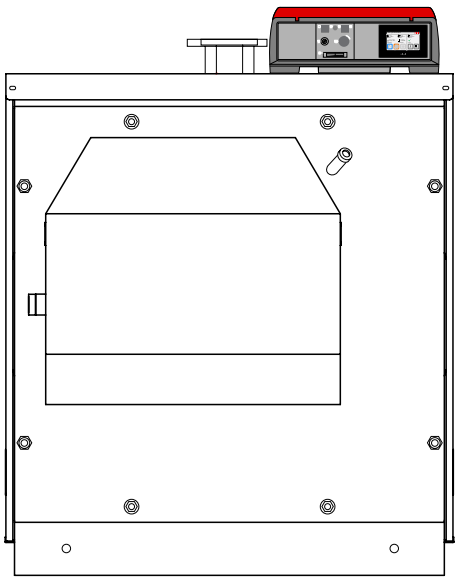
Unical®

ENGLISH



SPK 1000

INSTALLATION AND MAINTENANCE INSTRUCTIONS

http://www.unicalag.it/catalogo-prodotti/professionale-300/334/commercial-condensazione-inox

Provisions for proper disposal of the product

After decommissioning, this appliance must not be disposed of as mixed urban waste.

Separate waste collection is mandatory for this type of waste, in order to allow the recovery and reuse of the materials making up the appliance.

Please contact operators authorised for the disposal of this type of appliances

Incorrect management of waste and of its disposal has potential negative effects on the environment and human health

The symbol on the appliance, represents the prohibition to dispose of the product as mixed urban waste.

Attenzione il presente manuale contiene istruzioni ad uso esclusivo dell'installatore e/o del manutentore professionalmente qualificato, in conformità alle leggi vigenti.
L'utente NON è abilitato a intervenire sulla caldaia.
Nel caso di danni a persone, animali o cose derivanti dalla mancata osservanza delle istruzioni contenute nei manuali forniti a corredo con la caldaia, il costruttore non può essere considerato responsabile

1 INFORMAZIONI GENERALI 4
- 1.1 Avvertenze generali 4
- 1.2 Simbologia utilizzata nel manuale 5
- 1.3 Uso conforme dell'apparecchio 5
- 1.4 Informazioni da fornire al responsabile dell'impianto 5
- 1.5 Avvertenze per la sicurezza 6
- 1.6 Targhetta dei dati tecnici 7
- 1.7 Trattamento dell'acqua 8
- 1.8 Protezione antigelo della caldaia 8

2 CARATTERISTICHE TECNICHE E DIMENSIONI 9
- 2.1 Caratteristiche tecniche 9
- 2.2 Vista componenti principali 9
- 2.3 Dimensioni 10
  - 2.3.1 Dimensioni per introduzione in centrale termica 11
  - 2.3.2 Vista per accessibilità interna 12
- 2.4 Diagramma perdite di carico Lato Acqua 13
  - 2.4.1 Determinazione pompa circuito primario 13
- 2.5 Dati di funzionamento 14

3 ISTRUZIONI PER L'INSTALLATORE 16
- 3.1 Avvertenze generali 16
- 3.2 Norme per l'installazione 16
- 3.3 Operazioni preventive di verifica e adeguamento impianto 16
- 3.4 Imballo e Pesi 17
  - 3.4.1 Movimentazione 17
- 3.5 Posizionamento in centrale termica 18
- 3.6 Allacciamento condotto scarico fumi 19
- 3.7 Allacciamento 20
- 3.8 Riempimento dell'impianto 22
- 3.9 Allacciamenti elettrici 23
- 3.10 Prima Accensione 27
- 3.11 Misura in opera rendimento di combustione 28
  - 3.11.1 Attivazione della funzione di taratura 28
  - 3.11.2 Posizionamento Sonde 28
- 3.12 Verifica regolazione della pressione al bruciatore 29

4 ISPEZIONE E MANUTENZIONE 33
- 4.1 Istruzioni per l'ispezione e manutenzione 33
  - 4.1.1 Operazioni di verifica annuale ordinaria 34
- 4.3 Adattamento all'utilizzo di altri gas 36
- 4.4 Programmazione parametri di funzionamento 37
- 4.5 Schema elettrico 41
- 4.6 Codici di errore sblocco e ripristino 43

1 GENERAL INFORMATION

1.1 - GENERAL WARNINGS

The instruction booklet is an integral and essential part of the product and must be kept by the user.

Read the warnings contained in this instruction booklet carefully as they provide important guidelines regarding installation, use and maintenance safety.

Keep the booklet with care for further consultation.

Your appliance must be installed and serviced in compliance with the standards in force according to the manufacturer instructions, up to standard and by legally qualified and certified personnel. Systems for the production of domestic hot water MUST be constructed entirely with compliant materials.

By professionally qualified personnel we mean: personnel with specific technical skill in the field of heating system components for civil use, domestic hot water production and maintenance. Personnel must have the qualifications provided for by current legislation.

Incorrect installation or improper maintenance can cause damage to persons, animals or objects for which the manufacturer is not responsible.

Before performing any cleaning or maintenance, disconnect the appliance from the energy mains by acting on the switch of the system and/or through the specific cut-off devices.
Do not obstruct the terminals of the intake/exhaust ducts.

In the event of failure and/or malfunctioning of the appliance, switch it off and do not try to repair it or intervene on it directly. Contact only personnel qualified in compliance with law.

Any product repairs must be performed solely by personnel authorised by Unical, using original spare parts only. Failure to comply with the above can compromise the safety of the appliance and void the warranty.

To guarantee appliance efficiency and its correct operation, annual maintenance must be performed by qualified personnel.

Should you decide not to use the appliance, parts entailing potential sources of hazard must be made safe.
Before commissioning an appliance that has not been used, wash the domestic hot water production system, making the water flow until it has been fully replaced.

Should the appliance be sold or transferred to a new owner or if you move and leave the appliance, always make sure that the instruction manual accompanies it in order to be consulted by the new owner and/or installer.

Only original accessories must be used for all appliances with optionals or kits (including electric).

This appliance is intended solely for the use for which it was expressly designed.
Any other use is to be considered improper and therefore dangerous (*)
(see 1.7 Water Treatment).

1.2 - SYMBOLS USED IN THE MANUAL

Pay special attention when reading this manual to the parts marked by the symbols:

DANGER!
Serious danger to safety and health

ATTENTION!
Possible dangerous situation for the product and the environment

NOTE!
Tips for the user

NOTE!
For further details refer to the Technical Information: http://www.unicalag.it/catalogo-prodotti/professionale-300/334/commercial-condensazione-inox

DANGER!
Danger of burns!

OBLIGATION!
wear gloves protective

1.3 - APPROPRIATE USE OF APPLIANCE

The heat generator has been built according to the current level of engineering and acknowledged technical safety rules.
Nonetheless, if improperly used, dangers could arise for the safety and life of the user and other persons or damage to the equipment or other objects.
The appliance is designed to work in heating systems, with hot water circulation, for the production of domestic hot water.
Any other use must be considered improper.
For any damage resulting from improper use, UNICAL AG S.p.A. assumes no responsibility.
Use according to the intended purposes also includes strict compliance with the instructions in this manual.

1.4 - INFORMATION FOR THE SYSTEM MANAGER

The user must be instructed concerning the use and operation of his heating system, in particular:

- Deliver these instructions to the user, as well as other documents concerning the appliance inserted in the envelope inside the packaging. **The user must keep this documentation safe for future consultation.**
- Inform the user about the importance of the air vents and the flue gas exhaust system, highlighting their essential features and the absolute prohibition of modifying them.
- Inform the user concerning controlling the system's water pressure as well as operations to restore it.
- Inform the user concerning correct temperature control, control units/thermostats and radiators for saving energy.
- Please note that, in compliance with the standards in force, the inspection and maintenance of the appliance must be carried out in compliance with the regulations and frequency indicated by the manufacturer.
- Should the appliance be sold or transferred to a new owner or if you move and leave the appliance, always make sure that the instruction manual accompanies it in order to be consulted by the new owner and/or installer.

The manufacturer will not be held liable in the event of damage to persons, animals or objects resulting from failure to comply with the instructions contained in this manual.

1.5 - SAFETY WARNINGS

ATTENTION!
The appliance must not be used by children.
The appliance may be used by adults and only after carefully reading the operating instructions manual for the user.
Children must be supervised so they do not play or tamper with the appliance.

ATTENTION!
The appliance must be installed, adjusted and maintained by professionally qualified personnel, in compliance with the standards and provisions in force. Incorrect installation can cause damage to persons, animals and objects for which the manufacturer cannot be held responsible.

DANGER!
NEVER attempt performing maintenance or repairs on the boiler on your own initiative.
Any work must be done by professionally qualified personnel. We recommend stipulating a maintenance contract.
Insufficient or irregular maintenance can jeopardise the operating safety of the appliance and cause damage to persons, animals and objects for which the manufacturer cannot be held responsible.

Changes to the parts connected to the appliance (once the appliance installation is complete) Do not modify the following parts:
- the boiler
- the gas, air, water and electricity supply lines
- the flue gas pipe, the safety valve and the exhaust pipe
- the construction parts which affect the operating safety of the appliance

Attention!
To tighten or loosen the screwed fittings, use only appropriate fixed spanners.
Incompliant use and/or inappropriate tools can cause damage (e.g. water or gas leakage).

ATTENTION!
Indications for propane gas-fired appliances
Make sure that the gas tank has been deaerated before installing the appliance.
For state-of-the-art tank venting, contact the LPG supplier or person qualified in compliance with the law requirement.
If the tank has not been professionally deaerated, ignition problems could arise.
In that case, contact the supplier of the LPG tank.

Smell of gas
Should a smell of gas be perceived, follow these safety guidelines:
- do not turn electric switches on or off
- do not smoke
- do not use the telephone
- close the gas shut-off valve
- air out the area where the gas leakage has occurred
- inform the gas supplier or a company specialised in installation and maintenance of heating systems.

Explosive and easily flammable substances
Do not use or store explosive or easily flammable materials (e.g. petrol, paints, paper) in the room where the appliance is installed.

ATTENTION!
Do not use the appliance to support any object.
Specifically, do not place any liquid containers (Bottles, Glasses, Containers or Detergents) on top of the boiler.

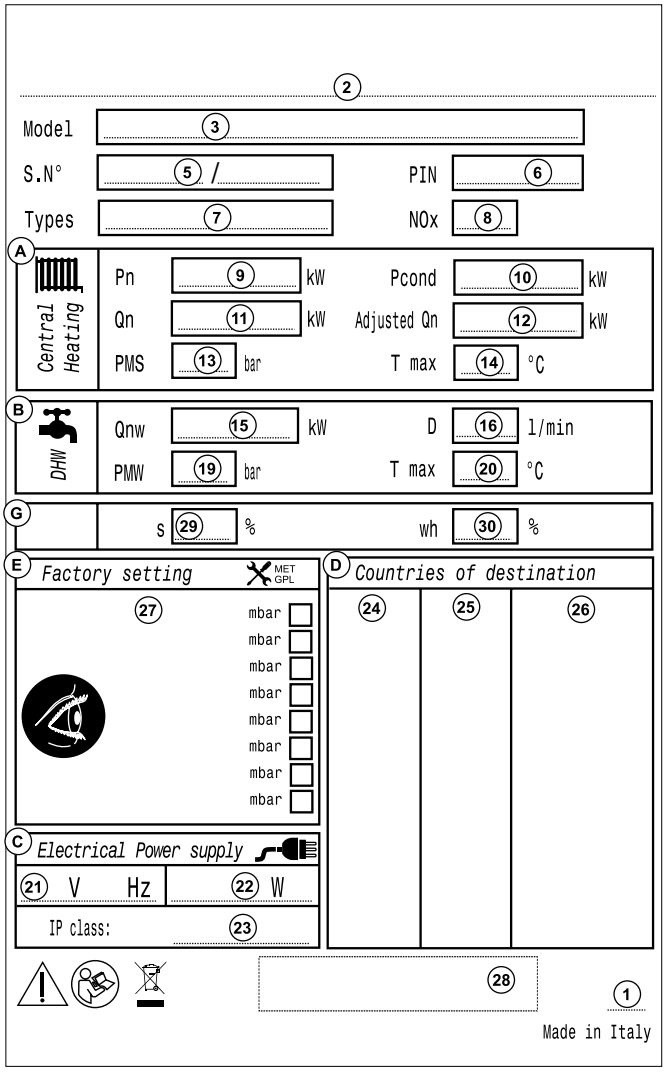
1.6 -TECHNICAL DATA PLATE

CE marking

The CE marking certifies that the boilers meet:

- The essential requirements of the gas appliance directive (directive 2009/142/EEC)
- The essential requirements of the electromagnetic compatibility directive (2004/108/EEC)
- The essential requirements of the efficiency directive (92/42/EEC)
- The essential requirements of the efficiency directive (directive 2006/95/EEC)

The technical data plate is located under the casing and is positioned on the front fixing cross member. The DUPLICATE of the same is placed on the burner cover



KEY:

1 = CE monitoring body
2 = Type of boiler
3 = Boiler model
4 = Number of stars (directive 92/42 EEC)
5 = (S.N°) Serial Number
6 = P.I.N. Product Identification Number
7 = Types of approved flue gas exhaust configurations
8 = (NOx) NOx Class

A = Heating circuit characteristics
9 = (Pn) Effective nominal output
10 = (Pcond) Effective output in condensation
11 = (Qn) Maximum heat output
12 = (Adjusted Qn) Adjusted for rated heat output
13 = (PMS) Max. heating operating pressure
14 = (T max) Max. heating temperature

B = Domestic hot water circuit characteristics
15 = (Qnw) Rated heat output in domestic hot water function (if different to Qn)
16 = (D) Specific D.H.W. flow rate according to EN 625 - EN 13203-1
19 = (PMW) Max. domestic hot water operating pressure
20 = (T max) Max. domestic hot water temperature

C = Electrical characteristics
21 = Electrical power supply
22 = Consumption
23 = Protection rating

D = Countries of destination
24 = Direct and indirect countries of destination
25 = Gas category
26 = Supply pressure

E = Factory settings
27 = Adjusted for gas type X
28 = Space for national brands

G = ErP
29 = Seasonal space heating energy efficiency
30 = Energy efficiency in DHW production mode

1.7 - WATER TREATMENT

Feed water treatment prevents problems and maintains the functionality and efficiency of the generator over time.

The ideal water pH in heating systems must be within:

VALUE	MIN	MAX
PH	6.5 (7)	8
Hardness [°fr]	9	15

To minimise corrosion, it is crucial to use a corrosion inhibitor; in order for it to work properly, the metal surfaces must be clean.
(see system protection ACCESSORIES sect. in domestic price list)

ATTENTION!
ANY DAMAGE TO THE BOILER CAUSED BY THE FORMATION OF FOULING OR BY CORROSIVE WATER WILL NOT BE COVERED BY THE WARRANTY.

ATTENTION (*) see general warnings 1.1:
The heating only models are NOT suitable for the production of water for human consumption according to Ministerial Decree D.M. 174/2004.

NOTE!
Further details in the section
‘‘Technical Information’’ on the boiler
page of the www.unicalag.it website

1.8 - BOILER ANTIFREEZE PROTECTION

It is activated by default

This protection can intervene only if the electricity and gas supplies are connected.
If one of the two is not available and upon reset 11 (SM) a temperature level between 2 and 5°C is detected, the appliance will behave as described in the table below, pos 2.

The heating system can be protected effectively from frost by using antifreeze products with inhibitor for heating systems (specific for multidmetal)

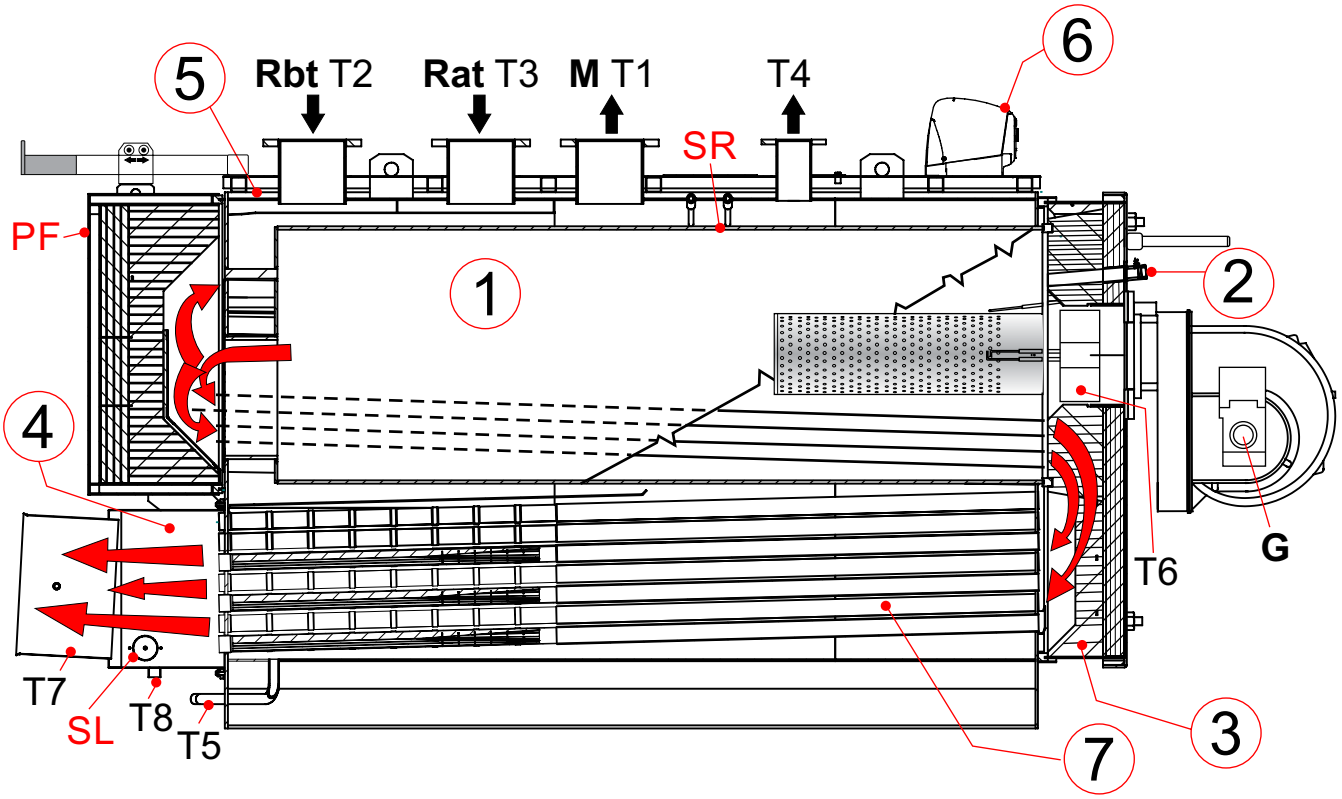
Do not use car engine antifreeze products as they could damage the water gaskets.

POS	ANTIFREEZE FUNCTION				
	Power supplies		**SR** (*)	Status antifreeze function	Actions
	Electric	Gas			
1	ON	ON	< 7 °C	ON	- Burner and Pump ON until T > 15°C
2	ON	OFF	< 5 ÷ 5 °C	ON	FAULT SIGNAL CODE 16 (with Electrical power supply ON) (see par. 4.6 - ERROR CODES). Ignition inhibited.
	OFF	ON		OFF	Ignition inhibited.
	OFF	OFF		OFF	Ignition inhibited.
(*) Heating Sensor SR par. 2.1					

2 TECHNICAL FEATURES AND DIMENSIONS

2.1 - TECHNICAL FEATURES

NOTE!
Further details in the section "Technical Information" on the boiler page of the www.unicalag.it website



Smoking section tubes

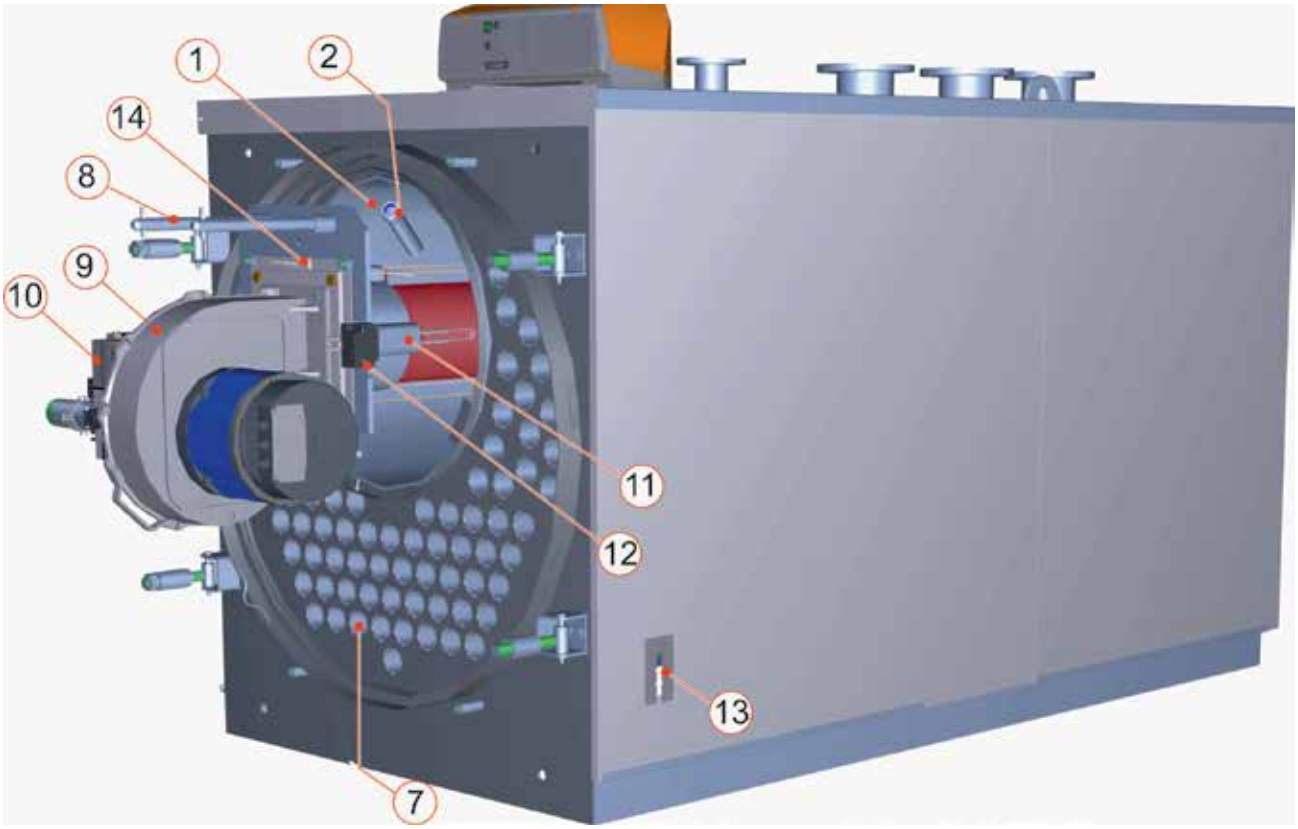
2.2 - MAIN COMPONENTS

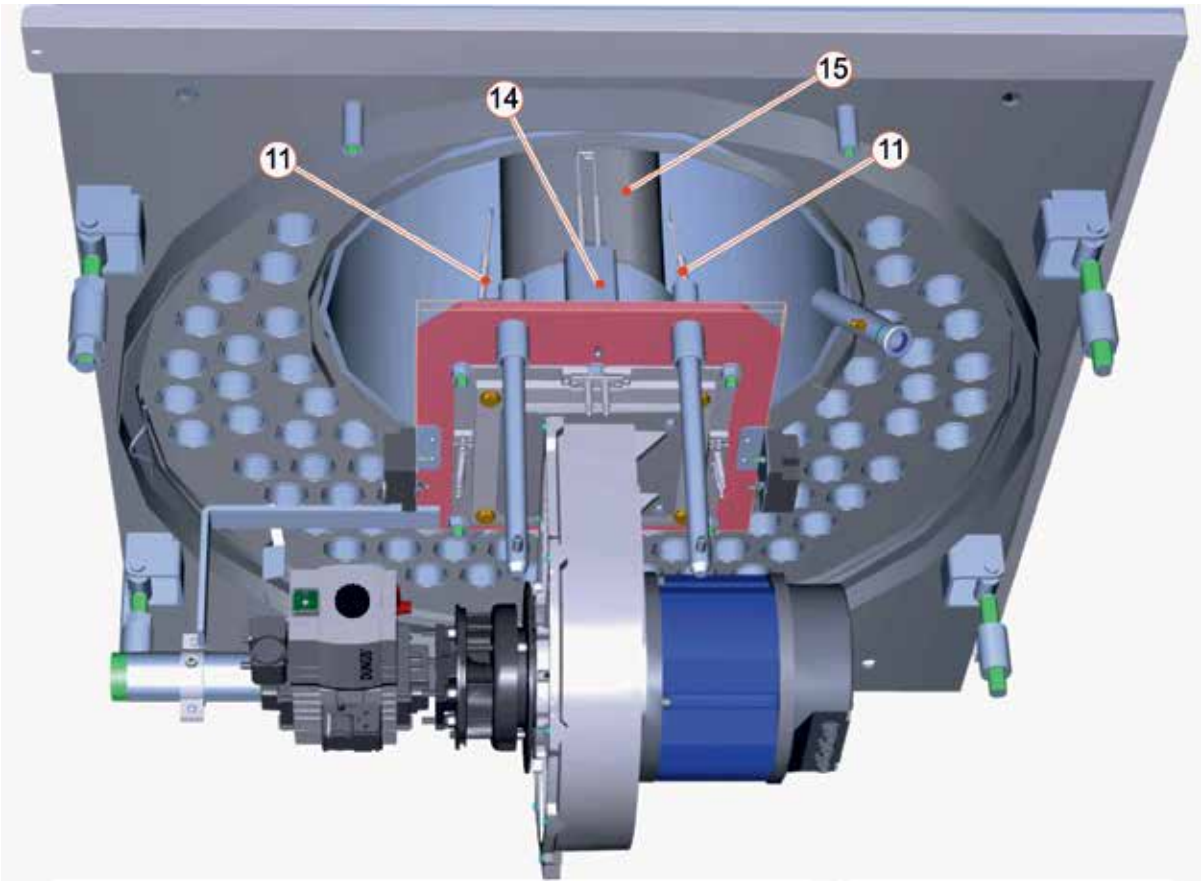
SPK 1000 boiler is equipped with a cylindrical furnace in which the flame of the premix burner develops towards the rear door, where the first inversion of the fumes occurs in the pipes of the second pass.
Once in the front part, the flue gases are conveyed through the door into the tubes of the third pass to reach the rear smoke chamber and then the chimney.
The combustion chamber is always pressurised while the burner is operating, within the power range of the boiler.

For the value of this pressure, see the Par. 3.7

The chimney must be calculated so that no positive pressure is detected at its base.

KEY		
N°		Description
1		Furnace
2		flame sight glass
3		Door with flame sight glass
4		Smoke chamber
5		Body insulation
6		Panel board
7		Smoke tubes
M	T1	Flow
Rbt	T2	Low temperature return
Rat	T3	High temperature return
	T4	Expansion vessel
Sc	T5	Boiler drain
	T6	Burner connection
S	T7	Chimney connection
Scond	T8	Condensation drain
G	T9	Gas connection
SR		Heating sensor
SL		Condensate level sensor
PF		Smoke pressure switch





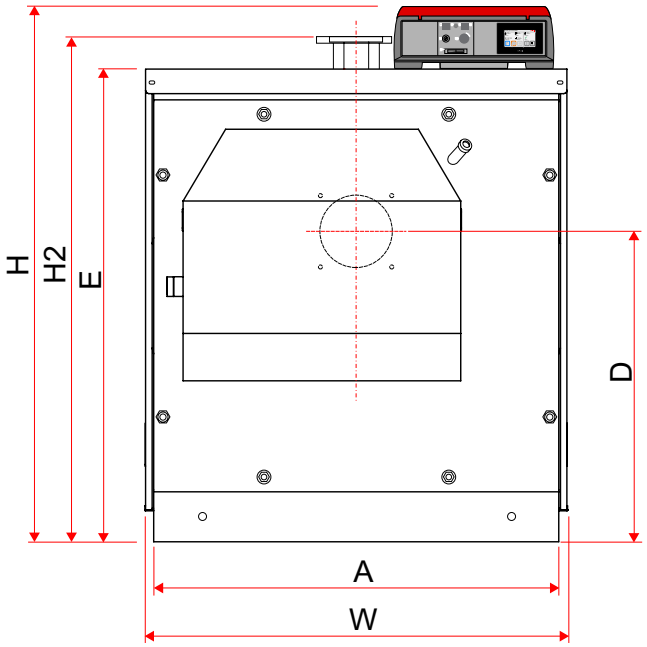
8		Slides for sliding burner assembly
9		Fan
10		Gas Valve
11		Ignition electrode (n.2)
12		Ignition transformer (n.2)

13		Outlet wiring (dx / sx)
14		Detection electrode
15		Burner

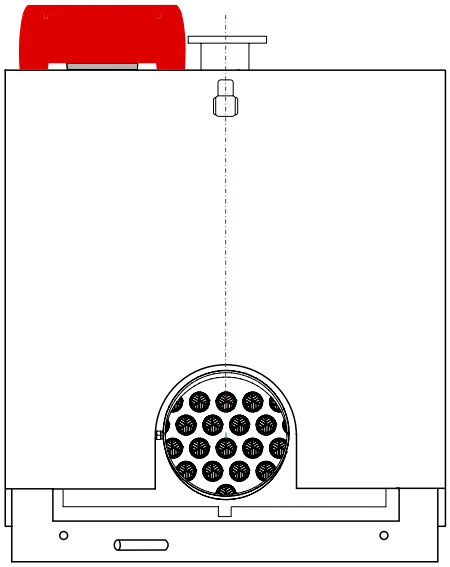
2.4 - DIMENSIONS

SPK 1000

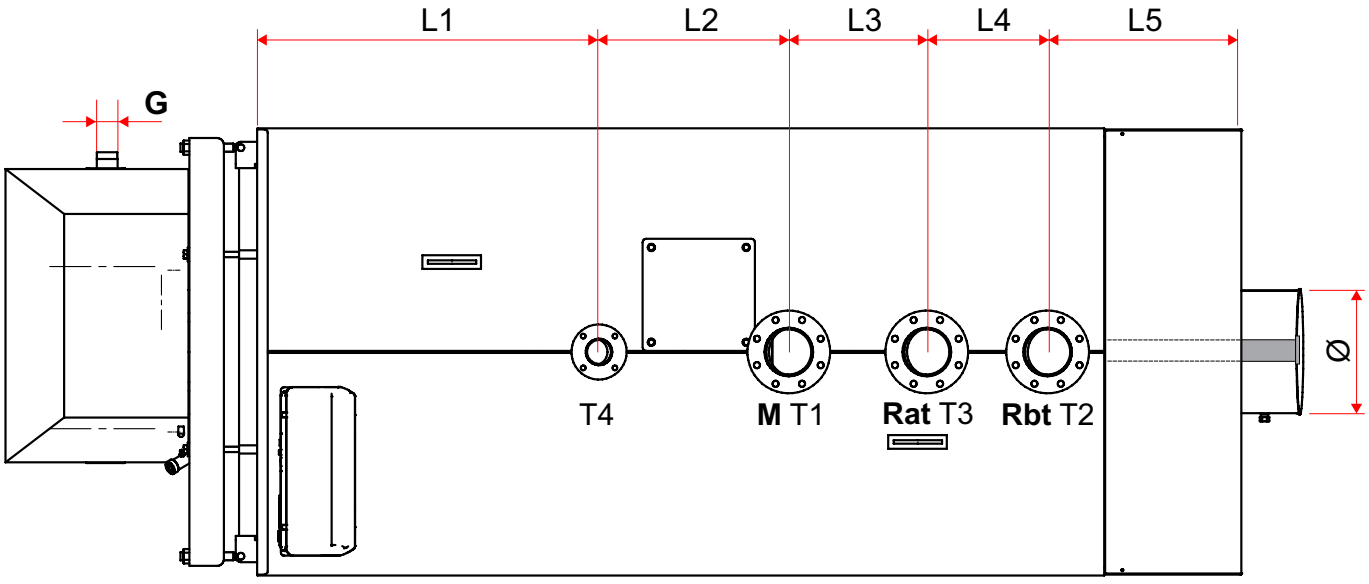
FRONT VIEW



BACK VIEW

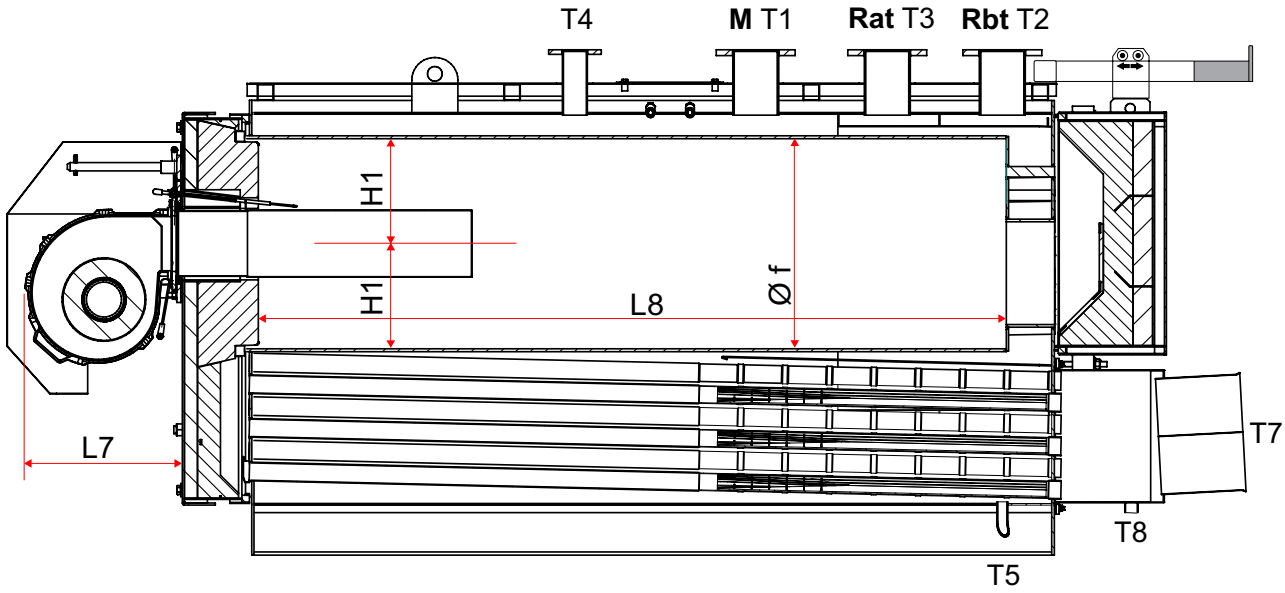


UPPER VIEW

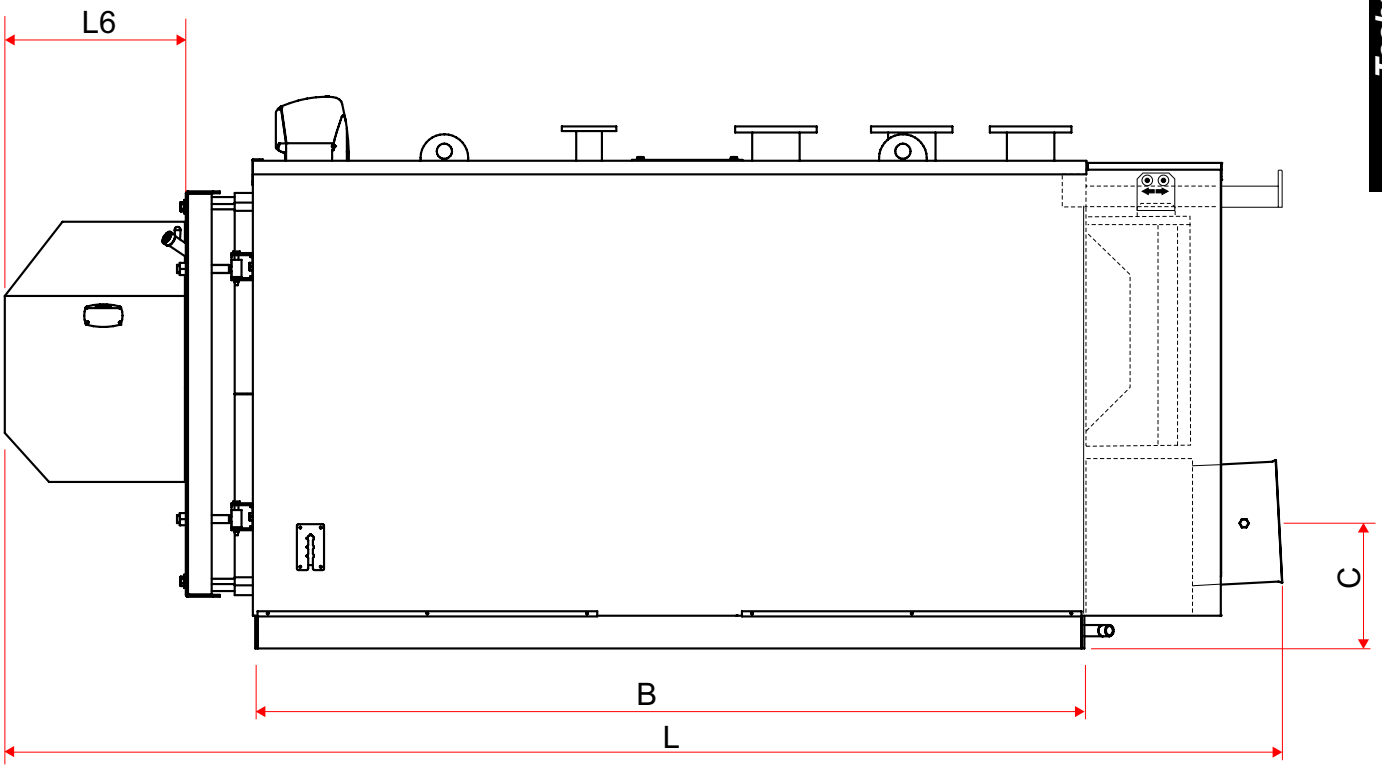


SPK	DIMENSIONS [mm]																			
	Depth										Width		Height					Chim-ney conn-ection	Furnace	Focolare
	L	B	L1	L2	L3	L4	L5	L6	L7	L8	W	A	H	H1	H2	C	D	E	Ø	Ø f
1000	3760	2440	990	550	400	350	562	533	477	2310	1290	1240	1637	320	1545	376	952	1447	350	642

SIDE VIEW SECTION



SIDE VIEW WITH CASING



SPK	CONNECTIONS									Weight
	T1 (M)	T2 (R)	T3 (R)	T4	T5 (Sc)	T6	T7 (S)	T8 (Scond)	G	kG
	PN6				inch	[mm]	[mm]	[mm]	inch	
1000	DN 125	DN 125	DN 125	DN 65	R 1"	270	350	40	R 2"	2440

2.5 - OPERATING DATA AND GENERAL FEATURES

For the adjustment data: NOZZLES - PRESSURE - DIAGRAMS - FLOW RATES refer to the paragraph ADAPTATION TO OTHER TYPES OF GAS.

	SPK	1000			
Boiler category		I_{2H}			
Modulation ratio		1:2			
Rated heat output on P.C.I. Qn	kW	940			
Minimum heat output on P.C.I. Qmin	kW	470			
Rated useful power (Tr 60 / Tm 80 °C) Pn	kW	923,2			
Minimum useful power (Tr 60 / Tm 80 °C) Pn min	kW	460,1			
Rated useful power (Tr 30 / Tm 50 °C) Pcond	kW	1006			
Minimum useful power (Tr 30 / Tm 50 °C) Pcond min	kW	508			
Rated power performance (Tr 60 / Tm 80°C)	%	98,2			
Minimum power performance (Tr 60 / Tm 80°C)	%	97,9			
Rated power performance (Tr 30 / Tm 50°C)	%	107			
Minimum power performance (Tr 30 / Tm 50°C)	%	108,1			
Performance at 30% of the load (Tr 30°C)	%	108			
Combustion efficiency at nominal load	%	98,4			
Combustion efficiency with reduced load	%	98,7			
Casing heat loss with burner operating (Qmin)	%	0,81			
Casing heat loss with burner operating (Qn)	%	0,19			
Net flue gas temperature tf-ta (min)(*)	°C	25,1			
Net flue gas temperature tf-ta (max)(*)	°C	31,0			
Maximum permitted temperature	°C	100			
Maximum operating temperature	°C	95			
Flue gas mass flow rate (min)	kg/h	790			
Flue gas mass flow rate (max)	kg/h	1581			
Excess air	%	29,54			
Heat loss at chimney with burner on (min)	%	1,29			
Heat loss at chimney with burner on (max)	%	1,60			
Minimum heating circuit pressure	bar	1			
Maximum heating circuit pressure	bar	6			
Water content	l	1413			
Methane gas consumption G20 (pow.sup. 20 mbar) at Qn	m^3/h	99,4			
Methane gas consumption G20 (pow.sup. 20 mbar) at Qmin	m^3/h	49,7			
Massima pressione disponibile base camino	Pa	100			
Max condensate production	kg/h	158			
Emissions					
CO at maximum heat output with 0% of O2	mg/kWh	2			
NOx at maximum heat output with 0% of O2	mg/kWh	46			
NOx weight with 3,5% of O2	mg/kWh	33			
Sound pressure level	dB (A)	81			
Electrical data					
Power supply voltage/frequency	V/Hz	230 / 50 - 400 / 50			
Protection rating	IP	-			
Room Temperature = 20°C					
(*) Temperature detected with appliance operation flow rate 80°C / ret. 60°C					
CO_2 (min/max) See table ''NOZZLES - PRESSURE''					
Seasonal energy efficiency to heat the room 2009/125 CEE (<=400Kw) η_s - see table ErP					
Heat loss in stand-by ΔT 30°C - Pstb - see table ErP					
Electricity consumption on standby - Psb - see table ErP					
(***) at 1 m away in free field.					

2.5.1 - TECHNICAL DATA ACCORDING ErP DIRECTIVE

		SPK	1000			
Element	**Symbol**	**Unit**				
Effective nominal output	Pnominale	kW	923			
Seasonal energy efficiency to heat the room	η_s	%	92			
Season efficiency class to discharge			*			
For CH only and combination boilers: useful heat output						
Useful Heat Output in high-temperature regime (Tr 60 °C / Tm 80 °C)	P_4	kW	923,2			
Useful efficiency at nom. heat output in high-temperature regime (Tr 60 °C / Tm 80 °C	η_4	%	88,5			
Useful heat output at 30% of nom. heat output in low-temperature regime (Tr 30 °C)	P_1	kW	304,6			
Useful efficiency at 30% of nom. heat output in low-temperature regime (Tr 30 °C)	η_1	%	97,3			
Range-rated boiler: YES / NO			NO			
Auxiliary electricity consumption						
At full load	elmax	kW	2,120			
At part load	elmin	kW	1,060			
In stand-by mode	P_{SB}	kW	0,005			
Other items						
Heat loss in stand-by	P_{stb}	kW	2,15			
Emissions of nitrogen oxides ref. PCS	NOx	Mg/kWh	40			
Annual electricity consumption			6			
Inside sound power level	Q_{HE}	GJ	2887			
Livello di potenza sonora all'interno	Lwa	dB (A)	-			
For CH & DHW production boilers						
Declarerd load profile			-			
Energy efficiency in DHW production mode	η_{wh}	%	-			
Daily electricity consumption	Qelec	kWh	-			
Daily fuel consumptionl	Qfuel	kWh	-			
Annual electricity consumption	AEC	kWh				
Annual fuel consumption	AFC	GJ				
Seasonal efficiency class in DHW production mode			-			
*** Appliances not covered by Directive 2009/15 / EC**						

3 INSTALLATION INSTRUCTIONS

3.1 - GENERAL WARNINGS

ATTENTION!
This boiler is intended solely for the use for which it was expressly designed. Any other use is to be considered improper and therefore dangerous.
This boiler heats water at a temperature lower than the atmospheric pressure boiling temperature.

Before connecting the boiler, have professionally qualified personnel:

a) Thoroughly wash all the piping of the system to remove any residues or impurities, which could jeopardise proper operation of the boiler.

b) Check that boiler is set up to operate with the available type of fuel.
This can be seen written on the package and on the technical feature plate;

c) Check that the chimney/flue has an appropriate draught, without any bottlenecks, and that no exhausts from other appliances are inserted, unless the flue has been
implemented to accommodate several utilities according to specific standards and regulations in force. Only after this check can the fitting between the boiler and chimney be mounted;

ATTENTION!
If there is dust and/or if there are aggressive/corrosive vapours present in the installation room, the appliance must be protected suitably and must be able to operate independently from the air in the room.

ATTENTION!
Mount the appliance respecting the minimum distances required for installation and maintenance.

The boiler must be connected to a central heating system and/or domestic hot water supply network compatible with its efficiency and output.

NOTE!
Further details in the section "Technical Information" on the boiler page of the www.unicalag.it website

3.2 - STANDARDS FOR INSTALLATION

It must be installed by a professionally qualified technician, **who shall take the responsibility of observing all local and/or national laws published in the official journal, as well as the applicable technical standards.**

NOTE!
For further details relating to the standards, rules and regulations for safe installation of the thermal unit, refer to the section "Technical Information" on the boiler page of the www.unicalag.it website

3.3 - PREVENTIVE VERIFICATION AND VERIFICATION AND ADJUSTMENT OPERATIONS

Before installing this appliance on old systems, check that:
- The chimney is suitable for appliances with condensation, combustion products temperature, and built in compliance with the standards in force in this regard.
  Is as straight as possible, airtight and insulated, and has no obstructions or constructions.
- The chimney is equipped with a fitting to drain condensate.
- The boiler room is equipped with a duct to drain condensate produced from the boiler.
- The electrical system has been set up by a qualified technician in compliance with the rules in force.
- The rate, head and direction of the flow of the circulation pumps are appropriate.
- The fuel adduction line and the tank, if any, are made according to relevant standards in force.
- The expansion vessels can fully absorb dilation of the fluid in the system.
- The system has been cleaned from sludge and scaling.

If it is possible to program replacements, you must provide for intervention with protective washing equipped with basic dispersant.
Washing must be carried out four weeks prior to replacement, with the system operating at 35°C - 40°C

Attention! If the new boiler was replaced in an old system without having provided for the aforementioned washing cycle, do not start the system since any product residues in the circuit can, after replacement, fill the generator with residues.
It is recommended to contact a specialised company for water treatment.

NOTE!
Further details in the section "Technical Information" on the boiler page of the www.unicalag.it website

3.4 - PACKAGING

Check integrity of the content.

Keep the packaging material (plastic bags, etc.) out of the reach of children as they are potential sources of danger.
The manufacturer will not be held liable for damage to persons, animals or objects due to failure to comply with the above instruction.

SPK	L width (mm)	W width (mm)	H height (mm)	Net Weight (kg)	Weight Packaging (kg)
1000	4000	1500	1600		

As well as the appliance, the packaging contains:

Pouch with the following documentation:
- Manager operating instructions booklet HSCP
- Instruction booklet for the installer and maintenance engineer
- BCM instructions booklet
- Certificate of conformity
- Testing certificate
- Gas conversion label

- Wieland socket for 230V - 50Hz power supply

Accessories box containing:
- 5 bends + a T + a plastic condensate draining cap
- External probe
- Storage tank probe
- Cables output sheet metal

- Condensate drain siphon pipe 1 m.

3.4.1 - HANDLING

The boiler must be handled by lifting it from the holes on the upper plate or using a transpallet.

OBLIGATION!
wear protective gloves

- Only transport the boiler using appropriate transport equipment
- Protect all parts against impacts if they are to be transported.
- Follow the transport instructions on the packaging.

3.5 - POSITIONING IN BOILER ROOM

The boiler must be installed in compliance with standards and prescriptions in force.
The room must be well ventilated by openings with a total surface no less than 1/30 the surface of the boiler room, with a minimum of 0.5 m².
The ventilation openings must be permanent, communicate directly with the outside and be positioned high or low according to standards in force.
The location of the ventilation openings, the fuel supply circuits, electric energy supply and lighting must comply with current legal provisions in relation to the type of fuel used.
It is recommended to install the boiler as close to the chimney connection as possible.
To make it easier to clean the smoke circuit, in front of the boiler, there must be a free space no less than the length of the boiler body and, in any case, never less than 1300 mm. Check that with the door opened 90°, the distance between the door and the adjacent wall is at least the length of the burner.
The boiler can be placed directly on the floor as it is equipped with a base.
However it is useful to provide a flat, level cement plinth capable of bearing the weight of the boiler full of water.
When positioned on the plinth, the dimensions must be at least **B** x **A** (see dimensions table).
When installation has been performed, the boiler must be perfectly horizontal and stable (to reduce vibrations and noise).

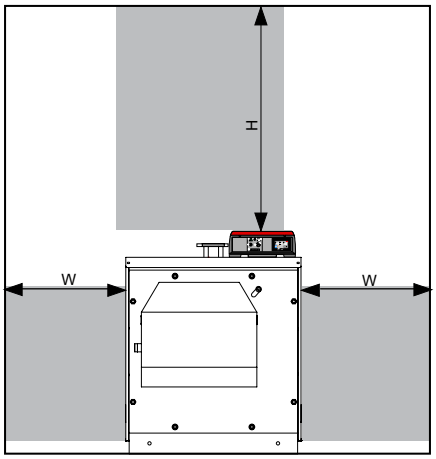
Comply with the minimum overall dimension distances in order to execute normal maintenance and cleaning operations.

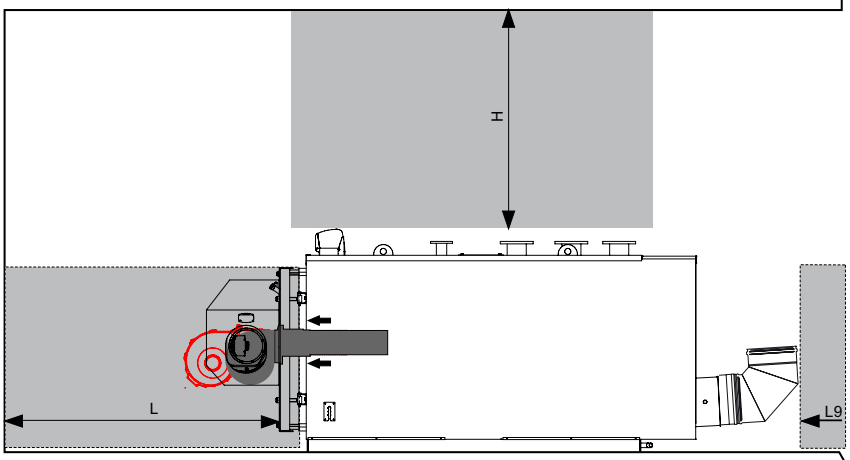
OPENING DOOR

ATTENTION
before opening the door, (right side) is necessary:

- Close the gas cock on the pipe power supply (burner upstream of the separation point between the power supply line and the burner)
- Disconnect the Gas / Burner pipe
- Remove the 4 screws indicated and extract the burner group (‘’ A ‘’ sledge)
- Remove the 6 front casing screws (Upper lower and left side)

SPK	CLEARANCE mm			
	W	L	L9	H
1000	2000	3800	1000	1000





3.5.1 - IMPORTANT NOTE

Before opening the hearth door, the following safety measures must be taken:

- Cool the boiler by circulating the system water, and then disconnect the burner from the electricity supply. Put a sign on the boiler with the following text: DO NOT USE, BOILER UNDER MAINTENANCE, OUT OF ORDER.

ATTENTION
Danger of burns! the flame control light can be very hot; therefore pay the utmost caution.

REMOVING THE ANCHOR BRACKET BURNER (transport protection)

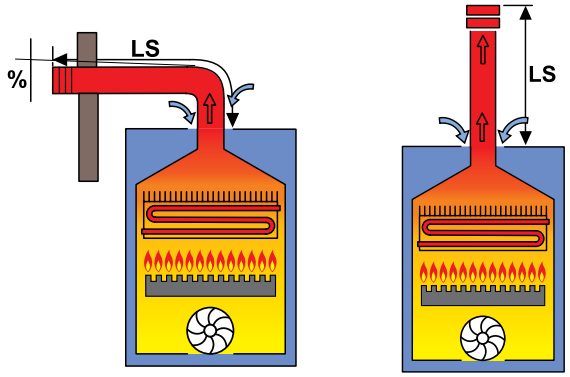
ATTENTION
To remove the anchor bracket:
- **follow the door opening phase**
- **using a suitable tool, remove the support bracket V inside the firebox.**

3.6 - FLUE GAS EXHAUST PIPE CONNECTION

To connect the flue gas exhaust pipe, local and national standards must be observed

In the event the boiler is replaced, ALWAYS replace the flue gas pipe as well.
The boiler is type approved for the exhaust configurations listed below:

B23P	**ATTENTION** For this type of connection, the room follows the same installation rules for boilers with natural draught.



Connection to a combustion products evacuation pipe outside the room; the combustion air is taken directly from the room where the appliance is installed.

HEAD AVAILABLE AT THE BASE OF THE CHIMNEY	
D (Drain)	I (Intake)
Δp = 100 Pa	–

The maximum permitted length of the pipes is determined by head (Δp) available at the base of the chimney.

ATTENTION:
The flue must comply with the standards in force.

NOTE!
Further details in the section "Technical Information" on the boiler page of the www.unicalag.it website

3.7 - CONNECTION

SPK	CONNECTIONS						
	G Gas Inlet [Inch]	**M (T1)** Flow [PN6 - DN]	**R (at / bt)** **(T2 - 3)** Return [PN6 - DN]	**T4** expansion vessel [PN6 - DN]	**T5** Boiler drain [Inch]	**T7** Flue gas exhaust [Ø mm]	**T8** Condensation drain [Ø mm]
1000	2"	125	125	65	1"	350	DN 40

Danger!
The gas connection must be carried out only by a qualified installer who must respect and apply that foreseen by relevant laws in force in the local prescriptions of the supply company. Incorrect installation can cause damage to persons, animals and objects for which the manufacturer cannot be held responsible.

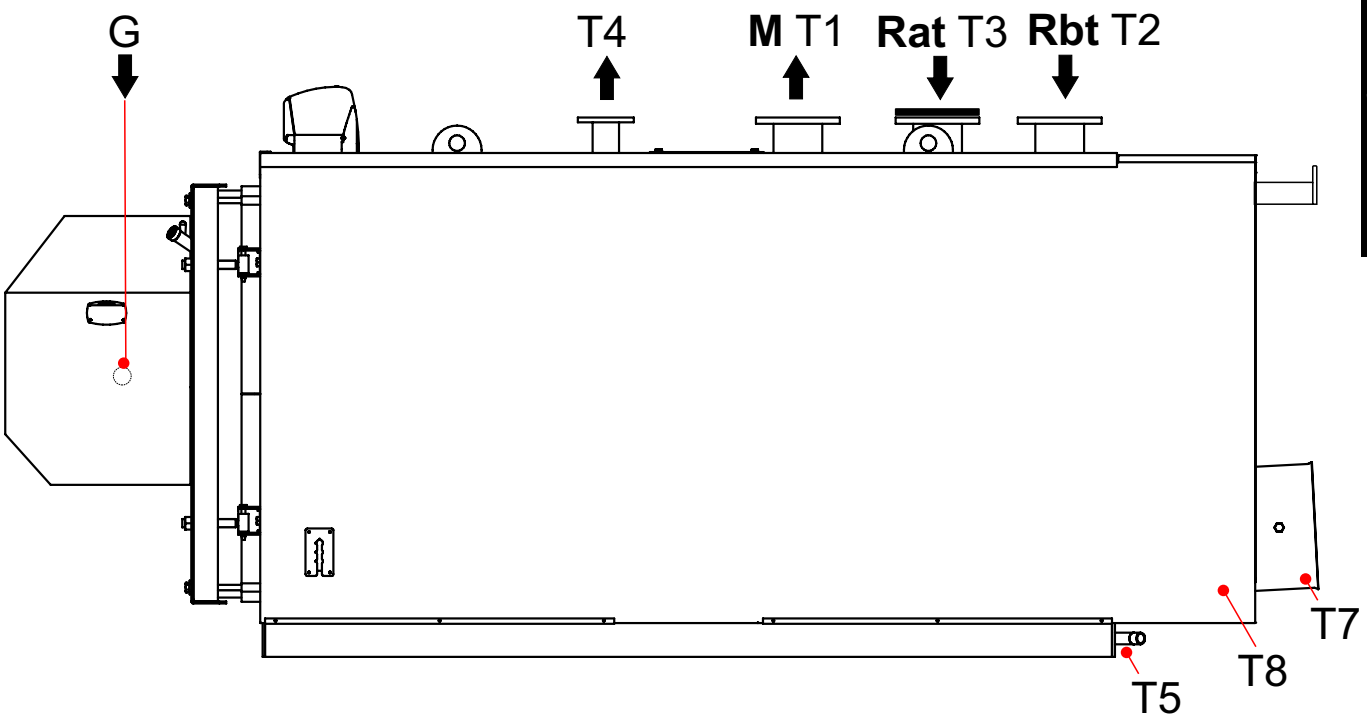
If you smell gas:
a) Do not operate electric switches, the telephone or any other object that may cause sparks;
b) Immediately open doors and windows to create air current to purify the room;
c) Shut the gas cocks.

Warning!
If it is not necessary to have the 2 returns in the installation, always use the low temperature return **Rbt (T2)**

Attention!
Do not mix the heating water with incorrect concentrations of antifreeze or anti-corrosion substances! This could damage the gaskets and cause noise during operation.
The manufacturer will not be held liable for damage to persons, animals or objects due to failure to comply with the above instruction.

The mains pressure must be within 0.5 and 6 bar (in the event of greater pressure install a pressure reducer).

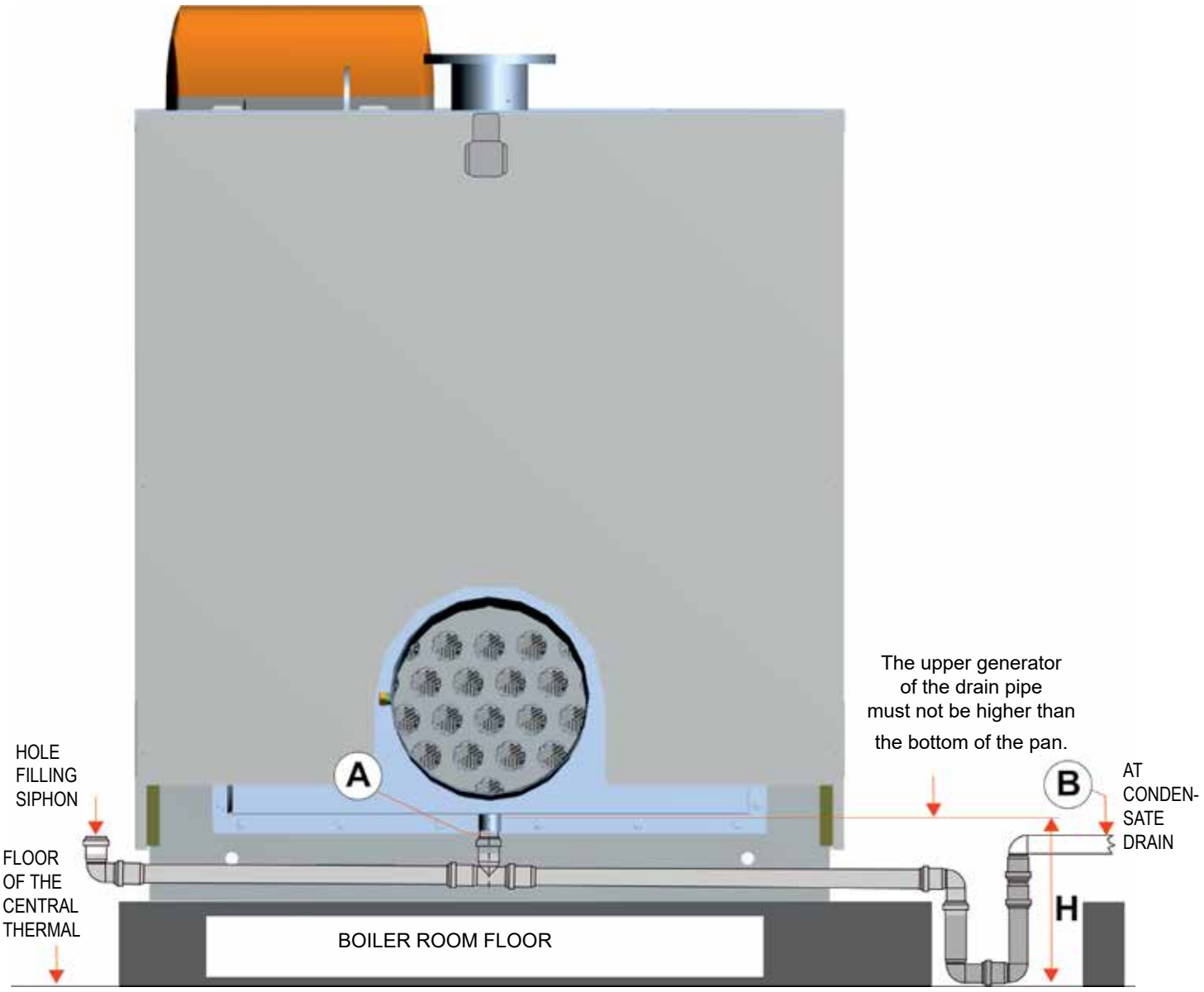
The maximum operating pressure of the boiler is 6 bar.
Size the expansion vessel with respect to the maximum expected operating temperature and the water content of the system, then determine the pre-inflation pressure of the expansion vessel. (the pressure during the maximum effective, must not reach the pressure set on the safety valves).



3.8 - CONDENSATE DRAIN

The boiler, during the combustion process, produces condensation that, through pipe “A”, flows into the trap.
The condensation that forms inside the boiler flows into a suitable drain via pipe “B”.

Danger!
Before commissioning the appliance:
- check that the trap is assembled of the siphon (* H = XXX mm)
- fill the trap and check that the condensation is drained properly
If the appliance is used with an empty condensation drain trap, there is an intoxication hazard due to the release of exhaust gasses.



H = Siphon head
Capacity conditions 0 and Max Fan Head

WKVV 1000 **H = 160 mm**

The connection between the appliance and the domestic waste system must be made in compliance with the specific reference standards.

If you do not want to or cannot create a basement, the boiler can be mounted at ground level and a bulb holder XXX deep can be made to house the siphon.

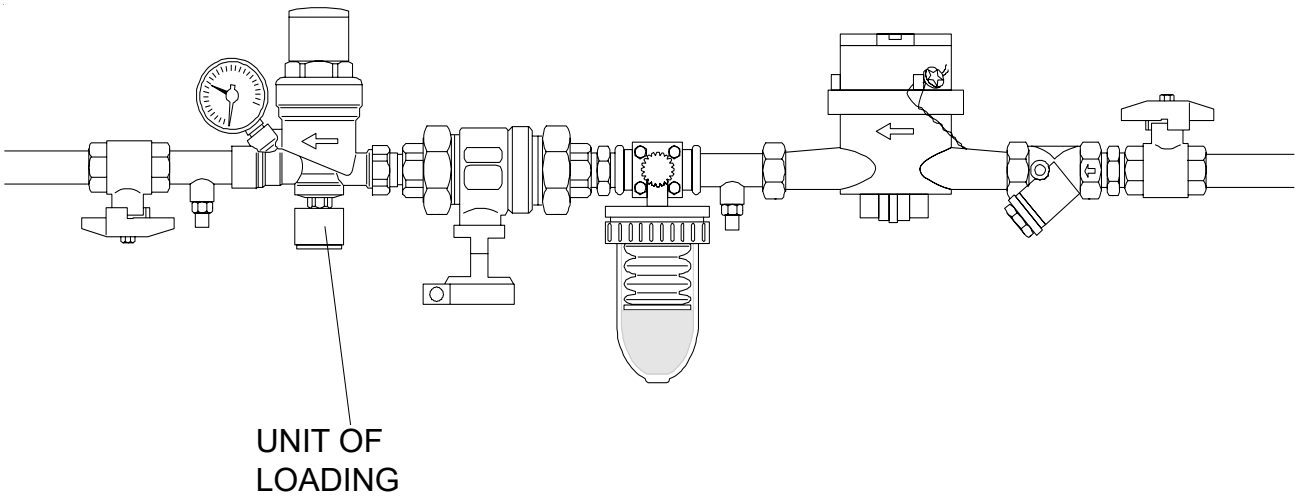
NOTE!
Further details in the section “Technical Information” on the boiler page of the www.unicalag.it website

3.9 - FILLING AND EMPTYING THE SYSTEM

When all system connections have been completed, the circuit can be filled.

To fill the system, you must provide a filling valve on the system's return.

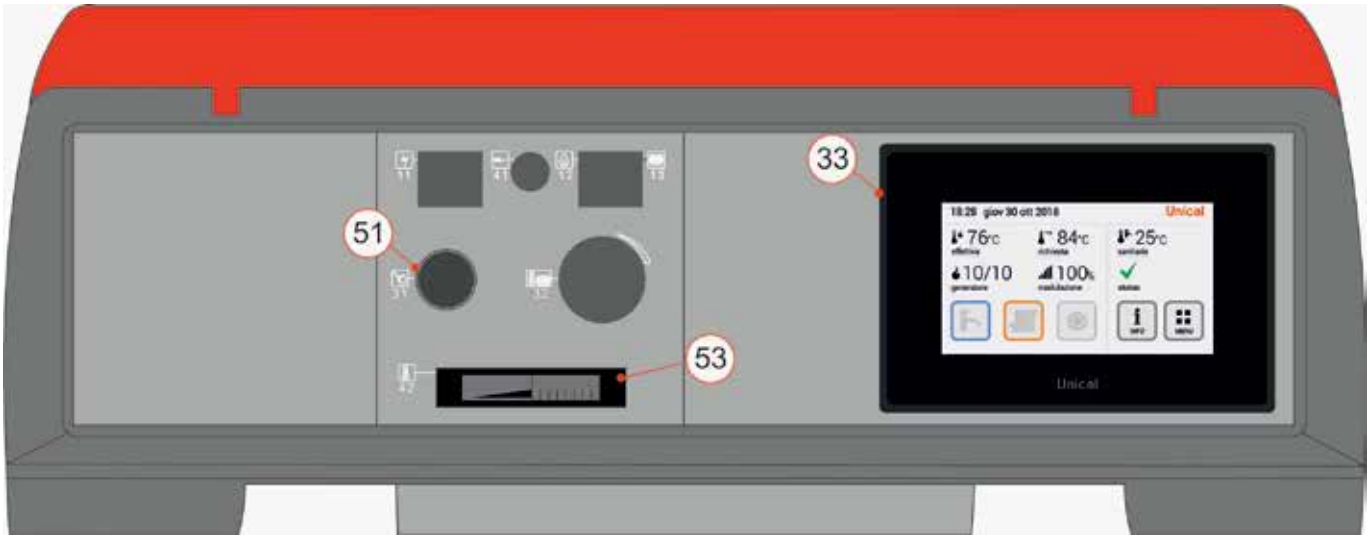
EXAMPLE OF THE SYSTEM'S LOADING UNIT

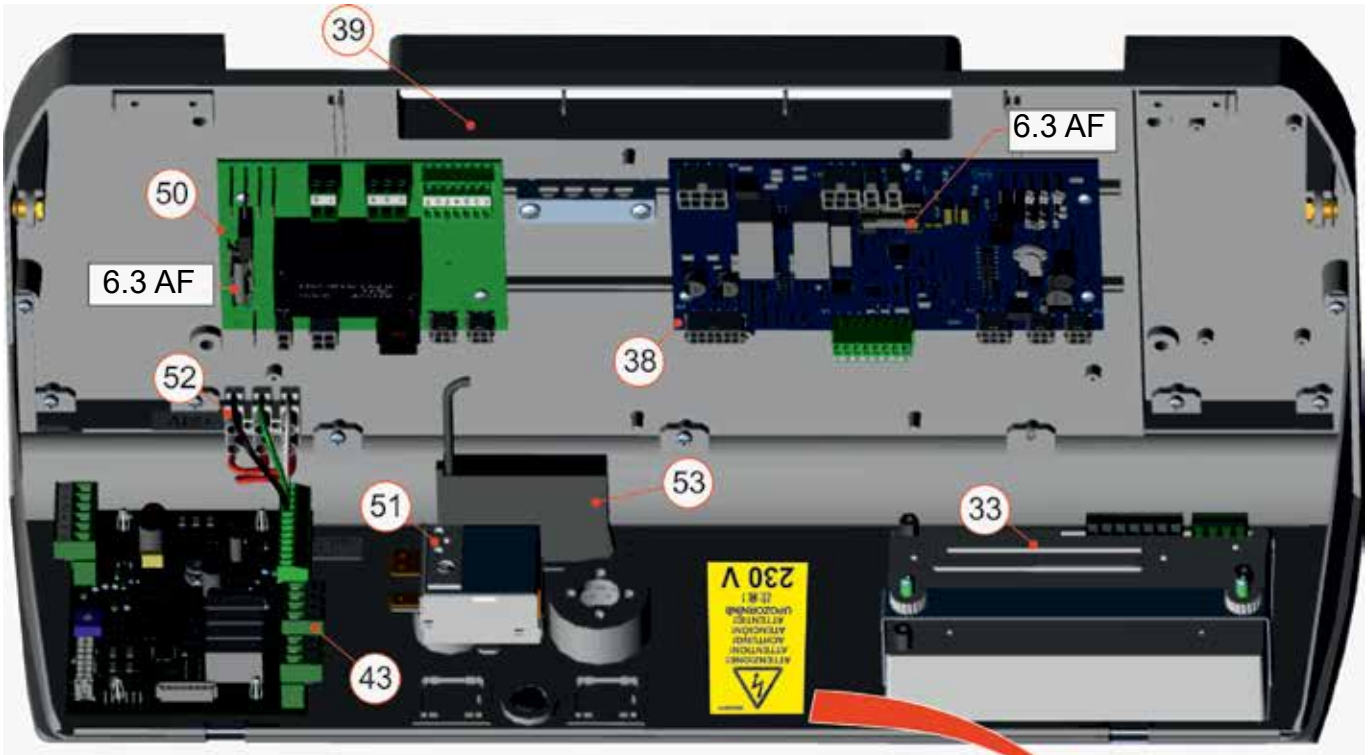


3.9 - ELECTRICAL CONNECTIONS

Danger! Only a qualified technician may perform the electrical installation. Before performing connections or any type of operation on electrical parts, always disconnect electrical power and make sure that it cannot be reconnected accidentally.

3.9.1 - PANEL BOARD

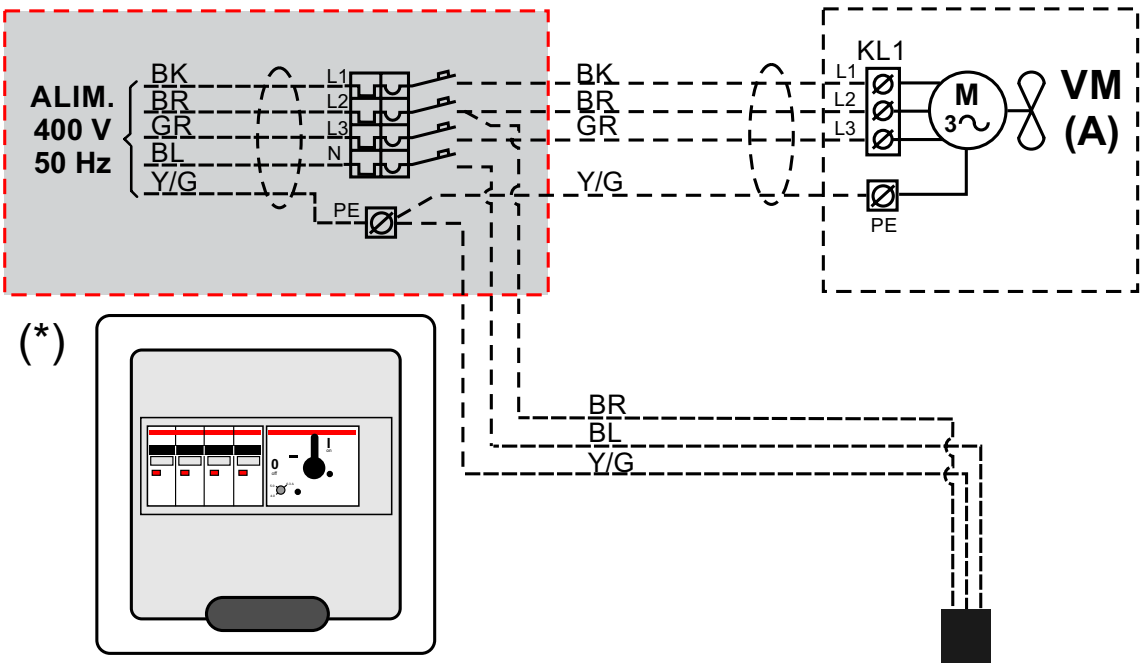




KEY		
N°		Description
33		Heating controller (USER INTERFACE)
38	BMM	Burner management board
39		Slot for Cables
43	BCM	Boielr controller
50		Power supplier board
51	TL	Manually resettable limit thermostat
52	M2	Supplementary terminal +24V BCM
53		Termometer

3.9.2 - BOILER POWER SUPPLY

(*) The Dashed links and BOX general electrical by installer.



Power supply connection 400V

The installation of the boiler requires the electrical connection to a 400 V - 50 Hz network and a 230V - 50 Hz connection: these connections must be made as required by current standards.

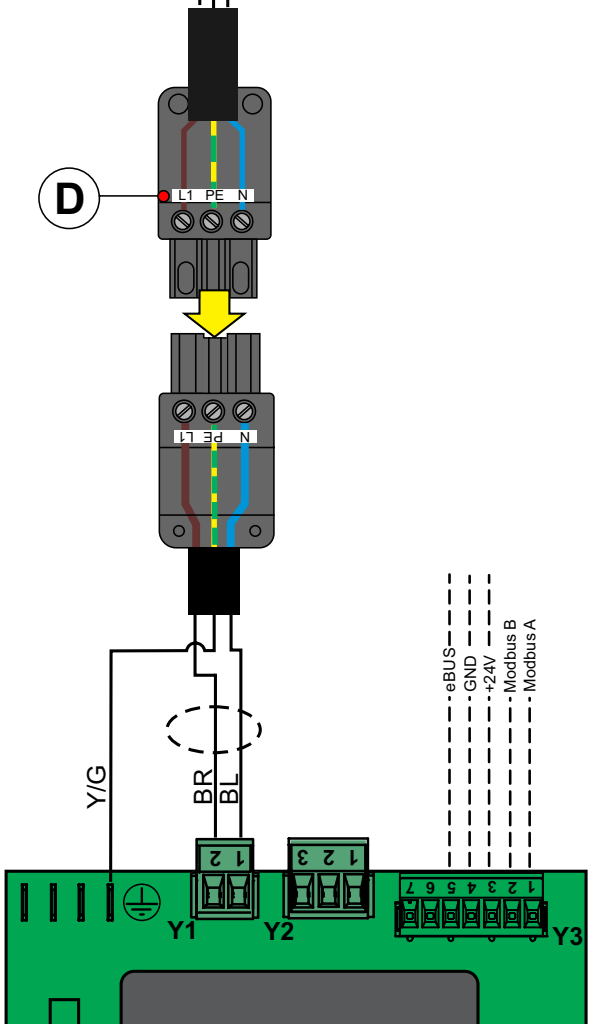
Danger!
Only a qualified technician may perform the electrical installation.
Before performing connections or any type of operation on electrical parts, always disconnect electrical power and make sure that it cannot be reconnected accidentally.

Remember that it is necessary to install an easy-to-access single-pole magnetothermic switch on the electrical power supply line of the boiler according to the fan plate data, in order to make any maintenance operations quick and safe.

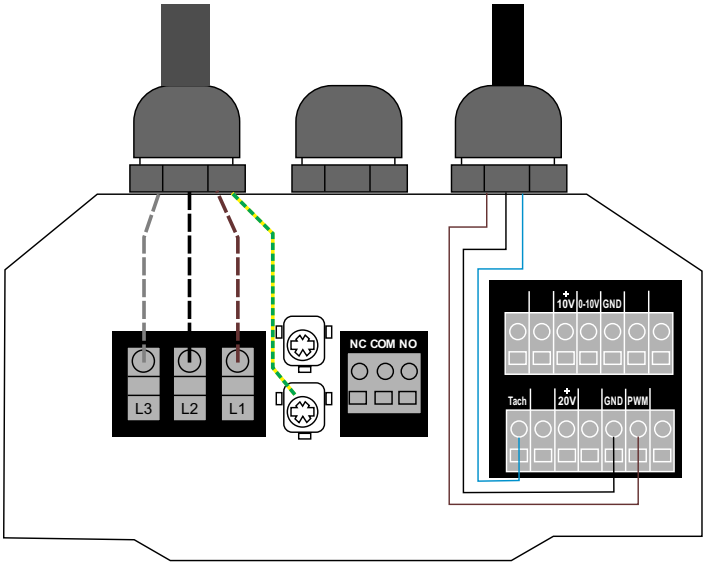
The replacement of the power supply cable must be carried out by authorized technical personnel. Failure to comply with the above may compromise the safety of the appliance.

ATTENTION!
Comply with the PHASE and NEUTRAL polarity since flame detection is Phase Sensitive.

ATTENTION:
The 230 V cables must run far apart from 24V cables.

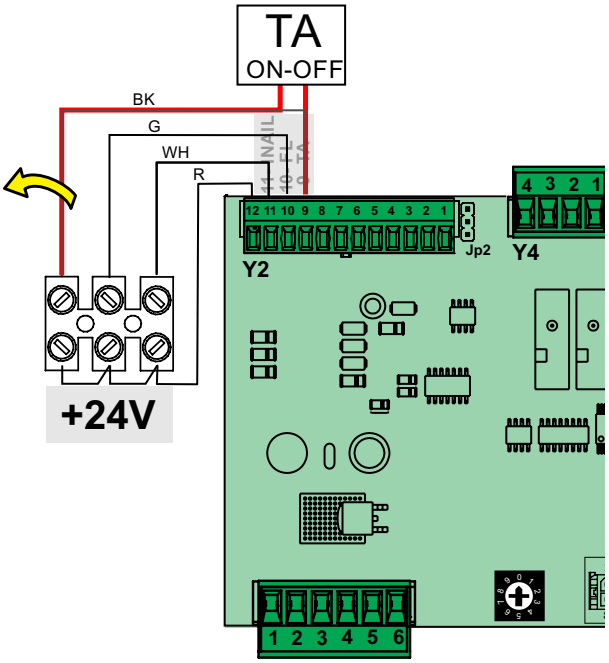


NOTE:
Fan terminal block connection
The dotted links are edited
of the installer



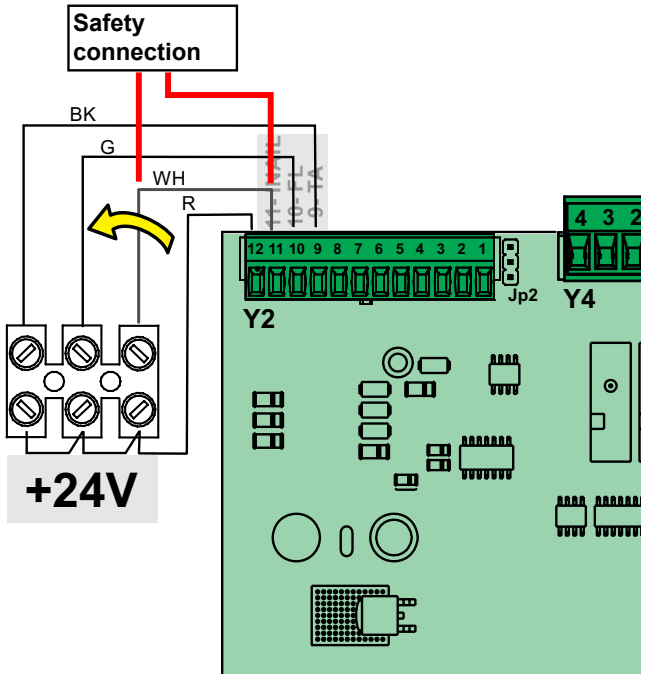
NOTE:
View of the internal panel position of the BCM board and 24 V terminal block for connections.

TA connection (*)



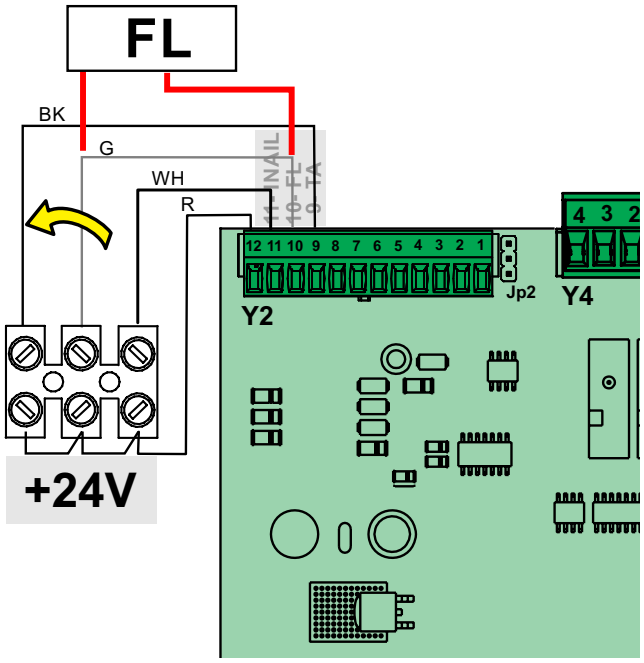
- **(Y2 - 9 and terminal board M2) after removing the jumper.**

INAIL safety connections



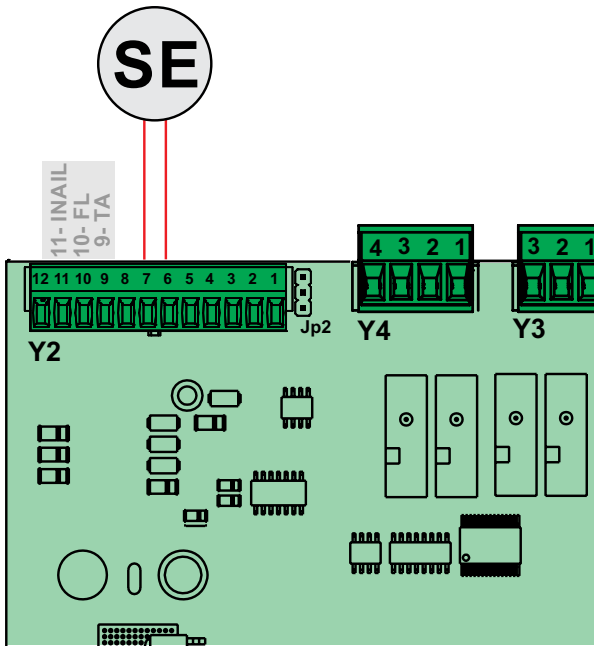
- Remove the jumper and connect the cables as indicated between **(Y2 11 and terminal board M2).**

FL Flow switch connection (*)



- Remove the jumper and connect the cables as indicated between **(Y2 10 and terminal board M2).**

External probe connection (*)



- Set up on terminal board, BCM **(Y2 6-7).**

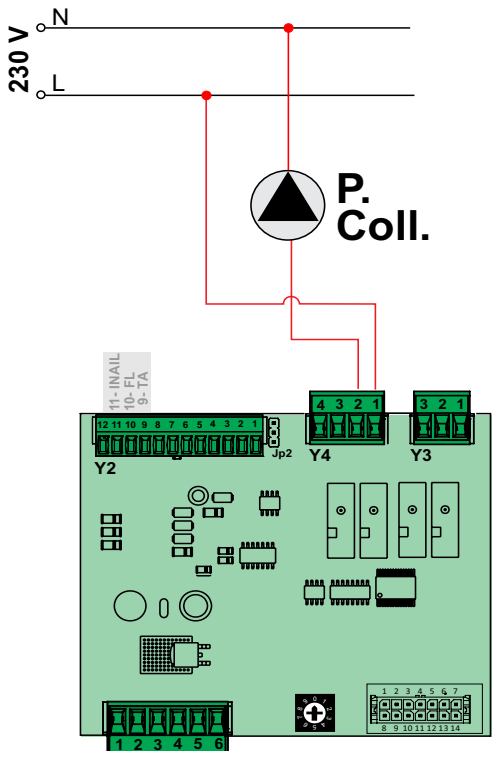
(*) Optional

NOTE:
The boiler is set up for direct flow and storage tank management.
If **Stemp. ACC** is connected automatically, DHW is activated, which will have priority management with regard to direct flow through the pumps shown below.
Should additional services be requested (storage tanks, mixed areas, solar, etc), you must purchase **SHC** multi-function modules to connect to the local bus for total management through **HSCP** (and **UFLY**) heating controller.

BCM relay contacts support pumps with max. 4A absorption.

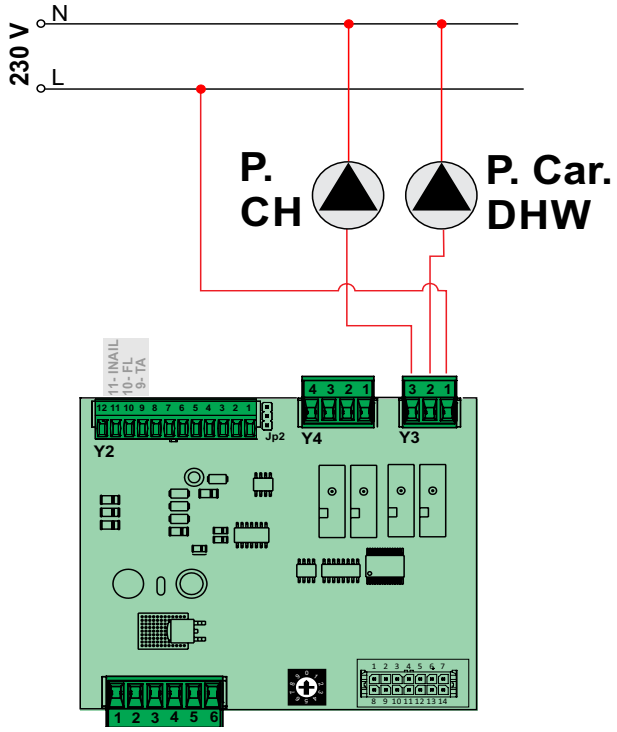
(*) Optional

P. Coll. - Collector Pump (*) (Primary ring)



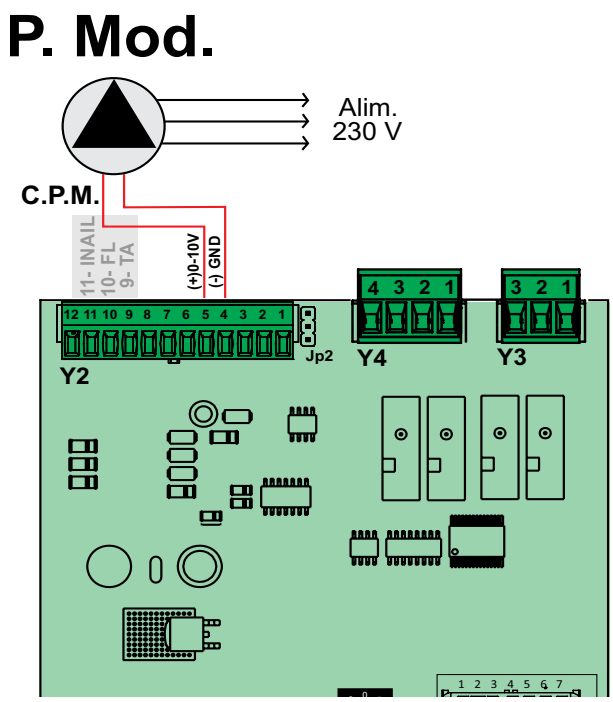
- Connect the cables as indicated **Y4.**

P. CH - Heating Pump (*) (heating circuit)
P. Car DHW - Storage tank loading pump (*)



- Connect the cables as indicated **Y3 1-2-3**

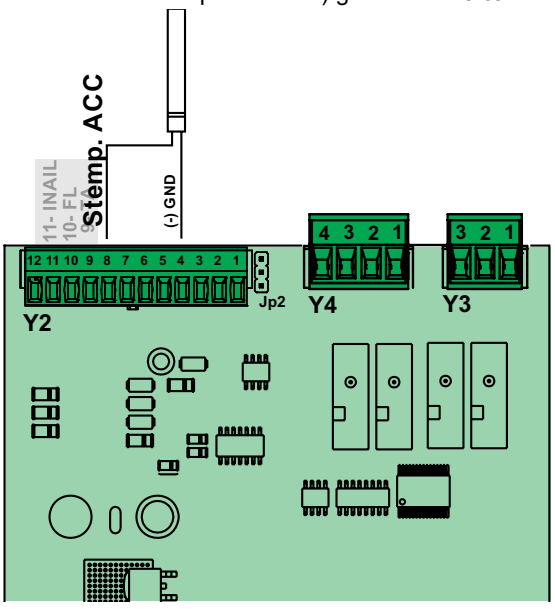
P. Mod. - Modulating Heating Pump (*)



- Connect the modulation control cables as indicated (**Y2 4-5).**
  External 230 V-50 Hz power supply.

Stemp. ACC. Storage Tank Temperature Sensor (*)

If the storage tank temperature sensor is connected, DHW service is automatically activated on boiler power supply.
The (803) **Srv** code (see BCM parameters) goes from **19 to 27.**



- Connect the temperature sensor cables as indicated (**Y2 4-8).**

3.10 - COMMISSIONING

Commissioning must be done by professionally qualified personnel. The manufacturer will not be held liable for damage to persons, animals or objects due to failure to comply with the aforesaid instructions.

Before commissioning the boiler, check that:

does the installation meet the specific standards and regulations in force, both relating to the gas part as well as the electrical part?	☐
do the combustion air intake and flue gas exhaust take place properly according to what is defined by the specific rules and regulations in force?	☐
is the fuel supply system sized according to the capacity required by the boiler? Is it equipped with all safety and control devices required by the standards in force?	☐
is the power supply of the boiler 230V - 50Hz? is the power supply of the fan 400V - 50Hz?	☐
has the system been filled with water (approximately 0.8/1 bar pressure on the pressure gauge with the pump stopped)?	☐
Has the condensation drain trap been filled with water as indicated in chapter 3.7?	☐
are any system shut-off gate valves open?	☐
does the gas to be used correspond to the boiler calibration gas?	☐
is the gas supply valve open?	☐
has the system been checked for gas leaks?	☐
is the outside main switch ON?	☐
is the system safety valve efficient and is it connected to the drains? is the condensation drain trap connected to the drains?	☐
has the system been checked for water leaks?	☐
are the ventilation conditions and minimum distances to perform any maintenance ensured?	☐
have the GAS and HEATING pipes been cleaned thoroughly with products suitable for each circuit? have GAS and HEATING circuits been tested?	☐
has a surveillance and protection system against gas leaks been installed? (Optional)	☐
are the system pipes NOT used as the electrical system earthing?	☐
has the system been sized properly bearing in mind the radiator pressure drops? thermostatic valves, radiator stop valves	☐
has the operator been trained and has the documentation been supplied?	☐
Please tick the operations performed	

Recommendations for using the generator on the first day of operation.
Operate the burner at minimum capacity or, if this is not possible, cause frequent stops to gradually warm the fibre and obtain its "cooking".

☐

Switching boiler on and off

NOTE!
Further details in the section "Technical Information" on the boiler page of the www.unicalag.it website

3.11 - MEASUREMENT OF THE COMBUSTION EFFICIENCY DURING INSTALLATION
Generator Menu

3.11.1 - CALIBRATION FUNCTION (CHIMNEY SWEEP)

ATTENTION!
Function reserved for After Sale Service Centres only.

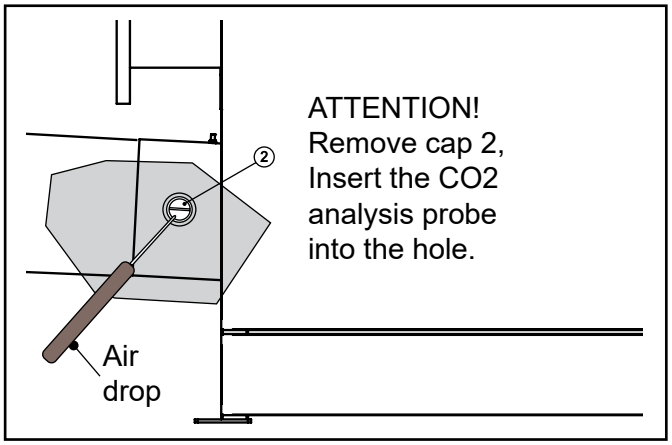
ATTENTION!
These functions are explained in chapter 6 (Burner menu) of the Ufly P. installation and maintenance manual.

3.11.2 - POSITIONING THE PROBES

To determine the combustion efficiency
one must make the following measurements:

- measurement of the combustion air temperature
- measurement of the flue gas temperature and content of CO_2 taken in the relevant hole 2.

Take the measurements with the generator in steady state conditions (see par. 3.11.1).



GAS VALVE

1) Minimum output adjustment

- Operate the boiler in “calibration” mode at MINIMUM OUTPUT (see 3.11.1)
- Once the burner is on, check that the “MINIMUM” CO2 output value corresponds to what is indicated in the table “NOZZLES - PRESSURE”.

- If necessary, adjust the value by turning (with a 2.5 mm hex key) screw **“R”** CLOCKWISE to increase it, ANTICLOCKWISE to decrease it
  (see table NOZZLES-CAPACITY-PRESSURE).

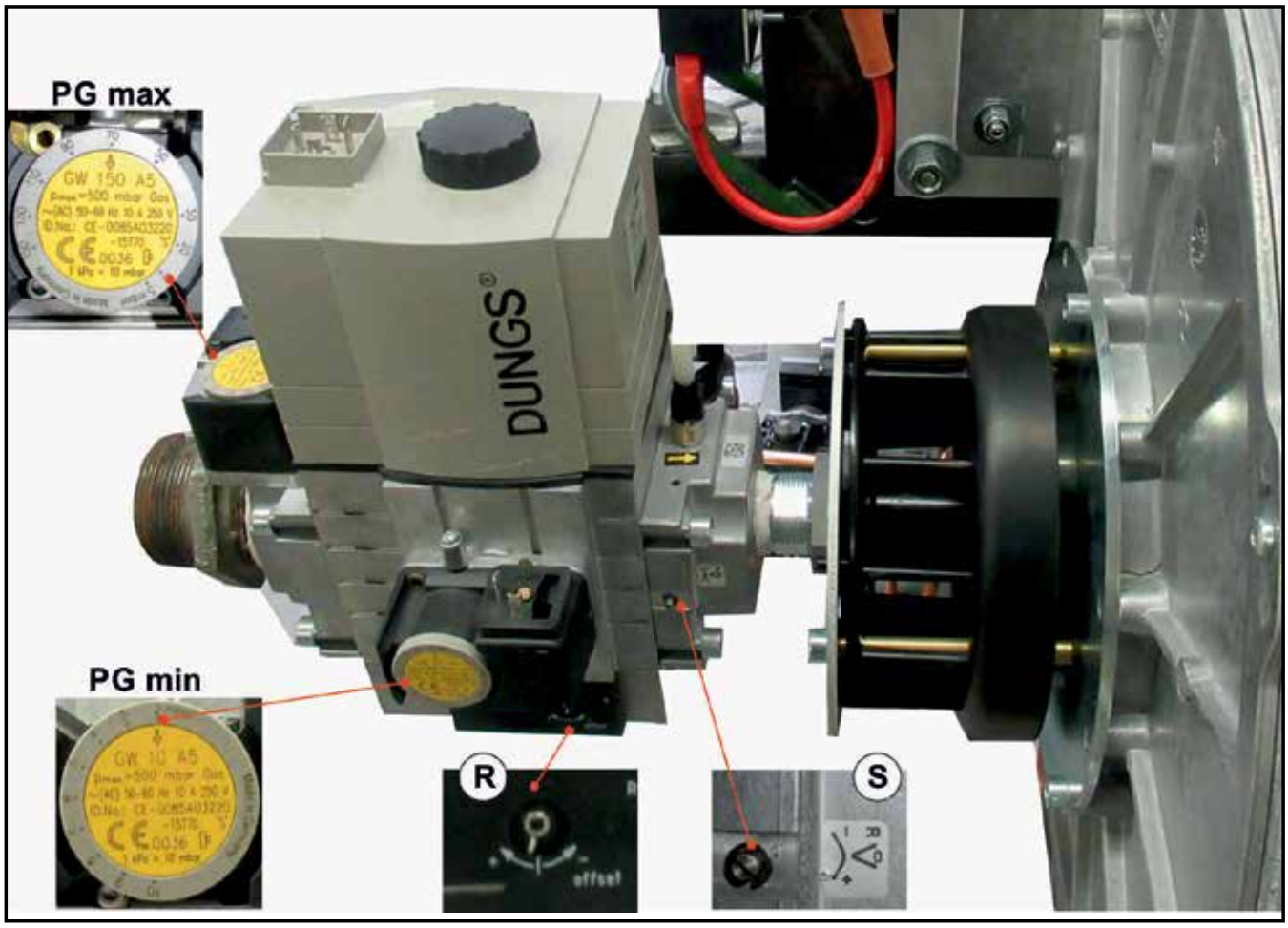
(R) MINIMUM OUTPUT ADJUSTMENT SCREW

2) Maximum output adjustment

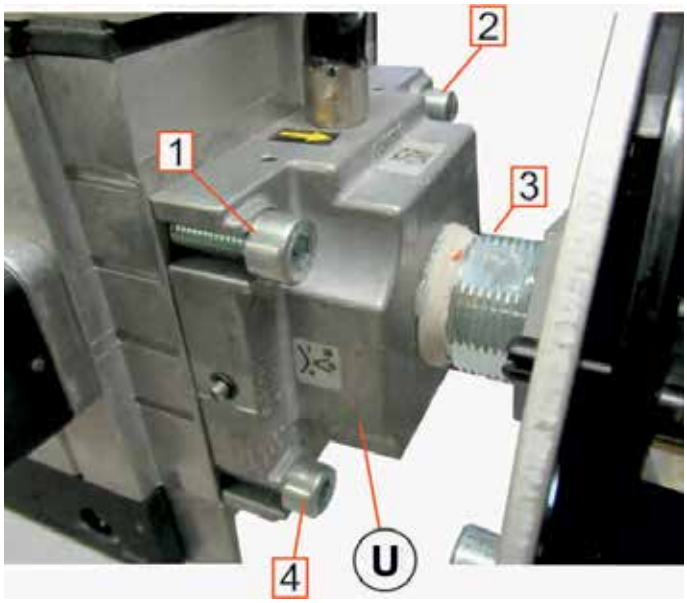
- Operate the boiler in “calibration” mode at MAXIMUM OUTPUT (see 3.11.1)
- Once the burner is on check
  that the “MAXIMUM” CO2 output value corresponds to that indicated in the table “NOZZLES - PRESSURE”.

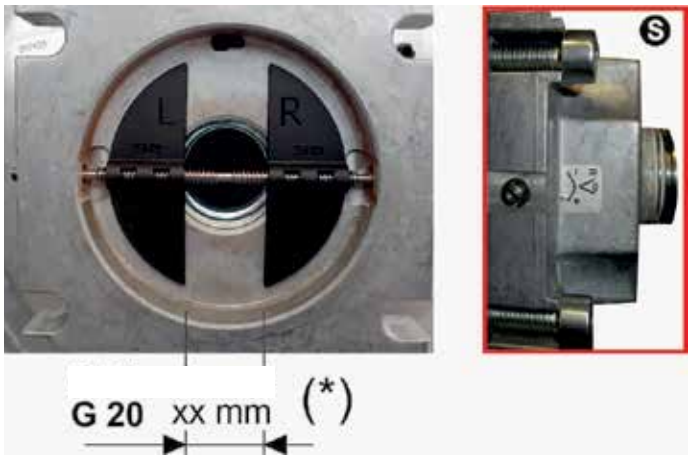
- if it does not correspond, correct it by turning screw **“S”** CLOCKWISE to increase it, ANTICLOCKWISE to decrease it.
  (see table NOZZLES-CAPACITY-PRESSURE).

(S) MAXIMUM OUTPUT ADJUSTMENT SCREW



GAS VALVE (Front view)





Note: If in difficulty with regard to adjusting MAX OUTPUT, remove screws 2 - 3 and loosen screws1 - 4 (hex key 5 mm).
Disconnect the U regulator from the gas valve and do as instructed.

(*)
Adjust VG Shutter Opening to the values indicated (see table NOZZLES-PRESSURE-CAPACITY) by means of screw S.

3) Conclusion of the basic calibrations

- once the CO_2 values at minimum and maximum output have been checked and any adjustments have been made (sections 1-2):
- disable the timed “calibration” function by switching off the main switch.
- close the flue gas inspection sample points of the intake and exhaust terminal
- check that there are no gas leaks.

If the capacity read is too low, make sure the power supply system and drain (power supply and drain pipes) are not clogged.

For proper operation, the CO_2 values must be calibrated with particular attention, observing the values indicated in the table.

If they are not clogged, make sure the burner and/or heat exchanger is not dirty.

NOZZLES - PRESSURE - FLOW RATES TABLE

SPK 1000								
Type of Gas	Supply Press.	Ø Noz-zlesi	Opening VG Shutter	Fan speed		CO_2 levels		Furnace power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				FL [% FU]	**FH** [% FU]	min	max	**IG**
Gas nat. (G20)	20	20	20	50	90	8.8	8.8	29

4 INSPECTION AND MAINTENANCE

ATTENTION
before opening the combustion chamber, cool the fibre.

Yearly maintenance of the appliance is mandatory in compliance with Laws in force.
Failure to perform Inspections and Maintenance can entail material and personal damage

Inspections and maintenance performed professionally and according to a regular schedule, as well as the use of original spare parts, are of the utmost importance for fault-free operation of the boiler and to guarantee its long life.

OBLIGATION!
wear gloves protective

4.1 - INSPECTION AND MAINTENANCE INSTRUCTIONS

To assure long-term functioning of your appliance and to avoid altering its approved status, only original spare parts must be used.

If a component needs to be replaced:
- Disconnect the appliance from the electrical mains and make sure that it cannot be reconnected accidentally.
- Close the gas shut-off valve upstream the boiler.
- If needed, and depending on the intervention to be carried out, close any shut-off valves on the flow and return line of the heating system, as well as the cold water inlet valve.

Once all maintenance operations are complete
resume boiler operation
- Open the heating flow and return pipes, as well as the cold water inlet valve (if closed previously).
- Vent and, if necessary, restore the heating pressure until reaching a pressure of 0.8/1.0 bar.
- Open the gas shut-off valve.
- Switch the boiler on
- Make sure the appliance is gas tight and watertight.

TABLE OF RESISTANCE VALUES, ACCORDING TO THE TEMPERATURE OF THE HEATING PROBES 11 (SR) AND ANY DOMESTIC HOT WATER PROBES 1 (SS) AND HEATING RETURN PROBE 22 (SRR) see par. 4.5.

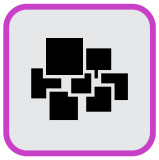
T°C	0	1	2	3	4	5	6	7	8	9
0	32755	31137	29607	28161	26795	25502	24278	23121	22025	20987
10	20003	19072	18189	17351	16557	15803	15088	14410	13765	13153
20	12571	12019	11493	10994	10519	10067	9636	9227	8837	8466
30	8112	7775	7454	7147	6855	6577	6311	6057	5815	5584
40	5363	5152	4951	4758	4574	4398	4230	4069	3915	3768
50	3627	3491	3362	3238	3119	3006	2897	2792	2692	2596
60	2504	2415	2330	2249	2171	2096	2023	1954	1888	1824
70	1762	1703	1646	1592	1539	1488	1440	1393	1348	1304
80	1263	1222	1183	1146	1110	1075	1042	1010	979	949
90	920	892	865	839	814	790	766	744	722	701

Relation between the temperature (°C) and the nom. resistance (Ohm) of the heating probe SR and of the domestic hot water probe SS
Example: At 25°C, the nominal resistance is 10067 Ohm At 90°C,the nominal resistance is 920 Ohm

ROUTINE YEARLY VERIFICATION OPERATIONS		
COMPONENT:	**VERIFY:**	**CONTROL/INTERVENTION METHOD:**
VG (Gas valve)	Does the valve modulate properly?	The check is carried out in “Calibration” mode, requesting 100% , 50%, and minimum modulation percentage. Check the modules flame.
SR (flow sensor) **(**	Do the sensors maintain the original characteristics?	12571 ohm at 20° C / 1762 ohm at 70° C. Measurement to be taken with the wires disconnected (see table Res/Temp).
E ACC (ignition electrode **(28)**	Does the discharge of sparks before putting the boiler in safe conditions last less than 3 sec.?	Detach the electrode ionisation wire and check the securing time.
TL (anti-overheating limit thermostat) **(Chap.3.9)**	Does the TL put the boiler in safety conditions when overheating?	Heat the TL until it intervenes at 102°C and check that it intervenes at 102°.
Condensation drain trap	Has the trap got deposits on the bottom?	Clean the trap with water.
Heat exchanger body	If SL places the boiler in safety mode in the event of condensate level increases If PF places the boiler in safety mode in the event of flue gas exhaust clogging	Check/Remove any deposits in the combustion chamber using a vacuum cleaner, then wash the heat exchanger body with water and check proper draining of the smoke chamber and siphon / remove any obstructions from the flue gas side.
Burner	Check the state of cleanliness of the burner mesh	Remove any deposits using compressed air, blowing from the mesh side.
(Num) = see key Par. 2.2		

3.15 - PROGRAMMING THE OPERATING PARAMETERS

ATTENTION!
Function reserved for After Sale Service Centres only.

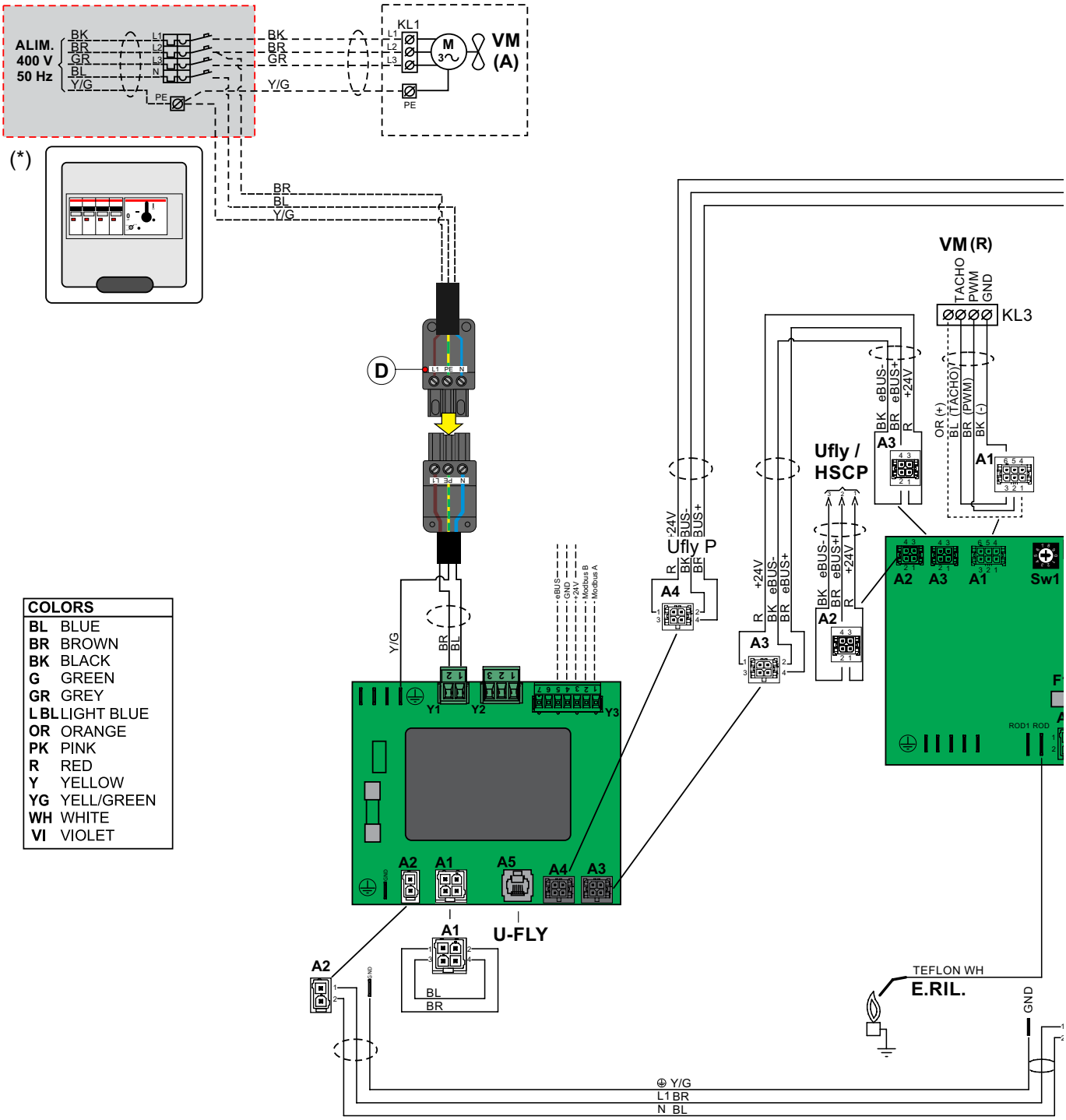


ATTENTION!
These functions are explained in chapter chapter 8 (Device setting) of the Ufly P installation and maintenance manual.

BMM parameters						
Cod	Simb	Description	Unit	Min.	Max.	Default setting
803	Srv	Enabled Services		0	1	
48	ChSet	CH#1: Set-point	°C	20	85	
784	BC	Local BUS address		0	7	
816	MI	Modbus Address		1	127	
817	MT	Modbus Time-out	sec.	0	240	
896	TU	°Fahrenheit		0	1	
799	AC	Input 0/10V		0	2	
376	DI1	Programmable Input #1		0	3	
322	Po	Pump: Post-circulation	min.	1	30	
341	PL	Pump: Minimum Control	%	0	100	
313	Pr	Pump: Maximum Control	%	0	100	
31	HL	CH#1: Minimum Set-point	°C	20	85	
39	HH	CH#1: Maximum Set-point	°C	20	85	
792	CHP	CH: Max. Modulation	%	0	100	
619	IG	Ignition Modulation	%	30	80	
527	PU	Fan: Imp./Pass		0	3	
486	FP	Fan: Reg. Prop.		0	50	
487	FI	Fan: Reg. Int.		0	50	
489	Fpl	Fan: PWM min.	%	5	15	
337	Fr	Modulation Gradient	%	1,0	100,0	
526	FU	Fan: Max Speed	Hz	50	120	
319	FH	Maximum Modulation	%	1,0	100,0	
346	FL	Minimum Modulation	%	1,0	100,0	
314	Sb	Modulation on Standby	%	0	100	
620	IP	Postpurge: Fan	%	0	100	
617	IGL	Ignition: Mod. Min.	%	0	100	
618	IGH	Ignition: Mod. Max.	%	0	100	
353	HP	CH PID: Proportional	°K	0	50	
354	HI	CH PID: Integrative		0	50	
478	Hd	CH PID: Derivative		0	50	
34	HY	Burner Hysteresis	°K	5,0	20,0	
336	HS	Temperature Gradient	°C/min	0	30	
483	rP	Gen: Temp. Max Differential	°C	0,0	50,0	
380	AI1	Programmable Sensor #1		0	2	
777	AFC	APS Control		0	2	
805	LV	Mains Voltage	V	100	240	
2590		Burner Output	kW	10	1000	
( ) Values for propane						

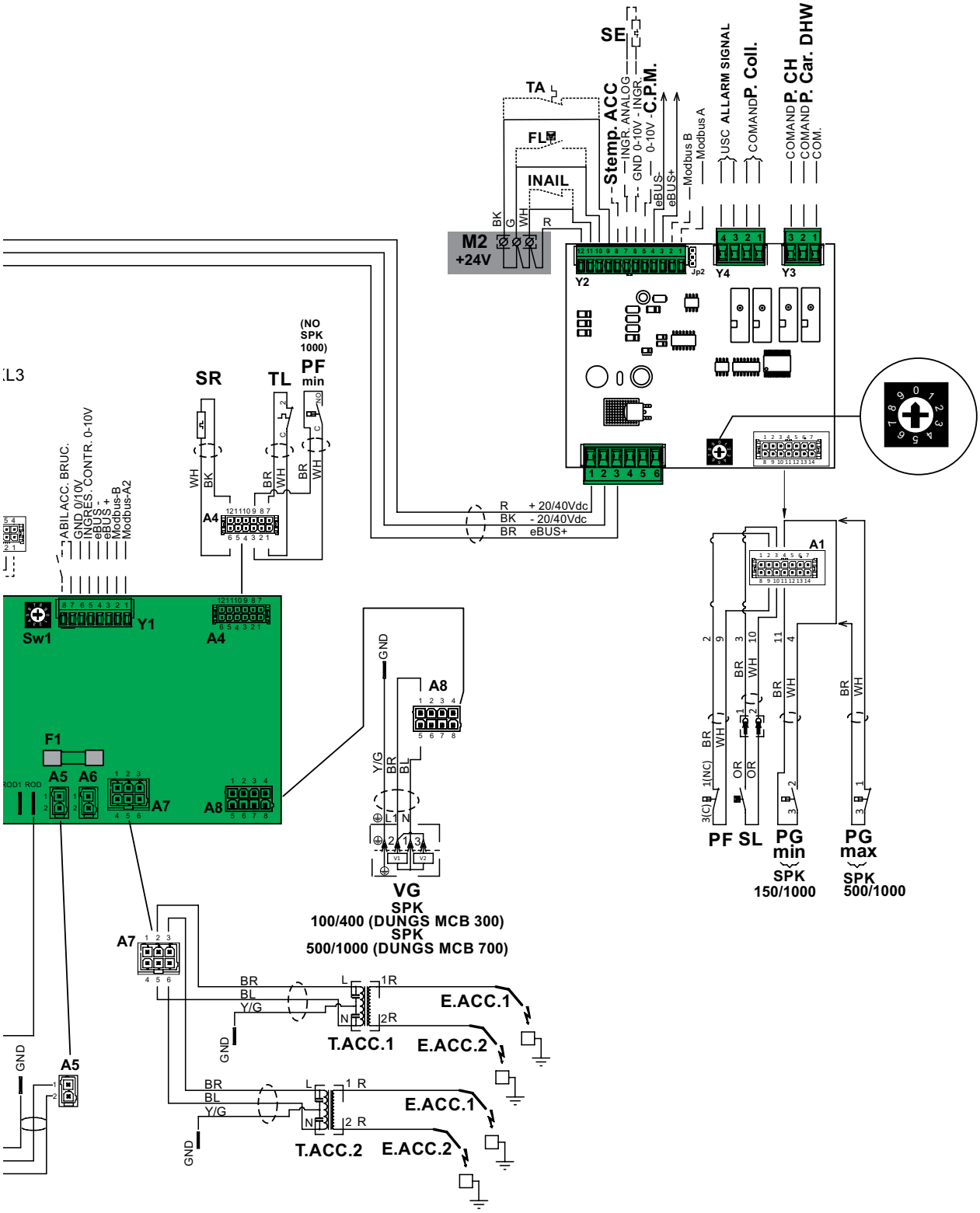
BCM Parameters						
Code	Symbol	Description	Unit	Min.	Max.	Imp. Fab.
803	Srv	Enabled Services		16	27	
483	rP	Gen: Temp. Max Differential	°K	0,0	50,0	
34	HY	Burner Hysteresis	°K	5,0	20,0	
31	HL	CH#1: Minimum Set-point	°C	20,0	40.0	
39	HH	CH#1: Maximum Set-point	°C	45,0	85.0	
799	AC	Input 0/10V		0	3	
376	DI1	Programmable Input #1		0	2	
322	Po	Pump: Post-circulation	min.	1	10	
341	PL	Pump: Minimum Control	V	0	10	
313	Pr	Pump: Maximum Control	V	0	10	
792	CHP	CH: Mx. Modulation	%	0	100	
611	POT	Gen: Err. Max. Parallel	°K	0	30	
612	POL	Gen: Mod. Max. Parallel	%	0	100	
650	dL	DHW: Minimum Set-point	°C	25,0	45,0	
385	dH	DHW: Maximum Set-point		50,0	65,0	
360	dt	Storage Tank Adjustment		0	15	
656	drT	DHW: Temp. Requested Differential	°K	-20	20	
657	drH	DHW: Requested Temp. Hysteresis	°K	1	20	
310	DpT	DHW Pump: Postcirc.	sec.	5	600	
660	dbT	DHW: Temp. Maximum Boiler	°C	50,0	85,0	
48	ChSet	CH#1: Set-point	°C	20,0	85,0	
64	ChPO1	CH#1: Parallel Supply		0	1	
346	FL	Minimum Modulation	%	0	100,0	
600	mB	Burners: Min. Inserted		1	8	
616	BSt	Gen: Insertion Time	sec.	30	900	
613	BRt	Gen: Removal Time	sec.	30	900	
336	HS	Temperature Gradient	°C/min	1	30	
353	HP	CH PID: Proportional	°K	0	50	
354	HI	CH PID: Integrative	°K	0	50	
478	Hd	CH PID: Derivative	°K	0	50	
816	MI	Modbus Address		1	127	
817	MT	Modbus Time-out	sec.	0	240	
896	TU	°Fahrenheit		0	1	
309	St	Application Code		0	1	
368	VA1	Programmable Relay #1		0	1	
369	VA2	Programmable Relay #2		0	1	
771	PS	Water Pressure Sensor		0	1	
768	LG	Min. Gas Pressure Sensor		0	1	
793	COC	Chimney Obstruction Sensor		0	2	
622	FS	Minimum Flow Sensor		0	1	

4.5 - PRACTICAL CONNECTION WIRING DIAGRAM



KEY	
A1.....A	Services connectors
E. ACC. 1-2	Ignition electrode 1-2
E. RIL.	Detection electrode
Ufly P / HSCP	Heating controller
(*) / outline	Connection and ELECTRICAL PANEL by the Installer
D	Presa volante wieland Alim. 230 V - 50Hz
SR	Heating temperature sensor
M2	Safety terminal block
PF	Smoke pressure switch

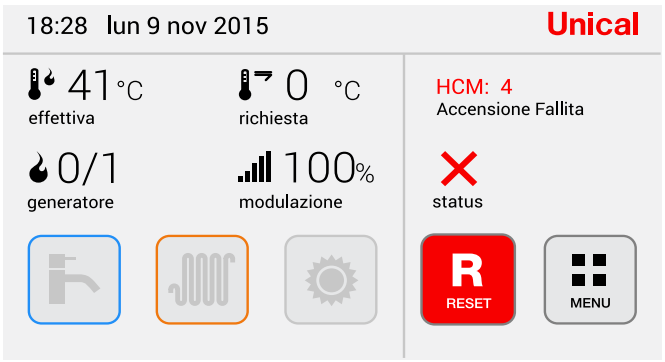
PF min	Minimum flue pressure pressure switch (NO WKVV 1000
PG max	Gas maximum pressure switch
PG min	Gas minimum pressure switch
SL	Condensate level sensor
T. ACC 1-2	Ignition Transformation 1-2
TL	Limit thermostat
VG	Gas valve
VM (A)	Modulating Fan Power Supply
VM (R)	Modulating Fan Det./Adjustment
SE	External probe connection terminals

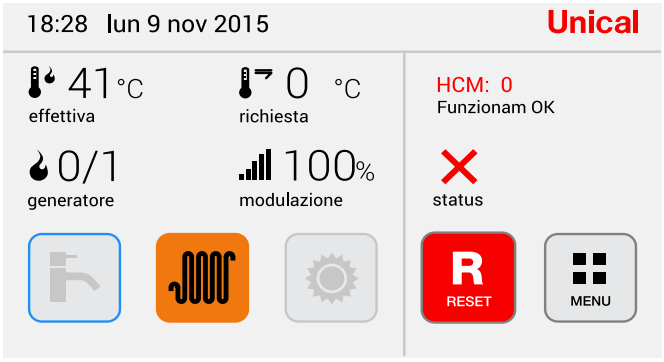


U-FLY	Heating Controller Touch not used
FL	Flow switch
INAIL	Connection
TA	Room thermostat
S.temp ACC	Storage Tank Temperature Sensor
INGR. ANALOG	Analogical input
GND 0-10V ING	Analogical input 0-10 V
0-10V C.P.M.	Modulating Pump Control

ALLARM SIGNAL	Alarm Output
Comm **P. COLL**	Boiler collector pump control
Comm **P. CH**	Heating pump control
P. car DHW	Storage tank loading pump control
COM.	Common

4.6 - ERROR CODES





Fault that causes the Hot water Generator to stop:
- The error code is displayed, the Hot water Generator has stopped running. After solving the failure, press Reset to restart the Hot water Generator.

Fault that does NOT cause the Hot water Generator to stop:
- The error code is displayed, the Hot water Generator has a heating request, Reset icon (informing that a failure has been detected, even if the fault was temporary). Therefore, you must always carry out reset to cancel the word “Error” displayed.

(Num) = see key Par. 2.2

CODE	DESCRIPTION detected on BMM	SOLUTIONS
01	**SAFETY THERMOSTAT** Intervention of the safety thermostat	Press the release button on the panel and/or check that the thermostat and its connections are not blocked, and make sure the INTC switches are closed (position1)
04	**BLOCK** No gas or failed burner ignition	Check the gas supply or that the ignition/detection electrode is working properly
05	**FLAME LOSS DURING OPERATION.**	Check the detection electrode
06	**HIGH TEMPERATURE** Boiler temperature too high	Check pump operation and if needed clean the exchanger
10	**INTERNAL FAULT**	
11	Flame detection prior to ignition (flame parasite)	
12	**HEATING SENSOR** Heating sensor fault	Check the efficiency of the sensor (see table Res/Temp) (Par.4) or its connections.
14	**RETURN PROBE (if present)** Auxiliary **(SRR)** sensor interrupted	Check the wiring, if needed replace the auxiliary sensor
15	**INSUFFICIENT WATER CIRCULATION** Primary circuit water circulation insufficient ($\Delta t > 40°$ C)	Check pump operation and its speed - remove any obstructions in the heating system
16	**EXCHANGER FREEZING** Exchanger freezing is detected If the heating sensor detects a temperature below 2° C, burner ignition is inhibited until the sensor detects a temperature above 5°C.	Disconnect the from the power supply, close the gas valve, defrost the exchanger carefully.
22	**LACK OF AIR IN IGNITION** **Stop**	Verify that the fan has a prevalence of at least 60 Pa.

23	**UNATTENDED AIR FLOW**	Min pressure switch blocked (closed)
24	**SPEED OUT OF CONTROL** Alteration of the fan speed; the speed is not reached.	Check fan operation and the connections
26	**SPEED OUT OF CONTROL** Alteration of the fan speed; the speed is above that requested	Check fan operation and the connections
27	**LACK OF AIR** **Stop**	Verify that the fan has a prevalence of at least 60 Pa.
30	**FACTORY PARAMETERS** Alteration of the factory parameters or possible electromagnetic interferences.	Press the unblock key; if the anomaly persists, replace the board
32	Line voltage at 80% of the nominal value. Wait until the line voltage is > 85% of the nominal value. .	Correction: if the line voltage is < 190Vac: the line voltage is really below the minimum limit, otherwise there is a monitor line error: replace BMM
CODE	DESCRIPTION detected on HCM (BCM)	SOLUTIONS
2	**GAS PRESSURE MINIMUM PRESSURE SWITCH TRIGGERED** **stop effect**	The ignition procedure is inhibited until gas pressure reaches the correct values.
17	**EXCHANGER** **FREEZING (24)** **stop effect**	Try to Reset since the system automatically activates an antifreeze function, therefore, it could only be a warning.
18	**FLOW-RETURN ΔT MAXIMUM PRESSURE** stop effect	Check circulation, check installation (only with a return probe present).
19	**FLOW OVERTEMPERATURE**. It is activated when the flow temperature is > 95. Resetting is automatically carried out when the temperature is < 80. ***Effect:*** Stop burner, Pump On	Circulation control
28	**CLOGGED OUTLETS** **Stop**	Check the Chimneys / Check the trap.
29	**WATER IN THE COMBUSTION CHAMBER** **Stop**	Check the combustion chamber / check the siphon.
37	**PARAMETERS MEMORY** **DEFECTIVE** Flame Block	Contact Customer Care
38	**DAMAGED DEFAULT PARAMETERS** due to electromagnetic interferences. stop	Contact Customer Care
40	**FL INTERVENTION insufficient water circulation Stop**	Check water circulation
56	**NO REMOTE CONTROL DETECTED** Flame Block	Check electrical connections e-BUS1
57	**BMM BOARD NOT DETECTED** **stop**	check electrical connections BMM and e-BUS
58	**FLOW SENSOR** **Stop**	Connect a new sensor if the code disappears, replace the sensor otherwise check the electrical connections
93	**ISPESL SAFETY INTERVENTION** **Stop**	check the safety parts, manually reset after blocking each individual safety device.
The error codes are displayed in the info row of the remote console and remain there even if the fault is temporary. Therefore, you must always reset to cancel **''Alarm'' displayed.**		

Unical®

www.unical.eu

ORIGINAL INSTRUCTION -00338659EN - 1 ed. 02/19

Unical AG S.p.A. 46033 casteldario - mantova - italia - tel. +39 0376 57001 - fax +39 0376 660556
info@unical-ag.com - export@unical-ag.com - www.unical.eu

Unical shall not be held liable for any inaccuracies due to transcription or printing errors.
Furthermore, it reserves the right to modify its products as deemed necessary or useful, without affecting their essential features.