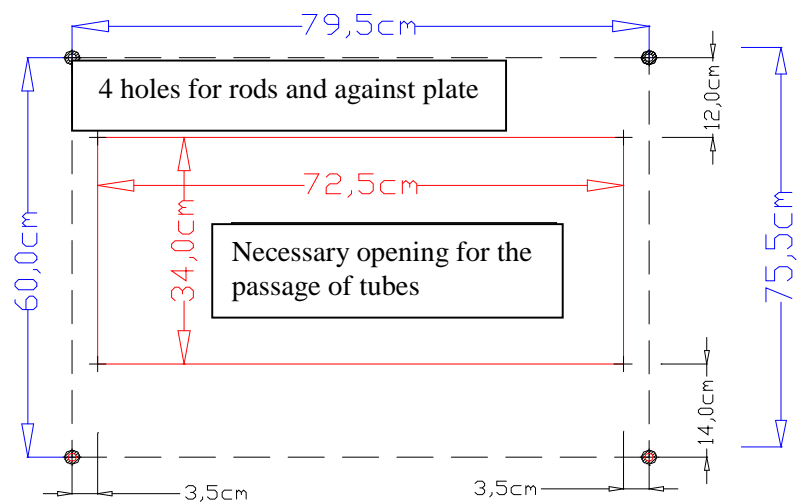
## SECTION 8 – SUPPLEMENTARY DATA

### 8.1 Wall bracket's template

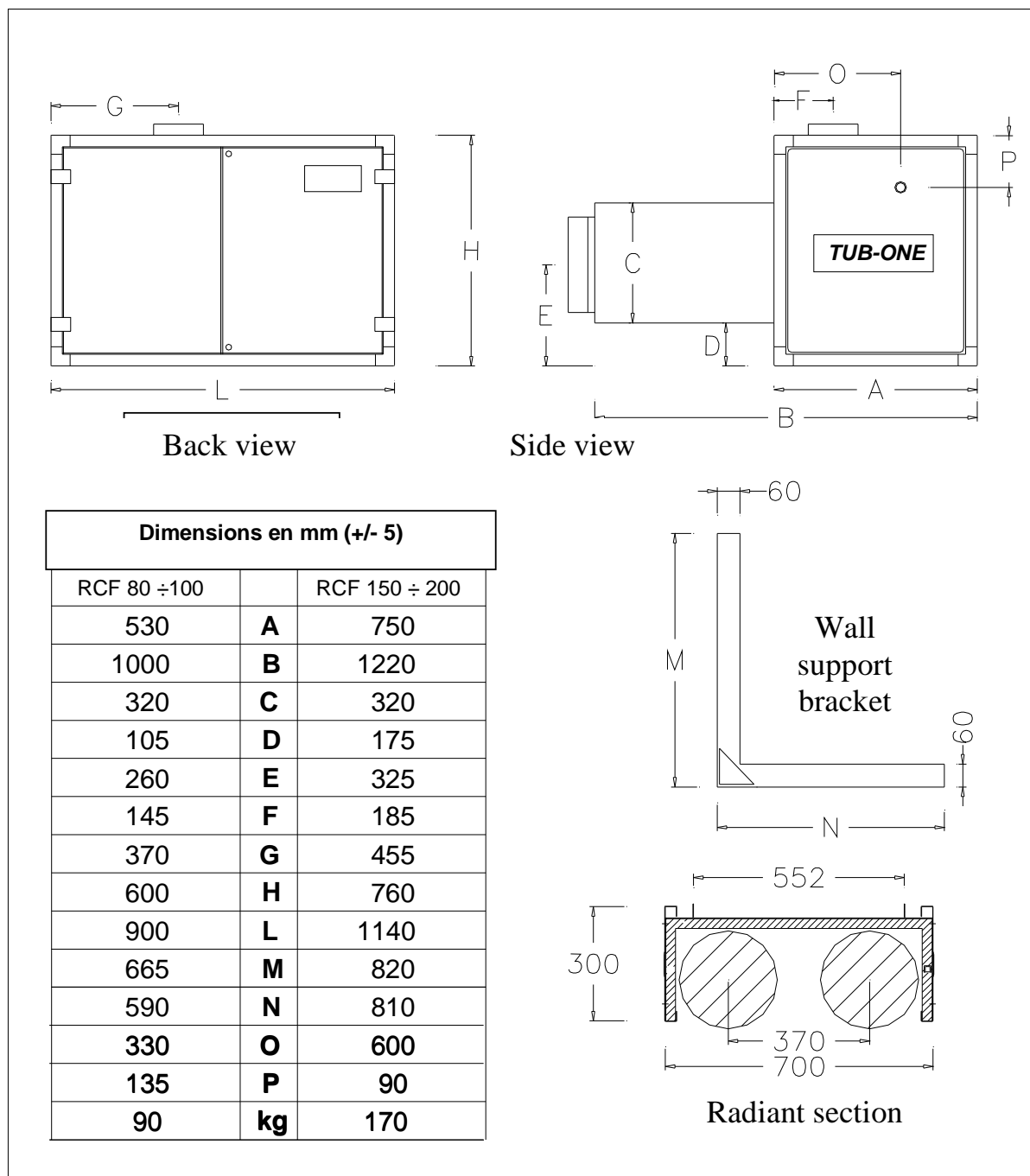
For burners of 80 kW to 100 kW



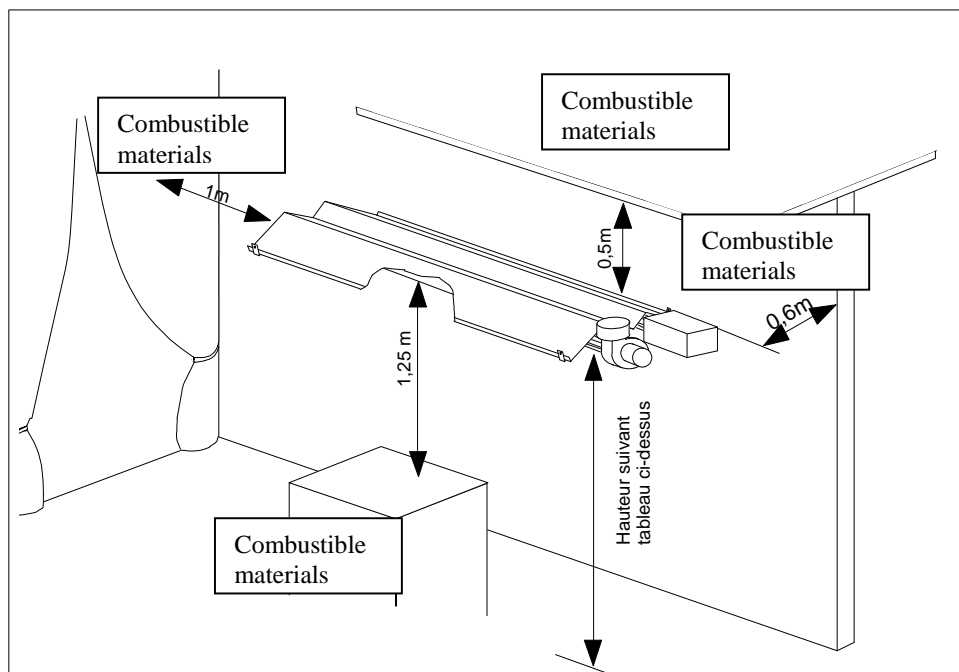
For burners of 150 kW to 200 kW



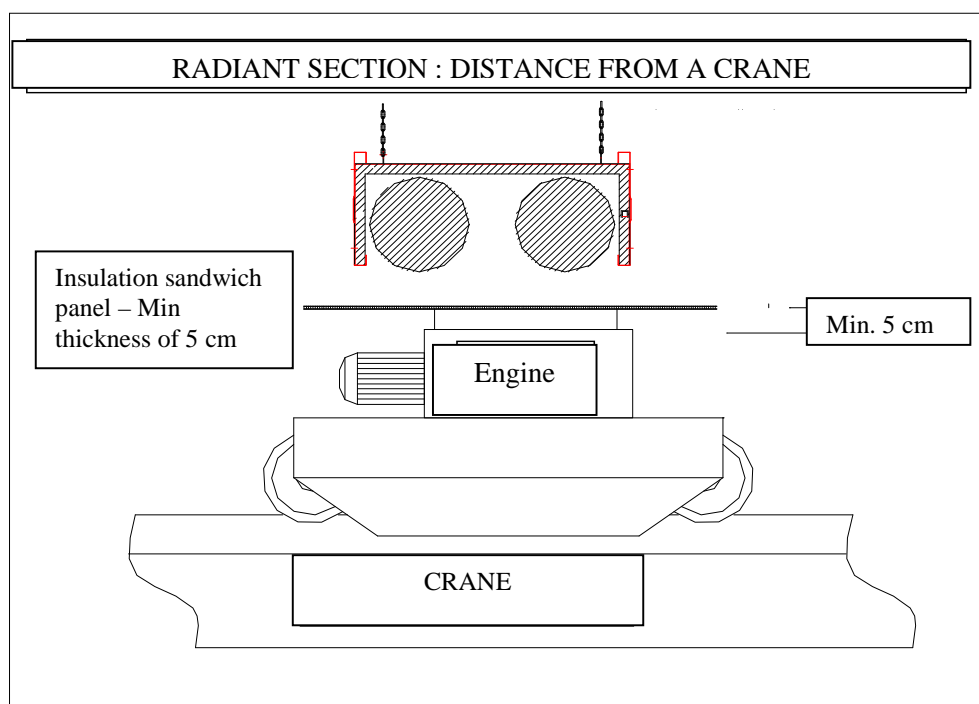
## 8.2 Burners dimensions



### 8.3 Security distances

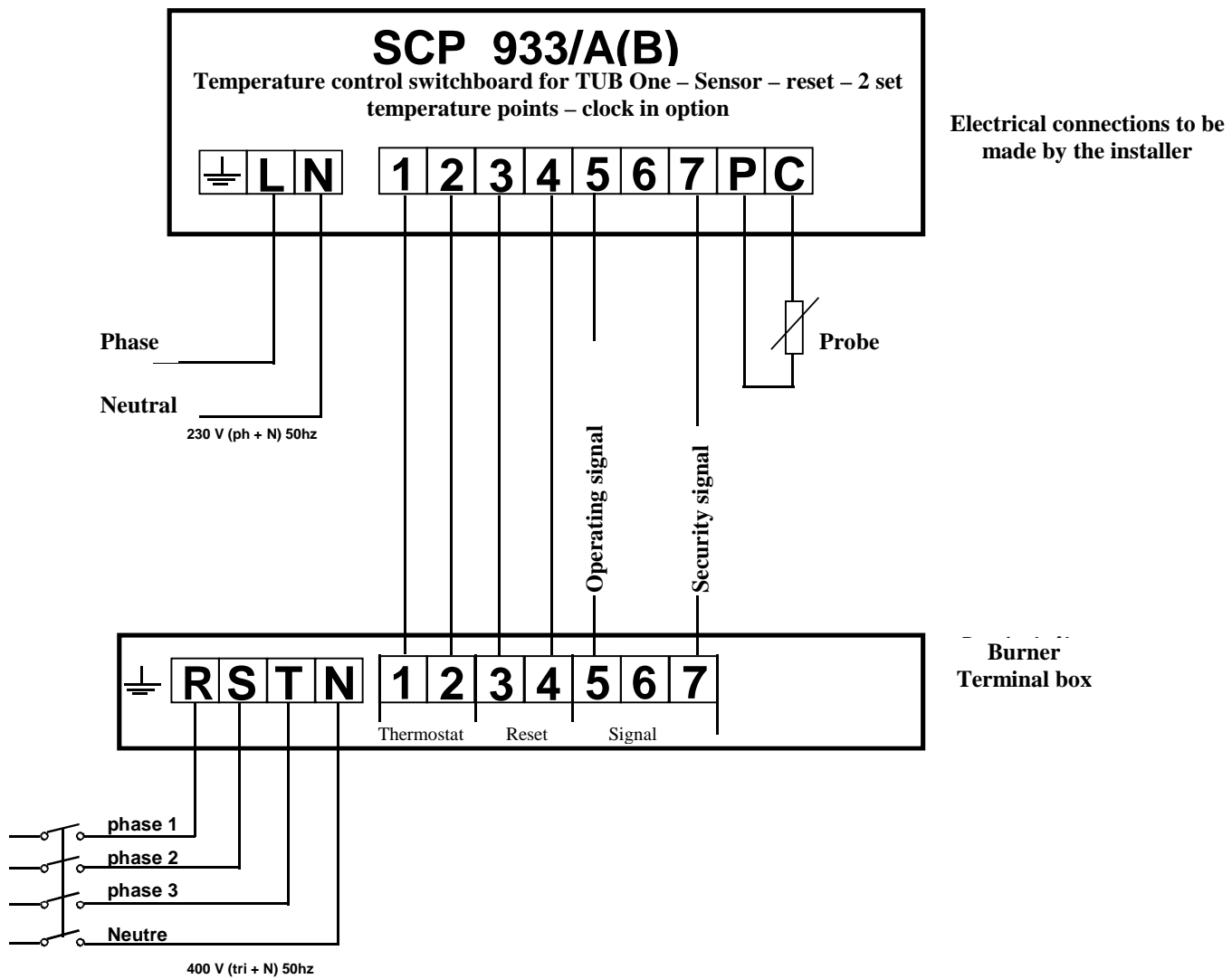


### 8.4 Distance from cranes



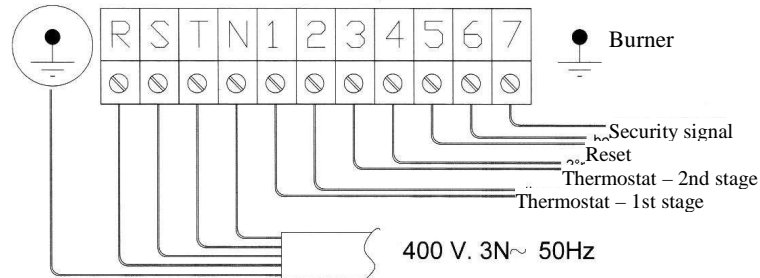
## 8.5 Temperature control – electrical scheme

Electrical connection scheme for a TUB One – 1 stage controller  
Burner of 80/100/150/200 kW



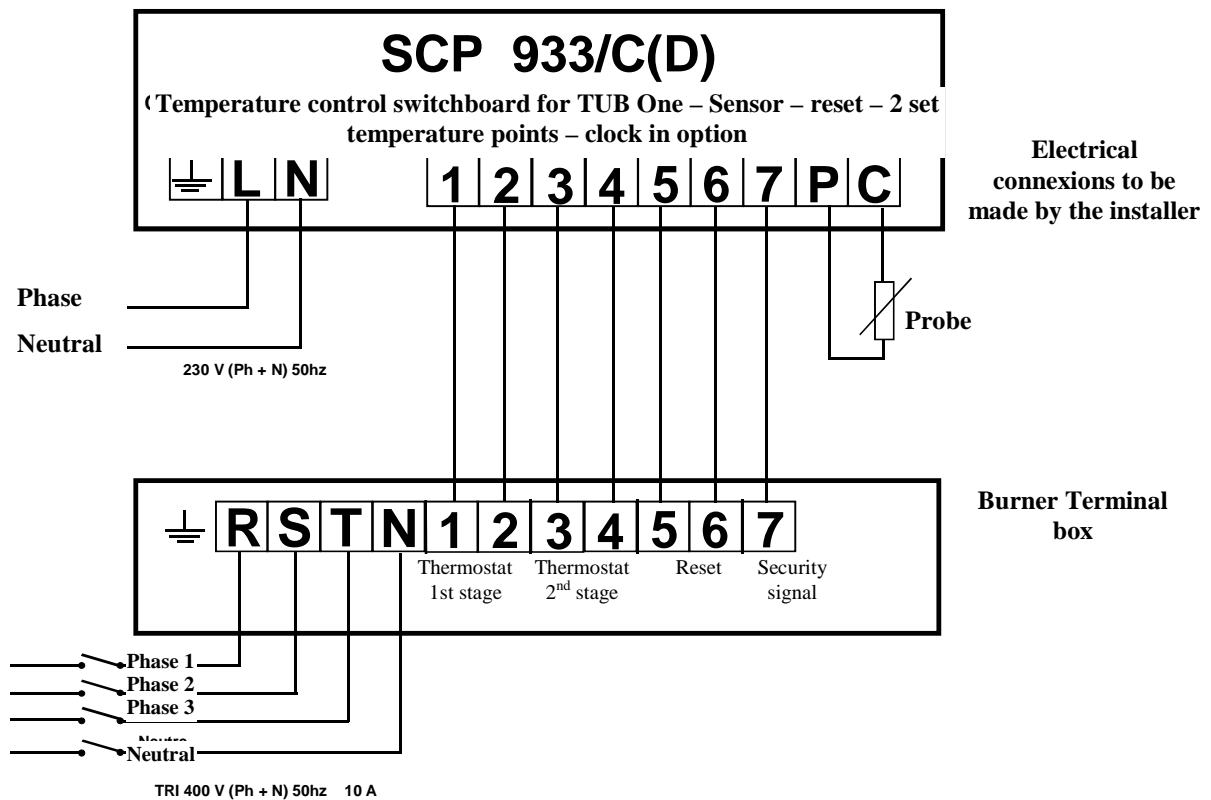
## 8.6 Electrical connection of a 2 stages burner – 80/100/150/200 kW

### 8.6.1 Electrical connection



### 8.6.2 Temperature control: electrical connection scheme between temperature controller and burner

Electrical connection scheme for a TUB One – 2 stages controller  
Burner of 80/100/150/200 kW



**DO RESPECT PHASES**

