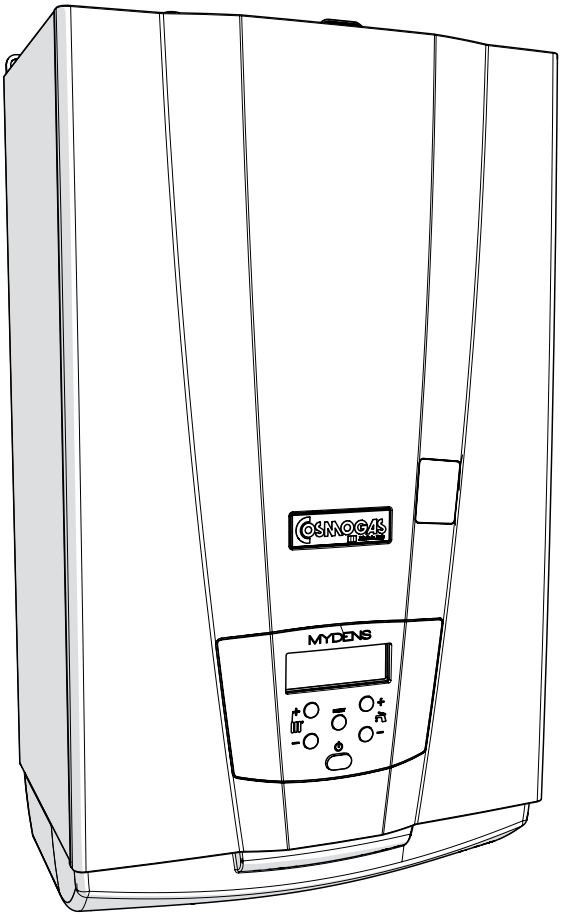
COSMOGAS®



INSTALLATION, USE AND MAINTENANCE MANUAL

GAS WALL-MOUNTED CONDENSING BOILER

MYDENS

62403580 - R00 17-12-2013_IT

INDEX

INDEX

1 - GENERAL SAFETY RECOMMENDATIONS

If you smell gas
1. - Close the gas cock.
2. - Ventilate the room.
3. - Do not switch on any electric device, telephone included.
4. - From another room, call a professionally qualified technician immediately or the gas supply company. Call the Fire Service if the former are not available.

If you can smell combustion products
1. - Switch the appliance off.
2. - Ventilate the room.
3. - Call a professionally qualified technician.

Explosive or highly flammable products
Do not store or use explosive or highly flammable materials such as paper, solvents, paints, etc... in the same room where the appliance is installed.

Installation, modifications

☞ The gas appliance must be installed, calibrated or modified by professionally qualified staff, in compliance with National and local Standards, as well as the instruction in this manual.

☞ Incorrect installation or poor maintenance can cause injury/damage to persons, animals or objects, for which the manufacturer cannot be deemed liable.

☞ The appliance exhaust must be connected to a burned gas evacuation pipe. Failure to comply with this regulation leads to serious risks for the safety of persons and animals.

☞ A domestic hot water temperature level exceeding 51°C can cause permanent injury/damage to persons, animals and objects. Children, the elderly and disabled must be protected against the potential risks of scalding, by introducing devices that limit the temperature of use of domestic hot water to utilities.

☞ The parts conducting the fumes must not be modified.

☞ Do not obstruct the ends of the intake/exhaust pipes.

☞ Do not leave parts of the packaging and any replaced parts within the reach of children.

☞ Seal the adjustment devices after every calibration.

☞ In agreement with the provisions for use, the user must keep the installation in good working order and guarantee reliable and safe operation of the appliance.

☞ The user must have maintenance performed on the appliance by a professionally qualified technician in agreement with national and local Standards and in compliance with that stated in this manual.

☞ We also highlight the convenience of an annual scheduled maintenance contract with a professionally qualified technician.

☞ Before performing any cleaning or maintenance operation, disconnect the appliance from the mains power supply and/or by acting on the cut-off devices.

☞ After having performed any cleaning or maintenance operation, make sure that all internal parts of the appliance are dry before re-connecting the electric power supply.

☞ This appliance is not intended for use by persons (including children) with reduced physical and sensory conditions or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

☞ This manual is an integral and essential part of the product and must be kept carefully by the user, for possible future consultation. If the appliance must be transferred or if you should move and leave the unit to another user, always ensure that this manual remains with the new user and/or installer.

☞ Any optional or kits added successfully must be original Cosmogas products.

☞ This appliance must be intended only for the use for which it has been expressly declared: central heating water for closed circuits intended for central heating of rooms for civil and domestic use, production of domestic hot water for civil use.

☞ Any contractual and extra contractual liability of the manufacturer is excluded for damage caused by installation errors or errors in use and however due to failure to comply with the instructions given by the manufacturer or by failure to comply with applicable national and/or local laws.

☞ For safety reasons and respect for the environment, the packaging elements must be disposed of in the relevant separate waste collection centres.

In case of breakdown
In the case of appliance breakdown and/or malfunctioning, deactivate it, do not attempt any repairs.
Contact a professionally qualified technician only. If components must be replaced for repair, only use original spare parts. Failure to comply with the above can jeopardise the safety of the appliance.

Professionally qualified technician.
Professionally qualified technician means, a person with specific technical skill in the sector regarding central heating plants and the production of hot water for sanitary and domestic uses, for civil use, electric plants for the use of combustible gas. This staff must be authorised as envisioned by the law.

Technical drawings
All the drawings in this manual, relating to electrical, hydraulic or gas installation plants, must be deemed purely indicative. All of the safety elements, auxiliary elements such as the diameters of the electric, hydraulic and gas pipes, must always be checked by a professionally qualified technician to verify compliance with applicable Standards and Laws.

1.1 - National installation laws

- M.D. n°37 dated 22/01/2008 (former Law n°46 dated 05/03/90)
- Law n°10 dated 09/01/91

- Presidential Decree n°412 dated 26/08/93
- Presidential Decree n°551 dated 21/12/99
- Legislative Decree n° 192 dated 19/08/05
- Legislative Decree n° 311 dated 29.12.06

- UNI 7129 Standard
- UNI 7131 Standard
- UNI 11071 Standard
- IEC 64-8 Standard

2 - GENERAL INFORMATION

2.1 - Presentation

Congratulations! You have purchased one of the best products on the market.
Each individual part is proudly designed, realised, tested and assembled within the COSMOGAS establishment, thus guaranteeing the best quality control.
This product has been developed thanks to the constant research by COSMOGAS, considered the “top” regarding respect for the environment, as it lies within class 5 (the least polluting) envisioned by the EN 297 (and EN 483) Technical Standard and has high efficiency; 4-star as per European Community Directive 92/42/EEC. Great importance has also been given to the end of the appliance’s life. All of its components can be easily separated into homogeneous elements and completely re-cycled.

2.2 - Overview of the models

MYDENS XXY

“P” = Boiler for the instantaneous production of D.H.W. and central heating;
“B” = Boiler set-up for coupling to a indirect water heater with coil;
“C” = Central heating only boiler;

15 = Boiler with maximum heat input of 14 kW
24 = Boiler with maximum heat input of 25 kW
34 = Boiler with maximum heat input of 34.8 kW

Condensing, indoor, pre-mixed, ecological gas boiler.

2.3 - Manufacturer

COSMOGAS srl
Via L. da Vinci 16
47014 - Meldola (FC) Italia
Tel. 0543 498383
Fax. 0543 498393
www.cosmogas.com
info@cosmogas.com

2.4 - Key for the symbols used

ATTENTION !!!
Electric shock hazard. Failure to comply with these recommendations can jeopardise the good working order of the appliance or cause serious damage to persons, animals or objects.

ATTENTION !!!
Failure to comply with these recommendations can jeopardise the good working order of the appliance or cause serious damage to persons, animals or objects.

☞ Important indication symbol

2.5 - Maintenance

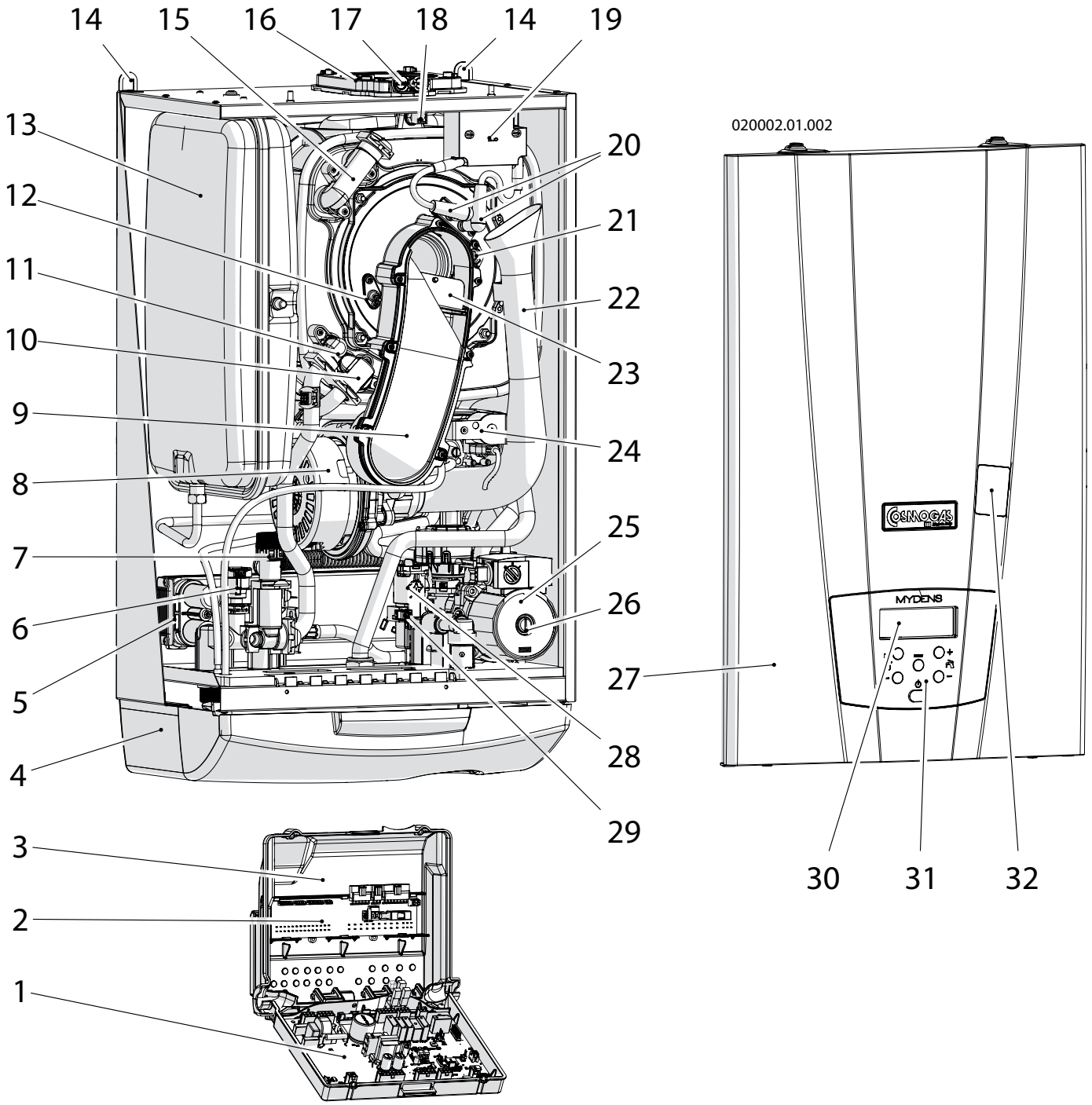
It is recommended to perform regular yearly maintenance of the appliance for the following reasons:

- to maintain a high efficiency and manage the domestic hot water plant economically (with low fuel consumption);
- to achieve a high level of safety;
- to maintain the level of environmental compatibility of the combustion high;

Offer your customer a scheduled maintenance contract.

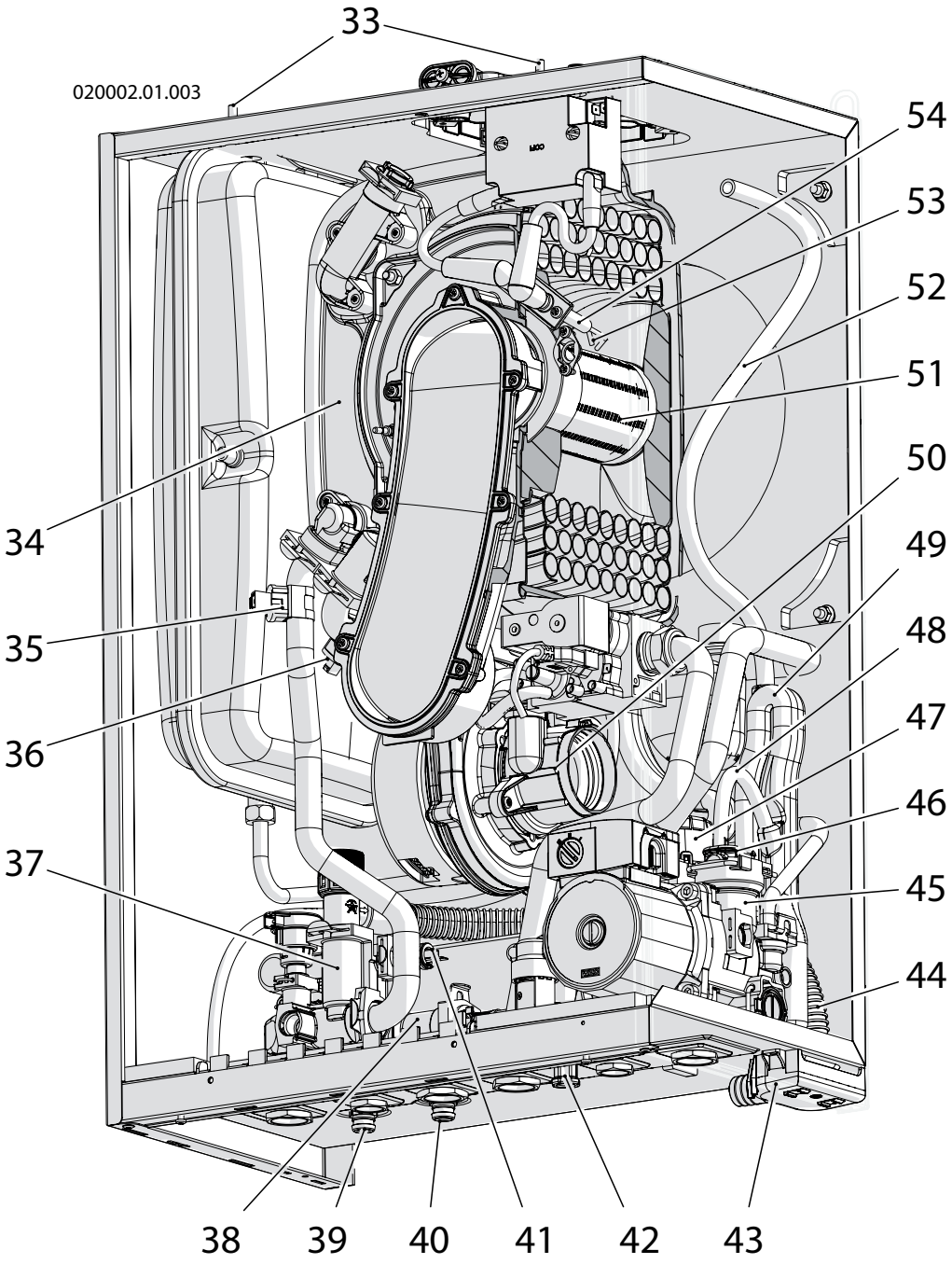
2.6 - Warranty

see chapter 13.



1 - Command and control board
2 - Electric connections board
3 - Electric control board box
4 - Lower cover
5 - Secondary heat exchanger for the domestic hot water
6 - Central heating circuit pressure sensor
7 - Safety valve
8 - Fan
9 - Air/gas manifold
10 - Return fitting
11 - Supply fitting
12 - Detection electrode
13 - Expansion tank
14 - Support attachments
15 - Conveying fitting
16 - Air intake and burned gas exhaust fittings
17 - Combustion analysis points
18 - Double fumes temperature sensor (Par. 1006 and 1014)
19 - Spark generator
20 - Ignition cables
21 - Burner window
22 - Air inlet manifold
23 - Back flue preventer valve
24 - Gas valve
25 - Circulation pump
26 - Pump release screw
27 - Front casing
28 - Domestic hot water flow meter
29 - Domestic hot water flow meter sensor (Par. 1061)
30 - Display
31 - Control board
32 - Access to the gas valve adjusters

Figure 3.1 - Boiler internal components



33 - Front casing couplings
34 - Titanium plated stainless steel primary heat exchanger
35 - Double supply temperature sensor (Par. 1001 and 1005)
36 - Return temperature sensor (Par. 1007)
37 - Supply hydraulic unit
38 - By-pass pipe
39 - Central heating circuit drain cock
40 - Central heating circuit drain cock
41 - Domestic hot water temperature sensor (Par. 1002)
42 - Plant fill cock
43 - Condensate collection tank
44 - Safety valve drain pipe
45 - Return hydraulic unit
46 - Air vent valve
47 - 3-way diverter valve
48 - Air vent valve drain pipe
49 - Condensate drain siphon
50 - Air/gas mixing unit
51 - Burner
52 - Drain pipe for any water coming from the combustion agent air pipe
53 - Left ignition electrode
54 - Right ignition electrode

Figure 3.1 - Boiler internal components

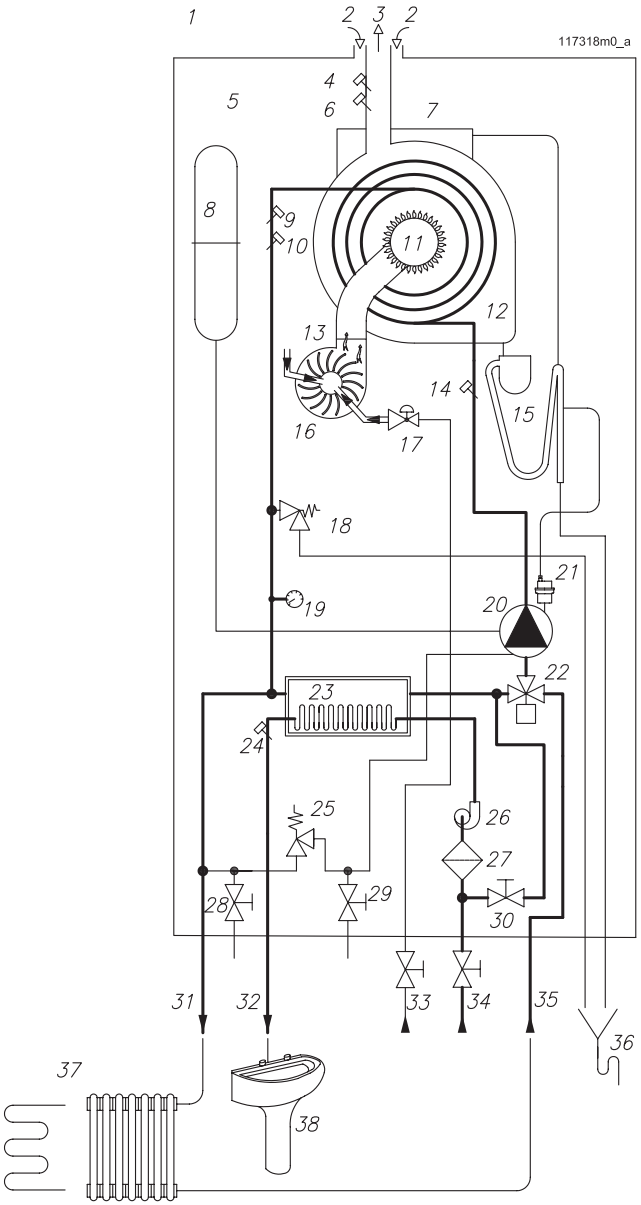


Figure 4.1 - Hydraulic layout

MYDENS 24P
MYDENS 34P

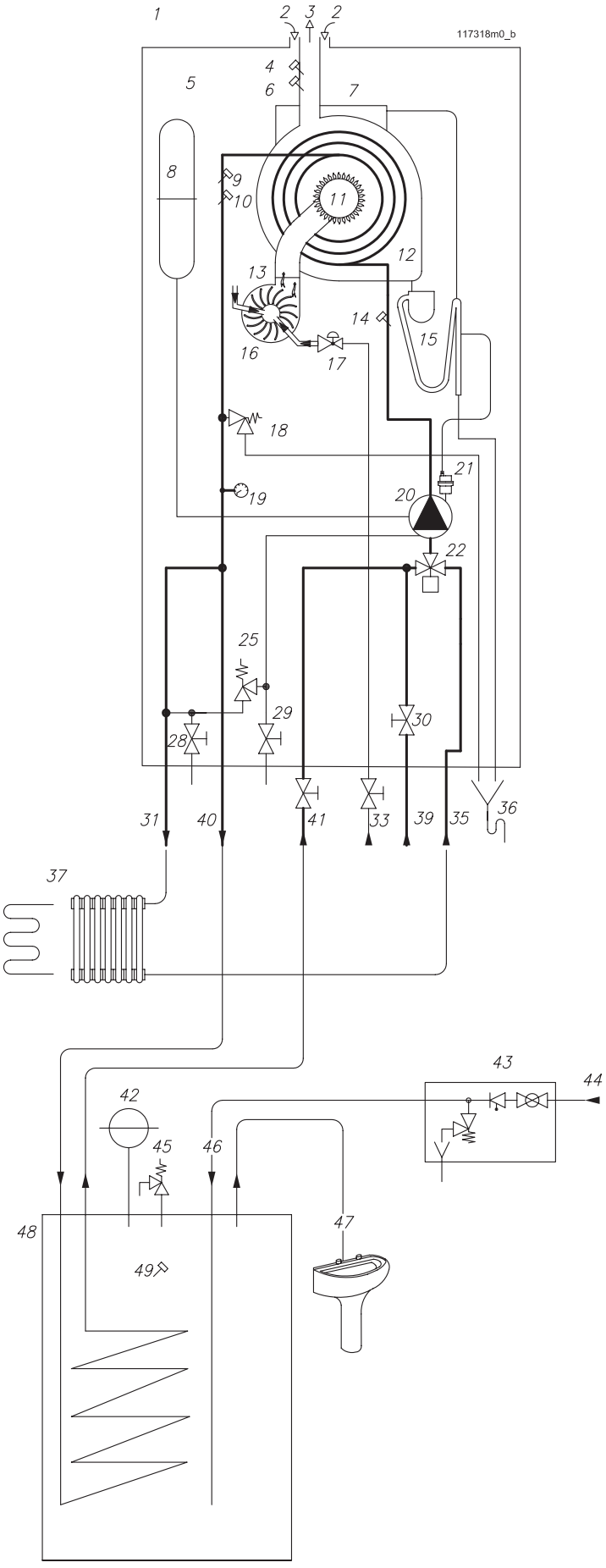


Figure 4.2 - Hydraulic layout

MYDENS 15B
MYDENS 24B
MYDENS 34B

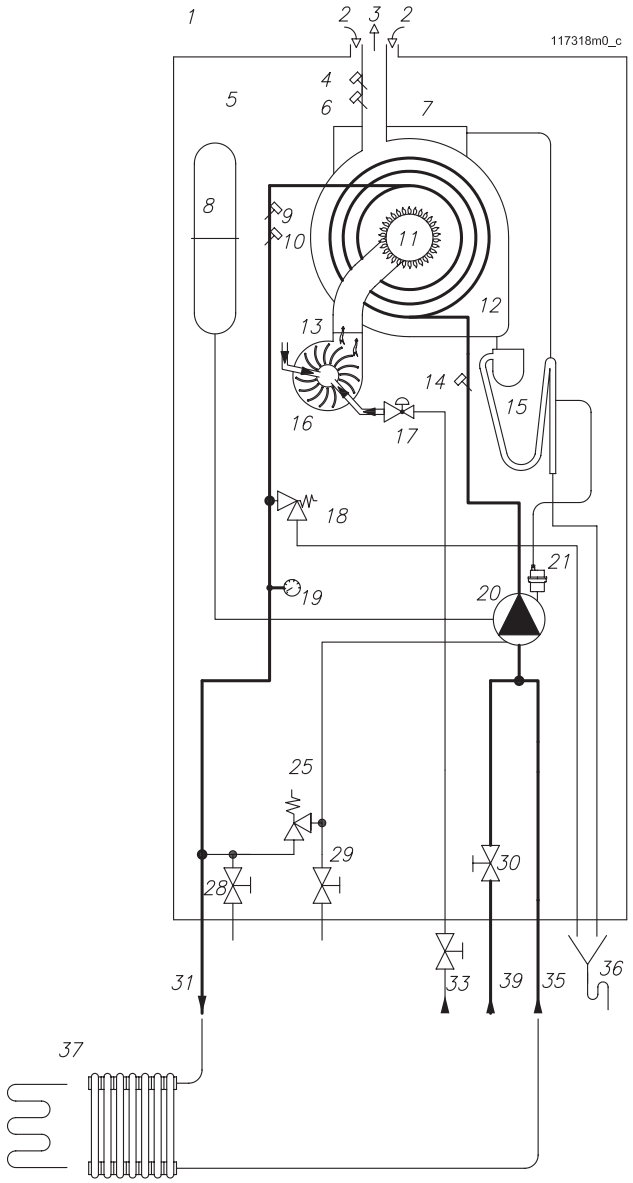


Figure 4.3 - Hydraulic layout

MYDENS 15C
MYDENS 24C
MYDENS 34C

Key for figures 4.1, 4.2, 4.3:

1 = Boiler
2 = Combustion agent air inlet
3 = Fumes outlet

4 = Fumes temperature sensor (Par. 1006)
5 = Sealed chamber

6 = Fumes temperature safety sensor (Par. 1014)
7 = Water collection pipe coming from the combustion agent inlet pipe
8 = Expansion Tank

9 = Supply temperature sensor (Par. 1001)

10 = Supply temperature safety sensor (Par. 1005)
11 = Burner
12 = Titanium plated stainless steel VRC type heat exchanger
13 = Fan

14 = Return temperature sensor (Par. 1007)
15 = Condensate collection siphon with sediment decanter
16 = Air/gas mixer
17 = Pneumatic gas valve
18 = Safety valve
19 = Central heating circuit pressure sensor
20 = Circulation pump
21 = Air vent valve
22 = Diverter valve
23 = Plate heat exchanger for domestic hot water

24 = Domestic hot water sensor (Par. 1002)
25 = Central heating by-pass valve
26 = Domestic hot water flow meter
27 = Domestic hot water filter
28 = Supply circuit drain cock
29 = Return circuit drain cock
30 = Central heating plant fill cock
31 = Central heating circuit supply
32 = Domestic hot water outlet
33 = Gas inlet
34 = Domestic cold water inlet
35 = Central heating circuit return
36 = Condensate drain collector and of the safety valve
37 = Central heating plant
38 = Domestic hot water plant
39 = Water supply attachment for filling plant
40 = Supply to indirect water heater
41 = Return from indirect water heater
42 = Expansion tank for indirect water heater
43 = Hydraulic safety unit
44 = Cold water supply
45 = Safety valve
46 = Cold water
47 = Domestic hot water
48 = Indirect water heater

49 = Indirect water heater temperature sensor (Par. 1002)

4.1 - Operation and intended use of the appliance

This product is a condensing, gas appliance, intended for the production of central heating and domestic hot water for civil use.
Make the adaptation between boiler and plant, selecting the characteristic residual head curve deemed most suitable from those available (see fig. 4.4 and 4.5).
The max. useful power is always guaranteed at the production of domestic hot water as the central heating service switches off at every request for domestic hot water.
The temperature of the domestic hot water is adjusted following the relevant procedure in chapter 7.8.
The following types of plants can be realised depending on the model:

A) - MYDENS -- “P”. With this boiler it is possible to realise a plant for the production of instantaneous domestic hot water and a central heating plant with the heating elements operating at a temperature between 30°C and 80°C. An example of this type of plant is given in fig. 4.1.

B) - MYDENS -- “B”. With this boiler it is possible to realise a plant for the production of domestic hot water via a coil-type storage indirect water heater and a central heating plant with the heating elements operating at a temperature between 30°C and 80°C. An example of this type of plant is given in fig. 4.2.

C) - MYDENS -- “C”. With this boiler it is possible to realise a plant for central heating only with the heating elements operating at a temperature between 30°C and 80°C. An example of this type of plant is given in fig. 4.3.
This model can be connected to a indirect water heater with coil also after installation, filled via a diverter valve or a pump outside the boiler.

In all of the boiler versions previously described, the connection of the domestic hot water service is not indispensable; if the boiler is used for central heating only, just connect the cold water pipe to fill the central heating plant and close the d.h.w. outlet fitting.

All boiler versions previously described, can be connected to a room thermostat for adjustment of the central heating.
To perfect the quality of the heating service, an external temperature sensor can be connected (climatic adjustment) to automatically adjust the supply temperature depending on the external temperature. In this case, the room temperature can perform an ON /OFF type of compensation of the room temperature or in two steps.
For further information regarding climatic adjustment, refer to chapter 7.11.

- ☞ This appliance must be attached to a central heating plant and eventually to a domestic hot water distribution network, compatible with the features, performance and powers of the appliance itself.
- ☞ Before installation the central heating plant and the domestic hot water plant must be washed thoroughly in order to remove any residues or impurities, which could compromise the good working order of the boiler.
- ☞ This appliance is not envisioned for installation outdoors. It must not be exposed to temperatures below zero and temperatures above 50°C. Selected a place sheltered from atmospheric agents and freezing.
- ☞ This appliance must be installed in a location where any loss of water from the same, the connections between the pipes or from the safety valve drain, cannot cause damage to materials or objects below.
- ☞ Check figure 5.1 concerning the minimum safety distances for installation and future maintenance.

4.2 - Characteristic curves of the residual head at the central heating plant

The residual head at the attachments of the MYDENS boiler with standard pump is given as a graph in figures 4.4 and 4.5.
If the head is not sufficient, it is possible to request a 7 metre upgraded pump. In this case, the residual head can be verified on the graphics in figures 4.6 and 4.7.

You can request a modulating pump. In this case the modulation range (particularly “x”) is verifiable on the graph of figure 4.8.

ATTENTION !!! For MYDENS - “P” models it is prohibited to use the selector switch on the pump to modify its speed, as the domestic hot water production efficiency deteriorate.

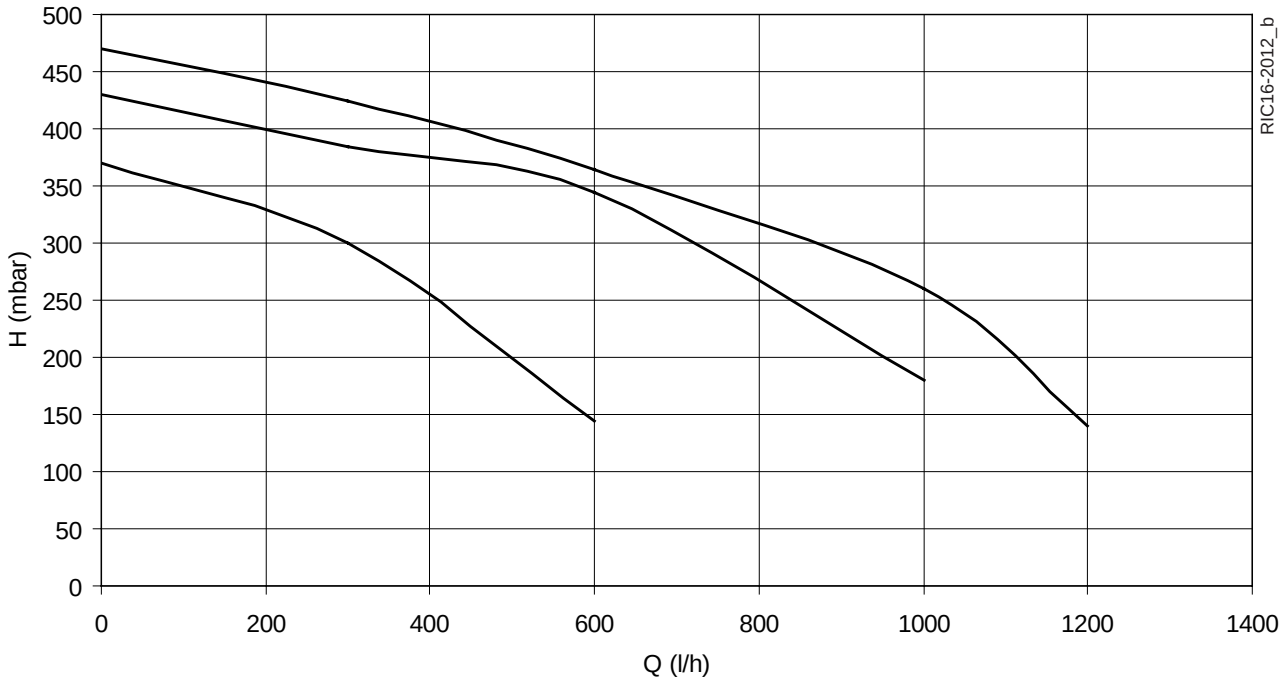


Figure 4.4 - Residual head for MYDENS 24 with 6 metre pump (standard)

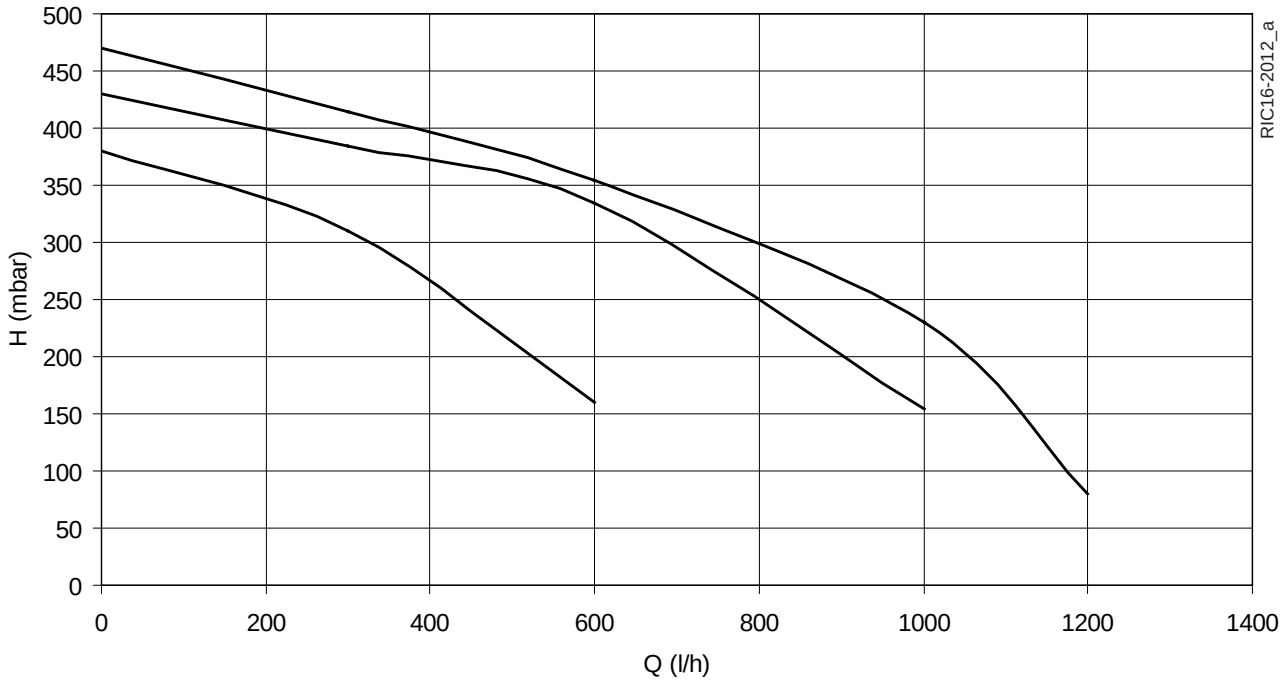


Figure 4.5 - Residual head for MYDENS 34 with 6 metre pump (standard)

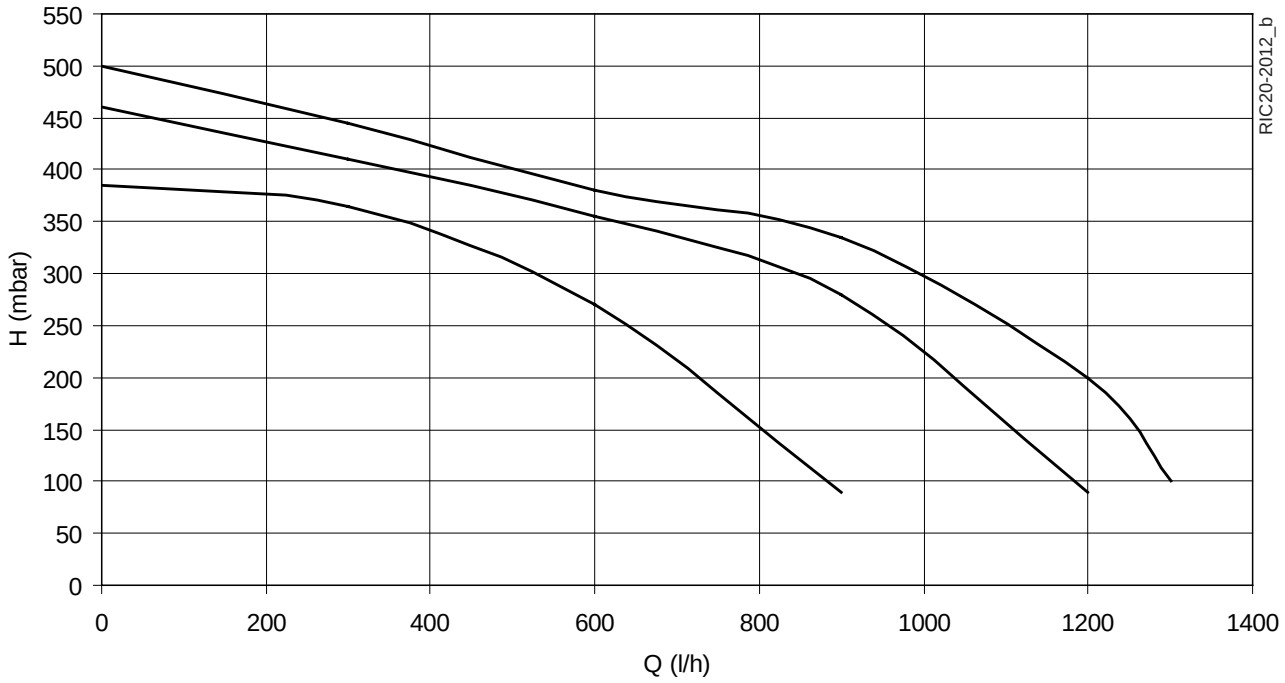


Figure 4.6 - Residual head for MYDENS 24 with 7 metre pump (on request)

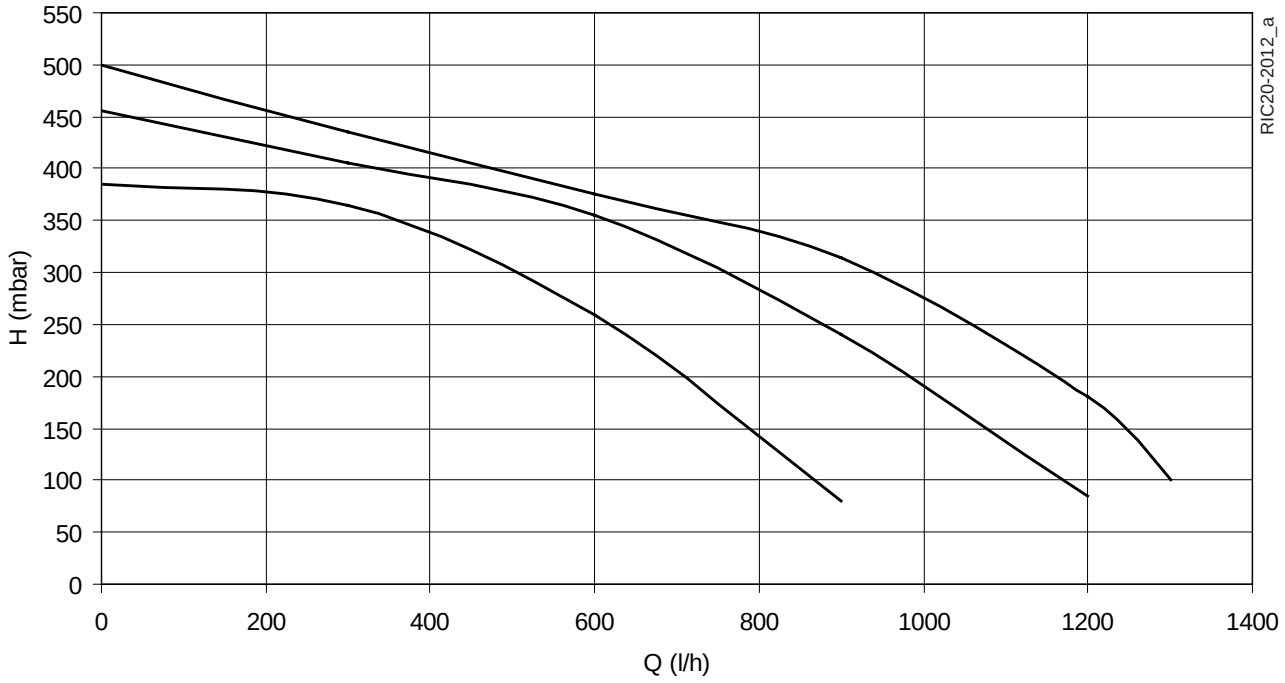


Figure 4.7 - Residual head for MYDENS 34 with 7 metre pump (on request)

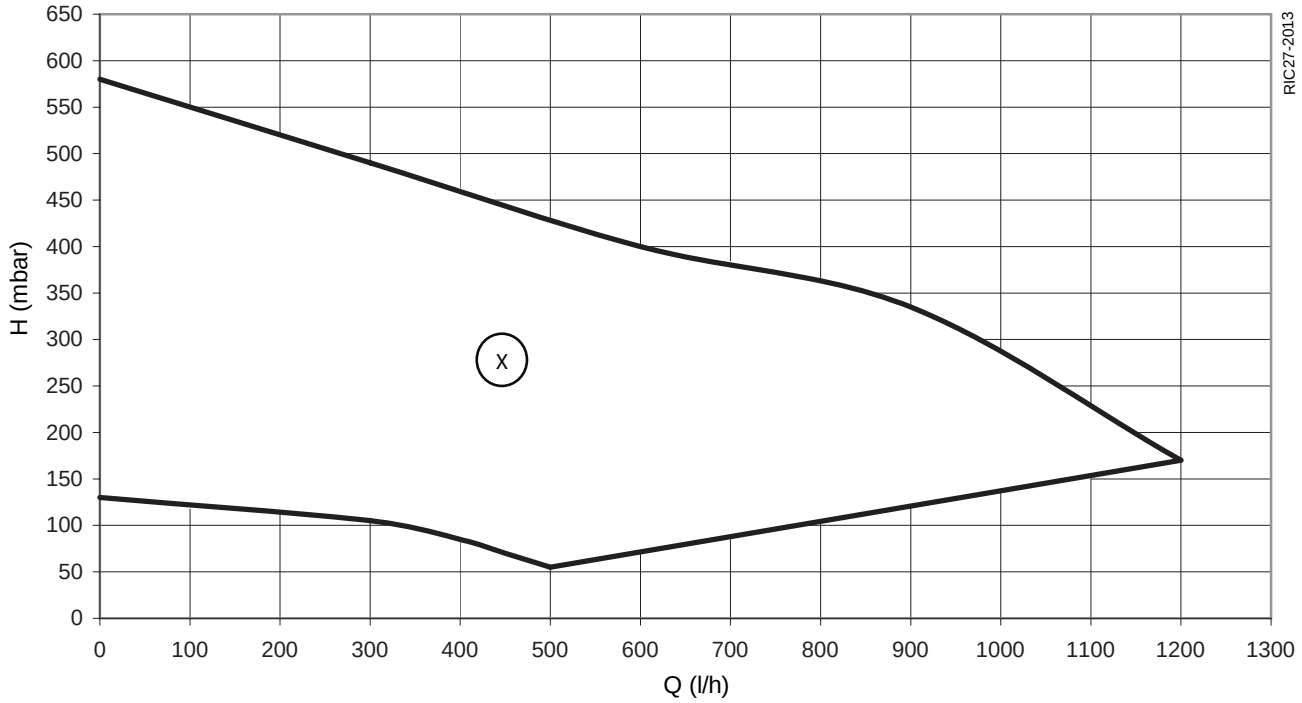


Figure 4.8 - Residual head for MYDENS with modulating pump (on request)

4.3 - Characteristic curve of the domestic hot water head losses

Each boiler offers certain resistance on the passage of the domestic hot water (see flow rate/pressure graphics in figure 4.9). The installer or design technician must take this into consideration in order to guarantee the correct flow rate of domestic hot water to the utility.

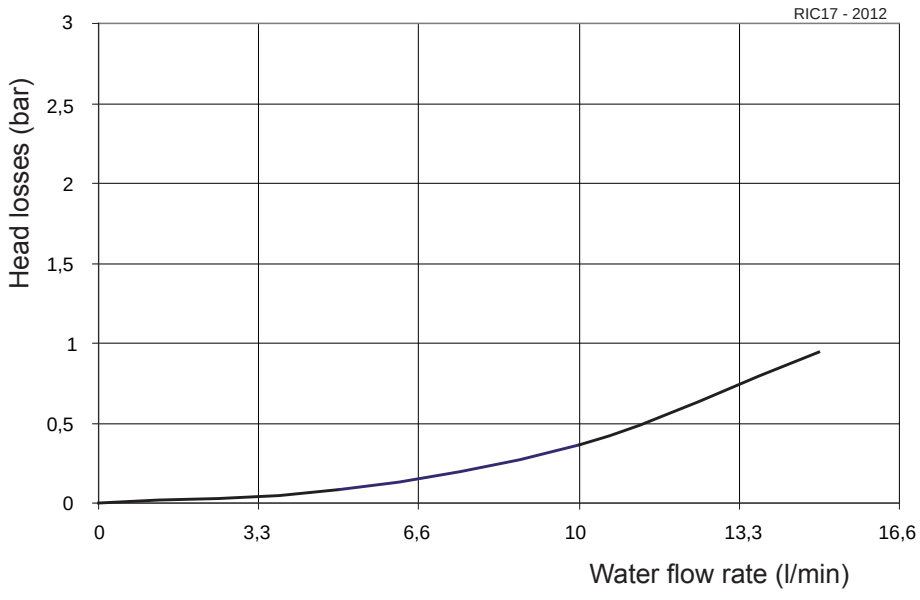


Figure 4.9 - Domestic hot water losses curve

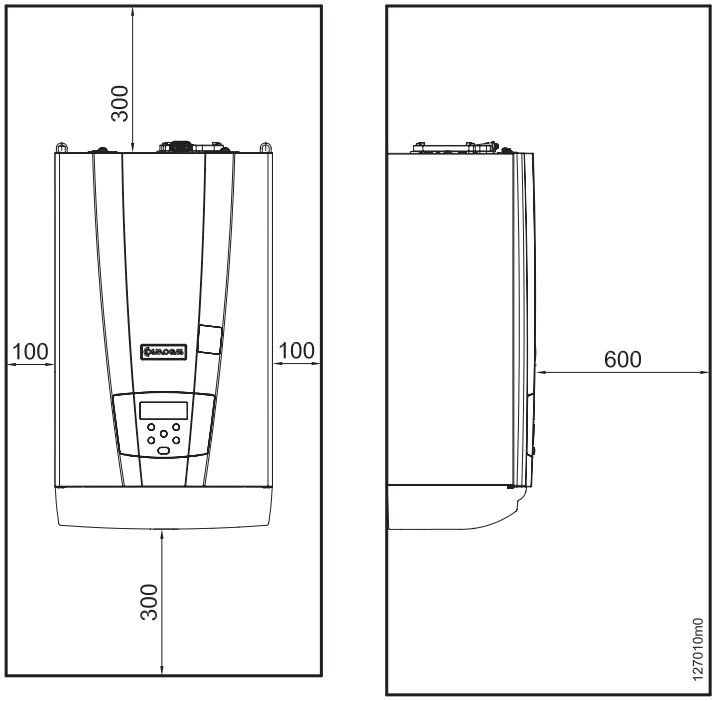
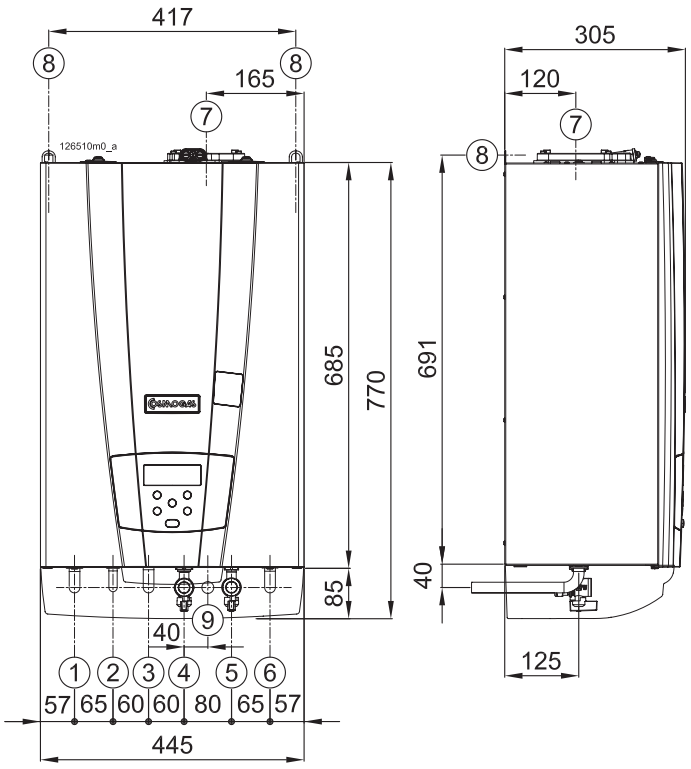


Figure 5.1 - Minimum safety distances



1 - Central heating supply
3/4” in the 15 and 24 models
1” in the 34 model
2 - 1/2” D.H.W. outlet (absent in “B” and “C” models)
3 - 3/4” indirect water heater return (present in “B” models only)
4 - 3/4” gas inlet
5 - 1/2” cold water inlet
6 - Central heating return
3/4” in the 15 and 24 models
1” in the 34 model
7 - Fumes exhaust
8 - Support attachments
9 - Ø20 condensate drain

Figure 5.2 - Boiler dimensions and attachments centre to centre distances

5.1 - Opening the packaging

The appliance is supplied in cardboard packaging. Open following the instructions given on the flaps of the packaging itself.

5.2 - Dimensions and minimum safety distances

It is necessary to leave free spaces around the boiler as illustrated in figure 5.1 both for installation and maintenance.

5.3 - Choosing the place of installation

ATTENTION !!! The appliance must be installed exclusively on a solid, vertical wall, which can support the weight.

The appliance must be installed within the home, or otherwise protected from atmospheric agents such as rain, wind, sun, and especially freezing.

Define the room and suitable position for installation, taking into account the following factors:

- connection of the fumes exhaust/air intake pipes;
- connection of the gas supply pipe;
- connection to the water supply;
- attachment of the central heating plant;
- attachment of the domestic hot water plant;
- electric connection;
- connection to the drain for the condensate produced by the boiler;
- electric connection of the room thermostat;
- eventual connection of the safety valve drain;
- eventual attachment of the external temperature sensor;

5.4 - Supply and return

ATTENTION !!! This boiler has a safety valve calibrated at 3 bar. A water head over 30 m must therefore not be installed.

ATTENTION !!! COSMOGAS is not liable for any damage caused by incorrect use of additives in the central heating plant.

ATTENTION !!! The plant downstream from the appliance must be made with materials that resist temperatures up to 95°C and pressure of 3 bar. Differently (e.g. plastic piping) the plant must be fitted with the relevant protection and safety devices.

Before connecting the central heating pipes, wash the plant thoroughly to eliminate any waste (hemp, radiators casting sand, etc..), which could damage the appliance. This washing operation must also be performed if the appliance is replaced.

Figure 5.2 shows the positioning of the supply and return fittings.

☞ Install a metal mesh filter on the return pipe in order to stop any plant residues before the return into the boiler.

☞ Do not use the appliance for the introduction of any type of additive into the plant.

☞A continuous intake of water into the central heating circuit increases the content of oxygen and lime scale with a risk of corrosion inside the heat exchanger body, with consequent reduction of the boiler's lifespan. Any leaks from the central heating circuit must be repaired to prevent the problem.

5.5 - Low temperature plants (or on the floor)

ATTENTION !!! The plant downstream from the appliance must be made with materials that resist temperatures up to 95°C and pressure of 3 bar. Differently (e.g. plastic piping) the plant must be fitted with the relevant protection and safety devices.

ATTENTION !!! when installing the boiler in a low temperature plant, it is indispensable to set the parameter 30 15 at the value of 45°C and the parameter 30 16 at the value of 20°C (see chapter 11). With this setting, the boiler will adjust the supply to a temperature between 20°C and 45°C. No adjustment from the command panel (also via climatic adjustment), can supply water at a temperature over 45°C.

ATTENTION !!! If the boiler is installed in a floor-standing plant made with plastic piping, all of the precautions must be taken against corrosion due to oxygen in the water:
make sure that the plant is made with plastic pipes with permeability to oxygen not exceeding 0.1 g/m3 at 40°C. Whenever the pipe should not meet these features, the radiant panel circuit from the boiler must be isolated, via a plate heat exchanger suitable to resist the corrosion generated by the oxygen dissolved in the water.

5.6 - Domestic hot and cold water

ATTENTION !!! If water hardness exceeds 25°F, we recommend the installation of a polyphosphates softener (see chapter 5.13).

ATTENTION !!! Install a filter with mesh no wider than 0.5 mm² in the domestic cold water inlet.

ATTENTION !!! The domestic hot water circuit must be realised with materials resistant to a temperature of at least 95°C and pressure of 10 bar. Differently (e.g. plastic piping) the plant must be fitted with the relevant protection and safety devices.
In figure 5.2 it is possible to verify positioning of the domestic hot and cold water fittings.
Envision a closing cock upstream from the cold water inlet, useful for maintenance works.
The connection of the domestic hot water service is not indispensable; if the boiler is used for central heating only, just connect the cold water pipe to fill the central heating plant and close the d.h.w. outlet.

5.7 - Gas

ATTENTION !!! It is prohibited to power the appliance with gases different to that envisioned.

ATTENTION !!! Check that the gas and supply pressure are those for which the boiler has been adjusted.
Two situations are possible:
A - the gas and supply pressure correspond to the adjustment of the boiler. In this case, it can be connected;
B - the gas and supply pressure do not correspond to the adjustment of the boiler. In this case, the boiler must be converted to the type of gas and supply pressure corresponding to those of the supply available.

The boiler is provided with the relevant gas conversion kit.

☞Before installation it is advised to clean the inside of the gas supply pipe thoroughly;

☞A cut-off cock must always be installed on the gas supply pipe;

☞To prevent damage to the appliance gas control unit, the leak test at a pressure not exceeding 50 mbar;

☞If the gas plant must be inspected at pressures over 50 mbar, operate on the cock positioned immediately upstream from the boiler, to isolate the same from the plant.

Figure 5.2 verifies the positioning of the appliance gas fitting. The sections of the pipes making up the gas supply plant must always guarantee a gas supply sufficient to cover the maximum requested.

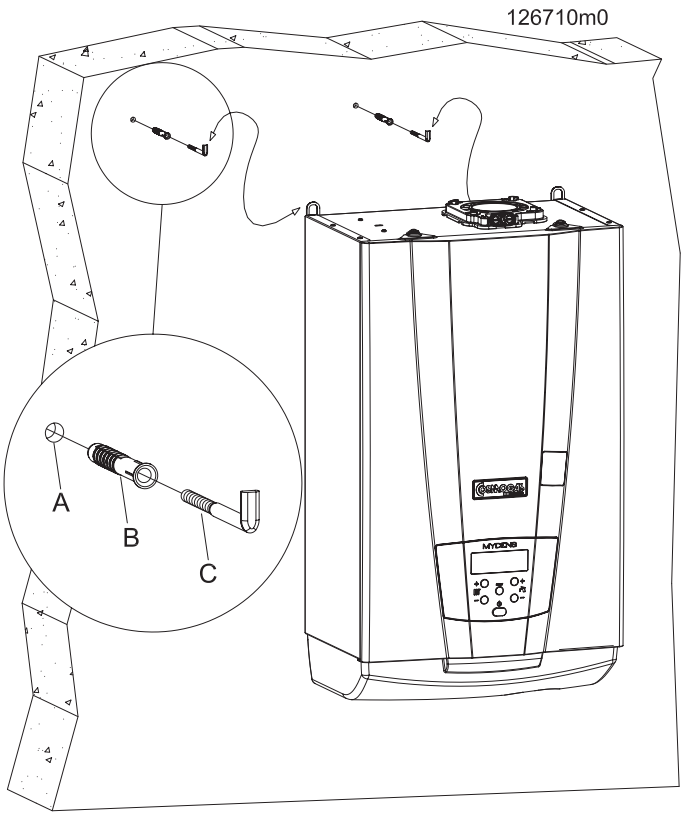


Figure 5.3 - Support plugs

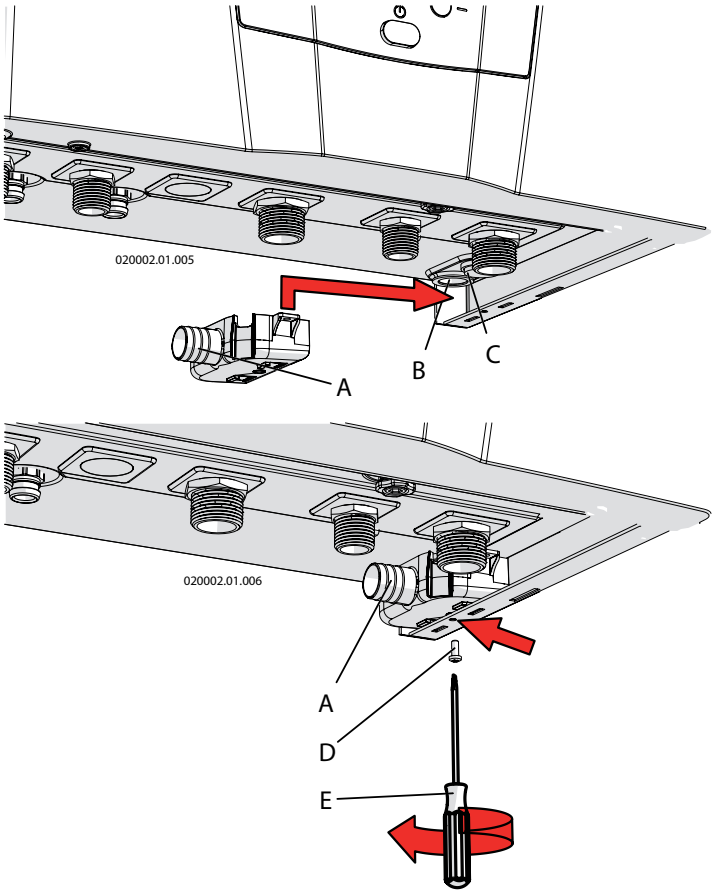


Figure 5.4 - Safety valve drain and condensate drain connection

5.8 - Mounting the appliance

Refer to figure 5.3:

1.- place the paper template, provided with the appliance, against the wall;
2.- check that the template is square to the environment;
3.- mark the holes for the plugs and hydraulic fittings on the wall;
4.- remove the paper template;
5.- make the holes “A” and introduce the wall plugs “B”;
6.- make the boiler hydraulic and gas connections;
7.- hang the boiler on the plugs “C”;
8.- make the hydraulic fittings.

5.9 - Condensate drain

There is a siphon inside the boiler for the evacuation of condensate (see figure 3.1 detail “49”) and to prevent combustion products from escaping, whose end corresponds to the pipe “B” in figure 5.4. This termination must be conveyed into an anti-odour siphon (figure 5.7 detail “G”) to prevent bad odours returning into the environment (the anti-odour siphon “G” is supplied on request).
Open the tank “A” as indicated in figure 5.4 and fix it using the screw “D”, connect the drain pipe “F” as indicated in figure 5.5.
In particular, the condensate drain plant must be:

- ☞ for room used for residential purposes and for office with more than 10 users, it can be connected to the domestic waste disposal plant by means of appropriate siphon with disjunction capable of preventing the pressurisation of the system (siphon prepared within boiler) and to prevent the return of bad odours from the sewer (detail “G” in figure 5.7). If the room used for office purposes has less than 10 users, before connection with the domestic waste drain, a condensate neutraliser is good practice (see chapter 9 for the value of acidity of the condensate and the quantities).
- ☞ be performed with a pipe with internal diameter equal to or greater than 13 mm;
- ☞ be installed in a way to prevent the liquid from freezing; therefore pay attention to any external passings. It is prohibited to drain into gutters or drainpipes;
- ☞ to slope continuously towards the drain point, avoid high points, which could pressurise the pipe;

5.10 - Safety valve

The appliance is protected against overpressures by a safety valve calibrated to 3 bar (see figure 3.1 detail “7”). The safety valve drain (detail “C” in figure 5.4), along with the condensate drain (detail “B” in figure 5.4) must be conveyed to a pipe “F” (see figure 5.5) with minimum internal diameter of 13 mm; the pipe “F” must be then taken to the anti-odour siphon (detail “G” figure 5.7). This drain with siphon is used to prevent overpressures if the valve is opened and makes it possible for the user to check the eventual intervention.
The pipe “F” in figure 5.5 is supplied as per standard along with tank “A” in figure 5.4. The anti-odour siphon “G” in figure 5.7 is provided on request.

ATTENTION !!! If not connected to the drain, whenever the safety valve should intervene, it could cause damage to persons, animals or objects.

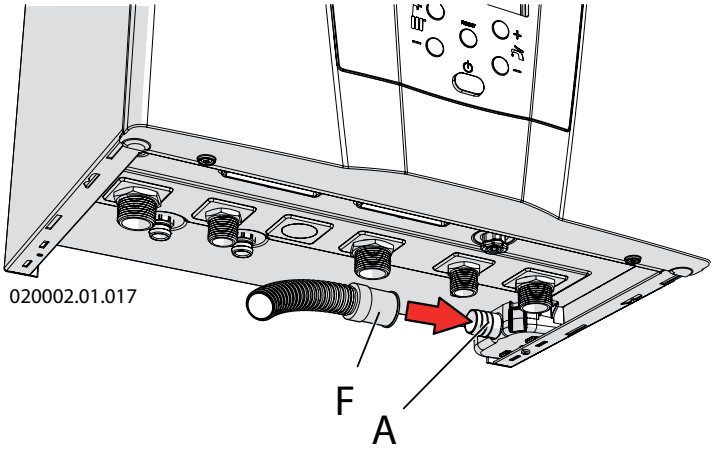


Figure 5.5 - Condensate drain pipe

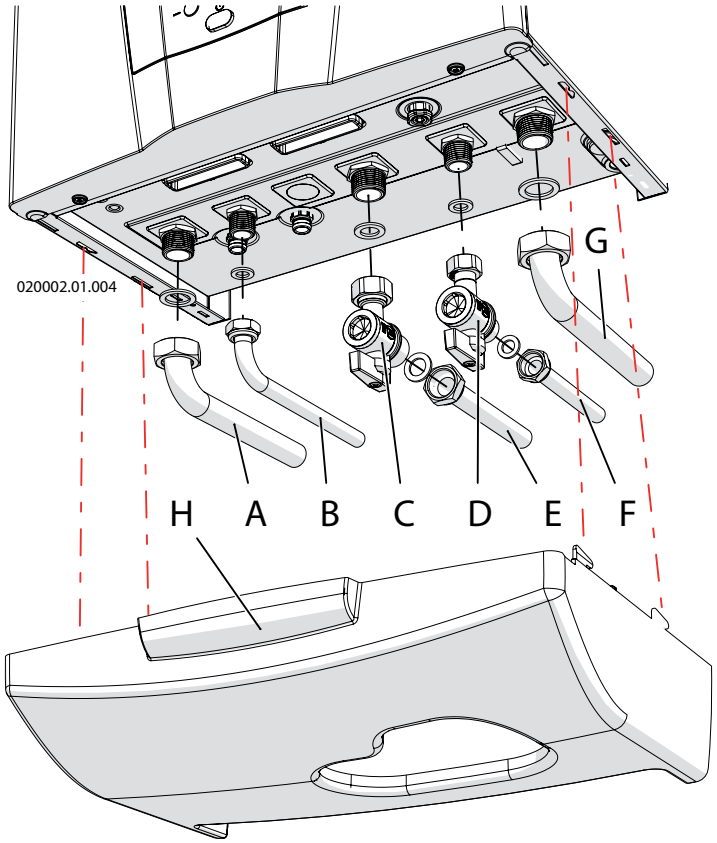


Figure 5.6 - Water and gas connections

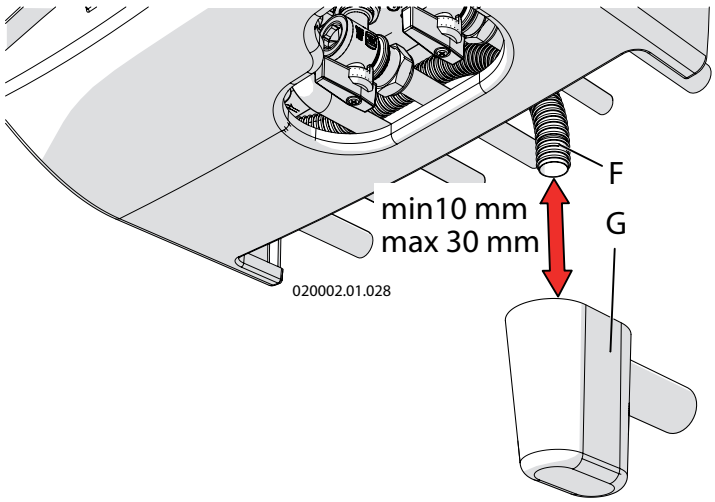


Figure 5.7 - Siphon funnel (on request)

5.11 - Hydraulic and gas connections and mounting of the lower cover

The boiler is provided with the fittings illustrated in figure 5.6 as per standard, where:

A = central heating supply
Ø 18 in the 15 and 24 models
Ø 22 in the 34 model

B = domestic hot water Ø 14 (absent in the “B” and ”C” models)
C = 3/4” gas inlet cock (EN 331 type-approved)

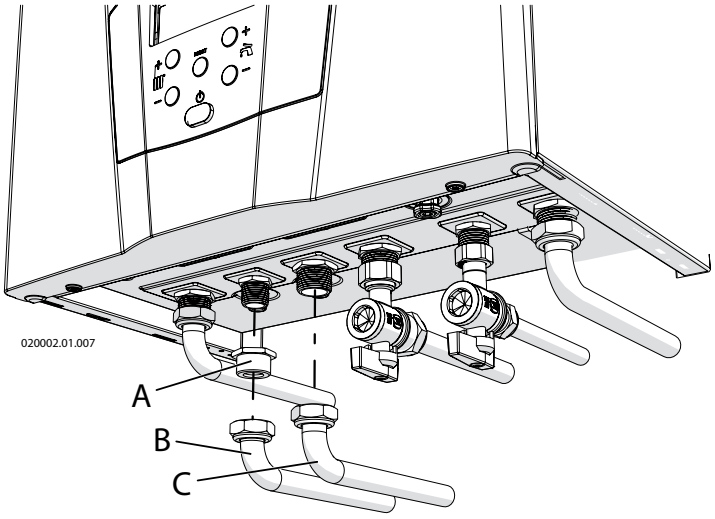
D = 1/2“ domestic cold water inlet cock

E = gas Ø 18

F = domestic cold water Ø 14

G = central heating return
Ø 18 in the 15 and 24 models
Ø 22 in the 34 model

Once the hydraulic and gas connections have been made, proceed with assembly of the lower cover “H” as indicated in figure 5.6.



A = reducer fitting
B = supply to indirect water heater coil
C = return from indirect water heater coil

Figure 5.8 - Hydraulic connections for boiler with indirect water heater with coil

5.12 - Hydraulic connection for MYDENS -- B boiler

The “B” version of the boiler must be connected to a indirect water heater with coil for the production of domestic hot water (see also chapter 5.15).
To do this, fittings have been set-up for connection to the indirect water heater. Operate as follows to prepare (refer to figure 5.8):
1.- mount the reducer “A”;
2.- mount the wires “B” and “C”;
Make sure that every coupling has its own gasket introduced

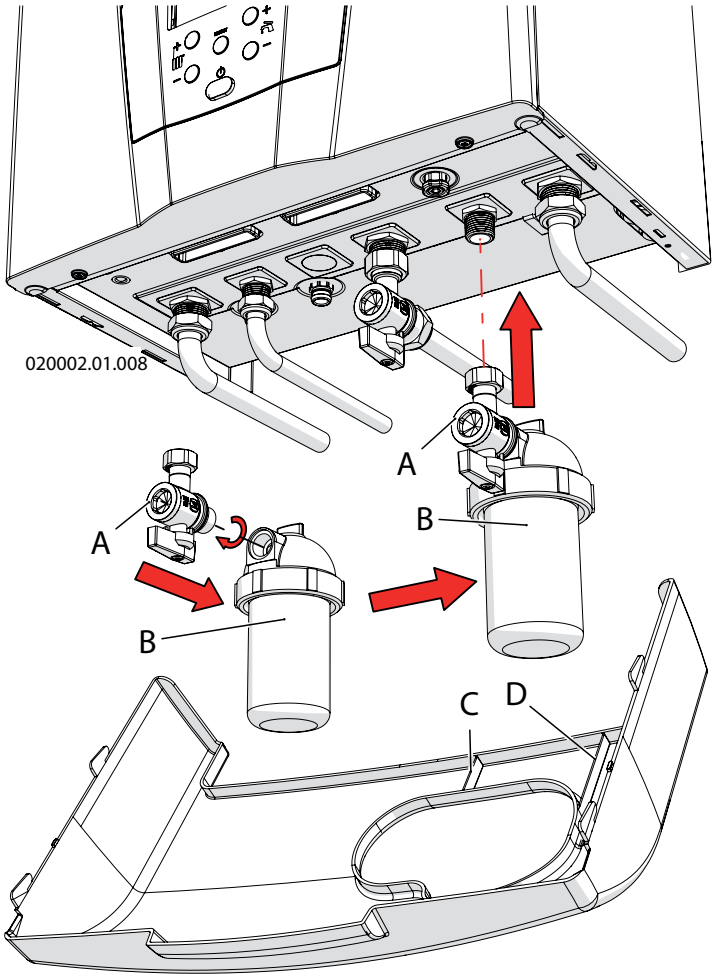


Figure 5.9 - Polyphosphates softener (on request)

5.13 - Polyphosphates softener (on request)

If the boiler is installed in a geographical area where domestic water has hardness exceeding 25°F (250 mg/l), a polyphosphates softener must be installed on the cold water supply (see figure 5.9 detail “B”), in order to safeguard the appliance from any lime scale deposits.
Proceed as follows for installation (refer to figure 5.9):
1.- connect the softener “B” to the cock “A”;
2.- mount the cock “A” to the boiler fitting;
3.- proceed with the installation of the cold water inlet pipe into the fitting behind the softener “B”;
4.- before re-mounting the lower cover, it is necessary to trim (only in the rear part), the entire part between walls “C” and “D”, from the outer edge to the central slot, to allow the softener “B” to be housed.

5.14 - Electric connections: generalities

ATTENTION !!! The appliance is only electrically safe when it has been correctly connected to an efficient earth circuit, performed as envisioned by the current Safety Standards.

This fundamental safety requirement must be met. If in doubt, request a thorough control of the electric plant by a professionally qualified technician.

☞ Have a professionally qualified technician check that the electric plant is suitable for the electric power required by the appliance, indicated on the plate.

☞ The appliance must be connected to the mains electricity using a cable coupler. The use of adapters, multiple sockets, extensions, etc. is not allowed.

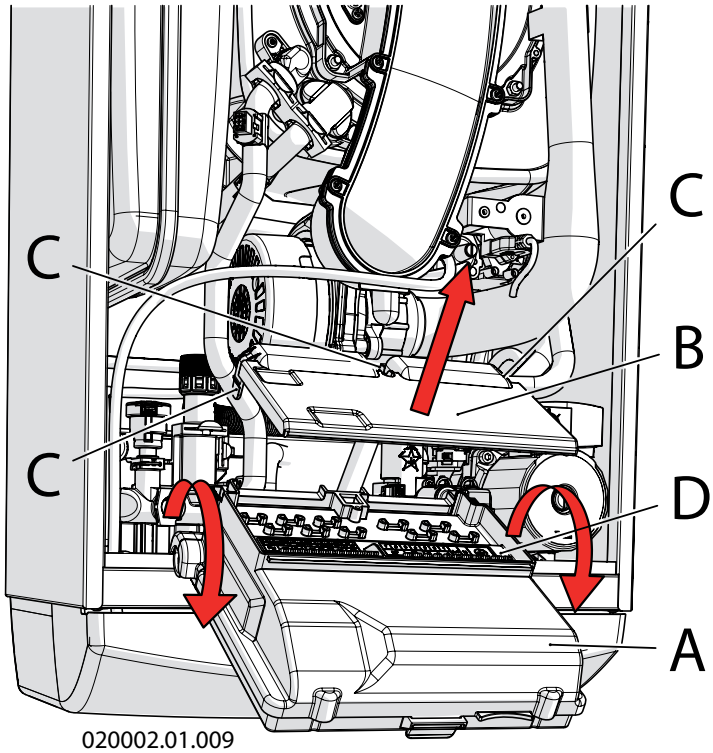
☞ The appliance must be connected to the mains electricity using a three-polar electric cable, with double isolation, minimum section of 1.5 mm² and resistant to a minimum temperature of 70°C characteristic T).

☞ For connection to mains electricity, a bi-polar switch must be envisioned in the vicinity of the appliance with a contacts opening distance of at least 3 mm, as envisioned by the current regulations on the subject.

☞ Respect the polarity between the neutral phase during connection of the appliance.

☞ Make sure that the water plant and heating pipes are not used as earth points for the electric or telephone plant. This piping is not suitable for this purpose, moreover, serious corrosion damage would occur in a very short time, on the appliance, piping and radiators.

ATTENTION !!! the boiler is not protected against the effects caused by lightening.



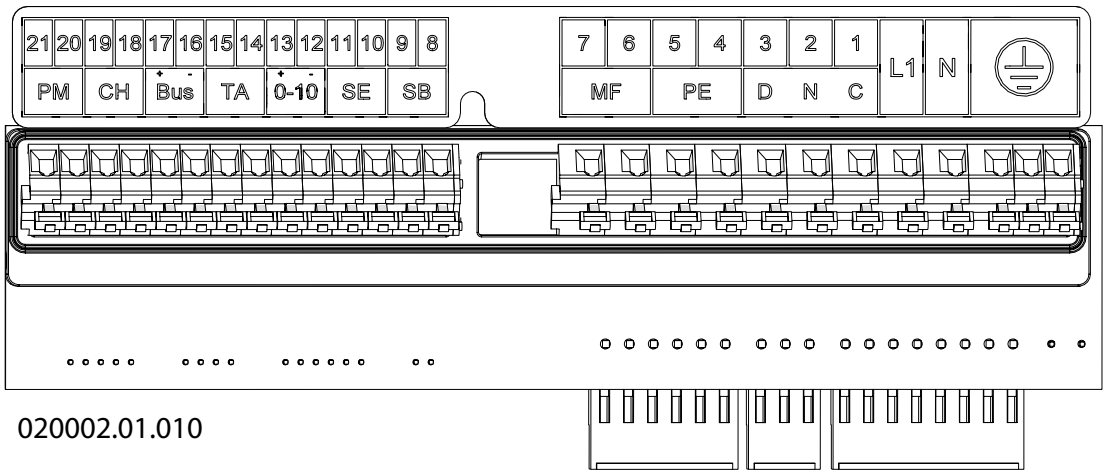
020002.01.009

Key for figure 5.10

A = Commands board box;
B = Electric connections board lid;
C = Connections lid closing flaps;
D = electric connections board

Key for electric contacts

PM = External modulating pump control (if present)
CH = Supply sensor (for boilers in cascade mode)
BUS = Remote control
TA = Room thermostat/chronothermostat
0-10 = 0-10 volt signal input
SE = External sensor (if present)
SB = Indirect water heater sensor (if present)
MF = Multi-function output
PE = External pump (if present)
DNC = External diverter valve (if present) (D = Domestic hot water line; N = Neutral; C = Heating line)
L1 = boiler power supply line
N = Boiler power supply neutral
EARTH SYMBOL = Earth contacts



020002.01.010

Figure 5.10 - Electric connections

5.14.1 - Power supply cable connection

Proceed as follows to connect the power supply cable (refer to figure 5.10):

1.- use a three-polar cable with double isolation, with minimum section of 1.5 mm²
2.- remove the casing from the appliance following the relevant instructions in chapter 8.2;
3.- rotate the panel “A” towards the front of the boiler;
4.- operate on the flaps “C” and open the lid “B” as indicated by the arrow;
5.- lay the power supply cable through the fairlead in proximity of the contacts “L1”, “N” and earth symbol;
6.- strip the cable making sure that the earth wire (yellow/green) is kept 20 mm longer than the other two;
7.- connect the yellow-green cable to the earth clamp (see symbol)
8.- connect the brown cable (Phase) to the clamp L1
9.- connect the blue cable (Neutral) to the clamp N

5.14.2 - Choosing the room thermostat/ chronothermostat

The boiler is set-up to operate with any room thermostat or chronothermostat, which has the contact to which the cables coming from the boiler are to be connected, with the following features:

- open/closed (ON/OFF);
- potential-free (not powered);
- closing when there is a request for heat;
- 24Vac, 1A electrical feature.

5.14.3 - Connecting the room thermostat/ chronothermostat

Install the room thermostat in a place in the house where the temperature is the most characteristic of the home and however in an area that is **not** subjected to repeated temperature changes, away from windows or doors which open directly to the outside (see figure 5.11).

Proceed as follows to connect the room thermostat cable (refer to figure 5.10):

1.- use a bi-polar cable with minimum section of 1.5.5mm², which goes from the boiler to the room thermostat/ chronothermostat. The maximum length allowed is 20 metres. For lengths exceeding 100 metres, use a shielded cable with shield earthing;
2.- remove the casing from the appliance following the relevant instructions in chapter 8.2;
3.- lay the electric cable through the fairlead in proximity of the “TA” contacts;
4.- use a free fairlead, not used by other wires;
5.- strip the cable;
6.- connect the two ends of the cable to the “TA” clamps (see figure 5.10).

ATTENTION !!! As the room thermostat/ chronothermostat cables are subjected to very low safety voltage (25Vdc), they must flow in wires different from the 230 Vac power supplies.

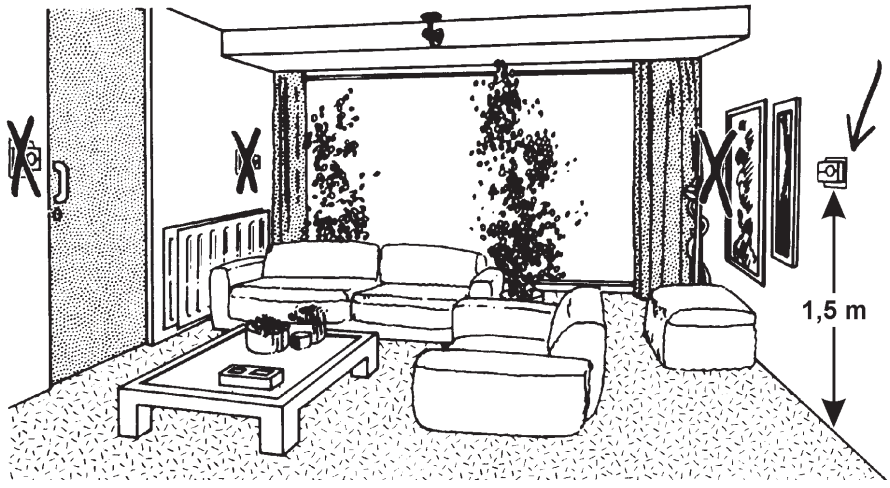


Figure 5.11 - Correct positioning of the room thermostat/chronothermostat

5.14.4 - Installing the external temperature sensor (on request)

Install the external temperature sensor outside the building in a wall facing NORTH or NORTH-EAST, at a height of 2 to 2.5 metres from the ground. In buildings with several floors, it must be installed at about half way up the second floor. Do not install it above windows, doors or ventilation outlets or directly below balconies or gutters. Do not plaster over the external temperature sensor. Do not install the sensor on walls without eaves, i.e. not protected from rain.
Whenever the sensor is installed on a wall that has yet to be plastered, it must be installed with a suitable thickness or be removed before plastering.
Proceed as follows to connect the external temperature sensor cable:

1.- lay a bi-polar electric cable with minimum section of 1.5mm², which goes from the boiler to the external temperature sensor. The maximum length allowed is 20 metres. For other lengths up to 100 metres, use a shielded cable with shield earthing.

ATTENTION !!! As the cables are subjected to very low safety voltage (24Vdc), they must flow in wires different from the 230 Vac power supplies.

2.- connect the bipolar cable to the “SE” clamps in figure 5.10;

3.- connect the bi-polar cable to the ends of the external temperature sensor.

Set the boiler to learn of the external temperature sensor as follows (refer to figure 7.1):

1.- press the and RESET keys simultaneously for 5 seconds and until the symbol appears on the display to indicate the entry to the “Installer” menu;

2.- press the and keys to scroll the parameters in the “Installer” menu until the parameter 2003 is displayed;

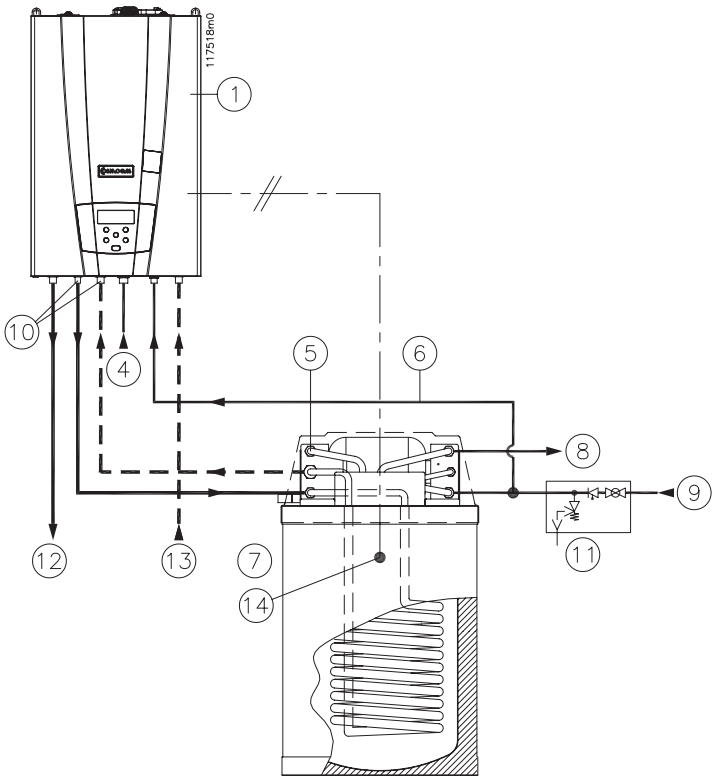
3.- press the RESET key to enable the modification of the parameter (highlighted by the fact that it starts to flash);

4.- press the and keys to modify the value of the parameter, taking it to the value of 1 or 2 on the type of climatic adjustment desired (see chapter 7.11);

5.- press the RESET key to confirm the modification of the parameter (highlighted by the fact that the value of the parameter starts to flash);

6.- press the RESET key for 2 seconds to go back to normal display;

The enabling of the external sensor is confirmed by the appearance of the icon on the display.
Proceed with the steps given in chapter 7.11.3 to set the correct adjustment values of the supply temperature depending on the external temperature.



1 MYDENS -- B boiler
2 -
3 -
4 Gas supply
5 D.H.W. recirculation connection (optional)
6 Connection for filling central heating plant (by the installer)
7 BWR C indirect water heater or general indirect water heater with coil
8 Domestic hot water outlet
9 Cold water inlet
10 Supply and return for indirect water heater filling
11 Hydraulic safety unit (by the installer)
12 Supply to the central heating plant
13 Return from the central heating plant
14 Temperature sensor sample point

Figure 5.12 - hydraulic connection to BWR C type indirect water heater or general indirect water heater with coil

5.15 - Connecting the boiler to indirect water heater with coil

Only the MYDENS -- B model boiler can be connected to a indirect water heater with coil.
The hydraulic connection must be performed as per figure 5.12 (see also chapter 5.12).
Proceed as follows for the electric connection (refer to the figure 5.10):
1.- disconnect the electric power supply from the boiler;
2.- lay a bi-polar electric able with minimum section of 1.5 mm², which goes from the appliance to the indirect water heater temperature sensor and connect it to the boiler at clamps “8” and “9” (SB);
3.- connect the other end of the cable to the indirect water heater temperature sensor;
4.- introduce the temperature sensor inside the indirect water heater sample point (see figure 5.12 detail “14”).

The MYDENS -- C model boiler can be connected to a indirect water heater with coil also after installation. In this case, a diverter valve must be envisioned outside the boiler to fill the indirect water heater along with setting parameter 3012 at the value of 1.

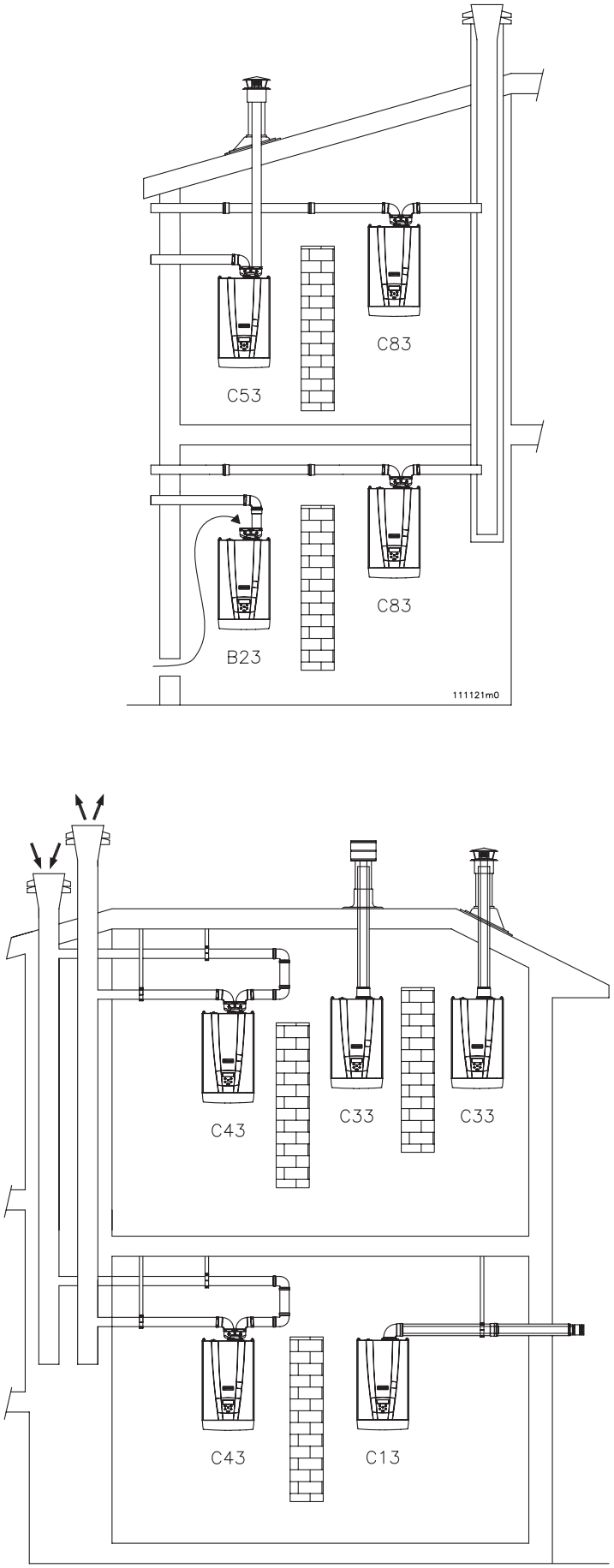
The temperature of the water stored inside the indirect water heater can be selected by the user in a range between 40 and 70°C.

ATTENTION !!! A hot water temperature level exceeding 51°C can cause permanent injury/damage to persons, animals and objects.
Children, the elderly and disabled must be protected against the potential risks of scalding, by introducing devices that limit the temperature of use of domestic hot water to utilities.

5.15.1 - Anti- legionella

If the boiler is connected to a indirect water heater for the preparation of domestic hot water, a disinfection cycle is envisioned against the legionella bacterium. This cycle envisions taking the indirect water heater to a temperature of 60°C (temperature at which the legionella bacteria dies) at least every week. It is for this reason that the water (at certain times) can reach the utilities at a higher temperature that than set with the relative command.

ATTENTION !!! A hot water temperature level exceeding 51°C can cause permanent injury/damage to persons, animals and objects.
Children, the elderly and disabled must be protected against the potential risks of scalding, by introducing devices that limit the temperature of use of domestic hot water to utilities.



5.16 - Burned gas exhaust and combustion agent air intake pipe

ATTENTION !!! To connect the burned gas exhaust and combustion agent air intake, the relevant national and local regulations must be respected.

ATTENTION !!! The fumes of this appliance can reach 90°C in determined conditions. Therefore, use pipes in plastic that can resist high temperatures.

ATTENTION !!! This appliance is the "condensing" type. Use AISI 316 stainless steel materials to make the fumes exhaust. The polypropylene materials to prevent corrosions due to the acidity of the condensate.

Regarding this, remember that appliances of this type must have exhaust and intake pipes supplied by the manufacturer of the appliance itself.

Other types of pipes, if used, must be type-approved for this intended use.

The types of exhaust for which the appliance is approved are given on the technical features table at the end of the manual under the "type" heading and on the features plate affixed to the boiler, also under the "type" heading.

The symbols used to define type of exhaust is given below:

- B23, separated with intake in room and exhaust through wall or roof.

ATTENTION !!! If the appliance is installed with the B23 type exhaust, it will take in air for combustion from the surrounding environment. Therefore, all precautions must be taken regarding ventilation of the rooms, which are prescribed by the national and/or local Standards.

- C13, coaxial in vertical wall
- C33, coaxial at the roof
- C43, separated with exhaust in flue, combined with intake in common channel.

ATTENTION !!! The boilers installed in type C43 must only be connected to conventional flues.

- C53, separated with exhaust on roof and intake on wall or however, in two potentially different pressure points.
- C63, the boiler can be fitted to type-approved exhaust and intake pipes of other brands.

ATTENTION !!! With the C63 type exhaust, the condensate coming from the chimney cannot be conveyed into the boiler.

- C83, separated with wall intake or another point independent from the intakes of other appliances and flue exhaust.

Figure 5.13 - Exhaust/intake systems

During operation, especially in the winter, due to high efficiency, white smoke may escape from the appliance exhaust. This is solely a natural phenomenon and must not be worried about in any case, because it is the water vapour present in the fumes which in contact with the outside air, condensates.

5.16.1 - Type of intake/exhaust B23

In the case of B23 type combustion agent air/fumes exhaust systems, it is indispensable that the rooms in which the appliances are installed have at least as much air as that required by combustion and ventilation of the room. It is therefore good practice to remember that the combustion of 1 m^3 of gas requires 11 cm^3 of air.
The natural flow of air must take place directly through permanent openings made in the outside walls of the room to be ventilated; however away from sources of pollution, such as: vents of dubious origin, airborne industrial exhaust etc.

The ventilation openings must meet the following requirements:

- ☞ have sections with net passage of at least 6 cm^2 for every kW of heat input installed, with minimum of 100 cm^2;
- ☞ be realised in a way that the opening inlets both inside and outside the wall cannot be blocked;
- ☞ be protected, for example with grids, metal meshes, etc.. The net section of the passage must not be reduced by these elements;
- ☞ ebe situated at a height more or less of the floor and such not to disturb the correct operation of the combustion products exhaust devices. Where this position is not possible, the section of the ventilation openings must be increased by at least 50%.

The flow of air can also be obtained from an adjacent room as long as:

- ☞ it has direct ventilation, in compliance with the previous points;
- ☞ in the room to be ventilated, only appliances fitted to exhaust pipes are installed;
- ☞ the adjacent room is not a bedroom;
- ☞ the adjacent room is not a common part of the building;
- ☞ the adjacent room is not an environment with fire hazard, such as a hangars, garages, combustible materials warehouse, etc.;
- ☞ the adjacent room does not have a negative pressure with respect to the room to be ventilated due to reverse draught (which can be caused by the presence in the room of another appliance operating with any type of fuel, a fireplace and any other intake device for which an adequate air intake has not been envisioned);
- ☞ the flow of air from the adjacent room to that to be ventilated can take place freely through permanent openings with total net section not less than that indicated at the start of this chapter.

In rooms where gas appliances are installed, it may become necessary, as well as the input of combustion agent air, also to evacuate the stale air, with resulting release of an additional equal amount of clean air.

If the stale air is evacuated with the aid of a mechanical tool (electric fan) the following conditions must be respected:

a) if there is a common exhaust pipe in the room, it must be capped;
b) the ventilation opening of the room in which the gas appliance is installed must be increased depending on the maximum air flow rate required at the electric fan.
c) the action of the electric fan must not affect the correct evacuation of the combustion products. To this end, that stated above must be verified by draft testing, running the fan or extractor hood at its maximum power and the gas appliance at the maximum and minimum power.

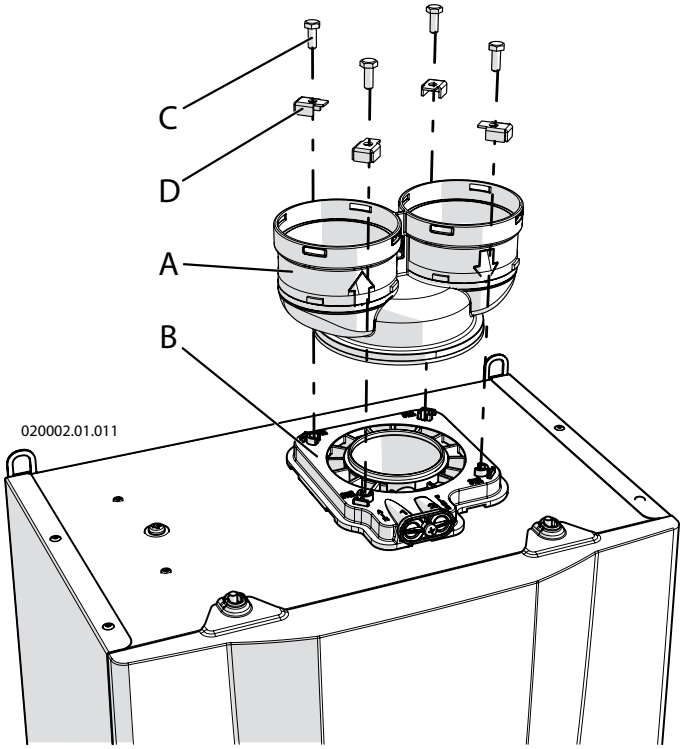


Figure 5.14 - Installation of the “80/80PP Split” System

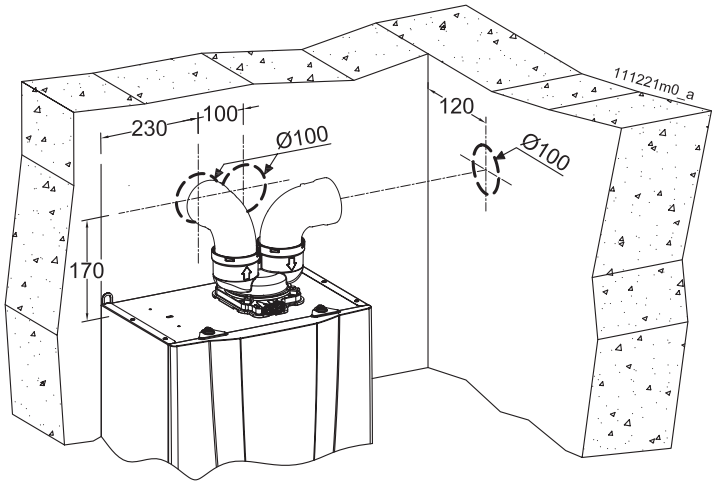


Figure 5.15 - Clearance

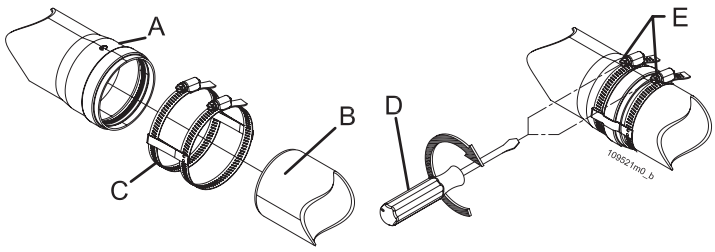


Figure 5.16 - Fixing the exhaust and intake pipes

5.16.2 - “Split 80/80PP” System (polypropylene) (Type C43; C53; C83)

The appliance is supplied as per standard without fittings for the connection of the fumes exhaust/air intake. To connect the boiler to a “80/80PP Split” system, the relevant kit must be requested and must be installed as in figure 5.14.
Fitting “A” can rotate freely by 360°, guaranteeing optimum installation versatility.

- ☞ In the fumes exhaust side, it is recommended to install AISI 316L stainless steel or polypropylene pipes, which are more resistant to the formation of condensate.
- ☞ Take particular care with the installation of pipes in the part that passes through the wall to the outside. The normal maintenance operations must always be possible, therefore install the pipes in a sheath so that they can be slid out.
- ☞ The horizontal tracts must always have an inclination of at least 2% towards the condensate drain device.
- ☞ The boiler is already set-up to collect the condensate, which must be fitted to a drain pipe (see chapter 5.9).

ATTENTION !!! This condensate drain is designed to make all liquid produced flow from a single appliance. If several boilers are installed, each one must envision its own condensate drain.

The fumes exhaust/air intake system can be extended up to a maximum distance as indicated in chapter 9. Every 90° bend has a loss equivalent to 1 metre of linear pipe. Every 45° bend has a loss equivalent to 0.5 m of linear pipe.

ATTENTION !!! The fumes exhaust terminal must be appropriately protected against the effects of the wind (see also 7.19.1 error Loc 20).

ATTENTION !!! Mechanically secure the joints between the various component elements of the exhaust and intake pipe, through the use of fixing systems or equivalent systems. See figure 5.16

ATTENTION !!! The temperature of the exhaust pipe can reach 90°C during operations. If it must pass through a wall that is sensitive to these temperatures, insert a protective heat-isolation sheath.

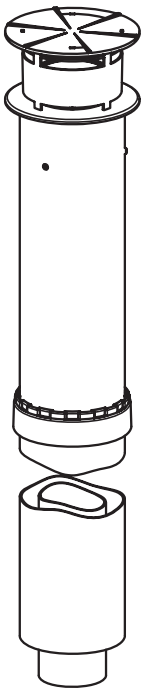
ATTENTION !!! If the air intake and fumes exhaust terminals are positioned in the same wall, they must remain at a minimum distance of 1 metre.

ATTENTION !!! The exhaust and intake pipes must be appropriately sustained via rigid brackets positioned non more than 1 metre from each other. The brackets must be fixed to rigid walls that can support the weight of the pipe itself.

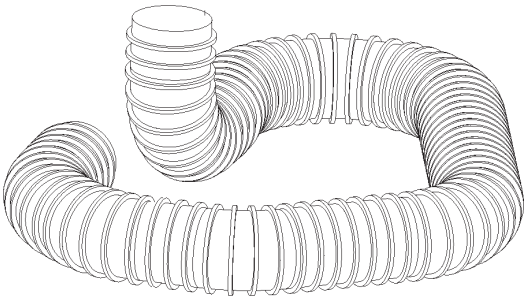
5.16.3 - “Split 80/80PP” System (Type C43; C53; C83): accessories available

To make the “80/80PP split” fumes exhaust/air intake system, we propose some of the most common accessories available; remember that a wide range can be consulted in the relevant catalogue: (the number after the code is used to recall the piece in the following drawings)

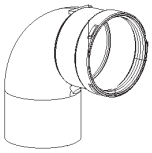
62617306 - N° 10 PP coaxial roof terminal
62617244 - N° 12 90° bend M/F PP
62617255 - N° 29 converts for pitched roofs from 15° up to 25°
62617236 - N° 11 extension M/F PP
62617249 - N°18 anti-slip bands for extensions PP
62617240 - N° 14 flexible hose M.F. PP L=20m
62617241 - N°16 spacer for flexible hose
62617238 - N° 17 telescopic joint PP
62617242 - N° 15 T-fitting PP
62617246 - N° 13 45° bend M/F PP



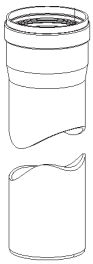
COD. 62617306



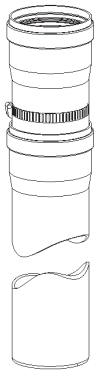
COD. 62617240

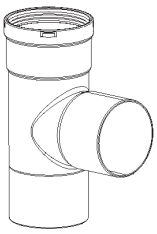


COD. 62617244



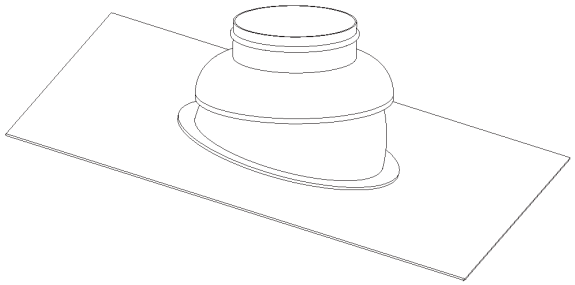
COD. 62617236



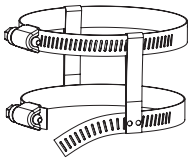


COD. 62617242

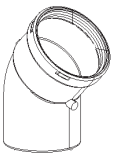
COD. 62617238



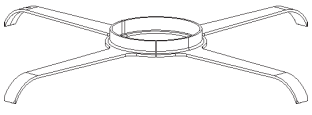
COD. 62617255



COD.62617249



COD. 62617246



COD. 62617241

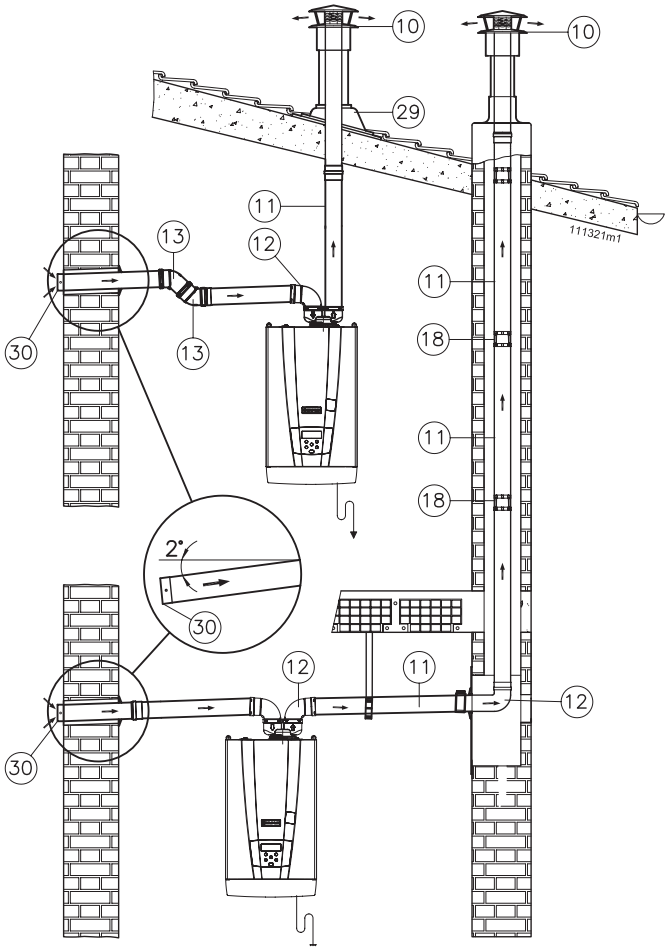


Figure 5.17 - Example of “80/80 PP System” installation

5.16.4 - “Split 80/80PP” System (Type C43; C53; C83): installation examples

In figure 5.17 two examples of installation are given:

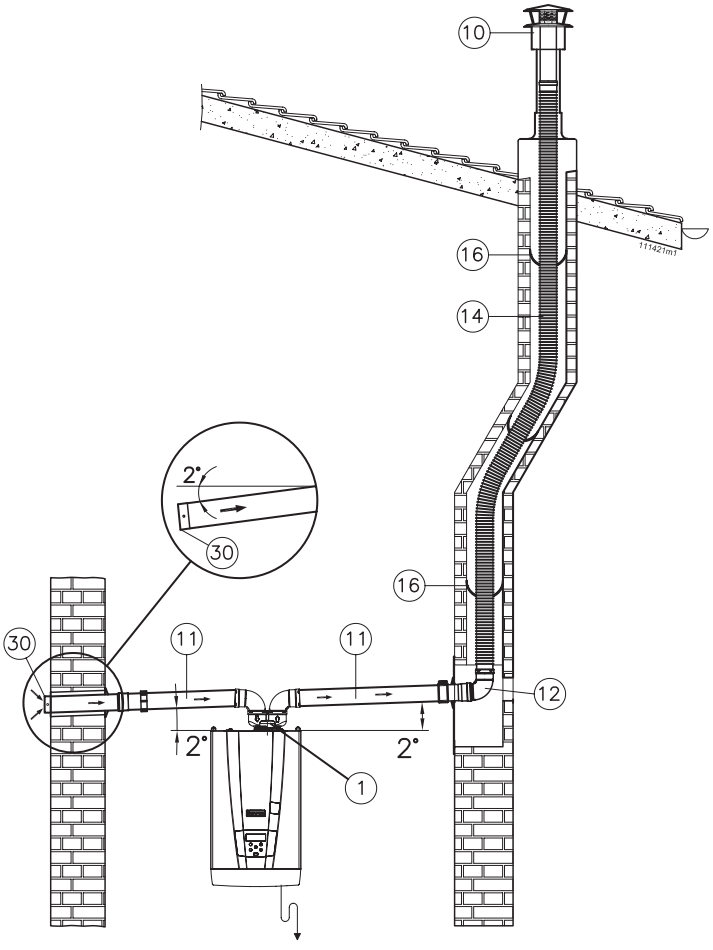
- exhaust into chimney with collection of condensate inside the boiler itself.

The horizontal part of the fumes exhaust side must be inclined towards the boiler.

The intake must slope towards the outside to prevent rain water entering.

- exhaust to the outside directly with the boiler pipes with condensate collection inside the boiler itself.

The intake must slope towards the outside to prevent rain water entering.



in figure 5.18 it is possible to see a separated type of fumes exhaust, where fumes exhaust was realised with flexible hose in polypropylene for piping of technical cells.

The condensate produced in the vertical pipe must all be conveyed into the boiler.

The intake must slope towards the outside to prevent rain water entering.

Figure 5.18 - Example of “80/80 PP System” installation

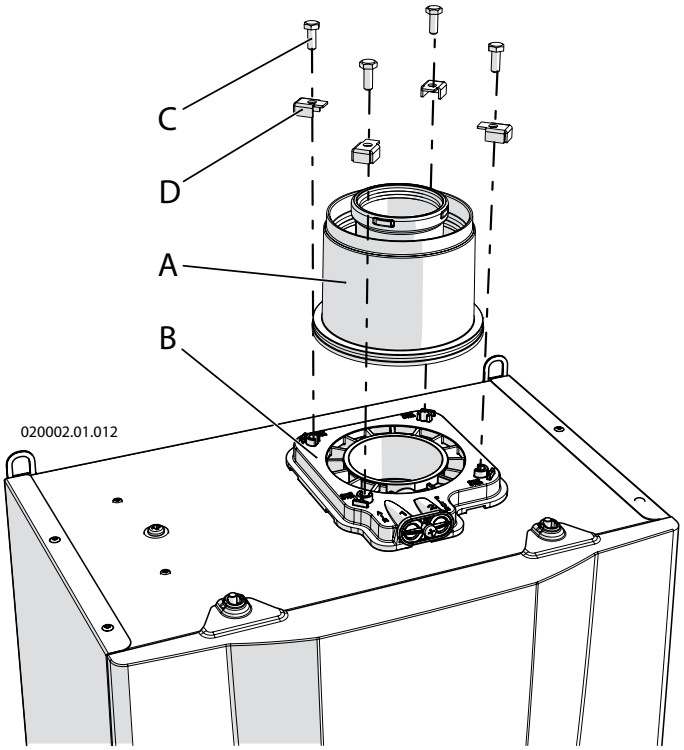


Figure 5.19 - Installation of vertical coaxial system

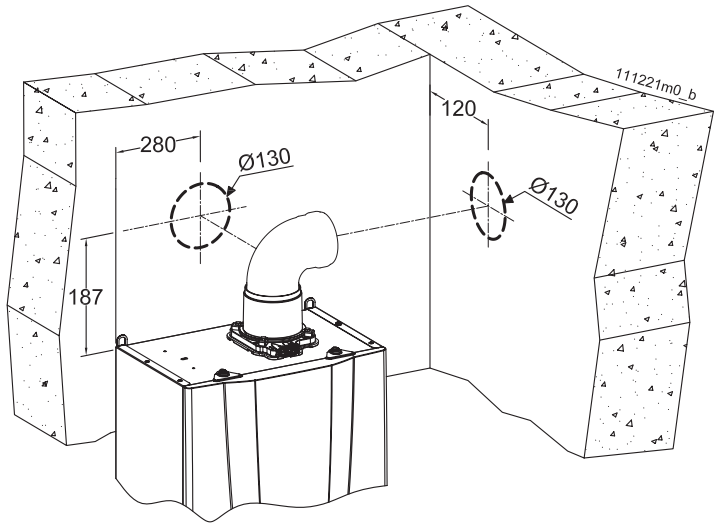


Figure 5.20 - Quotes and hole centre to centre distances for coaxial drain pre-installation

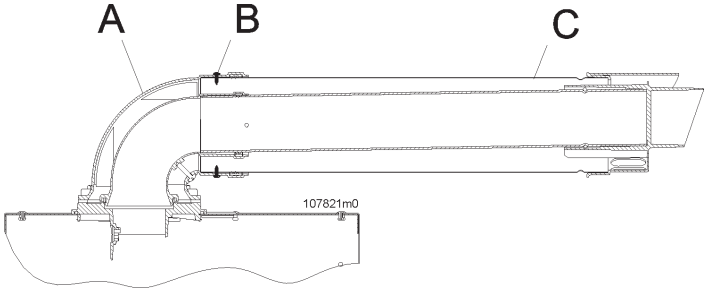


Figure 5.21 - Positioning the coaxial pipe

5.16.5 - "60/100PP vertical coaxial" System (polypropylene) (C13; C33)

The appliance is supplied as per standard without fittings for the connection of the fumes exhaust/air intake. To connect the boiler to a 60/100 coaxial system, the relevant kit must be requested and must be installed as in figure 5.19.

ATTENTION !!! Scrupulously follow the installation phases of the coaxial pipe as illustrated in figure 5.21. In particular:

1.- introduce the coaxial pipe "C" inside the bend "A";
2.- fix the external pipe using the stainless steel self-threading screws "B".

ATTENTION !!! The coaxial exhaust and intake pipes must be appropriately sustained via rigid brackets positioned non more than 1 metre from each other. The brackets must be fixed to rigid walls that can support the weight of the pipe itself.

ATTENTION !!! Once these operations have been performed, check that the exhaust/intake terminal is exposed to the outdoors with the tolerances given in figure 5.25

☞ Take particular care with the installation of pipes in the part that passes through the wall to the outside. The normal maintenance operations must always be possible, therefore install the pipes in a sheath so that they can be slid out.

☞ The horizontal tracts must always have an inclination of at least 2% towards the boiler.

☞ The fumes exhaust/air intake pipe can be extended up to a maximum distance as indicated in the table in chapter 9 at the end of the manual. Every 90° bend has a loss equivalent to 1 metre of linear pipe. Every 45° bend has a loss equivalent to 0.5 m of pipe.

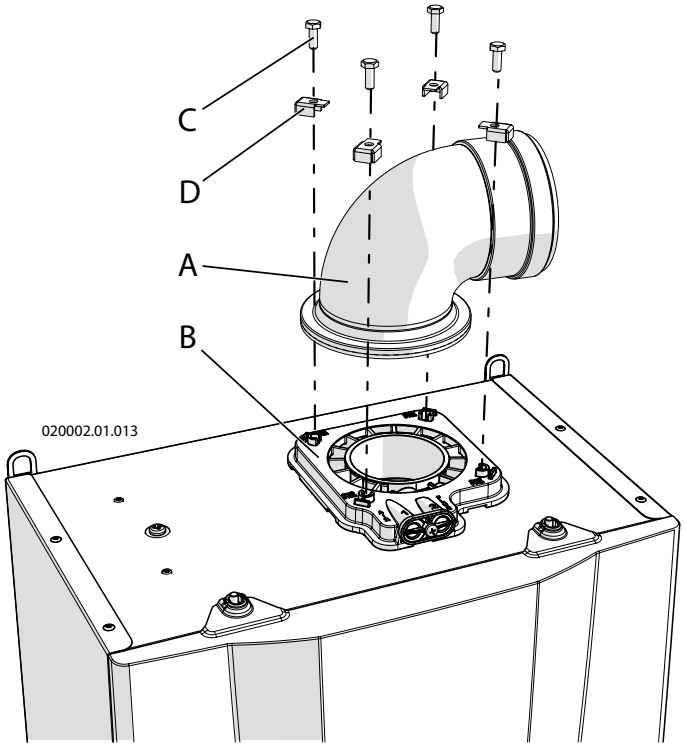


Figure 5.22 - Installation of horizontal coaxial system

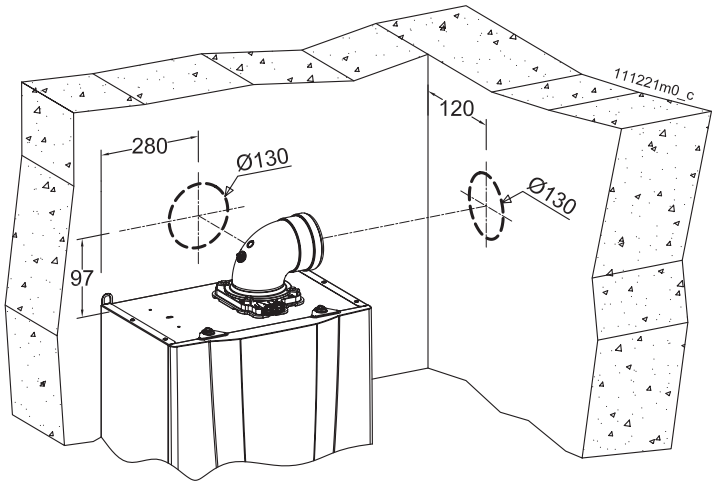


Figure 5.23 - Quotes and hole centre to centre distances for coaxial drain pre-installation

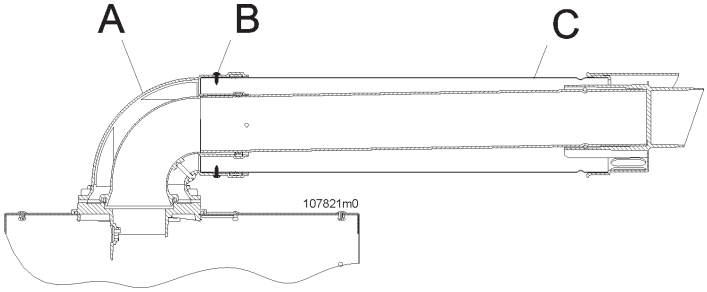


Figure 5.24 - Positioning the coaxial pipe

5.16.6 - “60/100PP horizontal coaxial” System (polypropylene) (C13; C33)

The appliance is supplied as per standard without fittings for the connection of the fumes exhaust/air intake. To connect it to a 60/100 coaxial system, the relevant kit must be requested and must be installed as in figure 5.22.

ATTENTION !!! Scrupulously follow the installation phases of the coaxial pipe as illustrated in figure 5.24. In particular:

1. - introduce the coaxial pipe “C” inside the bend “A”;
2. - fix the external pipe using the stainless steel self-threading screws “B”.

ATTENTION !!! The coaxial exhaust and intake pipes must be appropriately sustained via rigid brackets positioned non more than 1 metre from each other. The brackets must be fixed to rigid walls that can support the weight of the pipe itself.

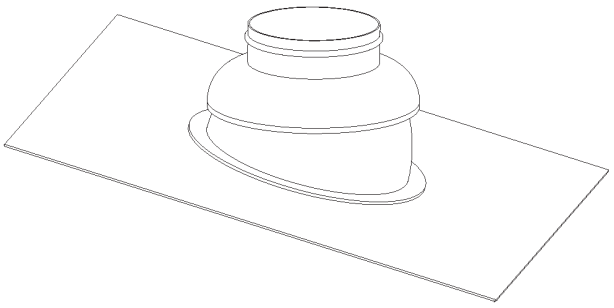
ATTENTION !!! Once these operations have been performed, check that the exhaust/intake terminal is exposed to the outdoors with the tolerances given in figure 5.25

- ☞ Take particular care with the installation of pipes in the part that passes through the wall to the outside. The normal maintenance operations must always be possible, therefore install the pipes in a sheath so that they can be slid out.
- ☞ The horizontal tracts must always have an inclination of at least 2% towards the boiler.
- ☞ The fumes exhaust/air intake pipe can be extended up to a maximum distance as indicated in the table in chapter 9 at the end of the manual. Every 90° bend has a loss equivalent to 1 metre of linear pipe. Every 45° bend has a loss equivalent to 0.5 m of pipe.

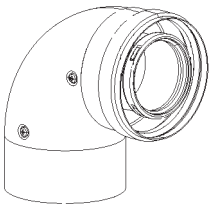
5.16.7 - “60/100PP Coaxial” System: accessories available

The following accessories are available on request to make the 60/100 coaxial fumes exhaust/air intake system: (the number after the code is used to recall the piece in the following drawings)

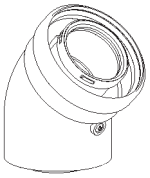
62617255 - N° 2 converts for pitched roofs from 5° to 25° extension L = 1000 mm
62617234 - N° 1 90° coaxial bend M/F PP
62617252 - N° 6 45° coaxial bend M/F PP
62617231 - N° 7 Coaxial extension L 1m PP
62617304 - N° 3 coaxial PP roof terminal
62617232 - N° 5 coaxial PP wall terminal



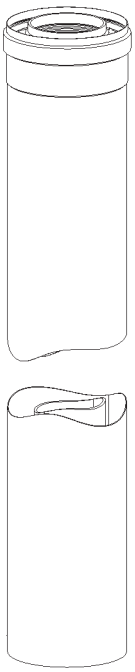
COD. 62617255



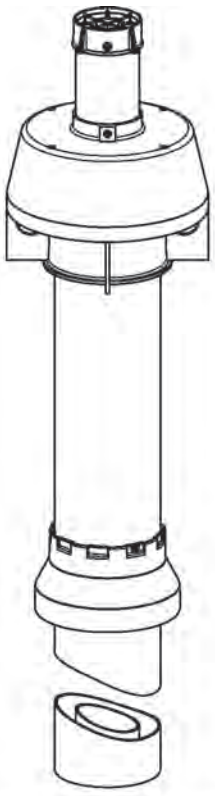
COD. 62617234



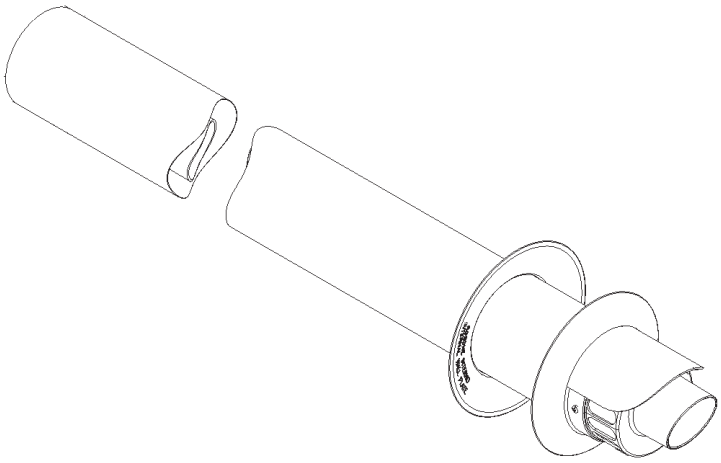
COD. 62617252



COD. 62617231



COD. 62617304



COD. 62617232

5.16.8 - “60/100PP Coaxial” System: installation examples

When a coaxial exhaust is made (see figure 5.25), both vertical and horizontal, the exhaust pipe slope upwards in a way to make the condensate flow into the boiler.

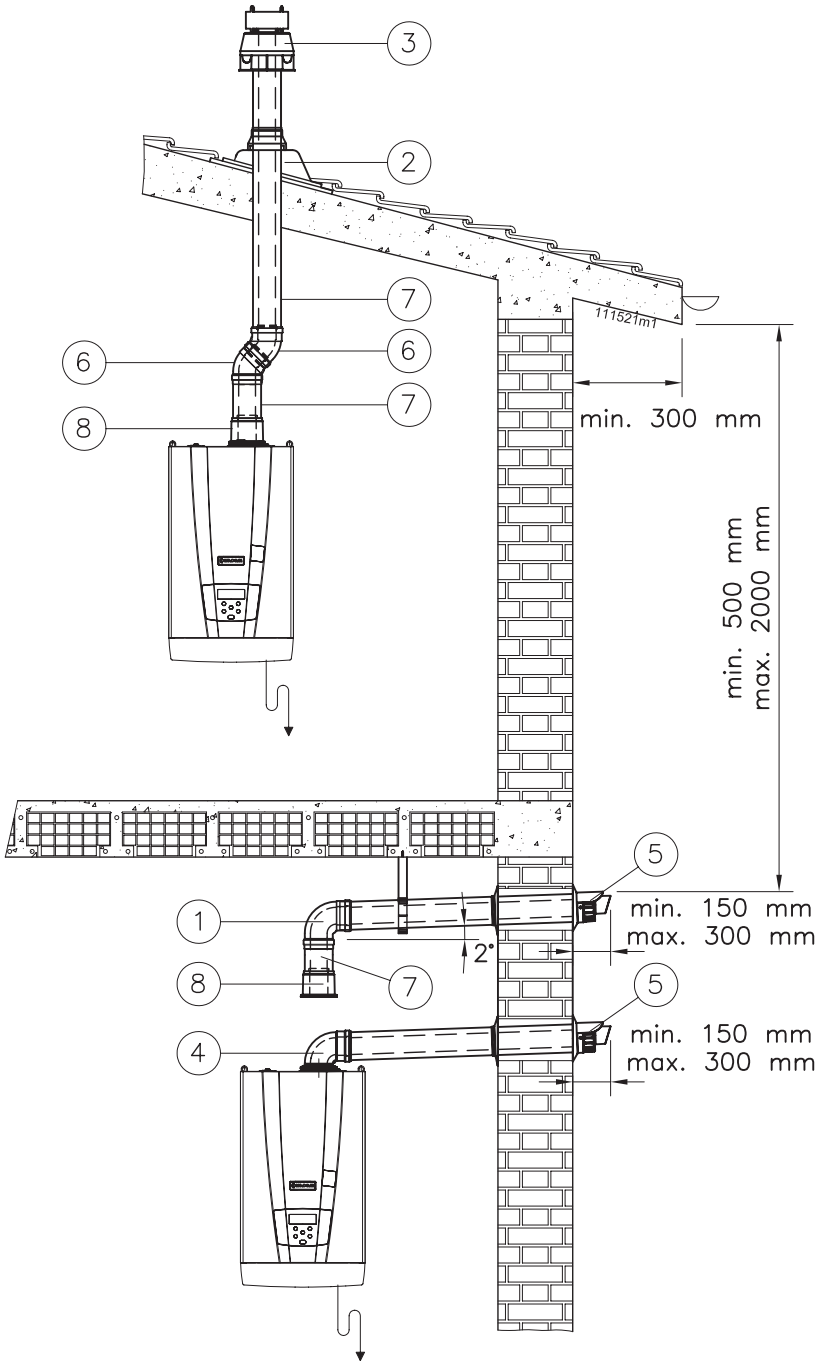


Figure 5.25 - Examples of coaxial pipe installation

6.1 - Operating

Before starting the appliance up, it is necessary to carry out the following.

6.1.1 - User instruction

Instruct the user regarding correct use of the appliance and the plant in general. In particular:

☞Give the installation and use manual and all documentation contained in the packaging to the user.

☞Instruct the user concerning the special measures for the exhaust of burned gases, informing them that they must not be modified.

☞Inform the user regarding the control of the pressure of the water required in the plant and the measures necessary to fill and bleed the air.

☞Inform the user regarding the correct adjustment of the temperatures, control units/room thermostats and radiators for energy saving.

6.1.2 - Filling the condensate drain siphon

IThe siphon found inside the boiler (see figure 3.1 detail “49”), must be filled with water to create the water head able to prevent the fumes escaping from pipe “F” in figure 5.5.
Proceed as follows to do this: (refer to figure 6.1)
1.- loosen the screw “E”;
2.- remove the lid “D” and the gaskets “C”;
3.- introduce a rubber hose into the opening “B” (do not confuse with “A”) and the other end of the hose into the funnel;
4.- use the funnel to slowly pour about 200 cm³ (a glass) of water;
5.- re-mount everything in reverse order.

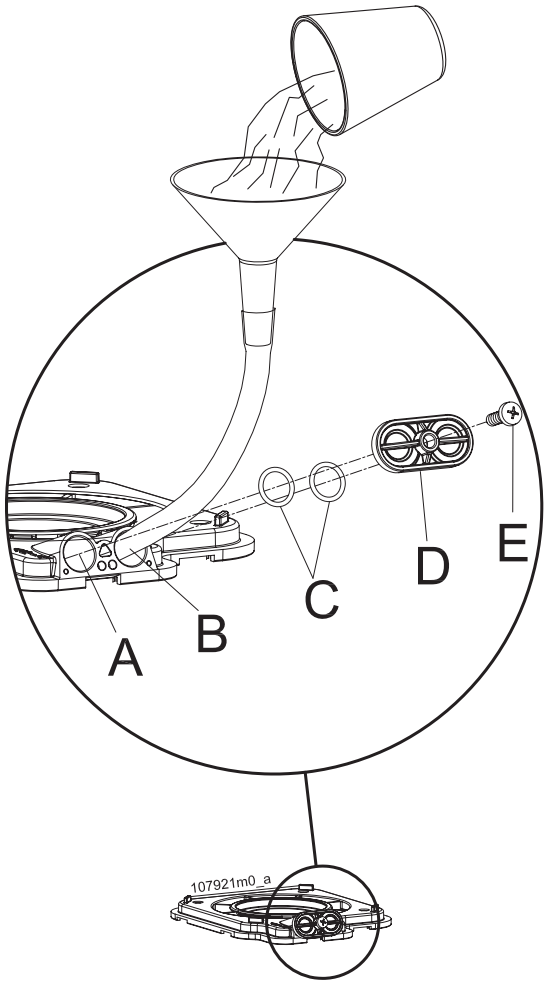


Figure 6.1 - Filling the condensate drain siphon

ATTENTION !!! If the boiler remains off for more than 3 months, the siphon must be filled again as explained above.

6.1.3 - Filling the central heating plant

If the word F ILL appears on the visual display when the boiler is powered electrically, it means that the central heating plant must be filled. Proceed as follows:

☞only use clean water from the network.

ATTENTION !!! The addition of chemical substances such as anti-freeze must be performed in compliance with the product instructions. In all cases, these substances must not be introduced directly inside the boiler.

1.- open the fill cock positioned under the boiler (see figure 7.2 detail “A”) and fill the plant to about 1.5 bar (the word F ILL) will disappear from the visual display;
2.- make sure there are no water leaks from the fittings;
3.- close the fill cock (see figure 7.2 detail “A”);
4.- bleed the heating elements;
5.- check the pressure on the boiler display again. If it has dropped, fill up to 1.5 bar again.

6.2 - General recommendations regarding the supply of gas

For commissioning of the boiler, have a professionally qualified technician perform the following checks:

- ☞ That the boiler is powered by the type of fuel for which it is set-up.
- ☞ That the gas supply pressure (with boiler operating and at a standstill) is within the maximum and minimum values indicated in the table in chapter 9 at the end of the manual.
- ☞ That the supply plant has all safety and control parts envisioned by the current national and local Standards.
- ☞ That the fumes discharge terminal and the combustion agent air intake terminal are free from any obstruction.
- ☞ That the fumes exhaust and combustion agent air intake terminal are positioned outside the building.
- ☞ That the condensate drain connection is connected.

ATTENTION !!! If you smell gas:

A - Do not switch on any electric device, telephone included or any object that can cause sparks;

B - Immediately open doors and windows causing a current of air that quickly cleans the gas from the room;

C - From another room, or from a neighbour's, immediately call a professionally qualified technician or the gas supply company. Call the Fire Service if the former are not available.

6.3 - Type of gas for which the appliance is regulated.

There is a label on the front of the appliance certifying the gas supply type and pressure for which the boiler is adjusted.
The boiler may have the following 2 types of wording:

2H-G20-20mbar NATURAL GAS

means that the appliance is adjusted to operate with H type gas of the second family (natural gas) at a supply pressure of 20 mbar.

3P-G31-37mbar LP GAS

means that the appliance is adjusted to operate with type P gas (Propane, also called LP Gas) of the third family, at a supply pressure of 37 mbar.

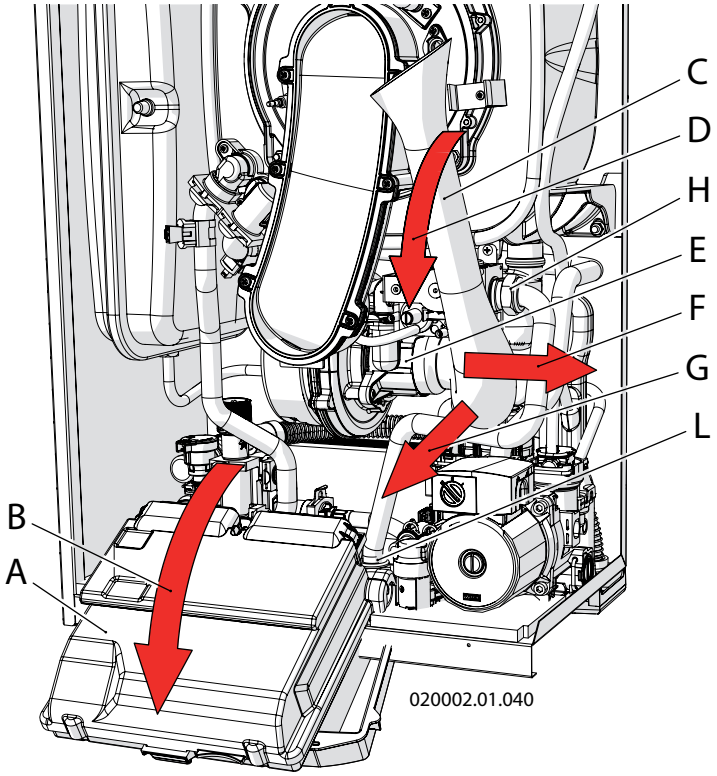


Figure 6.2 - Removing the air manifold

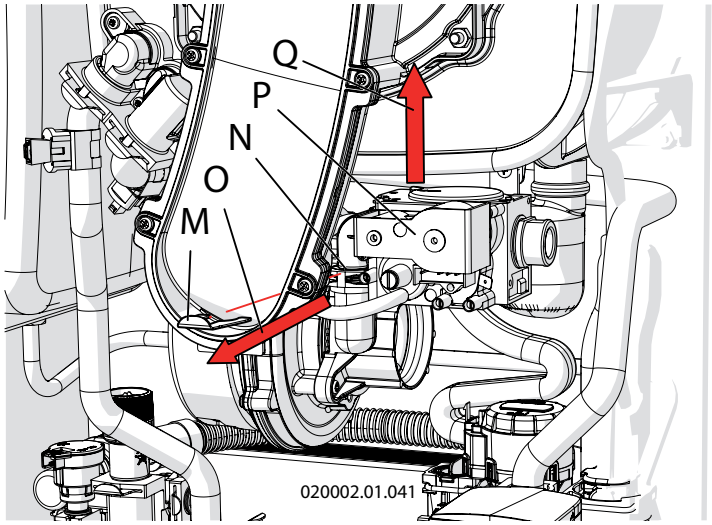


Figure 6.3 - Removing the gas valve

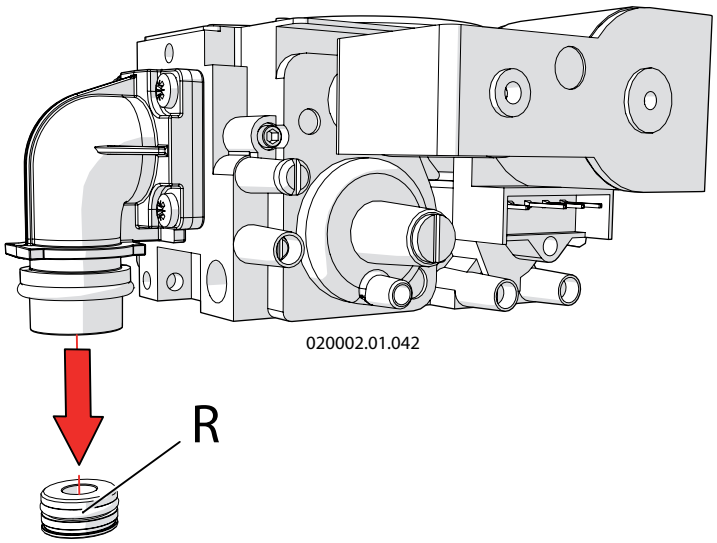


Figure 6.4 - Replacing the gas nozzle

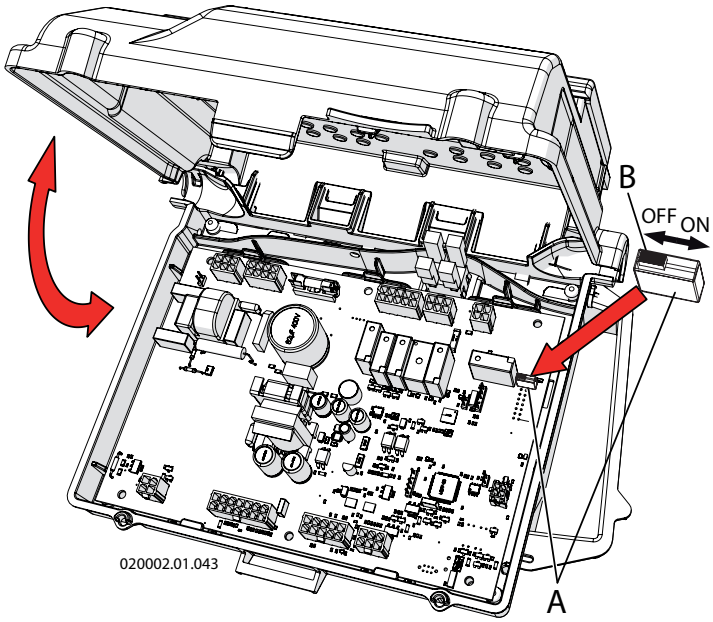
6.4 - Conversion of the appliance from one type of gas to another

- Read these instructions carefully before changing the gas:

- **The gas appliance must be installed, calibrated or modified by specialised staff in compliance with legal terms;**
- **Check and be certain that the type of gas which is powering the appliance is compatible with the adjustment kit in your possession;**
- **Do not power the boiler with gases different from those envisioned.**

Follow the instructions given below to change the gas:

1 - disconnect the electric power supply upstream from the appliance;
2 - open the boiler casing as reported in chapter 8.2;
3 - access the control and command board as reported in chapter 8.2;
4 - move the microswitch “B” of switch “A” from left to right to the “ON” position (see figure 6.5);
5 - apply electric power to the boiler;
6 - the parameter 3001 will appear on the boiler’s visual display, followed by its value;
7 - using the + and − keys, access the parameter 3002.
8. - press the RESET key to make the 3002 parameter flash
9. - using the + and − keys, set the value of parameter 3002 to the new corresponding value according to the table in figure 6.7 (for 15 kW also modify parameter 2002 taking it to 50 as indicated in the INSTALLER MENU chapter).
10. - press the RESET key to confirm the modification.
11.- remove voltage from the boiler, re-position the microswitch “B” of switch “A” from right to left in “OFF” position (see figure 6.5).
12. - close the gas supply;
13. - remove the air manifold making sure to turn it externally and then slide it out of the fan inlet (see figure 6.2, detail “C”);
15. - remove the gas inlet pipe via the two fittings (see figure 6.2, details “H” and “L”)
16. - remove the clamping spring “M” from the seat “N” releasing the valve “P” (See figure 6.3, detail “M”)
17. - slide the gas valve “P” out upwards;
18. - replace the gas nozzle “R” (see figure 6.4) with an appropriate one according to that stated in figure 6.7 under “Diameter of the gas nozzle”;
19. - remount the gas valve (see figure 6.3, detail “P”), making sure to reposition the spring “M”.
20. - remove the gas supply pipe via the two fittings (see figure 6.2, details “H” and “L”);
21. - re-mount the air manifold (see figure 6.2, detail “C”);
22. - open the gas cock;
23. - check for any gas leaks using the relevant means of control.



A – Microswitch
B - Switch

Figure 6.5 - Positioning the switch

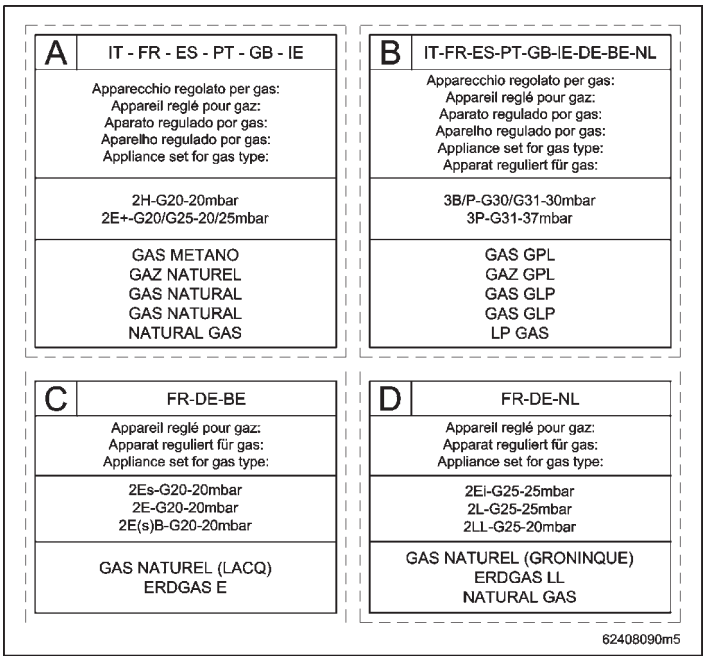


Figure 6.6 - Labels certifying the new status of adjustment of the boiler

ATTENTION !!! Perform the leak test using a soap and water only.The use of naked flames is prohibited.

ATTENTION !!! If you smell gas:

A - Do not switch on any electric device, telephone included or any object that can cause sparks;

B - Immediately open doors and windows causing a current of air that quickly cleans the gas from the room;

C - From another room, or from a neighbour's, immediately call a professionally qualified technician or the gas supply company. Call the Fire Service if the former are not available.

24.- Check the supply gas pressure, following the procedure in chapter 6.6;
25.- Open the CO2 adjustment screw completely (see figure 6.14 detail "A");
26.- Control and adjust the CO2, following the procedure in chapter 6.8;
27.- Instead of the label that identified the old state of adjustment, apply the sticker onto the front casing of the boiler (see figure 6.6), certifying the appliance's new state of adjustment, as follows: apply label "B" if the boiler has been converted from natural gas to LP gas; apply label "A" if the boiler has been converted from LP gas to natural gas.

Model	Type of gas	Setting parameter 3002	Gas supply minimum pressure (mbar)	Gas supply maximum pressure (mbar)	Gas nozzle diameter (mm)	CO2 Maximum power (%)	CO2 Minimum power (%)	O2 Maximum power (%)	O2 Minimum power (%)
15	MET	50	15	27	4,9	9,0 ± 0,3	8,5 ± 0,2	4,8 ± 0,2	5,5 ± 0,2
	GPL	51	25	45	3,7	10,5 ± 0,3	10,0 ± 0,2	4,8 ± 0,2	5,6 ± 0,2
24	MET	50	15	27	4,9	9,0 ± 0,3	8,5 ± 0,2	4,8 ± 0,2	5,5 ± 0,2
	GPL	51	25	45	3,7	10,5 ± 0,3	10,0 ± 0,2	4,8 ± 0,2	5,6 ± 0,2
34	MET	52	15	27	6,7	9,0 ± 0,3	8,5 ± 0,2	4,8 ± 0,2	5,5 ± 0,2
	GPL	53	25	45	5,2	10,5 ± 0,3	10,0 ± 0,2	4,8 ± 0,2	5,6 ± 0,2

Figure 6.7 - Correspondence table for the parameter 3002 and the operating values

6.5 - Ignition

1.- open the gas cock;
2.- power the boiler electrically;
3.- adjust the temperature required from the heating service using the + and − keys. The icon , present on the display will inform regarding the operating state of the heating service:

a) fixed icon : central heating inactive (check that the room thermostat is in call mode or, in the case of external mode, that the external temperature is lower than the central heating switch-off external temperature (par 2020);

b) flashing icon : means that the central heating mode is operating.

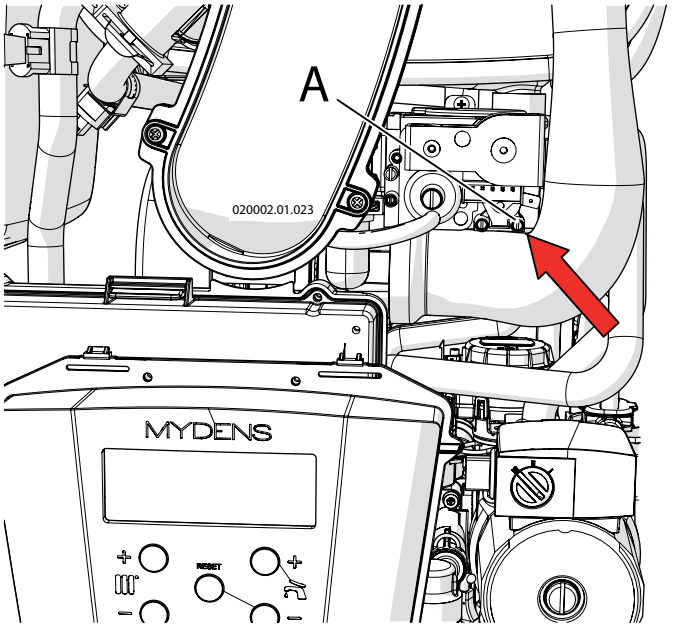
4. - adjust the temperature required for the domestic hot water service using the + and − keys. The icon , present on the display will inform regarding the operating state of the domestic hot water service:

a) fixed icon : domestic hot water inactive (no-one is withdrawing domestic hot water, or in the case of a indirect water heater, the delivery temperature is reached)

b) flashing icon : domestic hot water is being withdrawn.

5.- if the icon flashes, but the radiators do not heat-up, it may mean that the pump (see figure 3.1 detail “25”) is blocked. It must be unblocked by operating on the relevant screws. To do this remove screw “26” in figure 3.1 and turn the screw below to unblock the pump;

6.- if the icon flashes but the radiator still does not heat up, bleed the air from the radiators again.



A - Gas inlet pressure point.

Figure 6.8 - Gas valve

6.6 - Controlling the supply gas pressure and any adjustment

The gas supply pressure must correspond to that stated in the table in chapter 9 at the end of the manual.
Proceed as follows to verify:

1.- close the gas cock;
2.- access the components inside the boiler, following the procedure in chapter 8.2;
3.- loosen the pressure point “A” (see figure 6.8);
4.- connect to a manometer with resolution of at least 0,1 mbar (1 mmH2O);
5.- open the gas cock;
6.- check that the pressure does not exceed the value given in the table in chapter 9 under “gas supply maximum pressure”;
7.- make sure that any cocks and thermostatic valves downstream from the central heating circuit are open;

ATTENTION !!! During forcing of the delivery temperature, it automatically goes to 93°C to give the possibility to dispose of as much of the heat generated by the boiler as possible. Check that the central heating plant can support this temperature.

8.- press the − and RESET keys simultaneously for more than 5 seconds to enter the “installer” menu, confirmed by the appearance of the icon on the display.
9.- using the + and − keys, access the parameter 20 10;
10.- press the RESET key to enter the parameter and use the + and − keys to modify the value to H 19H;
11.- press the RESET key to confirm the modification. Now the burner will operate at maximum power for 10 minutes.
12.- check that the pressure does not drop to a value lower than the “gas supply minimum pressure” given in the table in chapter 9. If the supply pressure does not respect the values described, operate upstream from the appliance in order to take it back within the minimum and maximum field;
13.- once the control has ended, press the RESET key again to enter parameter 20 10 and via the + and − keys, change the value to OFF;
14.- press the RESET key to confirm the modification;
15.- hold the RESET key down for 5 seconds to exit the “installer” menu;
16.- close the pressure point “A” in figure 6.8;
17.- check for any gas leaks from the point with relevant control methods.

ATTENTION !!! Perform the leak test using a soap and water only. The use of naked flames is prohibited.

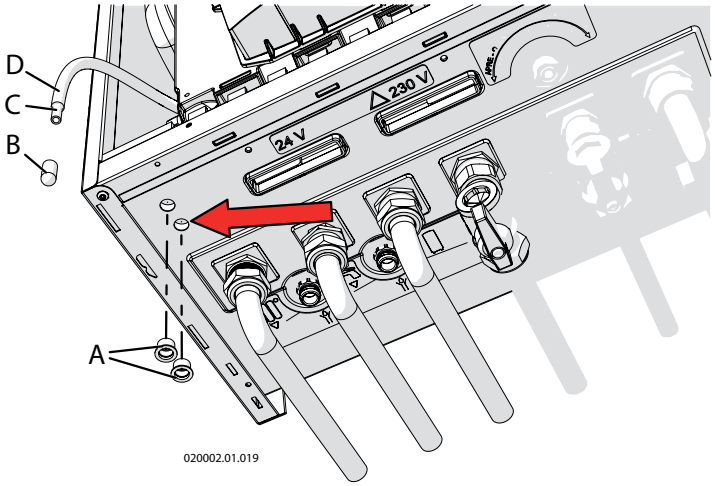


Figure 6.9 - Combustion agent air pressure point

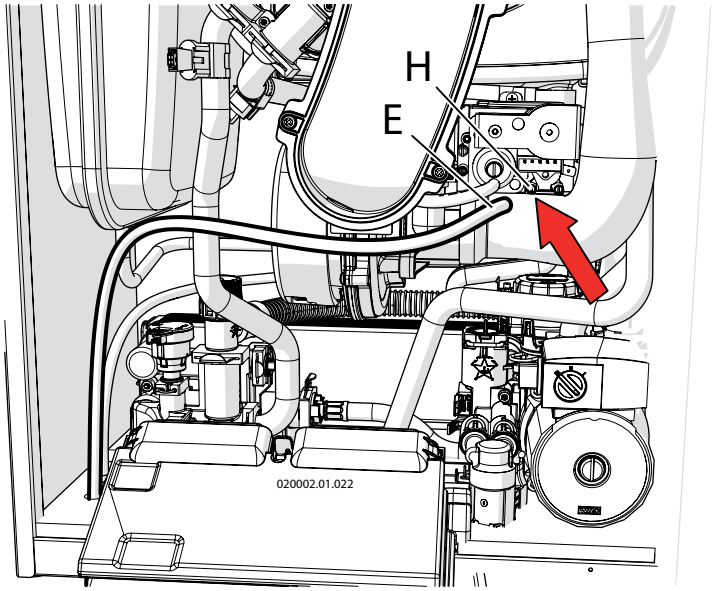


Figure 6.10 - Combustion agent air pressure point

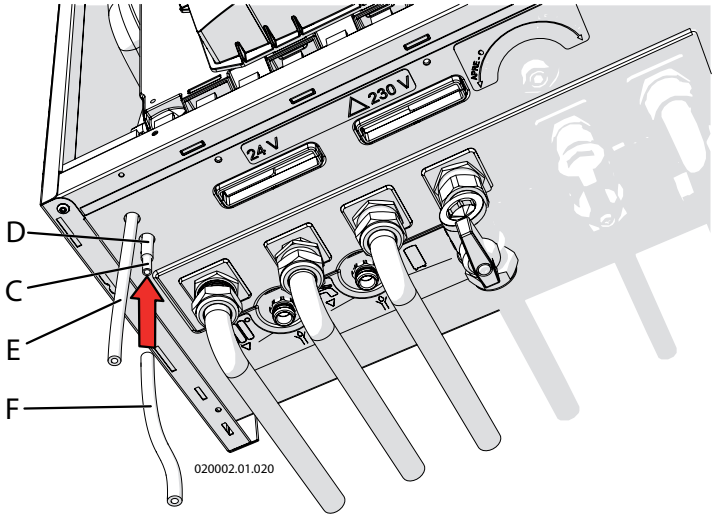


Figure 6.11 - Controlling combustion agent air pressure

6.7 - Controlling the combustion agent air pressure

As the boiler has an air/gas ratio fixed in the factory, the gas pressure at the burner is controlled indirectly by measuring the pressure of the combustion agent air inside the boiler and must correspond to that stated in the table in chapter 9, under “Combustion agent air pressure”.

Proceed as follows for the check (refer to the Figures from 6.9 to 6.12):

1.- use a differential manometer with precision of at least 0.1 mbar (1 mmH2O);
2.- close the gas cock;
3.- open the boiler casing following chapter 8.2;
4.- remove the caps “A” (see figure 6.9);
5.- take the flexible hose “D”, which is found inside the appliance and remove the cap “B” (see figure 6.9);
6.- insert the pipe “D” inside the hole indicated by the arrow in figure 6.9;
7.- loosen the pressure point “H” in figure 6.10;
8.- take a silicone pipe with external diameter of 10 mm and internal diameter of 7mm (detail “E” in figure 6.10) and introduce it into pressure point “H”;
9.- inserire il tubo “E” nel foro come indicato in figure 6.11;
10.- connect the manometer to the two pipes “E” and “F” as illustrated in figure 6.12, making sure to connect the pipe “E” to the negative pressure point and tube “F” to the positive pressure point;
11.- **close the casing “B” in figure 8.1. It is indispensable to have a reliable measurement;**
12.- switch the boiler on;
13.- press the − and RESET keys simultaneously for more than 5 seconds to enter the “installer” menu, confirmed by the appearance of the icon on the display.
14.- using the + and − keys, access the parameter 20 10;
15.- press the RESET key to enter the parameter and use the + and − keys to modify the value to FAn;
16.- press the RESET key to confirm the modification. Now the fan will operate at maximum speed for 10 minutes.
17.- compare the pressure value read on the manometer with that given in the table in chapter 9, “Combustion agent air pressure”. If the pressure is at a lower value, check that there are no obstructions in the combustion agent air/fumes exhaust or that the air intake/fumes exhaust system is not longer than envisioned in chapter 9 under “Max. length of fumes pipe”;
18.- once the control has ended, press the RESET key again to enter parameter 20 10 and via the + and − keys, change the value to OFF;
19.- press the RESET key to confirm the modification;
20.- hold the RESET key down for 5 seconds to exit the “installer” menu.

At the end of the control, remove the tube “E”, close the holes “A”, close the pipe “D” using cap “B” and close the pressure point “H” again as in figures 6.9 and 6.10.

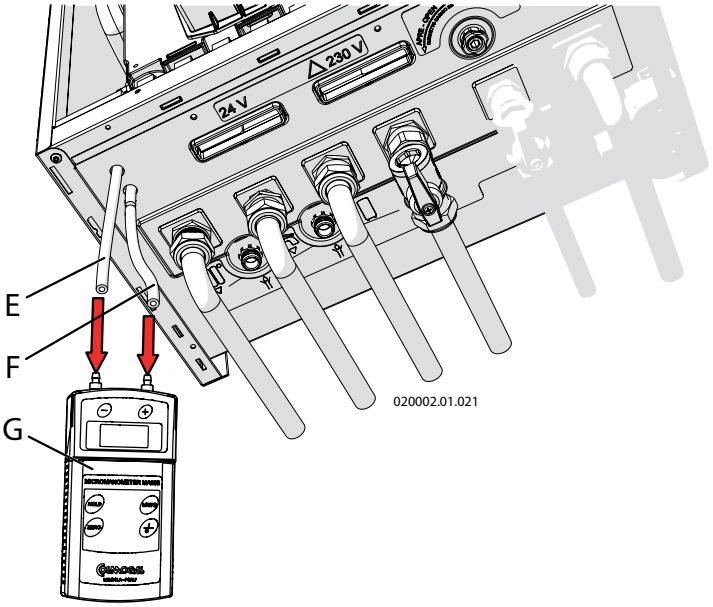


Figure 6.12 - Controlling combustion agent air pressure

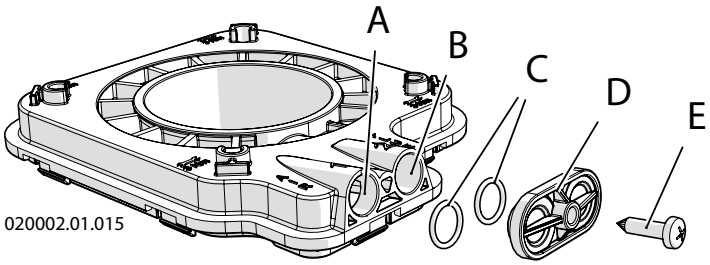
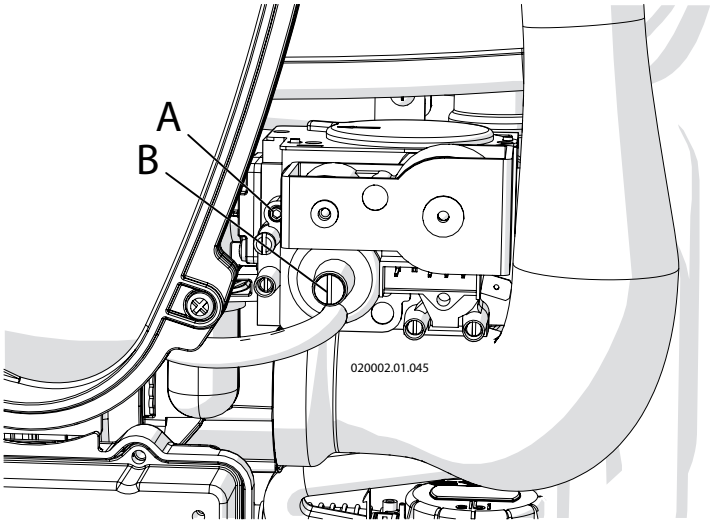


Figure 6.13 - Combustion analysis points



A - CO2 adjustment screw at maximum power;
B - CO2 adjustment screw at minimum power;

Figure 6.14 - Gas valve

6.8 - Controlling the level of CO2 and any adjustment

The boiler in normal operating mode and for altitudes within 1000 m, has a level of CO2 (carbon dioxide) in the fumes, which can be detected in the table in chapter 9. A value different to those reported can cause malfunctions. Combustion analysis must be performed to check and eventually adjust this value. Proceed as follows:

1.- check a combustion analyser to the appropriate point on the fumes exhaust fitting “B” in figure 6.13;
2.- make sure that any cocks and thermostatic valves downstream from the central heating circuit are open;

ATTENTION !!! During forcing of the delivery temperature, it automatically goes to 93°C to give the possibility to dispose of as much of the heat generated by the boiler as possible. Check that the central heating plant can support this temperature.

3.- press the and RESET keys simultaneously for more than 5 seconds to enter the “installer” menu, confirmed by the appearance of the icon on the display.
4.- using the and keys, access the parameter 20 10;
5.- press the RESET key to enter the parameter and use the and keys to modify the value to H 19H;
6.- press the RESET key to confirm the modification. Now the burner will operate at maximum power for 10 minutes.
7.- wait for the CO2 measurement to stabilise;
8.- compare the value measured with that given in the table in figure 6.7, “CO2 maximum power”. If the value measured is offset from the value read, it must be taken back within the value given in the table in figure 6.7. Proceeding as follows:
   a) turn screw “A” clockwise as in figure 6.14 to decrease the level of CO2;
   b) turn screw “A” anti-clockwise as in figure 6.14 to increase the level of CO2;
9.- once the check has been completed, seal the screw “A” in figure 6.14 with red paint or similar system;
10.- press the RESET key again to enter the parameter 20 10 and use the and keys to modify the value to LOW;
11.- press the RESET key to confirm the modification. Now the burner will operate at minimum power for 10 minutes.
12.- wait for the CO2 measurement to stabilise;
13.- compare the value measured with that given in the table in figure 6.7, “CO2 minimum power”.

If the value measured is offset from the value read, it must be taken back within the value given in the table in figure 6.7. proceeding as follows:

   a) turn screw “B” anti-clockwise as in figure 6.14 to decrease the level of CO2;
   b) turn screw “B” clockwise as in figure 6.14 to increase the level of CO2;
14.- Once the check has been completed, seal the screw “B” in figure 6.14 with red paint or similar system;
15.- press the RESET key again to enter the parameter 20 10 and use the and keys to modify the value to OFF;
16.- press the RESET key to confirm the modification.
17.- hold the RESET key down for 5 seconds to exit the “installer” menu.

	BOILER MODEL		
Power necessary (kW)	15	24	34
35			
33			94
31			88
29			82
27			76
25		98	70
23		89	64
21		80	58
19		71	52
17		62	46
15		53	40
13	44	44	34
11	35	35	28
9	26	26	22
7	17	17	16
5	8	8	10

Figure 6.15 - Corresponding values to introduce into the parameter 2002 to obtain the desired power necessary in central heating mode

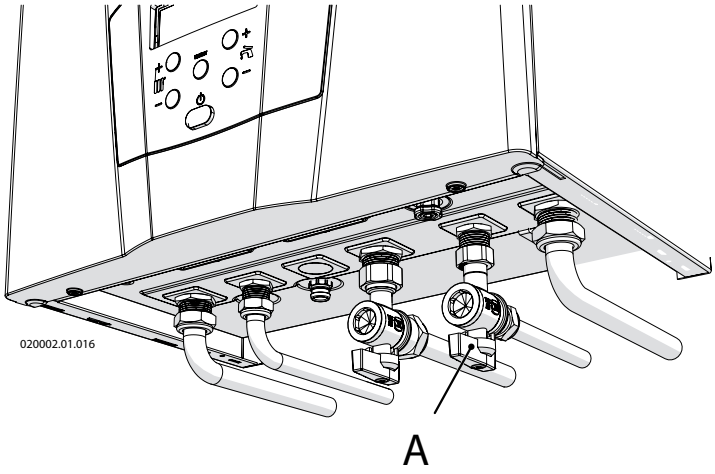


Figure 6.16 - domestic hot water flow rate selector

ATTENTION !!! If during forcing, the power supplied by the boiler is much higher than the power absorbed by the plant, the boiler switches off continuously to reach the maximum temperature allowed (93°C). To remedy this problem the heating power must be set at the effective plant requirement, as laid down in chapter 6.9 and the CO2 analysis test or combustion efficiency test must be carried out, setting parameter 2010 previously referred to at the r-E9. value

6.9 - Adjusting the power in central heating mode (Range Rated)

This appliance is designed and type-approved to adapt the maximum heating power to the effective necessity of the plant as per calculation. To do this and to use the boiler's potentiality to its best, it is recommended to set the maximum power in central heating mode at the effective requirement of the plant. Operate as follows:

1.- press the − and RESET keys simultaneously for more than 5 seconds to enter the "installer" menu, confirmed by the appearance of the icon on the display.

4.- using the + and − keys, access the parameter 2002;

5.- press the RESET key to enter the parameter and using the + and − keys modify the value corresponding to the power required by the plant, according to the table in Figure 6.15.

6.- press the RESET key to confirm the modification.

7.- hold the RESET key down for 5 seconds to exit the "installer" menu.

6.10 - Adjusting the domestic hot water flow rate

The boiler is supplied with a domestic hot water maximum flow rate adjuster. However, if the boiler is installed in a geographical area where the temperature of the cold water is very low, the flow rate of domestic hot water that passes inside the boiler may have to be reduced. It is therefore good practice to perform this adjustment:

1.- switch the boiler on;

2.- using the + and − keys, adjust the temperature of the domestic hot water to 48 - 50°C;

3.- open the hot water cock completely.

In the case of a single lever mixer, the position must be completely on "HOT";

4.- wait 3 minutes for the temperature to stabilise;

5 - if the water temperatures too cold, the flow rate must be reduced via the selector "A" in figure 6.16, until the desired temperature is reached.

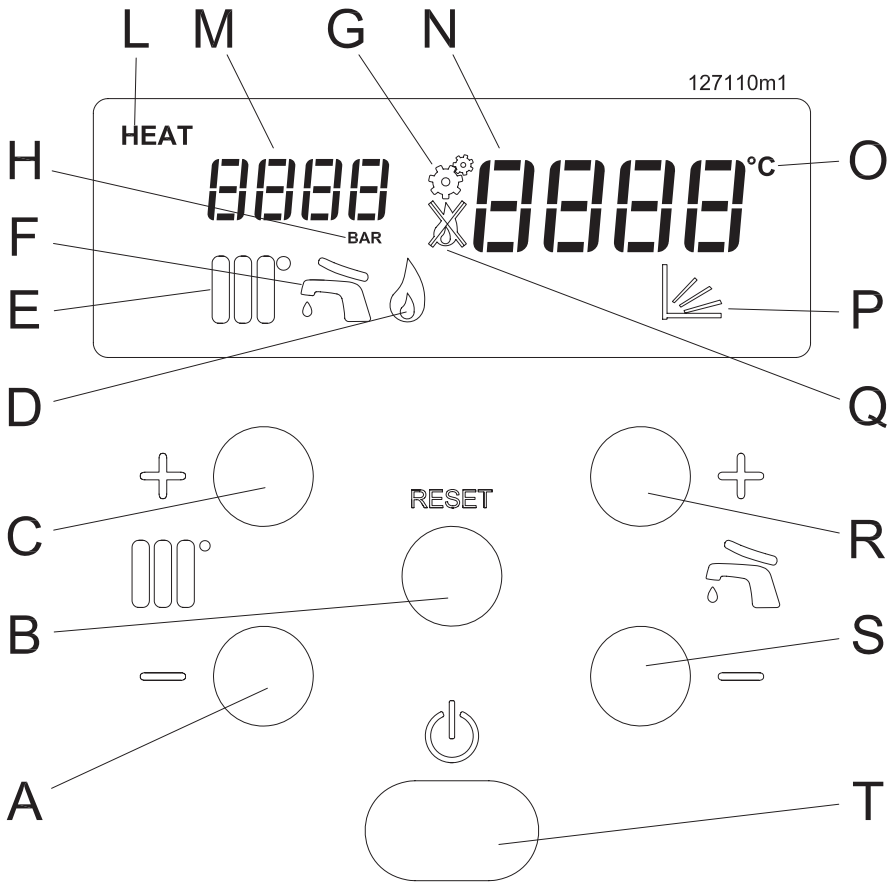


Figure 7.1 - Control board

Key for figure 7.1

A - Key for reducing the central heating temperature (below minimum the central heating is put in OFF)
B - Reset Key
C - Key for switching-on and increasing the heating temperature
D - Burner status (the burner is on when this con is present)
E - Status of the heating service:
Icon off = Central heating off
Icon on = Central heating active but not operating
Icon flashing = Central heating active and operating
F - State of the domestic water service:
Icon off = Domestic water off
Icon on = Domestic hot water active but not operating
Icon flashing = Domestic hot water active and operating
G - Icon for entry into the “Installer” menu
H - Unit of measurement of the pressure displayed
L - Status of the cascade pump (if the icon is present, the pump is on)
M - Central heating plant pressure or indicator of the various parameters inside the various menus
N - Temperature of the central heating or domestic hot water or indicator if the values assumed by the various parameters
O - Unit of measurement of the temperature displayed
P - Central heating service adjusted by the external sensor
Q - Boiler blocked (see chapters 7.19.1 and 7.19.2 for the diagnostics)
R - Key for switching on and increasing the temperature of the domestic hot water or for scrolling and changing the value of the parameters
S - Key for reducing the temperature of the domestic hot water (below minimum, the domestic hot water is switched OFF) or for scrolling and changing the value of the parameters
T - On/off switch

7.1 - Controlling cock opening

- The gas cock must be open;
- Any valves positioned on the supply and return must be open;
- Any valves positioned on hot and cold water, must be open.

7.2 - Checking central heating plant pressure

If the pressure inside the central heating circuit drops below 0.5 bar, the visual display “N” in figure 7.1, shows F ILL to indicate that the correct pressure must be restored.
Proceed as follows:
1.- pull the knob “A” in figure 7.2 downwards;
2.- open the fill cock turning the knob anti-clockwise to fill the plant;
3.- check the pressure on the visual display “M” in Figure 7.1, it must reach the pressure of 1 - 1.5 bar (the F ILL indication disappear on exceeding 0.8 bar);
4.- close the fill cock (see knob “A” in figure 7.2), turning it clockwise.

In some boiler models the plant fill knob “A” in figure 7.2 may be absent. Therefore operate on the device envisioned by the installer upstream from the boiler itself.

ATTENTION !!! During normal operation, the fill cock “A” (see figure 7.2) must always remain in the closed position.

If the pressure drops through time, restore the correct value. This operation may have to be repeated several times in the first month of operation to remove any air bubbles in the plant.

7.3 - Generalities

During operation the display shows the boiler operating state as well as other information as indicated in chapter 7.19 (Diagnostics).
Other parameters can be consulted through the "User menu" (see chapter 7.17), which are useful for understanding operation of the appliance and to control the latest blocks or errors occurring.
After 5 minutes of normal operation, the display switches off completely to save energy. Just press any key to switch it back on.
In the case of any anomaly, the display switches back on automatically. This function can be modified by following chapter 7.16 (Energy saving).

7.4 - Ignition procedure

1.- open the gas cock;
2.- power the boiler electrically;
3.- adjust the domestic hot water temperature and of the central heating respectively as per chapters 7.8 and 7.9.

The command and control equipment will switch the burner on.
If ignition does not take place within 20 seconds, the boiler automatically re-attempts ignition 3 times, after which if it still does not ignite, it blocks and the display will indicate Loc 1.
Press the RESET key to restore the normal operating conditions.
The boiler will automatically attempt a new ignition.

ATTENTION !!! If shutdown due to blocking is repeated frequently, contact a qualified technician to reset the normal operating conditions.

Once the boiler has been ignited correctly, it will continue to operate for the service requested.

7.5 - "User menu"

Entry into the "User menu" is highlighted by the visual display "M", in figure 7.1, which indicates parameters that can assume values from 1001 to 1999. To enter the "User menu":

1.- hold the RESET key down for 2 seconds until the visual display "M" shows 1001;
2.- press the + and − keys to scroll the parameters situated inside the user menu;
3.- hold down the RESET key for more than 2 seconds to exit the "User menu";

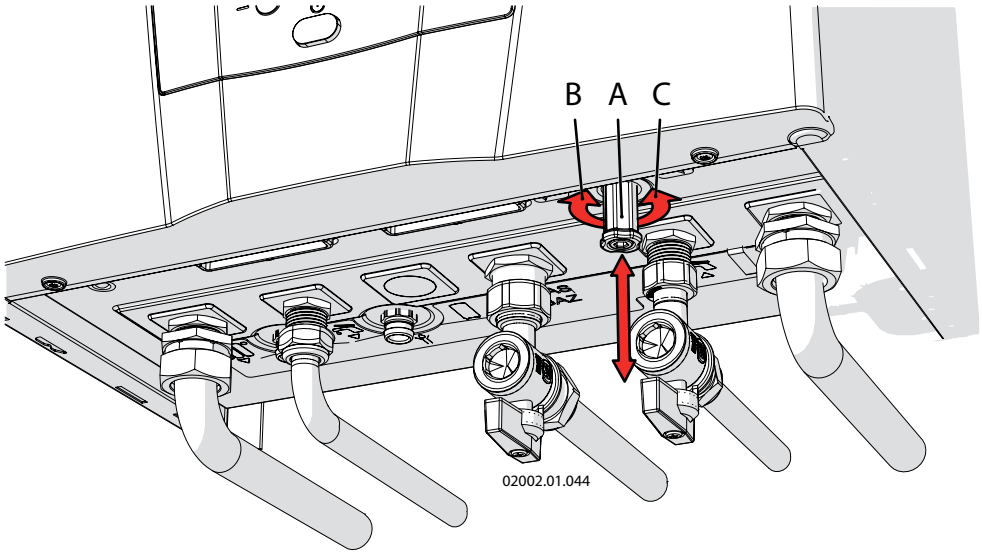
If no key is pressed for more than 60 seconds, the menu is exited automatically.
The parameters in chapter 7.17 can be queried in this menu.

7.6 - Summer operating mode

Whenever the central heating function is to be interrupted for a long period of time, leaving only the domestic hot water function operating, adjust the central heating temperature to minimum using the + or − keys until the word OFF appears.

7.7 - Winter operating mode

In winter operating mode, using the pump, the boiler sends the water to the plant at the temperature set using the + or − keys.
When the temperature inside the boiler approaches the temperature set, the burner starts to modulate the flame until the power is reduced to the effective requirement of the plant. If the temperature tends to rise further, the burner stops.
At the same time, the pump that sends water to the plant is switched on and off by the room thermostat. This can be noted because the indicator flashes when the pump is on, while it remains on with a fixed light when the pump is off.
The pump may initially make a noise. This is due to the presence of residual air in the hydraulic plant, which will disappear quickly, without any intervention.
For rational use of the boiler, it is recommended to keep the central heating temperature, adjusted using the + or − keys, at the lowest value possible, compatibility with the temperature requested in the rooms. If the winter season is particularly cold, meaning the room temperature can no longer be maintained, raise the central heating temperature to higher values.



Key for figure 7.2

A = Plant fill knob
B = Closing direction
C = Opening direction

Figure 7.2 - Plant fill cock

7.8 - Adjusting the instantaneous domestic hot water

The temperature of the domestic hot water is adjusted by operating on the + and − keys. On pressing one of the two keys, the visual display “N” in figure 7.1 will start to flash and show the temperature that is being set. The range of adjustment for the temperature of the domestic hot water goes from 40°C to 60°C or from 40°C to 70°C if there is a indirect water heater present.

By holding the − key down also below 40°C, OFF will appear to indicate switch-off of the domestic hot water service, also highlighted by switch-off of the icon “F” in figure 7.1.

7.9 - Central Heating

Using the parameter 2003 present in the “Installer menu” (see chapter 7.18) it is possible to select different operating modes of the central heating service:

- 2003 = 00; “Thermostatic adjustment”: the central heating supply temperature is adjusted manually via the + or − keys . The opening and closing of the room thermostat stops or starts the boiler pump correspondingly in order to adjust the room temperature;

- 2003 = 01; “Climatic adjustment”: The icon appears on the display, the supply temperature to central heating is adjusted automatically by the external temperature sensor according to the algorithm corresponding to Figure 7.3. The opening and closing of the room thermostat stops or starts the boiler pump correspondingly. When the external temperature rises above the value set in parameter 2020 (Central heating switch-off external temperature), the central heating service ends. It re-starts automatically when the external temperature drops below the temperature set in the parameter 2020 again.

- 2003 = 02; “Climatic adjustment with room compensation”: The icon appears on the display, the supply temperature to central heating is adjusted automatically by the external temperature sensor according to the algorithm corresponding to Figure 7.3. The opening of the room thermostat reduces the temperature if the supply to central heating by a value set in the parameter 2027 The boiler pump operates constantly. When the external temperature rises above the value set in parameter 2020 (forced central heating switch-off), the central heating service ends. It re-starts automatically when the external temperature drops below the temperature set in the parameter 2020 again (forced central heating switch-off).

7.10 - Thermostatic adjustment

In the factory the boiler is adjusted with the parameter 2003 to 00, i.e. the boiler supplies hot water to the central heating plant at a temperature adjusted using the + or − keys. Any room thermostat operates directly on the pump inside the boiler to adjust the heating of the rooms.
To make full use of boiler performance, it is recommended to adjust the temperature to a value just sufficient to obtain the temperature desired by the rooms. If the season gets colder, progressively increase the value of the central heating temperature. Proceed in reverse order when the season goes towards warmer temperatures.
This very simple operating method is suitable for the following types of plants:
- small plants, with radiators, having a room whose temperature is characteristic of all other rooms;
- large plants, with radiators, where each area is controlled by its own room thermostat and the boiler pump is stopped only when all area thermostats are satisfied (envision the appropriate electric plant).
- large plants, with radiant panels (low temperature), where each area is controlled by its own room thermostat and the boiler pump is stopped only when all area thermostats are satisfied (envision the appropriate electric plant).

7.11 - Climatic adjustment

Using the “Installer menu” adjust the parameter 2003 to 01. The central heating supply temperature is reported to the external temperature sensor according to the algorithm in figure 7.3. To adapt the calculation line to the various hones/ climatic conditions, all adjustment parameters must be set according to the following chapters.

7.11.1 - Climatic adjustment: on which plants?

The “Climatic adjustment” is a more sophisticated and precise adjustment than the “Thermostatic adjustment”. This can make the most use of the boiler performance and is suitable for the following types of plant:
- small plants, with radiators, having a room whose temperature is characteristic of all other rooms. The room thermostat makes the appropriate corrections to the room temperature by switching the boiler pump on and off.
- large plants, with radiators, where each area is controlled by its own room thermostat and the boiler pump is stopped only when all area thermostats are satisfied (envision the appropriate electric plant).
- small plants, with radiant panels (low temperature), having a room whose temperature is characteristic of all other rooms. The room thermostat makes the appropriate corrections to the room temperature by switching the boiler pump on and off.
- large plants, with radiant panels (low temperature), where each area is controlled by its own room thermostat and the boiler pump is stopped only when all area thermostats are satisfied (envision the appropriate electric plant).

7.11.2 - Climatic adjustment: precautions during adjustment

To set the supply temperature correctly, it is good practice to immediately set the line setting values in figure 7.3. If these values do not give a satisfactory result, proceed with the relevant modifications, keeping in mind that:

- every parameter must be adjusted in small degrees;
- after each change, wait at least 24 hours to see the result;
- the more the adjustment line approaches the real requirements of the building, the more building central heating will be comfortable and the greater the energy saving will be;
- using the °+ or °− keys, it is possible to make the small corrections highlighted in figure 7.3, i.e. move the parallelism of the line, in steps of 1 °C more or less, up to 10°C.

7.11.3 - Climatic adjustment: setting the parameters

Using the “Installer menu” (see chapter 7.18), set:

- 2020 = “External switch-off temperature of the central heating”, adjustable between 0 and 35°C. When the external temperature reaches the value set in this parameter, the central heating is switched-off automatically. The central heating switches back on automatically when the external temperature drops back below this value. The recommended start value is 22°C.
- 2021 = “Design external temperature (winter)”, adjustable between -20 and 5°C. It is the design external temperature used to define the heat output necessary at the plant. The value recommended for a typical home is -5°C;
- 2022 = “Supply temperature corresponding to the design external temperature (winter)”, adjustable between 0 and 80°C. The supply temperature assumes the value set in this parameter when the external temperature corresponds to that set in parameter 2021. The recommended start values are: 40°C for low temperature plants (floor heating); 67°C for high temperature plants (radiators);
- 2023 = “External spring-like temperature”, adjustable between 0 and 30°C. It is the external temperature at which the central heating is to reach the minimum supply temperature. The recommended start value is 18°C;
- 2024 = “Supply temperature corresponding to the external spring-like temperature”, adjustable between 0 and 40°C. The supply temperature assumes the values set in this parameter, when the external temperature corresponds to that set in the parameter 2023. The recommended start values are: 30°C for low temperature plants (floor heating); 42°C for high temperature plants (radiators);
- It is always possible to set the minimum and maximum central heating temperatures using the respective parameters 3016 and 3015 present in chapter 11.

7.11.4 - Climatic adjustment: adaptation to different climatic areas

The previously recommended values are for homes with average insulation and for climatic areas where the external temperature used for calculating heat requirement is -5°C (with this data and a high temperature plant, there is correspondence with the graphics in Figure 7.3). If the climatic area is different, adjust parameter 2021 “Design external temperature (winter)” in a way to obtain a supply temperature of 67°C (40°C in the case of “Low temperature” plants), when the external temperature is that of the calculation base of the heat requirement.

7.11.5 - Climatic adjustment: switching the central heating service on and off

The climatic adjustment service is completely automatic, also regarding switch-off at the end of the season and successive switch-on at the start of the next season via the parameter 2020. When the external temperature rises above the value set in this parameter, the heating switches off automatically. When the external temperature drops back below the value set in this parameter, the central heating service switches back on automatically.

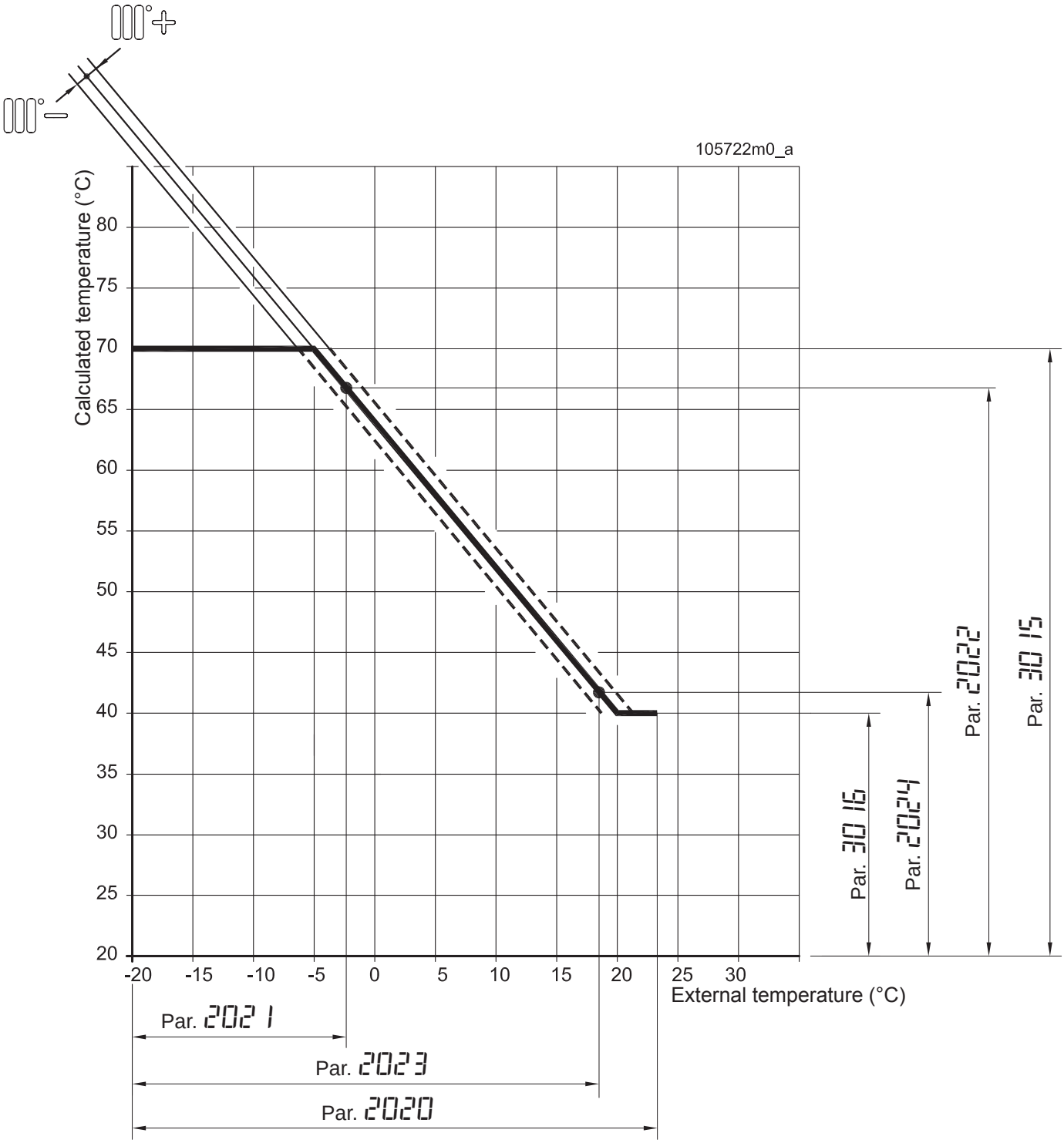
7.11.6 - Climatic adjustment with room compensation

Using the “Installer menu” (see chapter 7.18) adjust the parameter 2003 to 02. Everything operates exactly as in the previous chapters relative to the “Climatic adjustment”, with the difference that now the boiler pump is always on. The opening of the room thermostat contact translates into a parallel downward movement of the line regarding the value set on the parameter, as in figure 7.3 2027 ppresent in the “Installer menu” (see chapter 7.18). Parameter 2027 can assume values between 0°C and 50°C. The values recommended for this parameter are:

- 10°C for high temperature plants (radiators)
- 3°C for low temperature plants (floor).

Values of this parameter that are too high can translate into instability of the room temperature. Values that are too low can make the room thermostat ineffective.

The climatic adjustment with room compensation can be used in all cases envisioned in chapter 7.11.1, with the advantage that continuous operation of the pump manages to stabilise and make the room temperatures uniform; especially in the case in which several heat plant loops have the flow resistances that are much higher than others.



Par. 2020 = External temperature for central heating switch-off

Par. 2021 = Project external temperature (winter)

Par. 2022 = Supply temperature corresponding to the project external temperature (winter)

Par. 2023 = Spring-like external temperature

Par. 2024 = Supply temperature corresponding to the spring-like external temperature

Par. 3016 = Minimum supply temperature

Par. 3015 = Maximum supply temperature

= Line parallelism increase key

= Line parallelism decrease key

Figure 7.3 - Climatic adjustment graphics for “high temperature” plants (with radiators)

7.12 - Timers of the various functions

To safeguard the lifespan of the appliance, improve the comfort generated and increase energy saving, timings have been introduced during operation. These timings are:

- Pump post-circulation: every time that the room thermostat determines the end of the central heating service, the pump continues to operate for 3 minutes;
- Central heating delay: every time that the domestic hot water service finishes, before reactivation of the central heating service there is a stand-by period of 2 minutes;
- Pumps anti-block and diverter valve: every 24 hours, the central heating pump, the domestic hot water pump (if present) and the diverter valve are forced;
- Anti-legionella; if the boiler is connected to a indirect water heater for preparation of the DHW., every seven days the latter is forced to a temperature of 60°C to disinfect against the legionella bacteria. This function activates also due hours after the boiler has been powered electrically.
- Ignition delay: In all operating modes, excluding domestic hot water mode, wait 3 minutes to ignite the burner again when it switches off.

7.13 - Pumps anti-blocking and diverter valve

The pump switches on once every 24 hours for 15 seconds during the summer period in order to prevent any deposits that may block it. The diverter valve and the indirect water heater pump (if present) are activated at the same time for the same reason.

7.14 - Anti-freeze protection

ATTENTION !!! For the anti-freeze protection to be effective, the appliance must be left with electric power supply and gas supply present and the two services (domestic hot water and central heating) in the OFF position.

ATTENTION !!! The anti-freeze protection service offered by the boiler cannot guarantee the anti-freeze protection of the central heating plant, the domestic hot water plant or the building served or part of the same.

The central heating pump starts automatically when the boiler temperature reaches 10°C.

If the temperature drops further below 5°C, the burner also ignites in a way to protect the boiler from the effects deriving from freezing.

If the boiler is not used for a long period of time (over a year), it is recommended to empty it following the procedures in chapters 8.16 and 8.17.

7.15 - Automatic plant filling (on request)

Normally the appliance is supplied with a manual cock for filling the central heating plant. On request, the boiler can be manufactured with the automatic plant fill.

7.16 - Energy Saving

To reduce the consumption of display energy, it will switch off automatically after 5 minutes from the last operation performed. This function can be deactivated or the time modified via parameter c' 100 present in the “Installer menu”.

If the parameter is set at OFF, the display will remain on constantly.

7.17 - “User menu”

Press the RESET key for 2 seconds to access the “User menu”. The visual display “M” in figure 7.1, starts to show parameter 1001 to inform the use of the mode change.

Using the + and − keys, scroll the parameters contained in the menu.

Just press the RESET key again for 2 seconds to exit the menu.

The parameters in this menu are display only and cannot be modified via the same.

If no key is pressed for more than 60 seconds, the menu is exited automatically.

The following parameters can be queried in this menu:

Parameter	Description of the parameter	M.U.
1001	Central heating supply temperature	°C
1002	Domestic hot water temperature (or indirect water heater temperature, if present)	°C
1003	No function	/
1004	External temperature (visible when an external temperature sensor is installed)	°C
1005	Central heating supply temperature (safety sensor)	°C
1006	Fumes temperature	°C
1007	Central heating return temperature	°C
1008	Ionisation current	uA
1009	Status of the pump inside the boiler	ON/OFF
1010	Status of the central heating side diverter valve (ON = in central heating mode; OFF = in domestic hot water mode)	ON/OFF
1011	Status of the central heating side diverter valve (ON = in D.H.W. mode; OFF = in central heating mode)	ON/OFF
1012	Central heating supply temperature calculated via the external sensor	°C
1013	Status of the room thermostat contact (OPEN = no central heating request; CLOSED = presence of central heating request)	OPEN/CLOSED
1014	Fumes temperature (safety sensor)	°C
1040	Current rotation speed of the fan	rpm
1041	Fan rotation speed on ignition	rpm
1042	Fan rotation speed in minimum power mode	rpm
1043	Fan rotation speed in maximum power mode	rpm
1051	Latest block condition recorded (Loc) (see chapter 7.19.1)	/
1052	Latest error condition recorded (Err) (see chapter 7.19.2)	/
1053	Number of times the burner has lost the flame	n°
1055	Number of failed burner ignitions	n°
1056	Number of hours worked in central heating mode	h x 10
1057	Number of hours worked in domestic hot water mode	h x 10
1058	Numero di giorni di lavoro del bruciatore	days
1059	Interval of time between the last two blocking errors (Err)	1: value in minutes; 2: value in hours; 3: value in days; 4: value in weeks;
1060	Interval of time between the last two blocks (Loc)	
1061	Current rotation speed of the domestic hot water turbine	rpm
1062	Current domestic hot water flow rate	l/min

7.18 - “Installer menu”

ATTENTION !!! The modification of these parameters could cause the boiler, and therefore the plant, to malfunction. For this reason only a technician that has the awareness and in-depth knowledge of the appliances can modify them.

The boiler command and control board makes this parameter menu available to the technician, for the analysis of operation and adaptation of the boiler to the plant. Proceed as follows to enter the “Installer menu”:

1.- hold the RESET and − keys down simultaneously for 5 seconds until the 2001 parameter is displayed. The symbol appears on the display to indicate the entry into the “Installer menu”.

2.- the + and − keys can be used inside the menu to scroll the parameters:

3.- once the parameter of interest has been displayed, it can be modified as follows:
   a.- press the RESET key to access the parameter (the visual display “N” in figure 7.1 will start to flash);
   b.- modify the value of the parameter using the + and − keys;
   c.- press the RESET key to confirm the data modified and go back to the list of parameters;

4.- To exit the “Installer menu”, hold down the RESET key for 5 seconds until the symbol disappears from the base of the display.

If no key is pressed for more than 5 minutes, the menu is exited automatically.. Any data variation that is not confirmed with the RESET key will be lost.

ATTENTION !!! Any variation to the parameters must be noted in the “Customised values” column present in the following table in order to facilitate the eventual replacement of the command and control board.

The following parameters can be changed or queried in this menu:

Parameter	Description of the parameter	U.M.	Setting range	Factory value	Customised values
2001	Central heating minimum power level	%	From 1 to 50	1	
2002	Central heating maximum power level	%	From 1 to 100	100	
2003	Central heating operating mode	nn	00 = Central heating with room thermostat 01 = Central heating with room thermostat and climatic adjustment 02 = Central heating with total climatic adjustment 03 = Permanent central heating	00	
2004	Stand-by time after maximum differential	sec	From 0 to 30	10	
2005	Post-circulation in central heating mode	sec	From 10 to 900	120	
2010	Forcing of fan and burner	/	OFF = No forcing FAN = Forcing of fan only to max speed LOu = Forcing of burner to minimum power Ign = Forcing of burner to ignition power HIgH = Forcing of burner to maximum power rEg = Forcing of the burner to the power adjusted in central heating mode (Par.2002)	OFF	
2011	Forcing the pump	/	On = Pomp on OFF = Pomp off	OFF	
2012	Forcing of the domestic central heating side diverter valve	/	ON = in central heating mode; OFF = in domestic hot water mode	OFF	
2013	Forcing of the domestic hot water side diverter valve	/	ON = in domestic hot water mode; OFF = in central heating mode	OFF	

2014	Icons test on the display. By pressing the RESET key, all of the icons on the display light up. By pressing the RESET key again to display goes back to normal operation	/	/	/	
2020	Climatic adjustment: external temperature for central heating switch-off	°C	From 0 to 35	22	
2021	Climatic adjustment: design external temperature (winter)	°C	From -20 to 5	-5	
2022	Climatic adjustment: supply temperature corresponding to the design external temperature (winter)	°C	From 0 to 80	80	
2023	Climatic adjustment: external spring-like temperature	°C	From 0 to 30	20	
2024	Climatic adjustment: supply temperature corresponding to the external spring-like temperature	°C	From 0 to 40	40	
2027	Temperature reduction by room thermostat opening	°C	From 1 to 50	10	
2040	Climatic adjustment: central heating boost temperature	°C	From 0 to 20	0	
2041	Climatic adjustment: central heating boost time	min	From 0 to 30	20	
2042	Protection against frequent switch-on in central heating mode: time	sec	From 10 to 900	180	
2043	Protection against frequent switch-on in central heating mode: temperature differential	°C	From 0 to 20	16	
2060	Domestic hot water minimum power level	%	From 1 to 50	1	
2061	Domestic hot water maximum power level	%	From 1 to 100	100	
2062	Post-circulation in domestic hot water mode	sec	From 10 to 900	120	
2063	Maximum time for filling indirect water heater	min	From 0 to 60	60	/
2064	Number of flow meter revs. for every litre of water	rpm/lt	From 0 to 5	3,2	
2066	Delay in the detection of the instantaneous domestic hot water	sec	From 1 to 10	3	
2067	Indirect water heater filling procedure	/	0 = The indirect water heater is filled for the time set in the parameter 2063; 1 = OFF, the domestic hot water does not have priority over heating; 2 = ON, the domestic hot water always has priority over heating;	2	
2080	Periodic maintenance meter (after RESET, the meter automatically goes back to ON)	/	ON = Periodic maintenance meter active; OFF = Periodic maintenance meter off; RESE = Meter reset	OFF	
2081	Periodic maintenance meter: maintenance request time	days	From 0 to 1000	1000	
2100	Energy saving display	min	OFF = display always on From 1 to 30 = delay to switch-off in minutes.	5	

7.19 - Diagnostics

During normal appliance operation, the visual display “N” in figure 7.1, continuously shows the working status of the appliance via the following indications:

Parameter	Description of the parameter	Display on visual display “N” in figure 7.1
AFro	Anti-freeze function active	Boiler temperature (°C)
AttE	Boiler not in block but in attention mode	Attention code (see chapter 7.19.3 for decoding)
F ILL	Plant pressure too low, perform filling (see chapter 6.1.3)	FILL
	Fixed on = Domestic hot water service on but not active On flashing = Domestic hot water service on and active	Domestic hot water temperature (°C)
	Fixed on = =Central heating service on but not active On flashing = =Central heating service on and active	Central heating temperature (°C)
Loc	Boiler blocked. To reset, press **RESET**. If the block occurs frequently, contact a professionally qualified technician.	Block code (see chapter 7.19.1 for decode)
Err	Boiler in error mode. Functioning can only be restored by solving the cause of the anomaly. Contact a professionally qualified technician	Error code (see chapter 7.19.2 for decode)
ALEG	Anti-legionella function running (see chapter 7.12). It will end on reaching the water temperature of 60°C inside the indirect water heater.	Indirect water heater temperature (°C)
SEr	Maintenance request for the boiler	Appliance temperature (°C)

7.19.1 - Diagnostics: blocks “Loc”

Block	Description of block	Checks	Solutions
Loc 0	Internal memory error E2prom at command board		Replace the command and control board.
Loc 1	No flame detection after three successive ignition attempts.	Control: Supply gas pressure (see chapter 6.6), sparks on the ignition electrodes (see chapter 8.5);correct combustion agent air pressure (see chapter 6.7); 220 Vac electric power supply to the gas valve; electric resistance of the two gas valve coils of 0.88 Kohm and 6.59 Kohm If the burner switches on and switches off at the end of the ignition attempt, check: that the ionisation current is at a value over 60 (follow the procedure in chapter 8.20)	If the supply pressure is not correct, operate upstream from the appliance to restore it; if the pressure of the combustion agent air is not correct, operate on the air intake/fumes exhaust circuit to eliminate any obstructions. If the current at the gas valve is not 230Vac, the command and control board must be replaced. If the electric resistance of the gas valve is not 0.88 Kohm and 6.59 Kohm, the valve must be replaced. If the ionisation current is not over 60, the CO2 must be checked (follow chapter 6.8) and restore its correct value, check the ionisation electrode and replace it if necessary. Check the integrity of the ionisation current electric circuit cables.
Loc 2	Gas valve command relay broken		Replace the command and control board.
Loc 3	Internal safety relay failure at command board	Check the appliance earth.	If the earth is good, replace the command and control board.
Loc 4	Boiler in error mode for more than 20 hours	Control the last error displayed in the board.	Operate according to the last error displayed.
Loc 5	Fan out of speed for more than 60 seconds	Control it is powered at 300 Vdc.	If the fan is powered, it must be replaced, differently replace the board.
Loc 6	Software error inside the command board		Replace the command and control board.
Loc 7	Content of the memory E2prom inside the command board, not updated		Replace the command and control board.
Loc 8	Parameters inside the E2prom memory, incorrect		Replace the command and control board.
Loc 9	Software error inside the command board		Replace the command and control board.
Loc 10	Software error inside the command board		Replace the command and control board.
Loc 11	Not applicable		
Loc 12	Not applicable		
Loc 13	The boiler has reached 95°C	Control that the pump functions.	Restore water circulation or replace the command and control board.
Loc 14	Fumes maximum temperature. To release the error, contact a qualified after-sales centre, which must move the switch “B” in fig. 6.5 and press the RESET key. Then put the switch back in the original position.	Check there is no air in the central heating circuit; bleed the highest radiators; Check the circulation pump operates correctly; Measure the boiler efficiency; it must correspond to that declared in the technical features.	Bleed the air from the boiler and from the highest central heating elements with respect to the boiler. If the pump does not operate, it must be replaced. If the efficiency does not correspond to the data at the end of the manual, probably the primary heat exchanger is dirty from the fumes side or the water side. Clean and check efficiency again.
Loc 15	Software error inside the command board		Replace the command and control board.
Loc 16	Software error inside the command board		Replace the command and control board.

Loc 17	Software error inside the command board		Replace the command and control board.
Loc 18	Flame present 10 seconds after gas valve is closed		Replace the gas valve or the command and control board.
Loc 19	Flame present before ignition		Replace the gas valve or the command and control board.
Loc 20	Flame lost three times	Control: that the ionisation current is at a value over 60 (follow the procedure in chapter 8.20) Controllare: che lo scarico dei fumi sia opportunamente protetto da ostruzioni causate da folate di vento	If the ionisation current is not over 60, the CO2 must be checked (follow chapter 6.8) and restore the correct value. Check the ionisation electrode and replace it if necessary. Check the integrity of the ionisation current electric circuit cables. If the fumes exhaust is placed in a vertical wall it must be protected with a wind-proof grid. If the fumes exhaust is positioned on the roof, make sure that it is not in an area of reflux and that any windproof chimney pot is really efficient.
Loc 21	Not applicable		
Loc 22	Not applicable		
Loc 23	The two supply sensors measure the different temperatures for more than 60 seconds.	Check that the electrical resistance of the two sensors match the graphics in chapter 8.22; Check that the central heating circuit flow rate is not too low;	If one of the two or both sensors do not have correct values, they must be replaced; If the temperature difference between U1 and U8 is greater than 30°C at maximum power and the flow rate of the central heating circuit is low, the flow rate must be increased;
Loc 24	The two fumes sensors measure the different temperatures for more than 60 seconds.	Check that the electrical resistance of the two fumes sensors match the graphics in chapter 8.22	If one of the two sensors does not match the double fumes sensor must be replaced
Loc 25	Too many plant fills in one hour	Check the pressure switch calibration pressure. FILL must appear when the pressure drops below 0.6 bar and must disappear when the pressure rises above 1.5 bar; check that there are no water leaks from the central heating plant	If the pressure switch is not calibrated correctly, it must be replaced. If the plant has a leak it must be repaired.
Loc 26	Plant filling time too long	Check the pressure switch calibration pressure. FILL must appear when the pressure drops below 0.6 bar; check that there are no water leaks from the central heating plant	If the pressure switch is not calibrated correctly, it must be replaced. If the plant has a leak it must be repaired.
Loc 27	Software error inside the command board		Replace the command and control board.
Loc 28	Software error inside the command board		Replace the command and control board.

7.19.2 - Diagnostics: errors “E”

Error	Error Description	Checks	Solution
Err 30	Software error inside the command board		Replace the command and control board.
Err 31	Software error inside the command board		Replace the command and control board.
Err 32	Software error inside the command board		Replace the command and control board.
Err 33	Software error inside the command board		Replace the command and control board.
Err 34	Software error inside the command board		Replace the command and control board.
Err 35	The supply temperature exceeds 110°C with the gas valve closed	Check that the electrical resistance of the two supply sensors match the graphics in chapter 8.22. Check that the gas valve closes the gas correctly when the burner switches off.	If one of the two sensors does not match, the double supply sensor must be replaced. The gas valve must be replaced if it does not close correctly.
Err 36	Software error inside the command board		Replace the command and control board.
Err 37	Software error inside the command board		Replace the command and control board.
Err 38	Software error inside the command board		Replace the command and control board.
Err 39	Software error inside the command board		Replace the command and control board.
Err 40	Software error inside the command board		Replace the command and control board.
Err 41	Software error inside the command board		Replace the command and control board.
Err 42	Software error inside the command board		Replace the command and control board.
Err 43	Software error inside the command board		Replace the command and control board.
Err 44	Flame detected in a moment when it should not be present		Replace the gas valve
Err 45	Central heating water low pressure	Check the pressure switch calibration pressure. FILL must appear when the pressure drops below 0.6 bar; check that there are no water leaks from the central heating plant.	If the pressure switch is not calibrated correctly, it must be replaced. If the plant has a leak it must be repaired.
Err 46	Central heating water pressure sensor error	Check the pressure switch calibration pressure. FILL must appear when the pressure drops below 0.6 bar; check that there are no water leaks from the central heating plant.	If the pressure switch is not calibrated correctly, it must be replaced. If the plant has a leak it must be repaired.
Err 47	Not applicable		
Err 48	Software error inside the command board		Replace the command and control board.
Err 49	Return sensor circuit (1007) open	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 50	Supply sensor circuit 1 (1001) open	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.

Err 51	Supply sensor circuit 2 (1005) open	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 52	Domestic hot water inlet sensor 2 circuit (1002) open	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 53	Fumes 1 sensor circuit (1006) open	Check that the electrical resistance of the fumes sensor 1006 matches the graphics in chapter 8.22 Check that the wires between the board and the double fumes sensor are connected correctly	If the sensor does not match, the double fumes sensor must be replaced. If the wires are not connected correctly, the connections must be restored.
Err 54	Fumes 2 sensor circuit (1014) open	Check that the electrical resistance of the fumes sensor 1014 matches the graphics in chapter 8.22 Check that the wires between the board and the double fumes sensor are connected correctly	If the sensor does not match, the double fumes sensor must be replaced. If the wires are not connected correctly, the connections must be restored
Err 55	Not applicable		
Err 56	Return sensor circuit (1007) in short circuit condition	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 57	Supply sensor circuit 1 (1001) in short circuit condition	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 58	Supply sensor circuit 2 (1005) in short circuit condition	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board..
Err 59	Domestic hot water inlet sensor circuit (1002) in short circuit condition	Check that the electric resistance of the sensor matches the graphics in chapter 8.22. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 60	Fumes 1 sensor circuit (1006) in short circuit condition	Check that the electrical resistance of the fumes sensor 1006 matches the graphics in chapter 8.22 Check that the wires between the board and the double fumes sensor are connected correctly	If the sensor does not match, the double fumes sensor must be replaced If the wires are not connected correctly, the connections must be restored
Err 61	Fumes 2 sensor circuit (1014) in short circuit condition	Check that the electrical resistance of the fumes sensor 1014 matches the graphics in chapter 8.22 Check that the wires between the board and the double fumes sensor are connected correctly	If the sensor does not match, the double fumes sensor must be replaced If the wires are not connected correctly, the connections must be restored
Err 62	External temperature sensor circuit (1004) in short circuit condition	Check that the electric resistance of the sensor matches the graphics in chapter 8.23. Check the electric cables for connection between the sensor and the command board.	If the electric resistance does not match, replace it. The electric circuit must be repaired if it is damaged. Without either of the two previous cases, replace the command and control board.
Err 63	RESET key pressed too many times in a very brief period		

7.19.3 - Diagnostics: alarms “AttE”

Alarm	Description of the alarm	Checks	Solutions
AttE 65	Central heating plant pressure too low for more than 10 minutes	Check the pressure switch calibration pressure. FILL musty appear when the pressure drops below 0.6 bar; check that there are no water leaks from the central heating plant.	If the pressure switch is not calibrated correctly, it must be replaced. If the plant has a leak it must be repaired.

8.1 - General recommendations

It is recommended to perform regular yearly maintenance of the central heating plant for the following reasons:
- to maintain high efficiency of the appliance and therefore save fuel;
- to maintain a high level of safety;
- to maintain the level of environmental compatibility of the combustion high;

In order to maintain the frequency of maintenance, there is a parameter present 2080 in the installer menu (see chapter 7.18), which is used to activate the maintenance call (Service) along with the parameter 2081 which is used to set the operating days that must pass between one call and the next.
The control system identifies the operating days, checking the burner activity time.
Proceed as follows to activate the call service:
1.- access the Installer menu (see chapter 7.18) and set parameter 2080 at On;
2.- access parameter 2081 and set the boiler operating days which must pass between one call and the next.

The call will be completed with SEr on the display. To remove the wording SEr and renew the call period, operate as follows:
1.- access the “Installer menu”;
2.- access the parameter 2080, set it on rESE and press the RESET key.
3.- exit the Installer menu by pressing the RESET key for 5 seconds.

The call time is now renewed and SEr appears on the display.

ATTENTION !!! Appliance maintenance must only be performed by a professionally qualified technician.

ATTENTION !!! Before every maintenance operation, disconnect the appliance from the electric power supply, using the relevant switch in the vicinity.

ATTENTION !!! Close the gas cock before any maintenance operation

8.2 - Removing the casing and access to internal components

Proceed as follows to remove the casing (refer to figure 8.1):

1.- pull the lower cover “A” towards the front for approx. 10mm
2.- push the lower cover “A” downwards;
3.- loosen the screws “H”;
4.- pull the lower part of the front-piece “B” towards the front and then slide it out upwards until it is released from the guides “C”;

To access the command and control board:

1.- turn the command board “D” towards the front;
2.- open the commands board “D” by operating on closure “G”;

To access the electric connections board:

1.- turn the command board “D” towards the front;
2.- slide lid “E” out by operating on the “F” closing flaps;

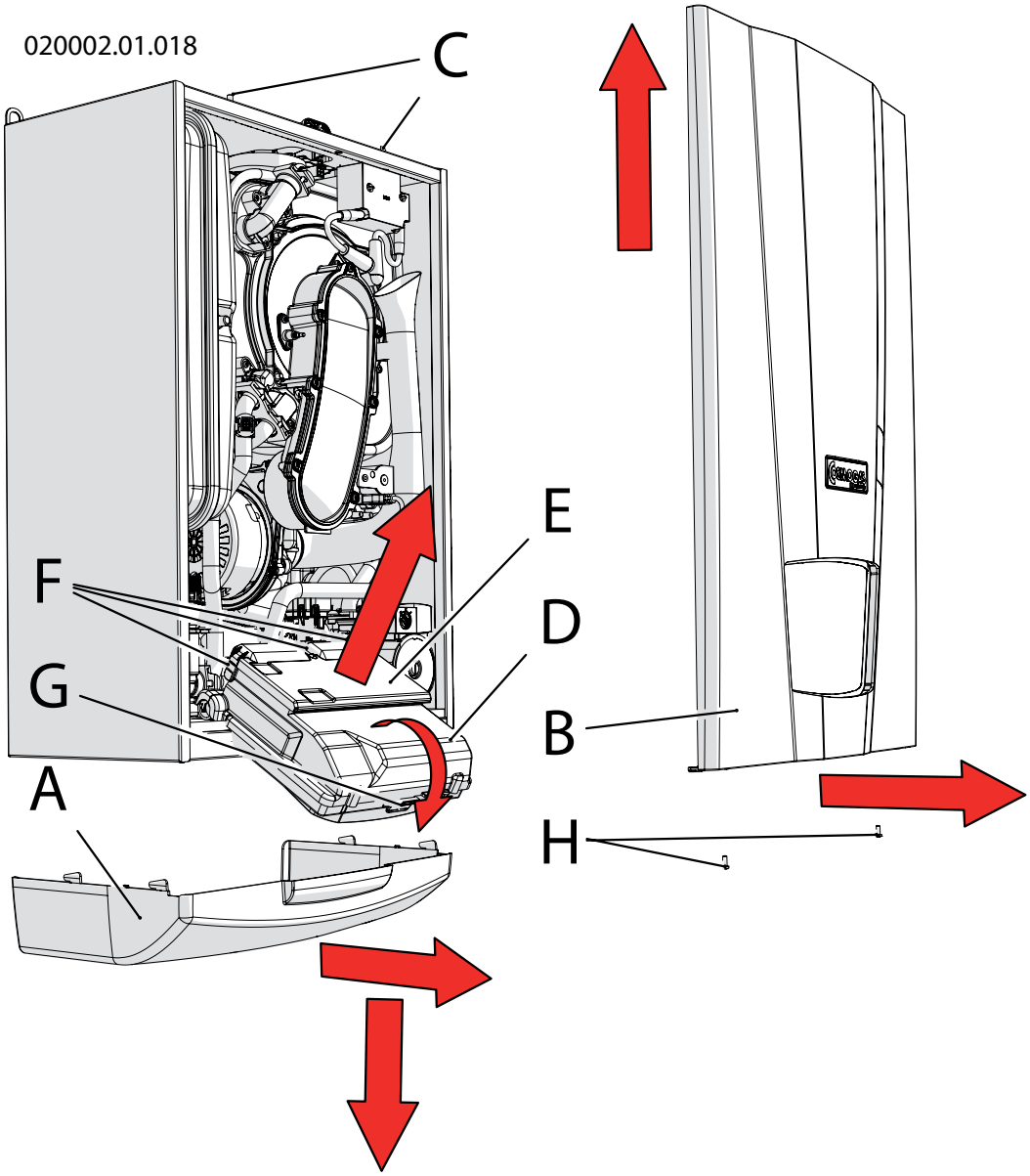


Figure 8.1 - removing the casing and opening of command board

8.3 - Removing the burner fan unit

Proceed as follows to remove the burner fan unit (refer to figure 8.2 when not differently specified):

1.- access the internal components following chapter 8.2;
2.- remove the air manifold (detail “C” in figure 6.2) rotating it towards the outside of the boiler and then pulling it towards the right (see figure 6.2);
3.- unscrew nut “C” from the valve “D”;
4.- disconnect the cables “B” and the detection cable from the ignition and detection electrodes (details “12”, “53” and “54” of figure 3.1);
5.- unscrew the four nuts “E”;
6.- extract the group “F” as per figure;

8.4 - Cleaning the burner and the fumes side primary heat exchanger

To correctly clean the burner and body of the heat exchanger (fumes side), proceed as follows (refer to figure 8.2 when not differently specified):

1.- access the internal components following chapter 8.2;
2.- remove the burner unit following chapter 8.3;
4.- pass a cylindrical brush with plastic bristles inside the combustion chamber
5.- use a suction device to remove the unburned residues present inside the combustion chamber;
6.- use the same suction device on the surfaces of the burner and around the electrodes;
7.- re-mount the components in reverse order;
8.- open the gas cock;
9.- restore the electric power supply.
10.- check that there are no gas leaks between the joints removed;

ATTENTION !!! Perform the leak test using a soap and water only. The use of naked flames is prohibited.

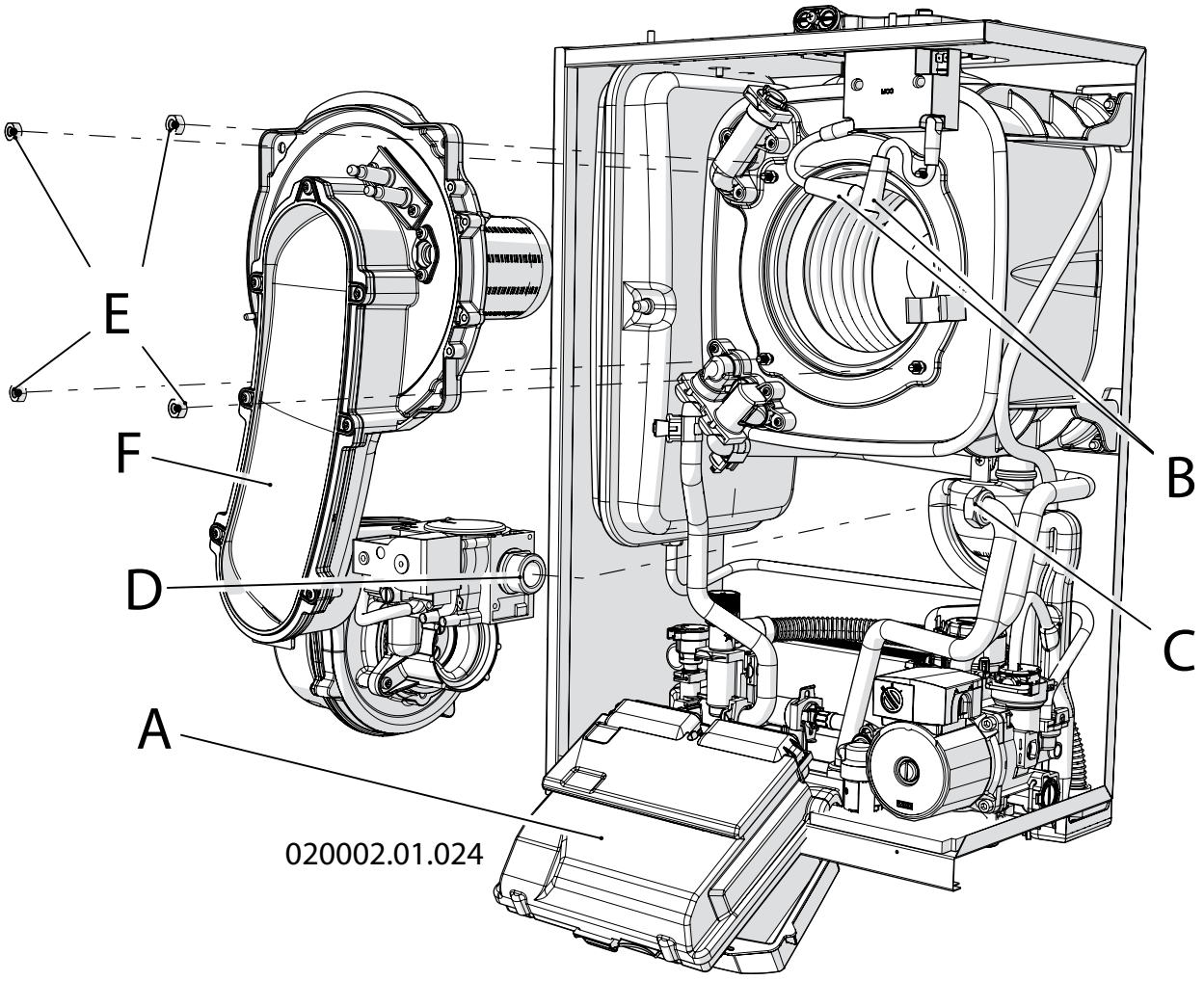


Figure 8.2 - Removing the burner fan unit

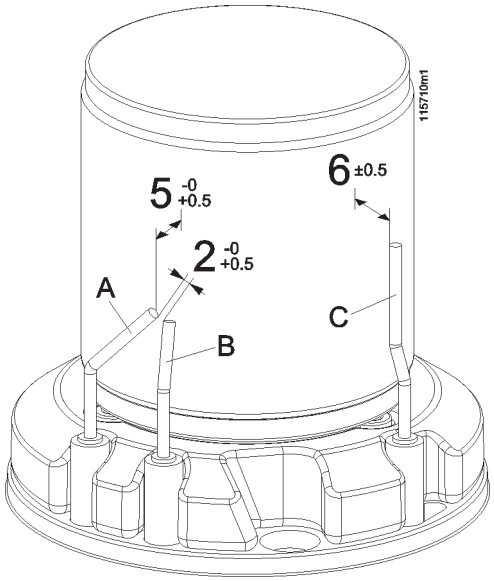


Figure 8.3 - positioning the electrodes on the burner

8.5 - Correct positioning of the ignition and ionising electrodes

For good working order of the appliance, it is indispensable that the electrodes are positioned correctly (refer to figure 8.3):

- the distance between the ignition electrodes “A” and “B”, must be between 2.0 and 2.5 mm;
- the distance between the ignition electrodes from the burner surface must be between 5 and 5.5 mm;
- the distance of the ionisation electrode from the surface of the burner must be between 5.5 and 6.5 mm.

8.6 - Controlling the expansion tank

The expansion tank is positioned in the left side of the boiler.

Check the pre-fill pressure of the expansion vessel. It must be at 1 bar. If the pressure is lower, restore it, allowing the water to evacuate from one of the two central heating drain cocks (details “A” and “B” in figure 8.16).

If the replacement of the tan becomes indispensable, proceed as follows to remove it (refer to figure 8.4 when not differently specified):

1.- access the boiler internal components following chapter 8.2;
2.- empty the central heating circuit, following the procedure in chapter 8.16;
3.- remove the screw “B”;
4.- loosen the fitting “C”;
5.- extract the expansion tank “D” towards the front.
6 - Replace the tank.

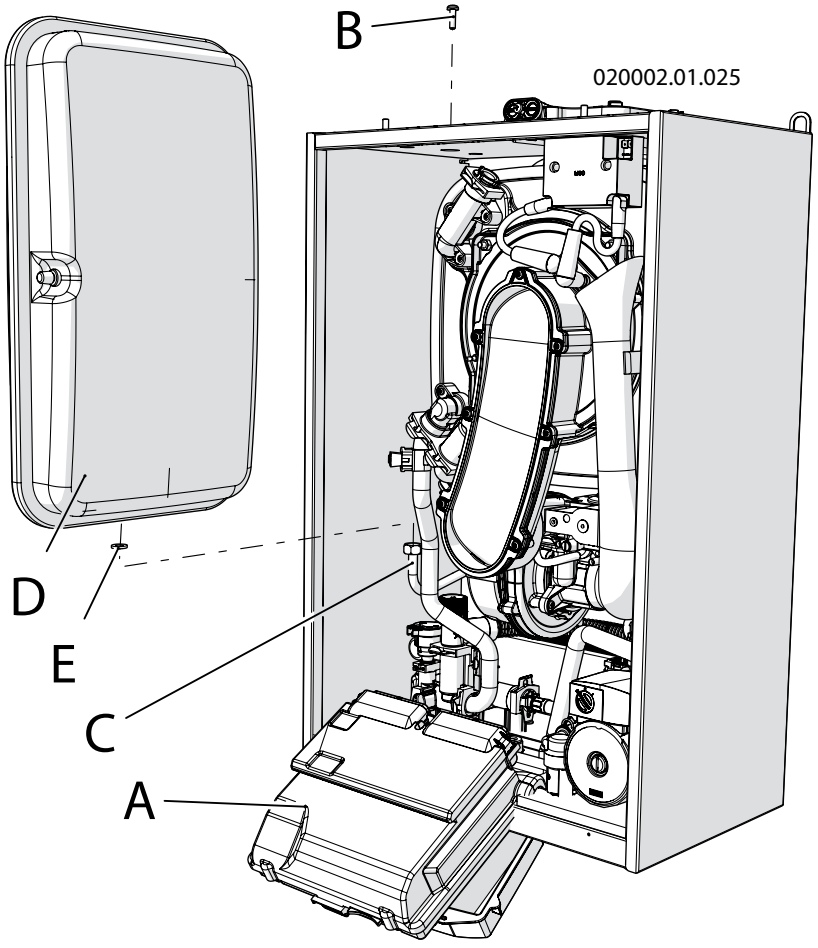


Figure 8.4 - Access to the expansion tank

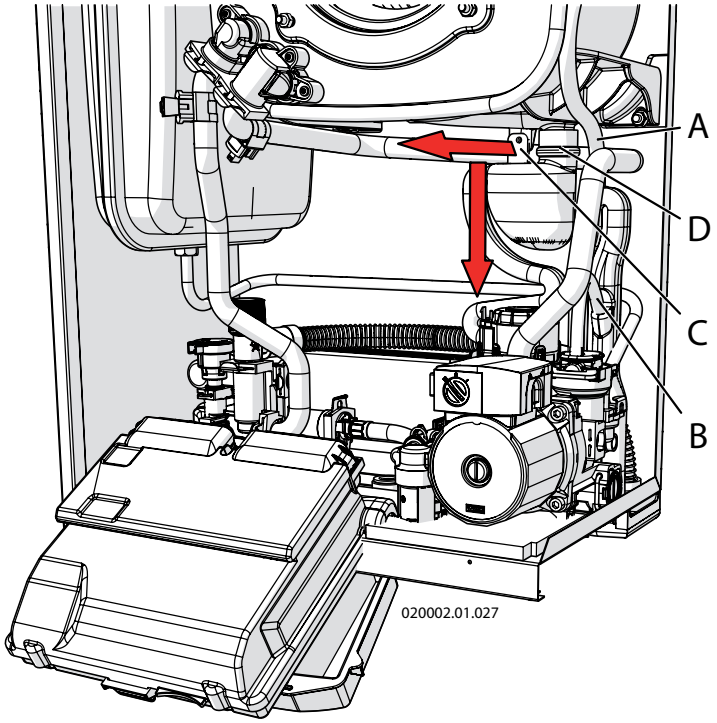


Figure 8.5 - Removal of the condensate collection siphon

8.7 - Cleaning the condensate conveyor siphon

For correct cleaning of the collection siphon and the conveying of the condensate produced by combustion, operate as follows (refer to the figures 8.5, 8.6 and 8.7):

1.- with the boiler on, open a domestic hot water cock to maximum in a way that the burner is at maximum power and the level of liquid present inside the siphon tank “D” lowers (see figure 8.6);
2.- access the internal components following chapter 8.2;
3 - remove the fan burner unit following chapter 8.3;
4 - cover the electric plant and pump unit with a cloth to protect them from any residues of water inside the siphon to be removed.
5.- slide the support “C” outwards from the holding support;
6.- slide the tank “D” downwards, paying attention to the fact that it is full of condensate water and this could escape;
7.- extract the siphon outwards (see figure 8.6) paying attention to disconnect the collection pipes of the water coming from the upper part of the appliance and from the air vent valve.
8.- clean the decanting tank “D”;
9.- re-mount everything in reverse order, paying attention to the gasket “E”, which is put back in the relevant seat and that terminal “G” is introduced correctly in the seat “H”;
10.- restore the level of liquid inside the siphon following the procedure in chapter 6.1.2.

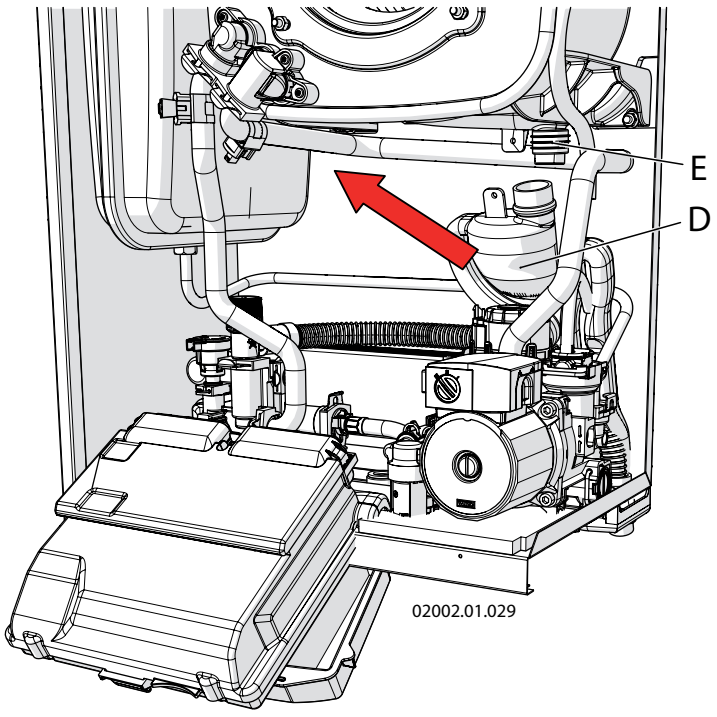


Figure 8.6 - Removal of the condensate collection siphon

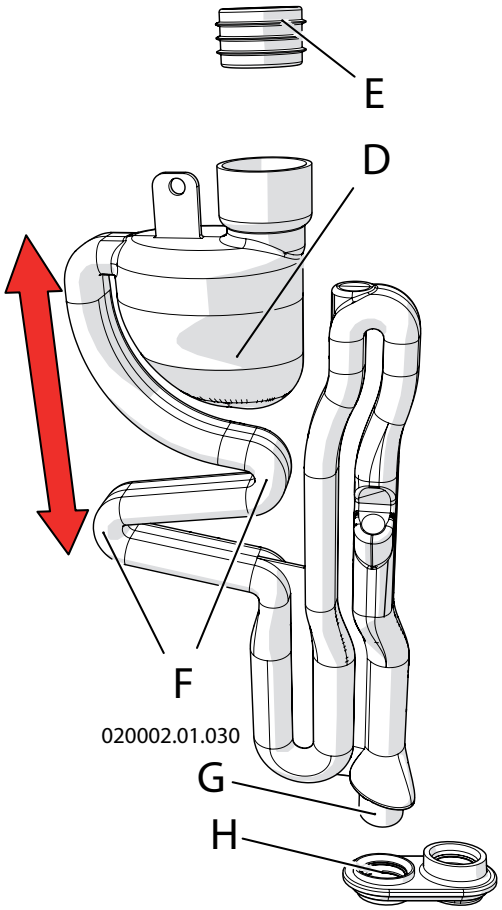


Figure 8.7 - Condensate collection siphon

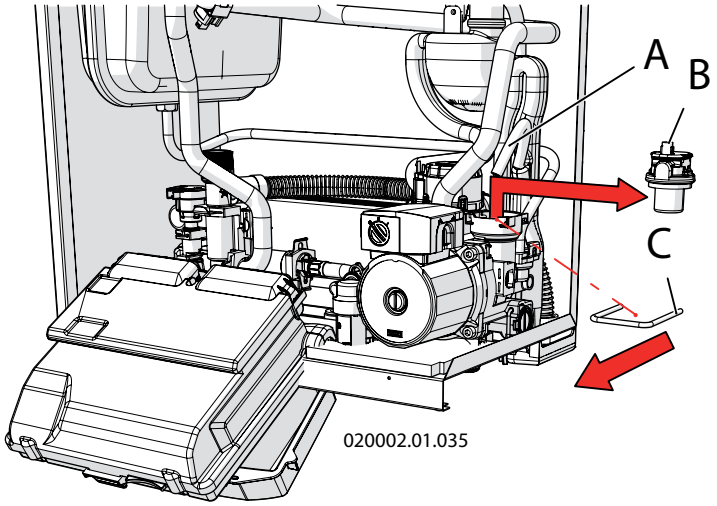


Figure 8.8 - Removing the air vent valve

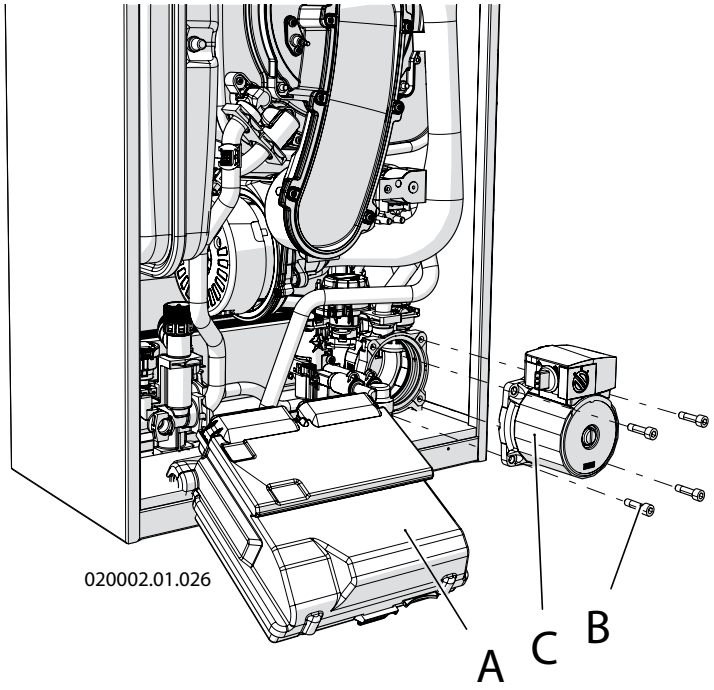


Figure 8.9 - Replacing the pump motor

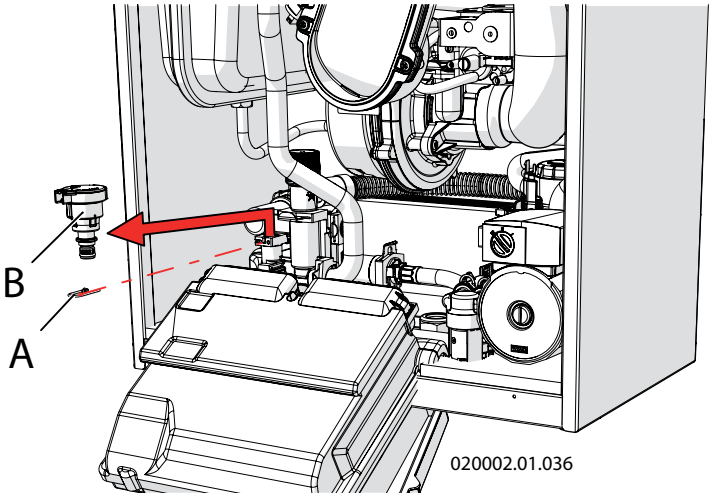


Figure 8.10 - Removing the central heating circuit pressure sensor

8.8 - Removing the air vent valve

Refer to Figure 8.8 and proceed as follows:

1.- empty the central heating circuit, following the procedure in chapter 8.16;
2.- access the internal components of the appliance following chapter 8.2;
3.- remove the pipe “A” from the air vent valve “B”;
4.- slide the drive bar “C” towards the front;
5.- slide the air vent valve “B” upwards and extract it

8.9 - Replacing the pump motor

If the circulation pump must be replaced, operate as follows (refer to figure 8.9)

1.- empty the central heating circuit, following the procedure in chapter 8.16;
2.- access the internal components of the appliance following chapter 8.2;
3.- disconnect the electric wires from the pump body.
4.- remove the screws “B”;
5.- extract the pump “C” outwards;

8.10 - Removing the central heating circuit pressure sensor

Proceed as follows, making reference to figure 8.10:

1.- empty the central heating circuit, following the procedure in chapter 8.16;
2.- access the internal components of the appliance following chapter 8.2;
3.- extract the drive bar “A” towards the front;
4.- slide the pressure sensor “B” upwards and extract it.

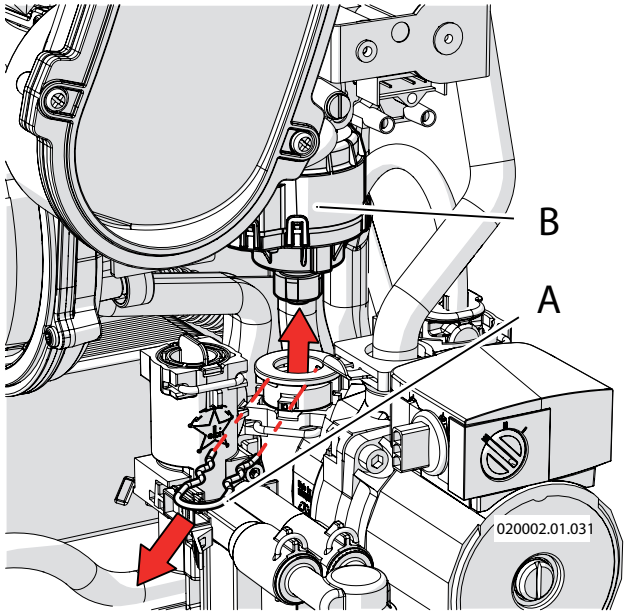


Figure 8.11 - Removing the servo-motor

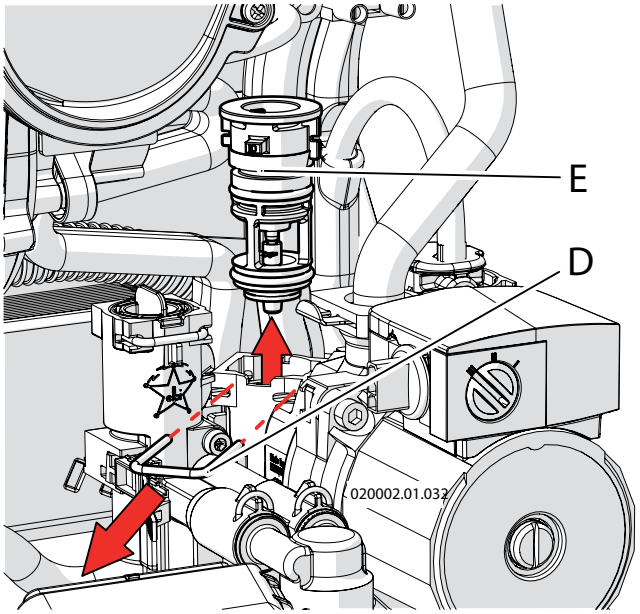


Figure 8.12 - Removing supply and return fittings

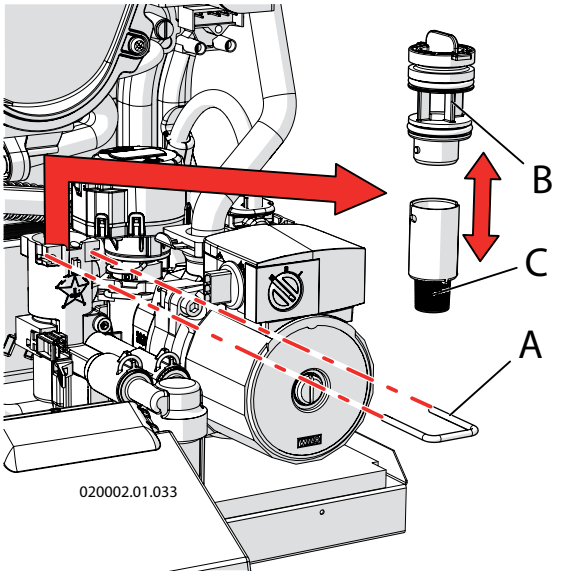


Figure 8.13 - Removing the flow meter

8.11 - Removing the diverter valve servo-motor

Proceed as follows, making reference to figure 8.11:
1.- access the internal components of the appliance following chapter 8.2;
2.- remove the air manifold (detail “C” in figure 6.2) rotating it towards the outside of the boiler and then pulling it towards the right (see figure 6.2);
3.- slide the drive bar “A” in 8.11 out;
4.- extract the servo-motor “B” in figure 8.11 upwards.

8.12 - Removing the diverter valve

The diverter valve (detail “47” in figure 3.1) switches over the flow of water produced from the primary heat exchanger to the central heating circuit or to the secondary heat exchanger for the production of d.h.w. If it has to be replaced, proceed as follows (refer to figure 8.12):
1.- remove the diverter valve servo-motor following chapter 8.11;
2.- empty the central heating circuit, following the procedure in chapter 8.16;
3.- slide the drive bar “D” out;
4.- slide the diverter valve “E” upwards.

8.13 - Removing the flow meter

The flow meter is used to measure the water flow rate of the domestic hot water. If it has to be replaced, proceed as follows (refer to figure 8.13):
1.- empty the domestic hot water circuit, following the procedure in chapter 8.17;
2.- access the internal components of the appliance following chapter 8.2;
3.- remove the spring “A”;
4.- extract the flow meter “B”, paying attention to direction for the correct re-positioning at the end of maintenance;
5.- clean the filter “C” making sure to extract it from the body of the flow meter “B” as indicated in the figure;
6.- wash the filter and re-mount everything in reverse order;
7.- during remounting, make sure the flow meter is positioned correctly (step highlighted in point 4).

ATTENTION !!! This filter is intended as a precaution only. A filter with greater capacity must be installed outside the boiler, on the cold water inlet, as specified in chapter 5.6.

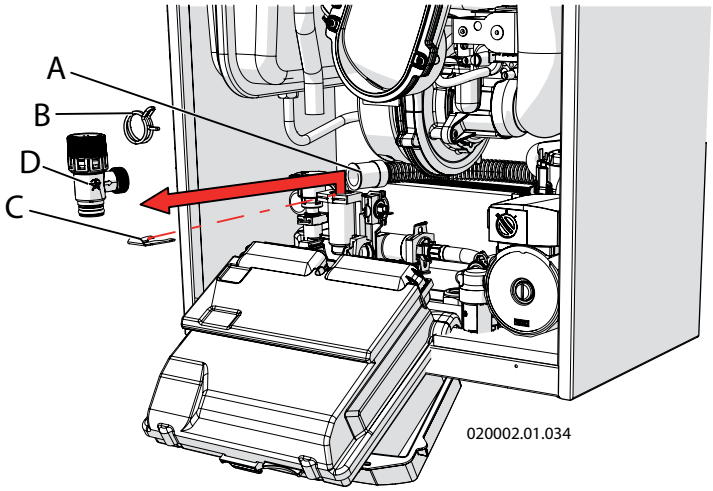


Figure 8.14 - Removing the safety valve

8.14 - Removing the safety valve

The safety valve (detail “D” in figure 8.14) protects the boiler from over pressures. If it has to be replaced, proceed as follows (refer to figure 8.14):

1.- empty the central heating circuit, following the procedure in chapter 8.16;
2.- access the internal components of the appliance following chapter 8.2;
3.- disconnect the drain pipe “A”, loosening the sealing spring “B”;
4.- slide the drive bar “C” towards the front;
5.- extract the safety valve “D” upwards;

8.15 - Secondary heat exchanger for the production of d.h.w.

The production of d.h.w. is delegated to the secondary heat exchanger (detail “5” in figure 3.1). If this heat exchanger is no longer efficient with the passing of time, it may require cleaning or replacement. To remove the secondary heat exchanger, proceed as follows (refer to figure 8.15):

1.- empty the central heating circuit and the domestic hot water circuit, respectively following chapters 8.16 and 8.17;
2.- access the internal components as per chapter 8.2;
3.- remove the burner fan unit following chapter 8.3;
4.- loosen the bolts “A”;
5.- move the secondary heat exchanger “B” backwards and turn it as per figure;
6.- extract the heat exchanger “B” towards the front of the boiler.

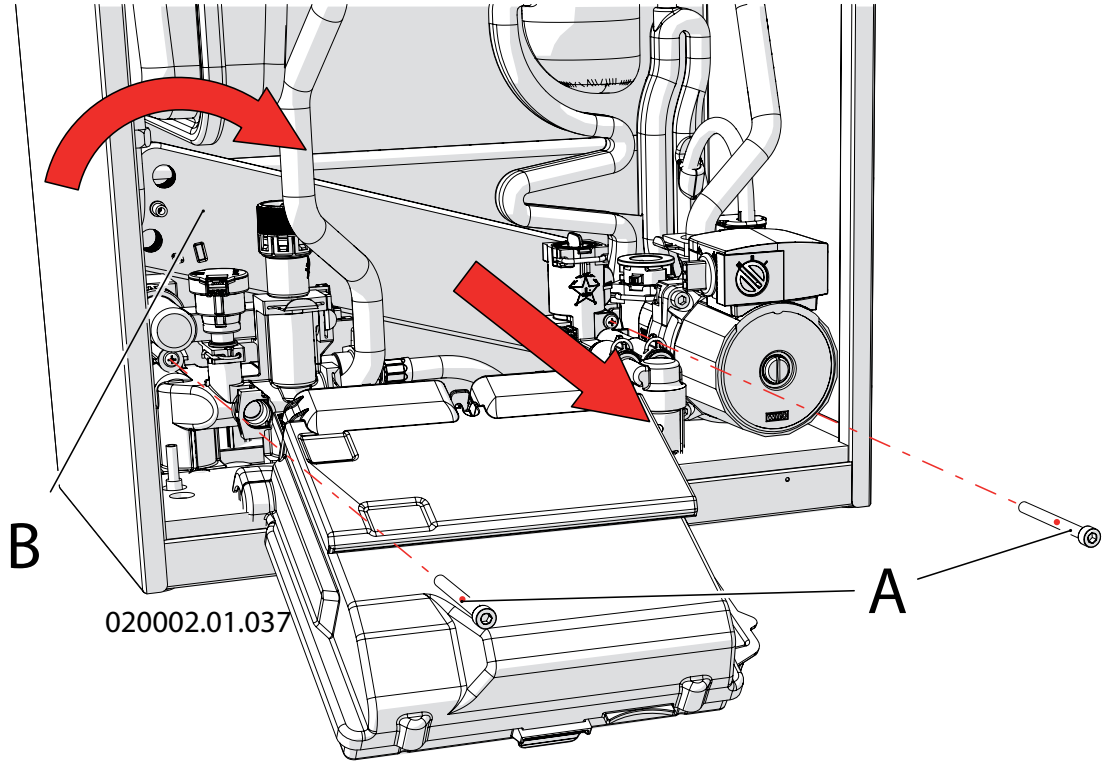


Figure 8.15 - Removing the secondary heat exchanger

8.16 - Emptying the appliance on the domestic hot water side

To empty the appliance from the central heating side, proceed as follows:

1.- generate a central heating request;
2.- set the central heating temperature at the lowest value possible, with the purpose of cooling the water inside the boiler;
3.- switch the boiler off;
4.- access the internal components following chapter 8.2;
5.- connect a flexible hose to the drain cocks “A” and “B”(see figure 8.16) and convey it onto the drain of a washbasin or similar;
6.- open the drain cocks “A” and “B” (see direction of rotation in figure 8.17);
7.- open the central heating elements bleed valves. Start from the highest central heating elements and continue with the lowest.
8.- once all of the water has been evacuated, close all of the heating element vent valves and the drain cocks “A” and “B” in figure 8.16.

ATTENTION !!! It is prohibited to recover and/ or re-use the water evacuated from the central heating circuit for any purpose; this could be polluted.

8.17 - Emptying the appliance on the domestic hot water side

To empty the appliance from the domestic hot water side, proceed as follows:

1.- close the main cold water supply cock in the house;
2.- open all hot and cold water taps around the home;
3.- make sure that at least one of these is at a height below the level of the boiler.

8.18 - Fan

Switch-on of the fan only can be generated, accessing the parameter 20 10 situated inside the “Installer menu” (see chapter 7.18) and set it on FAn. To go back to normal operating conditions, set parameter 20 10 again to OFF.

8.19 - Minimum and maximum power

Appliance operation can be forced to its own minimum, maximum, adjusted or ignition power. Proceed as follows:

1.- make sure that any cocks and thermostatic valves downstream from the central heating circuit are open;

ATTENTION !!! During forcing of the delivery temperature, it automatically goes to 93°C to give the possibility to dispose of as much of the heat generated by the boiler as possible. Check that the central heating plant can support this temperature.

2.- access parameter 20 10 found in the “installer menu” (see chapter 7.18);

3.- set the parameter 20 10 at the following value:

a) LOw to force the boiler to minimum power;
b) 19n to force the boiler to ignition power;
c) H 19H to force the boiler to maximum power;
d) rE9 to force the boiler to the maximum central heating power, as adjusted (Range Rated) in chapter 6.9, parameter 2002.

4.- To end forcing, take the parameter 20 10 to theOFF e premere il tasto RESET.

ATTENTION !!! If during forcing, the power supplied by the boiler is much higher than the power absorbed by the plant, the boiler switches off continuously to reach the maximum temperature allowed (93°C).

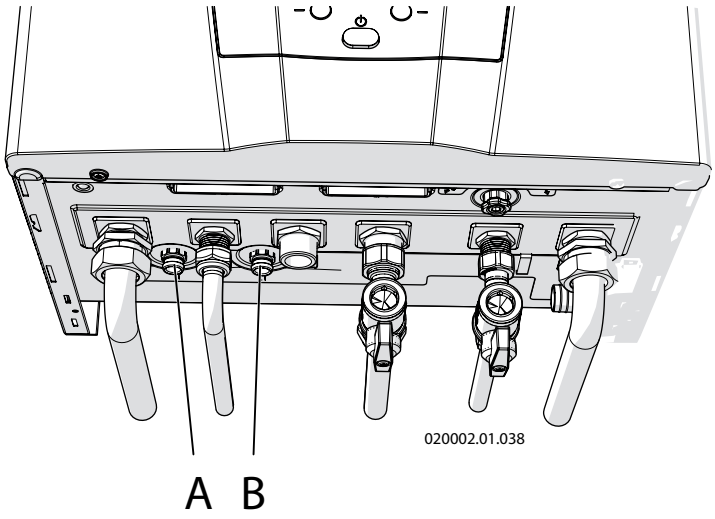


Figure 8.16 - Central heating circuit drain cocks

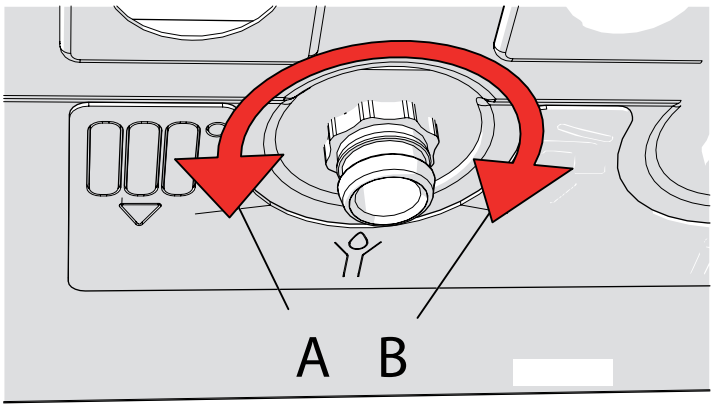


Figure 8.17 - Cocks opening and closing direction
A = Open
B = Closed

8.20 - Checking the ionisation current

In any operating status, also during verifications of minimum and maximum power stated in chapter 8.19, the ionisation current value can be consulted on parameter 1008 present in the “User menu” (chapter 7.17). This value must be between 1.5 and 3 uA (microampere) at minimum power and between 5 and 8 uA at maximum power.

8.21 - Checking combustion efficiency

On the basis of national laws regarding gas appliances, the combustion efficiency must be checked periodically;
To do this, operate exactly as stated in chapter 6.8 and check, along with the CO2, also the combustion efficiency, which must be over 96%.

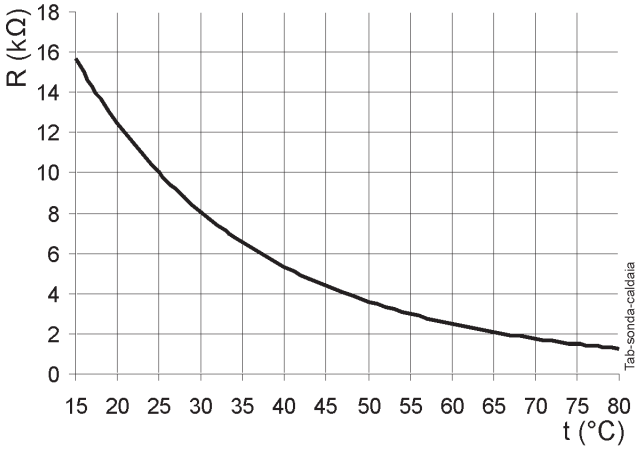


Figure 8.18 - Water sensors curve

8.22 - Water temperature measurement sensors

The temperature sensors are positioned on the boiler’s exchanger body. The electric resistance existing between the two contacts of the sensor, must correspond with that stated in figure 8.18.

The temperature sensors are: 1001, 1002, 1003, 1005, 1006, 1007 and 1014, the positioning of which can be verified in figure 3.1.

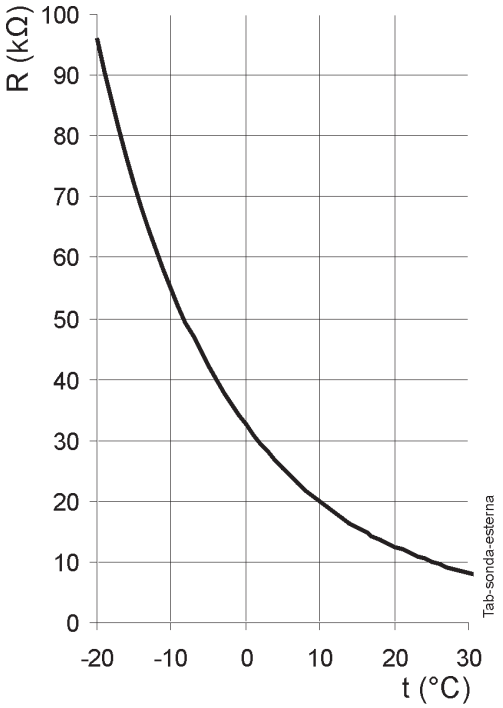
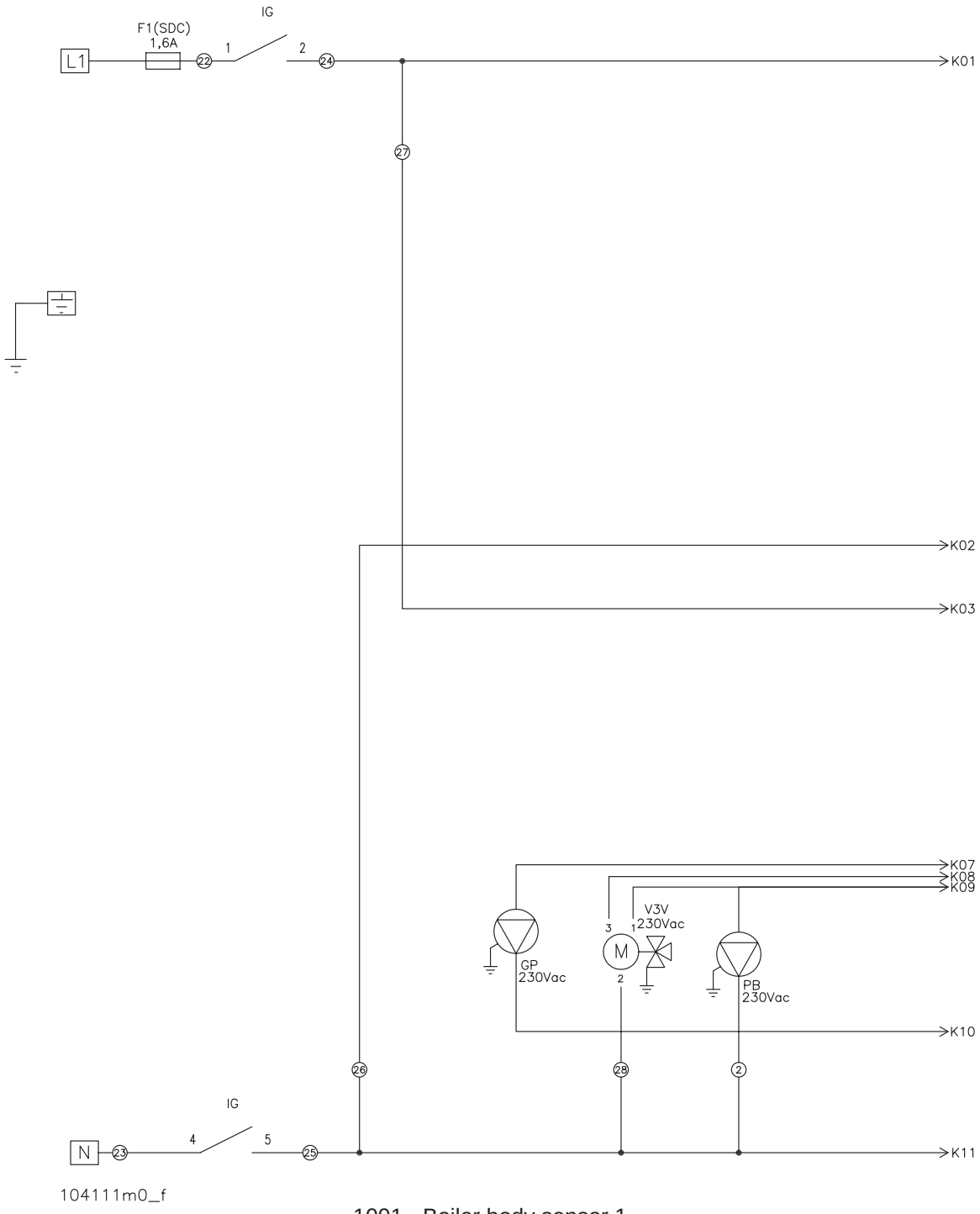


Figure 8.19 - External temperature sensor curve

8.23 - External temperature sensor

On request, the external temperature sensor can be connected to the boiler 1004 (see chapter 5.14.4). The electric resistance existing between the two contacts of the sensor, must correspond with that stated in figure 8.19.

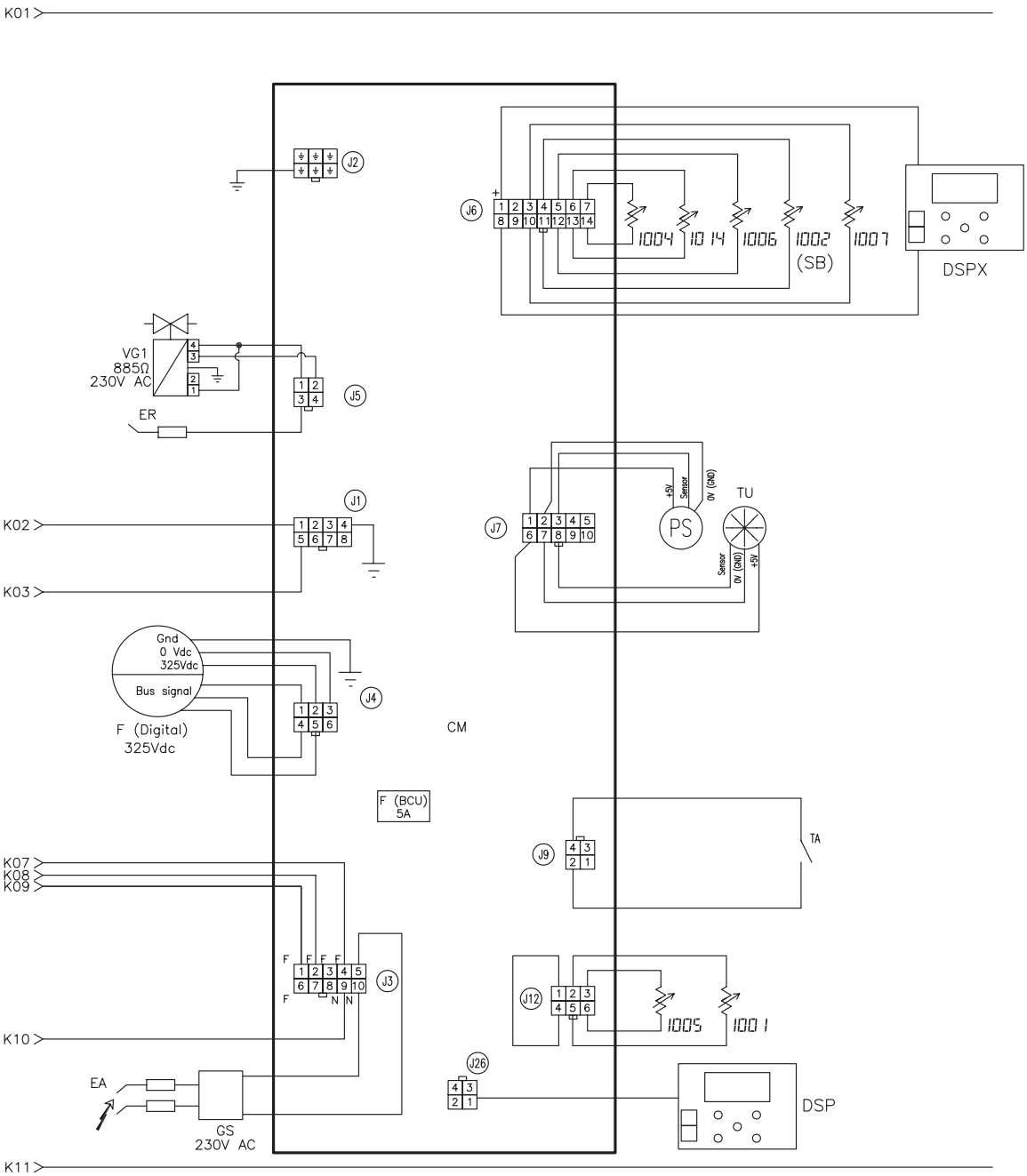
8.24 - Operational wiring diagram



ATTENTION !!! To consult the wiring diagram correctly, references K are given followed by a number (see example above) to identify the correct follow-on of the cables in the next page.

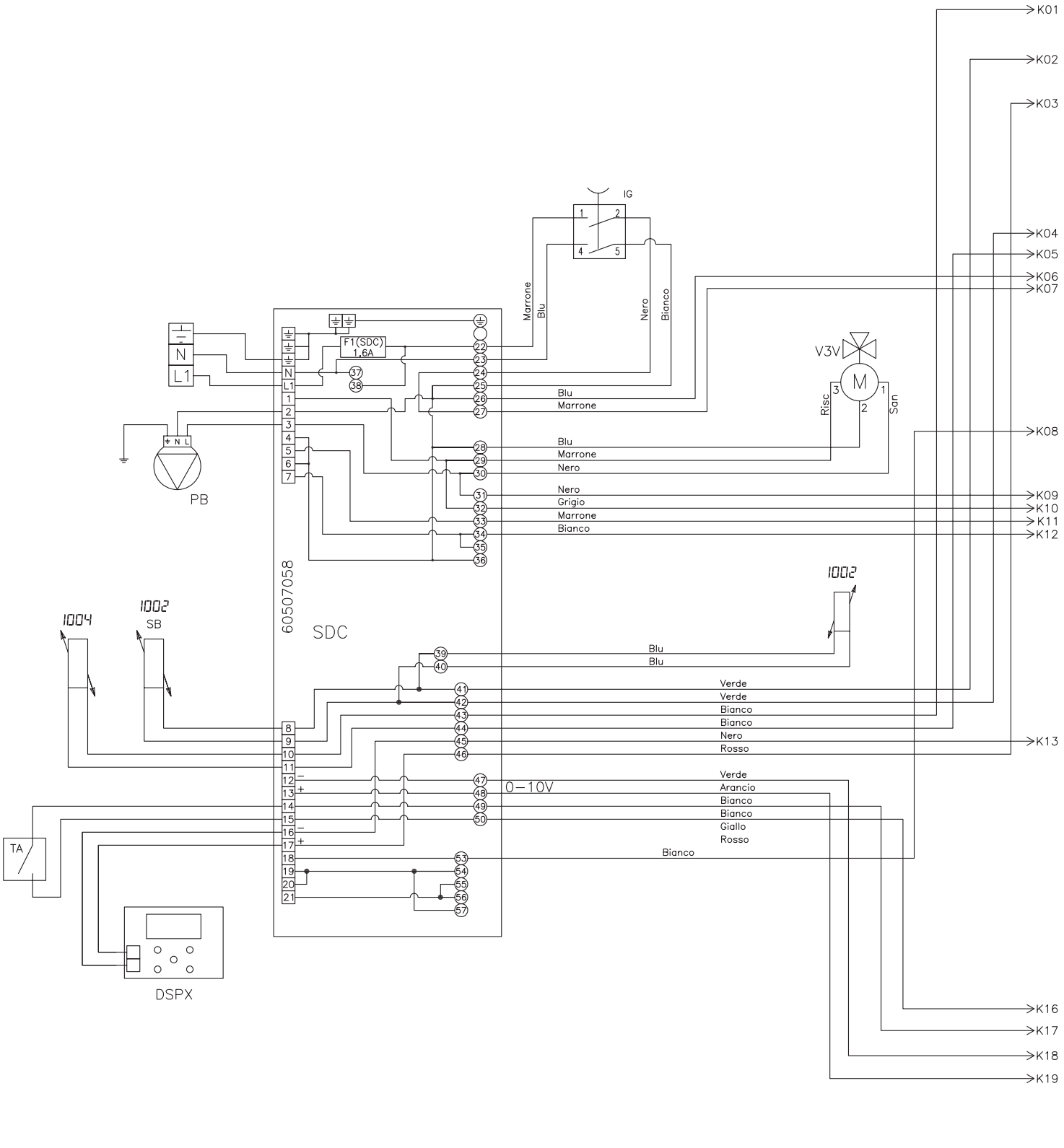
1001 - Boiler body sensor 1
1002 - DHW outlet sensor
1002 (SB) - Indirect water heater sensor
1004 - External temperature sensor
1005 - Boiler body sensor 2
1006 - Fumes sensor
1007 - Return sensor
1014 - Flue gas sensor (redundant)
CM - Boiler control unit and flame control
DSP - Display
DSPX - Remote control (on request)
EA - Ignition electrode
ER - Detection electrode
F (Digital) - Digital fan
F (BCU) - 5A fuse
F1 (SDC) - 1.6A power supply fuse
GP - Circulation pump
GS - Spark generator

Figure 8.20 - Operational wiring diagram



IG - Master switch
J1 - 6 pin Molex connector
J12- 6 pin Molex connector
J2 - 4 pin Molex connector
J26- 4 pin Molex connector
J3 - 12 pin Molex connector
J4 - 4 pin Stelvio connector
J5 - 16 pin Molex connector
J6 - 14 pin Molex connector
J7- 10 pin Molex connector
J9- 4 pin Molex connector
PB - Indirect water heater pump
PS - Central heating circuit pressure sensor
SDC- Connection board
TA- Room thermostat
TU - Domestic hot water flow meter
V3V- domestic hot water/central heating diverter valve
VG1- Sit Gas Valve

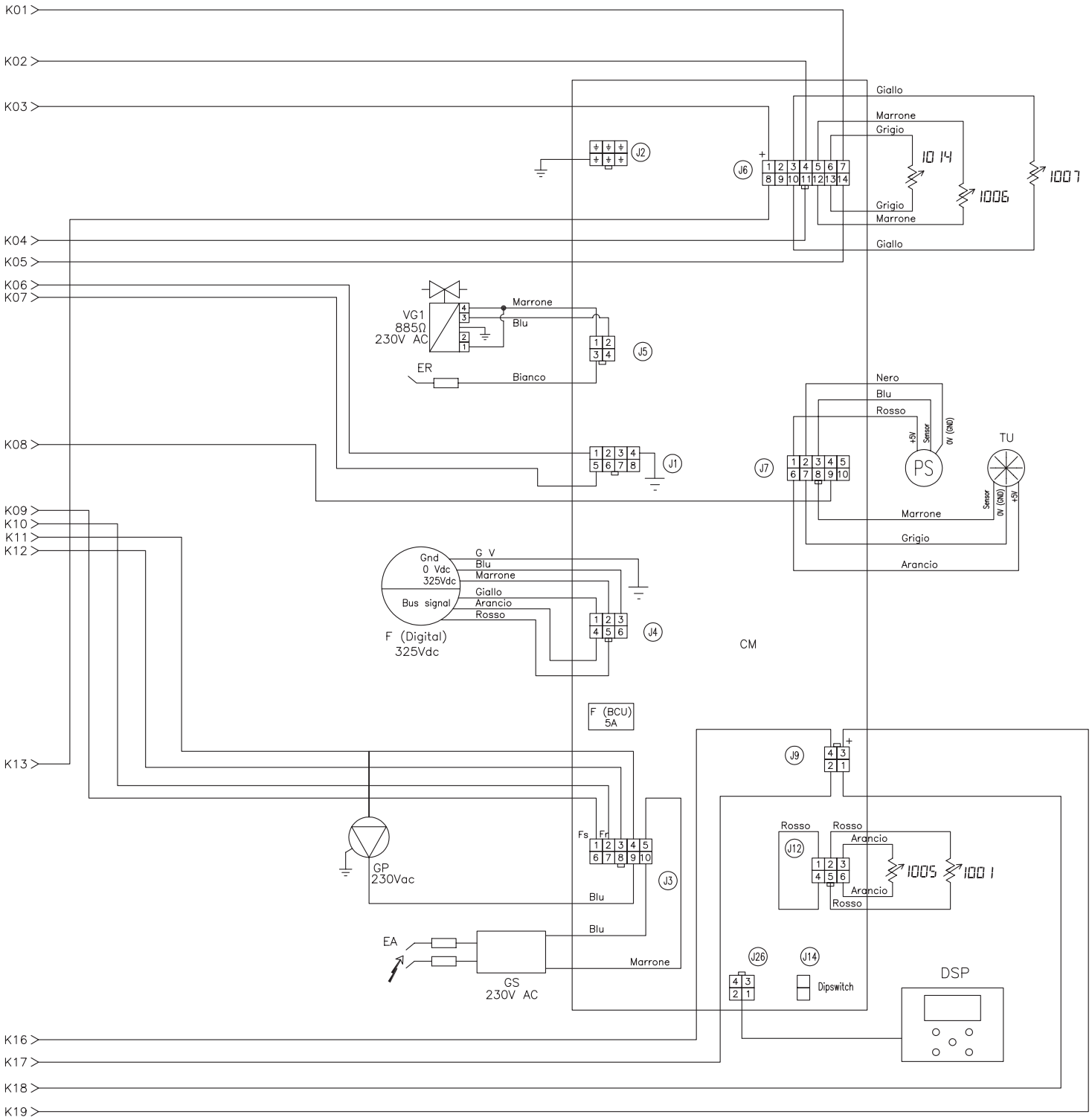
8.25 - Multi-wire wiring diagram



104111m0_m

Key - see key figure 8.20

Figure 8.21 - Multi-wire wiring diagram


K01
K02
K03
K04
K05
K06
K07
K08
K09
K10
K11
K12
K13
K16
K17
K18
K19
J2
J6
Giallo
Marrone
Grigio
1014
1006
1007
Grigio
Marrone
Giallo
VG1
885Ω
230V AC
Marrone
Blu
ER
Bianco
J5
J1
Nero
Blu
Rosso
+5V
Sensor
0V (GND)
J7
PS
TU
Marrone
Grigio
Arancio
Gnd
0 Vdc
325Vdc
Bus signal
G V
Blu
Marrone
Giallo
Arancio
Rosso
F (Digital)
325Vdc
J4
CM
F (BCU)
5A
J9
Rosso
Rosso
Arancio
J12
1005
1001
Arancio
Rosso
GP
230Vac
Fs
Fr
J3
Blu
Blu
EA
Marrone
GS
230V AC
J26
J14
Dipswitch
DSP

9 - TECHNICAL DATA

MYDENS TECHNICAL DATA		M.U.	15	24	34
Type (Type of fumes exhaust/air intake)			B23;C13;C33;C43;C53;C63;C83		
Category			II2H3P	II2H3P	II2H3P
CE type certificate (PIN)			0694CN6126	0694CN6126	0694CN6126
Central heating max. heat input “Q”		kW	14,0	25,5	34,8
Domestic hot water max. heat input		kW	/	25,5	34,8
Central heating min. heat input		kW	3,2	3,2	4,4
Domestic hot water minimum heat input		kW	/	3,2	4,4
Central heating max. useful heat output (80/60) “P”		kW	13,8	25,0	34,1
Efficiency at 100% load (80/60)		%	98	98	98
Min. useful heat output (80/60)		kW	3,17	3,17	4,35
Efficiency at min. useful heat output (80/60)		%	99	99	99
Central heating max. useful heat output (50/30)		kW	15,1	27,5	37,6
Efficiency at central heating max. useful heat output (50/30)		%	108	108	108
Min. useful heat output (50/30)		kW	3,49	3,49	4,8
Efficiency at min. useful heat output (50/30)		%	109	109	109
Central heating max. useful heat output (40/30)		kW	15,9	27,8	37,9
Efficiency at central heating max. useful heat output (40/30)		%	109	109	109
Min. useful heat output (40/30)		kW	3,5	3,5	4,84
Efficiency at min. useful heat output (40/30)		%	110	110	110
Efficiency at 30% of the load		%	110	110	110
Efficiency certificate (92/42/EEC)		stelle	★★★★	★★★★	★★★★
Losses at the chimney burner on (80/60)		%	1,5	1,5	1,5
Losses at the chimney burner on at minimum power		%	0,5	0,5	0,5
Losses at the chimney burner off		%	0,1	0,1	0,1
Losses at the casing burner on		%	0,5	0,5	0,5
Losses at the casing burner off		%	0,1	0,1	0,1
Losses at zero load		%	0,3	0,3	0,3
Generator average test temperature (80/60)		°C	70	70	70
Generator average test temperature (40/30)		°C	35	35	35
Return temperature in test conditions (80/60)		°C	60	60	60
Return temperature in test conditions (40/30)		°C	30	30	30
Gas flow rate	Nat Gas	m^3/h	1,48	2,70	3,68
	LP Gas	Kg/h	1,09	1,98	2,70
Gas supply pressure	Nat Gas	mbar	20	20	20
	LP Gas	mbar	37	37	37
Gas supply minimum pressure	Nat Gas	mbar	15	15	15
	LP Gas	mbar	25	25	25
Gas supply maximum pressure	Nat Gas	mbar	27	27	27
	LP Gas	mbar	45	45	45
Combustion agent air pressure	Nat Gas	mbar	8,2	13,2	12,3
	LP Gas	mbar	8,6	13,8	11,2
Primary heat exchanger with shared water circulation pipes		lt	1,5	1,5	1,7
Weight of the heat exchanger with stainless steel water pipes		kg	8	8	9,2
Secondary heat exchanger water content		lt	/	0,5	0,5
Domestic hot water useful heat output		kW	/	27,5	37,6
D.h.w. minimum flow rate		l/min	/	2	2
Instantaneous d.h.w. production (dt 30°C)		l/min	/	13,1	18
Instantaneous d.h.w. adjustment range		°C	/	40-60	40-60
D.h.w. with indirect water heater adjustment range		°C	40-70	40-70	40-70
Design temperature		°C	95	95	95
Maximum central heating temperature		°C	80	80	80
Minimum central heating temperature		°C	20	20	20

9 - TECHNICAL DATA

MYDENS TECHNICAL DATA		M.U.	15	24	34
Central heating maximum pressure “PMS”		bar	3	3	3
Central heating minimum pressure		bar	0,5	0,5	0,5
D.h.w. circuit maximum pressure		bar	/	7	7
D.h.w. minimum pressure		bar	/	0,3	0,3
Expansion tank pre-load pressure		bar	1	1	1
Expansion tank capacity		lt	10	10	10
Rated power supply voltage		V	230	230	230
Rated power supply frequency		Hz	50	50	50
Absorbed electric power		W	120	120	120
Electric protection rating			IPX4D	IPX4D	IPX4D
Elec. pow. of the generator aux. positioned before firebox		W	70	70	70
Elec. pow. of the generator aux. at min.pow. positioned before firebox		W	30	30	30
Elec. pow. of the generator aux. positioned after firebox		W	50	50	50
Elec. pow. of the generator aux. at min.pow. positioned after firebox		W	50	50	50
Power absorbed by the auxiliaries at rated power		W	50	50	50
Power absorbed by the auxiliaries at intermediate load		W	20	20	20
Power absorbed by the auxiliaries at zero load		W	1	1	1
Electric power absorbed by the pump		W	50	50	50
Fumes pipe diameter (split)		mm	80 o 60	80 o 60	80 o 60
Fumes pipe max. length (split) (80)		m	40	40	25
Fumes pipe max. length (split) (60)		m	15	15	10
Fumes pipe diameter (coaxial)		mm	60/100	60/100	60/100
Fumes pipe max. length (coaxial)		m	10	10	10
Equivalent length of a bend		m	Curva a 45° = 0.5m, curva a 90° =1m		
Weighted CO (0% O2 with nat Gas)		ppm	1	8	15
Weighted NOx (0% O2 with nat Gas) (class 5 EN 483 and 297)		ppm	11	13	17
CO2 (%) at minimum/maximum power	Nat Gas	%	8,5/9,0	8,5/9,0	8,5/9,0
CO2 (%) at minimum/maximum power	LP Gas	%	10/10,5	10/10,5	10/10,5
O2 (%) at minimum/maximum power	Nat Gas	%	5,5/4,8	5,5/4,8	5,5/4,8
O2 (%) at minimum/maximum power	LP Gas	%	5,6/4,8	5,6/4,8	5,6/4,8
Maximum recirculation of fumes allowed in the event of wind		%	10	10	10
Fumes maximum temperature at boiler outlet		°C	75	75	75
Fumes minimum temperature at boiler outlet		°C	30	30	30
Mass flow of the fumes		kg/h	25,4	42,3	59
Mass flow of the fumes at minimum power		kg/h	5,3	5,3	7,2
Head available at exhaust		Pa	60	60	60
Maximum temperature of the combustion agent air		°C	50	50	50
Maximum CO2 content in the combustion agent air		%	0,9	0,9	0,9
Fumes maximum temperature for overheating		°C	90	90	90
Max. negative pressure allowed in the fumes exhaust/intake system		Pa	60	60	60
Condensate maximum flow rate		l/h	1,9	3,2	4,3
Condensate average acidity		PH	4	4	4
Operating environment temperature		°C	0 ; +50	0 ; +50	0 ; +50
Weight of the boiler	**B**	kg	36	36	38
	C	kg	34	34	36
	P	kg	/	36	38

10 - COMMAND MENU DIAGRAM

Key of figure 10.1

Symbol	Description
RESET 0	Press and release the RESET key
RESET 2	Hold the reset key down for a time in seconds, indicated by the number (2)
RESET 5	Hold the reset key down for a time in seconds, indicated by the number (5)
RESET 5	Hold down the RESET and key simultaneously for a time in seconds, indicated by the number
	Press and release the key
	Press and release the key

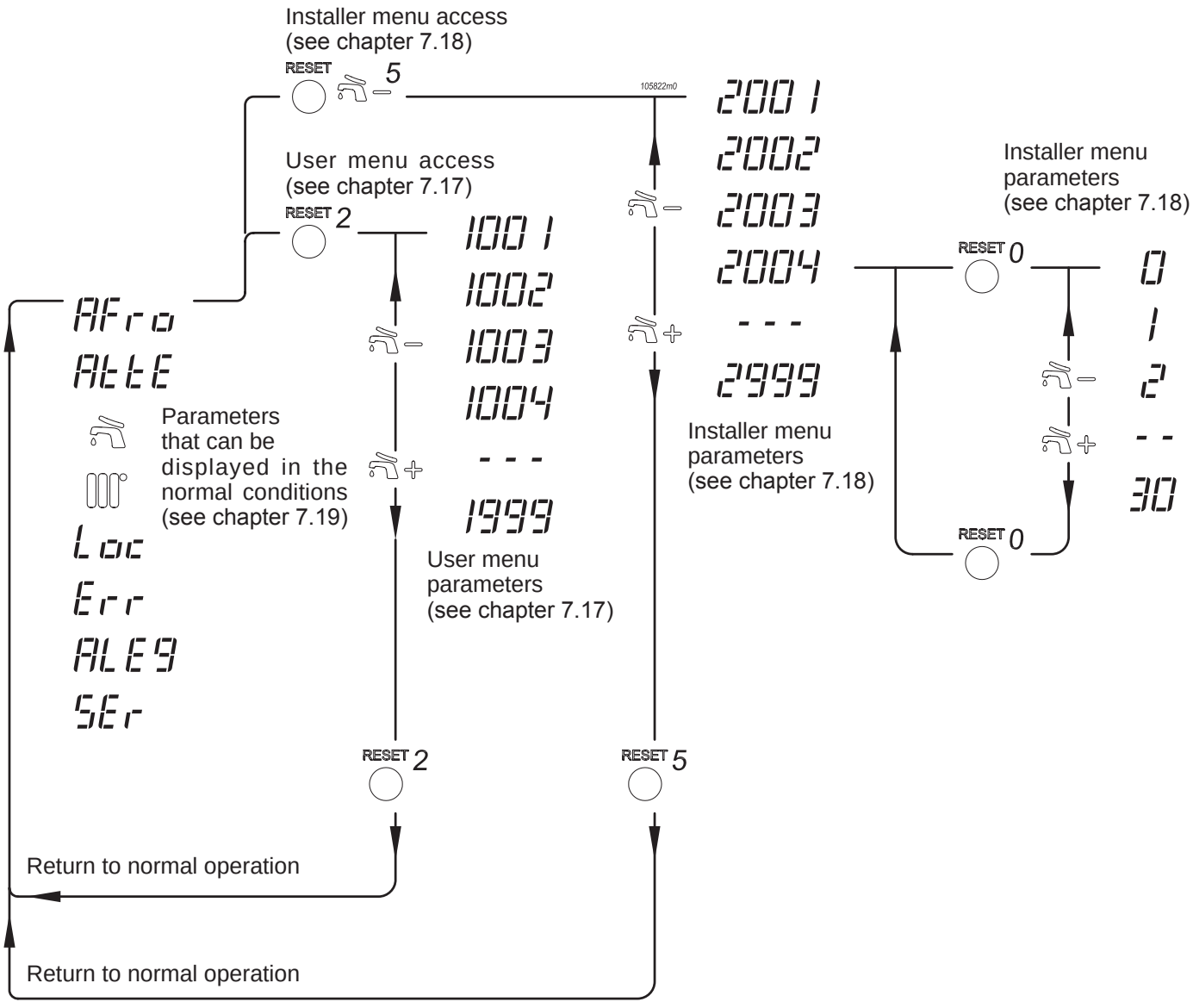


Figure 10.1 - Command menu diagram

11 - MENU FORCED BY INTERNAL ELECTRIC BRIDGE

ATTENTION !!!

The modification of these parameters could cause the appliance, and therefore the plant, to malfunction.
For this reason only a technician that has the awareness and in-depth knowledge of the appliances can modify them.

To access this menu, introduce the bridge in the board as stated in figure 6.5 detail “A”.

Parameter	Description of the parameter	M.U.	Setting range	Factory value	Customised value
3002	Selection type		From 50 to 55	See Figure 6.7	
3012	Domestic hot water operating mode	/	0 = No domestic hot water; 1 = Indirect water heater with temperature sensor; 2 = Indirect water heater with thermostat; 3 = Instantaneous with flow switch; 4 = Microaccumulation with two sensors; 5 = Instantaneous with turbine;	model “P” = 5 model “B” = 1 model “C” = 0	
3013	Plant fill automatic valve	/	0 = Valve disabled; 2 = Valvola abilitata;	0	
3014	Instantaneous domestic hot water pre-heat	/	OFF = No pre-heat ON = with pre-heat	OFF	
3015	Maximum central heating temperature	°C	From 20 to 90	80	
3016	Minimum central heating temperature	°C	From 20 to 90	30	
3020	Domestic hot water flow rate sensor	/	0 = B; (MYDENS 15, 24 e 34) 1 = DN 8; 2 = DN 10; 3 = DN 15; 4 = DN 20; 5 = DN 25;	0	
3021	2nd Fumes sensor (1014)	/	0 = Disabled; 1 = Enabled; 2 = Enabled with fumes exhaust anti-closure pressure switch;	1	
3022	Central heating minimum pressure	bar	OFF... 0,3 to 5,1;	0,5	
3033	Modulating pump	/	0 = Disabled; 1 = Enabled; From 4 to 10 = Fixed speeds from 40% to 100%;	0	
3034	Modulating pump delta T target	°C	From 5 to 40	15	
3035	No function	/	/	/	
3036	No function	/	/	/	
3052	No function	/	/	/	

The undersigned **COSMOGAS S.r.L.**, with Registered Office in via L. Da Vincin° 16 - 47014 Meldola (FC) ITALY,

DECLARES

under its own responsibility that the product:

WARRANTY N°	
GAS BOILER MODEL	
DATE OF MANUFACTURE	

subject of this declaration, is in compliance with the model described in the Type examination certificate CE, whose reference is given in the table in chapter 9 under “CE type certificate (PIN)” and meeting that required by the Directives: Gas Appliances, (**2009/142/CE** former **90/396/CEE**), Efficiencys, (**92/42/CEE**), Low Voltage, (**2006/95/CE**), Electromagnetic Compatibility, (**2004/108/CEE**).

(the warranty number corresponds to the serial number)

This declaration is issued for that established by the above-mentioned Directives.

Meldola (FC) ITALY, (Date of manufacture).

13.1 - General warranty conditions

All **COSMOGAS** products are guaranteed against material flaws and manufacturing defects for **24** months from the date of commissioning, **COSMOGAS** also extends the warranty to:

COPPER TUBE, CRR e **CRV** Heat exchanger **guaranteed up to 5 years**;

PRE-MIXED BURNERS **guaranteed up to 10 years**;

BRUCIATORI ATMOSFERICI **guaranteed up to 15 years**.

This warranty extension will only be valid if **COSMOGAS** has received the warranty card, filled-in completely, which will certify the date of commissioning. Within the above-mentioned term **COSMOGAS** commits to repairing or replacing the faulty construction parts and which will be acknowledged as such with exclusion of normal deterioration due to operations.
The extension of the warranty exclusively covers the cost of the spare part. All other accessory costs are excluded, such as: labour, transfer costs and expenses for transporting material.
The warranty does not extend to the recasting of the damage, of any nature, that has happened to persons or property. The faulty material replaced under warranty is the property of **COSMOGAS** and must be returned to our establishment, without further damage, within **30** days from replacement.
All **COSMOGAS** products are encumbered by the title retention agreement, until the appliance sold have been paid in full.

13.2 - Instructions for filling-in the warranty card

1. - Have your installer put his stamp on the warranty certificate.
2. - Always request the intervention of our authorised technician for commissioning and to validate the warranty;

To validate the warranty it will be the technician perform all the controls of the appliance in accordance with instructions contained in this manual and the regulations in force national and / or local.

The list authorised technicians is found attached to the instructions manual or can be found in the yellow pages under .

ATTENZIONE !!! - The authorized technician, performed the first ignition as mentioned above, must fill out the warranty card in all fields. In the top side, that will be sent to **COSMOGAS** for the validation of the warranty, and in the bottom side (to be cut) that will be given to the final user as a validation test (the coupon below shows the identification data of the product and the date of first ignition which is the beginning of warranty period). We recommend you to keep the coupon along with the user manual for easy reference.

13.3 - Limits of the warranty

The warranty is not valid:
- if the appliance is installed by **non-**qualified staff;
- if the appliance is installed in a way that is not in compliance with the **COSMOGAS** instructions and/or that established by the current national and/local regulations;
- whenever the plant is not run/services in compliance with the instructions and/or the current national and local regulations;
- whenever the product has damage caused by changes in voltage;
- whenever the product has damaged caused by the use of excessively hard water, or which is too acid or too oxygenated;
- whenever the product has failures caused by heat shocks, abnormalities of chimneys and/or exhaust and intake pipes;
- whenever the product has anomalies not depending on **COSMOGAS**;
- whenever the appliances have been tampered with for adaptation, repairs or replacement with non-original spare parts;
- whenever repairs are performed by unauthorised staff;
- Whenever the warranty certificate is not sent to **COSMOGAS** within **15 gg** from the date of commissioning.

COSMOGAS does not assume any responsibility for any accident that may occur or be caused by the user, precluding any compensation that does not concern boiler parts recognised as defective manufacturing.

Any dispute is the jurisdiction of the Forlì Law Court, ITALY.

For the UK contact:

GEMTEX
HEATING SOLUTIONS LTD

01256 587 800
info@gemtex.co.uk
www.gemtex.co.uk

65 Basepoint Business Centre Aviation
Business Park
Enterprise Close
Christchurch
BH23 6NX

COSMOGAS®

COSMOGAS s.r.l.
Via L. da Vinci 16 - 47014
MELDOLA (FC) ITALY
info@cosmogas.com
www.cosmogas.com