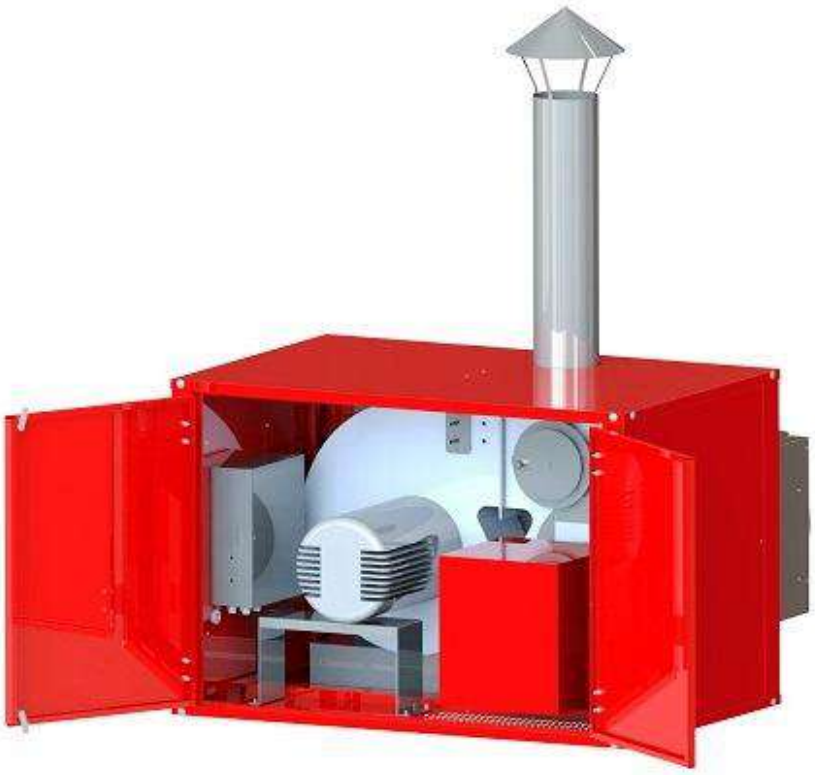
SIABS HEATERS

Radiant strip

I-RAD

100 - 200 – 300 KW



Installation, use and maintenance manual

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GENERAL INSTRUCTIONS

PREFACE

The manufacturer is in no way responsible for the consequences arising from any incorrect operations carried out by the user. The data and information contained in this manual may be subject to changes or updates without further notice or obligations.

CONSIDERATIONS

The SIABS SRL I-RAD Radiant Strip offers an excellent quality of operation provided that all the operating instructions, recommendations and maintenance operations described in this manual are respected. To obtain the best results, the MANUFACTURING COMPANY recommends keeping the heating system always in the best conditions of cleanliness and efficiency. The standard maintenance operations must be performed regularly each year, by highly qualified personnel, using SIABS SRL original spare parts. The manual contains the section to register the maintenance operations to be performed / performed on the radiant strip. The MANUFACTURING COMPANY invites the user to keep this register carefully completed, reporting all the maintenance operations carried out.
This will allow you to keep an up-to-date history of the system and put the Technical Assistance service in condition to offer a more accurate service taking into account the history of the machine.

THE ORGANIZATION OF THE MANUAL

This manual has been organized in such a way to allow the user to find information about the use and maintenance of the heating system in a simple and quick manner. This manual contains a series of symbols to allow the user to quickly identify the most important points to observe. To facilitate the search for a specific topic, a summary index is available at the beginning. The user must read the complete manual very carefully and make sure that all the information has been perfectly understood. The manual must also be used as reference documentation whenever it is necessary to remember a procedure or an operation. Therefore, it will be convenient to keep a copy of the manual always available to personnel and operators so that it can be consulted at any time.

MANUAL UPDATE

Solo il costruttore può aggiornare il manuale tecnico ed effettuare modifiche costruttive al prodotto in questione L'utilizzatore Finale non è tenuto in nessun modo ad alterare le condizioni strutturali e di funzionamento del prodotto, pena la
decadenza di tutte le garanzie.
MANUAL UPDATE

Only the manufacturer can update the technical manual and make changes to the product described in this manual. The end user must never alter the structural and operating conditions of the product, penalty is the loss of warranty on the product.

SYMBOLS


This symbol is used to warn the user of the presence of important instructions referring to the ELECTRICAL SYSTEM.


This symbol is used to warn the user of the presence of important instructions referring to the OPERATOR SAFETY.


This symbol is used to warn the user of the presence of important GENERIC INFORMATION.


This symbol is used to warn the user of the presence of important instructions related to MAINTENANCE.


This symbol provides instructions for using the machine in compliance with the ENVIRONMENT REGULATIONS.

SUPPLY OF THE HEATING SYSTEM AND INSTRUCTION MANUAL


During the delivery of the heating system it is necessary that:

- The instruction manual is delivered by the installer to the user, with the warning to store it in the room where the heat generator is installed;

- The instruction manual is delivered by the system supplier to the user, with the warning that it is stored in the room where the heat generator is installed. The instruction manual contains:
  - the burner serial number;
  - the address and telephone number of the nearest Assistance Center;

- The system supplier informs the user about:
  - The use of the system,
  - any further tests that may be needed before the start up of the heating system,
  - the need of maintenance and yearly inspections needed to be done by an assigned technician by the Manufacturer or by another specialized technician.

To ensure a periodic inspection, it recommended to stipulate a Maintenance Contract.

WARRANTY AND LIABILITY

 SIABS SRL guarantees the new product from the date of installation according to the regulations in force and / or in accordance with the sales contract. Check, at the start-up of the system, that the
burner is intact and complete.

Failure to comply with what is described in this manual, operational negligence, improper installation and the execution of unauthorized modifications are the cause of cancellation by SIABS SRL of the burner guarantee given.
The rights to guarantee and liability forfeit in case of damage to persons and / or things, if the damages themselves are caused by one or more of the following causes:

- incorrect installation, commissioning, use and maintenance of the burner;
- improper, incorrect and unreasonable use of the burner;
- unauthorized personnel intervention;
- execution of unauthorized modifications to the device;
- use of the burner when there are defective safety devices, incorrectly applied and / or not working;
- installation of additional components not tested together with the burner;
- burner supplied with unsuitable fuels;
- defects in the fuel supply system;
- use of the burner even after an error and / or an anomaly has occurred;
- repairs and / or revisions performed incorrectly;
- modification of the combustion chamber;
- insufficient and inappropriate surveillance and care of the burner components that are most subject to wear;
- use of non-original SIABS SRL components, be they spare parts, kits, accessories and optionals;
- force majeure.

SIABS SRL also declines any and all liability for non-compliance with the instructions in this manual.

TECHNICAL CHARACTERISTICS

Nameplate characteristics

The I-RAD heat generator has attached on it a characteristics nameplate stating the technical values of the product, with the CE marking.
For ordinary and extraordinary maintenance, it is important to always mention the model and the serial number of the product to the technical assistance personnel.

Packaging nameplate

On the packaging box of the I-RAD heat generator there is a nameplate indicating the essential characteristics of the burner, the destination country, the type of gas and appliance model. The CE mark and name of the Manufacturer are also stated

Our I-RAD generators – Why use them

The I-RAD radiant circuit is a hanging heat generator suitable for use in medium / large areas such as industrial premises, sports areas, commercial premises, and for any environment with a high non-domestic volume. The system essentially consists of a heat generator with a power between 20 and 300 kW, and of a system of pipes with a variable diameter between 250 and 315 mm depending on the thermal power. The products of combustion carried out by the heat generator circulate forcibly inside the radiant tubes, heating them up to a temperature between 100 and 300 ° C. The tubes themselves, once heated, begin to exchange heat with the external environment through irradiation, heating all that is below the pipes. The principle of heating by radiation allows to heat all the solid elements, people, objects, floor, structures, etc., which then return the heat by convention to the surrounding air. All this flow generates an excellent feeling of comfort.
The thermal power, the number of machines to be installed, and the installation height (minimum 4 meters from the ground) are established by calculating the energy requirements of the building, deriving from the heating system design.
Before the installation, where required, it is important that the user requests the necessary approvals from the competent bodies. The request procedure is not an obligation of the machine supplier but of the user.
Due to the air recirculation and fumes expulsion system of the generator very low levels of Nox-CO emissions are achived.

IMPORTANT:
It is not permitted, for any reason, to use the machine for purposes other than those for which it was designed for, nor to use it in ways other than those described in this manual.

Country	Category	Gas	Pressure	Gas	Pressure
AT	II 2H3B/P	G20	20 mbar	G30 / G31	50 mbar
BE	II 2E+,I3+	G20 / G25	20 / 25 mbar	G30 / G31	28-30 / 37 mbar
DE	II 2E3B/P	G20 / G25	20 mbar	G301	50 mbar
DK, SE, FI	II 2H3B/P	G20	20 mbar	G30 / G31	30 mbar
ES, GB, GR	II 2H3P	G20	20 mbar	G31	37 mbar
FR	II 2E+,I3+	G20 / G25	20 / 25 mbar	G30 / G31	28-30 / 37 mbar
IE, PT	II 2H3P	G20	20 mbar	G31	37 mbar
IS	I 3P			G31	30 mbar
IT	II 2H3+	G20	20 mbar	G30 / G31	28-30 / 37 mbar
LU	II 2E3P	G20	20 mbar	G31	37 mbar
NL	I 2L3B/P	G20	25 mbar	G30 / G31	37 mbar
NO	II 2H3B/P	G20	20 mbar	G30 / G31	50 mbar
CY, MT	I 3B/P			G30 / G31	30 mbar
EE, LT, LV	II 2H3B/P	G20	20 mbar	G30 / G31	30 mbar
EE, LT, LV	II 2H3P	G20	20 mbar	G31	37 mbar
CZ	II 2H3B/P	G20	20 mbar	G30 / G31	30 mbar
SK, SI, BG	II 2H3B/P	G20	20 mbar	G30 / G31	30 mbar
SK, SI	II 2H3P	G20	20 mbar	G31	37 mbar
RO, CZ	II 2H3+	G20 / G25	20 / 25 mbar	G30 / G31	28-30 / 37 mbar
HU	II 2H3B/P	G20	25 mbar	G30 / G31	30 mbar
PL	II 2E3B/P	G20	20 mbar	G30 / G31	37 mbar
PL	II 2E3P	G20	20 mbar	G31	37 mbar
CH	II 2H3+	G20	20 mbar	G30 / G31	28-30 / 37 mbar
HR	II 2H3B/P	G20	20 mbar	G30 / G31	30 mbar
TR	II 2H3B/P	G20	20 mbar	G30 / G31	30 mbar

For the sizing of the systems it is advisable to use competent and qualified personnel (design studios and / or qualified professionals).

DESTINATION COUNTRY –GAS CATEGORY

NB°: Categories shown for information purposes, for the specific gas category, see the burner installed."

Available models

- I-RAD 100 – I-RAD 100X
- I-RAD 200 – I-RAD 200X
- I-RAD 300 – I-RAD 300X

TECHNICAL DATA

		I-RAD 100	I-RAD 200	I-RAD 300
Thermal power	***Kw***	100	200	300
Burner type		Two stages	Two stages	Two stages
Combustion efficiency		93-96%	93/96%	93/96%
Minimum thermal power	***Kw***	80	120	250
Fumes duct diameter	***mm***	100	150	150
Gas type		Natural gas (G20)	Natural gas (G20)	Natural gas (G20)
Maximum consumption	***m3/h***	9.6	19.2	26.8
Minimum consumption.	***m3/h***	7.6	11.5	24
Min – Max pressure	***mbar***	20-360	20-360	20-360
Gas type		Propane (G30-G31)	Propane (G30-G31)	Propane (G30-G31)
Maximum consumption	***m3/h***	3.9	7.8	11.7
Minimum consumption.	***m3/h***	0.75	1.56	2.35
Min – Max pressure	***mbar***	30-360	30-360	30-360
Gas inlet diameter	***inch***	3/4	3/4	3/4
Electrical tension	***V***	400 V 50/60 Hz	400 V 50/60 Hz	400 V 50/60 Hz
Electrical consumption	***A***	4A	9.5 A	10 A
Fan series		MM251	MM301	MM301
Pipe diameter	***mm***	*250*	*315*	*315*
Radiant strip total length	***mt***	50-150 mt	100-200 mt	150-310 mt
Radiant strip module length	***mt***	*2.5 - 5 mt*	*2.5 – 5 mt*	*2.5 – 5 mt*
Heat generator weight	***Kg***	*103*	*160*	*165*
2.5 mt radiant module weight	***Kg***	*33*	*40*	*40*
4 mt radiant module weight	***Kg***	*52*	*63*	*63*

		I-RAD 100X	I-RAD 200X	I-RAD 300X
Thermal power	***Kw***	100	200	300
Burner type		Modulating	Modulating	Modulating
Combustion efficiency		93-96%	93/96%	93/96%
Minimum thermal power	***Kw***	20	40	60
Fumes duct diameter	***mm***	100	150	150
Gas type		Natural gas (G20)	Natural gas (G20)	Natural gas (G20)
Maximum consumption	***m3/h***	9.6	19.2	26.8
Minimum consumption.	***m3/h***	1.92	3.84	5.35
Min – Max pressure	***mbar***	20-360	20-360	20-360
Gas type		Propane (G30-G31)	Propane (G30-G31)	Propane (G30-G31)
Maximum consumption	***m3/h***	3.9	7.8	11.7
Minimum consumption.	***m3/h***	0.75	1.56	2.35
Min – Max pressure	***mbar***	30-360	30-360	30-360
Gas inlet diameter	***inch***	3/4	3/4	3/4
Electrical tension	***V***	400 V 50/60 Hz	400 V 50/60 Hz	400 V 50/60 Hz
Electrical consumption	***A***	4A	9.5 A	10 A
Fan series		MM251	MM301	MM301
Pipe diameter	***mm***	*250*	*315*	*315*
Radiant strip length	***mt***	50 - 150 mt	100 - 200 mt	150 - 310 mt
Radiant strip module length	***mt***	*2.5 - 5 mt*	*2.5 – 5 mt*	*2.5 – 5 mt*
Heat generator weight	*Kg*	*105*	*162*	*167*

I-RAD RADIANT STRIP AND SUPPLIED COMPONENTS DESCRIPTION

Heat generator

The heat generator consists of a premix blow burner in the version with two stage gas valve or with a modulating gas valve that allows continuous modulation of the thermal power. The flame unit consists of a stainless steel torch in the two stage version, or metal fiber torch in the modulating version. Both models are supplied with all the necessary safety and burner control components. The group is completed by the turbine for the recirculating of combustion air, that is controlled by an air pressure switch and a safety thermostat, and the electronic control panel to be interfaced with an ambient temperature controller. In the top part is the flue evacuation chimney in two diameters version, 100 mm for 100 kw, 150 mm for 200/300 kw.

An important detail is the internal air damper, which can be calibrated by qualified personnel for the optimization of the thermal efficiency according to the length of the radiant strip.

Straight radiant module

The radiant modules, from 2.5 to 4 meters long which consist of a closed circuit joined together by joints with gaskets suitable for high temperatures and other tightening devices, are composed of a galvanized steel enclosure containing two parallel tubes made of aluminized steel, treated with paint suitable for high temperatures that are the heat emitting part.
Tubes with a diameter of 250 or 315 mm are completely insulated at the top and side by insulating panels with a thickness of 40 mm.
Only the lower part of the tubes is not insulated and represents the radiant emitting part of the system. The radiant strip can have variable lengths and layouts depending on the characteristics of the environment and consists of standard modules that can be easily assembled together.
The maximum temperature of the radiant strip is controlled by a safety thermostat with the possibility of adjusting it between 100-300 ° C depending on the needs and the comfort required. The total radiant strip 300 Kw size can reach 320 meters in length.
An important detail is the junction between the radiant tubes that is made through joints with silicon gaskets that allow a perfect adherence and seal completely the tubes, without the use of sealant pastes.

90° bend radiant module

Composed of 2 tubes in aluminized steel painted for high temperatures with a diameter of 250/315 mm. Upper part completely insulated with glass wool material.
It joins with the straight radiant modules through our joints with silicone gasket for high temperatures and mechanical fixing.

180° bend radiant module

U-shaped bend made of aluminized steel material, painted for high temperatures.

Flues terminal

Made of stainless steel

Burner wall bracket

Made of stainless steel

The number of straight modules, 90° and 45° bends, are established according to the heat requirement and the technical characteristics of the environment to be heated.

Inapt use of the product

- The unit cannot be used for any other purpose than the one foreseen in the technical project.
- It is forbidden to install the heat generator in any environment with a risk of explosion or with highly flammable materials
- It is absolutely forbidden to lend different anchoring to the burner box.
- It is absolutely forbidden to modify the burner with changes not agreed upon, or to modify the logic of the operating or wiring diagram.
- It is absolutely forbidden to use water to extinguish fires.
- The I-RAD radiant strip reaches temperatures up to 300 ° C, therefore it is absolutely forbidden to touch the piping, burn hazard.
- It is absolutely forbidden to touch the air recirculation fan during operation as this could cause a mechanical hazard injury due to the rotation of the fan blades.

PRODUCT PACKAGING AND TRANSPORT

Packaging

The I-RAD heat generator will be placed on a dedicated pallet, protected on the sides by sponge panelling, wrapped in a protective film blocked by a metal strap.
Inside the heat generator, the end user will find all the accompanying documentation consisting of manuals, instructions, certifications.
Other supplied materials will be placed in additional boxes.
The radiant modules will be placed on dedicated pallets.
It is important when the material arrives to check for any transport damage, immediately reporting the incident, accepting the material with Reserve.

Handling and transport

During product handling, high attention is required from the operators in order to guarantee the correct integrity of the components.
Siabs srl declines all responsibility for damage due to the transport and handling of the components supplied

Lifting

All the components of the I-RAD system are transportef on a dedicated pallet. Therefore, it is required to use a forklift for to move the pallets driven by qualified personnel.

The forklift must be driven only by qualified personnel.
Make sure that the maximum lift capacity of the forklift is suitable for lifting the loads.
Great care is recommended during material unloading operations.

We call on operators to pay the high attention to the safety requirements during product handling and unloading operations. Avoid standing within the forklift range of operation.

Opening boxes and storage location

It is important to store the product in a dry place protected from atmospheric agents. If stored for long periods of time, it is important to make sure that the ambient temperature is between -10 and 50 ° C.

INSTALLATION AND COMMISSIONING

For the end user

The commissioning and installation of I-RAD radiant strips must be carried out by qualified personnel, in compliance with the technical standards and laws of the destination country.
It is recommended in situations where the burner box is very close to walls and ceiling with measurements less than / equal to 0.5 m, to use REI panels to shield and prevent possible fires due to the close distance. The minimum installation height of the radiant strip must never be less than 4 meters.
The end user is responsible for checking the generator components, as well as checking the permits needed to installing the radiant strip.

Temperature thermostat inside the burner

The operating temperature of the hot air (combustion products), circulating inside the radiant strip, can vary due to various factors such as the height of the building, the type of room, the request for more or less comfort, with peaks of temperature between 100 and 300 ° C. When the set temperature is reached, the burner goes into the second stage mode (minimum power), or in the I-RAD 100/200 / 300X version in continuous modulation of the thermal power. Comfort is guaranteed with precise levels that reflect the set values to the degree. When the burner shuts off, due to reaching the set temperature, end of work cycle, or anomaly, the recirculation air turbine continues its operation via a timer inside the control panel until the radiant strip has reached the minimum temperature (about 70-80 ° C)

Thermal power management

Il sistema di regolazione della potenza termica dei nastri radianti modello I-RAD, è stato sviluppato principalmente in 2 versioni:
The I-RAD model radiant strip thermal power management has been developed mainly in 2 versions:

Two stage

Thermal power that switches from maximum to minimum power depending on the comfort required, managed by temperature remote controller and with the possibility to connect to a building management system remotely controlled via PC.

This version is equipped with an air damper at the chimney that determines, depending on the length of the radiant strip, how much combustion fumes to recirculate inside the pipes, and how much exhausted from the chimney.
The two stage version allows the radiant strip to be switched on and off less times thanks to the minimum power operation, achieving significant energy savings.

Modulating

Thermal power in continuous modulation via PWM signal depending on the comfort required, managed by temperature remote controller and with the possibility to connect to a building management system remotely controlled via PC.

This version is equipped with an air damper at the chimney that determines, depending on the length of the radiant strip, how much combustion fumes to recirculate inside the pipes, and how much exhausted from the chimney. The modulating version guarantees a constant air / gas ratio with high combustion performance in all operating regimes, optimizing management costs.

Partial fume recirculation and energy saving

The I-RAD radiant modules, once installed, are a closed pressure circuit with respect to the environment, in which air mixed with combustion fumes circulate at high speed. Part of the combustible products are expelled through the chimney, the rest is recirculated inside the pipes, obtaining a partial energy recovery. The adjustment of the amount of fumes expelled outside, occurs through a mechanical damper calibrated in the factory and then re-calibrated during the installation according to the length of the radiant strip.

Safety devices

The electric turbine that determines the mix between air and combustion fumes, creates a vacuum in the radiant pipes; this vacuum does not allow, in any case, the fumes to be in contact with the building internal environment. The entire circuit is controlled by a differential pressure switch which acts on the electrical power supply to the unit.
The damage of a radiant pipe, or a hole in it caused by an accidental hit or by other factors, or the malfunctioning of the turbine, determine the burner to stop immediately.
The ignition of the burner takes place by means of a high voltage ignition electrode and an electronic flame control, the flame ionization detection electrode actions the double shutter gas solenoid valve. If for any reason like the lack of gas, anomalies, etc., the electrode of ionization does not detect the flame of the burner, it immediately shuts off the gas valve, not allowing any other ignition except before having pressed the burner reset button. The burner itself is equipped with its own differential pressure switch on the torch itself. If the burner pressure switch does not detect the pressure for which it is calibrated, it does not authorize the burner to carry out the ignition cycle.

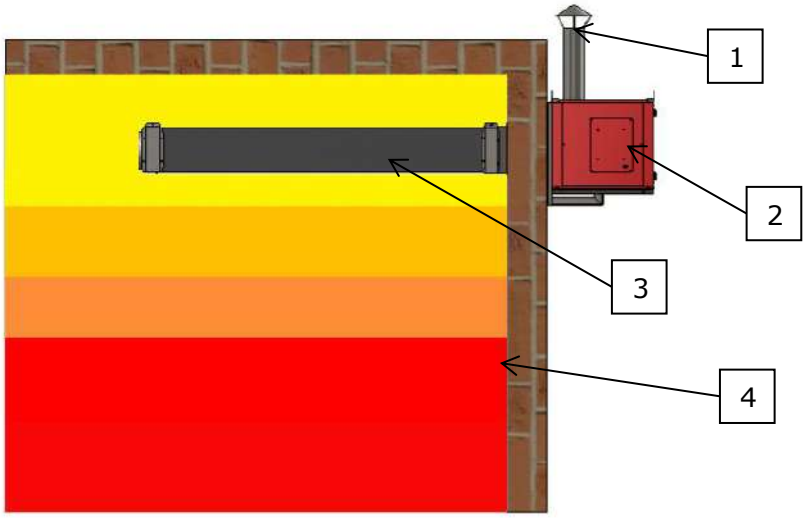
Installation

Adequate equipment, compliance with safety standards and qualified personnel is required for installation of the radiant strip. The personnel assigned to the installation of the radiant strips must have qualifications to use platforms and forklifts, wear adequate safety guards, harness and fall protection devices when work at height is required.
It is important that, before starting any installation work, an operational plan is prepared with all the description of the work to be performed, indicating installation safety measures and use of necessary equipment. It is important to always evaluate, regardless of the operating plan, the minimum installation distances of the radiant modules from flammable material. If this happens, report the obstacle to the project manager who will take the necessary decisions, in order to ensure maximum safety.

I-RAD HEAT GENERATOR INSTALLATION

The I-RAD hot air generators are extremely silent and compact devices. This compact feature allows it to be installed in various solutions:

WALL INSTALLATION

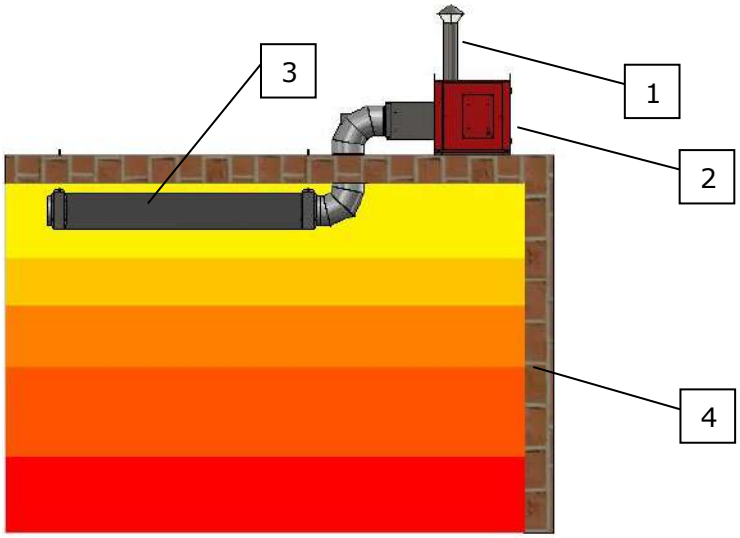


Most used and extremely simple installation. The hot air generator is fixed to the wall using the special bracket supplied with specially sized through screws. The wall obviously must support the weight of the hot air generator which in the I-RAD 300 kw version reaches 160 kg.

DESCRIPTION:

1. Fume exhaust terminal
2. I-RAD hot air generator
3. Radiant module
4. Temperature probe

ROOF INSTALLATION

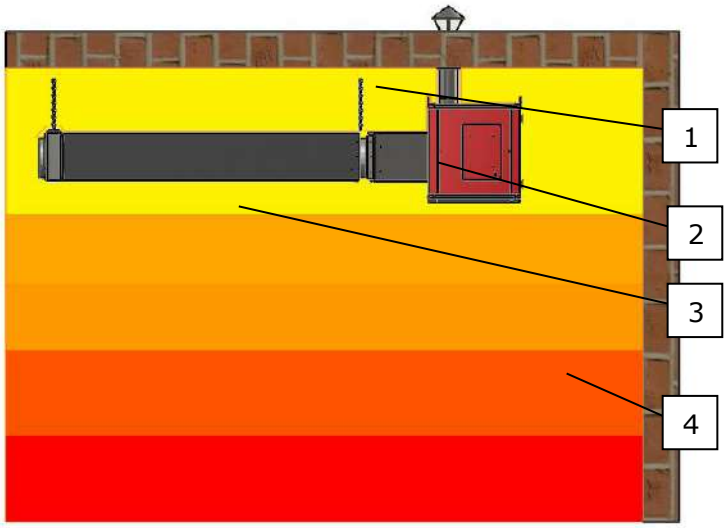


Hot air generator placed on the roof remains out of sight. Suitable bracket for fixing to the roof and first section of the radiant module must be in stainless steel. This installation is considered to be very limited, as the first sections are heavily stressed by the burner flame. If you opt for this solution, it is advisable to install the unit inclined of 30° or 45° to the roof line, to initially have a straight section.

DESCRIPTION:

1. Fume exhaust terminal
2. I-RAD hot air generator
3. Radiant module
4. Temperature probe

CEILING SUSPENDED INSTALLATION



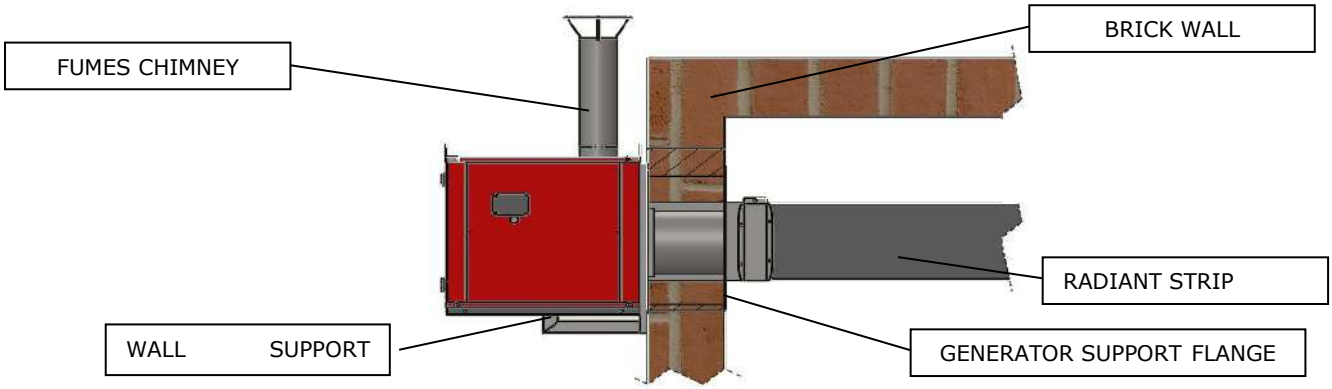
Hot air generator suspended by the ceiling. Special bracket for fixing chains to install directly suspended inside the building to be heated. This solution is useful in countries where the external temperatures are very low so that the on-board components of the generator are protected from freezing.

DESCRIPTION:

1. Fume exhaust terminal
2. I-RAD hot air generator
3. Radiant module
4. Temperature probe

ADDITIONAL INFORMATION ON GENERATOR INSTALLATION

The positioning of the I-RAD generator must possibly be horizontal. The fixing must be using its special brackets and bolts supplied. Usually when the generator is positioned outside on the wall, in the hole of the wall a REI 120 panel is used all around. The radiant module must then be connected to the enerator with the bolts and joints supplied.



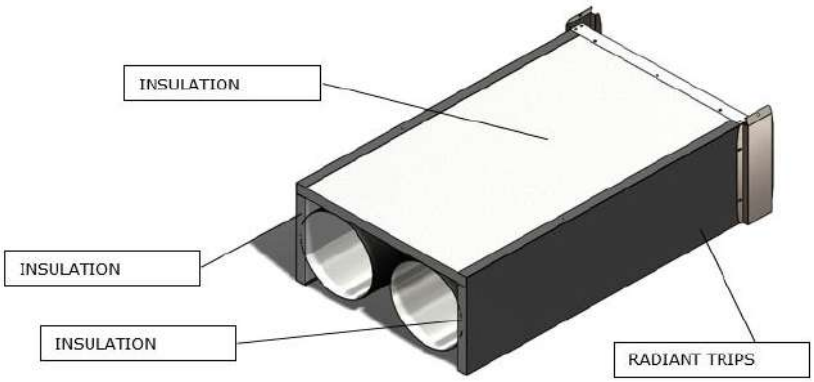
Notes for installer

For the installation of the burner box and of the radiant modules, use only high quality material specifically sized. To install the burner box on the wall, use tie rods passing through the wall and an internal counterplate. Use 12/14 mm diameter threaded bars. In this regard it is important to take into account the weight of the generator, and get information on the structure and composition of the wall where the generator will be positioned.
The burner box through its OMEGA fixed at the back needs to be lifted and placed on the support bracket specially fixed to the wall. The head of the omega fixing bolt under the generator will have to enter the tubular structure as further guarantee of locking the whole system.
Once the generator has been fixed to the wall, install the chimney running by the wall of the building using dowels and guide collars. Complete the fixing of the chimney with the exhaust terminal.

If the generator is installed inside the building hanging from the ceiling, install special dowels with chains suitable for supporting the generator and radiant modules. An anchor point every 2.5 meters or 4 meters depending on the length of the module.
It is recommended to use dowels and chains suitable for supporting the modules (stainless steel / galvanized), with chain thread of not less than 6mm. When fixing the modules, avoid very narrow angles to the support chains. Maximum attention is recommended.

CONSTRUCTIVE CHARACTERISTICS OF THE I-RAD RADIANT STRIP

Our modules



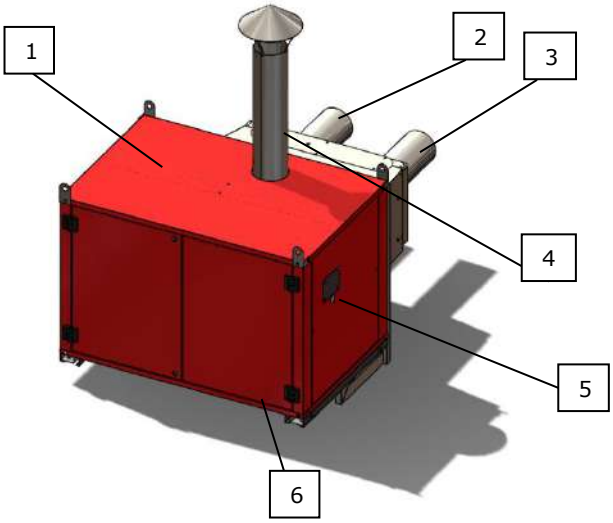
Our I-RAD radiant modules are composed of 1 or 2 emitters (TUBE) parallel to the floor with a variable diameter depending on the thermal power, completely in anti-corrosive aluminized steel. They are (the Tubes) assembled and fixed on the heads of the modules through the grains positioned on the upper part of the head itself. These grains only serve to give a mechanical fixing point but allow the tube to stretch out due to heat thermal expansion. This is a very important solution, since the shape of the radiant module remains constant without yielding and deformation by mechanically extensions due to the heat.
The module is completed by the 2 side walls in painted steel, the ceiling fixing brackets, and the brackets for joining the modules themselves. To improve the heat distribution downwards, each module is insulated with 40 mm thick glass wool on the top and sides.
The entire module complete with insulation and fixing brackets for ceiling suspension, is fully assembled in our factory, the modules are of 2.5 and 4 meters, making it very simple and fast to install on site, as the bulk of the assembly work has already been carried out in the company. To satisfy completely the needs of the end user and the characteristics of the building to be heated, special pieces with irregular shapes can be manufactured, allowing extraordinary flexibility of installations. The standard colour of the radiant tubes is black RAL 9005, on request it is possible to paint them in red, grey or dark blue colour. The side panels are painted standard in light grey RAL 7037 but, on request, can be painted with any colour. The side panels, unlike the tubes, offer an infinite field of colours because they do not affect the performance of the product.

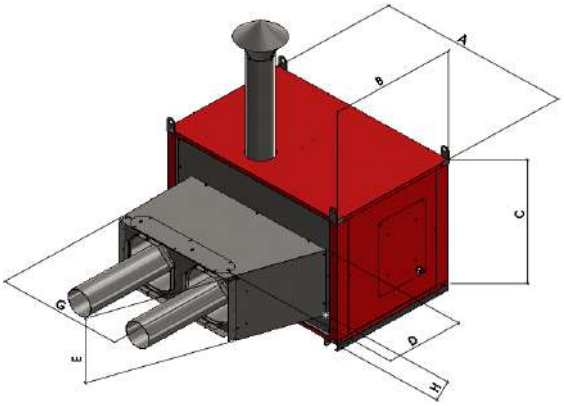
It is very important, in the installation phase, to manage to obtain ideal comfort, to ensure that the radiant modules are as parallel as possible to the floor, that the ceiling is suitable to support the installation of the module, that the "joints" between a pipe and the other are well inserted. The system will be supplied, if necessary, with bends at 45° and 90 °, and a terminal U-shaped curve. Even the curves undergo the same production process as the linear modules. Insulated side panels and top, fixing brackets, painting in colour identical to the tubes. All this to make the aesthetic impact more pleasant.

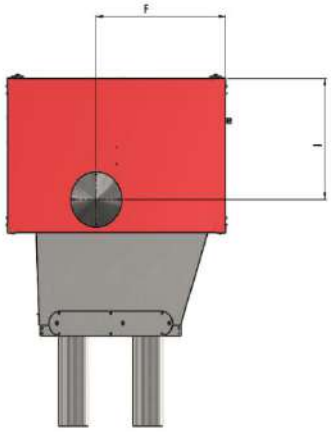
Constructive characteristics - dimensions

DESCRIPTION:

1. hot air generator enclosed box
2. heated air return pipe
3. heated air supply pipe
4. Combustion fumes exhaust chimney
5. Gas input connection ¾''
6. primary air intake for combustion







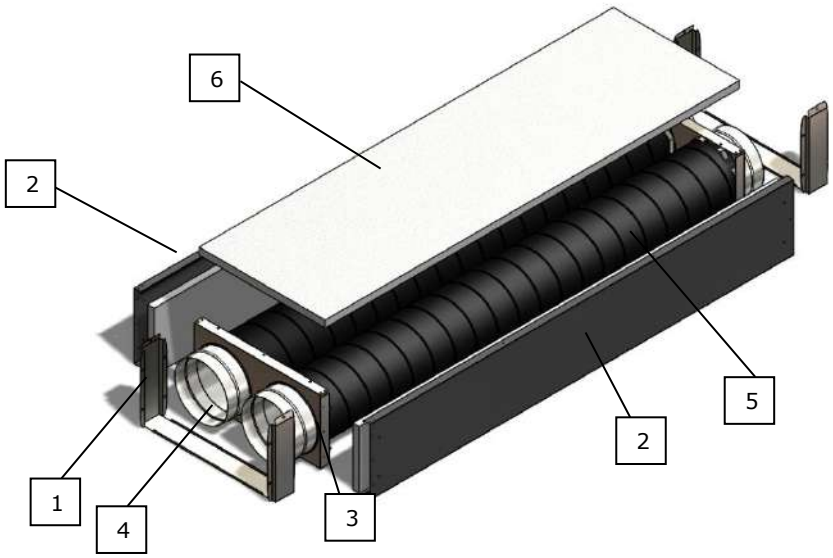
Dimensions (mm)

	I-RAD 100 I-RAD 100X	***I-RAD 200 I-RAD300 I-RAD 200X I-RAD 300X***
A	910	1150
B	540	760
C	610	760
D	475	475
E	330	390
F	370	470
G	700	840
H	100	130
I	420	620

Radiant module assembly/installation

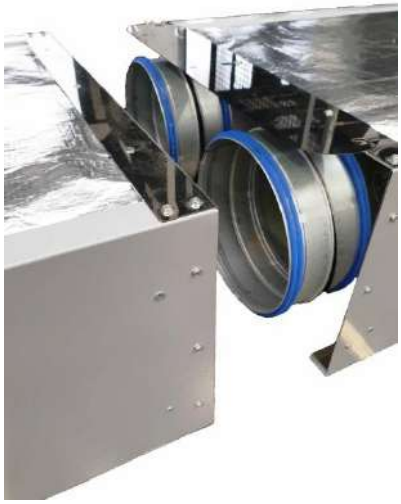
The assembly of the radiant module is very simple and intuitive.
We recommend assembling the structure of the radiating module on the ground using the special brackets supplied.
The steps to be performed are the following:

1. Connect the side panels to the heads;
2. Insert the side insulation;
3. Insert the radiant tubes and lock them with the M8 screw. This screw does not mechanically block the pipe, but allows thermal dilation during the heating phase;
4. Insert the insulation onto the upper part and secure it with the supplied brackets



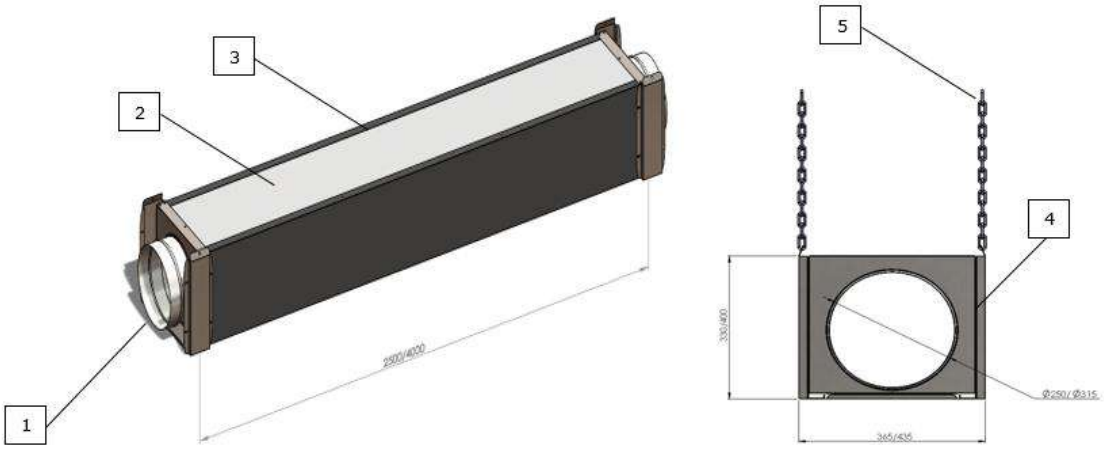
1- Radiant module support brackets
2- Side panels in painted iron
3- Tube blocking heads
4- Tubes joint
5- Radiant tube Diam. 250/315mm
6- Glass wool insulation

IMPORTANT: The modules will be assembled in the factory using bolted connections



Dimensions in the various radiant strip versions

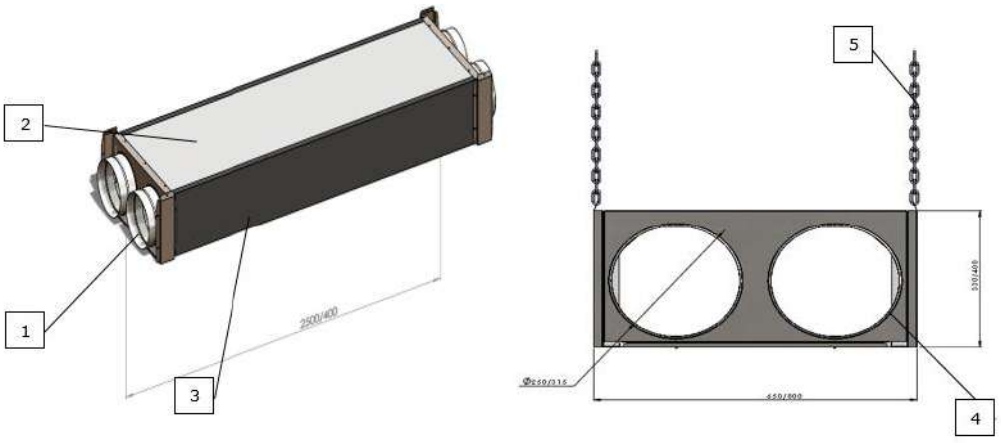
Single tube



Ø250 mm WEIGHT APPROX 12-15 kg (2500 mm – 4000 mm) Ø315 mm WEIGHT APPROX 13-17 kg (2500 mm – 4000 mm)

1. Radiant tube diameter 250/315 mm:
2. Glass wool insulation mattress;
3. Side panels in painted steel with complete insultation inside;
4. Tube block head;
5. Radiant module hanging chain;

Double tube

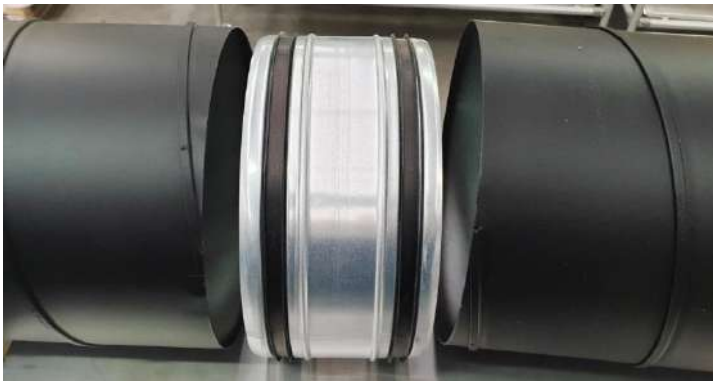


Ø250 mm WEIGHT APPROX 15-17 kg (2500 mm – 4000 mm) Ø315 mm WEIGHT APPROX 19-22 kg (

- 1° Radiant tube diameter 250/315 mm:
- 2° Glass wool insulation mattress;
- 3° Side panels in painted steel with complete insultation inside;
- 4° Tube block head;
- 5° Radiant module hanging chain;

Devices to join tubes

The union of the tubes takes place via the joint sleeve complete with high temperature seal. It guarantees a perfect connection, without points of "leakage" of the combustion products, keeping the circuit always in depression. The entire module is fixed to the ceiling parallel to the floor with supplied brackets to allow the physiological thermal dilation due to the heating of the pipe itself during operation.



Additional information for the installation of the modules

The minimum installation height of the radiant strip is 4 meters from the floor. Our systems adapt to the needs of the building to be heated complying with current regulations. All the elements that make up the I-RAD radiant strip must be installed taking into account the instructions and information provided by the manufacturer or by the technician in charge.

INFORMATION FOR THE INSTALLATION OF THE HOT AIR GENERATOR

The hot air generator and the gas network piping are usually positioned externally to the building.

Why install I-RAD

- High thermal emission due to the large emission surface:
- No air movement and consequently no dust movement in the building:

- Optimal comfort due to direct and well distributed radiation;
- Quick installations through the fixing systems designed by SIABS SRL;
- No presence and danger of icing as the radiant strips move hot air and not fluids, steam, etc;
- Constant temperature over the entire length of the module.
- Respectful of the environment as the fuel used Methane / LPG generates very low levels of Nox-CO;
- No vertical air stratification;
- Installation of multiple strips in zones with the possibility of controlling the generators according to the necessities,
- Reliability, high quality components, very low maintenance;
- Quick heat permits to reach comfort temperatures very fast

Use principles and safety devices

The operating principle can be summarized in these steps:

- premix pressure burner or premix metallic fiber burner to generate heat; this is triggered by a gas group composed of a solenoid valve and an ignition / detection unit
- premix fan, safety pressure switch, and venturi in the modulating power version. Once the recirculation impeller is working, the pressure switch gives consent to the burner to operate. The burner internal control activates the fan for the primary air and then after the washing time activates the ignition electrode simultaneously with the opening of the gas valve.
  At this point the Burner triggers, generating a flame detected by the detection electrode present on the burner head.
- Recirculation fan specifically designed to generate a vacuum in the entire radiant strip system, and partial expulsion of the combustion products. The recirculation fan circulates the hot air created by the burner flame consequently heating the radiant pipes to temperatures that reach around 300 ° C.
- The radiant module, composed by RAL 9005 black painted pipes that increase the radiant efficiency, insulation on the top and side of the module, once it reached the operating temperature heats the building downwards by radiation, generating an excellent comfort.
- The entire I-RAD system is managed by an electronic detection device, which uses an internal radiant probe and external probe (optional) to control the room temperature by managing the burner operating phases according to the parameters set and the various times working.
- The control and safety devices of the burner and fan interrupt the operation of the entire product in case of any anomaly found; Both the burner and the burner group are controlled and managed throughout operation by the air pressure switches, safety thermostats, and flame ionisation detection electrode. For any anomaly (absence of gas, rupture of a duct, malfunctioning of the recirculation fan, etc.) the safety devices stops the burner immediately bringing it to the OFF position

Connection to the Gas network

IMPORTANT: the hydraulic connection of the appliance to the gas distribution network must be carried out according to the instructions given in this manual, exclusively by professionally qualified personnel. The radiant strip is supplied according to the type of gas selected, so before connecting to the gas supply network, **make sure that the gas used and the gas circuit pressure corresponds to what is indicated on the data plate of the burner. Before connecting to the gas mains, make sure that the pipes are well cleaned and made in compliance with the regulations in force in the country of installation.**
RECOMMENDATIONS: install a **gas shut-off valve** near the burner unit and in an easily accessible position, and make the connection between the burner unit and the gas supply network with an **approved steel flexible hose.**

IMPORTANT: **"gas network pressure" means the DYNAMIC PRESSURE of the circuit**, or of the part of the circuit downstream of the pressure reducer, detected with **ALL appliances in function**. **With low pressure there could be ignition difficulties.**

In case of high gas pressure values, install suitable pressure reducers.

All fittings must be sealed with gaskets or other types of sealing materials suitable for the type of gas used.

Before inputting the gas into the pipeline, carefully clean the duct from any residues, it is advisable to install a filter of adequate size.

Before turning on the burner, release the air in the pipes.

Once connected, **in compliance with the regulations in force in the country of installation**,

a) check the hydraulic tightness of the gas pipes and of the fitting to the appliance,
b) check that the operating pressure is correct,
c) ensure that the appliance operates in the conditions for which it was manufactured.

IMPORTANT: all our products are **supplied already tested and calibrated** to the correct operating pressure;

The gas network pipe must be installed **distant from heat sources and from the combustion discharge of the appliance.**

Electrical network connection

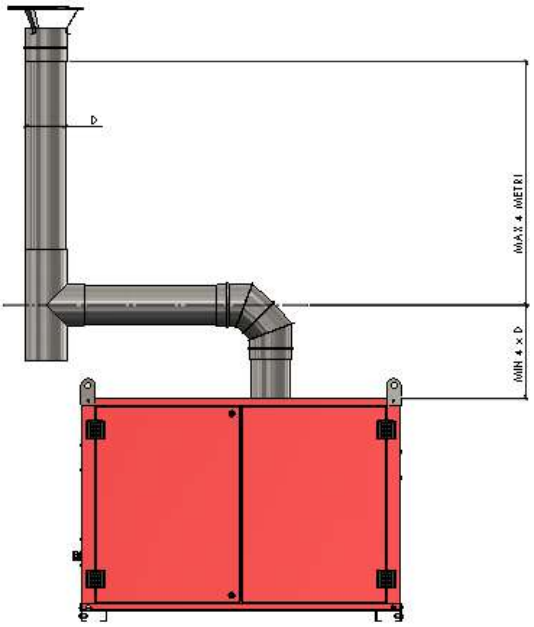
The electrical connection of the appliance must be carried out according to the instructions given in this manual by professionally qualified personnel only. **The installation must be performed in compliance with the regulations in force in the country of installation**

The radiant strip must be supplied with a voltage of 400 Volt / three-phase / 50Hz. For the sizing of the electrical power supply line, use this manual or refer to the data shown on the data plate of the radiant strip.
The wiring diagrams are shown in this manual.
For the correct operation of the appliance it is essential to respect the correct phase and neutral connection as indicated on the diagram.

IMPORTANT: it is also **essential**, for the correct operation of the appliance and for the safety of the user, that an **efficient grounding system** is installed, performed in accordance with the regulations in force. Under no circumstances should the gas connection pipes be used as part of the grounding system.

Combustion fumes discharge

The discharge of the combustion fumes must be outdoors using a metal duct. Metal ducts for combustible products must have a diameter equal to that indicated in the burner, or larger diameter. A maximum length of 4 meters is allowed with the possibility of 2 curves at 45 ° or one at 90 °. However, it is advisable to position the first curve at a distance of at least 4-5 times the diameter of the duct. The duct must be anchored on the wall, where possible, with collars without weighing on the burner. It is also advisable to use rigid and non-flexible corrugated ducts, with wall protection if the duct must pass through a wall. The recommended route is perpendicular to the burner.



PRODUCT COMMISSIONING

Preliminary check before commissioning in compliance with the regulations in force

- Sealed gas connections on air purged pipes;
- Gas characteristics similar to those indicated on the data plate;
- Sealed combustion fumes ducts;
- Electrical power supply corresponding to the requirements of this manual;
- Anchors suitable for radiant module support
- Gas tap in open position upstream of the burner

IMPORTANT:

These operations must be carried out by qualified personnel

Once the connections have been completed, check that:

Operations to be performed after preliminary checks

- Supply electricity to the radiant strip through the main switch located upstream of the control panel and set the thermostat to request maximum heat.
- The main recirculation fan starts to rotate (check that the direction of rotation is correct), if not rotating in the correct direction disconnect the main switch cabling and make the necessary changes by reversing a phase of the 400V. The burner chamber washing time (about 30 seconds) will start at the same time before operating the flame at maximum power
- In this phase it is important to check for abnormal burner noise, vibrations, rubbing, and objects inside pipes that should not be there. Should these problems occur, turn off the main switch, identify the cause and make the necessary corrections.
- During the burner start-up, check that the consumption (flow rate) is equivalent to what is indicated in the burner characteristics table.
- During the first start-up phases, it is advisable to ventilate the room to be heated, as the pipes and the burner itself could generally cause initial smoke due to processing residues. This situation will diminish during the repeated use of the strip itself.

- After the radiant strip burner switches off the recirculation fan proceeds to a post-operation washing cycle for a few minutes, the length of time for this is set via a programmable timer.
- Check the burner block function.
- Check the functioning of the "Burner block" by interrupting the gas flow to burner via the gas tap located upstream of the radiating strip. After this operation, the burner will have to stop and go in a locked state with the main fan running for a few minutes for the Post-operation wash.
- Restore the correct operation of the burner by opening the gas tap, and pressing the burner RESET button.

Radiant strip calibration

Each appliance is checked and tested at our production facility, with calibration for the chosen gas. During the first ignition, check that the parameters found on the burner coincide with those indicated in the technical characteristic table of this manual.

Gas convertion

The gas convertion operation consists in replacing the gas injector and subsequently recalibrating the gas valve. This operation must be performed by qualified personnel.

PROTECTION SYSTEMS

Personnel operating on radiant strips are required to use all mandatory personal protections required by law

EVENTUAL DANGEROUS AND EMERGENCY SITUATIONS

The radiant strip in particular the overheated tubes of the modules reach temperatures above 60 ° C. therefore pay attention to direct contact. If maintenance is required near the pipes, turn off the burner beforehand in time to ensure that the pipe's temperature is below 50 ° C.

Also pay close attention during the assembly of the modules, as with the fan on, there could be direct contact with the moving blades. Do not introduce limbs in the pipes leaving the heating unit.

How to proceed in case of emergency

- *close the gas tap located upstream of the burner;*
- *select the OFF position on the main power supply switch;*
- *Identify the potential cause of anomaly;*
- *Contact the SIABS SRL SRL technical service*

HOW TO USE THE RADIANT STRIP – FOR THE END USER

START the HEATING SYSTEM

Activate the main switch in the ON position and set the desired room temperature on the thermostat. If the set value exceeds the ambient temperature in that moment, the main recirculation fan will start to rotate, then giving authorization to ignition of the burner through a pressure switch, before the burner ignites it carries out a chamber cleaning cycle of the duration of about 30 seconds.
In the event of a failed ignition, the burner lockout light on the temperature control unit will activate automatically. To carry out a new ignition cycle, press the RESET button.

The management of the radiant strip operation takes place exclusively via the room thermostat with the possibility of system management also via the BMS cable

SWITCHING OFF the HEATING SYSTEM

To switch off the heating system it will be sufficient to act on the room thermostat setting a temperature lower than that detected at the moment. With this operation, the burner will immediately enter the OFF mode. For a few minutes the main recirculation fan will continue to operate for the washing cycle by evacuation of the residual combustion fumes. It is advisable never to switch off the system by acting on the main switch as this operation does not permit the washing cycle and total evacuation of the combustion fumes.

Heating system management in the months of non-use

During the period of non-use, carry out these brief tasks to ensure the correct management of the product.

- Close the gas tap upstream of the burner
- Disconnect the electrical power by acting on the main switch
- Set the room thermostat to the minimum temperature

ANOMALIES - CAUSES - REMEDIES

If the product does not work:

- Lack of network gas
  - ➢ Gas valve upstream of the burner closed
    - Open the gas tap

- Lack of electrical voltage
  - ➢ Check the main switch position
    - Turn the main switch to the ON position

- Lack of input by the thermostat
  - ➢ Check the temperature set on the thermostat
  - ➢ Check the correct programming of the daily / weekly clock
    - Increase the set temperature value
    - Reprogram the clock programs

- Burner anomaly light is on
  - ➢ Check the light colour (if RED, the burner is blocked)
    - Press the burner RESET button

IMPORTANT
It is advisable to carry out maximum 3-4 tries of ignition cycles. If the problem persists with relative burner blockage, contact the SIABS SRL technical service.

IMPORTANT

For maintenance operation near the radiant strip, or the combustion fumes evacuation duct, it is always advisable to stop the operation of the radiant strip at least 30-40 minutes before starting the maintenance. It is mandatory during LPG refuelling operations not to operate the radiant strip until the end of refuelling. If you smell gas in the building, immediately stop the operation of the radiant strip, check the potential leak point, solve the problem and then restore product operation.

RADIANT STRIP MAINTENANCE

Safety rules for maintenance

- It is recommended to have the product serviced always and only by qualified personnel. Such personnel must possess the requirements of suitability to operate on gas-operated products. It is important that the maintenance personnel always use all the personal protective equipment in accordance with the laws in force.
- Before starting any cleaning or maintenance operation, remember to switch off the radiant strip to permit to the tubes and combustion fumes exhaust duct to cool down.
- Do not use flammable products for maintenance and cleaning of the burner

Warnings and checks to be carried out before commissioning after the seasonal stop

- Check the general condition and operation of the burner;
- Check the general state of the radiating modules;
- Check the gas supply pressure;
- Check the operation of the room thermostat;
- Check the cleanliness and condition of the combustion fumes evacuation duct;
- Check the status of the hanging devices;
- Check the operation of the safety devices.

IMPORTANT

Before carrying out any maintenance operation read carefully this section of the user manual. For any need contact the SIABS SRL technical assistance.

- Report all maintenance operations carried out on a specific register

DISMANTLING AND DISPOSAL

INFORMATION TO USERS pursuant to article 13 of Legislative Decree 25 July 2005, n. 151 "Implementation of the 2002/95 / CE, 2002/96 / CE and 2003/108 / CE directives, concerning the reduction of the use of dangerous substances in electrical and electronic equipment, as well as the disposal of waste".

At the end of its use life, the product must be collected separately from other waste. The user must therefore transfer the equipment that has reached the end of its life to the appropriate separate collection centres for electronic and electro technical waste, or return it to the retailer when purchasing a new equivalent type of equipment, on a one-to-one basis.

The adequate separate collection of the dismantled product, permits treatment and disposal compatible with the environment, avoiding possible negative effects on the environment and health, this promotes the recycling of the materials of which the equipment is made of.

The abusive disposal of the product by the holder implies the application of the administrative sanctions by the current legislation.

N.B. – Do not dispose of the product in unsorted municipal waste

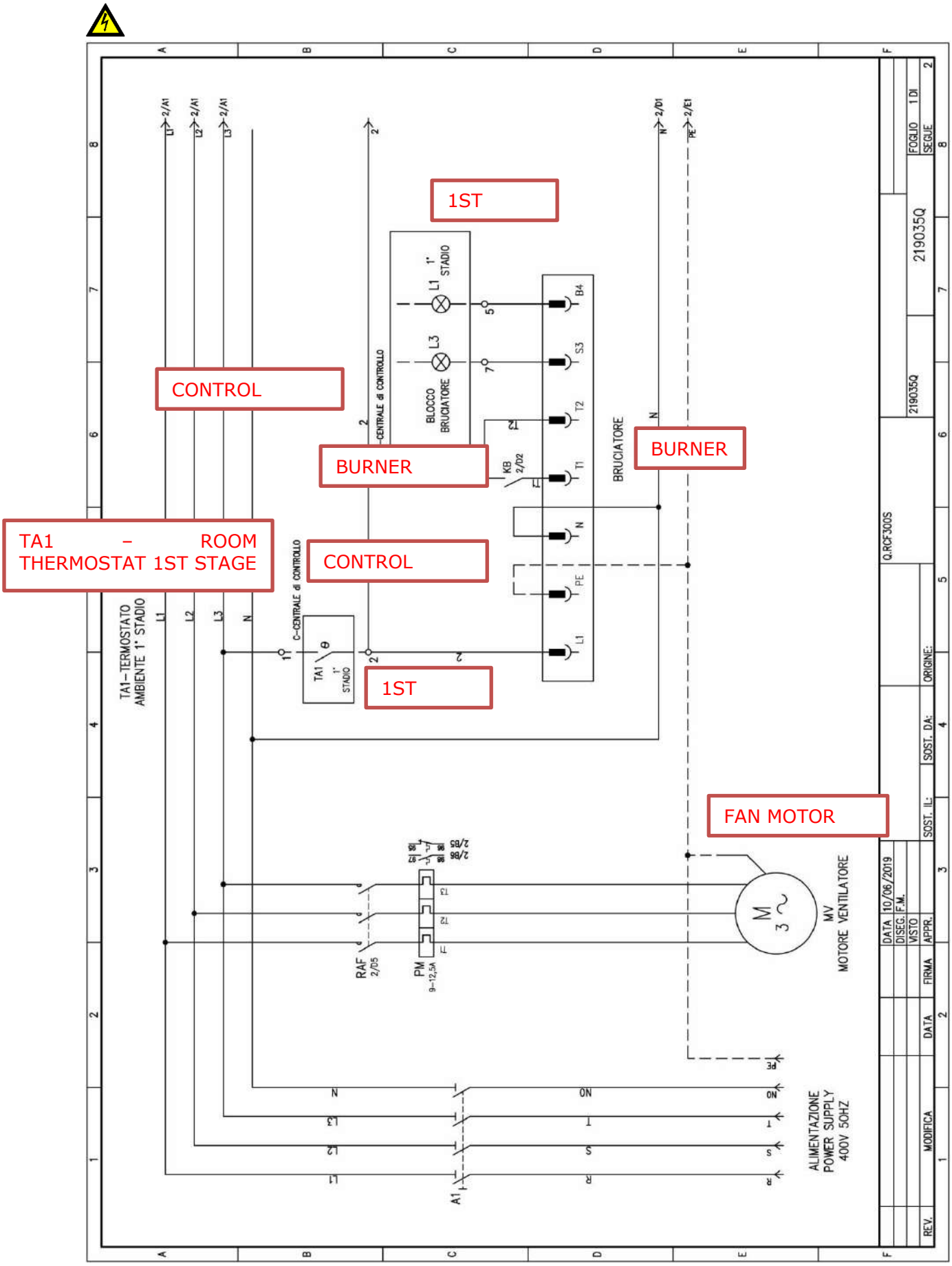
MAINTENANCE REPORT

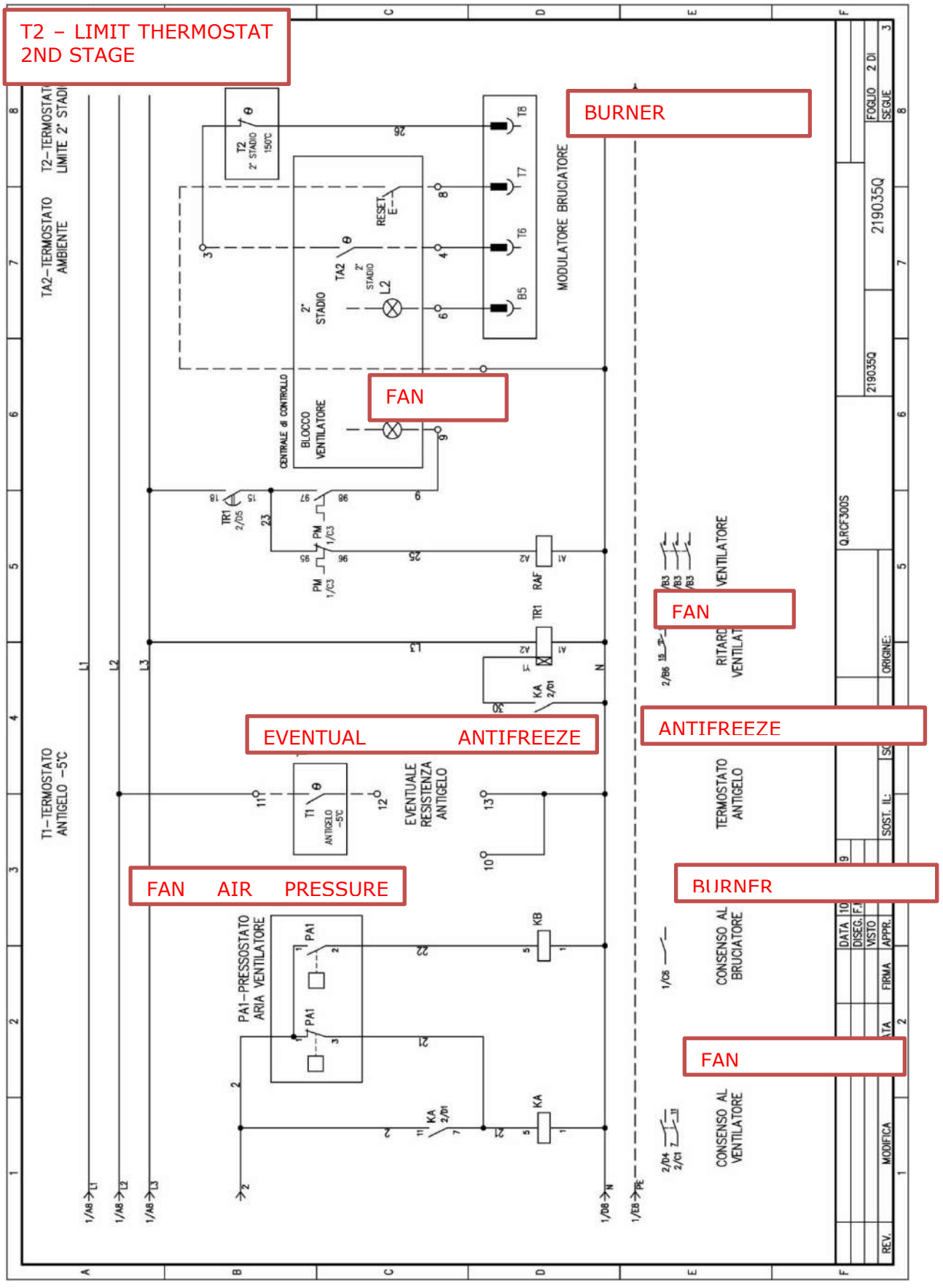
DATE and STAMP	INTERVENTION / NOTES

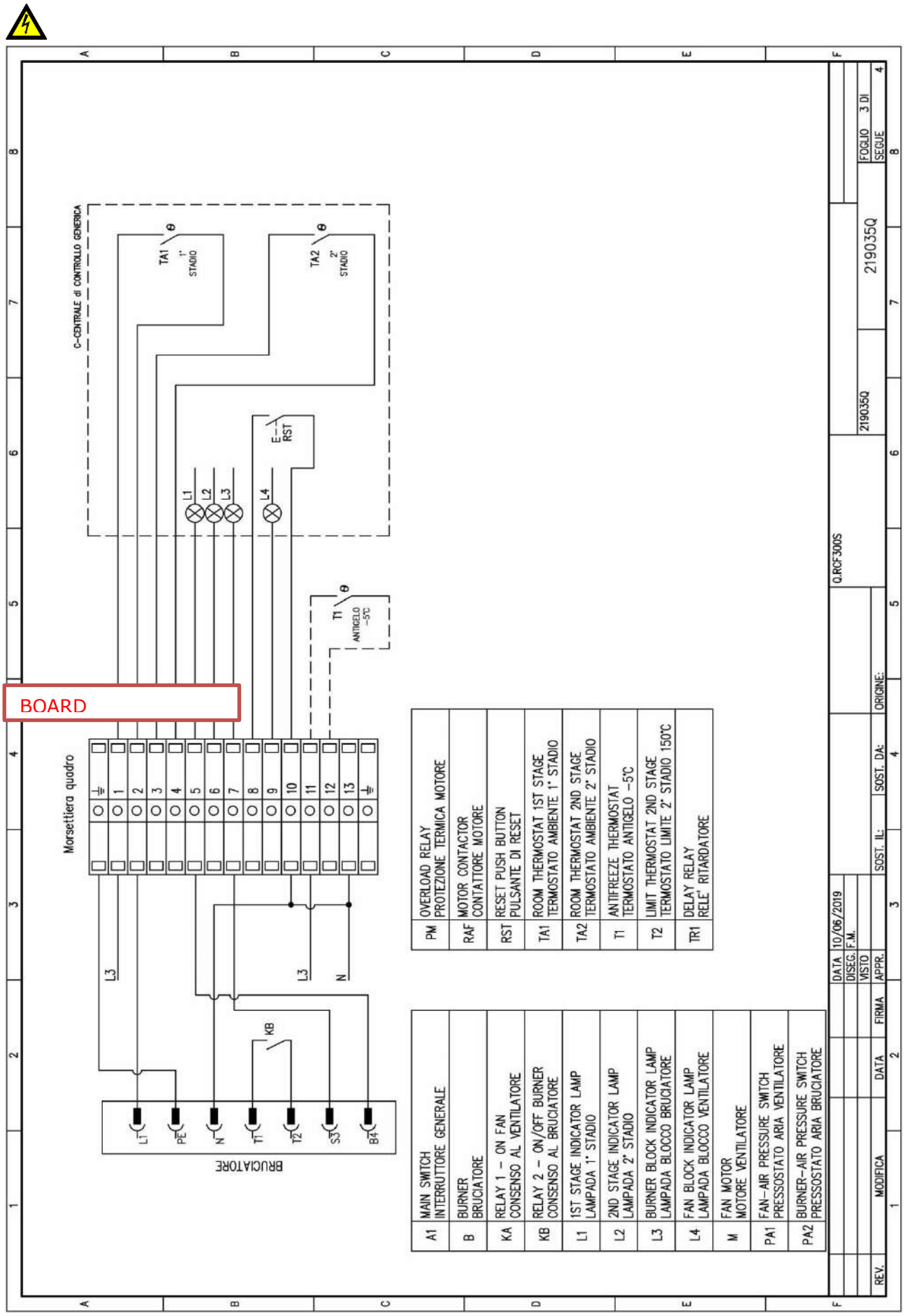
DATE and STAMP	INTERVENTION / NOTES

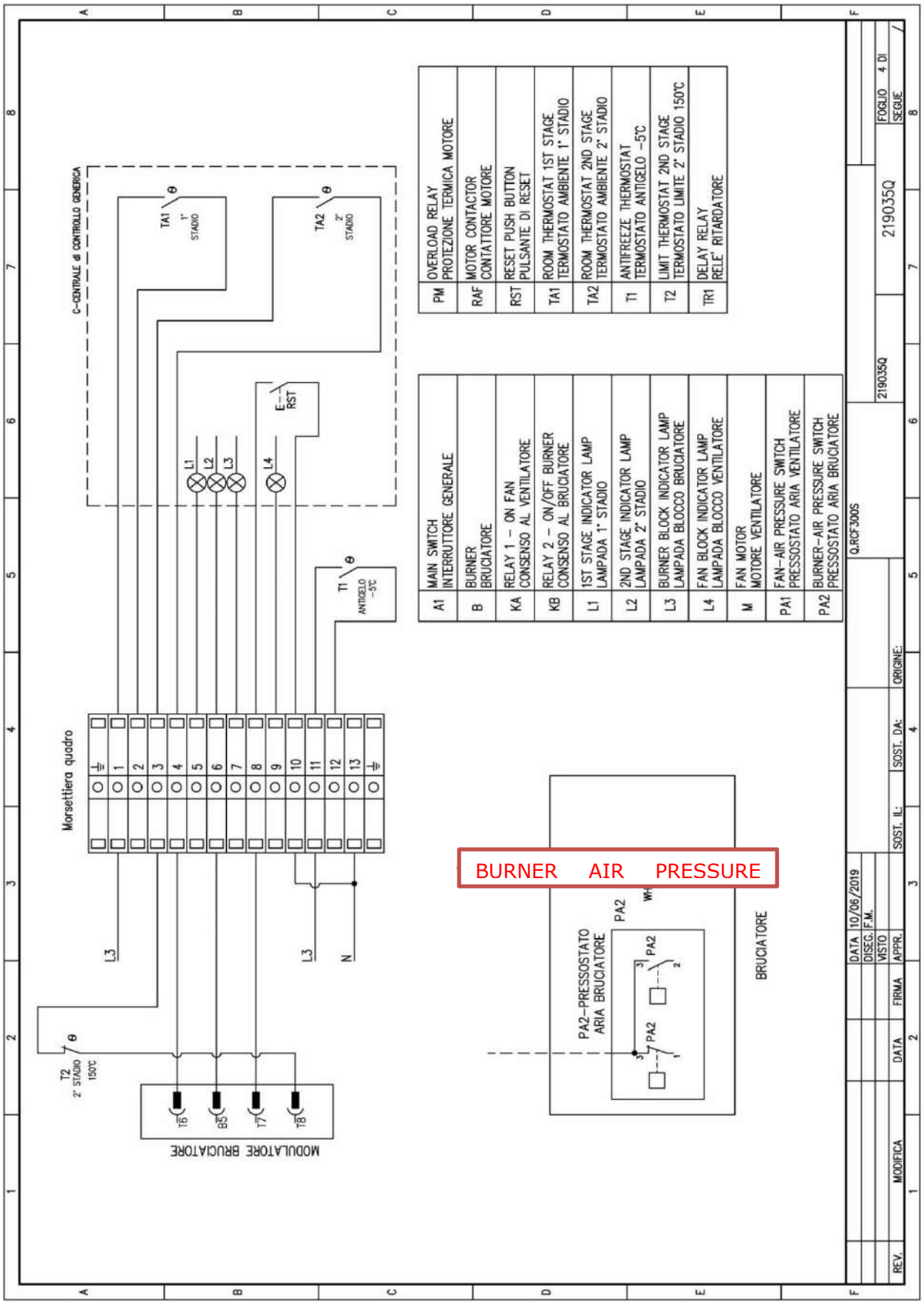
DATE and STAMP	INTERVENTION / NOTES

DATE and STAMP	INTERVENTION / NOTES


1ST
CONTROL
BURNER
BURNER
TA1 – ROOM THERMOSTAT 1ST STAGE
CONTROL
1ST
FAN MOTOR
TA1–TERMOSTATO AMBIENTE 1° STADIO
CENTRALE di CONTROLLO
BLOCCO BRUCIATORE
BRUCIATORE
MV MOTORE VENTILATORE
ALIMENTAZIONE POWER SUPPLY 400V 50HZ
Q.RCF300S
219035Q


T2 – LIMIT THERMOSTAT 2ND STAGE
BURNER
FAN
FAN
EVENTUAL ANTIFREEZE
ANTIFREEZE
FAN AIR PRESSURE
BURNER
FAN
T2 – TERMOSTATO LIMITE 2° STADIO
TA2 – TERMOSTATO AMBIENTE
T1 – TERMOSTATO ANTIGELO –5°C
MODULATORE BRUCIATORE
CENTRALE di CONTROLLO
BLOCCO VENTILATORE
2° STADIO
RESET
L1
L2
L3
N
PE
RAF
VENTILATORE
RITARDO VENTILAT.
EVENTUALE RESISTENZA ANTIGELO
TERMOSTATO ANTIGELO
PA1 – PRESSOSTATO ARIA VENTILATORE
CONSENSO AL BRUCIATORE
CONSENSO AL VENTILATORE
Q.RCF300S
219035Q
ORIGINE:
SOST. IL:
DATA
DISEG. F.
VISTO
APPR.
FIRMA
MODIFICA
REV.
FOGLIO 2 DI 3
SEGUE


BOARD
C-CENTRALE di CONTROLLO GENERICA
TA1 1° STADIO
TA2 2° STADIO
T1 ANTIGELO -5°C
L1
L2
L3
L4
E
RST
Morsettiera quadro
BRUCIATORE
L1
PE
N
T1
T2
S3
B4
KB
L3
N
A1 MAIN SWITCH INTERRUTTORE GENERALE
B BURNER BRUCIATORE
KA RELAY 1 – ON FAN CONSENSO AL VENTILATORE
KB RELAY 2 – ON/OFF BURNER CONSENSO AL BRUCIATORE
L1 1ST STAGE INDICATOR LAMP LAMPADA 1° STADIO
L2 2ND STAGE INDICATOR LAMP LAMPADA 2° STADIO
L3 BURNER BLOCK INDICATOR LAMP LAMPADA BLOCCO BRUCIATORE
L4 FAN BLOCK INDICATOR LAMP LAMPADA BLOCCO VENTILATORE
M FAN MOTOR MOTORE VENTILATORE
PA1 FAN–AIR PRESSURE SWITCH PRESSOSTATO ARIA VENTILATORE
PA2 BURNER–AIR PRESSURE SWITCH PRESSOSTATO ARIA BRUCIATORE
PM OVERLOAD RELAY PROTEZIONE TERMICA MOTORE
RAF MOTOR CONTACTOR CONTATTORE MOTORE
RST RESET PUSH BUTTON PULSANTE DI RESET
TA1 ROOM THERMOSTAT 1ST STAGE TERMOSTATO AMBIENTE 1° STADIO
TA2 ROOM THERMOSTAT 2ND STAGE TERMOSTATO AMBIENTE 2° STADIO
T1 ANTIFREEZE THERMOSTAT TERMOSTATO ANTIGELO –5°C
T2 LIMIT THERMOSTAT 2ND STAGE TERMOSTATO LIMITE 2° STADIO 150°C
TR1 DELAY RELAY RELE' RITARDATORE
Q.RCF300S
2190350
FOGLIO 3 DI 4
SEGUE 8
REV. MODIFICA DATA FIRMA
DATA 10/06/2019
DISEG. F.M.
VISTO
APPR.
SOST. IL: SOST. DA: ORIGINE:


C-CENTRALE di CONTROLLO GENERICA
TA1 1° STADIO
TA2 2° STADIO
L1
L2
L3
L4
E
RST
T1 ANTIGELO -5°C
Morsettiera quadro
1 2 3 4 5 6 7 8 9 10 11 12 13
L3
L3
N
T2 2° STADIO 150°C
T6
B5
T7
T8
MODULATORE BRUCIATORE
A1 MAIN SWITCH INTERRUTTORE GENERALE
B BURNER BRUCIATORE
KA RELAY 1 – ON FAN CONSENSO AL VENTILATORE
KB RELAY 2 – ON/OFF BURNER CONSENSO AL BRUCIATORE
L1 1ST STAGE INDICATOR LAMP LAMPADA 1° STADIO
L2 2ND STAGE INDICATOR LAMP LAMPADA 2° STADIO
L3 BURNER BLOCK INDICATOR LAMP LAMPADA BLOCCO BRUCIATORE
L4 FAN BLOCK INDICATOR LAMP LAMPADA BLOCCO VENTILATORE
M FAN MOTOR MOTORE VENTILATORE
PA1 FAN–AIR PRESSURE SWITCH PRESSOSTATO ARIA VENTILATORE
PA2 BURNER–AIR PRESSURE SWITCH PRESSOSTATO ARIA BRUCIATORE
PM OVERLOAD RELAY PROTEZIONE TERMICA MOTORE
RAF MOTOR CONTACTOR CONTATTORE MOTORE
RST RESET PUSH BUTTON PULSANTE DI RESET
TA1 ROOM THERMOSTAT 1ST STAGE TERMOSTATO AMBIENTE 1° STADIO
TA2 ROOM THERMOSTAT 2ND STAGE TERMOSTATO AMBIENTE 2° STADIO
T1 ANTIFREEZE THERMOSTAT TERMOSTATO ANTIGELO –5°C
T2 LIMIT THERMOSTAT 2ND STAGE TERMOSTATO LIMITE 2° STADIO 150°C
TR1 DELAY RELAY RELE' RITARDATORE
BURNER AIR PRESSURE
PA2–PRESSOSTATO ARIA BRUCIATORE
PA2
BRUCIATORE
Q.RCF300S
2190350
219035Q
FOGLIO 4 DI
SEGUE
REV.
MODIFICA
DATA
FIRMA
DATA 10/06/2019
DISEG. F.M.
VISTO
APPR.
SOST. IL:
SOST. DA:
ORIGINE:

DECLARATION:

CONFORMITY DECLARATION	
Manufacturer :	***SIABS SRL SRL***
Address:	Viale Del Lavoro, 7 Casorezzo (MI) 20003
Product:	Radiant strip for industrial heating
Model :	I-RAD 100 – I-RAD 100X I-RAD 200 – I-RAD 200X I-RAD 300 – I-RAD 300X

These products are in conformity with the following community directives:

- **2006/42/CE** *Machinery Directive*
- **2009/125/CE** *Ecodesign Directive*
- **2014/35/UE** *Low tension Directive*
- **2014/30/UE** *Electromagnetic compatibility Directive*
- **2016/426/UE** *Gas appliances Directive*

Simone Melara
Technical Director
SIABS SRL SRL

CE 0085

DVGW CERT

EU type examination certificate

EU-Baumusterprüfbescheinigung

CE-0085DL0160
Product Identification No.
Produkt-Identnummer

Field of Application ***Anwendungsbereich***	EU Gas Appliances Regulation (EU/2016/426) *EU-Gasgeräteverordnung (EU/2016/426)*
Owner of Certificate ***Zertifikatinhaber***	SIABS S.r.l. Via del Lavoro, 7, I-20010 Casorezzo (MI)
Distributor ***Vertreiber***	SIABS S.r.l. Via del Lavoro, 7, I-20010 Casorezzo (MI)
Product Category ***Produktart***	Heating or air conditioning appliances: Radiant heater (dark) (3311)
Product Description ***Produktbezeichnung***	overhead radiant strip heater
Model ***Modell***	I-RAD...
Countries of Destination ***Bestimmungsländer***	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR
Test Reports ***Prüfberichte***	type testing: 705TR1900064_01 from 06.03.2020 (FGL)
Test Basis ***Prüfgrundlagen***	EU/2016/426 A III B (09.03.2016) DIN EN 17175 (01.04.2020)
Date of Expiry / File No. ***Ablaufdatum / AZ***	10.11.2030 / 20-0013-GEE

10.11.2020 Rie A-1/2
Date, Issued by, Sheet, Head of Certification Body
Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle

DVGW CERT GmbH is an accredited body by DAkkS according to DIN EN ISO/IEC 17065:2013 and notified by the government of the Federal Republic of Germany for certification of gas appliances under EU Regulation EU/2016/426.

DVGW CERT GmbH ist von der DAkkS nach DIN EN ISO/IEC 17065:2013 akkreditierte und von der Deutschen Bundesregierung benannte Stelle für die Zertifizierung von Gasgeräten gemäß EU-Verordnung EU/2016/426.

DAkkS
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D-ZE-16028-01-01

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Elektrical Data ***Elektrische Daten***	230 V AC, 50-60 Hz 3N 400 V AC, 50-60 Hz

Appliance Categories ***Gerätekategorien***	**Supply Pressures** ***Versorgungsdrücke***	**Countries of Destination** ***Bestimmungsländer***	**Remarks** ***Bemerkungen***
I2E+	20/25 mbar	BE, FR	
I3+	28-30/37 mbar	BE, FR	
I3B/P	30 mbar	CY, MT	
I3P	30 mbar	IS	
II2E3B/P	20, 50 mbar	DE	
II2E3B/P	20, 37 mbar	PL	
II2E3P	20, 37 mbar	PL	
II2H3+	20, 28-30/37 mbar	CH, CZ, IT	
II2H3B/P	20, 30 mbar	CZ, DK, EE, FI, HR, LT, LV, SE, SI, SK, TR	
II2H3B/P	20, 50 mbar	AT, NO	
II2H3B/P	25, 30 mbar	HU	
II2H3P	20, 37 mbar	EE, ES, GB, GR, IE, LT, LV, PT, SI, SK	
II2L3B/P	25, 37 mbar	NL	

Installation Codes ***Installationsarten***	**Countries of Destination** ***Bestimmungsländer***	**Remarks** ***Bemerkungen***
B22	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR	

Type ***Typ***	**Technical Data** ***Technische Daten***	**Remarks** ***Bemerkungen***
I-RAD 100; I-RAD 100X	heat input (Hi): 66,0...85,0 kW	
I-RAD 200; I-RAD 200X	heat input (Hi): 178,0...210,0 kW	
I-RAD 300; I-RAD 300X	heat input (Hi): 200,0...280,0 kW	

Type Variation ***Ausführungsvariante***	**Explanations** ***Erläuterungen***
...0	burner type: two stage
...X	burner type: modulating

Hints of Utilization /Remarks
Verwendungshinweise / Bemerkungen

Additionally tested appliance categories, supply pressures and countries of destination:
BG: II2H3B/P (20, 30 mbar)
RO: II2H3+ (20, 28-30/37 mbar)
CZ, RO: II2H3+ (25, 28-30/37 mbar)

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