



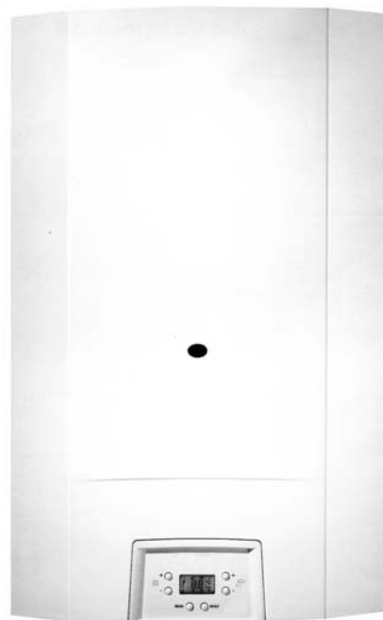
# **WALL HUNG BOILERS**

## **INSTRUCTIONS MANUAL**

To be used for  
INSTALLATION, USE AND MAINTENANCE

## **CONDENSING BOILERS**

**PIXEL 25 FC**  
**PIXEL 31 FC**



### **IMPORTANT**

The first boiler ignition and the warranty have to be carried out by an authorised personnel

LIB0900PING – 24 pages - 1<sup>a</sup> edition - 23/02/2006 -

## GENERAL RULES

This instruction book is an integrant and essential part of our product and it is delivered together with our heater. Read carefully the information about safety, installation and maintenance that are shown in it. The heater installation is to be carried out by qualified personnel according to the present law and the producer instructions.

After having removed the packaging it is better to control the good state of the product. Don't use the heater if you have any doubt about this just call your supplier.

**IMPORTANT:** this heater is aimed to warm water at an inferior temperature than that of the boiling at an atmospheric pressure; it has to be linked to an heating system and/or a hot water distribution net proper to its capacity and power.

This heater has to be used only according to the usage it was planned for. Every kind of other usage has to be considered improper and dangerous. The producer is not to be considered responsible for possible damages caused by this wrong, improper and unreasonable usage.

Cut the heater from its supply net off before doing every kind of service operations.

Don't obstruct heater aspiration or dissipation grills.

Put the heater out of work if there is any damage or malfunctioning. The repairing must be carried out by an authorized service operation centre and it has to use only original spare parts.

In order to grant the highest heater efficiency and for its good functioning it is indispensable to follow the producer instructions.

If you decide not to use the heater any more make all the dangerous parts became harmless.

Don't wet the heater neither with water nor with other liquid substances.

Don't put other items on the surface of the heater.

Before starting every kind of service operation which foresees the burner dismantling or the opening of inspection holes you have to cut off the electrical supply and close gas cocks.

If there are chimney service operations turn the heater off. After having finished the operation you should call your qualified personnel and make the relief duct efficiency control.

Don't clean the heater with inflammable substances.

Don't leave recipients of inflammable substances near the heater.

The electrical safety of the heater is assured only if it is linked to an ground system which is respectful of present laws.

Your qualified personnel must control the efficiency of your net because if there are any problems the producer is not responsible for damages caused by the lacking of a proper ground system.

Control your electrical system capacity which is to be proper to the power required by your heater.

As far as the heater supply is concerned you cannot use adaptators, multiple plugs and extensions.

The use of electrical items implies the careful observation of fundamental rules such as:

1 do not touch the heater with wet hands;

2 do not tear electrical cables;

3 give not allow children or unused persons to use the heater.

All the following instructions that macaws to be take in mind by the technician on the products of the firm ARCA S.r.l.

The ordinary maintenance and the possible reparation of the products must have made by a center assistance authorized from the ARCA S.r.l., exclusively using original spare parts..

### **Use only flue gas ducts and electric accessories and furnished by ARCA S.r.l.**

Do not replace the supply pipe by your own but only by a qualified person.

You have to assure that safety discharge tubes are linked to a relief valve.

Otherwise, there can be an overload of the heater site caused by the valves safety action and therefore the producer is not responsible.

System pipes have not to be used as ground plugs for other systems; not only are they improper to this use but they can cause serious problems to the appliances which are linked to them.

Please control:

1 the good functioning of the gas inlet system;

2 the correct gas capacity is the one required by the heater power;

3 that the type of gas used is that the heater was projected for.

4 that the gas supply pressure is within the required values of the heater.

5 that the gas inlet system is proper and has all the required safety characteristics which are foreseen by law.

If you feel gas odour do not turn electrical switches on just open your windows and close gas cocks.

**Note: due to the high efficiency of these boilers a plume of water vapour will form at the flue terminal during the operation.**

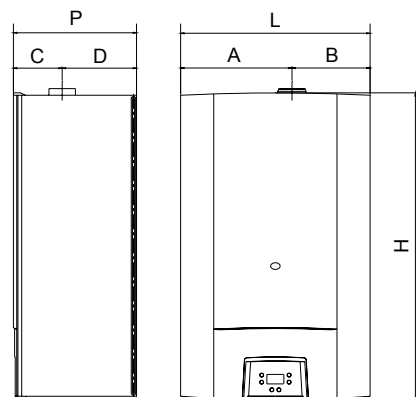
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# 1. TECHNICAL DATA

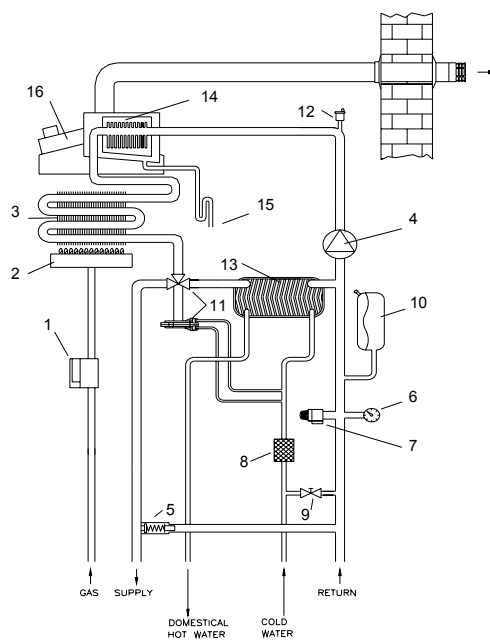
## 1.1 DIMENSIONS

BOILER	L (mm)	H (mm)	P (mm)	A (mm)	B (mm)	C (mm)	D (mm)
PIXEL C	400	720	300	200	200	182	118

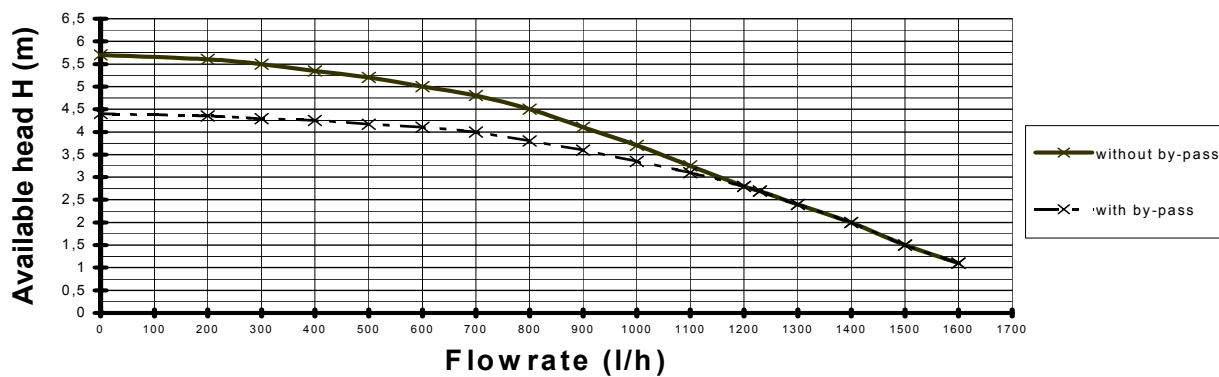


## 1.2 HYDRAULIC SCHEME

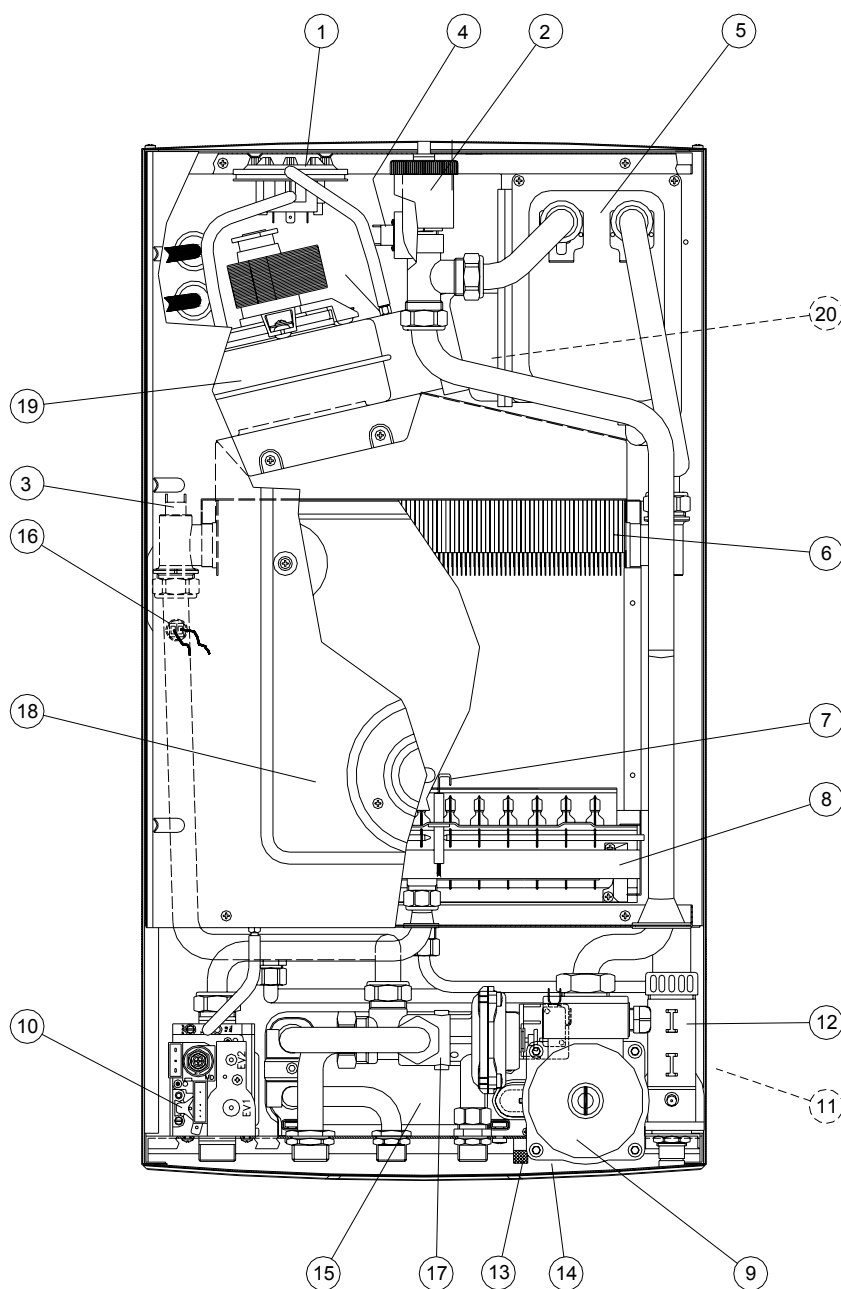
- 1 - gas valve
- 2 - burner
- 3 - primary exchanger
- 4 - circulator
- 5 - bypass supply
- 6 - manometer
- 7 - safety valve (set to 3 bar)
- 8 - filter
- 9 - valve of charging supply
- 10 - vase of expansion
- 11 - valve in three streets flussostatica
- 12 - valve of discharging air
- 13 - sanitary exchanger
- 14 - condensing exchanger
- 15 - condensing trap
- 16 - Fan



## 1.3 AVAILABLE HEAD



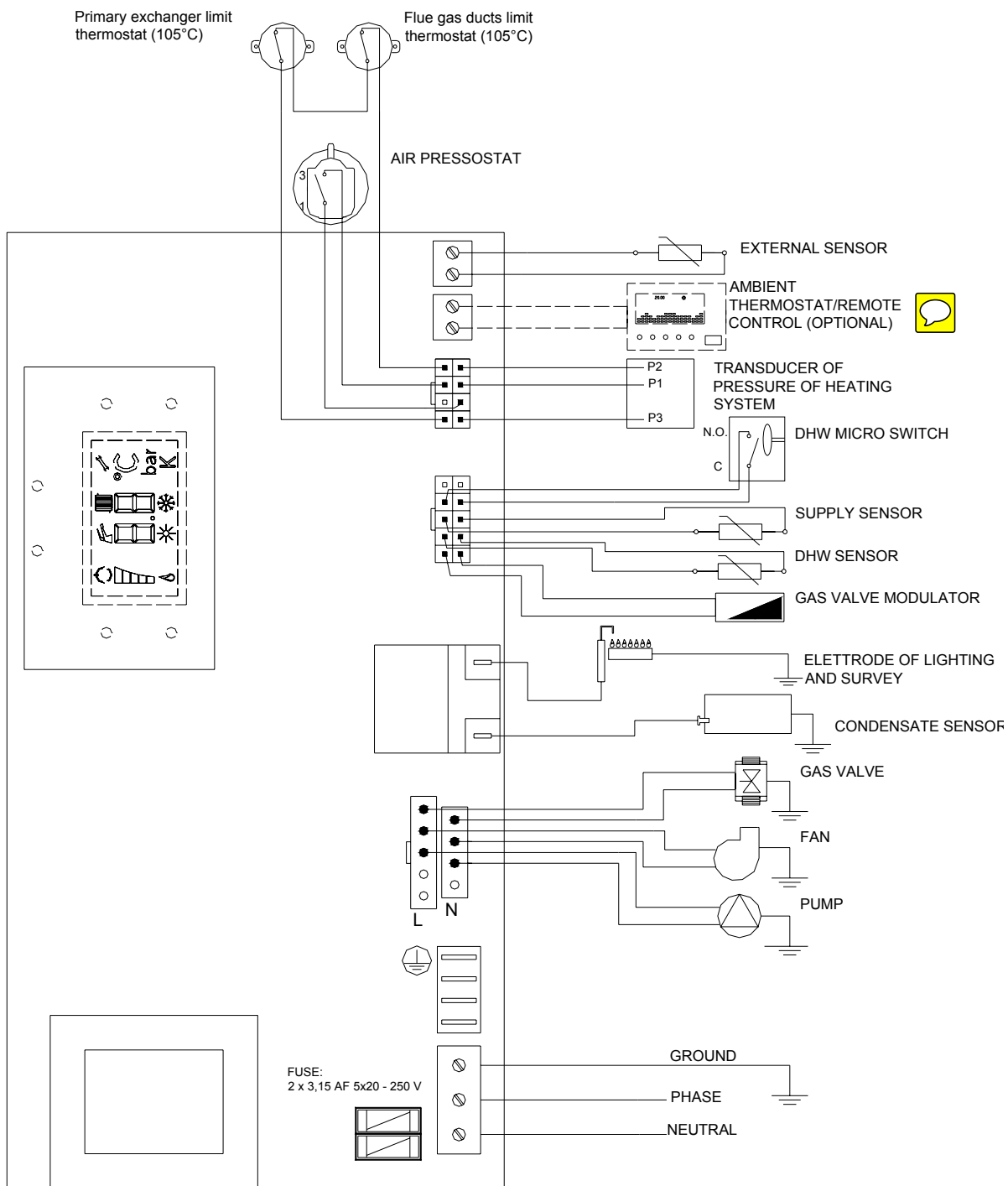
## 1.4 General layout of the main components of models PIXEL 25 FC, PIXEL 31 FC



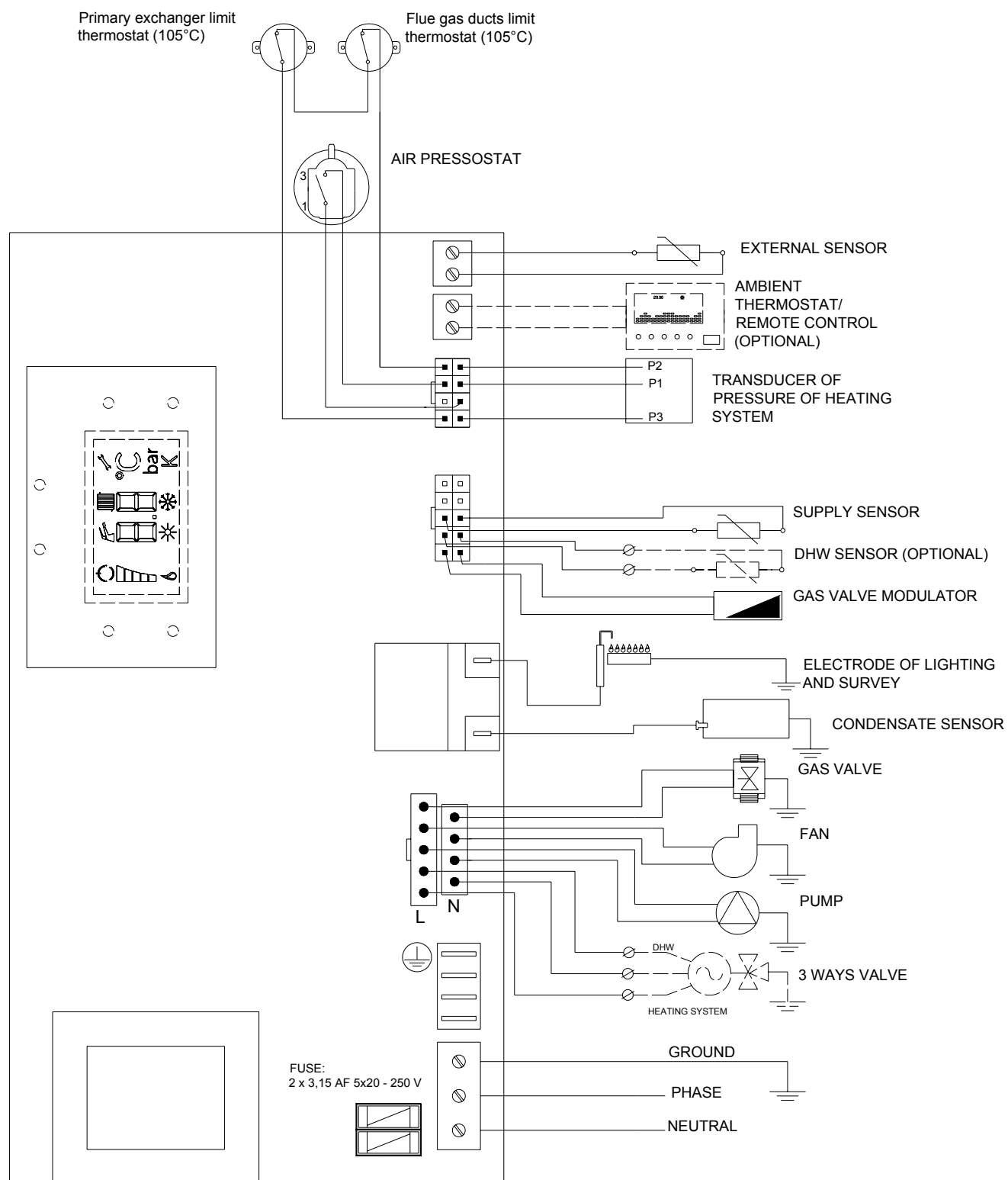
- |  |                                |
|--|--------------------------------|
| 1. Air Pressostat  | 11. Safety valve (3 bar)       |
| 2. Discharge air valve                                     | 12. Condensing trap            |
| 3. Primary exchanger limit thermostat (105°C)              | 13. Supply charge              |
| 4. Flue gas ducts limit thermostat (105°C)                 | 14. Discharge valve            |
| 5. Aluminium condensing exchanger Copper primary exchanger | 15. D.H.W. exchanger           |
| 6. Copper primary exchanger                                | 16. C.H. sensor                |
| 7. Electrode of lighting and survey                        | 17. Hydraulic three ways valve |
| 8. Burner  | 18. Sealed chamber             |
| 9. Circulator  | 19. Fan                        |
| 10. Gas valve  | 20. Condensate sensor          |

1.5 TECHNICAL DATA		Size	PIXEL 25 F C	PIXEL 31 F C
Type			C12-C32-C42-C52	C12-C32-C42-C52
Nominal Heat Input to net calorific value (H <sub>i</sub> ) referred (80 °C /60 °C)		KW	25	31
Minimum Het Input to net calorific value (H <sub>i</sub> ) referred (80 °C /60 °C)		KW	10,5	12,4
Nominal Heat Output (80 °C/60 °C)		KW	24,4	30,2
Nominal Heat Output Condensing (50 °C/30 °C)		KW	26,9	33,3
Minimum Heat Output (80 °C/60 °C)		KW	10,1	11,9
Minimum Heat Output Condensing (50 °C/30 °C)		KW	10,7	12,6
EfficiencyRendimento (80 °C/60 °C)		%	97,6	97,5
Partial Load efficiency (30 % of P <sub>n</sub> )		%	108,7	107,9
Nominal Heat Input (P <sub>n</sub> ) gas flowrate	Natural gas G20 (2E+)	m <sup>3</sup> /h	2,643	3,278
	Natural gas G25 (2ELL)	m <sup>3</sup> /h	3,0745	3,812
	LPG G30 (3+)	kg/h	1,970	2,443
	LPG G31 (3P)	kg/h	1,941	2,406
Net gas pressure	Natural gas G20 (2E+)	mbar	20/25	20/25
	Natural gas G25 (2ELL)	mbar	20	20
	GPL G30 (3+)	mbar	29	29
	LPG G31 (3P)	mbar	37	37
P <sub>n</sub> flue gas temperature (80 °C / 60 °C)		°C	70	74
P <sub>n</sub> flue gas temperature (50 °C / 30 °C)		°C	47	51
CO <sub>2</sub> (G20)		%	8	8
NO <sub>x</sub> (according par 6.2.2 of EN 483)		mg/KWh	190 (classe 2)	190 (classe 2)
Losses of heat to the chimney with burner ignited		%	2,8	3,0
Losses of heat to the chimney with burner not ignited		%	0,2	0,1
Losses of heat to the cover (ΔT = 50 °C)		%	0,5	0,5
Flue gas flow rate		Nm <sup>3</sup> /h	42,09	53,03
<b>CENTRAL HEATING</b>				
C.H. Minimum Set point		°C	35	35
C.H. Maximum Set point		°C	90	90
Volume of water in the boiler		l	1,2	1,2
Volume of water of the expansion vessel		l	7,5	7,5
Pressure of the expansion vessel		bar	0,7	0,7
Least pressure in the primary circuit		bar	0,4	0,4
Maximum pressure in the primary circuit		bar	3	3
Maximum content of heating water		l	150	150
Available head at 1000 l/h of flow rate		mbar	230	330
<b>DOMESTICAL HOT WATER</b>				
Minimum set point		°C	30	30
Maximum set point		°C	60	60
Production continuous warm water (T = 25 °C)		l/min	14	17,3
Production continuous warm water (T = 35 °C)		l/min	10	12,4
Water Volume(T = 30 °C during the first 10 minutes)		l	116,6	144,3
Minimum flow		l/min	2,5	2,5
Maximum pressure		bar	8	8
Minimum pressure		bar	0,5	0,5
Voltage		l	----	----
Frequency		V/Hz	230/50	230/50
Absorbed eletric power		W	150	150
<b>CONNECTION</b>				
Flow connection C.H.		Inch	3/4"	3/4"
Flow connection D.H.W.		Inch	1/2"	1/2"
Gas connection		Inch	3/4"	3/4"
Height		mm	720	720
Depth		mm	300	300
Width		mm	400	400
<b>LENGHT OF FLUE GAS DUCTS</b>				
Ø 60 x 100 mm coaxial		m	4	4
Ø 80 mm doubled		m	30	30
Ø 60 mm doubled		m	----	----
Weight		Kg	43	43
Degree of protection		IP	X4D	X4D
CE certification			0068 ★★★★★	0068 ★★★★★

## 1.6 PIXEL FC: ELECTRICAL SCHEME



## 1.6 PIXEL FCR: ELECTRICAL SCHEME





## 2 INSTALLATION INSTRUCTIONS

### 2.1 DIFFERENT VENTING OPTIONS: PIXEL 25 FC, PIXEL 31 FC

Sealed chamber heaters do not require particular characteristics as for siting and installation are concerned. Take particular attention to discharge and aspiration unions in order to avoid combustion product leakage. Use only original spare parts.

The boiler has to be connected to flue gas ducts coaxial or doubled that must discharge to the outside. Without them the boiler must not be do to work.

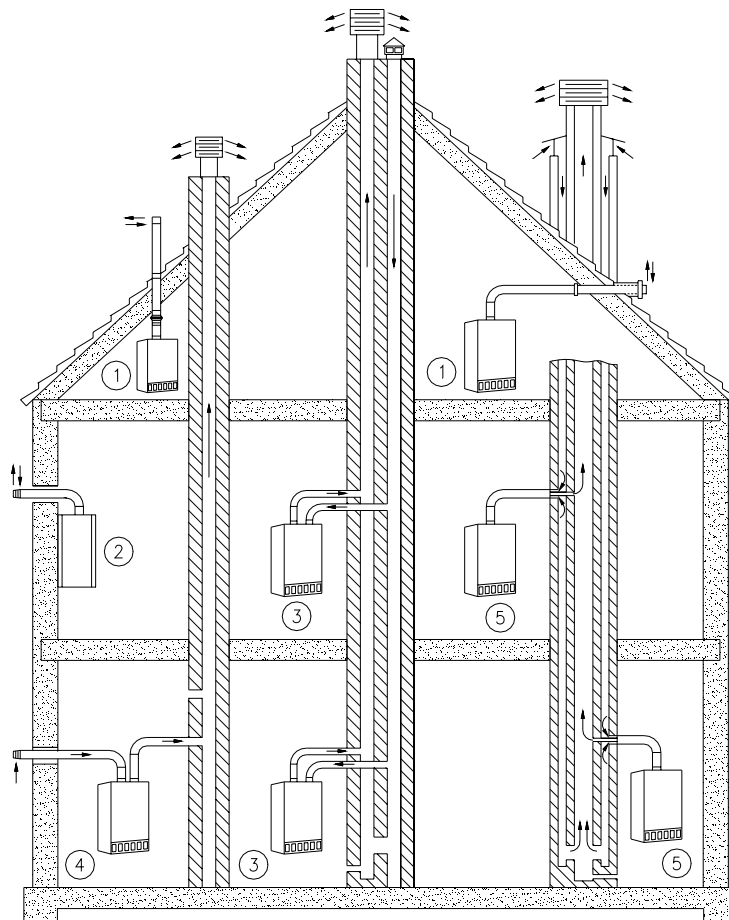
**For condensing ARCA boilers you must use only original accessories.**

**ARCA have also a polipropilene version of flue gas ducts with resistance to the temperature of 120°C in continuous regime**

**ARCA have not responsibility for every violation to the recommendations that are in this book and particularly those related to the unloadings smoke.**

#### 2.1.1 Different venting options - Flue Venting

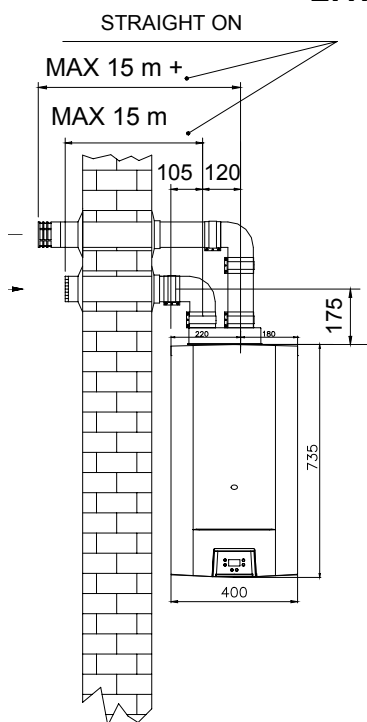
1. Coaxial vent through the roof
2. Coaxial through the wall
3. Split type venting between two chimney
4. Split type, discharge into a chimney, fresh air from outdoor wall
5. Coaxial, connection with coaxial chimney



**CAUTION!** - Follow local regulations concerning draught terminals location from windows and doors.

**Note:** due to the high efficiency of these boilers a plume of water vapour will form at the flue terminal during the operation.

## 2.1.2 LENGTH OF FLUE GAS DUCT: PIXEL 25 FC



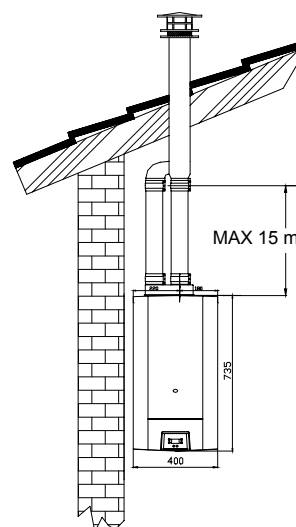
### 2.1.2.1 SPLIT FLUE Ø 80 mm

N.B.: The flue and aspiration duct length has not to exceed 30 m.

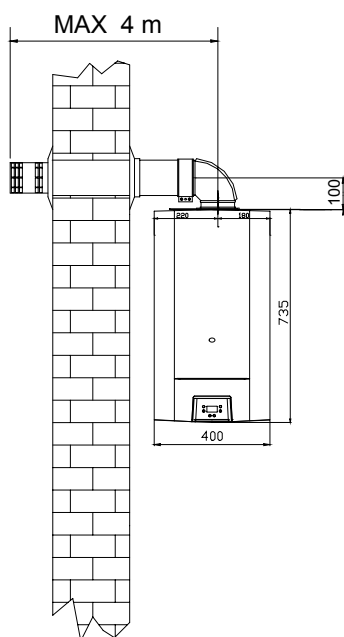
By 0 to 2 m you must put a Ø 42 mm diaphragme in the outlet of the fan.

For every added 90° elbow the maximum allowable length is to be diminished by 2 m.

The pipes of aspiration and unloading must be climbed on upward with inclination of 3° so that the condensing product flows into the boiler rather than to the outside.



### 2.1.2.2 COAXIAL FLUE Ø 60 x 100 mm

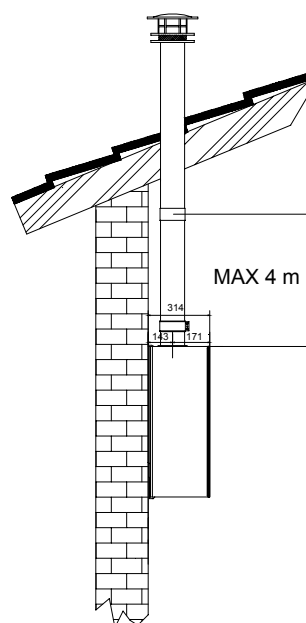


N.B.: The allowed length of coaxial flue ducts is by a minimum 0,5 meters to a maximum of 4 meters.

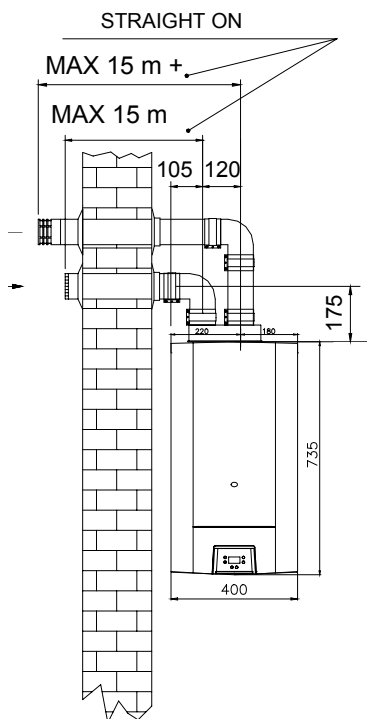
By 0 to 1 you must put a Ø 42 mm diaphragme in the outlet of the fan.

The ducts must be climbed on with light inclination toward the outside.

The pipes of aspiration and unloading must be climbed on upward with inclination of 3° so that the condensing product flows into the boiler rather than to the outside.



## 2.1.3 LENGTH OF FLUE GAS DUCT: PIXEL 31 FC



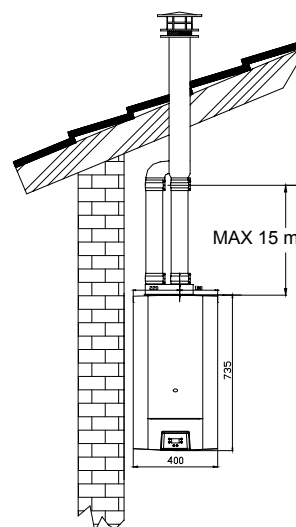
### 2.1.3.1 SPLIT FLUE Ø 80 mm

N.B.: The flue and aspiration duct length has not to exceed 30 m.

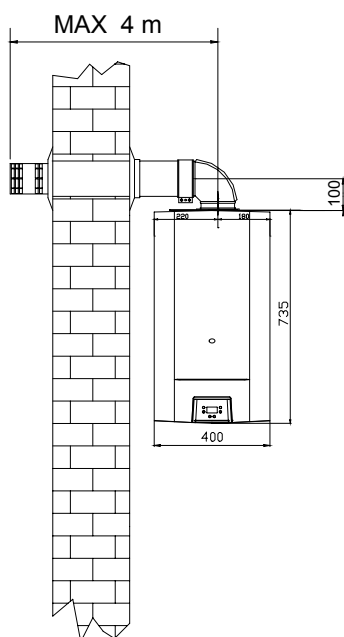
By 0 to 2 m you must put a Ø 42 mm diaphragme in the outlet of the fan.

For every added 90° elbow the maximum allowable length is to be diminished by 2 m.

The pipes of aspiration and unloading must be climbed on upward with inclination of 3° so that the condensing product flows into the boiler rather than to the outside.



### 2.1.3.2 COAXIAL FLUE Ø 60 x 100 mm

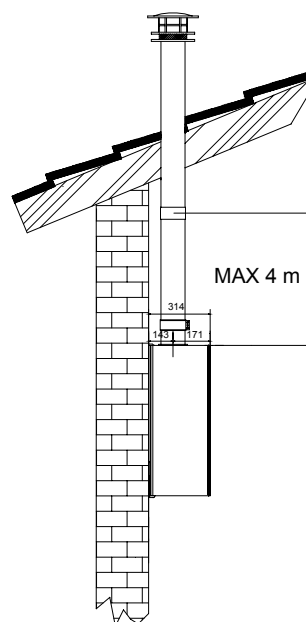


N.B.: The allowed length of coaxial flue ducts is by a minimum 0,5 meters to a maximum of 4 meters.

By 0 to 2 m you must put a Ø 42 mm diaphragme in the outlet of the fan.

The ducts must be climbed on with light inclination toward the outside.

The pipes of aspiration and unloading must be climbed on upward with inclination of 3° so that the condensing product flows into the boiler rather than to the outside.

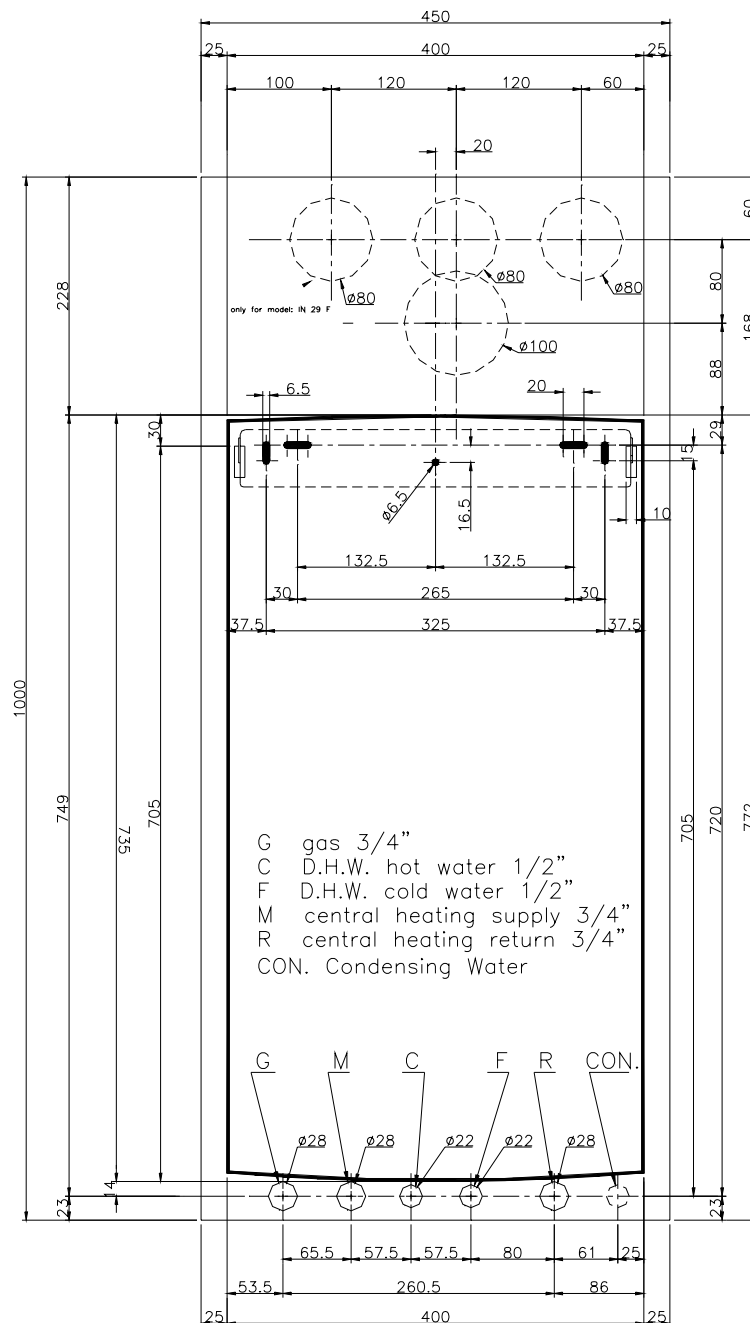


## 2.2 BOILER PLACING

Follow these instructions:

- having considered the boiler dimensions, fix the dimension plate by means of two hook screws;
- make two holes on the dimension plate holes by means of two hook screws;
- fix all terminal pipes such as cold and hot water pipes, system inlet and return pipes, gas pipes and electrical cables into their proper holes on the dimension plate inferior part;
- after this it is possible to take away the dimension plate and use it other times;
- hang the boiler through the previously set expansion hooks;
- for the hydraulic connections screw iron-copper joints together with previously set connections. Cut forwarded pipes according to the distance between boiler joints and iron-copper connections that are placed on the wall;
- tighten them firmly and control there are no losses.

*N.B.: please, remember of taking lead plastic coverings away*



## 2.3 HYDRAULIC CONNECTIONS

### Domestic water

Supply net pressure is to vary from 1 to 6 bar. Install a reduction in case of higher pressure. Supply water strenght influences the cleaning frequency of the exchange serpentine pipe. The possibility of installing water treatment adequate appliances depends on water characteristics.

### System loading

Slowly open the loading cock up to reaching about 1 bar system pressure, which can be controlled through the pressure gauge situated on the facial panel. Close the evacuation cock again.

Make the radiator air bleed using the proper manual valves.

When the system is cold set the system temperature at 1 bar.

In case of installation of the boiler in local where the temperature environment can go down below 0°C, we recommends you to fill the heating system with antifreeze solution.

You advises to use solutions of glicole already diluted for avoiding the risk of uncontrolled dilutions.

ETHILIC GLYCOLE (%)	FREEZING TEMPERATURE (°C)
6	0,00
10	-3,90
15	-6,10
20	-8,90
25	-11,70
30	-15,60
40	-23,40
50	-35,50

### Suggestions and advice to avoid system vibrations and noises.

- avoid the use of pipes with reduced diametres;
  - avoid the use of bends with reduced radius;
  - it is better to have a hot system cleaning in order to eliminate all the impurities coming from pipes and radiators - particularly oil and fat substances - which might damage the circulating pump.
- e dai radiatori (in particolare oli e grassi) che rischierebbero di danneggiare il circolatore.

## 2.4 ELECTRIC CONNECTIONS

The boiler is set to work with a 230V / 50Hz single-phase tension. Connections have to be effectuated by means of proper cables which come out of the boiler.

There is also an external cable for the ambient thermostat. Connect the thermostat after having eliminated the jumper on the T.A cable terminal.. ( ATTENTION: *the T.A. connection works by net tension; therefore, you should use plastic models or if they are made by metal you shuold connect them to an efficient earth system*).

The boiler connection has to be protected by means of a 2 pole isolator and a proper fuse (1A).

The appliance has to be connected to an efficient earth system.

Follow present local regulations about safety.

N.B.: respect the phase and neutral position: an eventual inversion of these two positions results in a block of the ignition panel.

N.B.: ARCA srl declines every kind of responsibility for damages to persons, animals or things caused by the lack of a proper earth system connection and local regulation attention.

## 2.5 GAS CONNECTION

Effect it I lace respecting the norms of the country meticulously.

Making sure that the pipeline of the gas has an adequate in operation section of his length.

Before effect the connection check that the characteristics of the distributed gas are equal you to those bring on the dataplate of the boilerif these differs is necessary new regulations.

Insert a faucet of interception between the net of feeding of the gas and the boiler.

Open doors and windows and avoid the presence of free flames.

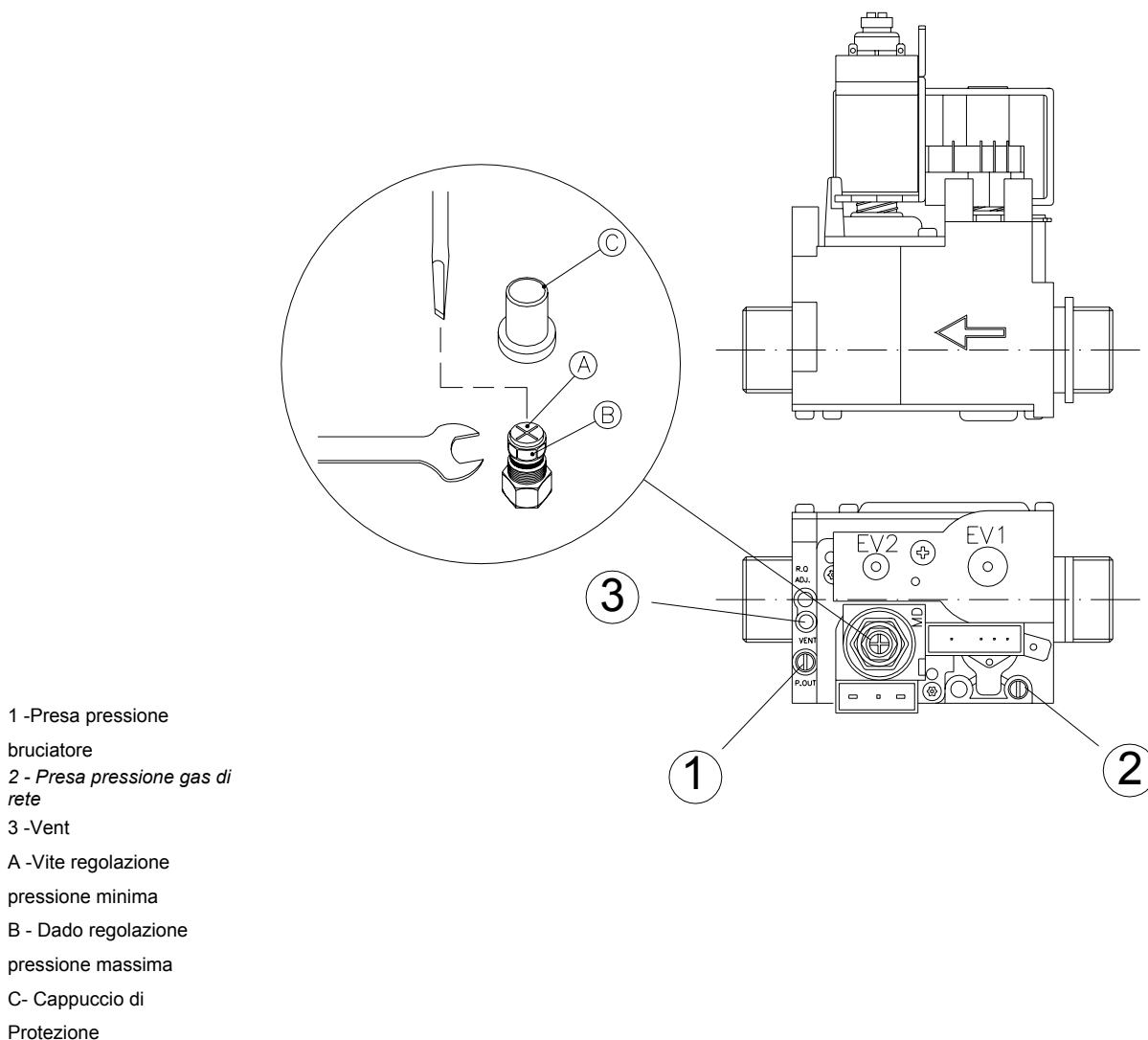
Clean the air contained in the plant tuba-uncle-ni-apparatus.

With the out boiler check that they there are not escapes of gas.

In these conditions observe the gas meter counter for at least 10 minutes for verify that it doesn't signal any pas-wise of gas.

Verify, in each case, all the line of gas with a solution or equivalent product.

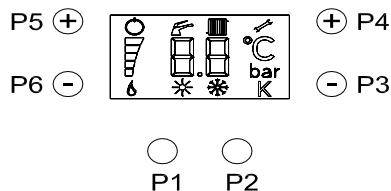
**CAUTION!:** For running with LPG is necessary the installation of a reduction gear of pressure awry of the boiler.



To perform the control of the pressures to the burner, to insert the probes of the manometer in the available takings of pressure on the valve gas (you see fig.).

**N.B. check that the pressure and the course of the gas of net are enough to guarantee the correct operation of the instrument to perform the measure to power on burner.**

## 2.7 SETTING OF CONTROL PANEL



You can set 4 ways of operation:

### a) Normal mode:

Mode of functioning of the boiler, temperature of supply, level of gas modulation and presence of flame are visualised. Possible anomalies are visualized as besides from coding at page 21.

### b) Mode of visualization of boiler parameters:

It is activated by pushing P1+P2 for 6s. You can visualize in order:

#### Heating set

- supply temperature

#### Domestical hot water set

- domestical hot water temperature
- water supply pressure
- heat of ignition
- nominal heat output

### c) Mode of parameters setting:

It is activated by pushing P1+P2 for 9s. You visualise alternatively the number of the parameter Px and the current value. Pushing the keys P3 and P4 is possible to see in sequence the modifiable parameters, otherwise with the keys P5 and P6 it is possible to modify its value.

Pressing P3+P4 you can go out of the function without memorizing the changes.

Pressing P2 for 5s you go out the menu and you memorize the changes.

The available parameters are:

- P1 Power of ignition (by 0 % to 99 % of maximum value of range of regulation)
- P2 Power of heating (by 0 % to 99 % of maximum value of range of regulation)
- P3 Heating anti cycling timer (by 0 % to 99 % of 6 minutes)
- P4 oF = post-ventilation of fan off / on = post ventilation of fan on
- P5 Off = metano / on = GPL
- P6 oF = water's lack: boiler stops / on = water's lack: boiler doesn't stop, but you have to call to call service assistance.
- P7 Minimum heating input (0 ÷ 100 %)
- P8 oF = external sensor off / on = external sensor on
- P9 K OTC (0 ÷ 6)
- Pa type of boiler (0 = domestical hot water and heating system boiler **without tank** and with **2 sensor**/ 1 = domestical hot water and heating system boiler **with tank** and with **2 sensor** or only heating system boiler with tank/ 2 = domestical hot water and heating system boiler **without tank** or only heating system boiler **without tank** and with **1 sensor**)
- Pb type oh DHW exchanger (oF = with plates /on = with little tank)
- Pc minimum of heating supply temperature. (+15 ÷ +50) °C
- Pd temperature of primary circuit of tank (0: temperature of primary circuit = DHW set point +20°C /1: temperature of primary circuit = 80°C)

### d) Mode of visualisation of historical failure.

It is activated by pushing P1+P2 for 12s. You visualize alternatively the number of index failure(look at page 21).

By pushing P3+P4 you go out of the function.

By pushing P2 for 5s you can delete the historical of failure.

### PRESETTING OF PARAMETERS

I parametri sopraelencati sono pre impostati come segue:

Power of ignition	P1	RANGE	SUGGESTED VALUE
Heating power	P2	0 ÷ 100	30
Anti cycling timer	P3	0 ÷ 100	60
Post ventilation	P4	0 ÷ 10	7
Natural gas/LPG	P5	On/Of	On
Water's trouble	P6	On=metano/Of=GPL	On=metano/Of=GPL
Minimum heating power	P7	On/Of	Of
External probe	P8	0 ÷ 100	10
K OTC	P9	On/Of	Of
Type of boiler	Pa	0 ÷ 6	3
Type of DHW exchanger	Pb	0/1/2	2
Minimum heating temperature	Pc	On/Of	Of
Temperature of of primary circuit of tank	Pd	+15 ÷ +50	35
		0/1	0

To increase the cyclic efficiency we suggest to set P3 (anti cycling timer) with values near to 10 and to set P7 with values between 10 to 20.

## 2.7. ADJUSTMENT INSTRUCTIONS: NOMINAL HEAT AND MINIMUM HEAT

The boilers are set you set in our factory and they are predisposed for working with the type of gas of the data plate.

Check the values of pressure min/max however in how much not all the nets distribute the pressure nominal gas, value on which the instrument has been regulated in factory.

Check and eventually correct the thresholds of setting to proceed in the following way.

- Insert a manometer for gas on the taking of pressure" 1";
- Turn on the boiler withdrawing the maximum course of sanitary water;
- Make sure that the spool of modulation is fed.

### 2.7.1 NOMINAL HEAT ADJUSTMENT

1. Turn on the boiler withdrawing the maximum flow of domestical water;
2. Make sure yourself that the spool of modulation is fed;
3. Remove the hood of protection" C";
4. Adjust the maximum pressure acting on the die" B" with the aid of a key from 10 mms; rotating clockwise the pressure increases, rotating counterclockwise in sense the pressure decreases;

### 2.7.2 MINIMUM HEAT ADJUSTMENT

1. Set the boiler on "Winter" position (see at page 21);
2. Close the contact of ambient thermostat if you have it;
3. Set heating regulation at maximum;
4. Set heating power at maximum (see at page 21).
5. Rotate the red die" Á." up to the attainment of the suitable least pressure on the book (clockwise it increases, in sense counterclockwise it decreases);
6. Put again the hood of protection" C."
7. For the values of regulation of the heating power of the boiler see at page 18
8. Withdraw the maximum flow of sanitary water to verify the pressure of the maximum heat.

**Remember to always close the takings of pressure after the use and to verify its correct estate**

## 2.8 SLOW IGNITION AND NOMINAL HEAT ADJUSTMENT

### 2.8.1 SLOW IGNITION ADJUSTMENT

The boiler is delivered already set to the following values:

MET = 30 mm H<sub>2</sub>O

LPG = 80 mm H<sub>2</sub>O

Follow these instructions if you have to change these values:

- open the domestic water to its maximal level and turn the boiler off;
  - turn the boiler on;
  - check the pressure of the gas to the burner during the cycle of ignition (the pressure of slow ignition is actually maintained to the revelation of the flame).
  - push for 6 sec P1 and P2 and see c) "Mode of parameters setting" (look at page 18)
- Set P2 as you need.

- To reset the value of slow ignition you need to turn off the boiler, to again act on the parameters and to remake ignition verifying the attainment value of desired pressure.

ATTENTION: the slow ignition time for its adjustment is 5 seconds after which the nozzle pressure will increase or decrease according to the energetical need. If a further change is needed repeate this operation by turning the boiler on and off.

### 2.8.2 NOMINAL HEAT ADJUSTMENT

The greatest heating power has to be adjusted according to system needs.

Gas pressure values are shown at page 18 in the table "INJECTORS PRESSURE TABLE".

For the adjustment of the burner gas pressure follow these indications:

- Set the boiler on "Winter" position;
- create a jumper on the ambient thermostat in order to start the boiler;
- push for 6 sec P1 and P2 and see c) "Mode of parameters setting" (look at page 15)

Set P1 as you need.

N.B.: wait about 10 seconds to allow the pressure stabilisation after the slow ignition.

## 2.9 DIFFERENT GASES

This is a LPG or natural gas boiler as well. The transformation from one gas type to the other one has to be carried out as follows:

*Transformation from methane to LPG gas*

- replace burner injectors
- change the JP1 jumper position and set it to "LPG" position (see the electrical scheme);
- adjust MIN/MAX pressure levels keeping in mind the above shown instructions;
- as far as the injectors diametres and the burner gas pressure are concerned, see the above table;



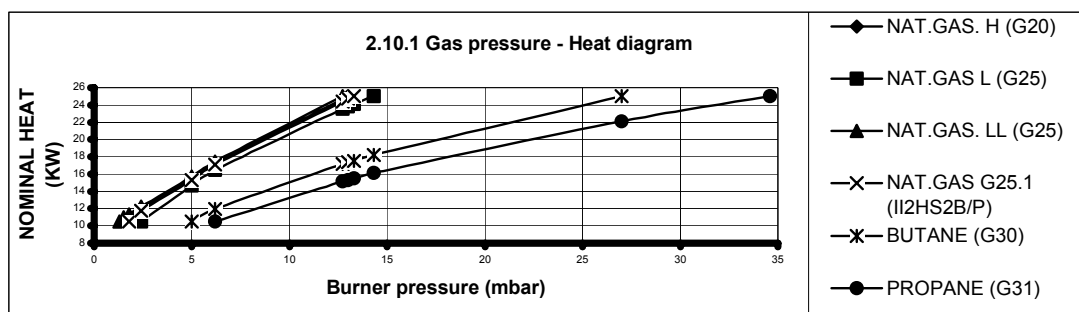
- after this seal the valve regulator by means of a coat drop.

*Transformation from LPG to methane*

- replace burner injectors;
- change the JP1 jumper position and set it to "METHANE" position (see the electrical scheme);
- adjust MIN/MAX pressure levels keeping in mind the above shown instructions;
- as far as the injector diameters and the burner gas pressure are concerned, see the above table;
- after this seal the valve regulator by means of a coat drop.

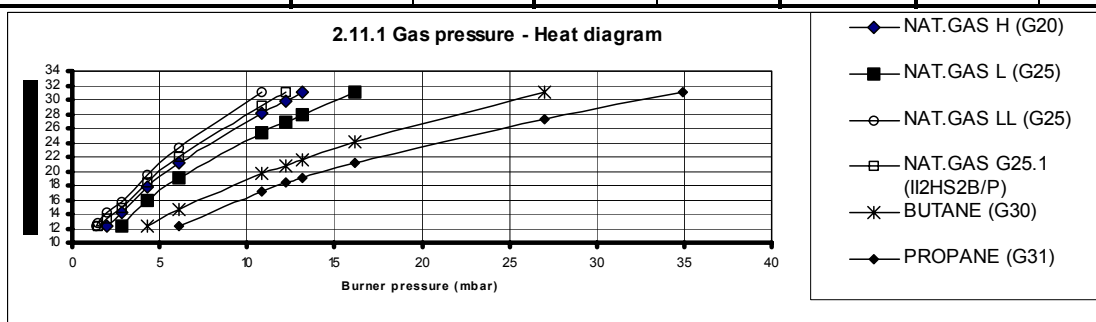
## 2.10 INJECTORS PRESSURE TABLE: PIXEL 25 F C

TYPE OF GAS	P.C.I	Inlet pressure	Injectors diameters		Gas diaph.	Burner pressure	
			Quantity	Ø		Min. Heat = 10,5 KW	Qnom. = 25 KW
	MJ/m3	mbar	n°	mm	mm	mbar	mbar
NAT.GAS G20 (2H+)	34,02	20	13	1,20	5,5	1,5	11,3
NAT.GAS G25 (2H+)	29,25	25	13	1,20	5,5	2,4	14,3
NAT.GAS G25 (2LL)	29,25	20	13	1,30	-----	1,3	12,7
NAT.GAS G25.1 (2HS3B/P)	29,21	25	13	1,30	-----	1,8	13,3
BUTANE G30	116,09	28/30	13	0,72	-----	5	27
PROPANE G31	88	37	13	0,72	-----	6,2	34,6



## 2.11 INJECTORS PRESSURE TABLE: PIXEL 31 F C

TYPE OF GAS	P.C.I	Inlet pressure	Injectors diameters		Diafr. Gas*	Gas diaph.	
			Quantity	Ø		Min. Heat = 12,4 KW	Qnom. = 31 KW
	MJ/m3	mbar	n°	mm	mm	mbar	mbar
NAT.GAS G20 (2H+)	34,02	20	13	1,30	6,5	2	13,2
NAT.GAS G25 (2H+)	29,25	25	13	1,30	6,5	2,8	16,2
NAT.GAS G25 (2LL)	29,25	20	13	1,45	-----	1,4	10,8
NAT.GAS G25.1 (2HS3B/P)	29,21	25	13	1,45	-----	1,5	12,2
BUTANE G30	116,09	28/30	13	0,8	-----	4,3	27
PROPANE G31	88	37	13	0,8	-----	6,1	34,9



\* Only for France and Belgium

## 3. MAINTENANCE INSTRUCTIONS

### 3.1 INTRODUCTION

All the maintenance and gas transformation operations have to be carried out by **qualified personnel**.

Moreover, MAINTENANCE operations have to be made at least once a year and according to local regulations.

Before winter it is necessary to make the boiler be controlled by authorised personnel to have an always working system.

Control:

- verify the exchanger cleaning;
- verify the burner cleaning;
- verify the hydraulic system pressure;
- verify the expansion vessel heating system efficiency;
- verify the correct functioning of adjustment and safety thermostats;
- verify the cleaning and integrity of sensor and ignition electrodes;
- control the good circulator running;
- control there are no spills (water, gas smoke evacuation);
- control the gas burner pressure;
- control the combustion output;
- control the emission levels of CO, CO<sub>2</sub> and NO<sub>x</sub>;
- in case of a boiler spare part replacement you should use only original spare parts by ARCA.

Arca refuses every kind of responsibility about every damage caused by the installation of a non original spare part.

ATTENTION: this boiler has a safety thermostat linked to the chimney draught which starts to work when there is a combustion product coming back in the ambient. This appliance has never to be placed out of work. If combustion products come back in the ambient, they can cause severe intoxications with even death risks.

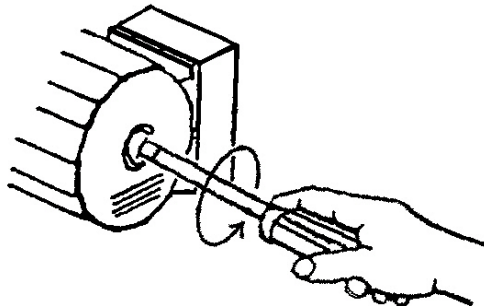
ATTENTION: after any boiler service regarding the gas pipe system it is absolutely necessary to control that unions are perfectly running and there are no gas spills.

### 3.2 CIRCULATION DEBLOCKING

When the boiler is new or after a long standstill period you may have a circulator block.

You can comply with this problem as follows:

- unscrew and remove the circulator cap;
  - insert the screwdriver and turn it to deblock the circulator;
- replace the cap.



## 4. USER'S INSTRUCTIONS

### 4.1 CONTROL PANEL

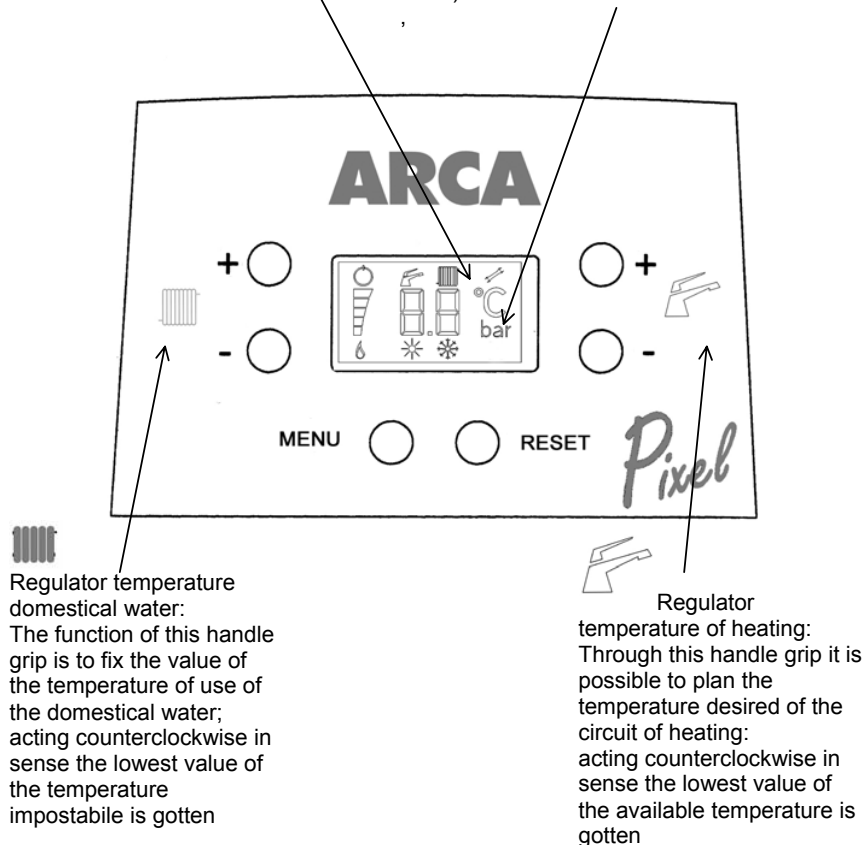
#### Thermometer:

Through the thermometer it is possible to verify the temperature of run of the circuit of heating, previously planned through the relative regulator.

#### Manometer:

It visualizes the pressure of the heating water; the value of such pressure doesn't have to be inferior to 0,8. 1 bar (cooled down circuit). If the pressure had to be inferior to 0,8. 1 bar (cooled down circuit).

it is necessary to handle the restoration of the correct value acting on the charge valve. This operation must be performed by the user.



#### Summer

With the changer in position Summer the boiler is predisposed to run for the only production of domestic water.



#### Winter

With the changer in position Winter the boiler is predisposed to run both for the heating that for the production of domestic water.

#### Reset

Bring the selector in position of Rearmament to reactivate the operation of the boiler after the intervention of the device of block of the burner.

### 4.2 IGNITION

Open the manual gas supply line cock, located outside of the boiler. Push to the SUMMER or WINTER position: the boiler should ignite automatically. If the boiler does not ignite you will see a failure in the display.

### 4.3 SUMMER MODE

For domestic hot water only.

Push MENU to SUMMER position. Set the domestic water temperature adjustment to the desired setting. The domestic hot water production is activated.

### 4.4 WINTER MODE

For heating mode and domestic hot water mode.

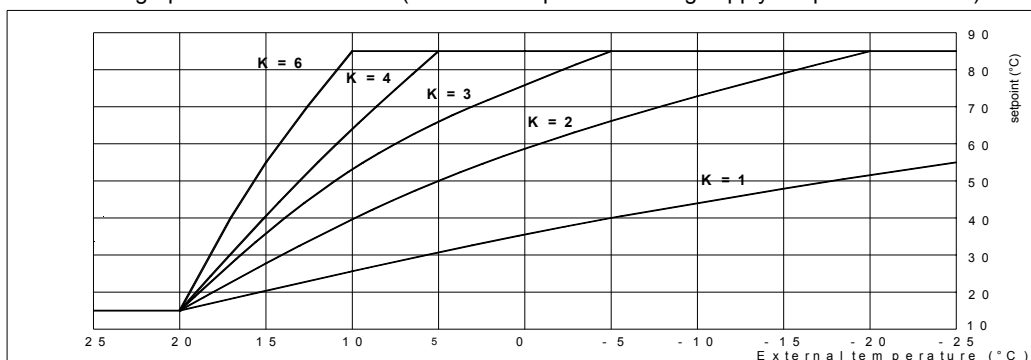
Push MENU to WINTER position. Set the heating temperature adjustment to the desired setting. Room thermostat will keep the desired value.

#### 4.4.1 WINTER MODE with OTC (Outside Temperature Control)

It's activated through the connection of the probe of external temperature and the setting of the parameter (mode of parameter setting).

The operation is the same of heating mode, with the difference that supply heating temperature is calculated in combination with the external temperature from the external probe and from the factor K (set between 0 and 6 by mode of parameter setting).

Below you can see a graph of the OTC function (minimum set point of heating supply temperature = 15°C).



The regulation of the ambient temperature can be made only by compensation of supply temperature with the external temperature or in combination with the remote control (look at instruction manual of remote control).

The correction of the temperature in of heating supply is made every minute with a function of reduction of the sudden variations.

In case of breakdown to the probe it expresses the regulation of the temperature supply it is made though pulsating sets heating with the same functions described in the previous paragraph.

#### 4.5 BREAK DOWN SIGNALS

CODE	DESCRIPTION
01	LOCKOUT due to not ignition/condensate sensor
02	Failure of heating system pressure <sup>1</sup>
03	Failure of external sensor
04	Failure of heating sensor
05	Failure of DHW sensor
06	LOCKOUT due to high temperature/exceeding of flue gas temperature
08	Air pressostat failure/flue gas thermostat
09	Not water circulation

#### 4.6 TEMPORARILY TURNING BOILER OFF

You can achieve it by means of:

- the room thermostat ;
- the MENU on the instrument panel;

#### 4.7 LONG TERM SHUT DOWN

If the boiler is to remain off for a long period of time, close the gas cock to the boiler. Before start- up, manually turn the rotating part of the circulator pump in case it froze (slightly stuck) during the down time.

#### 4.8 SUGGESTIONS

Once a year the boiler should be cleaned and checked to make sure that all components are working properly. Do not adjust the gas valve, this is to be done only by a licensed authorized technician.

If there is a lockout, turn knob to reset position. If the problem happens often, call a licensed authorized technician.

**The condensing must not be modify or closed.**

After a long period of inactivity verify the presence of water in the condensing trap verifying if after the burner restart, in 10 minutes condensing water start to discharge out of the condensing trap.

If this doesn't happen, please call a center assistance authorized **ARCA srl**.

<sup>1</sup> Anomaly is visualized and prevented the starting the burner for  $P < 0,25$  bar. The starting of the burner is allowed for  $P > 0,4$  burner. Subsequently to anomaly the burner starts correctly working after the pressure of heating system is corrected. To return to the normal visualization press the P2 button.

Through parameter P6 is possible to start the burner however even if it foresees anomaly pressure plant, that comes all the same visualized.

## 4.9 FUNCTIONING PROBLEMS

### SITUATION

1 The burner flame does not sparkle

### POSSIBLE CAUSES

- A. The water temperature is higher than that of the adjustment thermostat;
- B. The gas cock is closed;
- C. Out of working button;
- D. Lack of flame
- E. Lack of the ignition electrode sparkle;
- F. Air in the pipe system;
- G. The safety thermostat has started working;
- H. There is no system pressure .

### REMEDIES

- A. Bring the adjustment thermostat to an higher temperature;
- B. Open the gas cock;
- C. Reset it;
- D. Call an expert;
- E. Call an expert;
- F. Repete the ignition procedure;
- G. Call an expert;
- H. Open the charge cock and re-establish the pressure level.

### SITUATION

2 Violent ignition

### POSSIBLE CAUSES

- A. Flame instability;
- B. Insufficient gas flow;
- C. Uncorrectly placed ignition electrodes.

### REMEDIES

- A. .Call an expert;
- B. Call an expert;
- C. Call an expert.

### SITUATION

3 Gas odour

### POSSIBLE CAUSES

- A. Gas system leakage ( of both the internal and external pipe system).

### REMEDIES

- A. Close the main gas cock and call an expert.

### SITUATION

4 Boiler condensation

### POSSIBLE CAUSES

- A. The boiler temperature is too low.

### REMEDIES

- A. Adjust the boiler thermostat to an higher temperature.

### SITUATION

5 Cold radiators in winter

### POSSIBLE CAUSES

- A. The selector is to "SUMMER" position;
- B. The ambient thermostat is out of working or it has been adjusted to a too low temperature;
- C. Closed radiator system;
- D. Misfunctioning three ways valve.

### REMEDIES

- A. Bring it to "WINTER" position;
- B. Turn the ambient thermostat on and set an higher temperature;
- C. Open system or radiators valves;
- D. Call an expert.

### SITUATION

6 Domestic warm water little production.

### POSSIBLE CAUSES

- A. The domestic thermostat temperature is too low;
- B. Too many warm water samples;
- C. The burner gas adjustment is not correct.

### REMEDIES

- A. Increase in the domestic thermostat temperature;
- B. Partially close the warm water cock;
- C. Call an expert.



TECNOLOGIE PER L'AMBIENTE

Via Giovanni XXIII, 105 - 20070 S.Rocco al Porto (LODI)  
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## DECLARATION OF CONFORMITY

The undersigned Michael Cavallini managing director of the ARCA S.r.l. with registered office 1° May, 16, San Giorgio –Mantova - Italy

declares

that he boilers

BASEL 21 N, BASEL 21 N R, BASEL B 21 N, ECOS 21 N, ECOS 21 N R, ECOS B 21 N, ECOS B 21 N INOX, POCKET 24 N, POCKET 24 N R, ECOS 120/21 N, ECOfast 25 N, ECOfast 25 N R, ECOfast B 25 N, ECOfast B 25 N INOX, ECOfast 120/25 N **(PIN CODE: 0068AT020)**,

BASEL 21 F, BASEL 21 F R, BASEL B 21 F, ECOS 21 F, ECOS 21 F R, ECOS B 21 F, ECOS B 21 F INOX, INOX A 21 F, POCKET 24 F, POCKET 24 F R, ECOfast 25 F, ECOfast 25 F R, ECOfast B 25 F, ECOfast B 25 F INOX **(PIN CODE: 0068AT018)**,

ECOS 30 F, ECOS 30 F R, ECOS 120/30 F, ECOfast 32 F, ECOfast 32 F R, ECOfast 120/32 F, MULTIPLA 32 F TR, MULTIPLA 32 F **(PIN CODE: 0068AT021)**,

BASEL 21 F cg, BASEL 21 F R cg, BASEL B 21 F cg, ECOS 21 F cg, ECOS 21 F R cg, ECOS B 21 F cg, ECOS B 21 F, INOX A 21 F cg, ECOS 120/21 F, STYLO IN 21 F, STYLO ES 21 F, ECOfast 25 F cg, ECOfast 25 F R cg, ECOfast B 25 F cg, ECOfast B 25 F, ECOfast 120/25 F, STYLOfast IN 25 F, STYLOfast ES 25 F **(PIN CODE: 0068AT019)**,

BASEL 21 F SUPER, BASEL 21 F R SUPER, BASEL B 21 F SUPER, ECOS 21 F SUPER, ECOS 21 F R SUPER, ECOS B 21 F SUPER, ECOS B 21 F INOX SUPER, INOX A 21 F SUPER, ECOS 120/21 F SUPER, STYLO ES 21 F SUPER, STYLO IN 21 F SUPER, POCKET 24 F SUPER, POCKET 24 F R SUPER, ECOfast 25 F SUPER, ECOfast 25 F R SUPER, ECOfast B 25 F SUPER, ECOfast B 25 F INOX SUPER, ECOfast 120/25 F SUPER, STYLOfast ES 25 F SUPER, STYLOfast IN 25 F SUPER, **(PIN CODE: 0068AT025)**,

BASEL 24 F, BASEL 24 F R, BASEL B 24 F, ECOS 24 F, ECOS 24 F R, ECOS B 24 F, ECOS B 24 F INOX, INOX A 24 F, ECOS 120/24 F, PANELfast 29 F, PANELfast 29 F R, STYLO ES 24 F, STYLO IN 24 F, POCKET 28 F, POCKET 28 F R, ECOfast 29 F, ECOfast 29 F R, ECOfast B 29 F, ECOfast B 29 F INOX, ECOfast 120/29 F, STYLOfast ES 29 F, STYLOfast IN 29 F **(PIN CODE: 0068AT026)**.

PIXEL 25 F, PIXEL 25 FR, PIXEL ES 25 F, PIXEL ES 25 FR, PIXEL IN 25 F, PIXEL IN 25 FR **(0068BO058)**

PIXEL 25 FC, PIXEL 25 FRC, PIXEL IN 25 FC, PIXEL IN 25 FRC, PIXEL ES 25 F, PIXEL ES 25 FRC, PIXEL B 25 FC **(PIN CODE: 0068BQ021)**

PIXEL 31 FC, PIXEL 31 FRC, PIXEL IN 31 FC, PIXEL IN 31 FRC, PIXEL ES 31 F, PIXEL ES 31 FRC, PIXEL B 31 FC **(PIN CODE: 0068BQ021)**

Part number **aaBBBxxxxxx**

where aa means the year of production,  
BBB is ARF and means per ARCA FRANCE,  
TRK for Turkish market;  
ARC for all the other country,  
xxxxxx means a progressive number,

produced by

ARCA Srl in via Giovanni XXIII, 105, San Rocco al Porto (LODI)

And sold with mark **STEP**

Are produced in conformity with the following European Directive:

**90/396/CEE (Gas Appliance Directive),**

**92/42/CEE (Useful output Directive)**

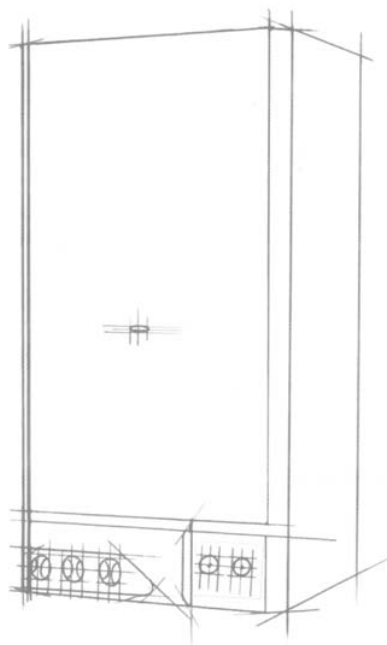
**73/23/CEE (Low Voltage Directive)**

**89/336/CEE (Electromagnetic noise)**

**EN 677/2000 (condensing boilers)**

S.Rocco al Porto, 3 febbraio 2005





CE

**ARCA**  
**caldaie**



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