



**Instructions and  
recommendations** **IE**  
Installer  
Maintenance technician

**ARES PRO 150**  
**ARES PRO 230**  
**ARES PRO 300**  
**ARES PRO 348**  
**ARES PRO 400**  
**ARES PRO 500**  
**ARES PRO 600**

\*1.043691ENG\*





Warning this manual contains the exclusive instructions for use for professionally qualified installers and/or maintenance technicians, in compliance with laws in force.

The USER is not authorised to intervene on the boiler.

The manufacturer will not be held liable in the case of damage to people, animals or property due to the failure to observe the instructions contained in the manuals supplied with the boiler

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### Instructions on how to correctly dispose of the product.

At the end of its life, this appliance must not be disposed of as mixed municipal waste.

It is mandatory to separate this type of waste so that the materials making up the appliance can be recycled and reused. Contact authorised operators for disposal of this type of appliance. Incorrect management of waste and its disposal has potential negative effects on the environment and on human health. The symbol on the appliance represents the prohibition of disposing of the product as mixed municipal waste.

The company **IMMERGAS S.p.A.**, with registered office in via Cisa Ligure 95 42041 Brescello (RE), declares that the design, manufacturing and after-sales assistance processes comply with the requirements of standard **UNI EN ISO 9001:2015**.

For further details on the product CE marking, request a copy of the Declaration of Conformity from the manufacturer, specifying the appliance model and the language of the country.

# 1 GENERAL INFORMATION

## 1.1 GENERAL WARNINGS

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

Read the warnings contained in the handbook carefully, as they provide important instructions regarding installation, user and maintenance safety.

Keep the handbook safe for future consultation.

The appliance must be installed and maintained in accordance with regulations in force, pursuant to the instructions of the manufacturer, the state of the art and by authorised and qualified personnel, in accordance with the law.

Domestic hot water production systems **MUST** be built entirely with compliant materials.

Professionally qualified personnel means staff with specific technical skills in the sector of heating system parts for civil use, hot water production for domestic use and maintenance. This personnel must have the authorisations required by legislation in force.

Incorrect installation or poor maintenance can cause injury to persons and animals and damage to objects, for which the manufacturer is not liable.

Before carrying out any cleaning or maintenance operations, cut the appliance off from the power mains by acting on the switch on the system and/or using the cut-off devices.

Do not obstruct the intake/exhaust pipe terminals.

In case of breakdown and/or poor operation of the appliance, switch it off, and do not attempt in any way to repair it or intervene directly. Only contact an authorised company that has been authorised in accordance with the law.

Any repairs to the products must be carried out by an authorised company only, using original spare parts only. Failure to observe the above can jeopardise the safety of the appliance and will void the warranty.

The guarantee the efficiency of the appliance and its correct operation it is essential for authorised company to carry out annual maintenance.

If the appliance is put out of use for downtime, any part that is susceptible to posing a potential source of danger must be made safe. Before re-commissioning an appliance that has been put out of use, proceed to washing the domestic hot water production system, making water flow through it for the amount of time required to change the water completely.

If the appliance is sold or transferred to another owner or if the owner moves, leaving the appliance behind, always ensure the handbook accompanies the appliance so that it may be consulted by the new owner and/or installer.

All appliances with optionals or kits (including electric) must only use original spare parts.

The appliance must only be employed for its expressly foreseen use. Any other use must be considered improper and therefore dangerous.



### ATTENTION!

The heat unit must be installed so as to avoid, under the envisioned operating conditions, the liquid contained in it from freezing and avoid exposing the command and control parts to temperatures below  $-15^{\circ}\text{C}$  and over  $+40^{\circ}\text{C}$ .

The heat unit must be protected from climatic/environmental variations by:

- insulating the hydraulic and condensation exhaust pipes
- adopting specific anti-freeze products in the hydraulic system.

## 1.2 SYMBOLS USED IN THE MANUAL

When reading this manual, pay special attention to the parts marked with these symbols:



**DANGER!**  
Serious danger to  
safety and life



**ATTENTION!**  
Possibly dangerous  
situation for the product  
and environment



**NOTE!**  
Tips for the user



**DANGER!**  
Scalding hazard!



**OBLIGATION!**  
Wear protective  
gloves

## 1.3 COMPLIANT USE OF THE APPLIANCE



The ARES Tec ErP appliance was built based on the current technical level and recognised technical safety rules. Nevertheless, following improper use the safety and life of the user or other people may be exposed to danger, i.e. damage to the appliance or other objects.  
The appliance is designed for operation in hot water circulating heating systems.  
Any other use is considered improper.  
Immergas will not be held liable for any damage resulting from improper use.  
Any use in accordance with the envisioned purposes includes the strict observance of the instructions in this manual.

## 1.4 INFORMATION FOR THE SYSTEM MANAGER



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

- Deliver these instructions to the user, as well as the other documents relative to the appliance contained in the packaging in an envelope. **The user must keep this documentation safe so that it is available for future consultation.**
- Inform the user of the importance of aeration vents and the flue exhaust system, highlighting how essential they are and how it is strictly forbidden to change them.
- Inform the user on how to control the water pressure in the system as well as the operations required to restore it.
- Inform the user on how to correctly regulate the temperature, control units/thermostats and radiators in order to save energy.
- Remember that, in compliance with the laws in force, the equipment must be inspected and maintained according to the requirements and on the basis set down by the manufacturer.
- If the appliance is sold or transferred to another owner or if the owner moves, leaving the appliance behind, always ensure the manual accompanies the appliance so that it may be consulted by the new owner and/or installer.

**The manufacturer will not be held liable in the case of damage to people, animals or property due to the failure to observe the instructions contained in this manual.**

### 1.5 SAFETY WARNINGS



#### ATTENTION!

The appliance must not be used by children.

The appliance can be used only by adults who have read the instruction manual for the user / manager with care. Children must be supervised to ensure they do not play or tamper with the appliance.



#### ATTENTION!

Installation, adjustment and maintenance of the appliance must be carried out by professionally authorised company, in compliance with regulations and provisions in force, as incorrect installation can cause damage to people, animals and property, for which the manufacturer will not be held liable.



#### DANGER!

NEVER attempt to carry out maintenance or repairs on the boiler of your own initiative.

Any work must be carried out by professionally qualified staff; we advise you to stipulate a maintenance contract.

Poor or irregular maintenance can compromise the operational safety of the appliance and cause damage to people, animals and property for which the manufacturer will not be held liable.



#### Changes to parts connected to the appliance (after installation of the appliance)

Do not make changes to the following elements:

- to the boiler
- to the gas, air, water and power supply lines
- to the flue pipe, safety valve and exhaust pipe
- to the constructive elements that affect the operational safety of the appliance.



#### ATTENTION!

To tighten or loosen the screw-attached fittings, use suitable wrenches only.

Improper use and/or unsuitable tools can cause damage (for ex. water and gas leaks).



#### ATTENTION!

##### Instructions for appliances running on propane gas

Make sure that the gas tank has been deaerated prior to installing the appliance.

For a thorough deaeration of the tank contact the liquid gas supplier and in any case authorised company, in accordance with the law.

Ignition problems can arise if the tank is not thoroughly deaerated.

In this case contact the liquid gas tank supplier.



#### Smell of gas

In case of the smell of gas observe the following safety instructions:

- do not use electric switches
- do not smoke
- do not use the telephone
- shut off the gas cut-off valve
- aerate the room where the gas leak occurred
- notify the gas supply company or a company specialised in the installation and maintenance of heating systems.



#### Explosive and easily flammable substances

Do not use or deposit explosive or easily flammable materials (for ex. petrol, paints, paper) in the room where the appliance is installed.



#### ATTENTION!

Do not use the appliance as a base to support any object. Specifically, do not place receptacles containing liquids (Bottles, Glasses, Containers or Detergents) on top of the boiler. If the appliance is installed inside a box, do not insert or place other objects inside it

## 1.6 TECHNICAL DATA PLATE

### CE Marking

certifies conformity of the appliance with the essential safety requirements set down by the directive and applicable European regulations, and operation in compliance with the technical standards of reference.

The CE marking is applied on each appliance with a label.

The CE declaration of conformity, released by the Manufacturer in compliance with the international regulations in force, can be found in the documents enclosed with the product.



The technical data plate is located under the casing, on the front cross member. There is a DUPLICATE of the plate near the temperature control unit.

②	
Model	③
S.N°	⑤ /
Types	⑦
PIN ⑥	
NOx ⑧	
<b>A</b> Central Heating	Pn ⑨ kW      Pcond ⑩ kW Qn ⑪ kW      Adjusted Qn ⑫ kW PMS ⑬ bar      T max ⑭ °C
<b>B</b> DHW	Qnw ⑮ kW      D ⑯ l/min PMW ⑰ bar      T max ⑳ °C
<b>G</b>	s ⑲ %      wh ⑳ %
<b>E</b> Factory setting <input checked="" type="checkbox"/> MET <input type="checkbox"/> GPL	<b>D</b> Countries of destination
⑳ mbar <input type="checkbox"/> ㉑ mbar <input type="checkbox"/> ㉒ mbar <input type="checkbox"/> ㉓ mbar <input type="checkbox"/> ㉔ mbar <input type="checkbox"/> ㉕ mbar <input type="checkbox"/> ㉖ mbar <input type="checkbox"/> ㉗ mbar <input type="checkbox"/>	㉘      ㉙      ㉚
<b>C</b> Electrical Power supply	
⑳ V      ㉑ Hz      ㉒ W	
IP class: ㉓	
	㉔
Made in Italy	①

### KEY:

- 1 = CE supervisory body
- 2 = Type of boiler
- 3 = Boiler model
- 5 = (S.N°) Serial Number
- 6 = P.I.N. Product Identification Number
- 7 = Types of approved flue exhaust configurations
- 8 = (NOx) NOx class

- A = Characteristics of the heating circuit
- 9 = (Pn) Useful heat output
- 10 = (Pcond) Useful output in condensation
- 11 = (Qn) Maximum heat input
- 12 = (Adjusted Qn) Adjusted for useful heat input
- 13 = (PMS) Max. central heating operating pressure
- 14 = (T max) Max. central heating temperature

- A = Characteristics of the DHW circuit
- 15 = (Qnw) Nominal heat input in DHW mode (if different from Qn)
- 16 = (D) Specific flow rate for DHW according to EN625-EN13203-1
- 19 = (PMW) Max. DHW operating pressure
- 20 = (T max) Max. DHW temperature

- C = Electrical features
- 21 = Electric power supply
- 22 = Consumption
- 23 = Degree of protection

- 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 central heating energy efficiency
- 30 = Seasonal water heating energy efficiency.

## GENERAL INFORMATION

### 1.7 WATER TREATMENT



Treating the feed water allows you to prevent problems and maintain the functionality and efficiency of the generator over time.



The ideal pH value of the water in the central heating system must be:

VALUE	MIN.	MAX.
PH	6.5	8
HARDNESS (°fr)	9	15



To minimise corrosion, it is essential to use a corrosion inhibitor. In order for it to work efficiently, the metal surfaces must be clean.



**ATTENTION!**  
Any damage caused to the boiler, due to the formation of build-up or corrosive water, will not be covered by the warranty.



**ATTENTION!**  
The models only equipped with central heating are NOT suitable for hot water production for human consumption (M.D. 174/2004).

### 1.8 BOILER FROST PROTECTION

#### Activated by default

This protection only cuts in when the electric and gas supply are present. If the electric or gas supply are disconnected and 11 (SM) detects a temperature of between 2 and 5°C when the supply is restored, the appliance responds as indicated in the table below, in pos.2.



Antifreeze products with an inhibitor for central heating systems (specific for multimetal) can be used to ensure efficient protection of the central heating against freezing.



Do not use antifreeze products for car engines since these can damage the water gaskets.

POS.	ANTIFREEZE FUNCTION				
	Supply		11 - SR (*)	Status of 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	OFF	INDICATION OF FAULT CODE 16 (see Par. 4.4 ERROR CODES). Ignition inhibited.
	OFF	ON		OFF	Ignition inhibited.
	OFF	OFF		OFF	Ignition inhibited.

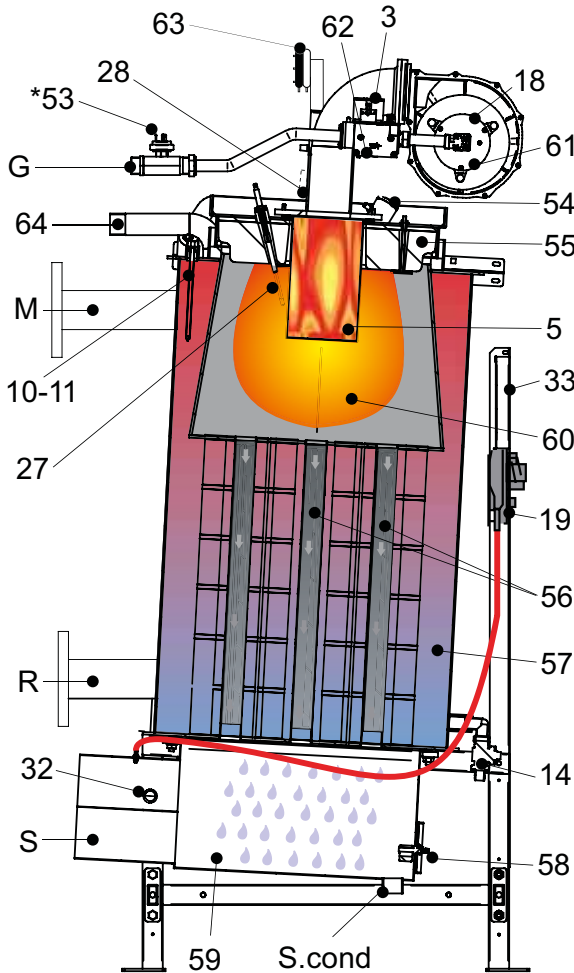
(\*) SR sensor, see Par. 2.2



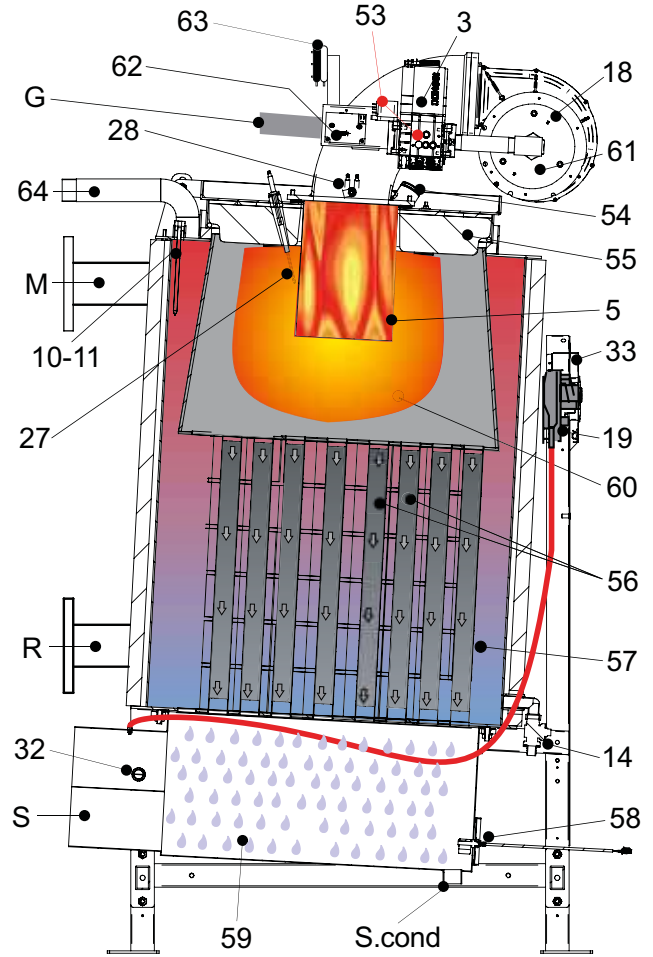
# 2 TECHNICAL FEATURES AND DIMENSIONS

## 2.1 INTERNAL VIEW WITH INDICATIONS OF MAIN COMPONENTS

ARES PRO 150



ARES PRO 230 - 300 - 400 - 500 - 600



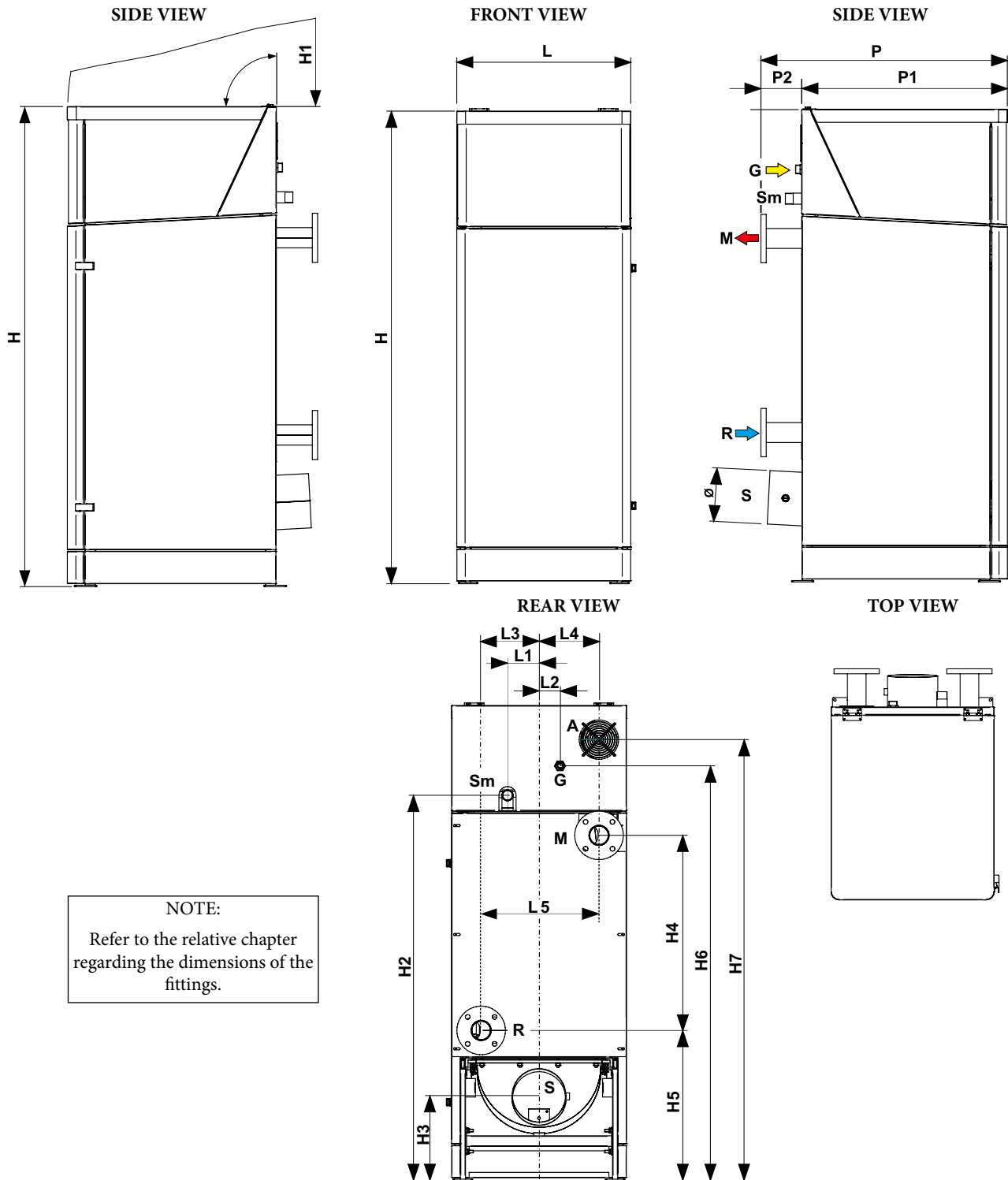
Key:

N°	S.E.	Description
3	VG	Gas valve
5		Burner
10	TL	Probe Limit Thermostat
11	SR	Central heating sensor
14		Boiler draining valve
18	VM	Fan
19	PF	Flue pressure switch
27	E. RIL.	Detection electrode
28	E. ACC.	Ignition electrode
32		Flue inspection point
33		Control panel
53	PGmin PGmax	Gas pressure switch (min. *ARES PRO 150) (min. ARES PRO 230 - 300) (min. / max ARES PRO 348 ÷ 600)
54		Glass inspection hole

55		Door insulation
56		Stainless steel vertical smoke pipe with aluminium internal.
57		Technical water tank
58	SL	Level sensor
59		Condensate collection pan
60		Combustion chamber
61		Mixer Aria/gas
62	T.ACC	Igniters
63	PFmin	Min. flue pressure switch
64		Air vent fitting
G		Gas inlet
M		Central heating system flow
R		Central heating system return
S.cond		Condensate drain DN 32
	S.E.	= WIRING DIAGRAM KEY

# TECHNICAL FEATURES AND DIMENSIONS

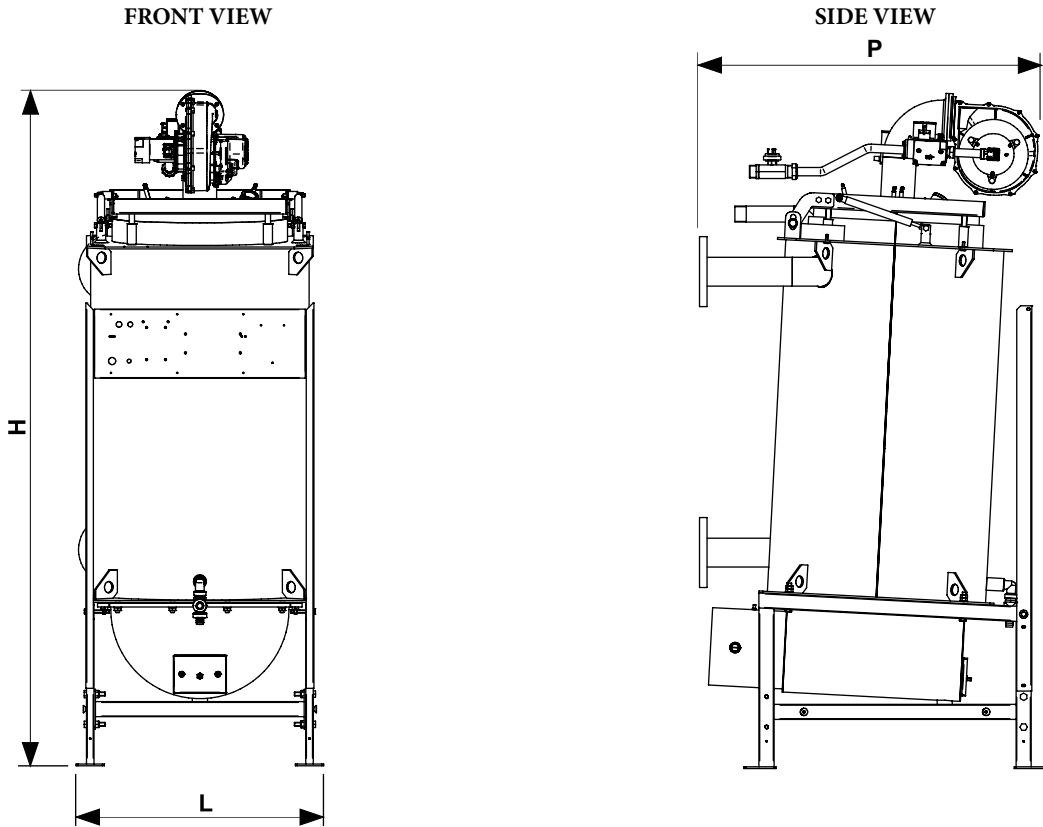
## 2.2 DIMENSIONS



**NOTE:**  
Refer to the relative chapter regarding the dimensions of the fittings.

ARES PRO	DIMENSIONS [mm]																
	Depth			Width							Height						
	P	P1	P2	L	L1	L2	L3	L4	L5	H	H1	H2	H3	H4	H5	H6	H7
150	944	788	156	666	120	81	228.5	228.5	457	1809	65.6	1467	323.5	770	554.5	1579	1679
230	1092	954	141	846	120	43	277	277	554	1917	65.6	1557	356	800	604.5	1697	1768
300	1181	1036	144	910	100	200	297	297	594	1946	65.6	1618	353	825	600.5	1741	1796
348	1276	1152	124	996	100	200	338	338	676	2130	65.6	1712	390	853	664	1794	1974
400	1276	1152	124	996	100	200	338	338	676	2130	65.6	1712	390	853	664	1794	1974
500	1276	1152	124	996	100	200	338	338	676	2130	65.6	1712	390	853	664	1794	1974
600	1398	1256	142	1096	200	220	386	386	772	2206	65.6	1753	390	900	673	1863	2052

2.2.1 DIMENSIONS TO INSTALL THE BOILER IN HEATING CONTROL UNIT



ARES PRO	BOILER DIMENSIONS WITHOUT CASING [mm]		
	P	L	H
150	917	655	1785
230	1027	795	1895
300	1134	845	1910
348	1258	965	2075
400	1258	965	2075
500	1258	965	2075
600	1313	1065	2186

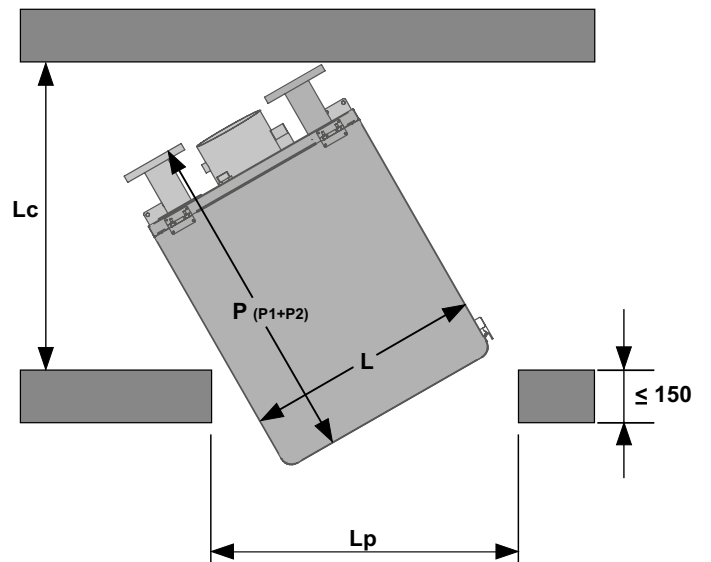
Example of corridor width (Lc) required to handle the boiler ARES PRO 150:

$$L_c = \frac{666}{900} \times 944 = > 698 \text{ mm}$$

$$L_c = \frac{L}{L_p} \times (P)$$

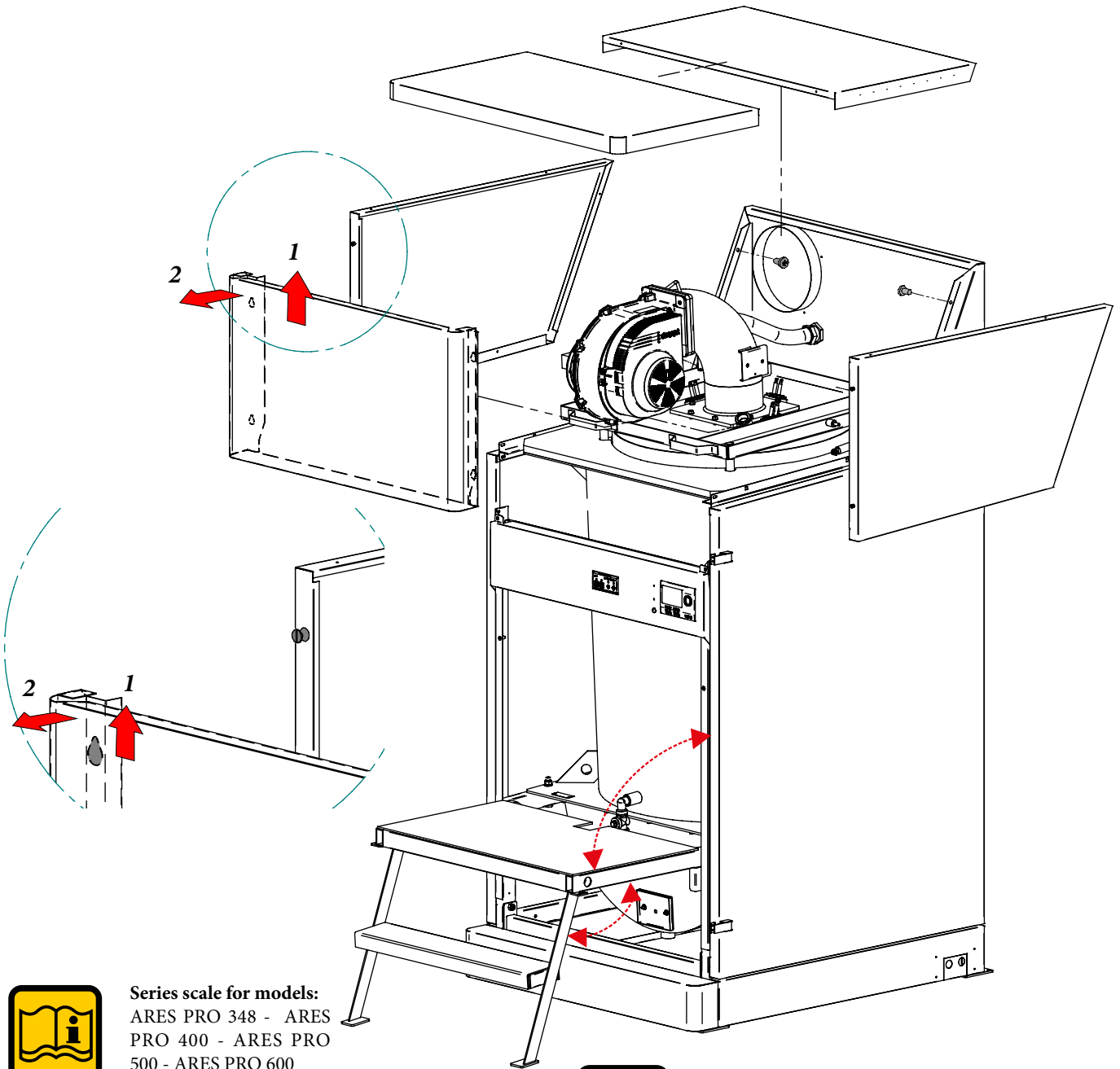
$$L_p = \frac{L}{L_c} \times (P)$$

- L = Boiler width
- P = Boiler depth
- Lc = Corridor Width
- Lp = Door Width



## TECHNICAL FEATURES AND DIMENSIONS

### 2.2.2 VIEW TO ACCESSIBILITY INSIDE

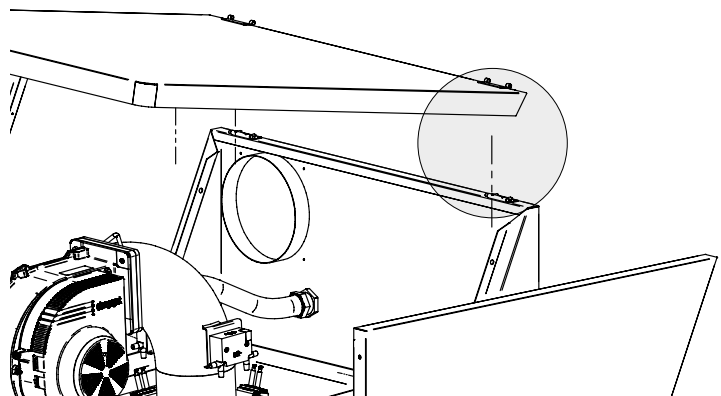
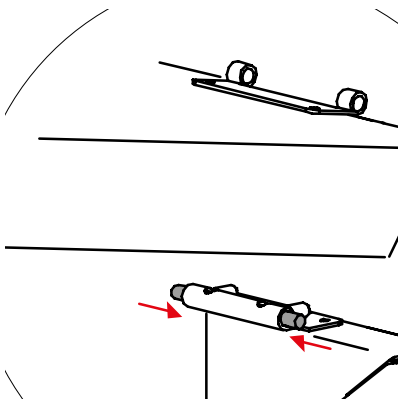


**Series scale for models:**  
 ARES PRO 348 - ARES  
 PRO 400 - ARES PRO  
 500 - ARES PRO 600

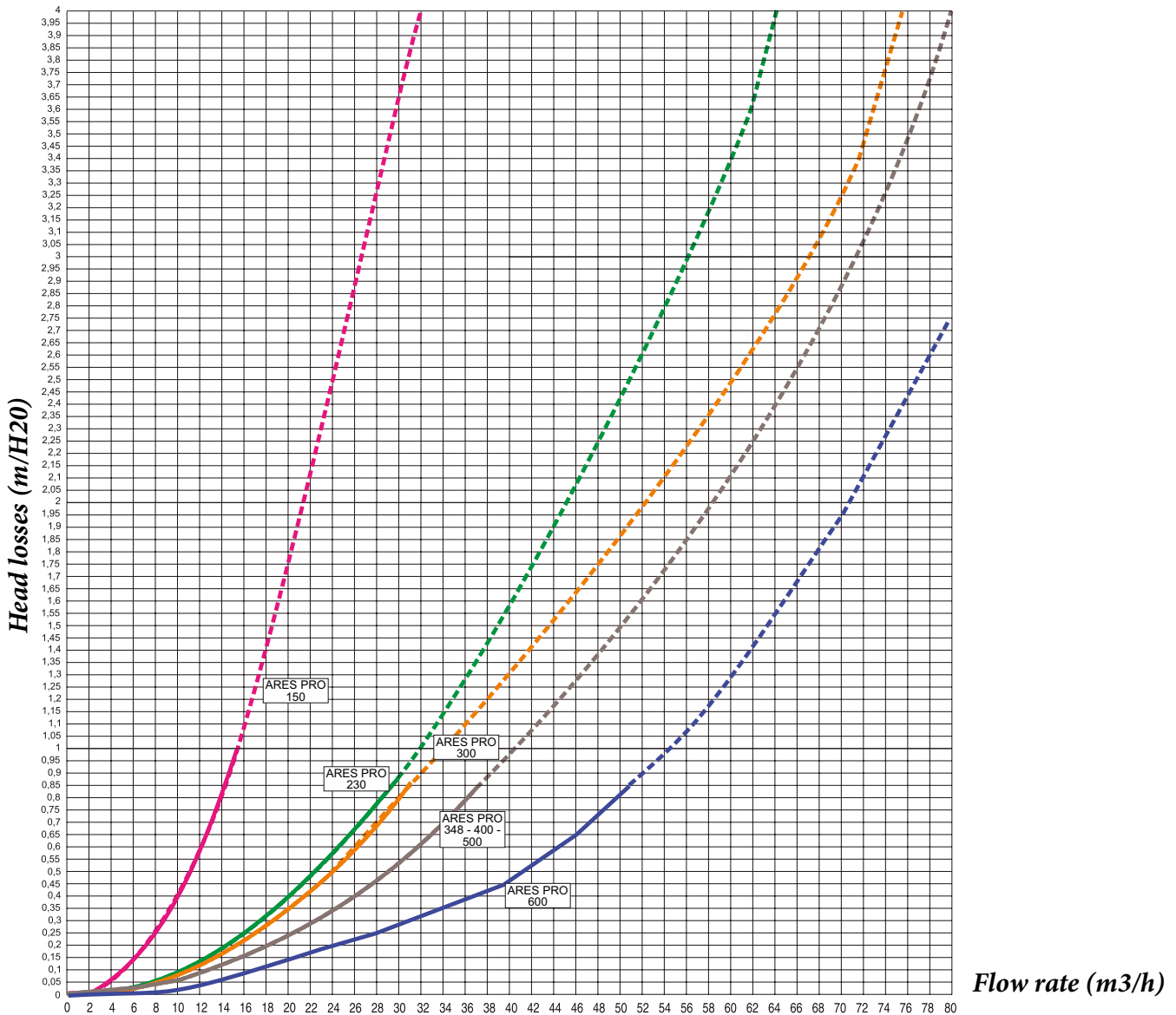
**Optional for models:**  
 ARES PRO 150 - ARES  
 PRO 230 - ARES PRO 300



**ARES PRO 150 - ARES PRO 230 - ARES PRO 300**  
 To remove the cover, release the 2 springs, refer to the  
 part shown below.



### 2.3 DIAGRAM OF WATER SIDE HEAD LOSSES



#### 2.3.1 DETERMINATION OF THE PRIMARY CIRCUIT PUMP OR BOILER PUMP

The boiler pump must have head that can ensure circulator flow rates according to the circuit's  $\Delta$ .

The pump is not an integral part of the boiler.

It is advisable to choose a pump with a flow rate and head of approximately 2/3 of its typical curve.



The pumps must be determined by the installer or designer based on the data for the boiler and system.

ARES PRO	150	230	300	348	400	500	600
Maximum flow rate in l/h ( $\Delta t=15K$ )	7,818	11,999	15,740	19,575	21,386	25,338	30,978
Nominal requested flow rate in l/h ( $\Delta t = 20K$ )	5,863	9,000	11,805	14,681	16,039	19,004	23,234

## TECHNICAL FEATURES AND DIMENSIONS

### 2.4 FUNCTIONING DATA / GENERAL FEATURES

ARES PRO		150	230	300	348	400	500	600
Boiler category		II <sub>2H3P</sub>						
Modulation ratio		1 : 4.0	1 : 4.3	1 : 4.3	1 : 3.9	1 : 4.2	1 : 3.9	1 : 4.4
Nominal heat input on L.V.C. Q <sub>n</sub>	kW	140	214	280	348	380	450	550
Minimum heat input on L.C.V. Q <sub>min</sub>	kW	35	50	65	90	90	115	125
Nominal effective power (Tr 60 / Tf 80 °C) P <sub>n</sub>	kW	136.36	209.29	274.54	341.42	373.01	441.95	540.32
Minimum effective power (Tr 60 / Tf 80 °C) P <sub>n min</sub>	kW	32.52	48.25	63.57	87.67	87.80	111.09	118.53
Nominal effective power (Tr 30 / Tf 50 °C) P <sub>cond</sub>	kW	145.88	226.84	292.88	363.31	399.00	472.20	581.19
Minimum effective power (Tr 30 / Tf 50 °C) P <sub>cond min</sub>	kW	36.54	54.60	70.01	99.09	97.20	124.09	135.88
Efficiency at nominal power (Tr 60 / Tf 80°C)	%	97.4	97.8	98.05	98.11	98.16	98.21	98.24
Efficiency at minimum power (Tr 60 / Tf 80°C)	%	92.92	96.5	97.8	97.41	97.55	96.6	94.82
Efficiency at nominal power (Tr 30 / Tm 50°C)	%	104.2	106	104.6	104.4	105	104.9	105.67
Efficiency at minimum power (Tr 30 / Tm 50°C)	%	104.4	109.2	107.7	110.1	108	107.9	108.7
Efficiency at 30% of the load ( Tr 30°C)	%	107.7	107.2	108.9	108.4	108.8	108.9	106.5
Combustion efficiency at nominal load	%	97.8	97.9	98.2	98.2	98.2	98.2	98.3
Combustion efficiency at a reduced load	%	98.38	98.32	98.40	98.34	98.31	98.43	98.42
Losses from operating burner casing (Q <sub>min</sub> )	%	5.46	1.82	0.60	0.93	0.76	1.83	3.60
Losses from operating burner casing (Q <sub>n</sub> )	%	0.4	0.1	0.1	0.1	0.1	0.03	0.04
Flue temperature at net of Tf-Ta (min)(*)	°C	32.3	33.6	32	33.2	33.7	31.3	31.5
Flue temperature at net of Tf-Ta (max)(*)	°C	44.2	42.7	36.7	35.6	35.4	35.5	34.3
Maximum permitted temperature	°C	100						
Maximum operating temperature:	°C	90						
Mass flue flow rate (min)	kg/h	57	82	106	147	147	188	204
Mass flue flow rate (max)	kg/h	229	350	458	569	621	735	899
Air excess	%	25.53						
Chimney losses with burner in operation (min)	%	1.62	1.68	1.60	1.66	1.69	1.57	1.58
Flue losses with burner in operation (max)	%	2.21	2.14	1.84	1.78	1.77	1.78	1.72
Minimum pressure of heating circuit	bar	0.5						
Maximum pressure of heating circuit	bar	6						
Water content	l	153	210	270	340	340	340	425
Methane gas consumption G20 (supp.press. 20 mbar) at Q <sub>n</sub>	m <sup>3</sup> /h	14.80	22.63	29.61	36.80	40.18	47.58	58.15
Methane gas consumption G20 (supp.press. 20 mbar) at Q <sub>n</sub>	m <sup>3</sup> /h	3.70	5.29	6.87	9.52	9.52	12.16	13.22
Propane gas consumption (supp.press. 37/50 mbar) at Q <sub>n</sub>	kg/h	10.87	16.61	21.73	27.01	29.50	34.93	42.69
Propane gas consumption (supp.press. 37/50 mbar) at Q <sub>n</sub>	kg/h	2.72	3.88	5.05	9.70	6.99	8.93	8.70
Maximum pressure available at flue base	Pa	100						
Max condensate production	kg/h	11.5	13.7	15.8	29.1	28.5	28.8	31.0
<b>Emissions</b>								
CO at maximum heat input with 0% O <sub>2</sub>	mg/kWh	13.73	18.05	28.08	25.27	18.25	22.46	22.1
NO <sub>x</sub> at maximum heat input with 0% O <sub>2</sub>	mg/kWh	54	43	53	49	50	48	50
NO <sub>x</sub> class		6						
<b>Electrical data</b>								
Frequency/Power supply voltage:	V/Hz	230/50						
Supply fuse	A (R)	6						
Degree of protection	IP	X4D						



Room Temperature = 20°C

(\*) Temperatures read with the device operating with flow 80°C / ret. 60°C



CO<sub>2</sub> (min/max) See "NOZZLES - PRESSURES" table

Seasonal Energy Efficiency according to 2009/125 EEC (<=400Kw) η<sub>s</sub> - see Table ErP

Losses at shutdown at ΔT 30°C - P<sub>stb</sub> - see Table ErP

Electrical consumption in standby - P<sub>sb</sub> - see Table ErP

### 2.4.1 TECHNICAL DATA ACCORDING TO THE ERP DIRECTIVE

ARES TEC			150	230	300	348	400	500	600
Element	Symbol	Unit							
Useful heat output	Nominal output	kW	146	195	244	294	342	442	540
Room central heating seasonal energy efficiency	$\eta_s$	%	93	92	94	93	94	94	92
<b>Central heating seasonal efficiency class</b>			<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	*	*
<b>For boilers for central heating and combination boilers: useful heat output</b>									
Useful heat output in high temperature mode (Tr 60 °C / Tm 80 °C)	P <sub>4</sub>	kW	136,3	209,3	274,5	341,4	373,0	441,9	540,3
Efficiency at nominal heat output in high temperature mode (Tr 60 °C / Tm 80 °C)	$\eta_4$	%	87,8	88,1	88,3	88,4	88,4	88,5	88,5
Useful heat output at 30% nominal heat output in low temperature mode (Tr 30 °C)	P <sub>1</sub>	kW	45,2	68,8	91,5	113,2	124,0	147,1	175,7
Efficiency at 30% nominal heat output in low temperature mode (Tr 30 °C)	$\eta_1$	%	97,0	96,6	98,1	97,7	98,0	98,2	96,0
Boiler with power range adjustment: YES / NO			NO	NO	NO	NO	NO	NO	NO
<b>Auxiliary electricity consumption</b>									
At full load	elmax	kW	0,190	0,195	0,210	0,270	0,425	0,555	0,590
At partial load	elmin	kW	0,042	0,040	0,032	0,036	0,051	0,053	0,088
In standby mode	PSB	kW	0,005	0,005	0,005	0,005	0,005	0,004	0,007
<b>Other items</b>									
Heat loss in standby	P <sub>stb</sub>	kW	0,32	0,39	0,34	0,95	0,95	0,95	1,34
Emissions of nitrogen oxides ref. PCI (PCS)	NO <sub>x</sub>	Mg/kWh	53	51	53	49	50	48	50
Annual electrical consumption	QHE	GJ	424	653	844	1054	1148	1358	1694
<b>For mixed central heating appliances</b>									
Stated load profile			-	-	-	-	-	-	-
Water central heating energy efficiency	$\eta_{wh}$	%	-	-	-	-	-	-	-
Daily electrical power consumption	Qelec	kWh	-	-	-	-	-	-	-
Daily fuel consumption	Qfuel	kWh	-	-	-	-	-	-	-
Sound power level indoors	Lwa	dB (A)	-	-	-	-	-	-	-
Annual electrical consumption	AEC	kWh	-	-	-	-	-	-	-
Annual fuel consumption	AFC	GJ	-	-	-	-	-	-	-
<b>DHW seasonal efficiency class</b>			-	-	-	-	-	-	-

\* (Devices not covered by directive 2009/125/EC)

# 3 INSTRUCTIONS FOR INSTALLATION

## 3.1 GENERAL RECOMMENDATIONS



**ATTENTION!**

This boiler must only be employed for its explicitly intended use. Any other use must be considered improper and therefore dangerous.

This boiler is used to heat water to below boiling temperature in atmospheric pressure.



**ATTENTION!**

These appliances are designed exclusively for installation inside suitable technical compartments.



Before connecting the boiler, have professionally authorised company:

- a) **Accurately washing all of the pipes in the system to remove any residues or sediments could stop the boiler from running efficiently, even in terms of health and hygiene.**
- b) Making sure the boiler is set up to operate with the available type of fuel. The type of fuel is stated on the packaging and technical characteristics plate.
- c) Make sure that the chimney/flue has an adequate draught, that it is not choked, and that there are no other exhausts for other appliances, unless the flue is designed for multiple utilities, in accordance with standard specifications and requirements in force. Only once this check has been carried out can the fitting between boiler and chimney/flue be set up.



**ATTENTION!**

**In rooms with aggressive vapour or dust, the appliance must operate independently of the air in the room of installation!**



**ATTENTION!**

**The appliance must be installed by an authorised company possessing professional-technical qualifications in accordance with the law, who, under his/her own responsibility, enforces the observance of regulations according to the rules of good practice.**



**ATTENTION!**

Assemble the appliance in observance of the minimum required distances for installation and maintenance.



The boiler must be connected to a heating system compatibly with its specifications and power.

## 3.2 REGULATIONS FOR INSTALLATION

Installation must be carried out by a professionally authorised company, who is in charge of enforcing observance of all local and/or national laws published in the Official Gazette, as well as all applicable technical regulations.

## 3.3 PREVENTATIVE CHECKS AND ADAPTATION OF THE SYSTEM

When the appliance is installed on existing systems, make sure that:

- The flue is suitable for condensation appliances, for the temperatures of the combustion products, calculated and built in accordance with regulations in force. That is it as straight as possible, water-tight and insulated and does not have any obstructions or constrictions.
- The flue is equipped with an attachment to evacuate the condensation. The boiler room is equipped with a pipe for the evacuation of the condensation produced by the boiler.
- The electrical system is built in accordance with specific regulations and by professionally authorised company.
- The flow rate, head and direction of flow of the circulation pumps is appropriate.
- The fuel feed line and any existing tanks are set up in accordance with regulations in force.
- The expansion vessels ensure complete absorption of the dilation of the fluid contained in the system.
- Slurry and build-up have been cleaned out of the system.

If it is possible to schedule the replacement, the system must be washed preventively with alkaline dispersants.

Washing must be carried out four weeks prior to replacement, with a system operating between 35°C - 40°C.

Attention! If the new boiler has been replaced in an old system without having preventively washed it as described above, do not wash the system, as any residues of the product in the circuit may fill the generator with residues after replacement.

It is advisable to contact a company specialised in water treatment.

STD.006470/000



## 3.4 PACKAGING



Make sure the content is intact.



Packaging materials (cardboard box, straps, plastic bags, etc.) **constitute a potential hazard and must be kept out of the reach of children.**

**Immergas** will not be held liable in case of damage caused to people, animals or property due to failure to observe the above.

In addition to the system, the packaging contains:

The Documentation Envelope including:

- Installer and maintenance technician instructions handbook,
- HSCP control unit user handbook,
- BCM Instructions handbook,
- SHC book,
- Warranty ,
- Inspection certificate,
- Gas conversion label.

Besides the device, the package also contains a box of accessories comprising:

- 5 bends + one T + plastic cap for condensate drain
- External probe
- Storage tank probe
- Cables metal-sheet plate outlet

- SHC multifunction module kit

- 1 m condensate drain trap pipe.

ARES PRO	P depth (mm)	L width (mm)	H height (mm)	Net Weight (kg)	Package Weight (kg)
150	1280	970	2700	303	355
230	1280	970	2700	375	427
300	1280	970	2700	508	560
348	1500	1214	2142	704	771
400	1500	1214	2142	704	771
500	1500	1214	2142	705	772
600	1500	1214	2142	843	910

(\*) casing - (\*\*) pallet - (\*\*\*) cardboard

### 3.4.1 HANDLING



The boiler can be lifted from the holes on the upper plate or by means of a pallet truck.



#### OBLIGATION!

**wear protective gloves**

- The boiler must only be transported using suitable transport devices.
- Protect all parts against impacts, if they must be transported.
- Follow the transport instructions on the package.

## INSTRUCTIONS FOR THE INSTALLER

### 3.5 POSITIONING THE HEATING CONTROL UNIT

Special attention must be paid to local standards and regulations regarding heating control units, especially the minimum distances that must be observed.

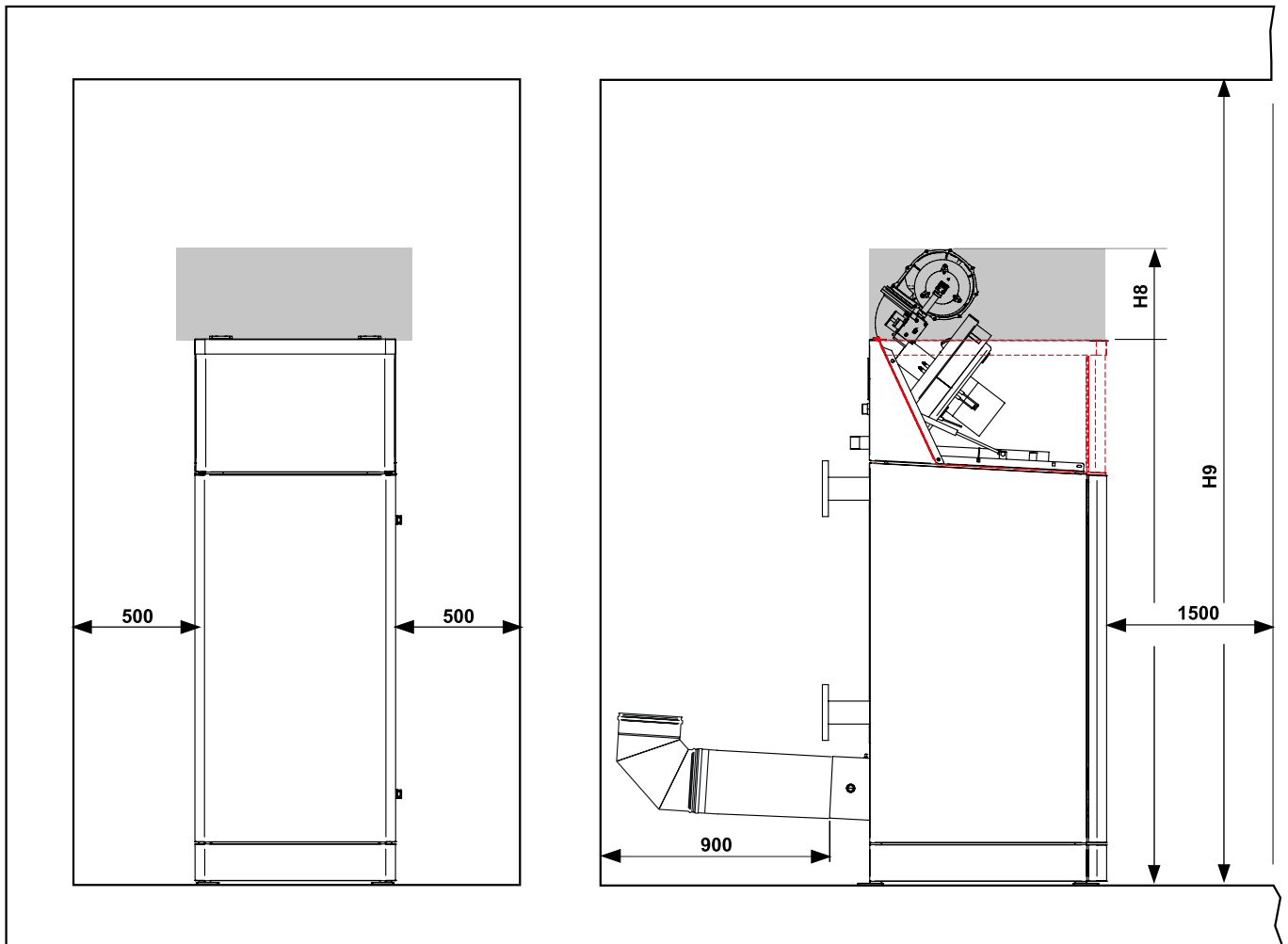
Installation must comply with the requirements contained in the most recent standards and legislation regarding heating control units, heating system installation and hot water production, ventilation, flues suitable for condensation boiler combustion product exhaust, and any other applicable regulation.

Follow the safety guidelines below when choosing the device's installation area:

- Place the device in an area protected against freezing.
- Do not install the device in corrosive or very dusty rooms.

ARES PRO	MINIMUM MEASUREMENTS	
	H8 (*)	H9
150	2109	2300
230	2147	2500
300	2366	2500
348	2690	3000
400	2690	3000
500	2690	3000
600	2770	3000

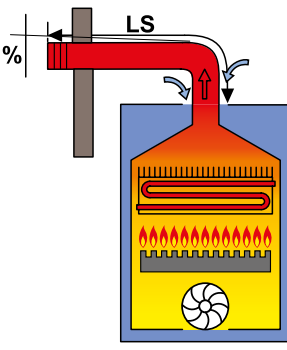
(\*) Space with combustion chamber opening




Observe the minimum clearance distances required to perform normal maintenance and cleaning operations.

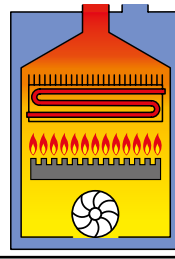
### 3.6 FLUE EXHAUST PIPE CONNECTION

The flue exhaust pipe must comply with local and national regulations  
 If the boiler is replaced, ALWAYS replace the flue pipe.  
 The boiler is approved for the draining settings described below:


<b>B23P</b>	<b>ATTENTION</b> For this type of connection, the room follows the same installation regulations for boilers with natural draught.
	
Connection to a combustion product evacuation pipe outside the room, the combustion air is taken directly from the room where the device is installed.	

HEAD AVAILABLE AT THE BASE OF THE CHIMNEY	
S (Exhaust) A (Intake)	A (Intake)
Dp = 100 Pa -	-
The maximum permitted length of the pipes is determined by the head ( $\Delta p$ ) available at the base of the chimney.	

	<b>ATTENTION:</b> for the type of B23P connection, the room follows the same installation regulations for boilers with natural draught.
---	--

<b>C63</b>	<b>ATTENTION</b> To configure the C63 you need to order the optional air intake kit which includes instructions on application.
	
Separate ducts for combustion air intake and evacuation of combustion products. (Commercial accessories)	

HEAD AVAILABLE AT THE BASE OF THE CHIMNEY	
S (Exhaust)	A (Intake)
Dp = 100 Pa	Dp = 40 Pa
The maximum permitted length of the pipes is determined by the head ( $\Delta p$ ) available at the base of the chimney	

	<b>ATTENTION:</b> The flue must comply with the standards in force
---	---

**3.7 CONNECTION**



**Danger!**

The gas connection must be set up by an authorised installation technician who must observe and apply the contents of the legislation in force and the local requirements of the gas supply company, as incorrect installation can cause damage to people, animals and property, for which the manufacturer will not be held liable.



**If you notice the smell of gas:**

- a) Do not work the electrical switches, the telephone or any other object that can generate sparks;
- b) Immediately open doors and windows to create an air current that purifies the room;
- c) Close the gas valves.



**SAFETY VALVE DRAIN**

Set up a runoff pipe with funnel and trap that lead to a suitable drain next to the drain.

The drain must be visually controlled.

**The manufacturer will not be held liable in the case of failure to observe this precaution, where any work on the safety valve may cause damage to people, animals and property.**



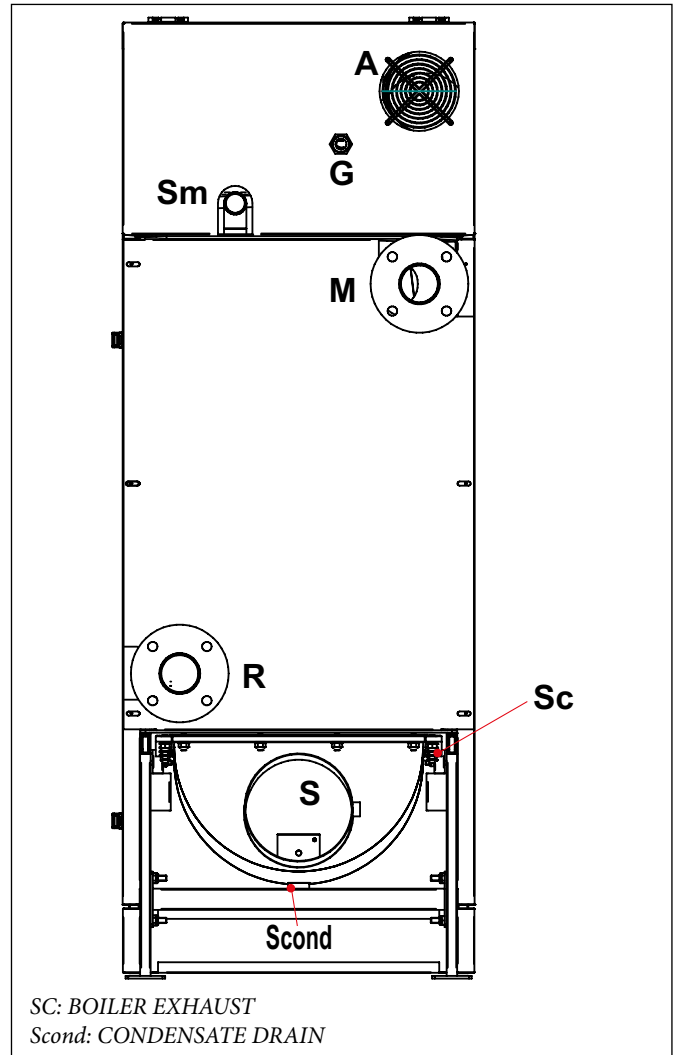
**Important!**

**Do not mix the heating water with antifreeze or anti-corrosion substances at incorrect concentrations! This may damage the gaskets and cause noise to develop during operation.**

**Immergas will not be held liable in case of damage caused to people, animals or property due to failure to observe the above.**



The main supply pressure must be between 0.5 and 6 bar (If the pressure is higher, install a pressure reducer).



ARES PRO	CONNECTIONS						
	G Gas Inlet [Inch]	M Flow [DN]	R Return [DN]	A Air intake [Ø mm]	S Flue exhaust fm [Ø mm]	Sm Safety pipe cou- pling [Inch]	Sccond Condensate drain [Ø mm]
150	1"	65	65	150	200 (*)	1"	DN 40
230	1" ¼	65	65	250	250	1" ¼	DN 40
300	1" ¼	80	80	250	250	1" ½	DN 40
348	1" ½	80	80	250	300	1" ½	DN 40
400	1" ½	80	80	250	300	1" ½	DN 40
500	1" ½	80	80	250	300	1" ½	DN 40
600	1" ½	100	100	250	300	1" ½	DN 40



A load cock must be provided on the central heating circuit in order to fill the system, or use the optional accessories.



The boiler is equipped with its own draining valve, Sc. This valve must never be used to empty the system, since all of the dirt contained in the system may accumulate in the boiler, jeopardising smooth operation. Therefore, before using the draining valve, make sure that the system's interception cock situated under the pump has been closed.

**The system must be equipped with its own emptying valve, of a suitable size for the flow rate of the system.**

### Condensate drain

During the combustion process, the boiler generates condensate that flows into the drain trap through pipe "A".

The condensate that forms inside the boiler must flow into a suitable drain from pipe "B".

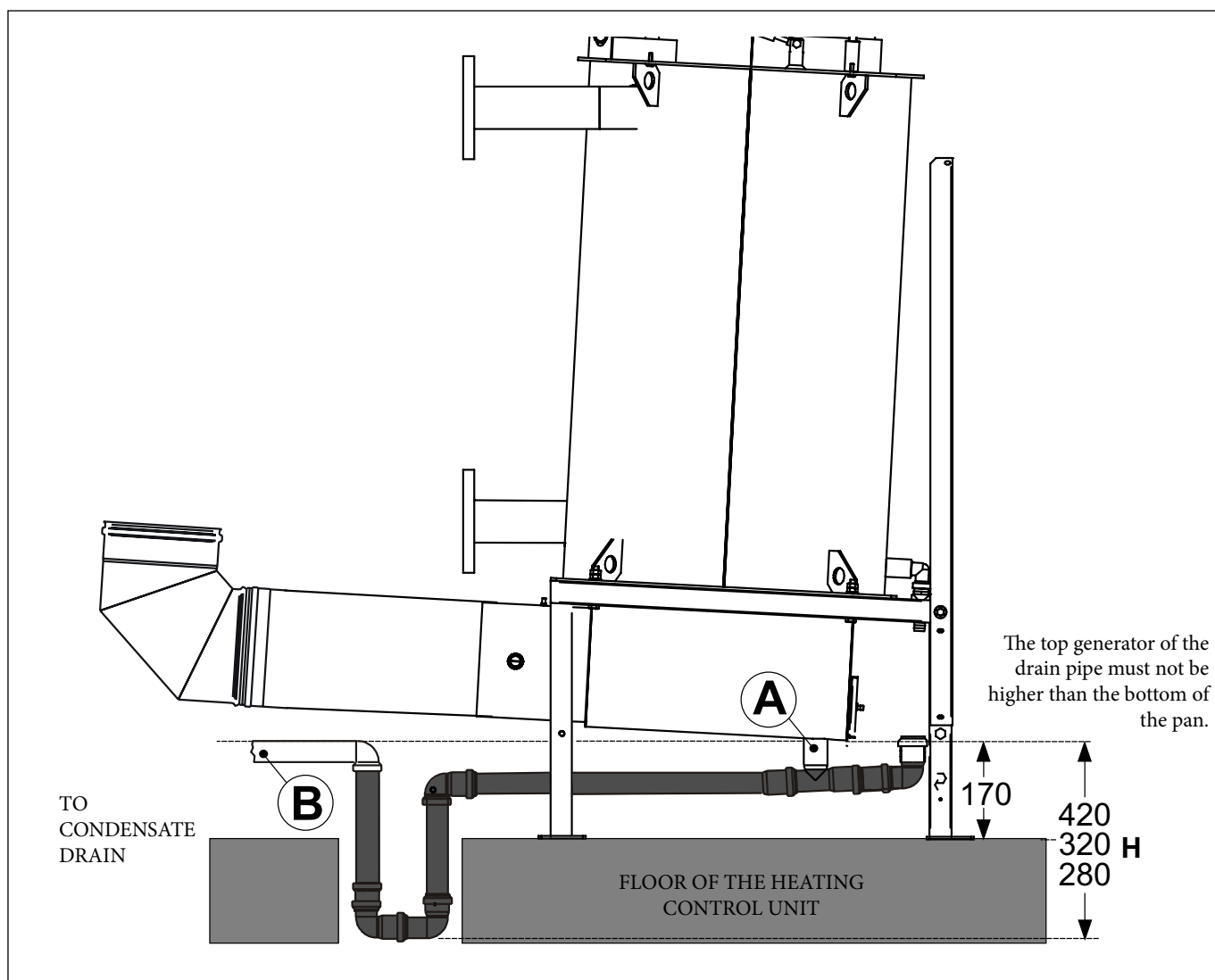


### Danger!

**Before commissioning the appliance:**

- make sure the drain trap has been assembled correctly (\* H = see the drawing dimensions below)
- fill the drain trap and check correct condensate draining

If the appliance is used with an empty condensate drain trap the danger of poisoning subsists following a flue gas leak.



H = Drain trap head  
Flow rate conditions 0 and Fan Head Max.

ARES PRO 150 - 230	= 420 mm
ARES PRO 300	= 320 mm
ARES PRO 348 - 400 - 500 - 600	= 280 mm



If you do not want to or are able to create a platform, it is possible to install the boiler on the floor and set up the trap at a depth of 250 mm.



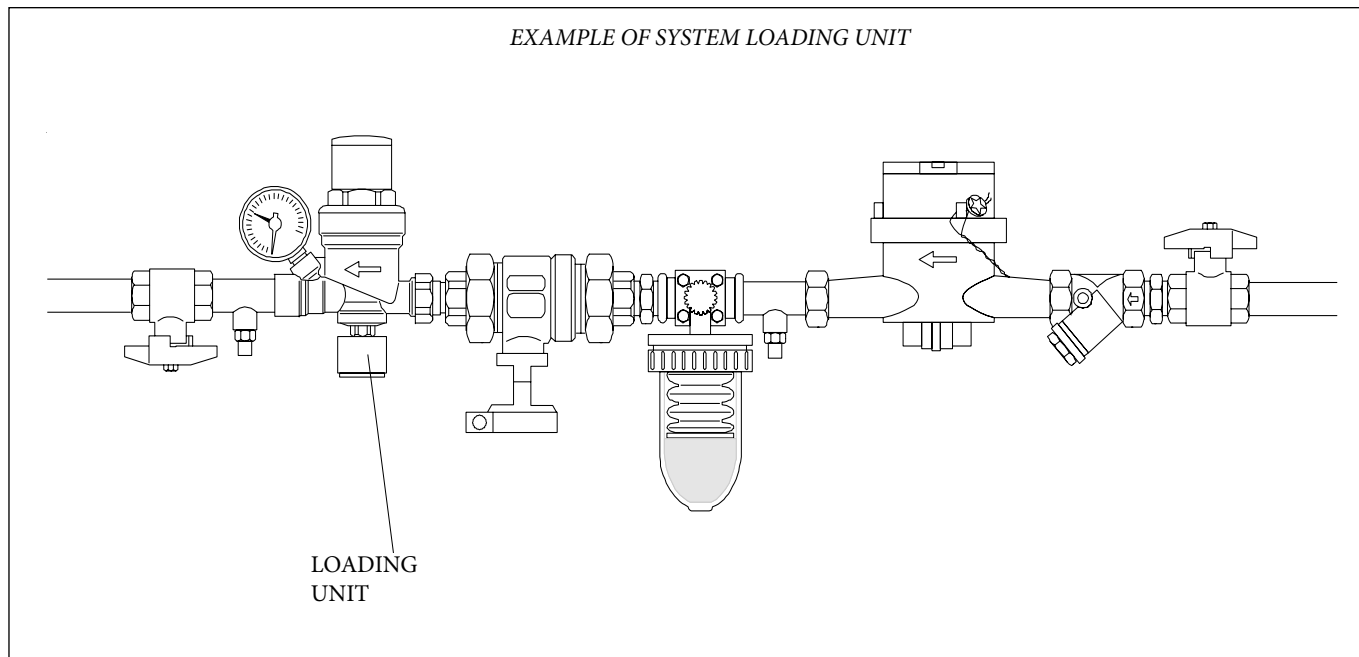
Connection between the appliance and the domestic wastewater disposal system must be carried out in compliance with the specific regulations of reference.

### 3.8 SYSTEM FILLING AND EMPTYING



Once all of the connections for the system have been set up, it is possible to fill the circuit.

**To fill the system it is possible to set up a loading valve on the system's return pipe.**



### 3.9 ELECTRICAL CONNECTIONS

#### General recommendations

Electrical safety of the appliance is only ensured when it is correctly connected to an efficient earthing system as specified by current safety standards: earthing outlets, gas, water and central heating system pipes are absolutely not suitable.

It is necessary to check this fundamental safety requirement; In case of doubt, have an accurate inspection of the electrical system carried out by professionally qualified personnel, as the manufacturer is not responsible for any damage caused by the lack of an earthing connection in the system.

Have professionally qualified personnel make sure the electrical system is suitable for the maximum power absorbed by the appliance, as stated on the plate, making sure in particular that the section of the system's cables is suitable for the power absorbed by the appliance.

For the main power supply to the appliance, never use adapters, multiple sockets and/or extension leads.

The use of components involving use of electrical power requires some fundamental rules to be observed such as:

- do not touch the appliance with wet and/or moist parts of the body and/or barefoot;
- do not pull the electric cables;
- the appliance may not be used by children or unskilled individuals.

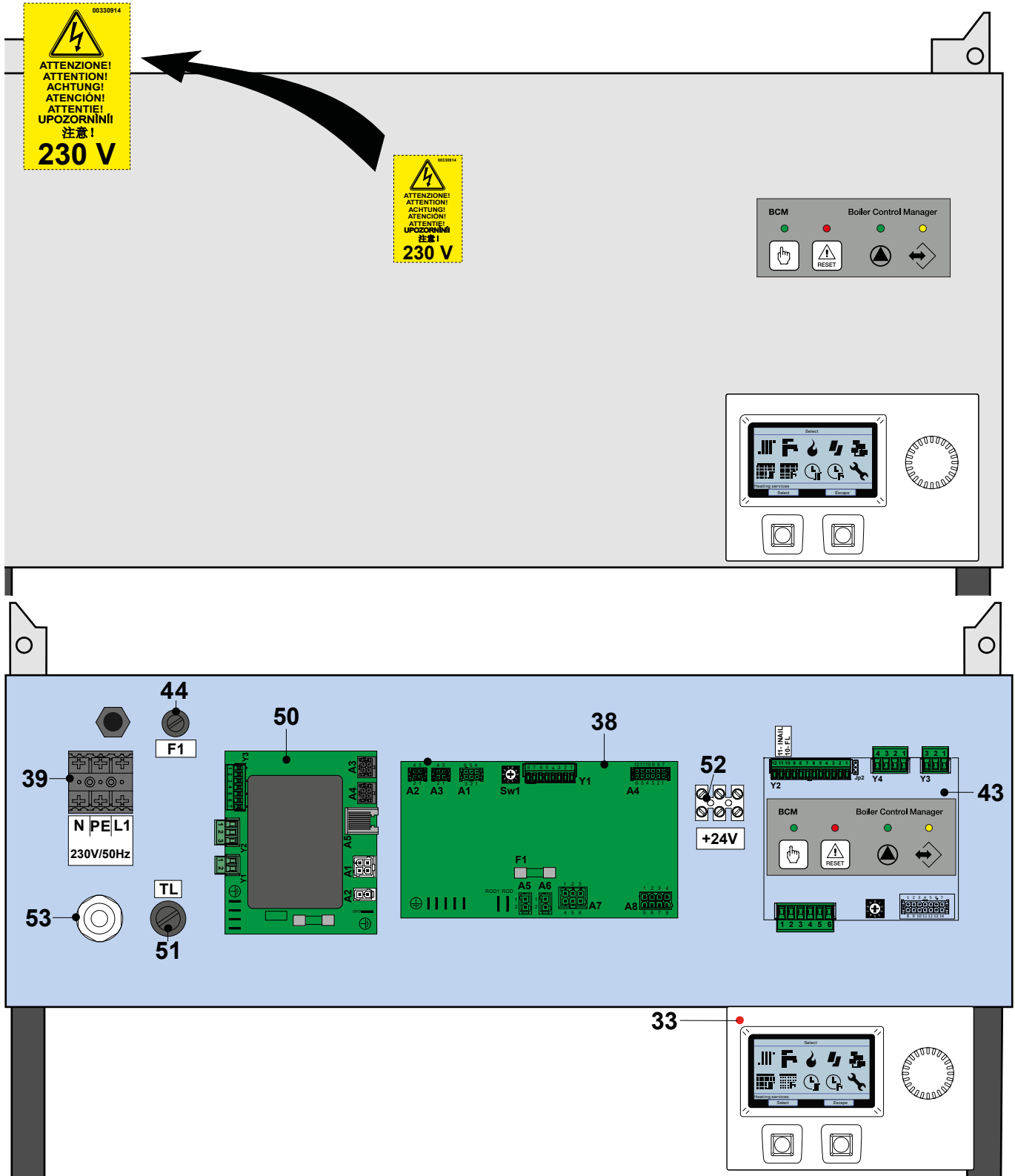


**Danger! Before setting up the connections or any operation on the electrical parts, always cut-off the electrical supply and make sure it cannot be accidentally re-connected.**



Remove the indicated screws in order to access the panel.

Note: The image shown in the following page refers to ARES PRO 150. For all other models, the HSCP heat adjuster is in line with BCM.



KEY	
N°	Description
33	Heat adjuster HSCP
38	BMM Burner management board
39	M1 230 V power supply clamps
43	BCM Boiler pump

44	F1	Fuse power supply of 4 ÷ 6.3 A
50		Power supply board
51	TL	Manual reset limit thermostat
52	M2	Additional terminal board +24V BCM
53		Fairlead for power supply cable

## INSTRUCTIONS FOR THE INSTALLER



**Danger!**  
Electrical installation must only be carried out by an authorised technician.  
Before setting up the connections or any operation on the electrical parts, always cut-off the electrical supply and make sure it cannot be accidentally re-connected.



**Electrical connection to the mains power supply.**  
This connection must be set up by state of the art, as envisioned by regulations in force.



Remember that it is necessary to install a bipolar switch on the electrical supply to the boiler with a max distance between the contacts of 3 mm, easy to access, so that maintenance operations can be carried out quickly and safely.



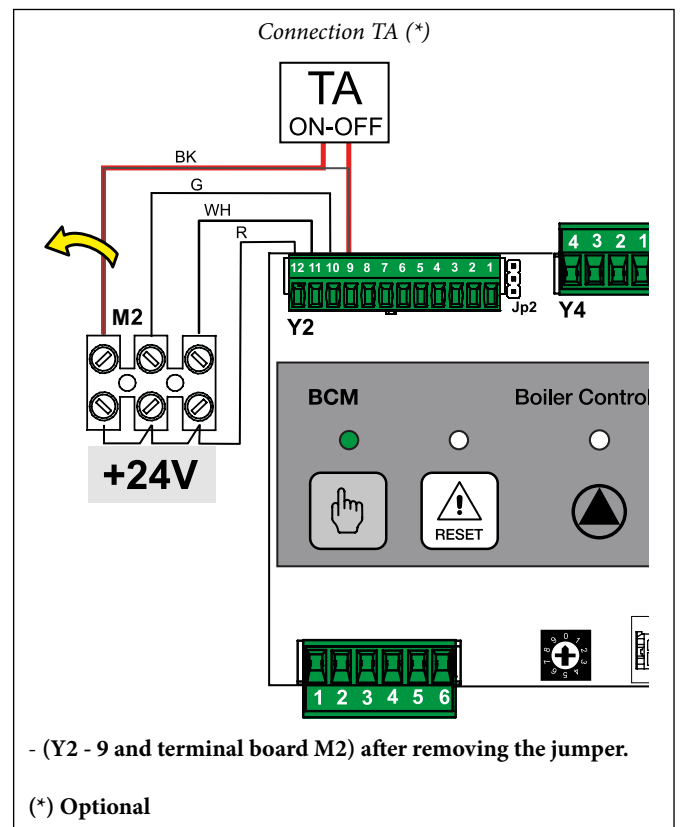
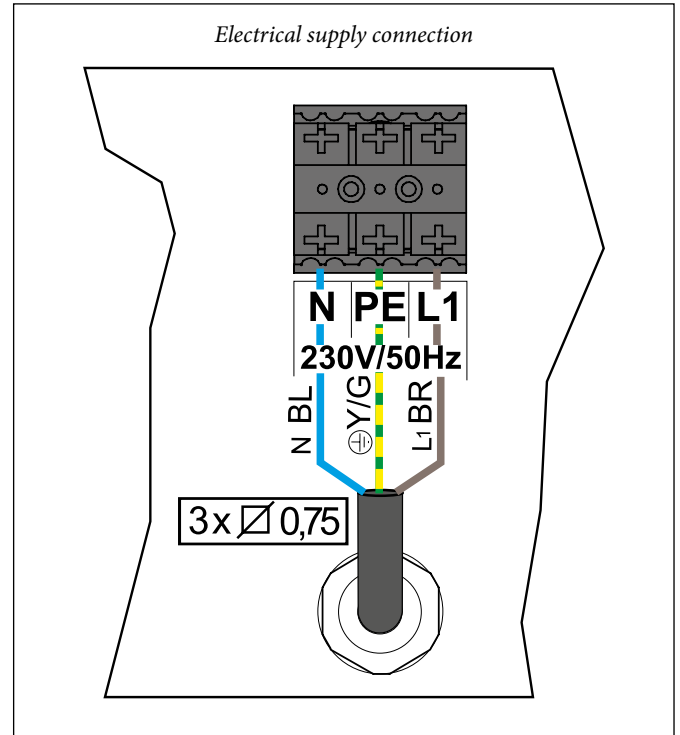
**ATTENTION!**  
The power supply cables must be sized according to the power of the boiler, thus the absorbed current, as per regulations.  
Refer to Chap. 4.5 regarding the amperometric flow rates indicated for each model of ARES PRO (main protection fuses).  
3 X 0.75, is the minimum section to use on ARES PRO 150 / 230 / 300 boilers.



**ATTENTION!**  
Respect the PHASE and NEUTRAL polarity since flame detection is Phase Sensitive.

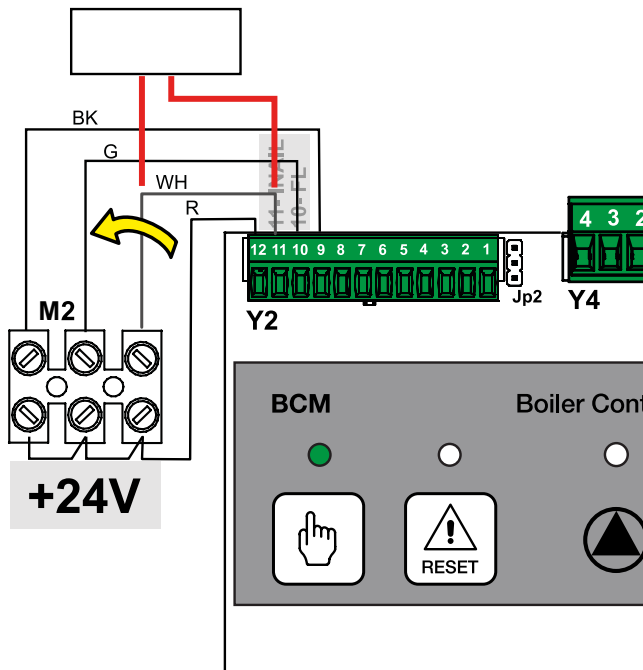


**ATTENTION:**  
Cables carrying a voltage of 230 V must travel separately from cables carrying a voltage of 24 V.



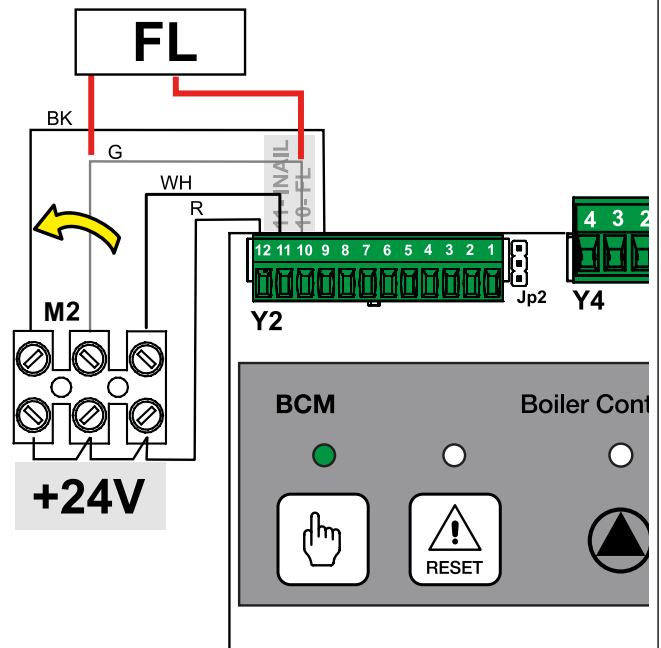


*INAIL safety connection*



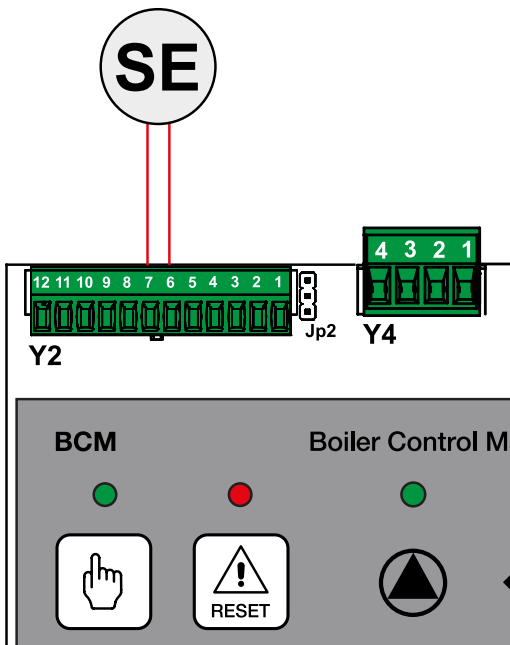
- Remove the jumper and connect the cables, as indicated between (Y2 11 and terminal board M2).

*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 the terminal board, BCM (Y2 6-7).

## INSTRUCTIONS FOR THE INSTALLER



### NOTE:

The boiler is provided with set-up to manage one direct flow and one storage tank.

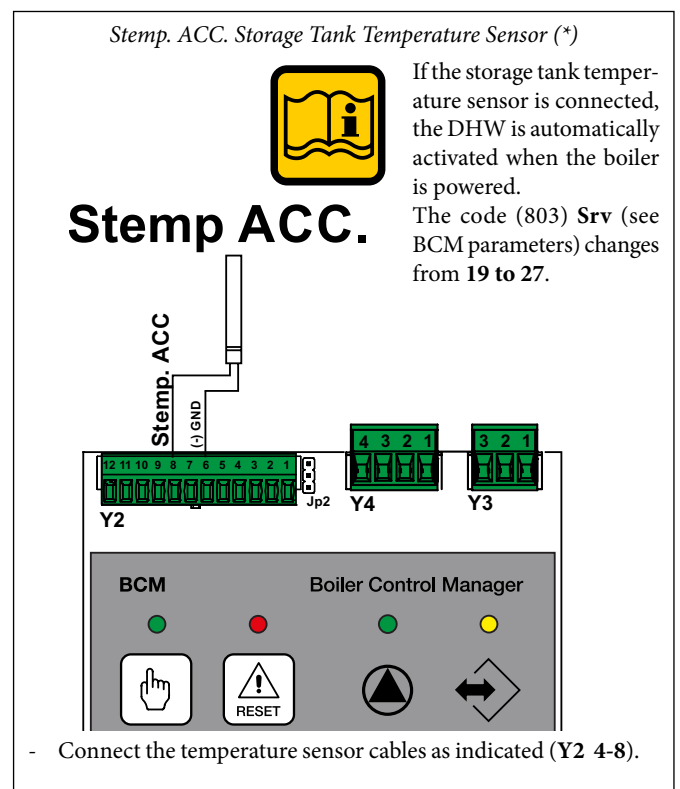
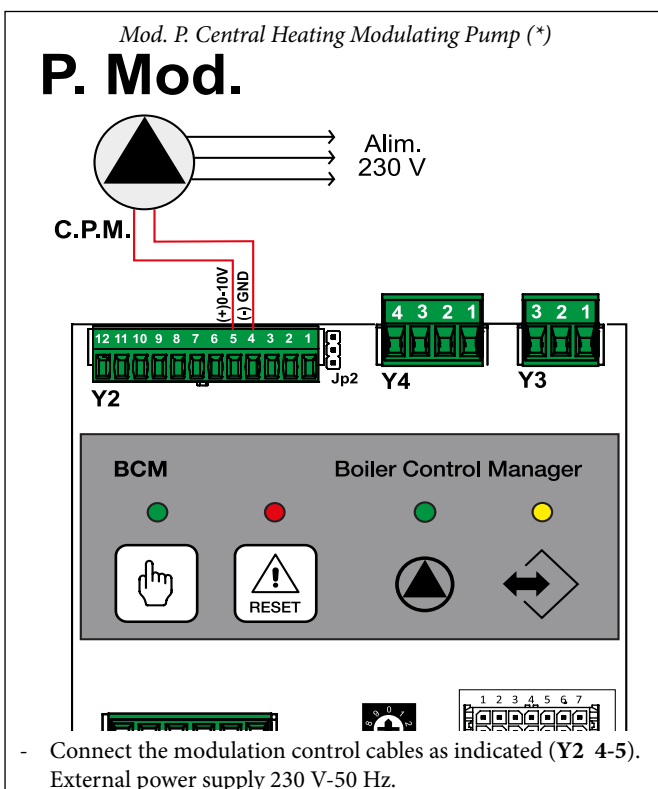
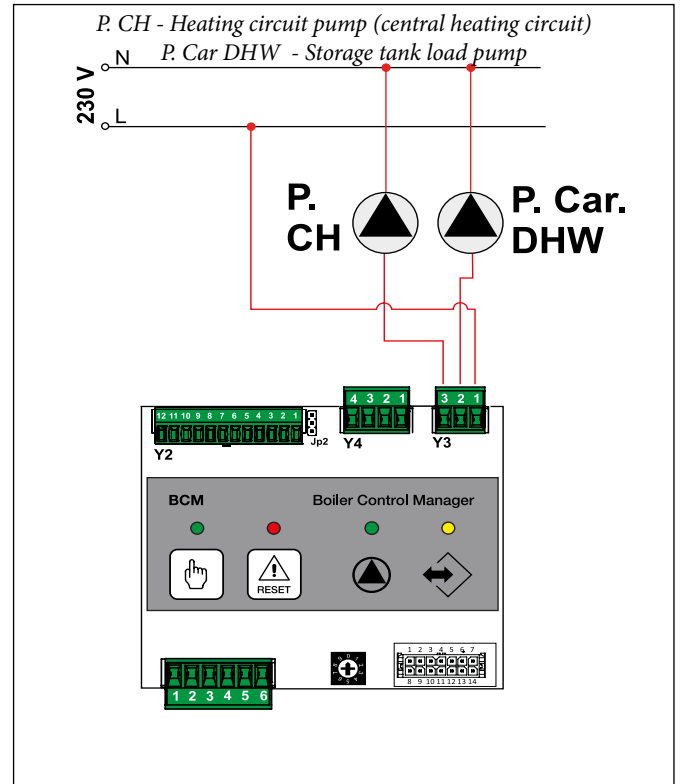
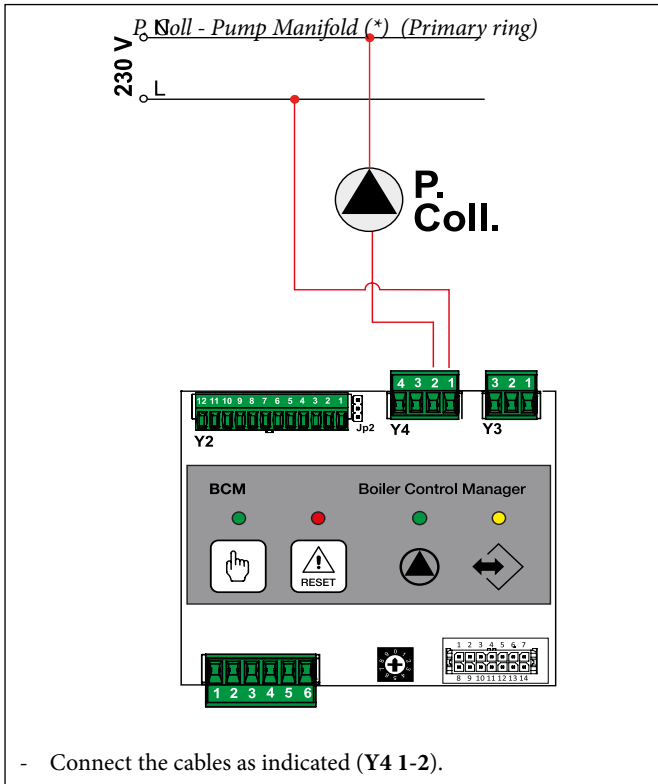
If **Stemp. ACC** is connected automatically, the DHW service is enabled, which will be managed as a priority compared to direct flow through the pumps shown below.

If other services (storage tanks, mixed zones, solar, etc.) are requested, it is necessary to purchase **SHC** multifunction modules to connect to the local bus for total temperature control management via **HSCP**.



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

(\*) Optional



## 3.10 FIRST IGNITION

### Preliminary checks.



**First ignition must be carried out by professionally qualified staff. Immergas will not be held liable in case of damage caused to people, animals or property due to failure to observe the above.**



**Danger!**  
**Prior to commissioning the appliance fill the trap through the filler hole and make sure the condensate is draining correctly.**  
**If the appliance is used with an empty condensate drain trap the danger of poisoning subsists following a flue gas leak.**

Prior to commissioning the boiler it is advisable to make sure that:

- installation fulfils the standard specifications and requirements in force for both the gas and electrical part;
- the supply of combustion air and the evacuation of flue exhaust are carried out correctly in accordance with standard specifications and requirements in force;
- the fuel supply system is sized for the boiler's flow rate and is equipped with all of the safety and control devices required by regulations in force;
- the power supply for the boiler is 230V - 50Hz;
- the system has been filled with water (pressure gauge 0.8/1 bar with the pump off);
- any cut-off dampers on the system are open;
- the gas to use corresponds to the boiler's calibration: otherwise have the boiler converted for use with the available gas (see section: "ADAPTATION FOR USE WITH OTHER GASES"); this operation must be carried out by qualified technical staff in accordance with regulations in force;
- the gas supply valve is open;
- there are no gas leaks;
- the external main switch is engaged;
- the system safety valve on the boiler responds to operation and is connected to the sewer drain;
- the condensate drain trap is filled with water;
- there are no water leaks;
- the conditions for aeration and minimum distances to carry out any maintenance operations are fulfilled.

### Switching the boiler on and off.

To turn the boiler on and off read the manual for the HSCP regulator.

### Information for the system manager

The individual in charge of the system must be instructed in the use and operation of the heating system, in particular:

- Supply the system manager with the "THE SYSTEM MANAGER'S INSTRUCTIONS FOR USE", as well as all other documents attached to the appliance contained in the envelope in the packaging. **The system manager must keep this documentation safe so that it is available for future consultation.**
- Inform the system manager of the importance of aeration vents and the flue exhaust system, highlighting how essential they are and how it is strictly forbidden to change them.
- Inform the system manager of the requirement to check the system's water pressure, as well as operations to restore it.
- Inform the system manager on how to correctly regulate the temperature, control units/thermostats and radiators in order to save energy.
- Remember that it is compulsory to carry out regular maintenance on the system and measure combustion output (as per national law).
- If the appliance is sold or transferred to another owner or if the owner moves, leaving the appliance behind, always ensure the handbook accompanies the appliance so that it may be consulted by the new owner and/or installer.

### 3.11 ON-SITE MEASUREMENT OF THE COMBUSTION EFFICIENCY

#### 3.11.1 ENABLE THE CALIBRATION FUNCTION



**ATTENTION!**

Function reserved exclusively to Authorised Service Centres.



**ATTENTION!**

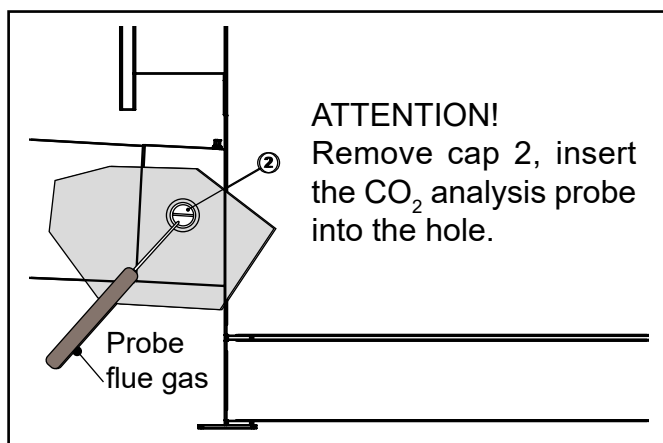
This function is explained in chapter 6 (Generator control) of the **HSCP installation and maintenance** manual.

#### 3.11.2 POSITIONING THE PROBES

In order to determine the combustion efficiency, the following measurements must be taken:

- measure the combustion air temperature
- measure the flue gas temperature and content of CO<sub>2</sub> withdrawn from the hole 2.

Take the specific measurements with the generator at full speed.



### 3.12 BURNER ADJUSTMENT



All boilers are factory calibrated and tested. If necessary, recalibrate the gas valves (MODULE1, MODULE 2).

- Remove the cap and insert the CO<sub>2</sub> analysis probe into the flue gas output of the intake/exhaust terminal.



All of the instructions below are provided for the exclusive use of **authorised assistance** personnel.

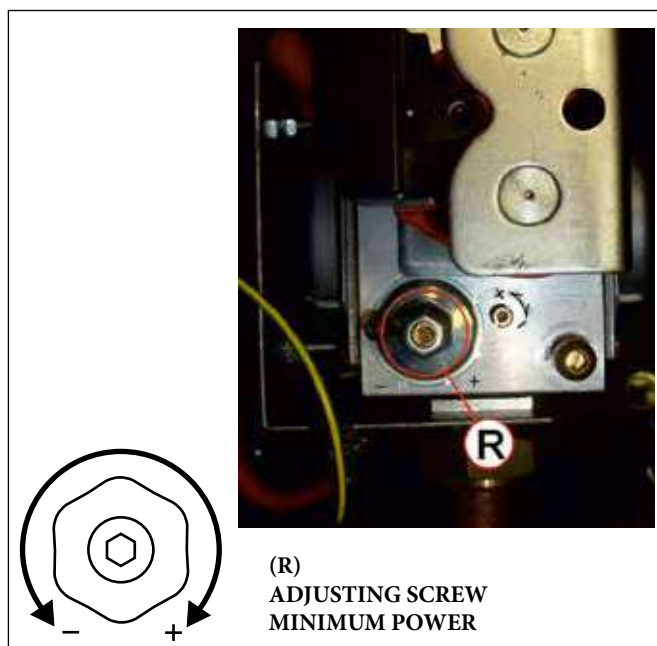
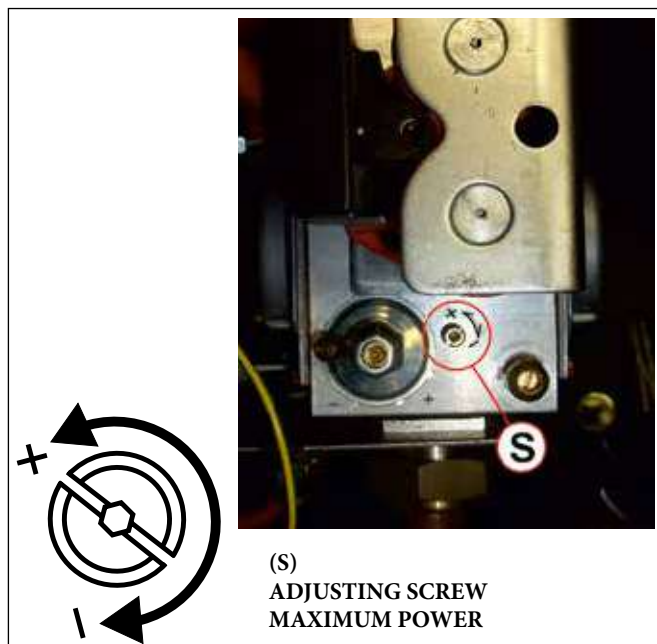
- **ARES PRO 150**

**1) Adjustment at maximum power**

- Start the boiler in “calibration” mode at MAXIMUM POWER.
- Once the burner is on, check that the CO<sub>2</sub> value at “MAXIMUM” power corresponds with what is indicated in the “NOZZLES - PRESSURES” table.
- If necessary, correct the value by turning adjusting screw “S” CLOCKWISE to decrease it and ANTICLOCKWISE to increase it.

**2) Adjustment at minimum power**

- Start the boiler in “calibration” mode at MINIMUM POWER.
- Once the burner is on, check that the CO<sub>2</sub> value at “MINIMUM” power corresponds with what is indicated in the “NOZZLES - PRESSURES” table.
- If necessary, correct the value by turning (using a 2.5 mm Allen key) screw “R”; CLOCKWISE increases it and ANTICLOCKWISE decreases it.



## INSTRUCTIONS FOR THE INSTALLER

- ARES PRO 230 - 300 - 348 - 400 - 500 - 600

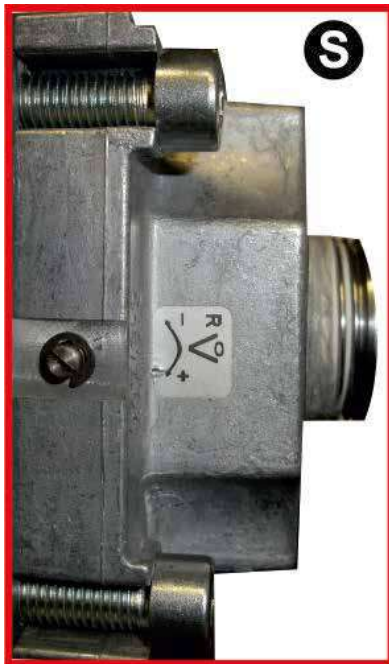
### 1) Adjustment at maximum power

- Start the boiler in "calibration" mode at MAXIMUM POWER.
- Once the burner is on, check that the CO<sub>2</sub> value at "MAXIMUM" power corresponds with what is indicated in the "NOZZLES - PRESSURES" table.
- if it does not correspond, correct it by turning screw "S" CLOCKWISE to increase it, or ANTICLOCKWISE to decrease it.

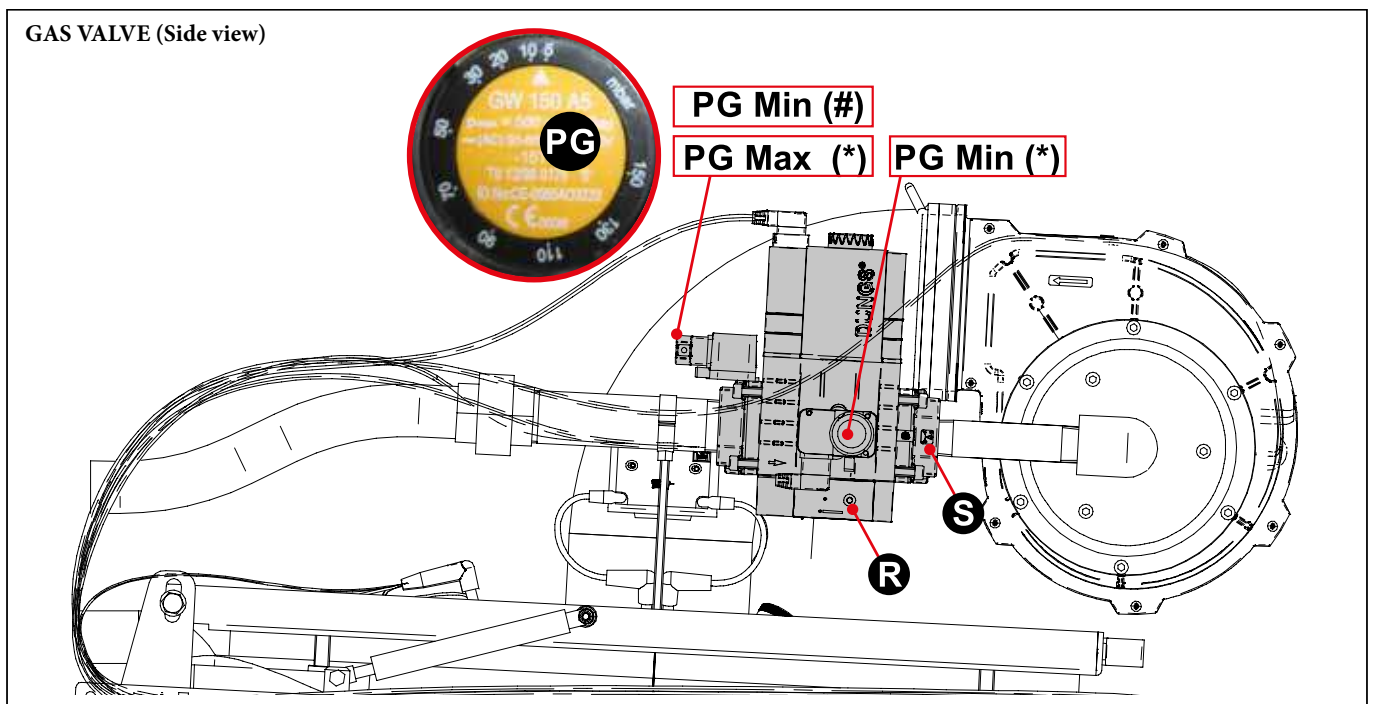
### 2) Adjustment at minimum power

- Start the boiler in "calibration" mode at MINIMUM POWER.
- Once the burner is on, check that the CO<sub>2</sub> value at "MINIMUM" power corresponds with what is indicated in the "NOZZLES - PRESSURES" table.
- If necessary, correct the value by turning (using a 2.5 mm Allen key) screw "R"; CLOCKWISE increases it and ANTICLOCKWISE decreases it (refer to the "NOZZLES - PRESSURES" table).

(S) MAXIMUM POWER ADJUSTMENT SCREW



(R) MINIMUM POWER ADJUSTMENT SCREW

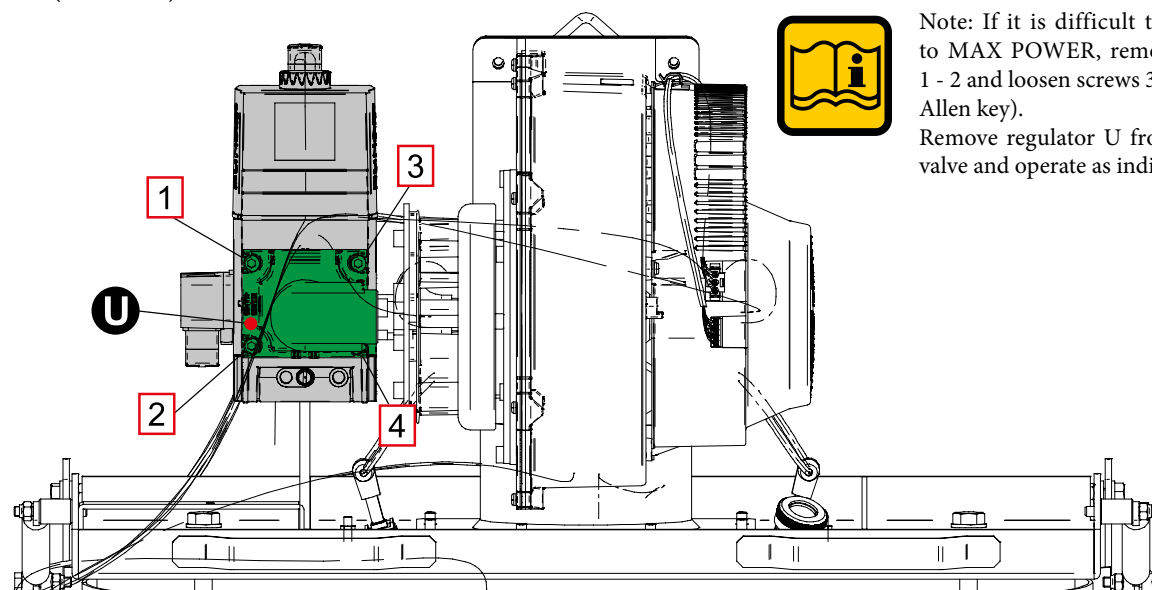


PG = GAS PRESSURE SWITCH

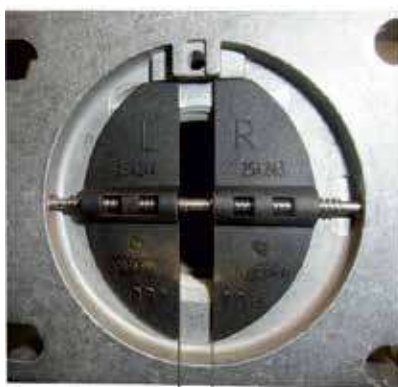
(\*) PG Max and PG Min - only on ARES PRO 348 / 400 / 500 / 600

(#) PG Min 230 / 300

**GAS VALVE (Front view)**



Note: If it is difficult to adjust it to MAX POWER, remove screws 1 - 2 and loosen screws 3 - 4 (5 mm Allen key). Remove regulator U from the gas valve and operate as indicated.



(\*) Adjust VG flue adjusting device opening to the values indicated (refer to the NOZZLES - PRESSURES - FLOW RATES tables) using screw S.

GPL xx mm (\*)  
G 20 xx mm (\*)

**3) Completing basic calibration**

- after checking the CO<sub>2</sub> minimum and maximum flow rate values and made any necessary adjustments (points 1-2):
- disable the timed "calibration" function by disconnecting power from the main switch.
- close the flue gas inspection outlet of the intake and exhaust terminal
- check there are no gas leaks.



For smooth operation, calibrate the CO<sub>2</sub> values taking care to observe the values in the table.



If the measured flow rate is too low, make sure the supply and draining systems (the supply and draining pipes) are not obstructed.

If they are not obstructed, make sure the burner and/or exchanger are not dirty.

## INSTRUCTIONS FOR THE INSTALLER

ARES PRO 150								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				FL [% FU]	FH [% FU]	min	max	IG
Nat. gas (G20)	20	9	NO	31	99	9.1	9.1	50
Propane (G31)	37	9	NO	31	94	10.5	10.5	50

ARES PRO 230								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				FL [% FU]	FH [% FU]	min	max	IG
Nat. gas (G20)	20	15	6.0	32	86	9.1	9.1	35
Propane (G31)	37	15	2.5	32	82	10.5	10.5	35

ARES PRO 300								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				FL [% FU]	FH [% FU]	min	max	IG
Nat. gas (G20)	20	15	9.0	32	83	9.1	9.1	45
Propane (G31)	37	15	3.0	32	81	10.5	10.5	45

ARES PRO 348								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				FL [% FU]	FH [% FU]	min	max	IG
Nat. gas (G20)	20	18		34	67	9.1	9.1	45
Propane (G31)	37	18		34	64	10.7	10.8	45

ARES PRO 400								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				FL [% FU]	FH [% FU]	min	max	IG
Nat. gas (G20)	20	18	12.3	32	76	9.1	9.1	45
Propane (G31)	37	18	6.0	36	69	10.8	10.8	45



<b>ARES PRO 500</b>								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				<b>FL</b> [% FU]	<b>FH</b> [% FU]	min	max	IG
Nat. gas (G20)	20	18	18.3	32	88	9.1	9.1	35
Propane (G31)	37	18	6.3	33	83	10.8	10.8	35

<b>ARES PRO 600</b>								
Type of Gas	Press. Supp.	Ø Nozzles	Opening VG Flue adjusting device	Fan speed		CO <sub>2</sub> levels		Ignition power
	[mbar]	(mm)	[mm]	min	max	[%]		[%]
				<b>FL</b> [% FU]	<b>FH</b> [% FU]	min	max	IG
Nat. gas (G20)	20	20	21	29	88	9.1	9.1	35
Propane (G31)	37	18	6.3	30	92	10.7	10.7	35

# 4 INSPECTION AND MAINTENANCE



**ATTENTION**  
First open the combustion chamber to cool the fibre.



Inspections and maintenance carried out to state of the art and at regular intervals, as well as the exclusive use of original spare parts, are of primary importance for smooth operation and to guarantee long boiler life. Annual maintenance of the appliance is compulsory, in accordance with Legislation in force.



Failure to carry out Inspections and Maintenance can cause material and personal damage.

## 4.1 INSTRUCTIONS FOR INSPECTION AND MAINTENANCE

Only original Immergas spare parts must be used to ensure a long life for all of the functions of your appliance, and to avoid changing the conditions of the approved standard product.

When a part needs to be replaced:

- Disconnect the appliance from the mains power supply and make sure it cannot be reconnected accidentally.
- Shut the gas cut-off valve upstream of the boiler.
- If necessary, and based on the work that needs to be carried out, close any cut-off valves on the heating flow and return, as well as the cold water inlet valve.

After completing all maintenance operations, restore the boiler's operation.

- Open the heating flow and return, as well as the cold water inlet valve (if it was previously closed).
- Relieve and, if necessary, restore the pressure in the heating system, until reaching pressure of 0.8/1.0 bar.
- Open the gas cut-off valve.
- Apply voltage to the boiler
- Make sure the appliance is water-tight, on the gas side and the water side.

Table of resistance values based on the heating probe (SR) and the heating return probe (SRR) temperature.

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 nom. resistance (Ohm) of the heating probe SR and the heating return probe SRR.

Example: At 25°C, the nominal resistance is 10067 Ohm

At 90°C, the nominal resistance is 920 Ohm

ANNUAL ROUTINE CHECKS		
COMPONENT:	CHECK:	CONTROL METHOD/ INTERVENTION:
VG (Gas valve ( 3 )	Does the valve modulate correctly?	The check is carried out in "Calibration" mode, requesting 100%, in 50%, the minimum modulation percentage. Check that the flame modulates.
SM (flow sensor) ( 11 )	Do the sensors maintain their original features?	12571 ohm at 20° C / 1762 ohm at 70° C. Measurement to be carried out with the wires disconnected (see Res/Temp table).
E ACC (ignition electrode ( 28 )	The sparks generated before being secured is less than 3 secs?	Disconnect the wire from the ionization electrode and check the time required to make it safe.
TL (Overheating limit thermostat) ( 10 ) (51)	Does the TL make the boiler safe in case of overheating?	Heat the TL until it intervenes at 102°C and check that it intervenes at 102°.
Condensate drain trap (27)	Was the drain trap deposited at the bottom?	Clean the drain trap with water.
Heat exchanger body	If SL makes the boiler safe in case of an increase in the level of condensate  If PF makes the boiler safe in case of a clogged flue exhaust	Check/remove any deposits from the combustion chamber using a vacuum cleaner. Then wash the heat exchanger body with water and check correct draining from the flue chamber and drain trap / remove any flue side obstructions.
Burner ( 5 )	Make sure the burner's mesh is clean	Remove any deposits using compressed air blown from the mesh side
( Num ) = see key Par. 2.1		

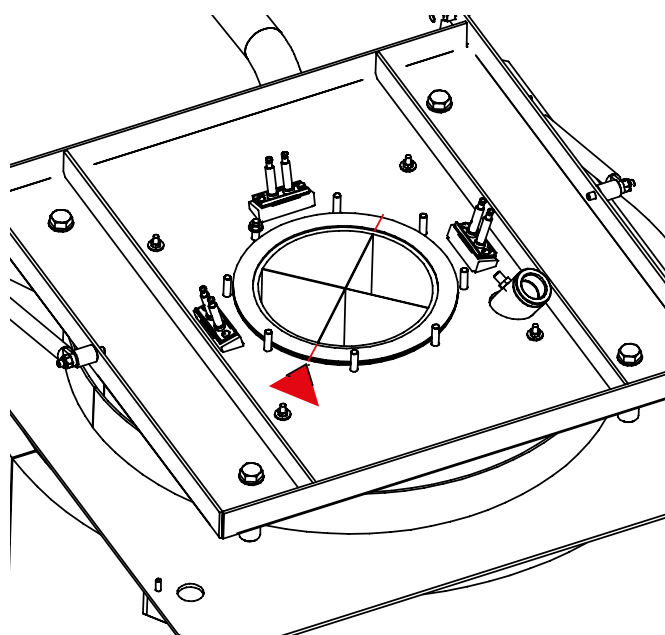
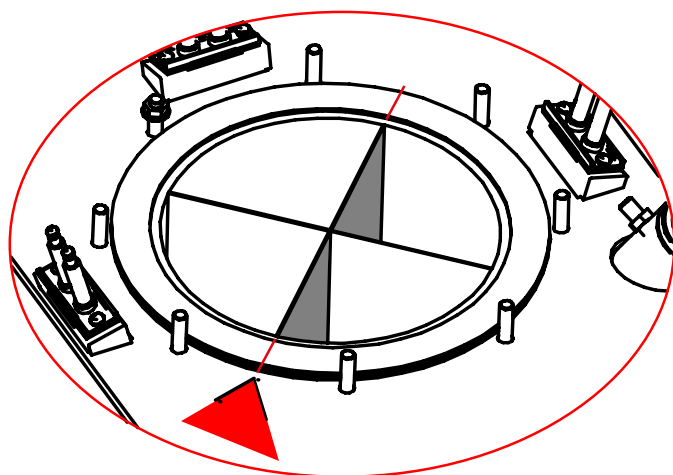
### • POSITIONING AND REASSEMBLING THE BURNER



#### ATTENTION:

After completing maintenance, it is imperative to assemble the burner correctly.

- A - Insert gasket 1
- B - Direct burner 2 as shown in the drawing (the arrow engraved on the door must be in line with the burner's fins).
- C - Insert gasket 3



## INSPECTIONS AND MAINTENANCE



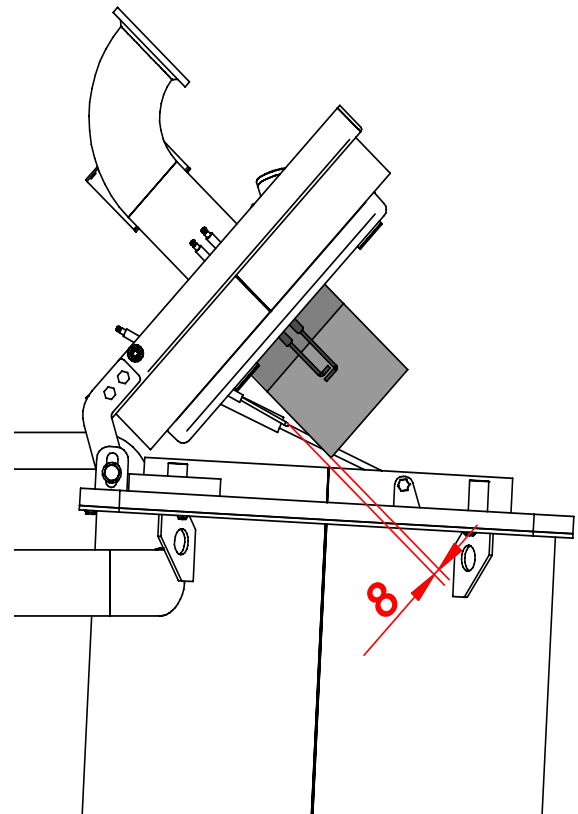
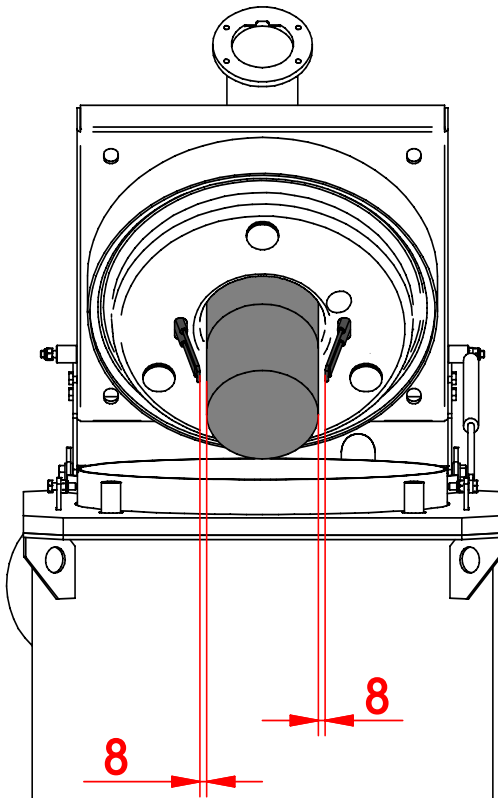
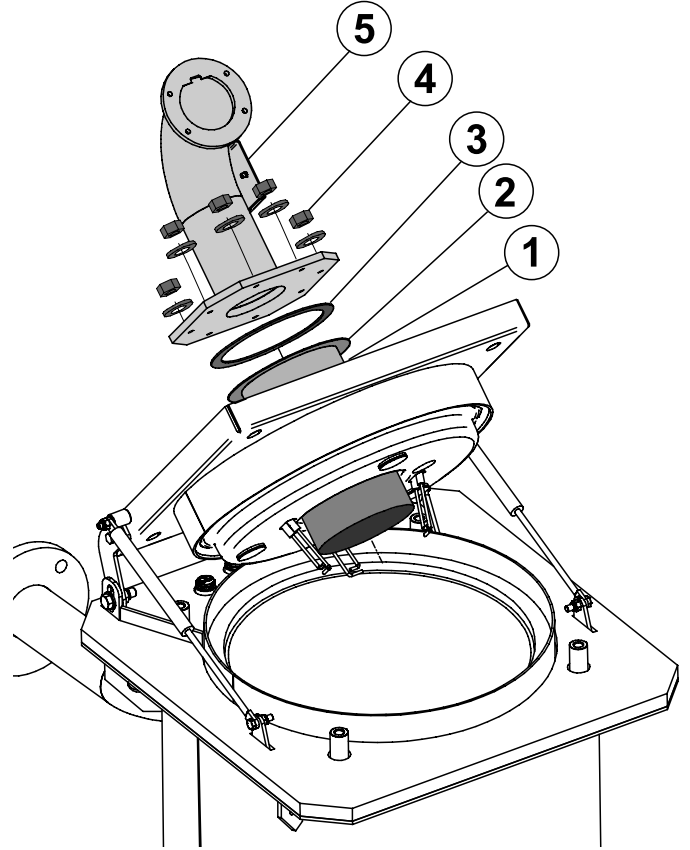
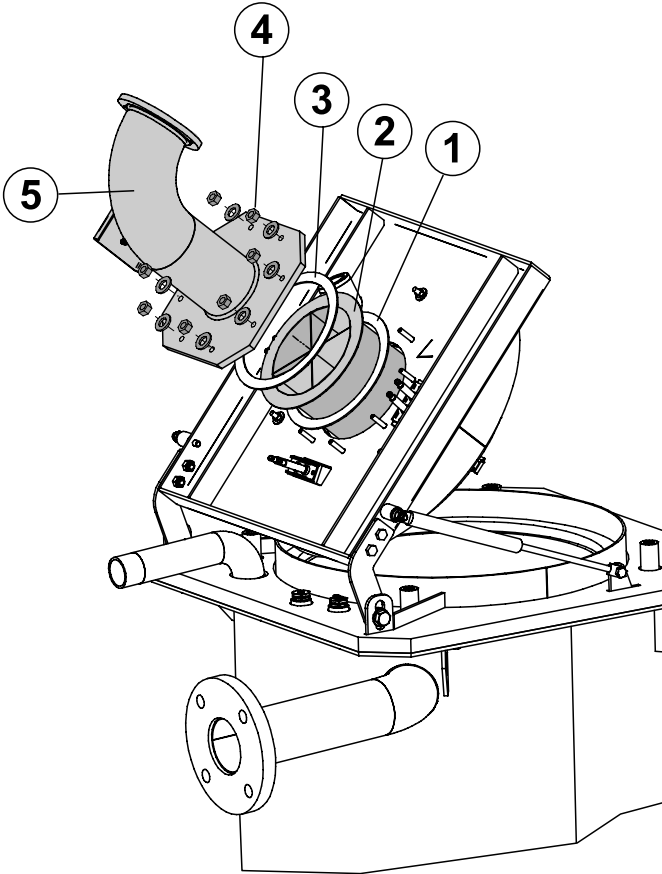
D - Provisionally secure the flanged curve 5 to the cover (do not tighten the nuts 4 fully).

F - Centre the burner between the electrodes, same distances (approx. 8-9mm)

E - Now complete securing the flange to the burner.



Scalding hazard!



## 4.2 ADAPT IT FOR USE WITH OTHER GASES

The boilers are produced for the type of gas specifically requested when placing the order.



### DANGER!

Transformation of the boiler to operate with a different type of gas than the one specifically requested when ordering must be carried out by professionally qualified staff in compliance with the regulations in force.

The manufacturer shall not be held liable for any damage deriving from incorrect transformation operations or which were not carried out in compliance with current regulations and/or instructions given.



### ATTENTION!

After transforming the boiler for operation with a different type of gas (for example, propane gas) than the one specifically requested when placing the order, the appliance can only operate with the said new type of gas.



### ATTENTION!

Instructions for appliances running on propane gas  
Make sure that the gas tank has been deaerated prior to installing the appliance.

For a thorough deaeration of the tank contact the liquid gas supplier and in any case authorised staff, in accordance with the law.

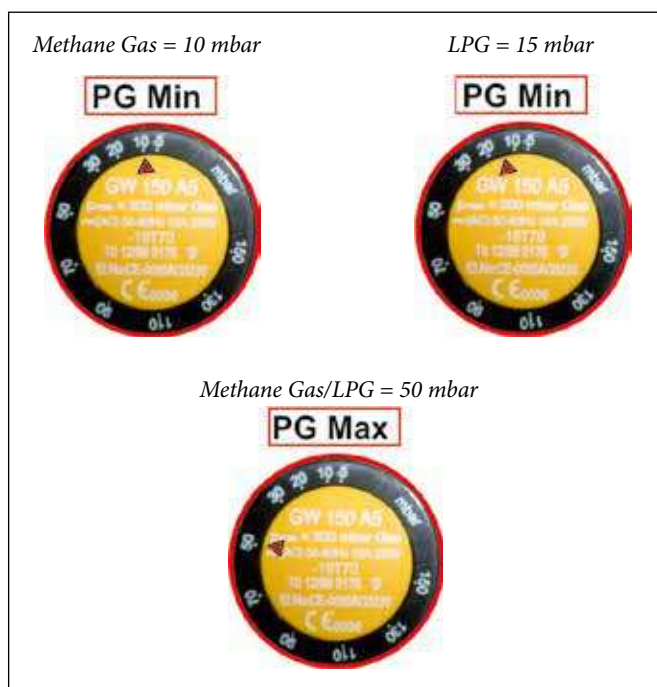
Ignition problems can arise if the tank is not thoroughly deaerated.

In this case contact the liquid gas tank supplier.

### GAS TRANSFORMATION

Adjust the Min / Max GAS pressure switches

only for models: ARES PRO 230 - 300 - 348 - 400 - 500 - 600.



Edit the parameters

FH and FL fan max and min revs.

(\*) for the values, refer to the NOZZLES - PRESSURES - FLOW RATES TABLE

M E T H A N E	Code	Symb.	Description	Value
L P G	526	FU	Fan: Maximum revs	(*)
	346	FL	Fan: Minimum revs	(*)

- Follow the instructions for Burner Adjustment (Chap. regarding METHANE/LPG flue adjusting device).

- Once the transformation is completed, fill in the information provided on the label supplied in the documentation envelope and affix it to the side of the boiler's technical data label.

### EXAMPLE OF COMPILATION

Data - Fecha  
Date - Datum 08, 09, 05

Firma - Signature  
Unterschrift [Signature]

- Regolata per G 20

- Réglée pour G 25

- Adjusted for G 30

- Reglada para G 31

- Eingestellt für

ETI 4530C

### 4.3 PROGRAMMING THE OPERATION PARAMETERS



**ATTENTION!**  
Function reserved exclusively to Authorised Service Centres.



**ATTENTION!**  
This function is explained in chapter 8 (Device management) of the HSCP installation and maintenance manual.

BMM parameters												
Code	Symb.	Description	Unit	Min.	Max.	Factory settings						
						ARES PRO						
						150	230	300	348	400	500	600
803	Srv	Services Enabled		0	1	1						
48	ChSet	CH#1: Setpoint	°C	20	85	80						
784	BC	Local BUS address		0	7	0						
816	MI	ModBus Address		1	127	1						
817	MT	Timeout Modbus	sec.	0	240	30						
896	TU	°Fahrenheit		0	1	0						
799	AC	Input 0/10V		0	2	0						
376	DI1	Programmable Input #1		0	3	0						
322	Po	Pump Post-circulation	min.	1	30	3						
341	PL	Pump Minimum Control	%	0	100	30						
313	Pr	Pump Maximum Control	%	0	100	100						
31	HL	CH#1: Minimum Setpoint	°C	20	85	30						
39	HH	CH#1: Maximum Setpoint	°C	20	85	85						
792	CHP	CH: Max Modulation	%	0	100	100						
619	IG	Ignition Modulation	%	30	80	50	35	45	45	45	40	35 (33)
527	PU	Fan: Pul./Rev		0	3	2	2	3	3	3	3	3
486	FP	Fan: Reg. Prop.		0	50	30	30	25	25	25	25	25
487	FI	Fan: Reg. Int.		0	50	9	9	25	25	25	25	25
489	Fpl	Fan: PWM min.	%	5	15	8						
337	Fr	Modulation gradient	%	1.0	100.0	1.5						
526	FU	Fan: Speed Max.	Hz	50	120	99 (94)	86 (82)	83 (81)	67 (64)	76 (69)	88 (83)	88 (92)
319	FH	Maximum Modulation	%	1.0	100.0	100						
346	FL	Minimum Modulation	%	1.0	100.0	31 (31)	32 (32)	32 (32)	34 (34)	32 (36)	32 (33)	29 (30)
314	Sb	Standby Modulation	%	0	100	0						
620	IP	Postpurge: Fan	%	0	100	65						
617	IGL	Ignition: Mod. Min.	%	0	100	30	30	30	30	30 (36)	30 (34)	30 (29)
618	IGH	Ignition: Mod. Max.	%	0	100	80	80	74	54	54	45	40
353	HP	CH PID: Proportional	°K	0	50	25						
354	HI	CH PID: Integrative		0	50	12						
478	Hd	CH PID: Derivative		0	50	0						
34	HY	Burner Hysteresis	°K	5.0	20.0	5.0						
336	HS	Temperature Gradient	°C/min	0	30	5						
483	rP	Gen: Temp. Max Differential	°C	0.0	50.0	0.0						
380	All	Programmable Sensor #1		0	2	0						

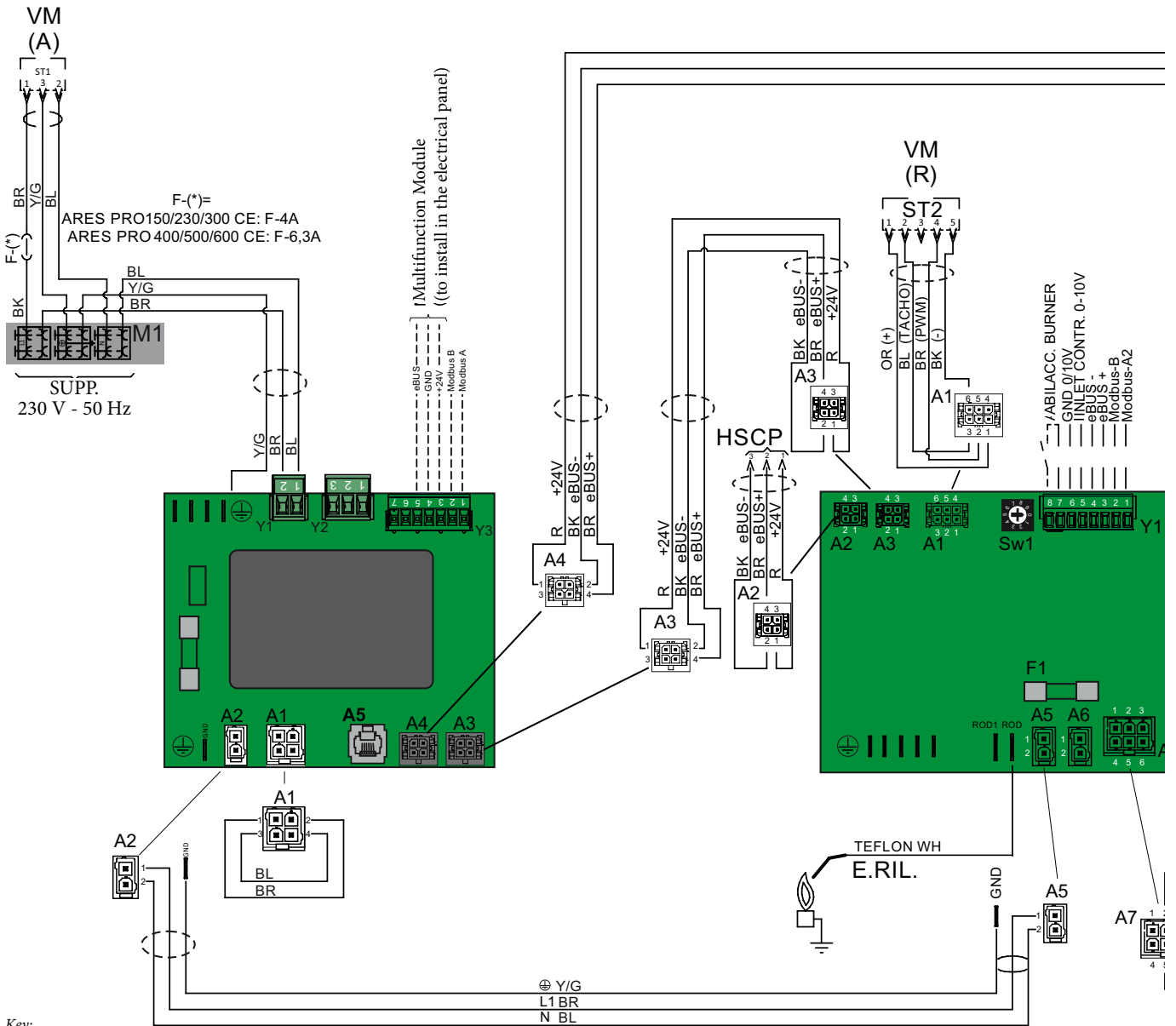
## INSPECTIONS AND MAINTENANCE

777	AFC	APS Control		0	2	0						
805	LV	Mains Voltage	V	100	240	230						
2590		Burner Power	kW	10	1000	150	214	280	348	380	450	550

( ) Values for LPG

BCM Parameters						
Code	Symbol	Description	Unit	Min.	Max.	Sys. Fab.
803	Srv	Services Enabled		16	27	19
483	rP	Gen: Temp. Max Differential	°K	0.0	50.0	0
34	HY	Burner Hysteresis	°K	5.0	20.0	5.0
31	HL	CH#1: Minimum Setpoint	°C	20.0	40.0	35.0
39	HH	CH#1: Maximum Setpoint	°C	45.0	85.0	80.0
799	AC	Input 0/10V		0	3	1
376	DI1	Programmable Input #1		0	2	0
322	Po	Pump Post-circulation	min.	1	10	5
341	PL	Pump Minimum Control	V	0	10	3
313	Pr	Pump Maximum Control	V	0	10	10
792	CHP	CH: Max Modulation	%	0	100	100
611	POT	Gen: Err. Max. Parallel	°K	0	30	5
612	POL	Gen: Mod. Max. Parallel	%	0	100	0
650	dL	DHW: Minimum Setpoint	°C	25.0	45.0	35.0
385	dH	DHW: Maximum Setpoint		50.0	65.0	65.0
360	dt	Storage tank adjustment		0	15	0
656	drT	DHW: Temp. Request Differential	°K	-20	20	4
657	drH	DHW: Request Temp. Hysteresis	°K	1	20	8
310	DpT	DHW Pump: Postcirc.	sec.	5	600	60
660	dbT	DHW: Temp. Boiler Maximum	°C	50.0	85.0	75.0
48	ChSet	CH#1: Setpoint	°C	20.0	85.0	85.0
64	ChPO1	CH#1: Parallel Supply		0	1	0
346	FL	Minimum Modulation	%	0	100.0	25.0
600	mB	Burners: Min. Inserted		1	8	1
616	BSt	Gen: Insertion Time	sec.	30	900	120
613	BRt	Gen: Removal Time	sec.	30	900	120
336	HS	Temperature Gradient	°C/min	1	30	5
353	HP	CH PID: Proportional	°K	0	50	25
354	HI	CH PID: Integrative	°K	0	50	12
478	Hd	CH PID: Derivative	°K	0	50	0
816	MI	ModBus Address		1	127	1
817	MT	Timeout Modbus	sec.	0	240	30
896	TU	°Fahrenheit		0	1	0
309	St	Application Code		0	1	1
368	VA1	Programmable Relay #1		0	1	0
369	VA2	Programmable Relay #2		0	1	1
771	PS	Water Pressure Sensor		0	1	0
768	LG	Min. Gas Pressure Sens.		0	1	1
793	COC	Chimney Obstruction Sens.		0	2	1
622	FS	Minimum Flow Sensor		0	1	3

4.4 WIRING DIAGRAM FOR PRACTICAL CONNECTION

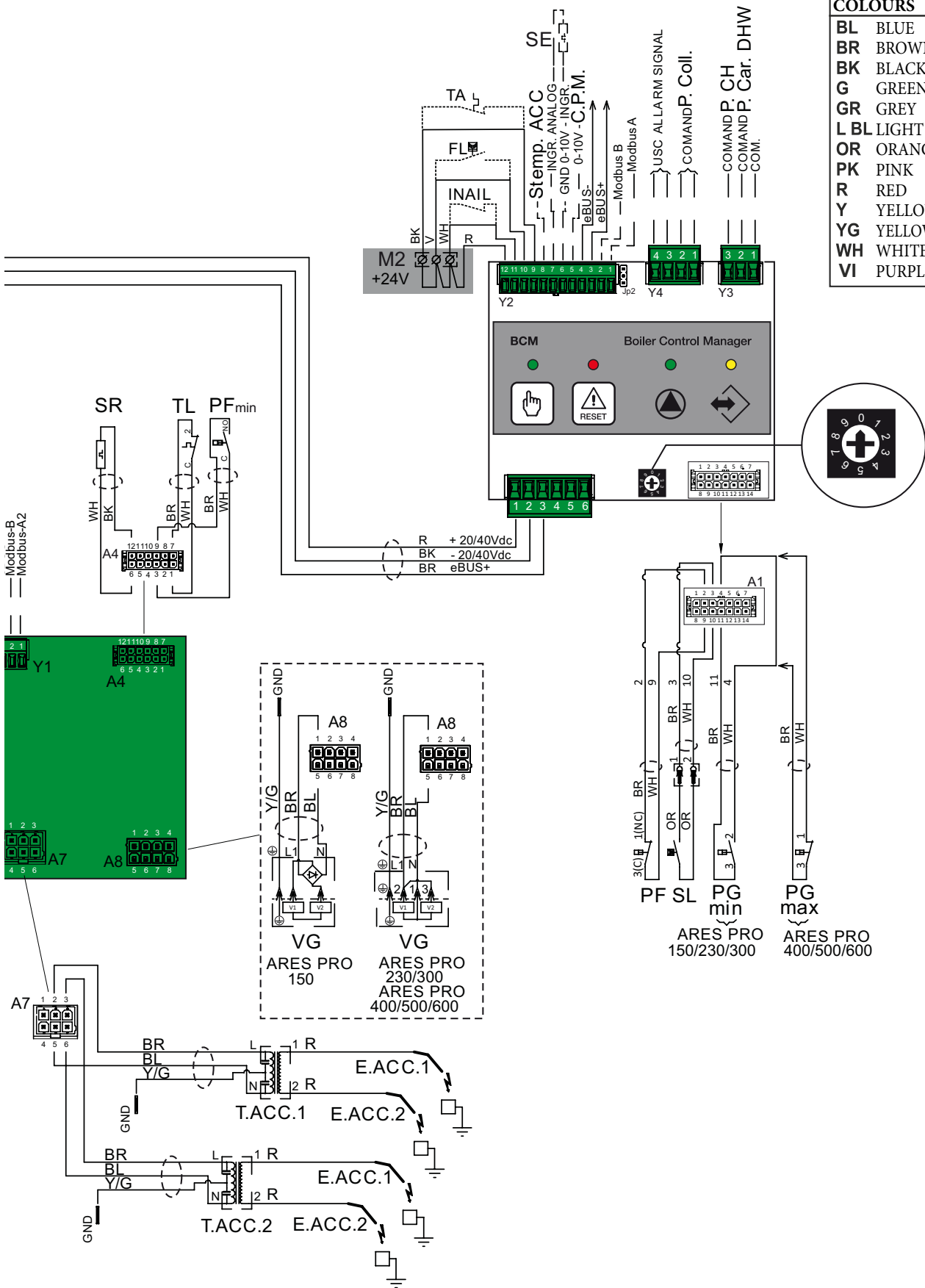


Key:

- |             |                                      |               |                                    |
|-------------|--------------------------------------|---------------|------------------------------------|
| A1.....A9   | - Services connectors                | VM (A)        | - Modulating fan power supply      |
| E. ACC. 1-2 | - Ignition electrode 1-2             | VM (R)        | - Modulating fan adjustment/Det.   |
| E. RIL.     | - Detection electrode                | SE            | - External probe connection clamps |
| HSCP        | - Temperature control                | FL            | - Flow switch                      |
| M1          | - Boiler supply terminal board       | INAIL         | - Safety devices                   |
| SR          | - Central heating temperature sensor | TA            | - Room thermostat                  |
| M2          | - Safety Terminal Board              | S.temp ACC    | - Storage tank temperature sensor  |
| PF          | - Flue pressure switch               | INGR. ANALOG  | - Analogue input                   |
| PF min      | - Minimum flue pressure switch       | GND 0-10V ING | - 0-10 V analogue input            |
| PG min      | - Minimum gas pressure switch        | 0-10V C.P.M.  | - Modulating Pump Control          |
| PG max      | - Maximum gas pressure switch        | ALLARM SIGNAL | - Alarm Outlet                     |
| SL          | - Condensate level sensor            | Comm P. COLL  | - Boiler manifold pump control     |
| T. ACC 1-2  | - Ignition Transformation 1-2        | Comm P. CH    | - Central heating pump control     |
| TL          | - Limit thermostat                   | P. car DHW    | - Storage tank load pump control   |
| VG          | - Gas valve                          |               |                                    |



COLOURS	
BL	BLUE
BR	BROWN
BK	BLACK
G	GREEN
GR	GREY
L BL	LIGHT BLUE
OR	ORANGE
PK	PINK
R	RED
Y	YELLOW
YG	YELLOW / GREEN
WH	WHITE
VI	PURPLE



INGR. ANALOG - Analogue input  
 GND 0-10V ING - 0-10 V analogue input  
 0-10V C.P.M. - Modulating Pump Control  
 ALLARM SIGNAL - Alarm Outlet  
 COM. - Common

Comm P. COLL - Boiler manifold pump control  
 Comm P. CH - Central heating pump control  
 P. car DHW - Storage tank load pump control

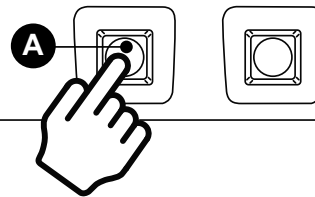
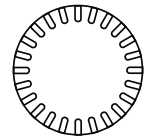
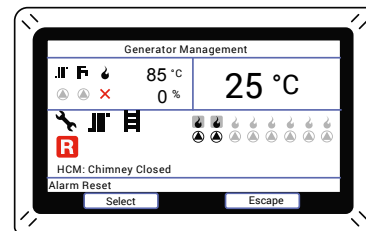
4.5 ERROR CODE



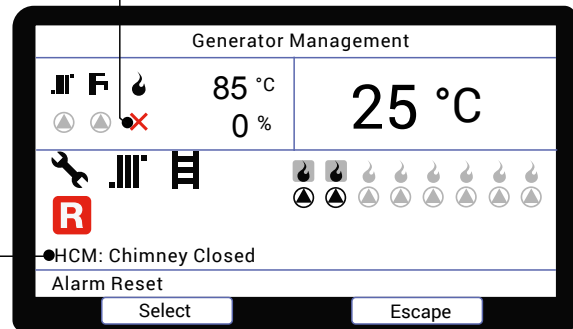
**ATTENTION!**  
Function reserved exclusively to Authorised Service Centres.



**ATTENTION!**  
This function is explained in chapter 9 (Error codes) of the HSCP installation and maintenance manual.



fault indication



error description

When the boiler detects a fault, the alarm symbol is displayed on the screen together with the relative error code and description.

It is possible to reset the boiler by pressing key "A".

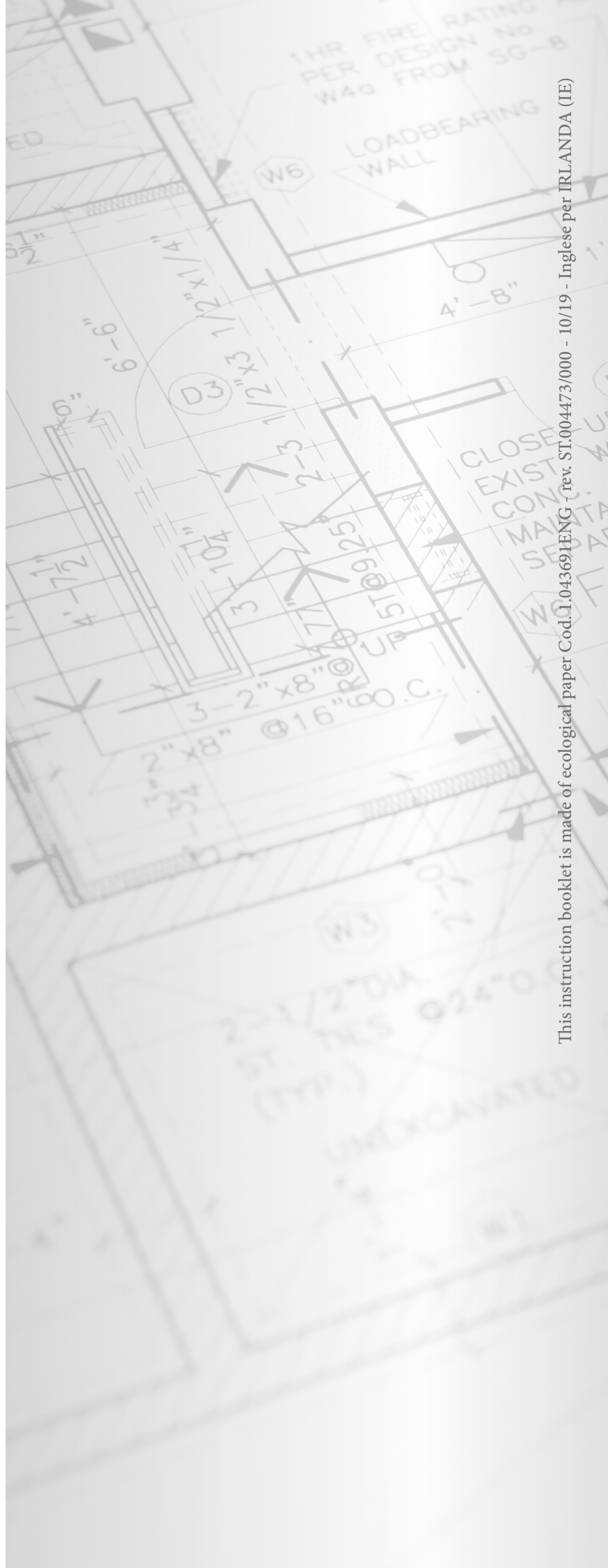




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