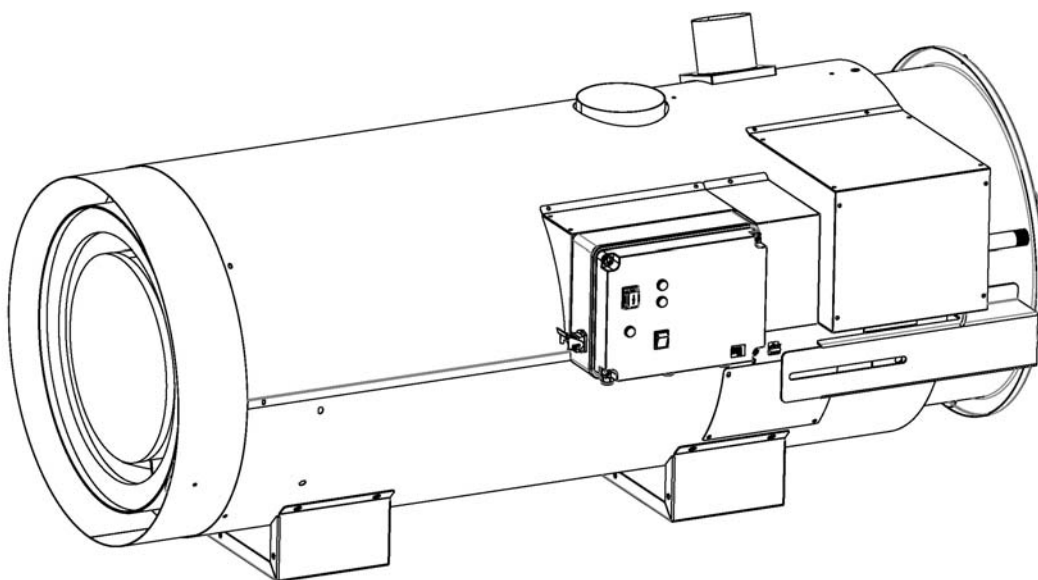


MANUALE D'USO E MANUTENZIONE
MANUEL D'INSTRUCTIONS
BETRIEBSANLEITUNG
INSTRUCTIONS MANUAL
MANUAL DE INSTRUCCIONES
РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ И ТЕХОБСЛУЖИВАНИЮ

IT	GENERATORE D'ARIA CALDA
FR	GENERATEUR D'AIR CHAUD
DE	WARMLUFTERZEUGER
EN	SPACE HEATER
ES	GENERADOR DE AIRE CALIENTE
RU	ТЕПЛОВОЙ ГЕНЕРАТОР



BH 50 – BH 100

GAS

DICHIARAZIONE DI CONFORMITÀ C E
C E - KONFORMITÄTSEKTLÄRUNG
DECLARACION C E DE CONFORMIDAD
C E - OVERENSSTEMMELSESATTEST
C E - VAATIMUSTENMUKAISUUDEN VAHVISTUS
ΔΗΛΩΣΗ ΟΜΟΙΟΤΗΤΑΣ C E
ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ C E

DECLARATION DE CONFORMITE C E
C E DECLARATION OF CONFORMITY
DECLARAÇÃO C E DE CONFORMIDADE
C E - ÖVERENSSTÄMNINGSINTYG
VERKLARING VAN CONFORMITEIT C E
C E ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

La sottoscritta - La société - Der/die Unterzeichnende - We - La suscrita - A abaixo assinada
Firmaet - Undertecknad firma - Yritys - Ondergetekende - Η υπογεγραμμένη - Долуподписаната - Компания

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Dichiara sotto la propria responsabilità che la macchina nuova:
Erklärt unter eigener Verantwortung, daß die neue Maschine:
Declara sobre la propria responsabilidad que la máquina nueva:
Attester herved på eget ansvar, at den nye maskine:
Vahvistaa täten omavastuisesti, että sen toimittama ja oheisissa käyttöohjeissa tarkemmin esittelemä uusi kone:
Verklaart onder eigen verantwoordelijkheid dat de nieuwe machine:
Декларира на собствена отговорност, че новата машина

Déclare sous la propre responsabilité que la nouvelle machine:
Declare under our sole responsibility that the new machine:
Declara sob a propria responsabilidade que a máquina nova:
Intyggar på eget ansvar, att den nya maskinen:
Intyggar på eget ansvar, att den nya maskinen:
Δηλώνει κάτω από τη δικιά της ευθύνη ότι η καινούργια μηχανή:
Со всей ответственностью заявляет, что новое оборудование:

Modello - Modèle - Modell - Make - Modelo - Modelo
Model - Modell - Malli - Model - Прототипо - Модел - Модели

Tipo - Type - Typ - Type - Tipo - Tipo
Type - Typ - Туурпи - Type - Είδος - Тип - Типа

GENERATORE D'ARIA CALDA - GÉNÉRATEUR D'AIR CHAUD
WARMLUFTERHITZER MODELL - SPACE HEATER
GENERADOR DE AIRE CALIENTE - НАГРЕВАТЕЛЬ ВОЗДУХА

BH 50
BH 100

è conforme ai requisiti essenziali di sicurezza indicati dalle **Direttive 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
est conforme aux exigences essentielles de sécurité reprises dans le **Directives 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
auf die sich diese Erklärung bezieht, die Anforderungen des **Richtlinie 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
to which this declaration relates, conforms to the provision of **Directives 2006/42/CE 2006/95/CE, 2004/108/CE, 2009/142/CE.**
es conforme con la **Directiva 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
està conforme a **Directiva 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
er i overensstemmelse med gældende lov, der har indført **Direktivet 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
översensstämmer med de lagar, som antagit **Direktivet 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
EU: n koneita koskevan **Direktiivin 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
conform de wettelijke beschikkingen is, die de richtlijnen **Betreffende 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
περιγραμμένη στις συνημμένες οδηγίες χρήσεως είναι συμφωνη με τις νομικές διατάξεις που αναφέρονται στη **Διευθυνο 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**
е в соответствии с основните изисквания за безопасност, посочени в **Директиви 2006/42/ЕО, 2006/95/ЕО, 2004/108/ЕО, 2009/142/ЕО.**
к которому относится данная декларация, подтверждает соответствие требованиям **Регламентов 2006/42/CE, 2006/95/CE, 2004/108/CE, 2009/142/CE.**

Cherasco, 28/02/2014


ing. Marco Costamagna
Managing Director

IMPORTANT

Before using the space heater, carefully read all of the instructions and follow them scrupulously. The manufacturer cannot be held responsible for damage to persons and/or property caused by improper use of the equipment.

This instruction manual is an integral part of the equipment and must therefore be stored carefully and passed on with the unit in the event of a change of ownership.

1. DESCRIPTION

The space heaters described in this manual are designed to heat medium or large-size rooms requiring a fixed heating system and, in particular, to heat greenhouses and/or rooms for breeding animals. The air required for combustion is sucked directly by the burner (6) installed in the heater, and can be supplied:

- from the outside by using the flexible connection tube (available as an accessory), which avoids consuming oxygen in the room to be heated, or
- from inside the room to be heated. In this case, the room must be well ventilated to guarantee sufficient exchange of air.

The flow of hot air is moved by the high-efficiency fan (4): air is heated by the thermal energy generated during the combustion and heat from the smoke is transmitted to the fresh air through the metal walls of the sealed combustion chamber and the heat exchanger. After the combustion products are cooled, they are conveyed to a discharge duct and eliminated through a chimney or flue large enough to guarantee their removal.

The space heaters can work with burners having ON-OFF work modes and can run on natural gas / methane (G20) or L.P.G. (butane, G30, and propane, G31), according to the different operating categories approved in European Union countries (Tables I and II).

Warning



Only burners approved by the manufacturer and listed in the "TECHNICAL SPECIFICATION TABLE" can be used. The heater's certification and warranty will lapse if the burner is replaced with a non-original model, even if it has similar specifications.

All of the space heaters are fit with an electronic device that controls the flame and with:

- safety devices (safety thermostat with manual reset, flame control, air pressure switch) that trip in case of serious malfunctions and cause a safety stop. In this case the heater stops, button (d) lights with a steady red light (Stop Light) and the heater can resume operation only after the cause of the stop has been identified and eliminated;
- control devices (fan thermostat, burner thermostat, voltage control, gas pressure switch) that trip in case of minor operating faults or supply faults, causing temporary stop of the space heater. In this case, the heater will restart automatically when the required condition is restored.

The section "TROUBLESHOOTING" describes all possible operating faults and their possible remedies.

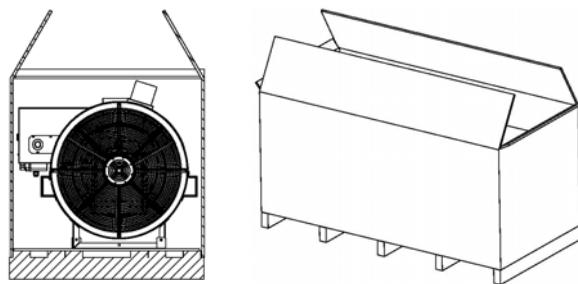
2. CONDITIONS OF SUPPLY

The space heater is delivered packed on a wood pallet and can easily be handled with a manual or automatic fork lift with capacity exceeding 200 kg.

Warning



Never try to lift the heater manually: doing so could cause serious physical injury.



It contains:

- 1 space heater.
- 1 instruction and maintenance manual for the space heater
- 1 instruction and maintenance manual for the burner
- 1 manual with drawing and list of spare parts for the space heater
- 1 manual with drawing and list of spare parts for the burner

3. GENERAL ADVICE

The space heater must be installed, adjusted, and used in conformity to national and local laws and regulations for its operation.

General guidelines:

- Follow the instructions in this booklet very carefully;
- Do not install the heater in places where there is a risk of fire or explosion;
- Keep inflammable material at a safe distance from the heater (minimum 3 metres);
- Check that there is no overheating of walls, ceilings or floors made of inflammable materials.
- All fire prevention regulations must be complied with;
- The room being heated must be sufficiently ventilated so that the heater has enough air to function properly;
- The heater must be near a chimney or chimney flue and an electrical panel conforming to declared specifications;
- Check the heater before switching it on and at regular intervals during its use;
- After use, make sure the disconnecting switch is off.

When using any type of space heater it is obligatory:

- not to exceed the maximum heat output level of the furnace ("TECHNICAL SPECIFICATION TABLE");
- make sure that the air flow is not below the rated level; check that there are no obstacles or obstructions to the air suction and/or delivery ducts, such as sheets or covers on the equipment, walls or large objects near the heater.

Warning



This unit may not be used by persons (including children) with reduced physical, sensorial or mental capacities or with limited experience and familiarity unless they are under supervision or instructed on how to use the unit by the person responsible for its safety.

4. INSTALLATION INSTRUCTIONS

Warning

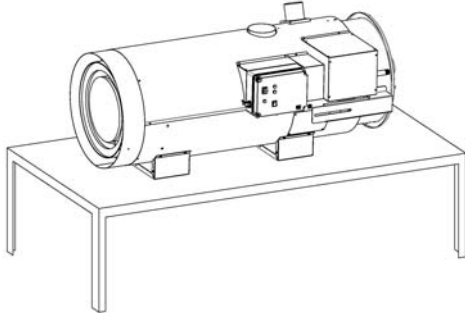


All of the operations described in this section must be performed by professionally qualified personnel only.

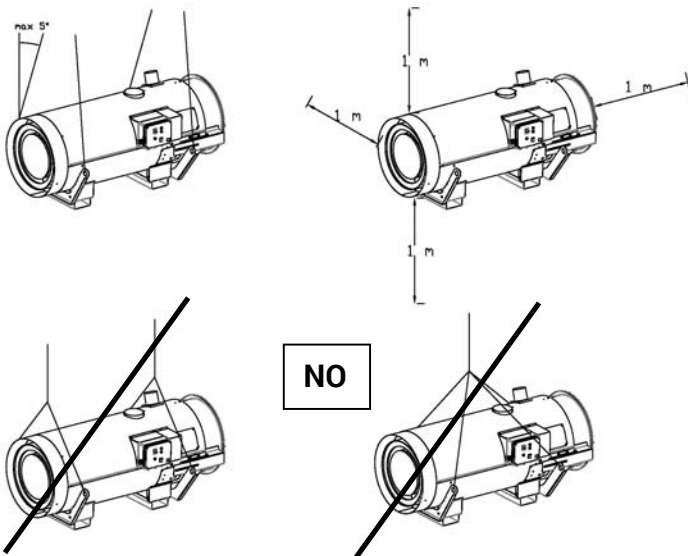
4.1. INSTALLATION ON FLOOR OR CEILING

The space heater can be installed on a support base, which must be:

- stable and horizontal
- made of non-combustible material



Accessories include support hooks to suspend the heater by hooking it to the ceiling with ropes and/or chains of appropriate capacity and length, to be attached to the four suspension points



Warning



Make sure that the ropes and/or chains form an angle not more than 5° with vertical to the ceiling, that the ropes do not cross, and that a different rope is used for each hook.

The minimum distance from surrounding walls, floor and/or ceiling must always be at least 1 metre.

4.2. POWER CONNECTIONS

Warning



**The power line must be earthed and fitted with a residual current circuit breaker.
The power cable must be connected to a panel fitted with a cut-out.**

Before switching on the heater and, therefore, before plugging it into the electrical power supply, check that the power supply specifications are the same as those stated on the identification plate.

Warning



The heater is fitted with a temporary power cable, used for the working test.

Warning



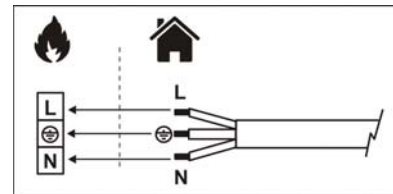
**The temporary power cable must be removed and replaced with a H07RN-F cable having a section of at least 1.5 mm²: a larger section is required if the cable is more than 25 metres long.
The cable must be stripped, leaving the earth lead at least 2 cm longer.**

The electrical power cable must be connected in conformity to the polarity specified on the main terminal board of the electrical panel: phase (L) and neutral (N).

Warning



If polarities L and N are incorrect, the space heater may stop a few seconds after it is switched on for the first time.



If any room thermostat or other accessories are connected to the system (such as the timer for example) this must be done by connecting the electrical cable to the thermostat plug (c):

- Take the plug (c) out of the power switchboard, open it and remove the electrical jumper between terminals 2 and 3 of the plug;
- Connect the thermostat electrical cable to terminals 2 and 3 of the thermostat plug (c);
- Close the plug again and plug it back into the power switchboard.

Warning



Never attempt to switch the heater on or off by connecting the room thermostat (or other control devices) to the electrical power line.

The installation and connection of all the other accessories are described in the specific instructions included with each accessory, together with operating instructions.

The electrical diagram shown in this manual refers to the electrical connection only.

4.3. CONNECTION TO HOT AIR DELIVERY DUCTS

The space heater is set to operate with direct distribution of air. Nevertheless, it can be connected to appropriately sized air distribution channels, if required, with maximum diameter and length as shown in the "TABLE OF TECHNICAL CHARACTERISTICS".

Warning



Before starting the heater, check that the direction of rotation of the fan matches the direction shown on the fan itself.

4.4. CONNECTION TO FUEL SUPPLY

Warning



The heater must be installed, set up, and used in compliance with all applicable regulations.

Warning



Before installing, check the gas supply conditions required for the type of gas chosen and for the EU country of installation (Tables I and II).

The gas supply pipe must be properly sized, conform to the installed thermal power, and guarantee the necessary conditions for gas supply.

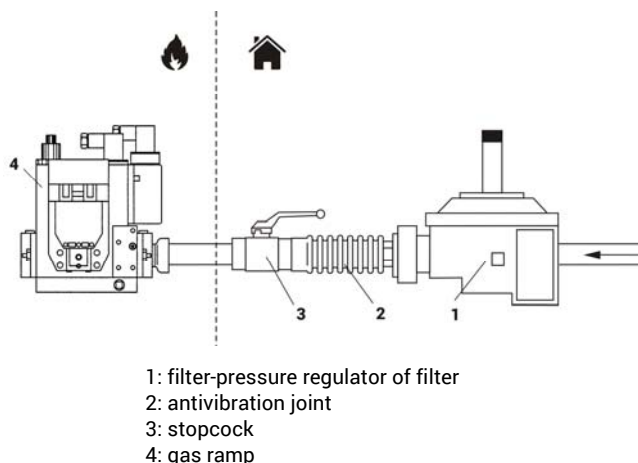
Warning



The gas supply pressure must be guaranteed during heater operation and not with the heater off.

The space heater has a gas ramp with: gas filter, pressure regulator, safety electrovalve, work electrovalve, pressure stabilizer, pressure valve.

It is good practice for the installer to set up the supply line as follows:



Parts (1), (2) and (3) are available as accessories and are not supplied with the heater.

When the line has been connected:

- Bleed the gas supply pipe;
- Check that the gas pipe is sealed.
- Open the gas stopcock and check the seal of all connections to the heater.

4.5. CONNECTING BURNER TO "SNORKEL" AIR INTAKE AND SETTING COMBUSTION AIR

The burner air intake (3) can be connected outside the room to be heated in order to suck in clean air and avoid depleting the oxygen in the room.

The connection pipe must be rigid to prevent shrinking due to air intake depression. It must have a minimum diameter of 100 mm and maximum length of 6 metres.

4.6. CONNECTION TO EXHAUST DUCT

Exhaust ducts must be in steel and conform to EN 1443.

Efficient combustion and trouble-free working of the burner depend on efficient flue draft. The unit must be connected to the chimney flue in compliance with current legal regulations and in line with the following guidelines:

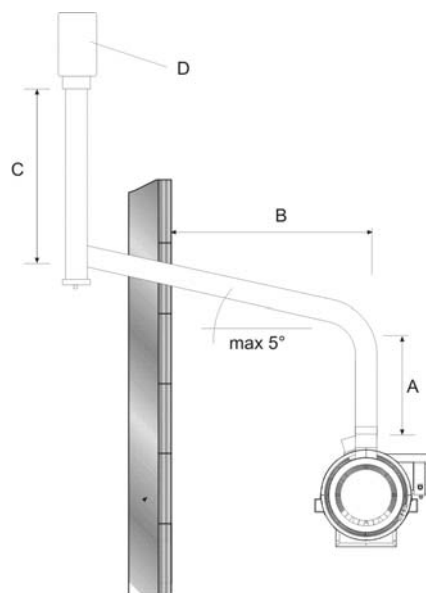
- the flue must be as short and possible and with ascending slope (minimum height 1 m);
- There should be no sharp curves in the pipes, and the diameter of the pipes must never be reduced;
- there must always be a wind deflector to prevent the entrance of

rain and to prevent smoke from being blocked by the wind;

- Flue draft must at least equal the level in the Technical Specifications.

- Every heater must have its own chimney;

The following diagrams show possible flue positions:



- A) Minimum 1 m
B) As short as possible
C) Minimum 1 m
D) Chimney draught H shape

4.7. FIRST START-UP

The heater is set up for one of the operating categories on Tab. I: the adhesive label on the gas valve group (4) indicates the appliance category (usually category I2H, G20 / 20 mbar).

Predisposto per Régulé pour Eigenstellt für Preset for	Predisposto per Régulé pour Eigenstellt für Preset for
I _{2H} G 20 20 mbar	I _{3P} G 31 37 mbar

Before starting the heater, consult Tab. I to identify the work category made compulsory by European and national reference standards and corresponding to the country of installation.

Warning



If the work category is incorrect, you MUST recalibrate the burner

Specifically:

- If indicated in Tab. I, replace the nozzle (see the burner manual for instructions);
- Calibrate the gas pressure switch (5) on the gas ramp by adjusting it to 70% of supply pressure
- Adjust the gas ramp pressure regulator to the value shown on Tab. I.

- Connect a gauge to the upstream pressure intake (1) and a second gauge to the downstream pressure intake (2) of the gas ramp;
- Start the heater and read the supply pressure on the 1st gauge. If necessary, adjust the gas valve pressure regulator until reaching the correct supply pressure shown on Tab. I;

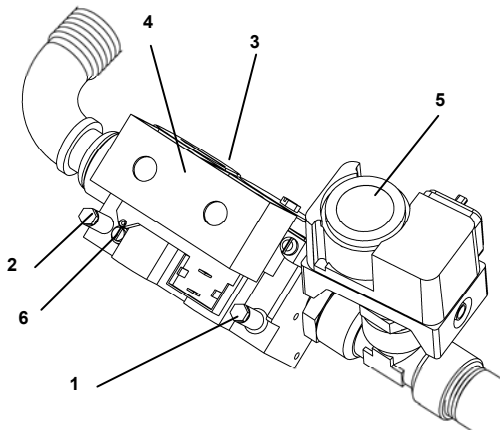
Warning



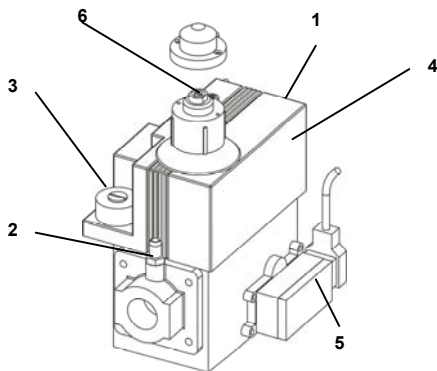
The gas valve group is set for a maximum supply pressure of:

- 60 mbar for SIT 830 valve
- 200 mbar for Honeywell VR 420 valve.

If the supply pressure exceeds this value, the valve safety membrane may break and permanently block the valve.



SIT 830 valve



Honeywell VR 420 valve

- Read the work pressure on the 2nd gauge. If necessary, use a screwdriver to adjust the gas valve pressure regulator (3) to restore the work pressure shown on Tab. I or to restore correct combustion values (see paragraph 4.8);
- If necessary, you can change the valve opening speed for heaters equipped with a Honeywell or SIT valve group by turning the adjustment screw (6): turn counterclockwise to increase opening speed, clockwise to decrease the speed.
- Apply the adhesive label with the words "SET UP FOR" on the gas valve group to specify the type of fuel and the new category chosen.

You can continue and start up the heater only after it has been

prepared it according to the instructions for the work category to be used.

4.8. REGULATING COMBUSTION AND ANALYSING COMBUSTION PRODUCTS

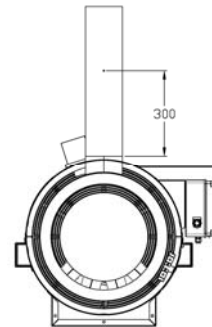
Warning



The factory setting of the burner is indicated in the "TECHNICAL SPECIFICATIONS TABLE".

You may have to change the setting due to the fuel used and/or installation conditions (high altitude, air suction pipe with or without Snorkel) if combustion parameters are not correct.

The sensor used to periodically check combustion and smoke temperature must be positioned as follows:



Combustion is clean and stable when combustion values are as follows:

Oxygen (O₂): 4 ÷ 6 %

Excess air: 25 ÷ 40 %

When inspection tests are completed, the hole drilled for the probe must be sealed with a material that is resistant to high temperatures and that ensures the tube remains airtight.

5. OPERATING INSTRUCTIONS

5.1. START

To start the heater:

- Make sure the switch (a) is set to "0";
- Power the heater electrically by switching on the isolation switch on the power switch board: red lamp (b) lights to signal that the board is live;
- Press switch (a) to position : the burner begins the start and prewash cycle and, when the flame lights, lamp (f) lights as well; after the combustion chamber has heated for a few minutes, the main fan starts;
- If the heater does not work during the start cycle or work cycle, consult "TROUBLESHOOTING" to find the cause of the malfunction.

Warning



In case of safety stop, you have to push the reset button (d) for 3 seconds to restart the heater.

Warning



NEVER do more than two restarts in a row: unburned fuel can accumulate in the combustion chamber and suddenly flare up at the next restart.

5.2. STOP

To stop the heater turn and press switch (a) to "0" position or, if the heater is in automatic mode, by setting the room thermostat to a

lower temperature: the burner shuts off and lamp (f) goes out. The fan keeps running until the combustion chamber has cooled completely.

Warning



Never stop the heater by simply turning off the disconnecting switch on the panel.
The electrical supply must be disconnected ONLY when the fan has come to a complete stop.

5.3. VENTILATION

To run the heater only in continuous ventilation mode, turn switch (a) to the position with the symbol

6. MAINTENANCE

Warning



All of the operations described in this section must be performed by professionally qualified personnel only.

The following procedures must be done at regular intervals to ensure efficient operation of the heater. Make sure you have detached the electrical power line from the heater before starting any work.

Warning



Before doing any maintenance:

- Stop the heater as indicated in the "STOP" paragraph;
- Switch off the power supply by means of the cut-off on the electrical panel;
- Wait until the heater cools.

- Close the gas stopcock
- Find and repair the source of the gas leak
- Do not use the heater if any removed panels have not been remounted
- Make sure the room to be heated is sufficiently ventilated
- Make sure that the air intake and outlet are completely unobstructed
- Make sure that the heater is not covered by any sheets or covers
- Check that the heater is in a fixed and stable position;
- Make sure the heater is constantly monitored during operation and checked before being started;

6.2 CLEANING THE EXTERIOR OF THE HEATER

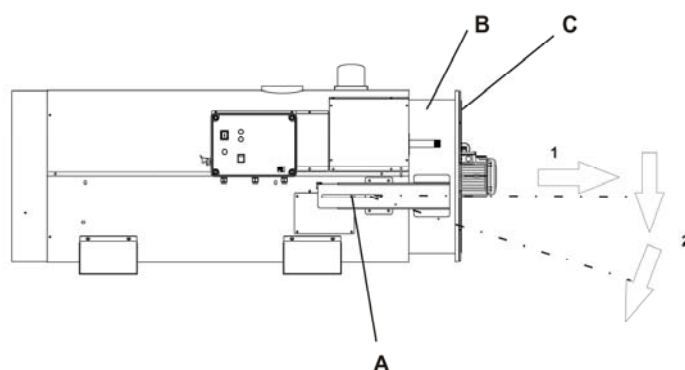
To ensure efficient operation, clean the following parts:

- Burner:
 - Remove all external dirt and debris
 - Make sure the air inlet is not obstructed.
- Pipes, connectors and joints:
 - Clean with a cloth.
- External body:
 - Clean with a cloth.
- Air inlet/outlet:
 - Remove all dirt and debris
 - Make sure the air inlet/outlet are not obstructed.

6.3 Cleaning the motor and the fan

Clean the fan blades and the motor as follows:

- Remove the two side fixing screws (A) on the fan group, slide the fan group (B) backward and rotate it downward.
- Remove the fastening screws on the fan safety grille (C).



- Clean the motor with compressed air.
- Clean the fan blades with a hard brush.
- Reinstall the safety grille and the fan group.

6.4 CHECKING THE ELECTRICAL CONNECTIONS

After detaching the power cable, check all electrical connections as follows:

- Make sure that all connections are complete and tight.
- If there are traces of dirt or corrosion, clean or replace the connections if necessary.
- Replace any damaged wires or connectors if necessary

6.5 CHECKING AND TESTING THE BURNER

To reach the burner:

- Remove the two side fixing screws (A) on the fan group, slide the fan group (B) backward and rotate it downward.
- Remove the burner and follow the checking and cleaning instructions in the burner manual.
- Reinstall the burner.

Procedure	Periodic maintenance			
	Every day	Every week	Every six months	Every year
Check heater	X			
Check gas supply line	X			
Clean exterior of heater	X			
Clean motor and fan		X		
Check gas supply pressure		X		
Check electrical connections			X	
Check and test burner			X	
Check thermostats			X	
Clean interior of heater			X	
Inspect and clean combustion chamber				X

6.1. CHECKING THE HEATER AND THE GAS SUPPLY LINE

Perform the following checks:

- Make sure the heater is not installed where there may be a risk of fire or explosion
- Make sure that flammable materials are kept a safe distance away
- If you smell:
 - Open the windows immediately
 - Do not touch electrical switches

- Run the procedures described in paragraphs 4.7 and 4.8 to measure combustion parameters and check that combustion is stable and clean.

6.6 CHECKING THE THERMOSTATS

Inspect the fan thermostat and manual reset safety thermostat as follows:

- Remove the side inspection panel
- Find the two thermostats attached to the front wall of the combustion chamber
- Clean with a dry cloth, taking care not to damage the thermostats
- Close the side inspection panel

Inspect the burner thermostat as follows:

- Remove any air outlet connection ducts
- Clean with a dry cloth, taking care not to cut or bend the capillary tube.

6.7 CLEANING THE INTERIOR OF THE HEATER

For thorough cleaning, the heater can be cleaned and washed inside and outside with water. Always do as follows:

- disconnect the electrical cable and remove it from the outlet
- completely close all access panels
- do not use water jets at a pressure exceeding 70 bar at a distance less than 30 cm

- completely dry all parts before reconnecting the electrical cable

6.8 CLEANING THE COMBUSTION CHAMBER

To maintain the burner's high efficiency and prolong its life, the procedure described in this paragraph must be done at least once at the end of the work season or more frequently if there is an excessive build-up of soot. Excessive soot may be caused by poor chimney draught, poor fuel quality, poor regulation of the burner, or more or less frequent alternation of burner starts and stops. Pay attention during operation: pulsations at start may be due to excessive amounts of soot.

To access the combustion chamber:

To access the burner:

- Remove the two side fixing screws (A) on the fan group, slide the fan group (B) backward and rotate it downward.
- Remove the burner
- Clean with compressed air or a metal brush

Warning



After any technical work, always check that the heater works correctly.

7. TROUBLESHOOTING

In case of serious malfunction, the electronic equipment causes the heater to go into safety stop, and lamp (d) lights with a steady red light (stop light).

Warning



In case of a safety stop, you have to push the reset button (d) for 3 seconds to restart the heater.

Warning



NEVER do more than two restarts in a row: unburned fuel can accumulate in the combustion chamber and suddenly flare up at the next restart.

In case of safety stop, press the reset button (d) for at least 7 seconds to launch a self-diagnosis programme, after which the button will flash at different rates (Self-diagnosis lamp) according

to the type of safety intervention: the synoptic on the electrical panel shows the possible types.

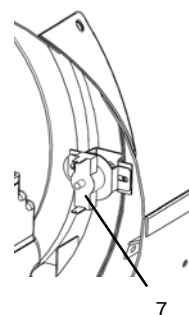
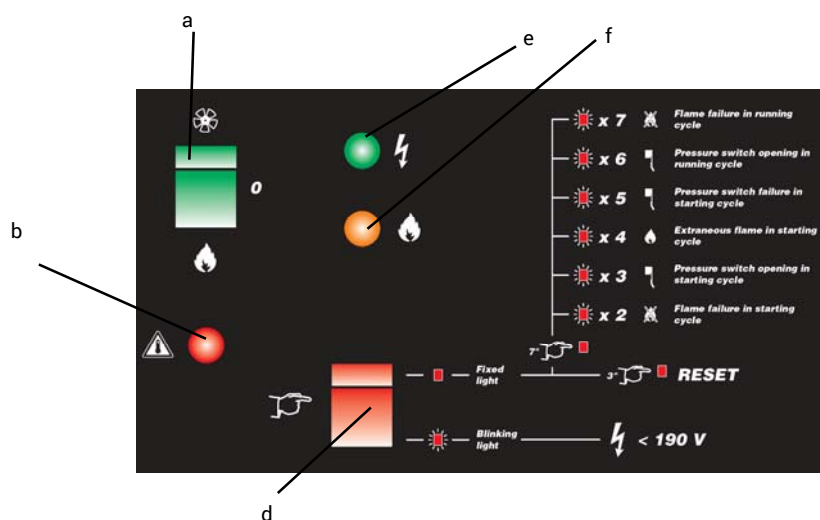
If the combustion chamber overheats, the safety thermostat (7) trips to shut off the burner and lamp (b) lights: to reset the burner, you have to shut off the heater completely, cut electrical power, remove the side inspection panel and push button (7).

Warning



You must always find the cause of the safety intervention and remove it before pushing reset button (d) or button (7) and restarting the heater.

If the heater is still not working properly, please contact your nearest dealer or authorized Service Centre.



FAULT	CAUSE	REMEDY
• The heater does not start: lamp  is off	• No power supply	• Check functioning and position of switch • Check the mains • Check power connections • Check the fuse
• The heater does not start: lamp  is on	• Switch (a) in wrong position	• Select correct position
	• Defective room thermostat	• Check that thermostat connection plug is inserted • Verificare il collegamento elettrico del termostato • Check thermostat setting and correct it • Check functioning of thermostat
	• Gas pressure switch tripped due to no gas or insufficient pressure	• Check that gas feed pipe has been bled • Check gas feed pressure

FAULT	CAUSE	REMEDY	
• The heater works erratically and the burner goes on and off alternately: lamp  goes on and off • The heater does not work: lamp  is on	• Gas flow • Burner thermostat has tripped due to overheating • Manual reset safety thermostat has tripped due to excessive overheating of combustion chamber	• Check and clean gas filter. • Clean and recalibrate the burner. • Check correct position of air distribution channels and opening of any flaps, openings, etc. • Remove any foreign bodies trapped in the air ducts or ventilation grilles • Check that the fan motor starts correctly and is not obstructed • Check that the fan motor is not burned out or that the motor condenser is not broken • Check burner calibration • Check the chimney and correct discharge of fumes	
• The heater does not work: lamp  flashes • The heater does not work: lamp  is steady on	• Voltage control has tripped due to insufficient electrical supply ($V < 190V$)	• The heater restarts automatically when sufficient voltage is restored ($V > 190V$) • Check the power line if the heater starts and stops several times • Check the power line if the heater does not start and remains in safety stop	
Number of flashes of lamp (d) 	LAUNCH THE SELF-DIAGNOSIS PROCEDURE PUSH BUTTON (D) FOR 7 SECONDS AND RELEASE: THE BUTTON LAMP FLASHES WITH 2 TO 7 FLASHES		
	2	• No flame during ignition cycle	• Check gas pressure at burner • Check and clean gas filter • Check that ionisation probe is not discharging to earth • Check ionisation probe connection cables (they must not discharge to earth)
	3	• Air pressure switch has tripped (electrical contact remained open) at start of ignition cycle	• Check connection of pressure switch pipes • Check pressure switch and replace if necessary • Check that there are no gas pockets in the combustion chamber
	4	• Parasite flame detected in pre-wash phase during ignition cycle	• Check that ionisation probe is not discharging to earth • Check ionisation probe connection cables (they must not discharge to earth) • Check connection of pressure switch pipes
	5	• Air pressure switch has tripped (electrical contact has opened) during ignition cycle	• Check that burner motor and fan are not blocked or broken; replace if necessary • Check that smoke exhaust chimney is not partially or totally obstructed • Check pressure switch and replace if necessary • Check connection of pressure switch pipes
	6	• Air pressure switch has tripped (electrical contact has opened) during work cycle	• Check that burner motor and fan are not blocked or broken; replace if necessary • Check that smoke exhaust chimney is not partially or totally obstructed • Check pressure switch and replace if necessary • Check gas pressure at burner • Check and clean gas filter
	7	• No flame during work cycle	• Check that ionisation probe is not discharging to earth • Check ionisation probe connection cables (they must not discharge to earth) • Remove dirt • Eliminate all obstacles to air flow • Contact Customer Service
• Fan is noisy or vibrates • Insufficient heating	• Dirt on fan blades • Poor air circulation • Insufficient burner capacity		

**REGOLAZIONE PRESSIONE GAS BRUCIATORE - PRESSION GAZ BRÛLEUR - DÜSENDRUCK
GAS MANIFOLD PRESSURE - PRESIÓN GAS QUEMADOR - ДАВЛЕНИЕ ГАЗА ГОРЕЛКИ**

Gas naturale - Gaz naturel - Erdgas - Natural gas - Gas natural										Gas liquido - Gaz liqueide - Flüssiggas - Liquid gas - Gas liquido								
		AL - BG - CZ SI - HR - LT MK - SK - TR RO - AT - CH DK - CY - EE FI - GR - IE SE - NO - IT PT - ES - GB - LV	HU	BE	DE		FR	LU PL	NL	AL - BG - CZ SI - HR - LT MK - SK - TR RO - MT - DK CY - EE - FI GR - SE - NO IT - HU	AL - BG - CZ SI - HR - LT MK - SK - TR BE - IE - PT ES - GB - FR	RO IS	AT - CH DE - NL	MT	LU	PL		
CAT.		I _{2H}	I _{2H}	I _{2E(R)B}		I _{2ELL}		I _{2ESi} - I _{2Er}		I _{2E}	I _{2L}	I _{3B/P}	I _{3P}	I _{3P}	I _{3B/P}	I _{3B}	I _{3P}	I _{3B/P}
GAS		G 20	G 20	G 20	G 20	G 25	G 20/ G 25		G 20	G 25	G 30/ G 31	G 31	G 31	G 30/ G 31	G 30	G 31	G 30/ G 31	
	[mbar]	20	25	20	20		20 / 25		20	25	30	37	30	50	30	50	37	
		4,7			6,5	4,7	4,7			5,5	6,5		5,5		6,5	5,5		
		Riello G 20 (1,7)									Riello G 31 (1,3)							

C2129

C21297

TAB. I – BH 50

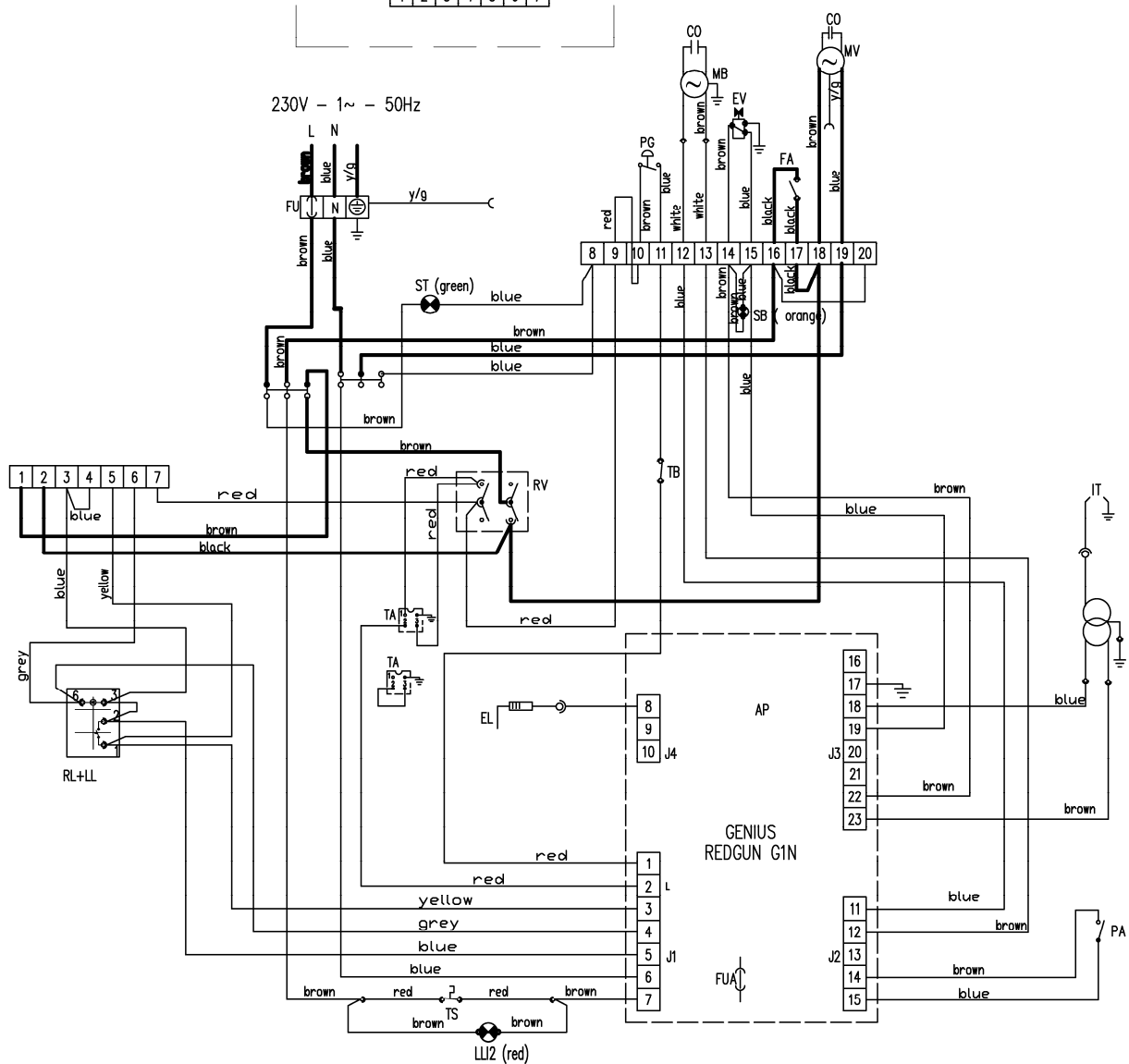
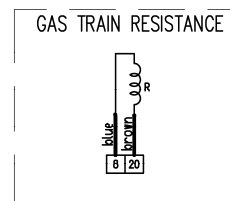
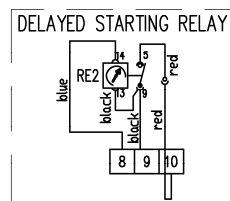
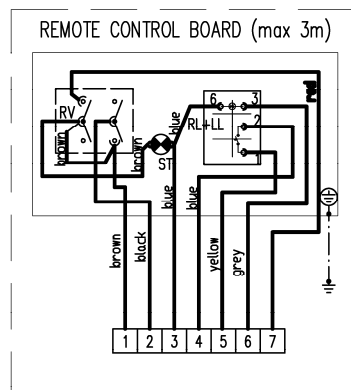
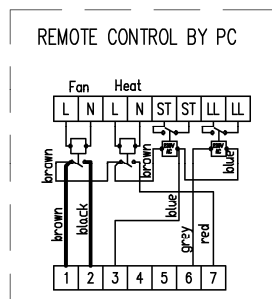
		Gas naturale - Gaz naturel - Erdgas - Natural gas - Gas natural								Gas liquido - Gaz liqueide - Flüssiggas - Liquid gas - Gas liquido							
		AL - BG - CZ SI - HR - LT MK - SK - TR RO - AT - CH DK - CY - EE FI - GR - IE SE - NO - IT PT - ES - GB - LV	HU	BE	DE		FR	LU PL	NL	AL - BG - CZ SI - HR - LT MK - SK - TR RO - MT - DK CY - EE - FI GR - SE - NO IT - HU	AL - BG - CZ SI - HR - LT MK - SK - TR BE - IE - PT ES - GB - FR	RO IS	AT - CH DE - NL	MT	LU	PL	
CAT.		I _{2H}	I _{2H}	I _{2E(R)B}	I _{2ELL}		I _{2Esi} - I _{2Er}		I _{2E}	I _{2L}	I _{3B/P}	I _{3P}	I _{3P}	I _{3B/P}	I _{3B}	I _{3P}	I _{3B/P}
GAS		G 20	G 20	G 20	G 20	G 25	G 20/ G 25		G 20	G 25	G 30/ G 31	G 31	G 31	G 30/ G 31	G 30	G 31	G 30/ G 31
	[mbar]	20	25	20	20		20 / 25		20	25	30	37	30	50	30	50	37
		10,0			13,5	10,0	10,0			9,5	11,5		9,5		11,5	9,5	
		Riello G 20 (M)									Riello G 31 (P)						

C2129

C21298

TAB. II – BH 100

SCHEMA ELETTRICO - SCHEMA ELECTRIQUE – SCHALTSCHHEMA
WIRING DIAGRAM - ESQUEMA ELÉCTRICO - ЭЛЕКТРОСХЕМА



SCHEMA ELETTRICO - SCHEMA ELECTRIQUE – SCHALTSCHHEMA WIRING DIAGRAM - ESQUEMA ELÉCTRICO - ЭЛЕКТРОСХЕМА

CO	CONDENSATORE CONDENSATEUR KONDENSATOR CONDENSER CONDENSADOR КОНДЕНСАТОР	TA	PRESA TERMOSTATO AMBIENTE PRISE THERMOSTAT D'AMBIANCE RAUMTHERMOSTAT STECKDOSE ROOM THERMOSTAT PLUG ENCHUFE TERMOSTATO AMBIENTE РАЗЪЕМ ТЕРМОСТАТА ОКРУЖАЮЩЕЙ СРЕДЫ
MV	MOTORE VENTILATORE MOTEUR VENTILATEUR VENTILATOR MOTOR FAN MOTOR MOTOR VENTILADOR ДВИГАТЕЛЬ ВЕНТИЛЯТОРА	RL	PULSANTE DI RIARMO BOUTON REARMEMENT RESET KNOPF RESET BUTTON PULSADOR RESTABLECIMIENTO КНОПКА ВОССТАНОВЛЕНИЯ РАБОЧЕГО СОСТОЯНИЯ
FA	TERMOSTATO VENTILATORE THERMOSTAT VENTILATEUR LUFTREGLER FAN THERMOSTAT TERMOSTATO VENTILADOR ТЕРМОВЫКЛЮЧАТЕЛЬ ВЕНТИЛЯТОРА	LL	SPIA BLOCCO TÉMOIN BLOCAGE KONTROLLLEUCHTE BLOCKIERUNG LOCK OUT INDICATOR LIGHT TESTIGO BLOQUEO ИНДИКАТОР БЛОКИРОВКИ
FU	FUSIBILE FUSIBLE SICHERUNG FUSE FUSIBLE ПРЕДОХРАНИТЕЛЬ	RE2	RELE DI RITARDO ACCENSIONE RELAIS RETARD ALLUMAGE RELAIS ANLAUFVERZÖGERUNG DELAYED IGNITION RELAY RELÉ RETARDO ENCENDIDO РЕЛЕ ВКЛЮЧЕНИЯ ПО ВРЕМЕНИ
ST	SPIA TENSIONE QUADRO LAMPE TEMOIN MISE SOUS TENSION KONTROLLAMPE CONTROL LAMP TESTIGO TENSION TABLERO ИНДИКАТОР НАПРЯЖЕНИЯ ЩИТА	PG	PRESSOSTATO GAS PRESSOSTAT GAZ GASPRESSOSTAT GAS PRESSURE SWITCH PRESOSTATO DE GAS РЕЛЕ ДАВЛЕНИЯ ГАЗА
TS	TERMOSTATO DI SICUREZZA A RIARMO MANUALE THERMOSTAT DE SECURITE A REARMEMENT MANUEL SICHEREITSTHERMOSTAT MIT MANUELLER ENTRIE GELUNG LIMIT THERMOSTAT WITH MANUAL RESTART TERMOSTATO DE SEGURIDAD CON RESTABLECIMIENTO MANUAL ПРЕДОХРАНИТЕЛЬНЫЙ ВЫКЛЮЧАТЕЛЬ С РУЧНЫМ СБРОСОМ	PA	PRESSOSTATO ARIA PRESSOSTAT AIR LUFTPRESSOSTAT AIR PRESSURE SWITCH PRESOSTATO DE AIRE РЕЛЕ ДАВЛЕНИЯ ВОЗДУХА
RV	COMMUTATORE RISCALDAMENTO-ARRESTO-VENTILAZIONE COMMUTATEUR CHAUFFAGE-STOP-VENTILATION SCHALTER HEIZUNG-STOP-LÜFTUNG CONTROL KNOB HEAT-STOP-VENTILATION ONLY CONMUTADOR CALEFACCIÓN - PARO - VENTILACIÓN ПЕРЕКЛЮЧАТЕЛЬ ОТОПЛЕНИЕ-ОСТАНОВ-ВЕНТИЛЯЦИЯ	FUA	FUSIBILE FUSIBLE SICHERUNG FUSE FUSIBLE ПРЕДОХРАНИТЕЛЬ
LLI2	SPIA TERMOSTATI DI SICUREZZA LAMPE TEMOIN SECURITE DE SURCHAUFFE ÜBERHITZUNGSSCHUTZEN KONTROLLAMPE OVERHEAT THERMOSTATS CONTROL LAMP TESTIGO TERMOSTATOS DE SEGURIDAD ИНДИКАТОР ПРЕДОХРАНИТЕЛЬНЫХ ТЕРМОВЫКЛЮЧАТЕЛЕЙ	EL	ELETTRODO DI IONIZZAZIONE ÉLECTRODE D'IONISATION IONISATIONSELEKTRODE IONISATION ELECTRODE ELECTRODO DE IONIZACIÓN ИОНИЗИРУЮЩИЙ ЭЛЕКТРОД
SB	SPIA PRESENZA FIAMMA VOYANT PRÉSENCE FLAMME FLAMMENANZEIGE FLAME DETECTION LIGHT TESTIGO DE PRESENCIA DE LLAMA ИНДИКАТОР ПЛАМЕНИ	IT	ELETTRODO ACCENSIONE ELECTRODE ALLUMAGE ZUNDELEKTRODE IGNITION ELECTRODE ELECTRODO DE ENCENDIDO ЭЛЕКТРОД ЗАЖИГАНИЯ
TB	TERMOSTATO BRUCIATORE THERMOSTAT BRULEUR REGLER FÜR BRENNER BURNER THERMOSTAT TERMOSTATO QUEMADOR ТЕРМОВЫКЛЮЧАТЕЛЬ ГОРЕЛКИ	R	RESISTENZA ANTICONDENSA RÉSISTANCE ANTI-CONDENSATION KWIDERSTAND KONDENSATSCHUTZ ANTI-CONDENSATION RESISTANCE RESISTENCIA ANTICONDENSACIÓN СОПРОТИВЛЕНИЕ ПРОТИВ ОБРАЗОВАНИЯ КОНДЕНСАТА

CARATTERISTICHE TECNICHE - CARACTERISTIQUES TECHNIQUES - TECHNISCHE DATEN TECHNICAL SPECIFICATIONS - CARACTERÍSTICAS TÉCNICAS - ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ				BH 50 GAS			
Categoria - Categorie - Kategorie Category - Categoría - Категория				II _{2H3B} /P			
Protezione IP - Protection IP - Schutz IP IP protection - Protección IP - Защита IP				IP X4D			
Tipo - Type - Typ Type - Tipo - Тип				B _{23P} - B _{53P}			
Bruciatore Gas - Brûleur Gaz - Brenner Gas Burner Gas - Quemador Gas - Газовая горелка				RIELLO RDBS 0.1			
Potenza termica nominale - Puissance thermique nominale Wärmeleistung bewertet - Nominal heating output Potencia térmica nominal - Тепловая Номинальная мощность	H _s @ 0°C	[kW]		50			
Combustibile - Combustible - Brennstoff Fuel - Combustible - Топлив				G20	G25	G31	G30
Potenza termica max misurata - Puissance thermique max mesuré Gemessen Wärmeleistung max - Max measured heating output Potencia térmica máx medidol - Максимальная тепловая мощность Н измерения	H _s @ 0°C	[kcal/h] [kW] [BTU/h]		43073 50,08 172291	43085 50,10 172338	43822 50,96 175289	43687 50,80 174747
Potenza termica netta misurata - Puissance thermique nette mesuré Gemessen Nennwärmeleistung - Net measured heating output Potencia térmica neta medidol - Тепловая мощность нетто измерения	H _s @ 0°C	[kcal/h] [kW] [BTU/h]		38766 45,08 155062	38766 45,09 155104	39440 45,86 157760	39318 45,72 157272
Rendimento, η - Rendement, η - Wärmeleistung, η Efficiency, η - Rendimiento, η - К.п.д		[%]		90,0	90,0	90,0	90,0
Consumo - Consommation Brennstoffverbr. - Consumption Consumo - Расход		[m ³ /h]		4,554	5,337	1,788	1,361
		[kg/h]		-	-	3,58	3,72
		[l / h]		-	-	7,45	5,67
Pressione gas alimentazione - Pression gaz alimentation - Anschlussdruck Gas supply pressure - Presión gas alimentación - Давление подачи газа		[mbar]		20	20	37	30
Ugello - Buse - Düse Nozzle - Boquilla - Насадка				Riello G20 (1,7)		Riello G31 (1,3)	
Posizione testa combustione - Position tête de combustion - Position Verbrennungskopf Combustion head setting - Posición cabeza combustión - Положение насадки сгорания		N°.		2	2	2	2
Regolazione aria - Réglage air Luftregulierung - Air setting Regulación aire - Регулировка воздуха	Senza Tubo L=6m - Sans Tuyau L=6m - Ohne -Rohr L=6m - Without Pipe L=6m - Sin Tubo L=6m - без шланга L = 6м	N°.		7,5	7,5	7,5	7,5
	Con Tubo L=6m - Avec Tuyau L=6m - Mit Rohr L=6m - With pipe L=6m - Con Tubo L=6m - C шланга L = 6м	N°.		7,8	7,8	7,8	7,8
Pressione gas bruciatore - Pression gaz brûleur - Düsendruck Gas manifold pressure - Presión gas quemador - Давление газа горелки		[mbar]		Tab. I			
Portata d'aria - Débit d'air - Nenn-Luftleistung Air output - Capacidad aire - Мощность подачи воздуха		[m ³ /h]		4100			
Temperatura dei fumi - Température des fumées - Rauchtemperatur Temperature of smokes - Temperature de los humos - Температура дымовых газов	@ 18°C	[°C]		264	245	264	255
Portata dei fumi - Débit des fumées - Rauchdurchsatz Smokes flow - Capacidad de los humos - Расход дымовых газов		[Nm ³ /h]		-			
Contropressione in camera di combustione - Contre pression fumées - Rauchgaswiderstand Smokes backpressure-Contrapresión en cámara comb.-Обратное давление в камере сгорания		[mbar]		1			
Tiraggio minimo al camino - Tirage minimum nécessaire - Erforderlicher Kaminzug Compulsory flue draft - Tiro mínimo a la chimenea - Минимальная тяга в дымоходе		[mbar]		0,1			
Temperatura min. di servizio - Température min. de service - Min. Service-Temperatur Min. service temperature - Temp. mín. de servicio - Минимальная рабочая температура		[°C]		- 10			
Temperatura max. di servizio - Température max. de service - Max. Service-Temperatur Max. service temperature-Temp. máx. de servicio-Максимальная рабочая температура		[°C]		40			
Diametro uscita fumi - Diamètre sortie fumées - Abgasrohr Durchmesser Flue diameter - Diámetro salida humos - Диаметр трубы выхода дымов		[mm]		150			
Uscita aria - Sortie air Warmluftausblasstutzen - Air outlet Salida aire - Выход воздуха	Diametro - Diamètre - Durchmesser Diameter - Diámetro - Диаметр	[mm]		500			
	Max lunghezza - Longueur maxi - Max. Länge Maximum length - Longitud máx. - Макс. длина	[m]		30			
Tubo aria bruciatore - Tuyau air brûleur Verbrennungsluftrohr - Burner air pipe Tubo de aire del quemador - Воздушная труба горелки	Diametro - Diamètre - Durchmesser Diameter - Diámetro - Диаметр	[mm]		100			
	Max lunghezza - Longueur maxi - Max. Länge Maximum length - Longitud máx. - Макс. длина	[m]		6			
Alimentazione elettrica - Alimentation électrique - Netzanschluss Power supply - Alimentación eléctrica - Электропитание		[V] / ~ / [Hz]		230 / 1 / 50			
Potenza elettrica totale - Puissance électrique - Leistungsaufnahme Total power consumption - Potencia eléctrica total - электрическая мощность		[W]		800			
Corrente elettrica - Courant électrique - Elektrischer Strom Electric current - Corriente eléctrica - электрический ток		[A]		3,8			
Livello sonoro a 1 m - Niveau sonore à 1 m - Geräuschspegel a 1 m Noise level at 1 m - Nivel sonoro a 1 m - Уровень шума на расстоянии 1 м		[dBA]		70			
Dimensioni, L x P x A - Dimensions, L x P x H - Masse, H x B x T Dimensions, L x W x H - Dimensiones, L x P x A - Размеры, Ш x Г x В		[mm]		1379x 690 x 633			
Peso - Poids - Gewicht Weight - Peso - Bec		[kg]		75			

CARATTERISTICHE TECNICHE - CARACTERISTIQUES TECHNIQUES - TECHNISCHE DATEN TECHNICAL SPECIFICATIONS - CARACTERÍSTICAS TÉCNICAS - ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ			BH 100 GAS			
Categoria - Categorie - Kategorie Category - Categoría - Категория			II _{2H3B} / P			
Protezione IP - Protection IP - Schutz IP IP protection - Protección IP - Защита IP			IP X4D			
Tipo - Type - Typ Type - Tipo - Тип			B _{23P} - B _{53P}			
Bruciatore Gas - Brûleur Gaz - Brenner Gas Burner Gas - Quemador Gas - Газовая горелка			RIELLO BS2F			
Potenza termica nominale - Puissance thermique nominale Wärmeleistung bewertet - Nominal heating output Potencia térmica nominal - Тепловая Номинальная мощность	H _s @ 0°C	[kW]	95		100	
Combustibile - Combustible - Brennstoff Fuel - Combustible - Топлив			G20	G25	G31	G30
Potenza termica max misurata - Puissance thermique max mesurée Gemessen Wärmeleistung max - Max measured heating output Potencia térmica máx medidol - Максимальная тепловая мощность Н измерения	H _s @ 0°C	[kcal/h] [kW] [BTU/h]	81382 94,63 325527	80907 94,08 323628	84187 97,89 336749	87262 101,47 349048
Potenza termica netta misurata - Puissance thermique nette mesurée Gemessen Nennwärmeleistung - Net measured heating output Potencia térmica neta medidol - Тепловая мощность нетто измерения	H _s @ 0°C	[kcal/h] [kW] [BTU/h]	73406 85,36 293625	72978 84,86 291913	75937 88,30 303747	78710 91,52 314841
Rendimento, η - Rendement, η - Wärmeleistung, η Efficiency, η - Rendimiento, η - К.п.д		[%]	90,2	90,2	90,2	90,2
Consumo - Consommation Brennstoffverbr. - Consumption Consumo - Расход		[m ³ /h]	8,684	10,217	3,549	2,799
		[kg/h]	-	-	7,12	7,66
		[l / h]	-	-	14,79	11,66
Pressione gas alimentazione - Pression gaz alimentation - Anschlussdruck Gas supply pressure - Presión gas alimentación - Давление подачи газа		[mbar]	20	20	37	30
Ugello - Buse - Düse Nozzle - Boquilla - Насадка			Riello G20 (M)		Riello G31 (P)	
Posizione testa combustione - Position tête de combustion - Position Verbrennungskopf Combustion head setting - Posición cabeza combustión - Положение насадки сгорания		N°.	4	4	4	4
Regolazione aria - Réglage air Luftregulierung - Air setting Regulación aire - Регулировка воздуха	Senza Tubo L=6m - Sans Tuyau L=6m - Ohne -Rohr L=6m - Without Pipe L=6m - Sin Tubo L=6m - без шланга L = 6м	N°.	4,0	4,0	3,5	3,5
	Con Tubo L=6m - Avec Tuyau L=6m - Mit Rohr L=6m - With pipe L=6m - Con Tubo L=6m - C шланга L = 6м	N°.	4,2	4,2	3,8	3,8
Pressione gas bruciatore - Pression gaz brûleur - Düsensdruck Gas manifold pressure - Presión gas quemador - Давление газа горелки		[mbar]	Tab. II			
Portata d'aria - Débit d'air - Nenn-Luftleistung Air output - Capacidad aire - Мощность подачи воздуха		[m ³ /h]	7500			
Temperatura dei fumi - Température des fumées - Rauchtemperatur Temperature of smokes - Temperature de los humos - Температура дымовых газов	@ 18°C	[°C]	279	254	296	273
Portata dei fumi - Débit des fumées - Rauchdurchsatz Smokes flow - Capacidad de los humos - Расход дымовых газов		[Nm ³ /h]	-			
Contropressione in camera di combustione - Contre pression fumées - Rauchgaswiderstand Smokes backpressure-Contrapresión en cámara comb.-Обратное давление в камере сгорания		[mbar]	1			
Tiraggio minimo al camino - Tirage minimum nécessaire - Erforderlicher Kaminzug Compulsory flue draft - Tiro mínimo a la chimenea - Минимальная тяга в дымоходе		[mbar]	0,1			
Temperatura min. di servizio - Température min. de service - Min. Service-Temperatur Min. service temperature - Temp. mín. de servicio - Минимальная рабочая температура		[°C]	- 10			
Temperatura max. di servizio - Température max. de service - Max. Service-Temperatur Max. service temperature-Temp. máx. de servicio-Максимальная рабочая температура		[°C]	40			
Diametro uscita fumi - Diamètre sortie fumées - Abgasrohr Durchmesser Flue diameter - Diámetro salida humos - Диаметр трубы выхода дымов		[mm]	150			
Uscita aria - Sortie air Warmluftausblasstutzen - Air outlet Salida aire - Выход воздуха	Diametro - Diamètre - Durchmesser Diameter - Diámetro - Диаметр	[mm]	650			
	Max lunghezza - Longueur maxi - Max. Länge Maximum length - Longitud máx. - Макс. длина	[m]	30			
Tubo aria bruciatore - Tuyau air brûleur Verbrennungsluftrohr - Burner air pipe Tubo de aire del quemador - Воздушная труба горелки	Diametro - Diamètre - Durchmesser Diameter - Diámetro - Диаметр	[mm]	100			
	Max lunghezza - Longueur maxi - Max. Länge Maximum length - Longitud máx. - Макс. длина	[m]	6			
Alimentazione elettrica - Alimentation électrique - Netzanschluss Power supply - Alimentación eléctrica - Электропитание		[V] / ~ / [Hz]	230 / 1 / 50			
Potenza elettrica totale - Puissance électrique - Leistungsaufnahme Total power consumption - Potencia eléctrica total - электрическая мощность		[W]	1200			
Corrente elettrica - Courant électrique - Elektrischer Strom Electric current - Corriente eléctrica - электрический ток		[A]	6,0			
Livello sonoro a 1 m - Niveau sonore à 1 m - Geräuschspegel a 1 m Noise level at 1 m - Nivel sonoro a 1 m - Уровень шума на расстоянии 1 м		[dBA]	70			
Dimensioni, L x P x A - Dimensions, L x P x H - Masse, H x B x T Dimensions, L x W x H - Dimensiones, L x P x A - Размеры, Ш x Г x В		[mm]	1781 x 831 x 776			
Peso - Poids - Gewicht Weight - Peso - Bec		[kg]	135			

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