

MAINTENANCE
INSTRUCTIONS
FOR
IMMERGAS
MYTHOS HP
USER'S

Instructions and recommendations



Installer

User

Maintenance technician

1.045009ENG



MYTHOS HP



INDEX	
Dear Customer.....	4
General Recommendations.....	5
Safety symbols used.....	6
Personal protective equipment	6
1 Boiler installation.....	7
1.1 Installation warnings.....	7
1.2 Main dimensions	10
1.3 Minimum installation distances	10
1.4 Antifreeze protection	11
1.5 Installation inside the recessed frame (Optional)	12
1.6 Boiler connection group (Optional)	12
1.7 Gas connection	13
1.8 Hydraulic connection.....	14
1.9 Electrical connection.....	15
1.10 Remote controls and room chrono-thermostats (Optional)	16
1.11 Immergas flue systems	17
1.12 Tables of resistance factors and equivalent lengths of "Green Range" flue system components	19
1.13 Outdoor installation in partially protected area.....	21
1.14 Internal installation using a recessed frame with direct air intake	23
1.15 Concentric horizontal kit installation.....	24
1.16 Concentric vertical kit installation.....	26
1.17 Separator kit installation.....	28
1.18 C9 adaptor kit installation	29
1.19 Ducting of flues or technical slots	31
1.20 Configuration type B, open chamber and fan assisted for indoors	31
1.21 Flue exhaust to flue/chimney.....	32
1.22 Flues, chimneys and chimney caps.	32
1.23 System filling	33
1.24 Filling the condensate drain trap.....	33
1.25 Gas system start-up	33
1.26 Boiler start-up (Ignition)	33
1.27 Circulation pump	34
1.28 Kits available on request	35
1.29 Main components	36
2 Instructions for use and maintenance.....	37
2.1 General recommendations	37
2.2 Cleaning and maintenance.....	39
2.3 Control panel.....	39
2.4 Boiler use	40
2.5 Fault and anomaly signals	41
2.6 Information menu	43
2.7 Resetting the anomaly history.....	43
2.8 Boiler switch-off.....	44
2.9 Restore central heating system pressure	44
2.10 Draining the system	44
2.11 Emptying the D.H.W. circuit.....	44
2.12 Antifreeze protection	44
2.13 Prolonged inactivity	44
2.14 Cleaning the case	44
2.15 Permanent shutdown	44
3 Instructions for maintenance and initial check	45
3.1 General recommendations	45
3.2 Initial check	45
3.3 Yearly appliance check and maintenance	46
3.4 Hydraulic diagram.....	47
3.5 Wiring diagram.....	48
3.6 Troubleshooting.....	49
3.7 Converting the boiler to other types of gas.....	50
3.8 Gas valve calibration	50
3.9 P.C.B. programming	52
3.10 Solar panels coupling function	55
3.11 "Chimney sweep" function	55
3.12 Heating timer	55
3.13 Three-way anti-block system.....	55
3.14 Pump anti-block function	55
3.15 Radiators antifreeze function	55
3.16 P.C.B. periodical self-check	55
3.17 Casing removal	56
4 Technical data.....	57
4.1 Variable heat output	57
4.2 Combustion parameters	58
4.3 Technical data table	59
4.4 Key for data nameplate	60
4.5 Technical parameters for combination boilers (in compliance with Regulation 813/2013)	61
4.6 Product fiche (in compliance with Regulation 811/2013)	62
4.7 Parameters for filling in the package fiche	63

Dear Customer

Congratulations for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a Qualified Technical Assistance Centre, prepared and updated to guarantee constant efficiency of your appliance. Read the following pages carefully: you will be able to draw useful tips on the proper use of the device, compliance with which will confirm your satisfaction with the Immergas product.

For any assistance and scheduled maintenance please contact Authorised After-Sales centres: they have original spare parts and are specifically trained by the manufacturer.

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

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

The manufacturer declines all liability due to printing or transcription errors, reserving the right to make any modifications to its technical and commercial documents without forewarning.



GENERAL RECOMMENDATIONS

This book contains important information for the:

Installer (section 1);

User (section 2);

Maintenance Technician (section 3).

- The user must carefully read the instructions in the specific section (section 2).
- The user must limit operations on the appliance only to those explicitly allowed in the specific section.
- The appliance must be installed by qualified and professionally trained personnel.
- The instruction booklet is an integral and essential part of the product and must be given to the new user in the case of transfer or succession of ownership.
- It must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.
- In compliance with the legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, meaning staff with specific technical skills in the plant sector, as provided for by Law.
- Improper installation or assembly of the Immergas device and/or components, accessories, kits and devices can cause unexpected problems for people, animals and objects. Read the instructions provided with the product carefully to ensure proper installation.
- This instructions manual provides technical information for installing Immergas products. As for the other issues related to the installation of products (e.g. safety at the workplace, environmental protection, accident prevention), it is necessary to comply with the provisions of the standards in force and the principles of good practice.
- All Immergas products are protected with suitable transport packaging.
- The material must be stored in a dry place protected from the weather.
- Damaged products must not be installed.
- Maintenance must be carried out by skilled technical staff. For example, the Authorised Service Centre that represents a guarantee of qualifications and professionalism.
- The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.
- If errors occur during installation, operation and maintenance, due to non-compliance with technical laws in force, standards or instructions contained in this booklet (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damages and the device warranty is invalidated.
- In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts). Do not attempt to modify or repair the appliance alone.

SAFETY SYMBOLS USED



GENERIC HAZARD

Strictly follow all of the indications next to the pictogram. Failure to follow the indications can generate hazard situations resulting in possible harm to the health of the operator and user in general, and/or property damage.



ELECTRICAL HAZARD

Strictly follow all of the indications next to the pictogram. The symbol indicates the appliance's electrical components or, in this manual, identifies actions that can cause an electrical hazard.



MOVING PARTS

The symbol indicates the appliance's moving components that can cause hazards.



DANGER OF HOT SURFACES

The symbol indicates the appliance's very hot components that can cause burns.



WARNINGS

Strictly follow all of the indications next to the pictogram. Failure to follow the indications can generate hazard situations resulting in possible minor injuries to the health of both the operator and the user in general, and/or slight material damage.



ATTENTION

Read and understand the instructions of the appliance before carrying out any operation, carefully following the instructions given. Failure to observe the instructions may result in malfunction of the unit.



INFORMATION

Indicates useful tips or additional information.



EARTH TERMINAL CONNECTION

The symbol identifies the appliance's earth terminal connection point.



DISPOSAL WARNING

The user must not dispose of the appliance at the end of its service life as municipal waste, but send it to appropriate collection centres.

PERSONAL PROTECTIVE EQUIPMENT



SAFETY GLOVES



EYE PROTECTION



SAFETY FOOTWEAR

1 BOILER INSTALLATION

1.1 INSTALLATION WARNINGS



Operators who install and service the appliance must wear the personal protective equipment required by applicable law.



This boiler has been designed for wall-mounted installation only; for central heating and production of domestic hot water for domestic use and similar purposes.



The place of installation of the appliance and relative Immergas accessories must have suitable features (technical and structural), such as to allow for (always in safe, efficient and comfortable conditions):

- installation (according to the provisions of technical legislation and technical regulations);
- maintenance operations (including scheduled, periodic, routine and special maintenance);
- removal (to outdoors in the place for loading and transporting the appliances and components) as well as the eventual replacement of those with appliances and/or equivalent components.



The wall surface must be smooth, without any protrusions or recesses enabling access to the rear part. They are not designed to be installed on plinths or floors (Fig. 1).



By varying the type of installation the classification of the boiler also varies, precisely:

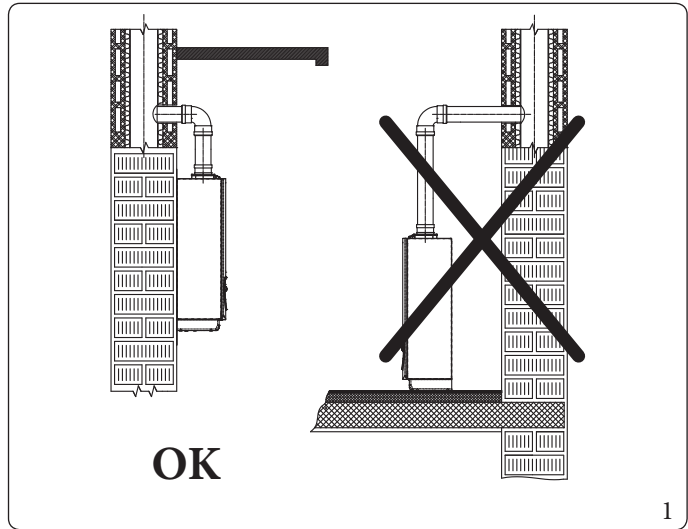
- Type B22 or B52 boiler if installed using the relevant terminal for air intake directly from the room in which the boiler has been installed.
- Type C boiler if installed using concentric pipes or other types of pipes envisioned for the sealed chamber boiler for intake of air and expulsion of flue gas.



Only professionally enabled companies are authorised to install Immergas gas appliances.



Installation must be carried out according to regulation standards, current legislation and in compliance with local technical regulations and the required technical procedures.



It is not permitted to install boilers that are removed and decommissioned from other systems. The manufacturer declines all liability for damages caused by boilers removed from other systems or for any non-conformities of such equipment.



Check the environmental operating conditions of all parts relevant to installation, referring to the values shown in the technical data table in this booklet.



Installation of the boiler when powered by LPG must comply with the rules regarding gases with a greater density than air (remember, as an example, that it is prohibited to install plants powered with the above-mentioned gas in rooms where the floor is at a lower quota than the country level).



These boilers, unless properly isolated, are not suitable for installation on walls made of combustible material.



Installing the wall recessed frame kit must guarantee the boiler stable, efficient support.

The recessed frame kit ensures appropriate support only if installed correctly (according to the rules of good practice), following the instructions on its instructions leaflet.

The recessed frame for the boiler is not a supporting structure and must not replace the wall removed. It is necessary to position the boiler inside the wall.

For safety reasons against any leaks it is necessary to plaster the boiler housing in the brick wall.



The installation of the boiler on the wall must guarantee a stable and effective support to the generator itself.

The plugs (standard supply) are only to be used to fix the boiler to the wall; they only ensure adequate support if inserted correctly (according to technical standards) in walls made of solid or semi-hollow brick or block. In the case of walls made from hollow brick or block, partitions with limited static properties, or in any case walls other than those indicated, a static test must be carried out to ensure adequate support.



These boilers are used to heat water to below boiling temperature in atmospheric pressure.



They must be connected to a central heating system and domestic hot water circuit suited to their performance and capacity.

Risk of damage due to corrosion caused by unsuitable combustion air and environment.



Spray, solvents, chlorine-based detergents, paints, glue, ammonium compounds, powders and similar cause product and flue duct corrosion.



Check that combustion air power supply is free from chlorine, sulphur, powders, etc.



Make sure that no chemical substances are stored in the place of installation.



If you want to install the product in beauty salons, paint workshops, carpenter's shop, cleaning companies or similar, choose a separate installation area that ensures combustion air supply that is free from chemical substances.



Make sure the combustion air is not fed from chimneys that were used with gas boilers or other heating devices. In fact, these may cause an accumulation of soot in the chimney.

Risk of material damage after using sprays and liquids to search for leaks



Leak sprays and liquids clog the reference hole P. Ref. (Fig. 39) of the gas valve, damaging it irreparably. During installation and maintenance, do not use spray or liquids in the upper area of the gas valve (side referring to the electric connections).

Filling the condensate drain trap



On first lighting of the boiler, flue gas may come out the condensate drain; after a few minutes' operation check that this no longer occurs. If this is the case, the drain trap is correctly filled with condensate up to a height that does not allow the flue gas to pass.



Type B open chamber boilers must not be installed in places where commercial, artisan or industrial activities take place, which use products that may develop volatile vapours or substances (e.g. acid vapours, glues, paints, solvents, combustibles, etc.), as well as dusts (e.g. dust deriving from the working of wood, coal fines, cement, etc.), which may be damaging for the components of the appliance and jeopardise functioning.



In configuration B22 and B52, unless local regulations are in force, boilers must not be installed in bedrooms, bathrooms, toilets or studios; They must neither be installed in rooms containing solid fuel heat generators nor in rooms communicating with said rooms.



The installation rooms must be permanently ventilated, in compliance with the local regulations in force (at least 6 cm² for every kW of installed heat input, except in the event of any increases needed for electro-mechanical vacuum cleaners or other devices that could put the installation room under vacuum).



Install the appliances in B22 and B52 configuration is only recommended in places that are not lived in and which are permanently ventilated.



Failure to comply with the above implies personal responsibility and invalidates the warranty.

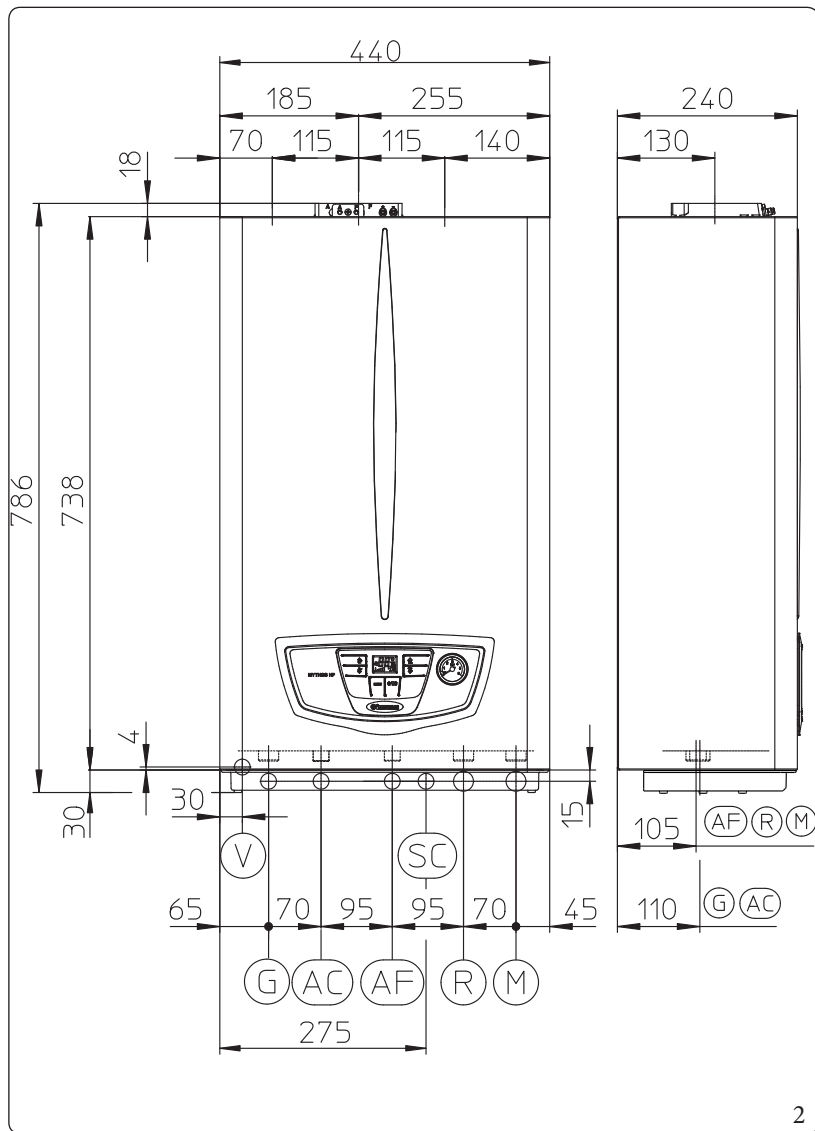
INSTALLER

USER

MAINTENANCE/TECHNICIAN

TECHNICAL DATA

1.2 MAIN DIMENSIONS

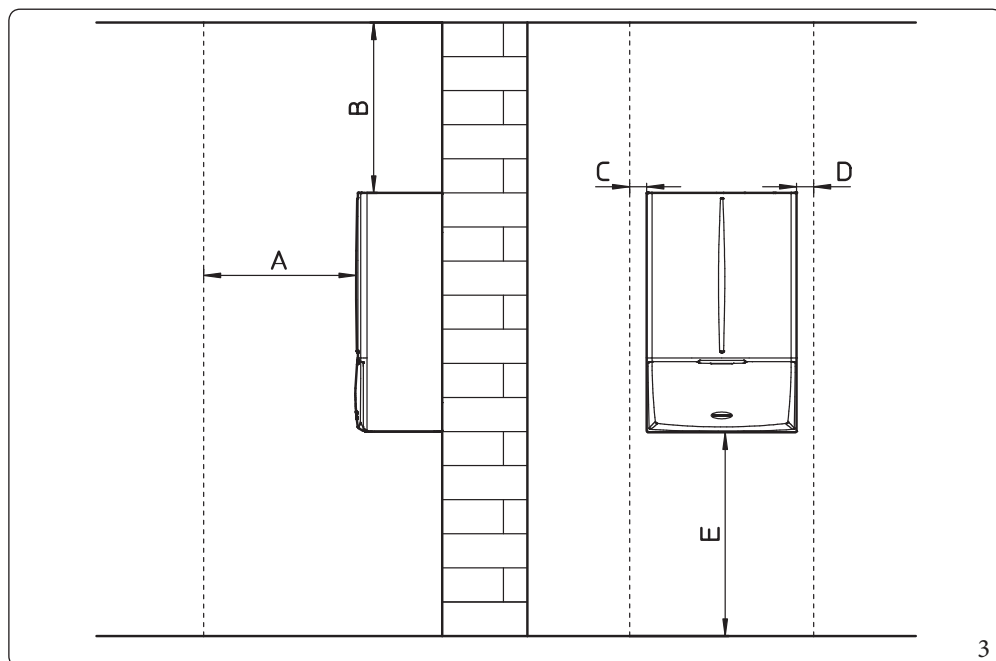


Key (Fig. 2):

- V - Electric connection
- M - System flow
- SC - Condensate drain (minimum internal diameter $\varnothing 13$ mm)
- AC - Domestic hot water outlet
- G - Gas supply
- AF - Domestic hot water inlet
- R - System return

Height (mm)	Width (mm)	Depth (mm)		
786	440	240		
CONNECTIONS				
GAS	DOMESTIC HOT WATER		SYSTEM	
G	AC	AF	R	M
3/4"	1/2"	1/2"	3/4"	3/4"

1.3 MINIMUM INSTALLATION DISTANCES



Key (Fig. 3):

- A - 450 mm
- B - 350 mm
- C - 30 mm
- D - 30 mm
- E - 350 mm

1.4 ANTIFREEZE PROTECTION

Minimum temperature -5°C

The boiler is equipped as standard with an antifreeze function that starts the pump and burner when the water temperature inside the boiler drops below 4°C.



In these conditions the boiler is protected against freezing to an ambient temperature of -5°C.



If the boiler is installed in a place where the temperature drops below -5°C, the appliance can freeze.

To prevent the risk of freezing follow the instructions below:



The excessive use of glycol could jeopardise the proper functioning of the appliance.

- Protect the central heating circuit from freezing by inserting a good-quality antifreeze liquid into this circuit, which is especially suited for central heating systems and which is manufacturer guaranteed not to cause damage to the heat exchanger or other components of the boiler. The antifreeze liquid must not be harmful to one's health. The instructions of the manufacturer of this liquid must be followed scrupulously regarding the percentage necessary with respect to the minimum temperature at which the system must be kept.
- The materials used for the central heating circuit of Immergas boilers resist ethylene and propylene glycol based antifreeze liquids (if the mixtures are prepared perfectly).
- An aqueous solution must be made with potential pollution class of water 2 (EN 1717:2002 or local standards in force).



For life and possible disposal, follow the supplier's instructions.

Minimum temperature -15°C

- Protect the domestic hot water circuit against freezing by using an accessory that is supplied on request (antifreeze kit) comprising two electric heating elements, the relevant wiring and a control thermostat (carefully read the installation instructions contained in the accessory kit pack).



In these conditions the boiler is protected against freezing to temperature of -15°C.

Boiler antifreeze protection is thus ensured only if:

- the boiler is correctly connected to gas and electricity power supply circuits;
- the boiler is constantly powered;
- the boiler is not in "off" mode;
- the boiler is not in anomaly conditions (Par. 2.5);
- the essential components of the boiler are not faulty.

The warranty does not cover damage due to interruption of the electrical power supply and failure to comply with that stated on the previous page.



If the boiler is installed in places where the temperature falls below 0°C the domestic hot water and central heating attachment pipes and the condensate drain pipe must be insulated.



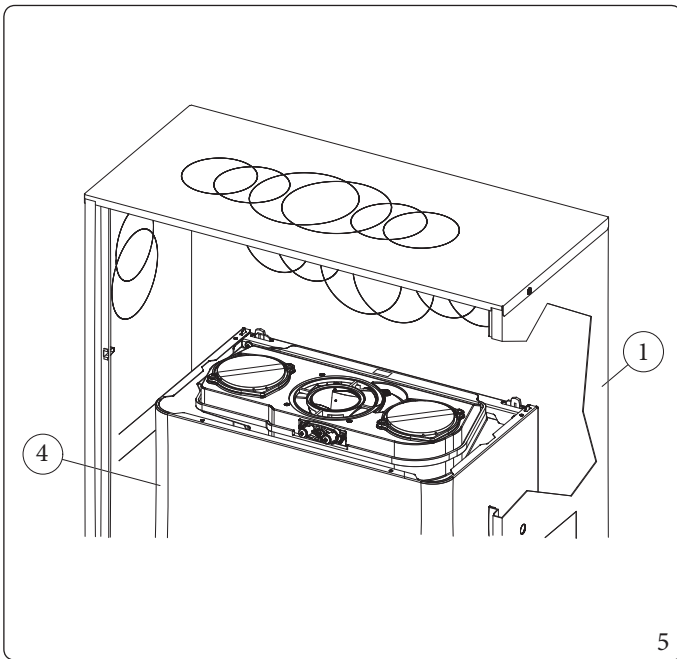
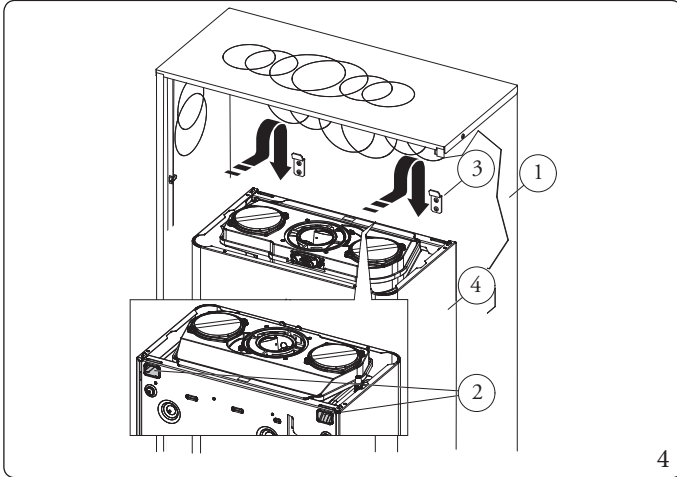
The freezing protection systems described in this chapter are installed only for the protection of the boiler. The presence of these functions and devices does not exclude the possibility of parts of the system or domestic hot water circuit outside the boiler from freezing.

1.5 INSTALLATION INSIDE THE RECESSED FRAME (OPTIONAL)

The boiler is designed for installation inside the Immergas recessed frame (supplied as optional).

To install proceed as follows:

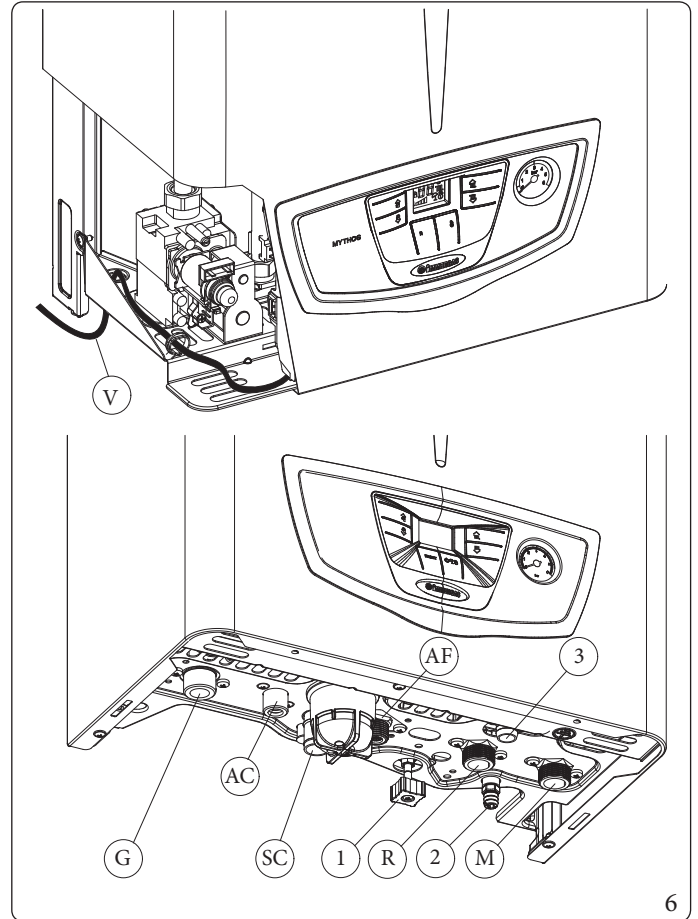
- Hang the boiler (4) on the recessed frame hooks (3) in their seats (2) (Fig. 4).
- The boiler (4) is now mounted inside the recessed frame (1) (Fig. 5).



1.6 BOILER CONNECTION GROUP (OPTIONAL)

The connection unit consisting of all the necessary parts to perform the hydraulic and gas system connections of the appliance comes as optional kit, perform the connections based on the type of installation to be made and according to the layout shown in the figure.

(Fig. 6).



Key:

- V - Electric connection
- G - Gas supply
- AC - Domestic hot water outlet
- AF - Domestic hot water inlet
- SC - Condensate drain (minimum internal diameter \varnothing 13 mm)
- M - System flow
- R - System return
- 1 - System filling cock
- 2 - System draining valve
- 3 - 3-bar safety valve drain fitting

1.7 GAS CONNECTION

Our boilers are designed to operate with methane gas (G20) and L.P.G.

Power supply pipes must be the same as or larger than the boiler fitting.



Before connecting the gas line, carefully clean inside all the fuel feed system pipes to remove any residue that could impair boiler efficiency.

Also make sure the gas corresponds to that for which the boiler is prepared (see boiler data nameplate).

If different, the boiler must be converted for operation with the other type of gas (see converting appliance for other gas types).



It is also important to check the dynamic pressure of the mains (methane or LPG) used to supply the boiler, which must comply with EN 437 and its attachment, as insufficient levels may reduce generator output and cause discomfort to the user.

Static/dynamic network pressures higher than those required for regular operation may cause serious damage to the appliance control elements; in this case shut the gas line off.

Do not operate the device.

Have the device checked by experienced personnel.



According to the local regulation in force, make sure that a gas cock is installed upstream of each connection between the appliance and the gas system. This cock, if supplied by the appliance's manufacturer, can be directly connected to the appliance (i.e. downstream from the pipes connecting the system to the appliance), according to the manufacturer's instructions.

The Immergas connection unit, supplied as an optional kit, also includes the gas cock, whose installation instructions are provided in the kit.

In any case, make sure the gas cock is connected properly.

The gas supply pipe must be suitably dimensioned according to current regulations in order to guarantee correct gas flow rate to the burner even in conditions of maximum generator output and to guarantee appliance efficiency (technical specifications).

The coupling system must conform to standards in force (EN 1775).



The appliance is designed to operate with fuel gas free from impurities; otherwise it is advisable to fit special filters upstream of the appliance to restore the purity of the fuel.

Storage tanks (in case of supply from LPG depot).

- New LPG storage tanks may contain residual inert gases (nitrogen) that degrade the mixture delivered to the appliance causing functioning anomalies.
- Due to the composition of the LPG mixture, layering of the mixture components may occur during the period of storage in the tanks. This can cause a variation in the calorific value of the mixture delivered to the appliance, with subsequent change in its performance.

1.8 HYDRAULIC CONNECTION



In order not to void the warranty of the primary heat exchanger, before making the boiler connections, carefully clean the heating system (pipes, radiators, etc.) with special pickling or de-scaling products to remove any deposits that could compromise correct boiler operation.

3 bar safety valve

The drain of the safety valve must always be properly conveyed to a draining funnel; consequently, in case of valve operation, the leaked fluid will end up in the sewer system.

Condensate drain

To drain the condensate produced by the appliance, it is necessary to connect to the drainage system by means of acid condensate resistant pipes, with an internal Ø of at least 13 mm.

The system connecting the appliance to the drainage system must be carried out in such a way as to prevent occlusion and freezing of the liquid contained in it.

Before appliance ignition, ensure that the condensate can be correctly removed. After first ignition, check that the drain trap is filled with condensate.

Also, comply with national and local regulations on discharging waste waters.

In the event condensate is not discharged into the wastewater drainage system, a condensate neutraliser must be installed to ensure compliance with the parameters established by the legislation in force.

A treatment of the heating and water system water is required, in compliance with the technical standards in force, in order to protect the system and the appliance from deposits (e.g. scale), slurry or other hazardous deposits.

Water connections must be made in a rational way using the couplings on the boiler template.



The manufacturer declines all liability in the event of damage caused by the installation of an automatic filling system.

In order to meet the system requirements established by EN 1717 in terms of pollution of drinking water, we recommend installing the IMMERGAS anti-backflow kit to be used upstream of the cold water inlet connection of the boiler. We also recommend using a category 1, 2 or 3 heat transfer fluid (ex: water + glycol) in the boiler's primary circuit (C.H. circuit), as defined in standard EN 1717.



To preserve the duration of appliance efficiency features, in the presence of water whose features can lead to the deposit of lime scale, installation of the “polyphosphate dispenser” kit is recommended.

1.9 ELECTRICAL CONNECTION

The appliance has an IPX5D protection degree; electrical safety of the appliance is achieved only when it is connected properly to an efficient earthing system, as specified by current safety standards.



The manufacturer declines any responsibility for damage or physical injury caused by failure to connect the boiler to an efficient earthing system or failure to comply with the IEC reference standards.

Open the control panel connections compartment

(Fig. 7 - 8)

To carry out electrical connections, all you have to do is open the connections compartment as follows.

Remove the casing:

1. Loosen the screw (a) at the bottom.
2. Move the control panel to the right by making it slide on the slots (b);
3. Remove the control panel from the frame;
4. Place the control panel horizontally;
5. Insert the control panel feet into the special slots on the frame (c);
6. Move the control panel to the left in order to fit it into the frame;
7. Remove the screw (d) securing the control panel cover (e);
8. Press the two hooks (g) on the cover (e);
9. Remove the cover (e) from the control panel (h);

At this point, it is possible to access the terminal board (f).

Also ensure that the electrical installation corresponds to maximum absorbed power specifications as shown on the boiler data nameplate.

The boilers are supplied complete with a "Y" type H 05 VVF 3 x 0.75 mm² power supply cable, without plug.



The power supply cable must be connected to a 230V ±10% / 50Hz mains supply respecting L-N polarity and earth connection; this network must also have a multi-pole circuit breaker with class III overvoltage category in compliance with installation regulations.



No appliance pipes must ever be used to earth the electric system or telephone lines.



To protect from possible dispersions of DC voltage, it is necessary to provide a type A differential safety device.



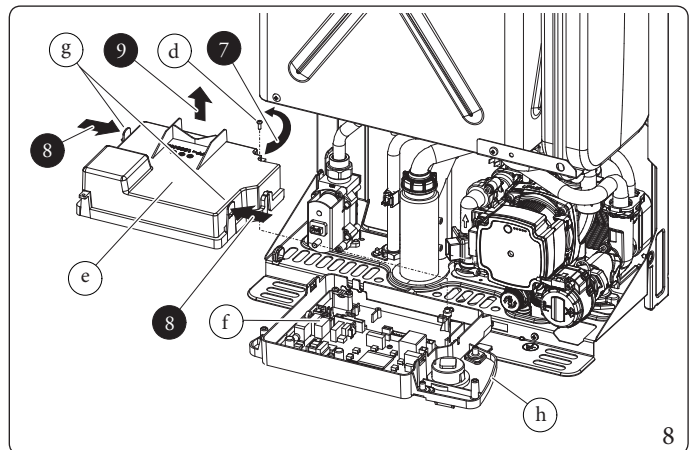
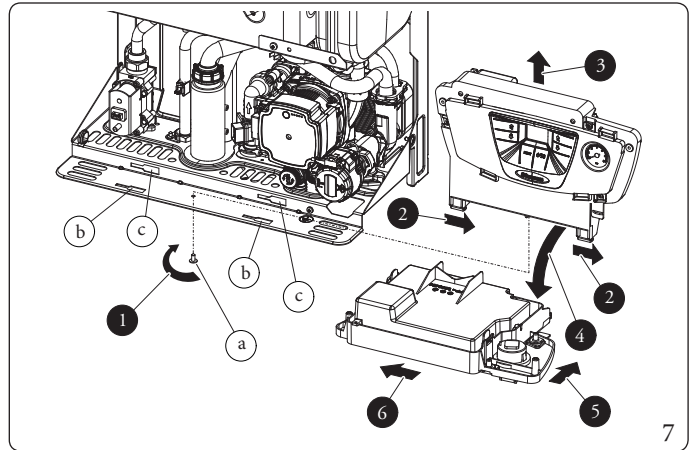
If the power cable is damaged, contact a qualified company (e.g. the Authorised Technical Assistance Centre) for its replacement to avoid a hazard.

The power cable must follow the prescribed route (Par. 1.6); If the network fuse on the P.C.B. needs replacing, this must also be done by qualified personnel: use a 5x20 250V 3.15 A fast fuse. For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.

Installation with system operating at direct low temperature

The boiler can directly supply a low temperature system by modifying the parameters "P11" and "P12" (Parag. 3.9); in this situation it is good practice to insert a relevant safety kit (optional) made up of a thermostat (with adjustable temperature).

The thermostat must be positioned on the system flow pipe.



1.10 REMOTE CONTROLS AND ROOM CHRONO-THERMOSTATS (OPTIONAL)

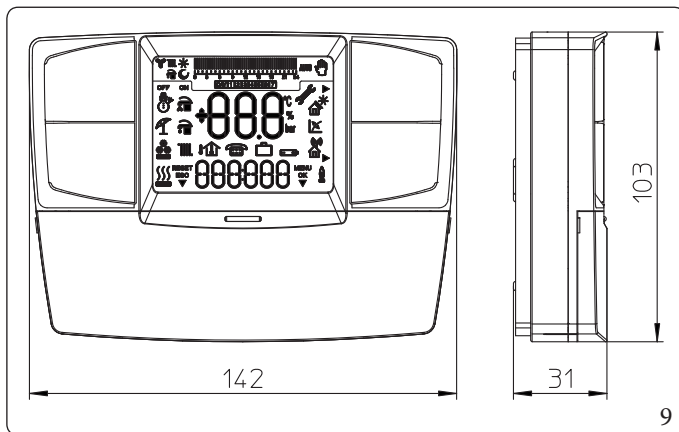
The boiler is prepared for the application of room chrono-thermostats or remote controls, which are available as optional kits (Fig. 9).

All Immergas chrono-thermostats are connected with 2 wires only.

Carefully read the user and assembly instructions contained in the accessory kit.



Disconnect power to the unit before making any electrical connections.



On/Off Immergas digital chrono-thermostat.

The chrono-thermostat allows:

- set two room temperature value: one for day (comfort temperature) and one for night (reduced temperature);
- set a weekly programme with four daily switch on and switch off times;
- selecting the required function mode from the various possible alternatives:
 - manual mode (with adjustable temperature);
 - automatic mode (with set programme);
 - forced automatic operation (momentarily changing the temperature of the automatic program).

The chrono-thermostat is powered by two 1.5V LR 6 type alkaline batteries.

“Comando Amico Remoto” (Remote Control Device) V2 (CARV2) with climate chrono-thermostat function.

In addition to the functions described in the previous point, the CARV2 panel enables the user to control all the important information regarding operation of the appliance and the heating system with the opportunity to easily intervene on the previously set parameters, without having to go to where the appliance is installed.

The panel is provided with self-diagnosis to display any boiler functioning anomalies.

The climate chrono-thermostat incorporated into the remote panel enables the system flow temperature to be adjusted to the actual needs of the room being heated, in order to obtain the desired room temperature with extreme precision and therefore with evident saving in running costs.

The CARV2 is fed directly by the boiler by means of the same 2 wires used for the transmission of data between the boiler and device.

“Comando Amico Remoto” (Remote Control Device) V2 or On/Off chrono-thermostat electrical connection (Optional).



The operations described below must be performed after having removed the voltage from the appliance.

Any thermostat or On/Off environment chrono-thermostat must be connected to clamps 40 and 41 eliminating jumper X40.

Make sure that the On/Off thermostat contact is of the “clean” type, i.e. independent of the mains voltage, otherwise the P.C.B. would be damaged.

Any Comando Amico Remoto remote control V2 must be connected to terminals 40 and 41, eliminating jumper X40 on the P.C.B. (Parag. 3.5).

The boiler can only be connected to one remote control.



If the Comando Amico Remoto remote control V2 or any other On/Off chrono-thermostat is used arrange two separate lines in compliance with current regulations regarding electrical systems.

Ensure elimination of this risk before making the boiler electrical connections.

1.11 IMMERGAS FLUE SYSTEMS

Immergas supplies various solutions separately from the boilers regarding the installation of air intake terminals and flue exhaust, which are fundamental for boiler operation.



The boiler must be installed with an original Immergas “Green Range” inspectionable air intake system and visible flue gas extraction system made of plastic, with the exception of the C6 configuration, as required by the regulations in force and by the product’s approval. This flue system can be identified by the specific identification mark bearing the following indication: “only for condensation boilers”.

For non-original flue system, refer to the technical data of the appliance.



The plastic pipes cannot be installed outdoors, for tracts longer than 40 cm, without suitable protection from UV rays and other atmospheric agents.

Resistance factors and equivalent lengths

Each flue component has a Resistance Factor based on experimental tests and specified in the table below.

The Resistance Factor for individual components is independent from the type of boiler on which it is installed and has a dimensionless size.

It is however, conditioned by the temperature of the fluids that pass through the pipe and therefore, varies according to applications for air intake or flue exhaust.

Each single component has a resistance corresponding to a certain length in metres of pipe of the same diameter; the so-called equivalent length, can be obtained from the ratio between the relative Resistance Factors.

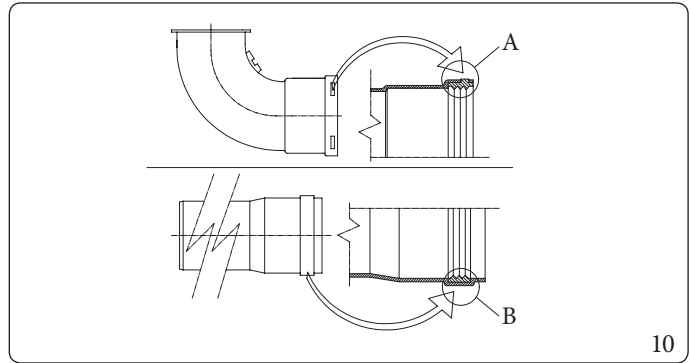
All boilers have an experimentally obtainable maximum Resistance Factor equal to 100.

The maximum Resistance Factor allowed corresponds to the resistance encountered with the maximum allowed pipe length for each type of Terminal Kit.

This information allows calculations to be made to verify the possibility of setting up various flue configurations.



To dimension the flue ducting using commercial components, refer to the table of combustion parameters (Par. 4.2).



10

Positioning the gaskets (black) for “green range” flue systems.

Position the gasket correctly (for bends and extensions) (Fig. 10):

- gasket (A) with notches, to use for bends;
- gasket (B) without notches, to use for extensions.

If necessary, to ease the push-fitting, spread the elements with commonly-used talc.

Extension pipes and concentric elbows push-fittings.

To install push-fitting extensions with other elements of the flue, proceed as follows:

- Install the concentric pipe or elbow with the male side (smooth) on the female side (with lip seal) to the end stop on the previously installed element in order to ensure sealing efficiency of the coupling.



If the exhaust terminal and/or extension concentric pipe needs shortening, consider that the internal duct must always protrude by 5 mm with respect to the external duct.



For safety purposes, do not obstruct the boiler intake/exhaust terminal, even temporarily.

The various parts of the flue system must be checked to ensure that they have been laid in such a way as to prevent the coupled parts from detaching, in particular, the flue exhaust duct in the Ø80 separator kit configuration. If the condition described above is not adequately guaranteed, it will be necessary to use the appropriate retaining clamp kit.



When installing horizontal pipes, a minimum inclination of 1.5% towards the boiler must be maintained, and a section clip with pin must be installed every 3 metres.

Installation inside the recessed frame

In this mode, install the flue according to your needs using the appropriate pre-sections in the frame to exit from its clearances.

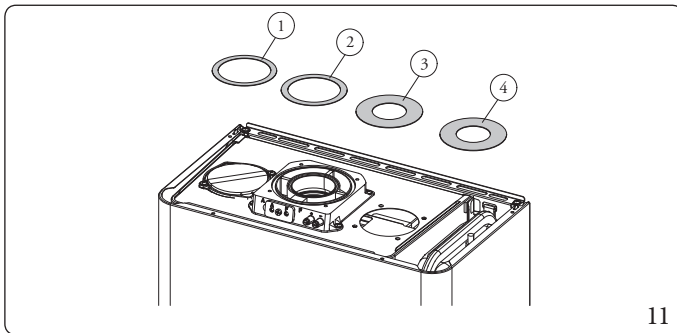
Diaphragm installation

For correct functioning of the boiler it is necessary to install a diaphragm on the outlet of the sealed chamber and before the intake and exhaust pipe.

The appropriate diaphragm is chosen based on type of pipe and its maximum extension: this calculation can be made using the tables below:



The diaphragms are supplied together with the boiler as standard.



11

Key (Fig. 11):

- 1 - Concentric flue intake diaphragm Ø 80
- 2 - Concentric flue intake diaphragm Ø 77
- 3 - Divided flue intake diaphragm Ø 45
- 4 - Divided flue intake diaphragm Ø 55

Diaphragm	Pipe extension in metres Ø 60/100 horizontal
Ø80 (Ref. 1)	From 0.35 to 0.5
Ø77 (ref. 2)	From 0.5 to 1.5
Without	From 1.5 to 3

Diaphragm	Pipe extension in metres Ø 60/100 vertical
Ø80 (Ref. 1)	From 0.35 to 1.8
Ø77 (ref. 2)	From 1.8 to 2.8
Without	From 2.8 to 4.3

Diaphragm	Pipe extension in metres Ø 80/125 horizontal
Ø80 (Ref. 1)	From 0.35 to 4.2
Ø77 (ref. 2)	from 4.2 to 6.9
Without	From 6,9 to 11,6

Diaphragm	Pipe extension in metres Ø 80/125 vertical
Ø80 (Ref. 1)	From 0.35 to 8.5
Ø77 (ref. 2)	From 8.5 to 11.3
Without	From 11.3 to 16

Diaphragm		(*) Duct length in metres Ø80 horizontal with two bends
Exhaust	Intake	
-	Ø45 (ref. 3)	from 0 to 7
-	Ø55 (ref. 4)	From 7 to 27

Diaphragm		(**) Duct length in metres Ø80 horizontal with two bends
Exhaust	Intake	
-	Ø45 (ref. 3)	from 0 to 7
-	Ø55 (ref. 4)	From 7 to 35

Diaphragm		(*) Duct length in metres Ø80 vertical without bends
Exhaust	Intake	
-	Ø45 (ref. 3)	From 0 to 10
-	Ø55 (ref. 4)	From 10 to 30

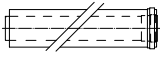


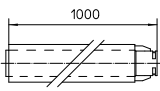
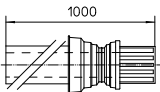


Diaphragm		(**) Duct length in metres Ø80 vertical without bends
Exhaust	Intake	
-	Ø45 (ref. 3)	From 0 to 12
-	Ø55 (ref. 4)	From 12 to 40

Diaphragm		(**) Duct length in metres Ø80 flexible vertical with two bends
Exhaust	Intake	
-	Ø45 (ref. 3)	From 0 to 3.4
-	Ø55 (ref. 4)	From 3.4 to 6.7

(**) These maximum extension values are considered exhaust with 1 metre intake pipe.

(**) These maximum extension values are considered intake with 1 metre exhaust pipe.

1.12 TABLES OF RESISTANCE FACTORS AND EQUIVALENT LENGTHS OF “GREEN RANGE” FLUE SYSTEM COMPONENTS

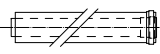


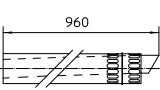

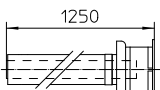

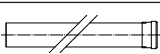
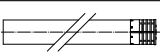




TYPE OF DUCT		Resistance factor (R)	Equivalent length in m of concentric pipe Ø 80/125
Concentric pipe 80/125 Ø m 1		5,9	1
90° concentric bend 80/125 Ø		8,4	1,4
Concentric bend 45° Ø 80/125		5,9	1
Terminal complete with concentric horizontal intake-exhaust Ø 80/125		7,8	1,3
Terminal complete with concentric vertical intake-exhaust Ø 80/125		10,1	1,7
90° concentric bend Ø 80/125 with inspection		9,5	1,6
Stub pipe with inspection Ø 80/125		9,5	1,6

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USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

TYPE OF DUCT		Resistance factor (R)	Equivalent length in m of concentric pipe Ø 60/100	Equivalent length in m of pipe Ø 80	Equivalent length in m of concentric pipe Ø 80/125
Concentric pipe Ø 60/100 m 1		Intake m 17.9	m 1	Intake m 7.3	m 3,0
		Exhaust m 17.9		Exhaust m 5.3	
90° concentric bend Ø 60/100		Intake m 23.0	m 1,3	Intake m 9.4	m 3,9
		Exhaust m 23.0		Exhaust m 6.8	
45° concentric bend Ø 60/100		Intake m 17.9	m 1	Intake m 7.3	m 3
		Exhaust m 17.9		Exhaust m 5.3	
Terminal complete with concentric horizontal intake-exhaust Ø 60/100		Intake m 42	m 2,3	Intake m 17.2	m 7,1
		Exhaust m 42		Exhaust m 12.5	
Concentric horizontal intake-exhaust terminal Ø 60/100		Intake m 28	m 1,5	Intake m 11.5	m 4,7
		Exhaust m 28		Exhaust m 8.3	
Terminal complete with concentric vertical intake-exhaust Ø 60/100		Intake m 45.6	m 2,5	Intake m 18.7	m 7,7
		Exhaust m 45.6		Exhaust m 13.6	
Concentric vertical intake-exhaust terminal Ø 60/100		Intake m 25.2	m 1,4	Intake m 10.3	m 4,3
		Exhaust m 25.2		Exhaust m 7.5	
Pipe Ø 80 m 1		Intake m 2.4	m 0,1	Intake m 1	m 0,4
		Exhaust m 3.4	m 0,2	Exhaust m 1	m 0,5
Complete intake terminal Ø 80 m 1		Intake m 8.4	m 0,5	Intake m 3.4	m 1,4
Intake terminal Ø 80 Exhaust terminal Ø 80		Intake m 6.2	m 0,35	Intake m 2.5	m 1
		Exhaust m 5.3	m 0,3	Exhaust m 1.6	m 0,9
90° bend Ø 80		Intake m 5.3	m 0,3	Intake m 2.2	m 0,9
		Exhaust m 7.3	m 0,4	Exhaust m 2.1	m 1,2
45° bend Ø 80		Intake m 3.4	m 0,2	Intake m 1.4	m 0,5
		Exhaust m 4.5	m 0,25	Exhaust m 1.3	m 0,7
Reduction Ø 80/60		Intake m 7.3	m 0,4	Intake m 3	m 1,2
		Exhaust m 7.3		Exhaust m 2.1	

1.13 OUTDOOR INSTALLATION IN PARTIALLY PROTECTED AREA



A partially protected area is one in which the appliance is not exposed to the direct action of the weather (rain, snow, hail, etc.).



If the appliance is installed in a place where the ambient temperature drops below -5°C , use the optional antifreeze kit, checking the ambient operating temperature range shown in the technical data table in this instruction booklet.

Configuration type B, open chamber and fan assisted (B22 or B52).

Using the special coverage kit one can achieve direct air intake and flue gas exhaust in a single chimney or directly outside. In this configuration it is possible to install the boiler in a partially protected place. In this configuration the boiler is classified as type B. With this configuration:

- air intake takes place directly from the environment in which the appliance is installed (external);
- the flue exhaust must be connected to its own single chimney (B22) or ducted directly outside via a vertical terminal for direct exhaust (B52) or via an Immergas ducting system (B52).

The technical regulations in force must be respected.

Cover kit assembly (Fig. 15).

- Remove the two plugs and the gaskets present from the two lateral holes with respect to the central one;
- Install the $\text{Ø} 80$ outlet flange on the central hole of the boiler, taking care to insert the gasket supplied with the kit and tighten by means of the screws provided;
- Install the plug on the left hole and the diaphragm on the right hole and tighten by means of the screws provided.
- Install the upper cover, fixing it using the 4 screws present in the kit, positioning the relevant gaskets
- Engage the $90^{\circ} \text{Ø} 80$ bend with the male end (smooth) in the female end (with lip seal) of the $\text{Ø} 80$ flange unit to the end stop. Introduce the gasket, making it run along the bend. Fix it using the metal sheet plate and tighten by means of the clips present in the kit, making sure to block the 4 gasket flaps
- Fit the male end (smooth) of the exhaust pipe into the female end of the $90^{\circ} \text{Ø} 80$ bend, making sure that the relevant wall sealing plate is already fitted; this will ensure hold and joining of the elements making up the kit.

Max. length of exhaust duct.

The exhaust duct can be extended for horizontal installation, up to a maximum length of 6.5 m straight, whereas for vertical installation, up to 8 m straight.

Coupling of extension pipes.

To install push-fitting extensions with other elements of the flue, proceed as follows: Couple the pipe or elbow with the male side (smooth) in the female side (with lip seal) to the end stop on the previously installed element. This will ensure sealing efficiency of the coupling.

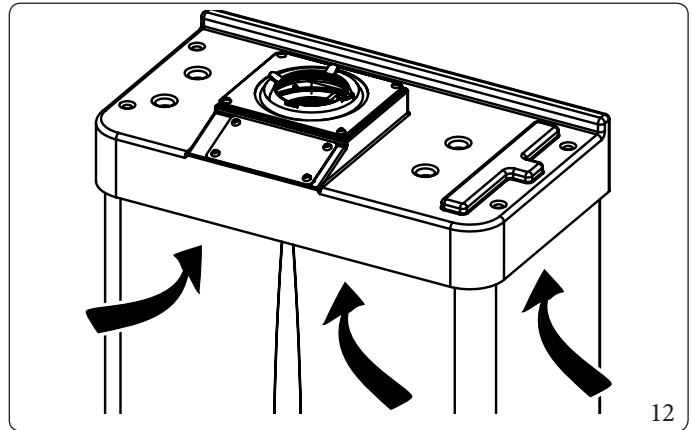
Configuration without cover kit in a partially protected location (type C boiler).

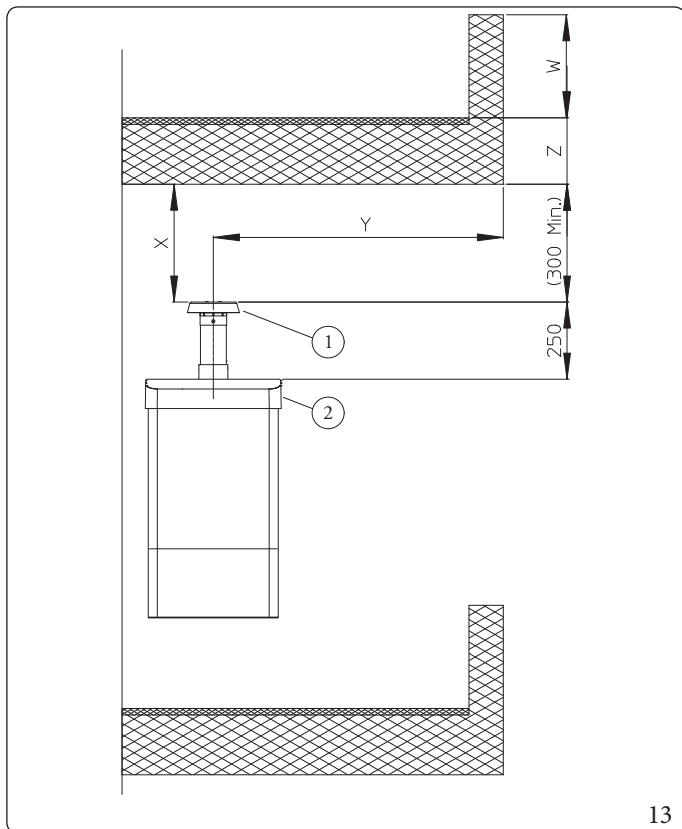
By leaving the side plugs fitted it is possible to install the appliance externally without the cover kit.

Installation takes place using the $\text{Ø} 60/100$ and $\text{Ø} 80/125$ concentric intake/ exhaust kits. Refer to the paragraph on indoor installation.

In this configuration the upper cover kit guarantees additional protection for the boiler. It is recommended but not compulsory.

The $\text{Ø} 80/80$ separating device cannot be used in this configuration (coupled with the cover kit).

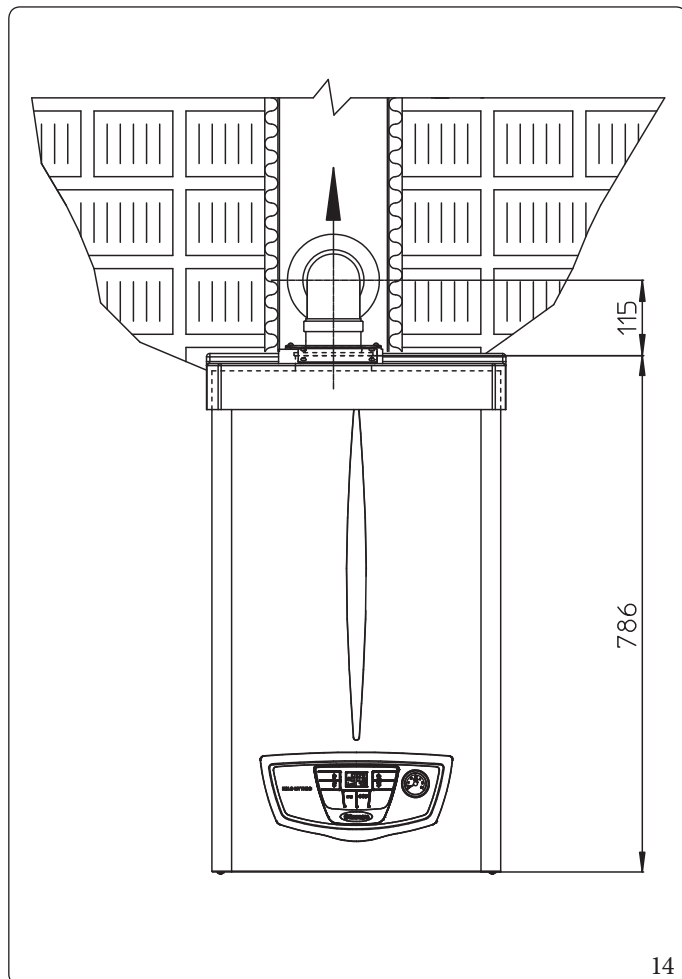




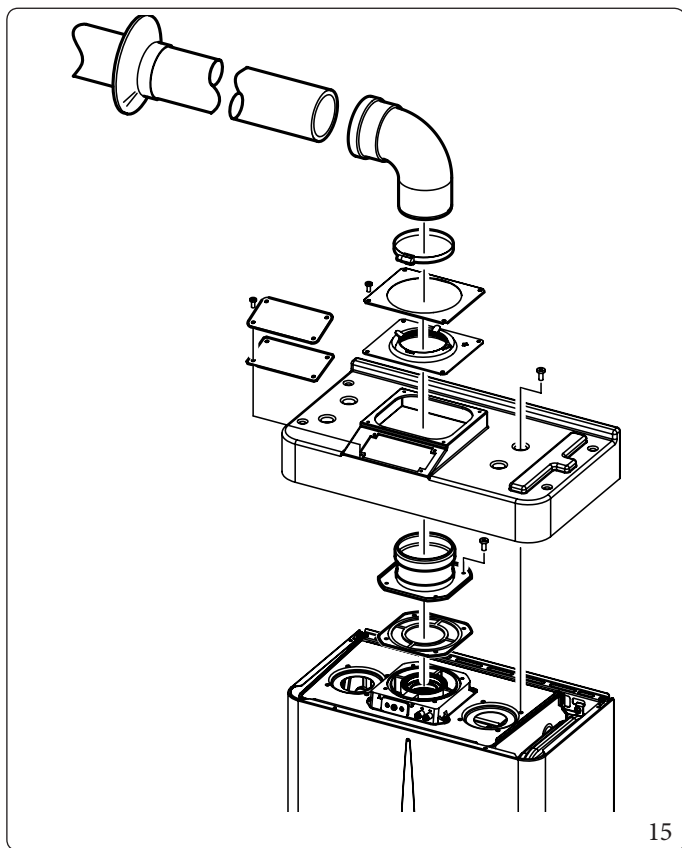
13

Key (Fig. 13):

- 1 - Vertical terminal kit for direct exhaust
- 2 - Intake cover kit



14



15

The cover kit includes (Fig. 15):

- No.1 Thermoformed cover
- No.1 Gasket clamping plate
- No.1 Gasket
- No.1 Gasket tightening clip

The terminal kit includes (Fig. 15):

- No.1 Gasket
- No.1 Exhaust flange Ø 80
- No.1 190° bend Ø 80
- No.1 Exhaust pipe Ø 80
- No.1 Wall sealing plate

1.14 INTERNAL INSTALLATION USING A RECESSED FRAME WITH DIRECT AIR INTAKE

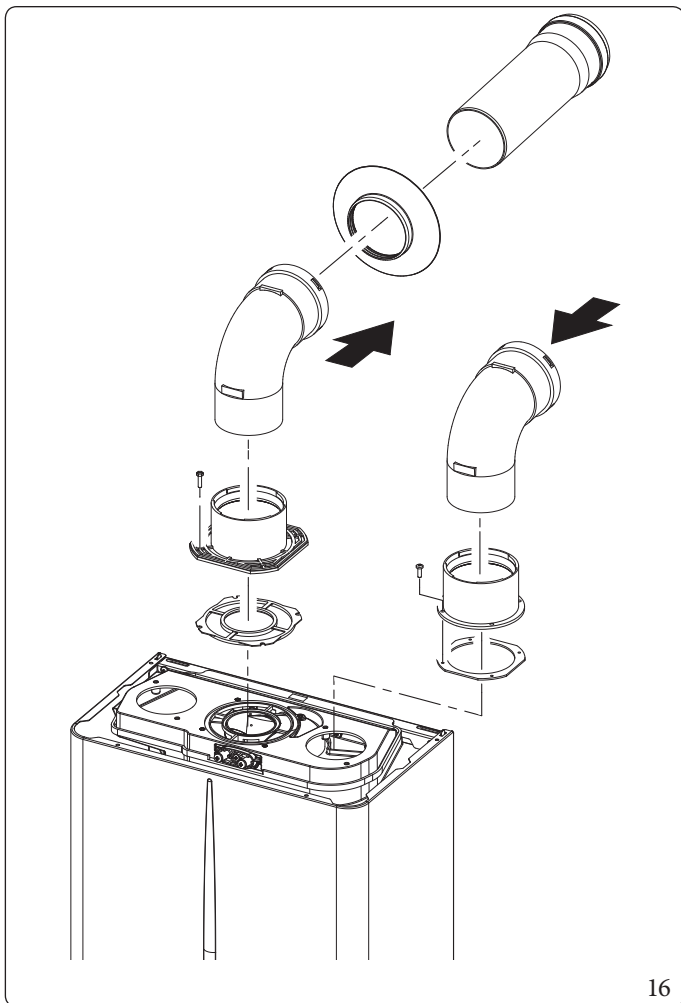
Configuration type B, open chamber and fan assisted

Using a kit separator one can achieve direct air intake (Fig. 17) and flue gas exhaust in a single chimney or directly outside.

In this configuration the boiler is classified as type B22.

With this configuration:

- air intake takes place directly from the environment in which the appliance is installed (the recessed frame is ventilated), and only functions in permanently ventilated rooms;
 - the flue gas exhaust must be connected to its own individual chimney and channelled directly into the external atmosphere.
- The technical regulations in force must be respected.



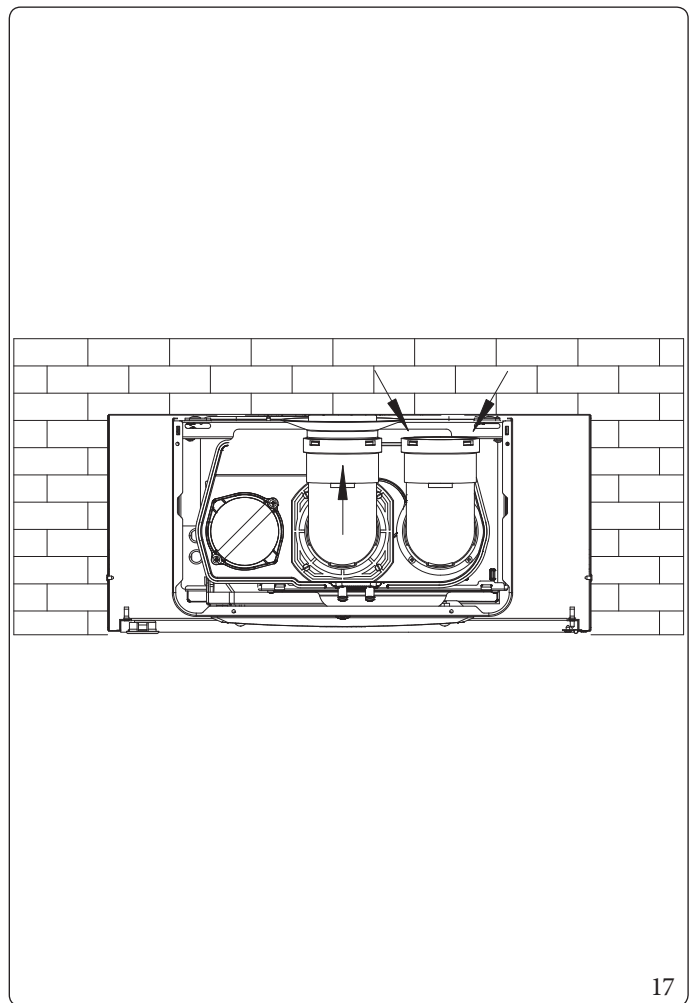
16

Separator kit installation (Fig. 16).

1. Install the discharge flange on the central hole of the boiler, positioning the relative gasket with the circular projections downwards in contact with the boiler flange, and tighten using the hex screws with flat tip contained in the kit.
2. Remove the flat flange present in the lateral hole with respect to the central one (according to needs) and replace it with the intake flange, positioning its gasket already present in the boiler and tighten using the supplied self-threading screws.
3. Fit the bends with male side (smooth) in the female side of the flanges (the intake bend should face the rear side of the boiler).
4. Fit the exhaust pipe with the male side (smooth) to the female side of the bend up to the end stop, making sure that the internal wall sealing plate has been fitted and connecting the required flue according to personal requirements.

Max. length of exhaust duct.

The exhaust pipe (both vertical or horizontal) can be extended to a max. length of 27 linear metres.



17

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

1.15 CONCENTRIC HORIZONTAL KIT INSTALLATION

Type C configuration, sealed chamber and fan assisted

The position of the terminal (in terms of distances from openings, overlooking buildings, floor, etc.) must be in compliance with the regulations in force.

This terminal is connected directly to the outside of the building for air intake and flue gas exhaust.

The horizontal kit can be installed with the rear, right side, left side or front outlet.

For installation with frontal outlet, one must use the fixing plate and a concentric bend coupling in order to ensure sufficient space to carry out the tests required by law upon commissioning.

External grid

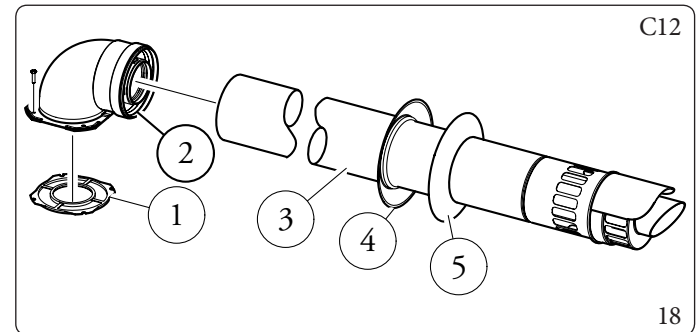
Both the Ø 60/100 and Ø 80/125 intake/exhaust terminal, if properly installed, is pleasant to look at on the outside of the building. Make sure that the external silicone wall sealing plate is properly inserted in the wall.



For correct functioning of the system the terminal with grid must be installed correctly ensuring that, the "high" indication present on the terminal is respected on installation.

Mounting the horizontal intake-exhaust kit Ø 60/100 (Fig. 18)

1. Install the bend with flange (2) on the central hole of the boiler, positioning gasket (1) with the circular projections downwards in contact with the boiler flange, and tighten using the screws present in the kit.
2. Fit the Ø 60/100 (3) concentric terminal pipe with the male side (smooth) to the female side of the bend (2) up to the end stop, making sure that the internal and external wall sealing plates have been fitted; this will ensure sealing and joining of the elements making up the kit.



The kit includes (Fig. 18):

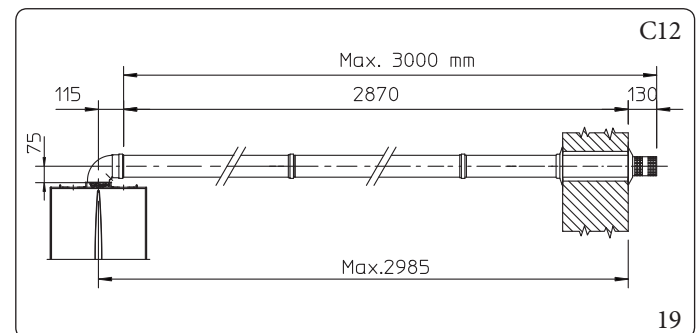
- No.1 Gasket (1)
- No.1 Concentric bend Ø 60/100 (2)
- No.1 Int./exhaust concentric terminal Ø 60/100 (3)
- No.1 Internal wall sealing plate (4)
- No.1 External wall sealing plate (5)

Extensions for Ø 60/100 horizontal kit. Kit assembly (Fig. 19)

The kit with this configuration can be extended up to a max. horizontal length of 3 m including the terminal with grid and excluding the concentric bend leaving the boiler.

This configuration corresponds to a resistance factor of 100.

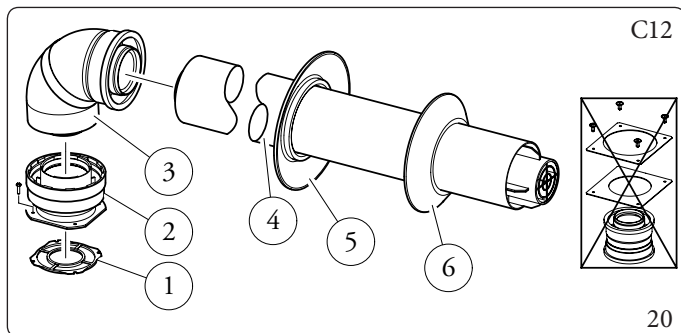
In this case the special extensions must be requested.



Mounting the horizontal intake-exhaust kit \varnothing 80/125 (Fig. 20)

To install the kit \varnothing 80/125 one must use the flanged adaptor kit in order to install the flue system \varnothing 80/125.

1. Install the flanged adaptor (2) on the central hole of the boiler, positioning gasket (1) with the circular projections downwards in contact with the boiler flange, and tighten using the screws contained in the kit.
2. Engage the bend (3) with the male side (smooth) to the end stop on the adaptor (1).
3. Fit the \varnothing 80/125 (5) concentric terminal pipe with the male side (smooth) to the female side of the bend (4) (with lip seals) up to the end stop, making sure that the internal (6) and external wall sealing plates (7) have been fitted; this will ensure sealing and joining of the elements making up the kit.



The adapter kit includes (Fig. 20):

No.1 Gasket (1)

No.1 Adapter \varnothing 80/125 (2)

The Kit \varnothing 80/125 includes (Fig. 20):

No.1 Concentric bend \varnothing 80/125 at 87° (3)

No.1 Int./exhaust concentric terminal \varnothing 80/125 (4)

No.1 Internal wall sealing plate (5)

No.1 External wall sealing plate (6)

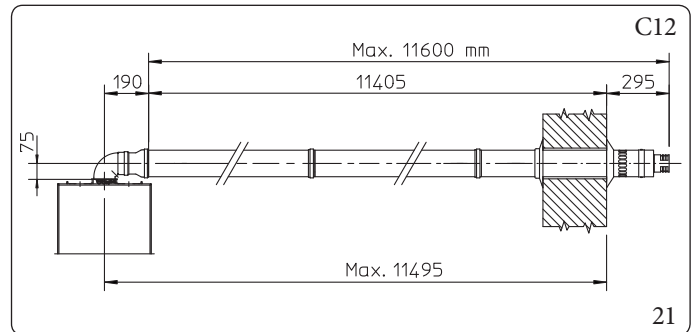
The remaining kit components must not be used

Extensions for \varnothing 80/125 horizontal kit. Kit assembly (Fig. 21)

The kit with this configuration can be extended up to a max. length of 11.6 m, including the terminal with grid and excluding the concentric bend leaving the boiler.

If additional components are assembled, the length equivalent to the maximum allowed must be subtracted.

In this case the special extensions must be requested.



INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

1.16 CONCENTRIC VERTICAL KIT INSTALLATION

Type C configuration, sealed chamber and fan assisted

Concentric vertical intake and exhaust kit.

This vertical terminal is connected directly to the outside of the building for air intake and flue gas exhaust.



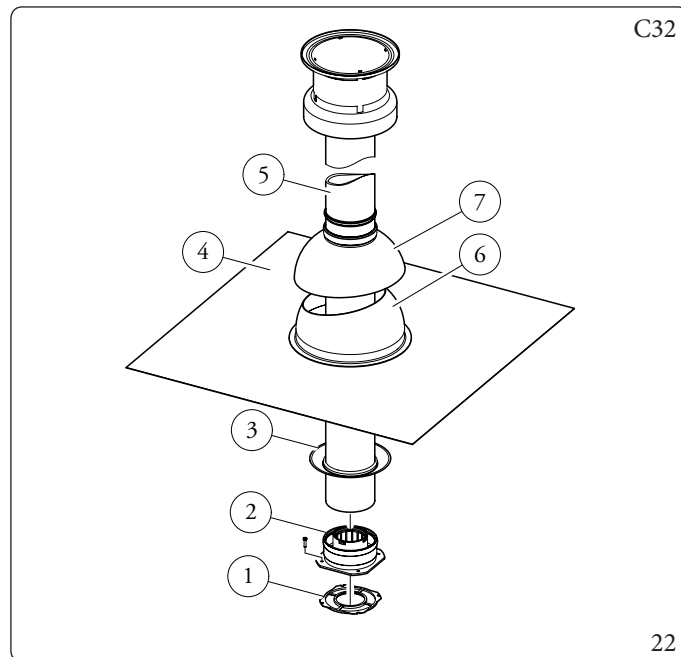
The vertical kit with aluminium tile enables installation on terraces and roofs with a maximum slope of 45% (approx. 25°) and the height between the terminal cap and half-shell (374 mm for Ø 60/100 and 260 mm for Ø 80/125) must always be observed.

Mounting the vertical kit with aluminium tile Ø 60/100 (Fig. 22)

1. Install the concentric flange (2) on the central hole of the boiler, positioning gasket (1) with the circular projections downwards in contact with the boiler flange.
2. Tighten the concentric flange with the screws in the kit.
3. Replace the tiles with the aluminium sheet (4), shaping it to ensure that rainwater runs off.
4. Position the fixed half-shell (6) on the aluminium tile.
5. Insert the intake-exhaust pipe (5).
6. Fit the Ø 60/100 concentric terminal pipe with the male side (5) (smooth) into the flange (2) up to the end stop, making sure that the wall sealing plate has been fitted (3); this will ensure sealing and joining of the elements making up the kit.



When the boiler is installed in areas where very cold temperatures can be reached, a special anti-freeze kit is available that can be installed as an alternative to the standard kit.



The kit includes (Fig. 22):

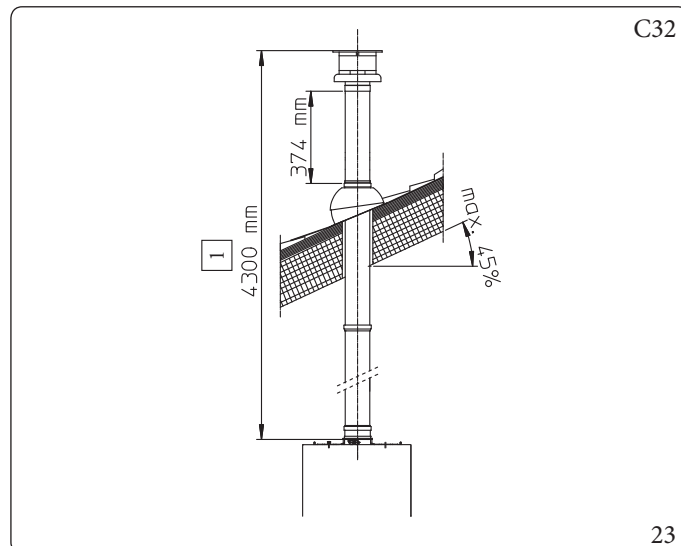
- No.1 Gasket (1)
- No.1 Female concentric flange (2)
- No.1 Wall sealing plate (3)
- No.1 Aluminium tile (4)
- No.1 Intake/exhaust concentric pipe Ø 60/100 (5)
- No.1 Fixed half-shell (6)
- No.1 Mobile half-shell (7)

Extensions for Ø 60/100 vertical kit (Fig. 23)

The kit with this configuration can be extended to a max. straight vertical length of 4.3 m, including the terminal.

This configuration corresponds to a resistance factor of 100.

In this case the special extensions must be requested.



Key (Fig. C3223):

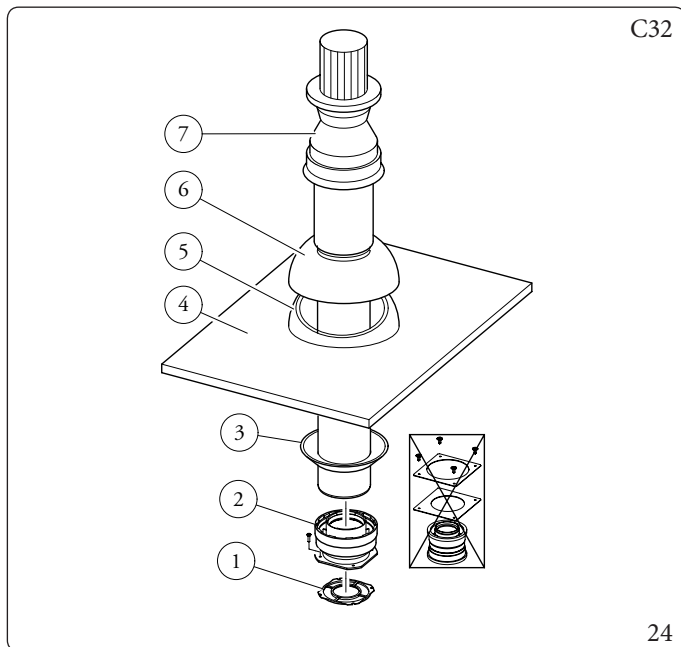
- 1 - Maximum length

Mounting the vertical kit with aluminium tile Ø 80/125 (Fig. 24)



To install the kit Ø 80/125 one must use the flanged adapter kit in order to install the flue system Ø 80/125.

1. Install the concentric flange (2) on the central hole of the boiler, positioning gasket (1) with the circular projections downwards in contact with the boiler flange.
2. Tighten the concentric flange with the screws in the kit.
3. Replace the tiles with the aluminium sheet (4), shaping it to ensure that rainwater runs off.
4. Position the fixed half-shell (5) on the aluminium tile;
5. Insert the intake-exhaust terminal (7);
6. Fit the Ø 80/125 concentric terminal pipe with the male side (smooth) to the female side of the adapter (1) (with lip seals) up to the end stop, making sure that the wall sealing plate (3) has been fitted; this will ensure sealing and joining of the elements making up the kit.



The adapter kit includes (Fig. 24):

- No.1 Gasket (1)
- No.1 Adapter Ø 80/125 (2)

The Kit Ø 80/125 includes (Fig. 24):

- No.1 Wall sealing plate (3)
- No.1 Aluminium tile (4)
- No.1 Fixed half-shell (5)
- No.1 Mobile half-shell (6)
- No.1 Concentric intake-exhaust terminal Ø 80/125 (7)

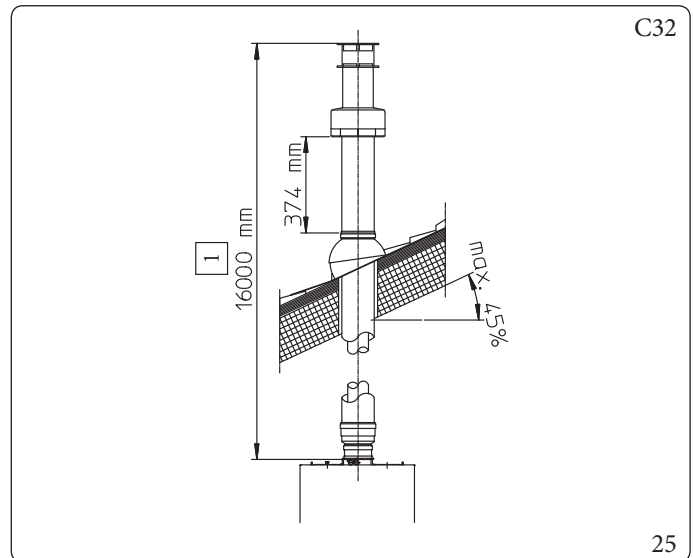
The remaining kit components must not be used

Extensions for Ø 80/125 vertical kit (Fig. 25)

The kit with this configuration can be extended to a max. straight vertical length of 16 m, including the terminal.

If additional components are assembled, the length equivalent to the maximum allowed must be subtracted.

In this case the special extensions must be requested.



Key (Fig. C3225):

- 1 - Maximum length

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

1.17 SEPARATOR KIT INSTALLATION

Type C configuration, sealed chamber and fan assisted, separator kit Ø 80/80

This kit allows air to come in from outside the building and the exhaust to exit from the chimney, flue or intubated duct through divided flue exhaust and air intake pipes.

Combustion products are expelled from pipe (S) (in plastic, so as to resist acid condensate).

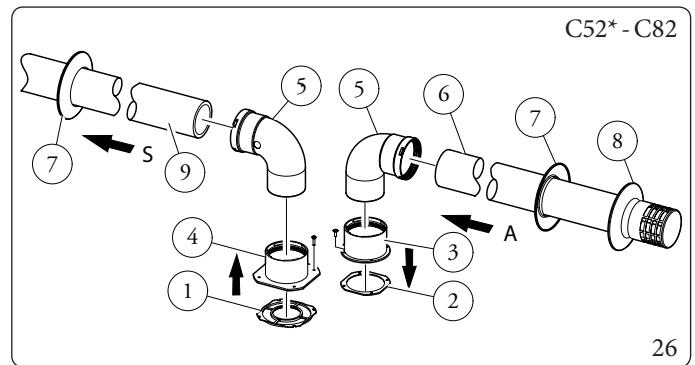
Air is taken in through duct (A) for combustion (this is also in plastic).

The intake pipe (A) can be installed either on the right or left hand side of the central exhaust pipe (S).

Both ducts can be routed in any direction.

Mounting the separator kit Ø 80/80 (Fig. 26):

1. Install the flange (4) on the central hole of the boiler, positioning gasket (1) with the circular projections downwards in contact with the boiler flange.
2. Tighten with the hexagonal head and flat point screws provided in the kit.
3. Replace the flat flange present in the lateral hole with respect to the central one (according to needs) with the flange (3), positioning the gasket (2) already present in the boiler.
4. Tighten with the supplied self-tapping screws with drill bit.
5. Fit the bends with male side (smooth) (5) in the female side of the flanges (3 and 4).
6. Fit the intake terminal (6) with the male side (smooth) in the female side of the bend (5) up to the end stop, ensuring that the internal and external wall sealing plates are fitted.
7. Fit the exhaust pipe (9) with the male end (smooth) to the female end of the bend (5) up to the end stop; making sure that the internal wall sealing plate has been fitted, this will ensure sealing and joining of the elements making up the kit.



The kit includes (Fig. 26):

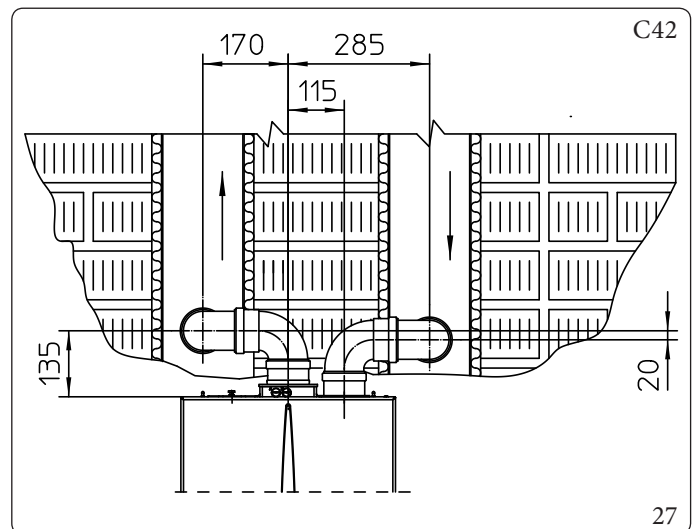
- No.1 Exhaust gasket (1)
- No.1 Flange gasket (2)
- No.1 Female intake flange (3)
- No.1 Female exhaust flange (4)
- No.2 Bend 90° Ø 80 (5)
- No.1 Intake terminal Ø 80 (6)
- No.2 Internal wall sealing plates (7)
- No.1 External wall sealing plate (8)
- No.1 Exhaust pipe Ø 80 (9)

* to complete C52 configuration, also provide for a "green range" roof discharge terminal.

The configuration on walls opposite the building is not allowed.

Installation clearances (Fig. 27)

The minimum installation clearance measurements of the Ø 80/80 separator terminal kit have been stated in some limit conditions.



Extensions for separator kit Ø 80/80

The maximum vertical straight length (without bends) that can be used for Ø 80 intake and exhaust pipes is 40 metres, regardless from whether they are used for intake or exhaust.

The maximum horizontal straight length (with bend in suction and in exhaust) that can be used for Ø 80 intake and exhaust pipes is 27 metres or 35m intake.

Please note the type of installation C42 must be done with a natural draught flue.



To favour the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the boiler with a minimum slope of 1.5% (Fig. 28)

1.18 C9 ADAPTOR KIT INSTALLATION

This kit allows an Immergas boiler to be installed in "C92" configuration, with combustion air intake directly from the shaft where the flue gas exhaust is, obtained by means of a ducting system.

System composition

The system must be combined with the following components (sold separately) to be functional and complete:

- kit C92" Ø 100 or Ø 125 version;
- ducting kit Ø 80 rigid and Ø 80 flexible;
- flue exhaust kit Ø 60/100 or Ø 80/125 configured according to the installation and type of boiler.

Mounting the C9 adapter kit (Fig. 30)



(Version Ø 125 only) before assembly check the gaskets are in the right position.

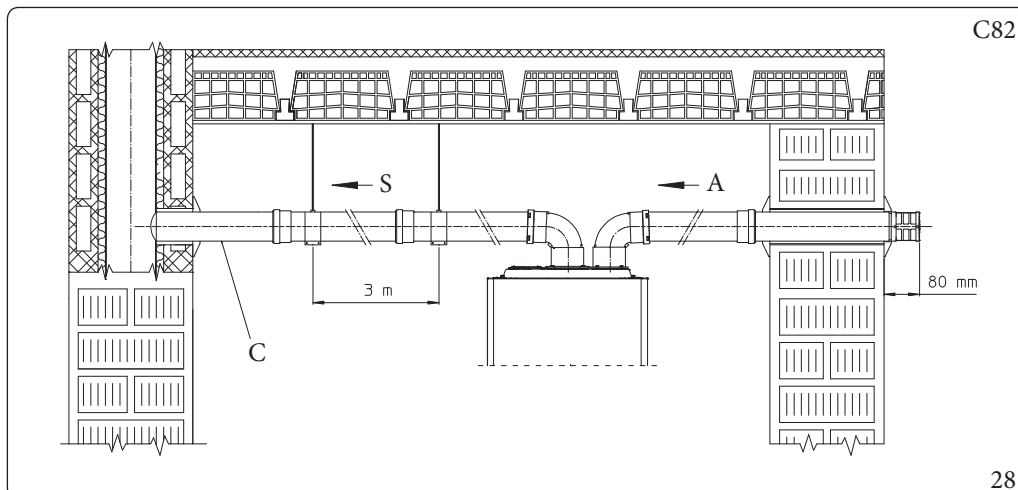
In the event component lubrication (already carried out by the manufacturer) is not sufficient, remove the residual lubricant using a dry cloth, then to ease fitting coat the parts with common or industrial talc.



To favour the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the boiler with a minimum slope of 1.5% (Fig. 28)

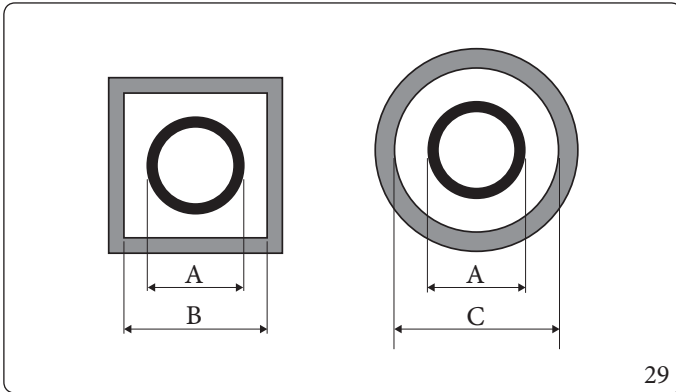
1. Mount the components of kit "C9" on the door (A) of the ducting system (Fig. 30).
2. (Version Ø 125 only) mount the flanged adaptor (11) interposing the concentric gasket (10) on the boiler, fitting it with the screws (12).
3. Mount the ducting system as described in the relative instructions sheet.
4. Calculate the distances between the boiler drain and the bend of the ducting system.
5. Prepare the boiler flue system, making sure that the internal pipe of the concentric kit is fitted up to the end stop in the ducting system curve (Quota "X" Fig. 31), whereas the external pipe must reach the end stop of the adaptor (1).
6. Mount the cover (A) complete with adaptor (1) and caps (6) on the wall.
7. Assemble the flue system to the ducting system.

Once all components have been assembled properly, the exhaust flue gas will be expelled via the ducting system; the combustion air for normal boiler operation will be aspirated directly by the shaft (Fig. 31).



Key (Fig. 28):

- A - Intake
- C - Minimum slope 1.5%
- S - Exhaust



29

Ducting	ADAPTOR (A) mm	SHAFT (B) mm	SHAFT (C) mm
Ø80 Rigid	86	126	146
Ø80 Flexible	90	130	150

Technical data

The dimensions of the shafts must ensure a minimum gap between the outer wall of the smoke duct and the inner wall of the shaft: 30 mm for circular section shafts and 20 mm in the event of a square section shaft (Fig. 29).

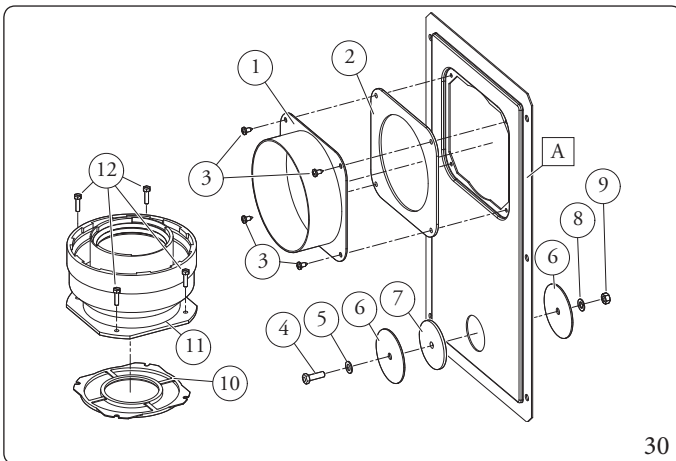
Maximum 2 changes of direction are allowed on the vertical section of the flue system with a maximum clearance angle of 30° with respect to the vertical.

The maximum vertical extension using a Ø 80 ducting system is 27 m, the maximum extension includes 1 Ø 60/100 to Ø 80/125 adapter, 1 87° Ø 80/125 bend, 1 m of horizontal pipe Ø 80/125, 1 90° Ø 80 ducted bend and the roof terminal for ducting.

To determine the C92 flue system in configurations other than that described (Fig. 31) one must consider the following head losses:

- 1 m of concentric pipe Ø 80/125 = 1 m of ducted pipe;
- 1 87° bend = 1.4 m of ducted pipe;

Consequently one must subtract the equivalent length of the part added to the 27 m available.



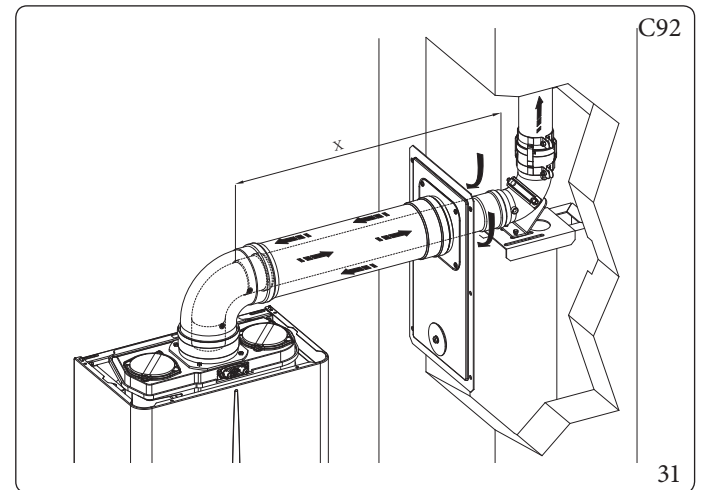
30

The adaptor kit includes (Fig. 30):

- No.1 Door adaptor Ø 100 or Ø 125 (1)
- No.1 Door gasket made of neoprene (2)
- No.4 Screws 4.2x9 ST (3)
- No.1 Hex headed screw M6x20 (4)
- No.1 Flat nylon washer M6 (5)
- No.2 Door hole closure metal-sheet plate plug (6)
- No.1 Plug gasket made of neoprene (7)
- No.1 Toothed washer M6 (8)
- No.1 M6 nut (9)
- No.1 (kit Ø 80/125) Concentric gasket Ø 60/100 (10)
- No.1 (kit Ø 80/125) Flanged adapter Ø 80/125 (11)
- No.4 (kit Ø 80/125) Hexagon-head screws M4 x 16 flat-tip screwdriver (12)
- No.1 (kit Ø 80/125) Bag of lubricating talc

Supplied separately (Fig. 30):

- No.1 Ducting kit door (A)



C92

31

1.19 DUCTING OF FLUES OR TECHNICAL SLOTS

Ducting is an operation through which, via the introduction of one or more relevant pipes, one achieves a system for the evacuation of the combustion products of a gas appliance, made up from the coupling of an existing or new ducting pipe with a chimney, flue or technical slot (also in new buildings) (Fig. 32).

Ducting requires ducts declared to be suitable for the purpose by the manufacturer, following the installation and user instructions, provided by the manufacturer and the requirements of the regulations in force.

Immergas ducting systems



The Ø 80 flexible and Ø 80 rigid “Green Range” ducting systems must only be used for domestic use and with Immergas condensing boilers.

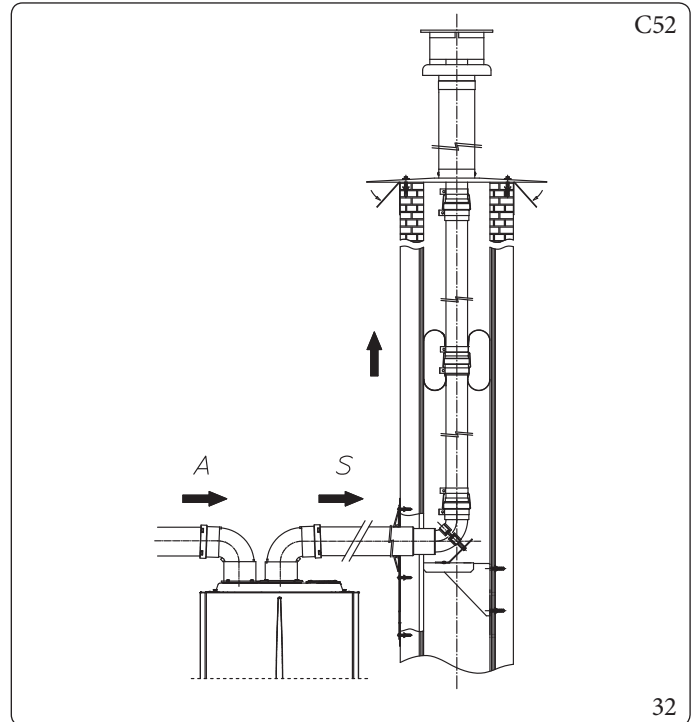
In any case, ducting operations must respect the provisions contained in the standard and in current technical regulations; in particular, the declaration of conformity must be compiled at the end of work and on commissioning of the ducted system.

The instructions in the project or technical report must likewise be followed, in cases provided for by the standard and current technical regulations.

To guarantee reliability and operation over time of the ducting system, make sure:

- it is used in average atmospheric and environmental conditions, according to current regulations (absence of combustion products, dusts or gases that can alter the normal thermophysical or chemical conditions; existence of temperatures coming within the standard range of daily variation, etc.).
- Installation and maintenance must be performed according to the indications supplied by the manufacturer included with the “green range” ducting system chosen and in compliance with the regulations in force.
- The maximum length specified by the manufacturer must be respected; in this regard:
- it is used in average atmospheric and environmental conditions, according to current regulations (absence of combustion products, dusts or gases that can alter the normal thermophysical or chemical conditions; existence of temperatures coming within the standard range of daily variation, etc.).
- Installation and maintenance must be performed according to the indications supplied by the manufacturer included with the “green range” ducting system chosen and in compliance with the regulations in force.
- The maximum length specified by the manufacturer must be respected; in this regard:

- The max. possible length of the Ø 80 flexible ducting vertical section is equal to 6.7 m. This length is obtained considering the Ø 80 complete exhaust terminal, 1 m of Ø 80 pipe in exhaust, two 90° Ø 80 bends at boiler outlet for connecting to the ducting system and two direction changes of the flexible hose inside the chimney/technical slot.
- The max. possible length of the Ø 80 flexible ducting vertical section is equal to 27 m. This length is obtained considering the complete Ø 80 exhaust terminal, 1 m of Ø 80 pipe in exhaust, two 90° Ø 80 bends at boiler outlet.



1.20 CONFIGURATION TYPE B, OPEN CHAMBER AND FAN ASSISTED FOR INDOORS

The appliance can be installed inside buildings in B22 or B52 mode; in this eventuality, all technical rules and national and local regulations in force, must be complied with.

1.21 FLUE EXHAUST TO FLUE/CHIMNEY.

Flue exhaust does not necessarily have to be connected to a branched type traditional flue for type B appliances with natural draught (CCR).

The flue exhaust, for boiler clots installed in C configuration, can be connected to a special LAS type multiple flue.

For B22 configurations, exhaust is only allowed into individual chimney or directly into the external atmosphere via a relevant terminal, unless otherwise provided by local regulations.

The multiple flues and the combined flues must also only be connected to type C appliances of the same type (condensation), having nominal heat inputs that do not differ by more than 30% less with respect to the maximum that can be attached and powered by the same fuel.

The thermo-fluid dynamic features (flue flow rate, % of carbon dioxide, % humidity etc.) of the appliances attached to the same multiple flues or combined flues, must not differ by more than 10% with respect to the average boiler attached.

The multiple flues and the combined flues must also only be connected to type C appliances of the same type (condensation), having nominal heat inputs that do not differ by more than 30% less with respect to the maximum that can be attached and powered by the same fuel.

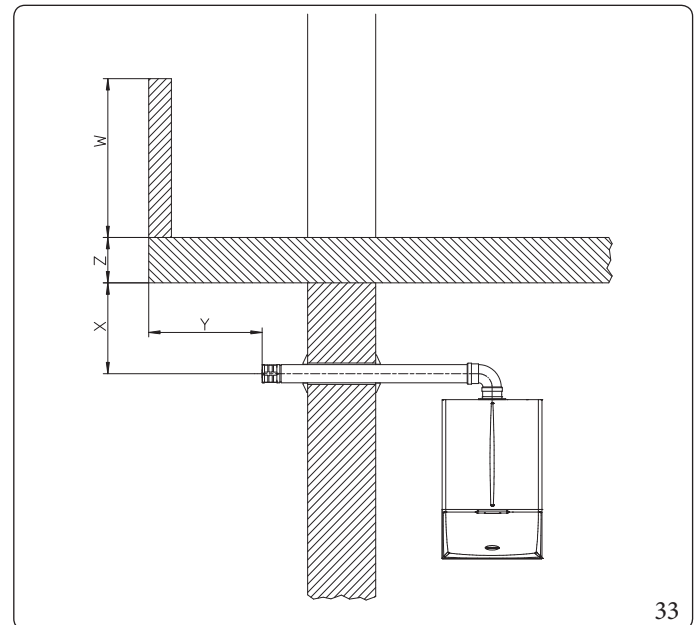
Chimney or flue sections for connection of the flue exhaust pipe must comply with requisites of technical standards in force.

It is possible to replace a type C conventional device with one provided with condensation only, if the derogation conditions established by the regulations in force have been verified.

1.22 FLUES, CHIMNEYS AND CHIMNEY CAPS.

The flues, chimneys and chimney caps for the evacuation of combustion products must be in compliance with applicable standards.

Chimneys and roof-installed exhaust terminals must comply with the outlet height and with the distance from technical volumes set forth by the technical standards in force.



33

Positioning the wall flue exhaust terminals.

The wall flue exhaust terminals must:

- be installed on external perimeter walls of the building (Fig. 33);
- be positioned according to the minimum distances specified in current technical standards.

Combustion products exhaust of natural draught or fan assisted appliances in open-top closed environments.

In spaces closed on all sides with open tops (ventilation pits, courtyards etc.), direct combustion product exhaust is allowed for natural draught or fan assisted gas appliances with a heat input range from 4 to 35 kW, provided the conditions as per the current technical standards are respected.

1.23 SYSTEM FILLING

1. Loosen the cap of the automatic vent valve on the circulating pump.
2. Slightly open the filling cock (Par. 1.6) to ensure release of air bubbles in the water via the boiler and central heating system vents.
3. Open the radiator vent valves.
4. Close the filling cock when the boiler pressure gauge indicates approx. 1.2 bar.
5. Close radiator vent valves when only water escapes from them.



During these operations activate the automatic venting functions present in the boiler.

1.24 FILLING THE CONDENSATE DRAIN TRAP



On first lighting of the boiler, flue gas may come out the condensate drain; after a few minutes' operation check that this no longer occurs. If this is the case, the drain trap is correctly filled with condensate up to a height that does not allow the flue gas to pass.

1.25 GAS SYSTEM START-UP.

To start up the system, refer to the technical standards in force. This divides the systems and, therefore, the commissioning operations, into three categories: new systems, modified systems, re-activated systems.

In particular, for new gas systems:

- open windows and doors;
- avoid presence of sparks or naked flames;
- bleed all air from pipelines;
- ensure the internal system is properly sealed according to the specifications set forth by technical regulations in force.

1.26 BOILER START-UP (IGNITION)

To commission the boiler (the operations listed below must only be performed by qualified personnel and in the presence of staff only):

1. check that the internal system is properly sealed according to the specifications set forth by regulations in force;
2. Make sure that the type of gas used corresponds to boiler settings (checking the relevant "P01" parameter);
3. check that there is no air in the gas pipe;
4. check connection to a 230V-50Hz power mains, correct L-N polarity and the earthing connection;
5. check that the intake/exhaust terminals are not obstructed and that they are installed properly;
6. Check that the drain trap is full and that it prevents any passage of flue gas into the room;
7. check that there are no external factors that may cause the formation of fuel pockets;
8. switch the boiler on and ensure correct ignition;
9. Check that the gas flow rate and the relative pressure values comply with those indicated in the booklet;
10. ensure that the safety device intervenes in the event of gas supply failure and check the relative intervention time;
11. check the intervention of the main switch located upstream from the boiler and in the boiler.



Even if just one single safety check provides a negative result, do not commission the system.

1.27 CIRCULATION PUMP

The appliance is supplied with built-in pump.
The pump works at a fixed speed both in central heating and in DHW.

Pump LED.

When the pump is powered, the LED lights up with a steady green light.



When the pump is switched on, the green LED flashes at higher intensity and then returns to normal intensity with a steady green light.

If the pump detects an alarm, the LED switches from green to red; this can mean one of the following failures:

- low supply voltage;
- rotor seized;
- electrical error.

For a detailed description of the meaning of the red LED, refer to Paragraph 3.6.



The LED, in addition to being green or red, can also remain off.

It is normal for the LED to be off when the pump is not powered, whereas with the pump powered, the LED must be lit: if switched off, it means there is a fault.

Pump release.

If after a long period of inactivity, the circulator is blocked, adjust the screw in the centre of the head in order to manually release the motor shaft.

Take great care during this operation to avoid damage to the motor.

Bypass Adjustment (Parag. 1.29).

The boiler leaves the factory with the bypass open.

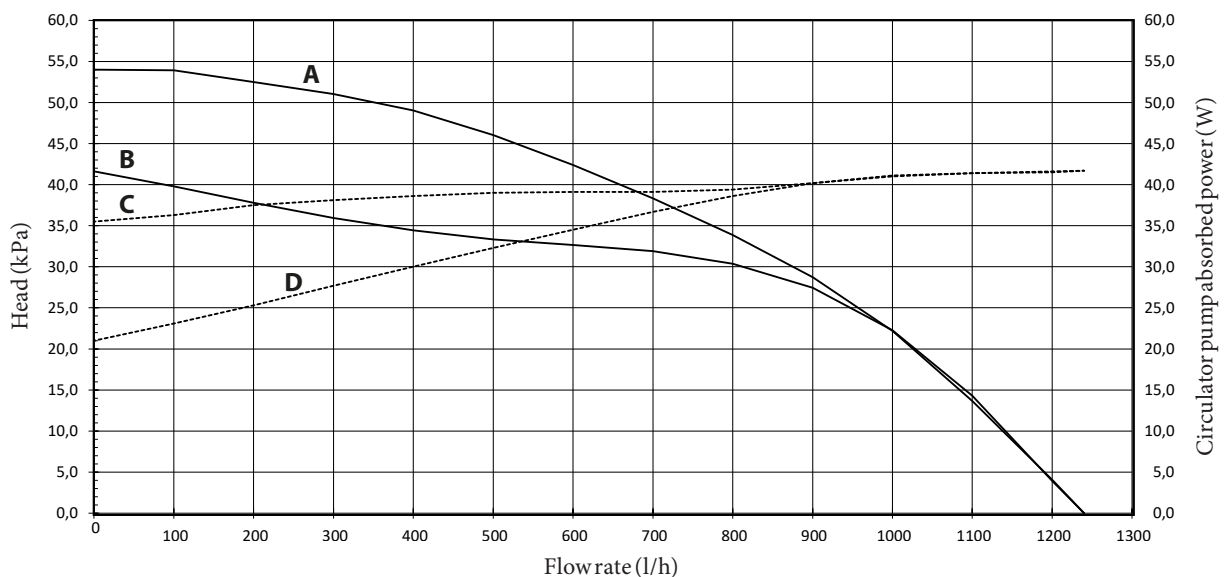
If necessary, the by-pass can be regulated to system requirements from minimum (by-pass closed) to maximum (by-pass open).

Adjust using a flat head screwdriver, turn clockwise and open the by-pass, anticlockwise it is closed.



The by-pass ensures minimum circulation of the water in the boiler and correct operation of the appliance if the systems are divided into more than one zone.

Total head available to the system.



34

Key (Fig. 34):

- A = Head available with by-pass excluded
- B = Head available with by-pass engaged
- C = Power absorbed by the pump with bypass engaged (dotted area)
- D = Power absorbed by the pump with by-pass excluded (dotted area)

1.28 KITS AVAILABLE ON REQUEST

- System cut-off valve kits with or without inspectionable filter (on request). The boiler is designed for installation of system interception cocks to be placed on flow and return pipes of the connection assembly. This kit is very useful for maintenance because it allows to empty just the boiler without having to empty the entire system. Moreover, the version with filter preserves the functioning characteristics of the boiler thanks to its inspectionable filter.
- Polyphosphate dispenser kit (on request). The polyphosphate dispenser reduces the formation of lime-scale and preserves the original heat exchange and domestic hot water production conditions. The boiler is prepared for application of the polyphosphate dispenser kit.



This is a type of chemical conditioning treatment for domestic hot water, if provided for by current regulations.

- Cycloidal filter kit (on request). The magnetic cycloidal filter is able to detect the ferrous residues present in the system's water. Thanks to the two cocks in the kit, it facilitates maintenance by cleaning the filter without having to empty the circuit.



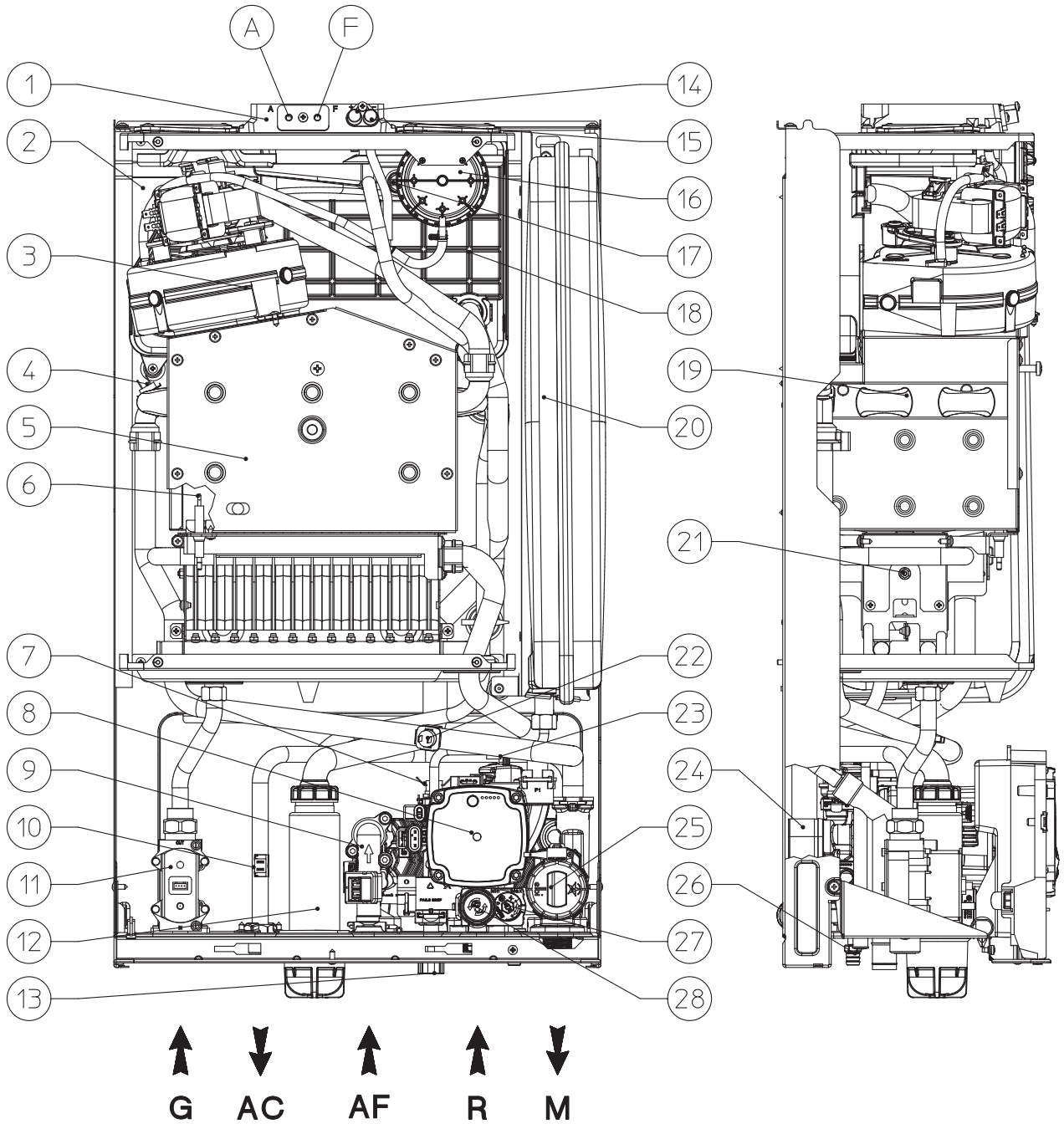
The above-mentioned kits are supplied complete with instructions for assembly and use.

1.29 MAIN COMPONENTS

INSTALLER

USER

MAINTENANCE TECHNICIAN



Key (Fig. 35):

- | | |
|--|-------------------------------------|
| 1 - Sample points (air A) - (flue gases F) | 15 - Negative signal pressure point |
| 2 - Sealed chamber | 16 - Flue pressure switch |
| 3 - Fan | 17 - Thermofuse |
| 4 - Flowprobe | 18 - Condensing heat exchanger |
| 5 - Combustion chamber | 19 - Primary heat exchanger |
| 6 - Ignition and detection electrodes | 20 - System expansion vessel |
| 7 - System pressure switch (absolute) | 21 - Burner |
| 8 - Boiler pump | 22 - Safety thermostat |
| 9 - D.H.W. flow switch | 23 - Air vent valve |
| 10 - DHW probe | 24 - DHW heat exchanger |
| 11 - Gas valve | 25 - Motorized 3-way valve |
| 12 - Condensate drain trap | 26 - System draining fitting |
| 13 - System filling valve | 27 - By-pass |
| 14 - Positive signal pressure point | 28 - 3 bar safety valve |

35

2 INSTRUCTIONS FOR USE AND MAINTENANCE

2.1 GENERAL RECOMMENDATIONS



Never expose the wall-mounted boiler to direct vapours from a cooking surface.



The device can be used by children at least 8 years old as well as by persons with reduced physical, sensory or mental capabilities, or lack of experience or required knowledge, provided that they are under surveillance, or after they have been instructed relating to the safe use and have understood the potential dangers. Children must not play with the appliance. Cleaning and maintenance destined to be performed by the user can not be carried out by unsupervised children.



For safety purposes, check that the air intake/flue exhaust terminals (if fitted) are not blocked.



If temporary shutdown of the boiler is required, proceed as follows:
a) drain the heating system if antifreeze is not used;
b) shut-off all electrical, water and gas supplies.



In the case of work or maintenance to structures located in the vicinity of ducting or devices for flue extraction and relative accessories, switch off the appliance and on completion of operations ensure that a qualified technician checks efficiency of the ducting or other devices.



Never clean the appliance or connected parts with easily flammable substances.



Never leave containers or flammable substances in the same environment as the appliance.



Do not open or tamper with the appliance.



Do not take apart or tamper with the intake and exhaust pipes.



Only use the user interface devices listed in this section of the booklet.



Do not climb on the appliance, do not use the appliance as a support base.



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

- do not touch the appliance with wet or moist parts of the body; do not touch when barefoot;
- never pull electrical cables or leave the appliance exposed to atmospheric agents (rain, sunlight, etc.);
- the appliance power cable must not be replaced by the user;
- in the event of damage to the cable, switch off the appliance and contact exclusively qualified staff for replacement;
- if the appliance is not to be used for a certain period, disconnect the main boiler external switch.



Water at a temperature of more than 50 °C can cause serious burns. Always check the water temperature before any use.



The temperatures indicated by the display have a tolerance of +/- 3°C due to environmental conditions that cannot be blamed on the boiler.



After brief periods of inactivity, visually check that the siphon is properly filled with condensate and top it up if necessary.

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

**If you smell gas in the building:**

- close the gas meter interception device or the main interception device;
- if possible, close the gas interception cock on the product;
- if possible, open doors and windows wide and create an air current;
- do not use open flames (e.g. lighters, matches);
- do not smoke;
- do not use electrical switches, plugs, door bells, telephones or intercom devices in the building;
- call an authorised company (e.g. Authorised Technical Assistance Centre).



if you smell burning or see smoke coming out of the appliance, switch it off, disconnect power, close the main gas cock, open the windows and call an authorised company (e.g. Authorised Technical Assistance Centre).



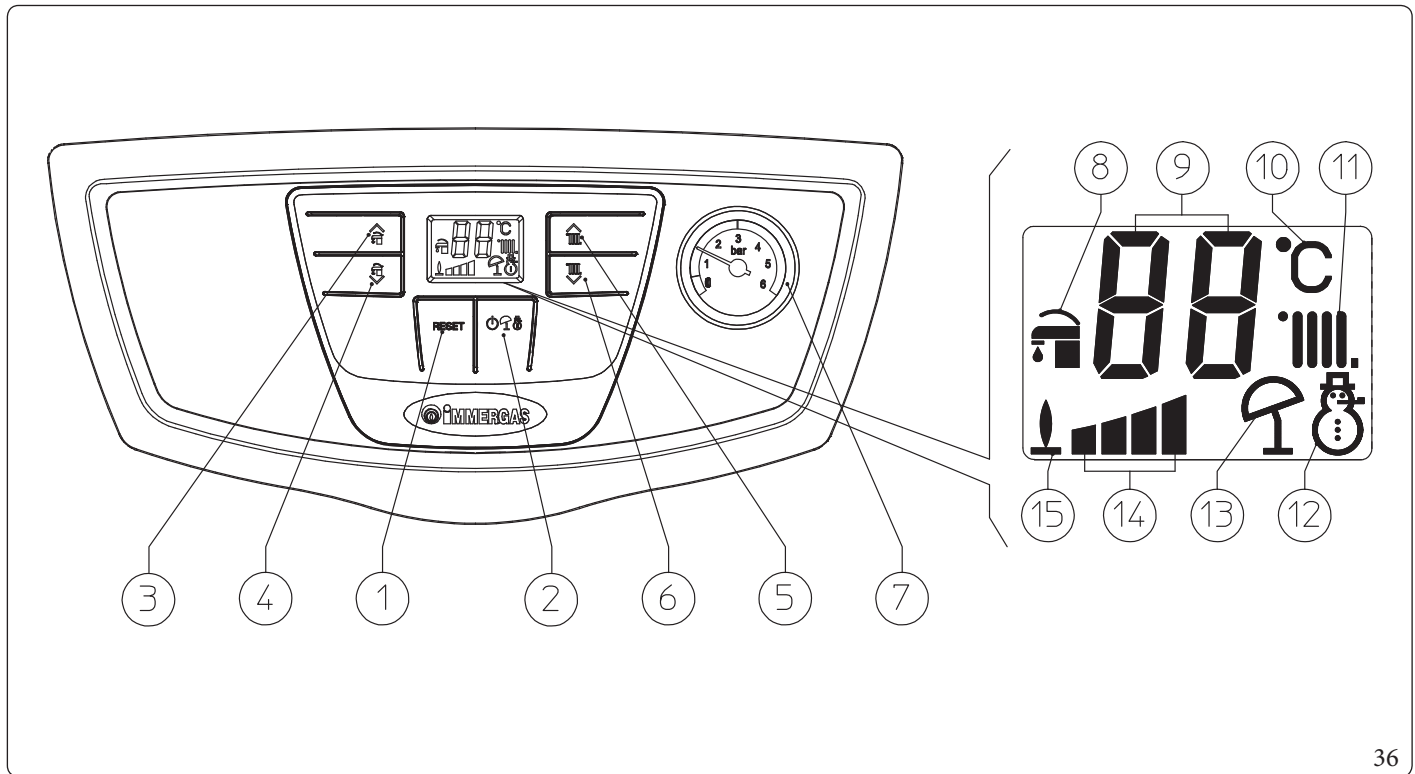
At the end of its service life, the appliance must not be disposed of like normal household waste nor abandoned in the environment, but must be removed by a professionally authorised company as required by current legislation. Contact the manufacturer for disposal instructions.

2.2 CLEANING AND MAINTENANCE



To preserve the boiler's integrity and keep the safety features, performance and reliability, which distinguish it, unchanged over time, you must execute maintenance operations on a yearly basis in compliance with what is stated in the relative point at "annual check and maintenance of the appliance" in compliance with the prevailing national, regional or local provisions.

2.3 CONTROL PANEL







Key (Fig. 36):






- | | |
|---|---|
| 1 - Reset Button | 8 - Domestic hot water function |
| 2 - Stand-by/ Summer/ Winter button | 9 - Temperatures and error code display |
| 3 - Key(+) used to increase the DHW temperature | 10 - Unit of measurement |
| 4 - Key(-) used to decrease the DHW temperature | 11 - Heating mode |
| 5 - Key(+) to increase the system water temperature | 12 - Winter |
| 6 - Key(-) to reduce the system water temperature | 13 - Summer |
| 7 - Boiler manometer | 14 - Output efficiency |
| | 15 - Flame Presence |



2.4 BOILER USE

Boiler activation



 Before ignition make sure the heating system is filled with water and that the manometer (7) indicates a pressure of 1 - 1.2 bar.

- Open the gas cock upstream from the boiler.
- Press button  and select the summer  position or winter position  of the boiler.





 The button  must be pressed and held for the time required to switch from the Stand-by () , Summer  or Winter  function.

 After each switch the button  must in any case be released to switch to the next function.

Summer


In this mode, the domestic hot water temperature is regulated by buttons  and .

Winter

In this mode, the system water temperature is adjusted with the buttons  and , whilst the domestic hot water temperature is adjusted using the buttons  and , by pressing (+) to increase and (-) to reduce the temperature.

From this moment the boiler functions automatically.

With no demand for heat (central heating or domestic hot water production) the boiler goes to “standby” function, equivalent to the boiler being powered without presence of flame.

Each time the burner ignites, the relative flame symbol  is displayed.

Operation with Comando Amico RemotoV2 (CARV2) (optional)

If the CARV2 is connected, the boiler regulation parameters can be set via the CARV2 control panel and the **RESET** button remains active on the boiler control panel, the "+" and "-" buttons for DHW and central heating as Set Info requested remotely and the display where the functioning state is shown.

Solar operating mode


By selecting this function, the boiler is set to be used with solar panels.

If parameter P03 is set to "solar" mode, the shutdown is related to the set DHW set. In OFF mode, the burner is switched off at the maximum value.


The boiler is set to switch-on immediately after a request for DHW.

In the case of coupling with a solar storage tank positioned upstream from the boiler, by means of the P04 parameter, it is possible to compensate the distance between the storage tank and the boiler in order to allow the water to reach the boiler.

Set the time necessary to verify that the water is hot enough.

 Together with a solar valve kit, set the parameter P03 in "solar" on mode (correlated).

“Stand-by” Mode

Press the “Stand-by” button until the  symbol appears; from this moment the boiler remains off. The antifreeze function, pump anti-block function and three-way.



In “Stand-by” mode, the boiler is to be considered still live.

2.5 FAULT AND ANOMALY SIGNALS

The boiler signals any anomalies using a code shown on the boiler display (11) according to the following table:

Error Code	Anomaly signalled	Cause	Boiler status / Solution
01	No ignition block	In the event of request of room central heating or domestic hot water production, the boiler does not switch on within the preset time. Upon appliance commissioning or after extended downtime, it may be necessary to eliminate the block. Clogged condensate drain.	Press the Reset button (1)
02	Safety thermostat block	During normal operation, if a fault causes excessive overheating internally, the boiler goes into overheating block.	Press the Reset button (1)
05	Delivery probe fault	The board detects an anomaly on the flow NTC probe.	The boiler does not start (1)
06	DHW probe fault	The board detects an anomaly on the domestic hot water NTC probe. In this case only the antifreeze function is inhibited	In this case the boiler continues to produce domestic hot water but not with optimal performance and with possible scalding risk(1)
10	Insufficient system pressure	Water pressure inside the central heating circuit that is sufficient to guarantee the correct operation of the boiler is not detected.	Check on the boiler pressure gauge that the system pressure is between 1-1.2 bar and restore the correct pressure if necessary (1)
11	Flue pressure switch anomaly (fan)	This occurs in case of a fault in the flue pressure switch (electric contact open) or the fan. N.B.: The flue pressure switch contact is checked only when the burner is ignited.	If normal conditions are restored the boiler restarts without having to be reset (1)
16	Fan failure (flue gas pressure switch)	It occurs in the event of failure of the flue gas pressure switch (electrical contact closed) or fan speed sensor. NOTE: the flue gas pressure switch contact is checked only when the burner is ignited.	If normal conditions are restored the boiler restarts without having to be reset (1)
20	Parasite flame block	This occurs in the event of a leak on the detection circuit or anomaly in the flame control unit.	Press the Reset button (1)
24	Push button control panel anomaly	The board detects an anomaly on the pushbutton panel.	If normal conditions are restored the boiler restarts without having to be reset (1)
27	Circulation insufficient	This occurs if there is overheating in the boiler due to insufficient water circulating in the primary circuit; the causes can be: low system circulation; check that no shut-off devices are closed on the heating circuit and that the system is free of air (deaerated); circulating pump blocked; free the circulating pump.	If normal conditions are restored the boiler restarts without having to be reset (1)
(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)			

INSTALLER



USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Error Code	Anomaly signalled	Cause	Boiler status/ Solution
31	Loss of remote control communication	This occurs if an incompatible remote control is connected, or if communication between the boiler and the remote control is lost.	Disconnect and reconnect the power to the boiler. If the Remote Control is not detected on re-starting the boiler will switch to "Summer" mode. In this case the "Central Heating" (1) function cannot be activated
37	Low power supply voltage	This occurs when the power supply voltage is lower than the allowed limits for the correct boiler operation.	If normal conditions are restored the boiler restarts without having to be reset (1)
38	Loss of flame signal	This occurs when the boiler is ignited correctly and the burner flame switches off unexpectedly; a new attempt at ignition is performed and if normal conditions are restored, the boiler does not have to be reset.	If normal conditions are restored the boiler restarts without having to be reset (1)
43	Block due to loss of flame signal	This occurs if the "Flame signal loss" error occurs many times in a row within a preset period (38).	Press the Reset button, before restarting, the boiler will run a post-ventilation cycle (1)
44	Block for exceeding gas valve frequent maximum opening time	This occurs if the gas valve remains open for longer than required for normal operation, without the boiler switching on.	Press the Reset button (1)
59	Main supply voltage frequency block	The board detects a main supply voltage frequency anomaly	The boiler does not start (1)
80	Block - gas valve driver issue	This occurs in the event of malfunctions of the P.C.B. that controls the valve. Faulty valve	Press the Reset button (1)
85	Afterburner problem block	Potential gas valve, electrode or P.C.B. problem.	Press the Reset button (1)
98	Block - maximum no. of software errors	The maximum number of software errors possible has been reached.	Press the Reset button (1)
(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)			

2.6 INFORMATION MENU

Pressing the buttons “ and “ simultaneously for 5 seconds, the “Information menu” is activated, which displays some boiler functioning parameters.

Press buttons “” and “” to scroll through the various parameters.

To exit the menu, press buttons “” e “” simultaneously again for 5 seconds or wait for 5 minutes.

Parameter ID	Description
d0.1	Displays the flame signal
d0.2	Displays the primary exchanger output instant heating flow temperature (flow probe)
d0.3	Displays the instant output temperature from the DHW exchanger
d0.4	Displays the fan operating speed (rpm x 100)
d0.5	Displays the operating instantaneous power (value in %)
d0.6	Displays the temperature set for the central heating set (if remote control is present)
d0.7	Displays the temperature set for the DHW set (if remote control is present)
E1 - E8	Display the anomaly history, of which E1 is the most recent

2.7 RESETTING THE ANOMALY HISTORY

Press the “RESET” button on the information menu for > 2 seconds and < 5 seconds.

The display will show "E-": at this point release the "RESET" key.

2.8 BOILERSWITCH-OFF

Press key "" until the following symbol appears "◁ ▷"



In these conditions the boiler is to be considered still live.

Disconnect the general switch outside the boiler and close the gas cock upstream of the appliance.

Never leave the boiler switched on if left unused for prolonged periods.

2.9 RESTORE CENTRAL HEATING SYSTEM PRESSURE

1. Periodically check the system water pressure (the boiler pressure gauge should read a value between 1 and 1.2 bar).
2. If pressure falls below 1 bar (with the system cold), restore normal pressure via the cock located at the bottom of the boiler (Par. 1.6).
3. Close the cock after the operation.
4. If the pressure reaches values around 3 bar, there is a risk of tripping the safety valve (in this case, remove water from a radiator air vent valve until a pressure of 1 bar is achieved, or ask for assistance from professionally qualified personnel).
5. In the event of frequent pressure drops, contact qualified staff for assistance to eliminate the possible system leakage.

2.10 DRAINING THE SYSTEM

Emptying the system

1. Ensure that the filling cock is closed.
2. Open the draining cock (Parag. 1.29).
3. Open all vent valves.
4. At the end, close the emptying cock.
5. Close all previously opened vent valves.



If glycol was input in the system's circuit, make sure it is discharged into the waste water system, pursuant to regulation EN 1717.

2.11 EMPTYING THE D.H.W. CIRCUIT

To do this, always close the domestic cold water inlet upstream of the appliance.

Open any domestic hot water tap to discharge the pressure from the circuit.

2.12 ANTIFREEZE PROTECTION

The boiler has an antifreeze function that switches the burner on automatically when the temperature falls below 4°C (standard protection to minimum temperature of -5°C).

All information about the frost protection can be found in the Installer section.

In order to guarantee the integrity of the appliance and the domestic hot water heating system in zones where the temperature falls below zero, we recommend the central heating system is protected using anti-freeze liquid and installation of the Immergas Antifreeze Kit in the boiler.

2.13 PROLONGED INACTIVITY

In case of prolonged inactivity (e.g. second home), we recommend:

1. to switch off the power supply;
2. to completely empty the heating circuit and the boiler D.H.W. circuit. In systems that are drained frequently, filling must be carried out with suitably treated water to eliminate hardness that can cause lime-scale.

2.14 CLEANING THE CASE

1. Use damp cloths and neutral detergent to clean the boiler casing.



Never use abrasive or powder detergents.

2.15 PERMANENT SHUTDOWN

In the event of permanent shutdown of the boiler, contact professional staff for the procedures and ensure that the electrical, water and gas supply lines are shut off and disconnected.

3 INSTRUCTIONS FOR MAINTENANCE AND INITIAL CHECK

3.1 GENERAL RECOMMENDATIONS



Operators who install and service the appliance must wear the personal protective equipment (PPE) required by applicable law.

The list of possible PPE is not complete as they are indicated by the employer.



Before carrying out any maintenance work, make sure that:

- you have disconnected the power to the appliance;
- you have closed the gas cock;
- you have discharged the pressure from the system and domestic hot water circuit.



Risk of material damage after using sprays and liquids to search for leaks

Leak sprays and liquids clog the reference hole P. Ref. (Fig. 39) of the gas valve, damaging it irreparably. During installation and maintenance, do not use spray or liquids in the upper area of the gas valve (side referring to the electric connections).



Supply of spare parts

The device's warranty shall be rendered null and void if unapproved or unsuitable parts are used for maintenance or repairs. These will also compromise the product's compliance, and the said product may no longer be valid and fail to meet the current regulations. In regard to the above, only use original Immergas spare parts when replacing components.



If additional documentation needs to be consulted for extraordinary maintenance, contact the Authorised After-Sales Service.

3.2 INITIAL CHECK

To commission the boiler:

- check the existence of the declaration of system conformity;
- Make sure that the type of gas used corresponds to boiler settings (the type of gas is displayed on the data nameplate and in the relevant P01 parameter);
- check connection to a 230V-50Hz power mains, correct L-N polarity and the earthing connection;
- make sure the central heating system is filled with water and that the boiler manometer indicates a pressure of 1÷1.2 bar;
- switch the boiler on and ensure correct ignition;
- check the CO₂ flow rate in the flue:
 - maximum
 - minimum
- the values comply with the relevant tables (Par. 3.3);
- check activation of the safety device in the event of no gas, as well as the relative activation time;
- check activation of the main switch located outside the boiler;
- check that the intake and/or exhaust terminals are not blocked;
- ensure activation of all adjustment devices;
- seal the gas flow regulation devices (if the settings are changed);
- ensure production of domestic hot water;
- check the tightness of the hydraulic circuits;
- check ventilation and/or aeration of the installation room where provided.



Even if just one single safety check provides a negative result, do not commission the system.

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

3.3 YEARLY APPLIANCE CHECK AND MAINTENANCE



The following checks and maintenance should be performed once a year to ensure operation, safety and efficiency of the appliance over time.

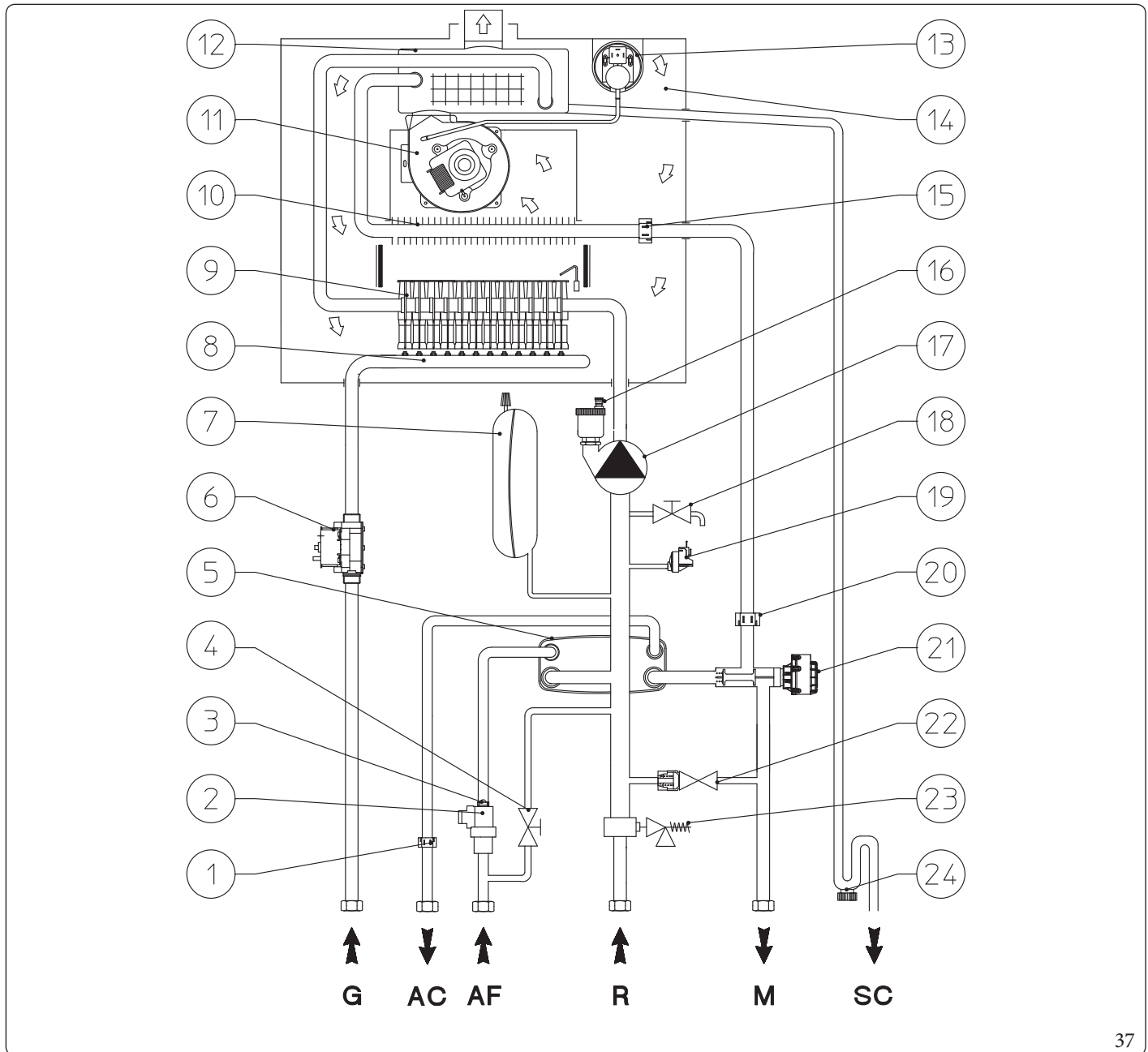
- Clean the flue side of the heat exchanger.
- Clean the main burner.
- Visually check the flue hood for deterioration or corrosion.
- Check correct lighting and operation.
- Ensure correct calibration of the burner in domestic water and central heating phases.
- Check correct operation of control and adjustment devices and in particular:
 - activation of the main switch located outside the boiler;
 - system control thermostat intervention;
 - domestic hot water control thermostat intervention.
- Check sealing efficiency of gas circuit and the internal system.
- Check the intervention of the device against no gas ionisation flame control. Intervention time must be less than 10 seconds.
- Check for water leaks or oxidation from/on the fittings.
- Visually check that the drain of the water safety valves is not blocked.
- Check that, after discharging system pressure and bringing it to zero (read on boiler pressure gauge), the expansion vessel load is at 1.0 bar.
- Check that the system static pressure (with system cold and after refilling the system by means of the filling valve) is between 1 and 1.2 bar.
- Check visually that the safety and control devices have not been tampered with and/or shorted, in particular:
 - temperature safety thermostat;
 - water pressure switch;
 - flue pressure switch.
- Check the function of the electrode.
- Check the condition and integrity of the electrical system and in particular:
 - the power supply wires must be housed in the cable glands;
 - there must be no traces of blackening or burning.
- Check the contents of the condensate drain trap.
- Visually check that the siphon is properly filled with condensate and top it up if necessary.
- Check that there are no material residues in the condensate drain siphon and in the duct between this and the condensing heat exchanger clogging the condensate passage; also check that the entire condensate drainage circuit is clear and efficient.

Gas type	CO2 to nominal Q.	CO2 to minimum Q.
G20	7.3% (± 0,5)	3.95% (± 0,5)
G31	7.9% (± 0,5)	4.7% (± 0,5)



In addition to yearly maintenance, one must also check the energy efficiency of the thermal system, with frequency and procedures that comply with the indications of the technical regulations in force.

3.4 HYDRAULIC DIAGRAM



Key (Fig. 37):

- 1 - DHW probe
- 2 - D.H.W. flow switch
- 3 - Flow limiter
- 4 - System filling valve
- 5 - DHW heat exchanger
- 6 - Gas valve
- 7 - System expansion vessel
- 8 - Gas manifold
- 9 - Burner
- 10 - Primary heat exchanger
- 11 - Fan
- 12 - Condensing heat exchanger
- 13 - Flue pressure switch
- 14 - Sealed chamber
- 15 - Flow probe

- 16 - Air vent valve
- 17 - Boiler pump
- 18 - System draining valve
- 19 - System pressure switch
- 20 - Safety thermostat
- 21 - Motorized 3-way valve
- 22 - By-pass
- 23 - 3 bar safety valve
- 24 - Condensate drain trap

- G - Gas supply
- AC - Domestic hot water outlet
- AF - Domestic hot water inlet
- R - System return
- M - System flow
- SC - Condensate drain

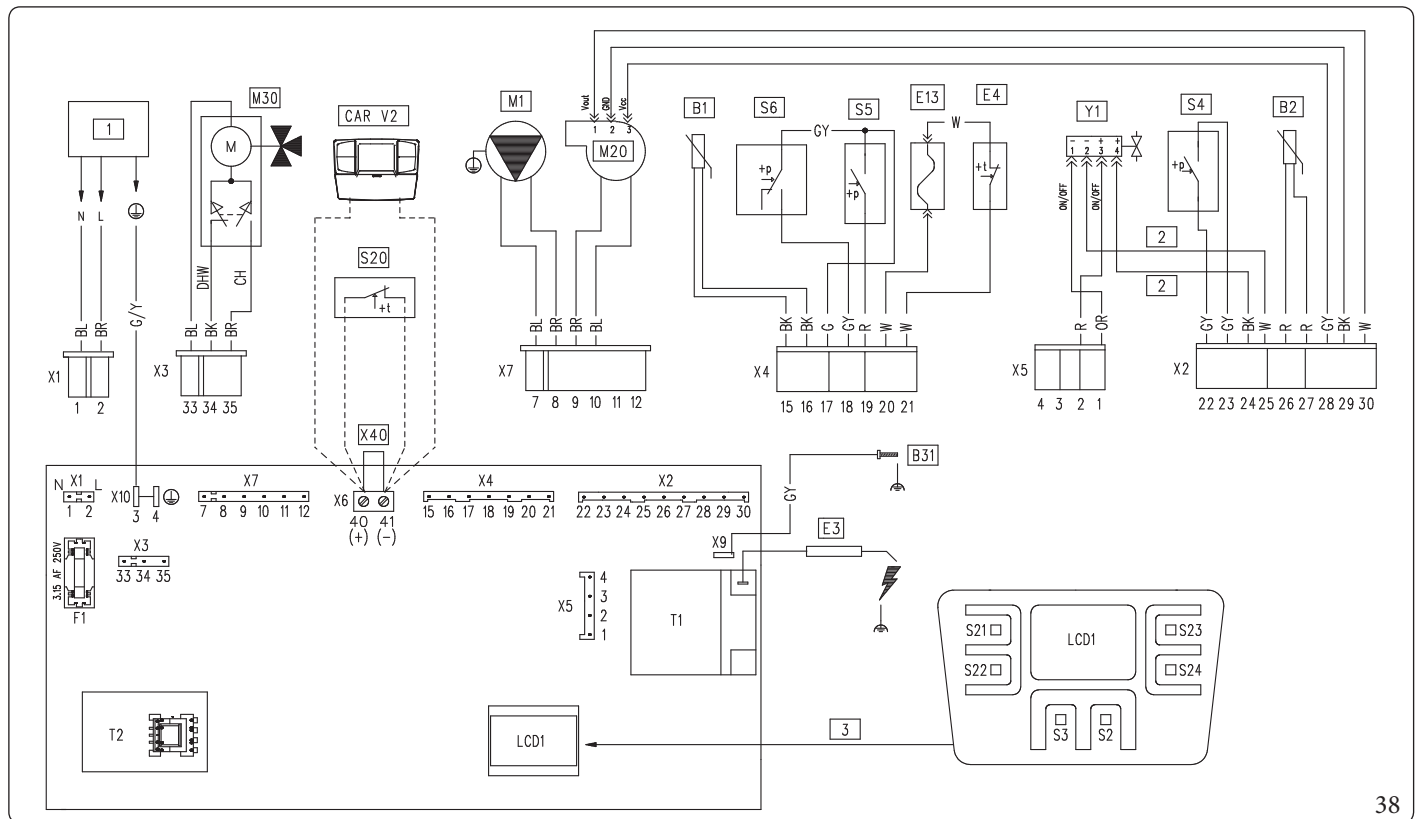
INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

3.5 WIRING DIAGRAM



Key (Fig. 38):

- 1 - 230 Vac 50 Hz power supply
- 2 - Modulation coil On/Off
- 3 - User interface
- B1 - Flow probe
- B2 - D.H.W. probe
- B31 - Condensate probe
- CARV2 - Comando Amico Remoto remote control V2 (optional)
- E3 - Ignition and detection electrode
- E4 - Safety thermostat
- E13 - Flue safety thermofuse
- F1 - Phase fuse
- LCD1 - Display
- M1 - Boiler circulating pump
- M20 - Fan
- M30 - 3-way valve
- S2 - Selector switch functioning
- S3 - Block reset button
- S4 - D.H.W. flow switch
- S5 - System pressure switch
- S6 - Flue pressure switch
- S20 - Room thermostat (optional)

- S21 - Domestic hot water temperature increase button
- S22 - Domestic hot water temperature decrease button
- S23 - Heating temperature increase button
- S24 - Heating temperature decrease button
- T1 - Ignition transformer
- T2 - Boiler P.C.B. transformer
- X40 - Room thermostat jumper
- Y1 - Gas valve

Colour code key (Fig. 38):

- BK - Black
- BL - Blue
- BR - Brown
- G - Green
- GY - Grey
- Y/G - Yellow/Green
- OR - Orange
- P - Viola
- PK - Pink
- R - Red
- W - White
- Y - Yellow
- W/B - White/Black

Comando Amico Remoto V2: the boiler is prepared for the application of the Comando Amico Remoto remote control V2 (CARV2), which must be connected to clamps 40 and 41 of the terminal board (located in the boiler control panel) respecting the polarity and eliminating jumper X40.

Room thermostat: the boiler is prepared for the application of the room thermostat (S20), which must be connected to clamps 40 and 41 of the terminal board (located in the boiler control panel) eliminating jumper X40.



The user interface is on the welding side of the boiler board.

3.6 TROUBLESHOOTING



Maintenance operations must be carried out by an authorised company (e.g. Authorised Technical Assistance Service).

Trouble	Possible causes	Solutions
Smell of gas	Caused by leakage from gas circuit pipelines.	Check sealing efficiency of gas intake circuit.
Repeated ignition blocks	No gas. Condensate drain clogged.	Check the presence of pressure in the network and that the gas adduction cock is open. Restore/release the function of the condensate drain, checking that the condensate has not affected: combustion components, fan and gas valve. Check the function of the condensate sensor.
Irregular combustion or noisiness	Dirty burner, clogged primary heat exchanger, incorrect combustion parameters, intake-exhaust terminal not correctly installed.	Check the indicated components.
Frequent trips of the overheating safety device thermostat function.	Lack of water in the boiler, poor water circulation in the system or blocked circulating pump (Par. 1.27).	Check on the pressure gauge that the system pressure is within established limits. Check that the radiator valves are not closed and also the functionality of the pump.
Siphon blocked	Dirt or combustion products deposited inside.	Check that there are no residues of material blocking the flow of condensate.
Condensing heat exchanger clogged	Siphon and/or duct between condensing exchanger and siphon clogging.	Check that there are no residues of material blocking the flow of condensate.
Poor production of D.H.W.	DHW heat exchanger clogged.	Contact Immergas After-Sales Assistance Service that has procedures to clean the D.H.W. heat exchanger.
Red pump LED	Low power supply voltage (when the minimum voltage is reached after about 2 seconds, the LED switches from green to red and the pump stops).	Wait for the power supply voltage to rise; when the pump restarts, the LED will turn green again with a delay of about one second. Note: The flow rate decreases as the supply voltage decreases.
	Rotor locked (Powering the pump with the rotor seized, after about 4 seconds the LED switches from green to red).	Carefully act on the screw in the middle of the head to manually release the crankshaft; circulation starts up immediately after the rotor is released and the LED switches from red to green after about 10 seconds.
	Electrical error.	Check that there is no fault on the pump (on its wiring or electronics).

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

3.7 CONVERTING THE BOILER TO OTHER TYPES OF GAS.



The gas conversion operation must be carried out by an authorised company (e.g. Authorised Technical Assistance Service).

If the appliance needs to be converted to a different gas type to that specified on the data plate, request the relative conversion kit for quick and easy conversion.

To convert to another type of gas the following operations are required:

- disconnect power to the appliance;
- replace the main burner injectors, making sure to insert the special seal rings supplied in the kit, between the gas manifold and the injectors;
- re-power the appliance;
- select, using the boiler keyboard, the gas parameter type (P01) and select (nG) in the case of methane supply or (LG) in the case of LPG supply and save it;
- Carry out complete calibration of the gas valve:
 - adjust the boiler nominal heat output;
 - adjust the boiler nominal heat output in domestic hot water phase;
- adjust (if necessary) the minimum heat output of the boiler in the heating phase (Parag. 3.9 parameter P05);
- adjust (eventually) the maximum heating power (Parag. 3.9 parameter P06);
- after completing the conversion, apply the sticker, contained in the conversion kit, near the data nameplate. Using an indelible marker pen, delete the data relative to the old type of gas.

These adjustments must be made with reference to the type of gas used, following the indications given in the table (Par. 4.1).

Checks following conversion to another type of gas.

After having made sure that the conversion is complete and that the calibration has been successful, you must make sure that:

- there is no flame in the combustion chamber;
- the burner flame is not too high or low and that it is stable (does not detach from burner);

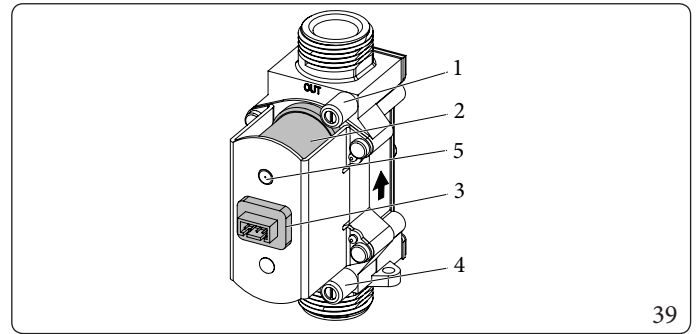


The pressure testers used for calibration should be perfectly closed and there should be no leaks from the gas circuit.



Maintenance operations must be carried out by an authorised company (e.g. Authorised Technical Assistance Service).

Burner adjustment must be carried out using a differential "U" or digital type pressure gauge connected to the pressure socket located above the sealed chamber (det. 14 Fig. 35) and the gas valve pressure point (det. 1 Fig. 39), keeping to the pressure value given in the table (Par. 4.1) according to the type of gas for which the boiler is prepared.



Key (Fig. 39):

- 1 - Gas valve outlet pressure point
- 2 - Coil
- 3 - Wiring connector
- 4 - Gas valve inlet pressure point
- 5 - P. Ref.

3.8 GAS VALVE CALIBRATION

The valve calibration must be carried out when the gas valve or the P.C.B. is replaced or in the case of conversion to a different type of gas.

To access the calibration phase, proceed as described below (Parag. 2.3):

Complete calibration



Before carrying out complete calibration, ensure that all the requirements indicated in parag. 1.23 - 1.24.



No active requests for central heating or D.H.W. production must be present and the boiler must not be in "Stand-by" mode.

Access the valve calibration function.


Set parameter P15 to 5 and exit from the menu.

- Adjustment of boiler nominal thermal heat output.
 - Press buttons (⏻) and (⏮) simultaneously for 5 seconds until "Au" + "to" appears alternately on the display;




Press buttons (⏻) and (⏮) again for 5 seconds or wait 2 minutes without implementing any adjustment to exit from the complete calibration phase.

- wait until the parameter b02 appears (adjustment of the boiler nominal heat output).

 The boiler starts up in heating mode; if you wish to adjust the D.H.W., open a hot water tap after the burner goes on.

- Adjust parameter b02, observing the maximum pressure values stated in the tables (Parag. 4.1) depending on the type of gas;
- press the button (↑) to increase the thermal power and button (↓) to decrease it.
- after the adjustment, press and hold the reset button (RESET) to save the parameter. Confirmation that the parameter has been saved is given by the value flashing.


 If during the adjustment phase the value of the nominal heat output of the boiler is exceeded by 0.2 mbar (parag. 4.1) table it is necessary to exit and re-enter from the calibration phase to re-adjust.

- Adjustment of boiler minimum thermal heat output.
 - press button (←) or (→) to select parameter b01 (minimum boiler heat output during D.H.W.).

 Only proceed after having calibrated the boiler nominal heat output.

- press the button (↑) to increase the thermal power and button (↓) to decrease it.
- after the adjustment, press and hold the reset button (RESET) to save the parameter. Confirmation that the parameter has been saved is given by the value flashing.

Calibration correction


 No active requests for central heating or D.H.W. production must be present and the boiler must not be in "Stand-by" mode.

The procedure described below allows the parameters set with the "Complete calibration" to be partially changed.

Access the valve calibration function.

If parameter P15 has recently been set to 5 (e.g. for full gas valve calibration), a different value must be set to access the "Calibration correction".

- Correction of boiler nominal heat output calibration.
 - Press buttons (⏻) and (↑) simultaneously for 5 seconds until "Ma" + "nu" appears alternately on the display.

 Press buttons (⏻) and (↑) again for 5 seconds or wait 2 minutes without implementing any adjustment to exit from the complete calibration phase.

- wait until the parameter b02 appears (adjustment of the boiler nominal heat output).

 The boiler starts up in heating mode; if you wish to adjust the D.H.W., open a hot water tap after the burner goes on.

- Adjust parameter b02, observing the maximum pressure values stated in the tables (Parag. 4.1) depending on the type of gas;
- press the button (↑) to increase the thermal power and button (↓) to decrease it.
- after the adjustment, press and hold the reset button (RESET) to save the parameter. Confirmation that the parameter has been saved is given by the value flashing.
- Correction of boiler minimum heat output calibration:
 - press button (←) or (→) to select parameter b01 (minimum boiler heat output during D.H.W.).
 - press the button (↑) to increase the thermal power and button (↓) to decrease it.
 - after the adjustment, press and hold the reset button (RESET) to save the parameter. Confirmation that the parameter has been saved is given by the value flashing.

3.9 P.C.B. PROGRAMMING

The boiler is prepared for possible programming of several operation parameters.

By modifying these parameters as described below, the boiler can be adapted according to specific needs.

To access the programming phase, proceed as described below (Parag 2.3):

- press buttons (RESET) and (⏻) for 5 about seconds until the programming mode is accessed on the display;
- using buttons (⬆) and (⬇), select the parameter to be changed indicated in the following table;
- adjust the corresponding value consulting the table using buttons (⬆) and (⬇);
- confirm the value set by pressing the button (RESET) for about 5 seconds.



2 minutes after no button is touched will automatically cancel the operation or by pressing buttons (RESET) and (⏻) simultaneously for about 5 seconds.

Id Parameter	Parameter	Description	Range	Default	Value value
P00	-	Not used	-	-	
P01	Gas type selection	The setting of this function is used to adjust the boiler so that it can operate with the correct type of gas.	nG - Methane LG - GPL	Set according to the gas being used	
P02	Heating switch-on delay request from room thermostat and remote control	The boiler is set to switch-on 3 seconds after the request. In the event of particular systems (e.g. area systems with motorised thermostatic valves etc.) it may be necessary to delay ignition.	00 - 20 (00 = 3 seconds 01 = 30 seconds 02 = 60 seconds 20 = 600 seconds)	00	
P03	Solar panels selection	By selecting this function, the boiler is set to be used with solar panels. If parameter P03 is set to "solar" mode, the shutdown is related to the set DHW set. In OFF mode, the burner is switched off at the maximum value.	on - oF	oF	
P04	Solar delay	The boiler is set to switch-on immediately after a request for DHW. In the case of coupling with a solar storage tank positioned upstream from the boiler, it is possible to compensate the distance between the storage tank and the boiler in order to allow the water to reach the boiler. Set the time necessary to verify that the water is hot enough.	00 - 60 (00 = Function deactivated) 01 - 60 seconds	00	
P05	Minimum central heating output	The boiler also has electronic modulation that adapts the boiler potentiality to the effective heating demand of the house. Then the boiler works normally in a variable gas pressure field between the minimum heating output and the maximum central heating output depending on the system's heating load.	00 - 63 %	00	
P06	Maximum central heating output	N.B.: the boiler is produced and calibrated in the central heating phase at nominal output. Approximately 10 minutes are needed to reach the nominal heat output, which can be changed using the parameter (P08). N.B.: the selection of the "Minimum heating output" and "Maximum heating output" parameters, in the presence of a heating request, allows switch-on of the boiler and power supply of the modulator with current equal to the value of the respective set value.	00 - 100%	100	
P07	Central heating ignitions timer	The boiler has an electronic timer, which prevents the burner from igniting too often in central heating mode.	0 - 10 minutes (0 = 30 seconds)	03	
P08	Heating ramp timing	In the ignition phase, the boiler performs an ignition ramp in order to arrive at the maximum nominal power set.	0 - 10 minutes (0 = 30 seconds)	05	
P09	Boiler type	Not used on this model.	00	00	

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Id Parameter	Parameter	Description	Range	Default	Value value
P10	Ignition power	Establishes the power at which the boiler must switch on. The 1st gas valve step soft ignition step can be set. The ignition power increases as the parameter value is increased.	00 - 40	00 = Methane	
				20 - GPL	
P11	Minimum heating setting	Defines the minimum flow temperature.	38 - 55°C	38°C	
P12	Maximum heating setting	Defines the maximum flow temperature.	38 - 85°C	85°C	
P13	Temperature gradient	Change the insufficient circulation intervention value (E27) (Attention: do not change this parameter)	00 - 15	11	
			(0 = Function deactivated)		
P14	Pump functioning	The pump can work in two ways: OFF intermittent: in "Winter" mode the pump is managed by the room thermostat or by the remote control. ON continuous: in "winter" mode the pump is always powered and is therefore always in operation.	oF - on	oF	
P15	Gas valve calibration	Allows to perform the calibration of the gas valve 5 = full calibration different from 5 = calibration correction	00 - 20	00	
P16	Valve check	Attention: do not change this parameter.	00 - 02	02	
P17	Flow off temperature increase (central heating)	Increases the flow off temperature at ignition only in the first 30 seconds.	00 = Function deactivated	01	
			01 = Function activated		
P18	Ignition phase no. of fan revs	Defines the operating speed of the fan during the ignition phase (Attention: the number of revs must not be changed)	200 - 220 (x10 = RPM)	210 (x10 = RPM)	
P19	Minimum no. of fan revs	Defines the operating speed of the fan at minimum power (Attention: the number of revs must not be changed)	185 - 205 (x10 = RPM)	195 (x10 = RPM)	
P20	Maximum no. of fan revs	Defines the operating speed of the fan at maximum power (Attention: the number of revs must not be changed)	270 - 300 (x10 = RPM)	290 (x10 = RPM)	

3.10 SOLAR PANELS COUPLING FUNCTION

The boiler is prepared to receive pre-heated water from a system of solar panels up to a maximum temperature of 65°C. In any case, it is always necessary to install a mixing valve on the hydraulic circuit upstream of the boiler, on the cold water inlet.

i For good functioning of the boiler; the temperature selected on the solar valve must be 5 °C greater with respect to the temperature selected on the boiler control panel.

In this condition, parameter P03 (selection of solar panels) must be set at "on" and parameter P04 (solar delay) must be set for a period that is sufficient to receive water from a storage tank located upstream of the boiler. The greater the distance from the storage tank, the longer the stand-by time to be set.

3.11 "CHIMNEY SWEEP" FUNCTION

i This function is not activated if there is a DHW request.

When activated, this function forces the boiler to variable output for 15 minutes on the central heating side.

In this state all adjustments are excluded and only the temperature safety thermostat and the limit thermostat remain active (temperature is limited by the parameter "P12").

To activate the chimney sweep function, press the (RESET) key for at least 5 seconds. Its activation is indicated by the flashing symbols 8 and 11 (Fig. 36).

This function allows the technician to check the combustion parameters.

After the checks disable the function, switching the boiler off and then on again or simply by pressing the reset button for about 5 seconds (key 1 Fig. 36).

The maximum heating power can be set to P06 and P05 by pressing buttons (⬆) or (⬇).

The power can be adjusted by one percentage point by pressing buttons (⬆) or (⬇).

If you wish to run the "chimney sweep" function in D.H.W., open a D.H.W. tap after switching the burner on.

! Ensure a sufficient DHW flow, in order to avoid high temperatures of the water.

The maximum boiler power can be set to 0% and 100% by pressing buttons (⬆) or (⬇).

The power can be adjusted by one percentage point by pressing buttons (⬆) or (⬇).



The display of the boiler power percentage alternates with the display of the temperature read by the flow probe.

3.12 HEATING TIMER

The boiler has electronic timing, which prevents the burner from igniting too often in central heating mode. The boiler is supplied as per standard with a timer adjusted at 3 minutes.

To adjust the timer values, follow instructions for parameter settings by selecting parameter (P07) and set it with one of the values indicated on the relative table.

3.13 THREE-WAY ANTI-BLOCK SYSTEM

The boiler is supplied with a function that activates the motorised three-way unit at least every 24 hours, carrying out a complete cycle in order to reduce the risk of three-way block due to prolonged inactivity.

3.14 PUMP ANTI-BLOCK FUNCTION

In the "summer" functioning mode (☀) the boiler has a function that starts the pump at least once every 24 hours for 10 seconds in order to reduce the risk of the pump becoming blocked due to prolonged inactivity.

In the "winter" functioning mode (❄) the boiler has a function that makes the pump start at least once every 3 hours for 10 seconds.

3.15 RADIATORS ANTIFREEZE FUNCTION

If the system return water is below 4°C, the boiler starts up until reaching 42°C.

3.16 P.C.B. PERIODICAL SELF-CHECK

During functioning in central heating mode or with boiler in standby, the function activates every 18 hours after the last boiler check/power supply. In case of functioning in domestic hot water mode the self-check starts within 10 minutes after the end of the withdrawing in progress, for duration of approx. 10 seconds.



During the self-check the boiler remains inactive. Notifications included.

3.17 CASING REMOVAL

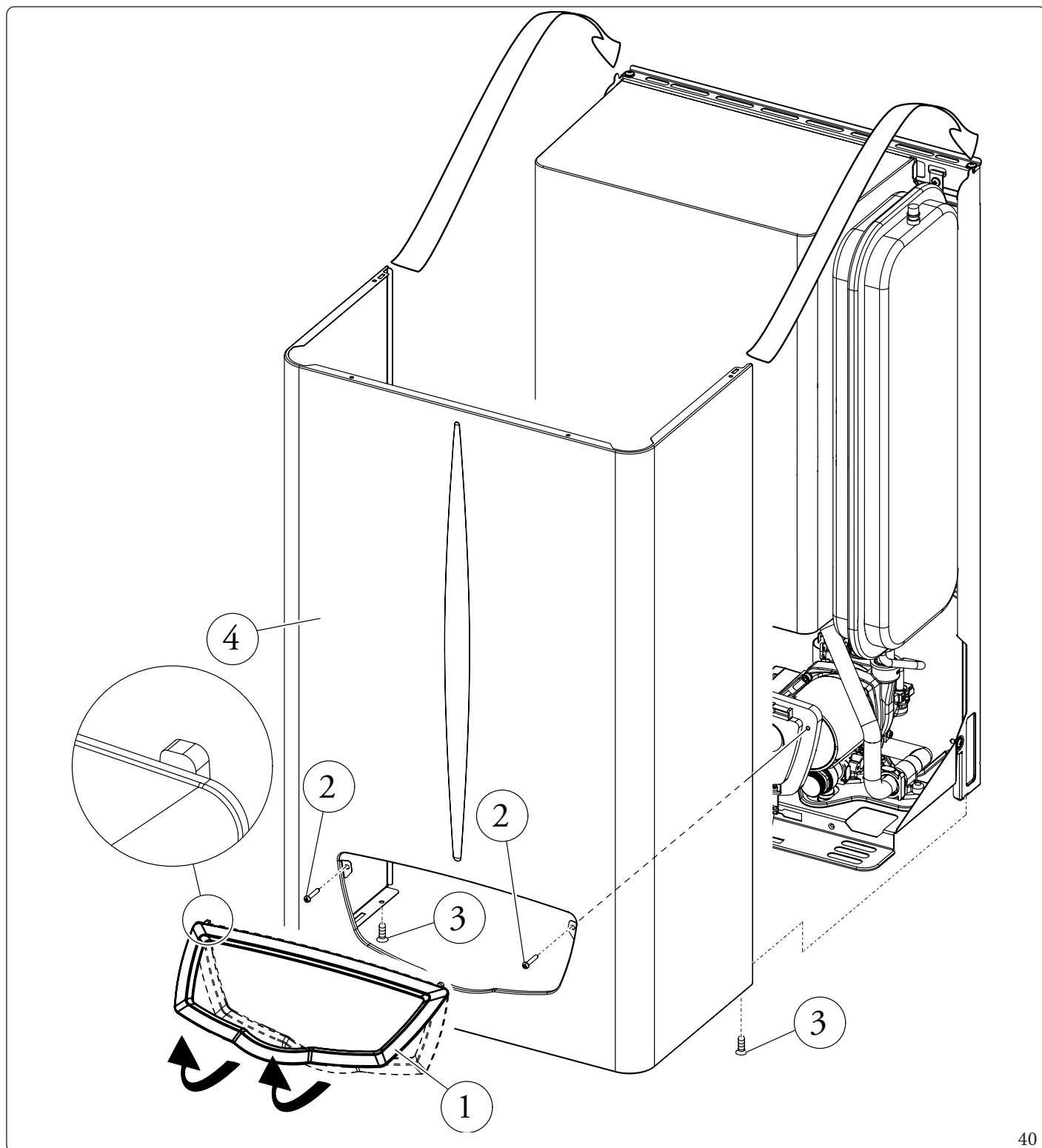
To facilitate boiler maintenance the casing can be completely removed as follows:

(Fig. 40).

1. Remove the frame (1) holding the edges and pulling it towards you as indicated by the arrows;

2. Pull the casing (4) towards you and up at the same time to detach it from the upper hooks.

3. Undo the 2 front screws (2) and the 2 lower screws (3) which fasten the casing (4);



4 TECHNICAL DATA

4.1 VARIABLE HEAT OUTPUT



The power data in the table has been obtained with intake-exhaust pipe measuring 0.5 m in length. Gas flow rates refer to net calorific value below a temperature of 15°C and at a pressure of 1013 mbar.

		METHANE (G20)			PROPANE (G31)			
HEAT OUTPUT	HEAT OUTPUT		GASFLOWRATE BURNER	PRESSURE NOZZLE		GASFLOWRATE BURNER	PRESSURE NOZZLE	
				(kW)	(kcal/h)		(m ³ /h)	(kPa)
22.6	19436	HEAT. + D.H.W.	2.52	1.36	138.7	1.85	3.67	374.2
22.0	18920		2.46	1.29	132.0	1.80	3.50	357.2
21.0	18060		2.35	1.19	120.9	1.72	3.23	329.0
20.0	17200		2.24	1.08	109.9	1.64	2.95	301.2
19.0	16340		2.13	0.97	99.3	1.56	2.69	274.0
18.0	15480		2.02	0.87	89.1	1.48	2.43	247.8
17.0	14620		1.91	0.78	79.5	1.40	2.19	222.9
16.0	13760		1.80	0.69	70.5	1.32	1.96	199.5
15.0	12900		1.69	0.61	62.4	1.24	1.75	178.0
14.0	12040		1.58	0.54	55.1	1.16	1.55	158.3
13.0	11180		1.47	0.47	48.4	1.08	1.37	140.0
12.0	10320		1.36	0.41	42.2	1.00	1.20	122.8
11.0	9460		1.25	0.36	36.4	0.92	1.05	106.6
10.0	8600		1.14	0.3	30.9	0.83	0.89	90.9
9.1	7826		1.04	0.26	26.0	0.76	0.76	77.0

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

4.2 COMBUSTION PARAMETERS

Gas type		G20	G31
Supply pressure	mbar (mm H ₂ O)	20 (204)	37 (377)
Gas nozzle diameter	mm	0.82	0.48
Flue flow rate at D.H.W. nominal heat output	kg/h (g/s)	47 (13.13)	50 (13.81)
Flue flow rate at heating nominal heat output	kg/h (g/s)	50 (13.81)	51 (14.14)
Flue flow rate at min heat output	kg/h (g/s)	34.18 (9.85)	33.12 (10.01)
CO ₂ to nominal Q.	%	7.3 (±0,2)	7.9 (±0,2)
CO ₂ to ignition Q.	%	3.95 (±0,2)	4.7 (±0,2)
CO ₂ to minimum Q.	%	3.95 (±0,2)	4.7 (±0,2)
CO with 0% O ₂ at Nom./Min. Q.	ppm	121 / 25	92 / 38
NO _x with 0% O ₂ at Nom./Min. Q.	mg/kWh	55 / 25	42 / 26
Flue temperature at nominal output	°C	70	69
Flue temperature at minimum output	°C	70	67
Max air combustion temperature	°C	50	50

Combustion parameters: measuring conditions of useful efficiency (flow temperature/return temperature= 80/60 °C), ambient temperature reference = 15°C.

Concentric intake/exhaust available head with flue gas diaphragm Ø80	Concentric intake/exhaust available head with flue gas diaphragm Ø77	Concentric intake/exhaust available head without diaphragm
Pa	Pa	Pa
33	43	60

Ø80 flexible intake/exhaust available head with Ø45 flue diaphragm	Ø80 flexible intake/exhaust available head with Ø55 flue diaphragm
Pa	Pa
24	80

4.3 TECHNICAL DATA TABLE

Domestic hot water nominal heat input	kW (kcal/h)	23.8 (20502)
Central heating nominal heat input	kW (kcal/h)	23.8 (20502)
Minimum heat input	kW (kcal/h)	9.8 (8423)
Domestic hot water nominal heat output (useful)	kW (kcal/h)	22.6 (19436)
Central heating nominal heat output (useful)	kW (kcal/h)	22.6 (19436)
Minimum heat output (useful)	kW (kcal/h)	9.1 (7826)
*Effective thermal efficiency 80/60 Nom./Min.	%	94.8/94.8
*Effective thermal efficiency 50/30 Nom./Min.	%	101.6/100.5
*Effective thermal efficiency 40/30 Nom./Min.	%	102.3/100.5
Casing losses with burner On/Off (80-60°C)	%	0,59/4,70
Chimney losses with burner On/Off (80-60°C)	%	0,01/0,50
Central heating circuit max. operating pressure	bar (MPa)	3,0 (0,30)
Maximum heating temperature	°C	90
Adjustable central heating temperature (min. operating field)	°C	38
Adjustable central heating temperature (max operating field)	°C	85
System expansion vessel total volume	l	4.2
Expansion vessel pre-charged pressure	bar (MPa)	1,0 (0,10)
Appliance water content	l	2
Head available with 1000l/h flow rate	kPa (m H ₂ O)	21,7 (2,2)
Hot water production useful heat output	kW (kcal/h)	22.6 (19436)
Domestic hot water adjustable temperature	°C	30-60
Domestic hot water circuit min. pressure (dynamic)	bar (MPa)	0,3 (0,03)
Domestic hot water circuit max. operating pressure	bar (MPa)	10,0 (1,00)
Flow rate capacity in continuous duty (ΔT 30°C)	l/min	11.4
Weight of full boiler	kg	32.8
Weight of empty boiler	kg	30.8
Electrical connection	V/Hz	230/50
Nominal power absorption	A	0.65
Installed electric power	W	100
Pump absorbed power	W	41
EEI value	-	≤0,20 - Part. 3
Fan power absorbed power	W	47
Equipment electrical system protection	-	IPX5D
Max temperature of combustion products	°C	75
Max. flue overheating temperature	°C	120
Ambient operating temperature range	°C	-5 ÷ +40
Ambient operating temperature range with optional antifreeze kit	°C	-15 ÷ +40
NOX class	-	6
Weighted NOX	mg/kWh	26
Weighted CO	mg/ppm	49
Type of appliance	-	C12-C12x-C32-C32x-C42-C42x-C52-C52x-C62-C62x-C82-C82x-C92-C92x B22p-B32-B52p

Category	-	II 2H3P
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The data relating to domestic hot water performance refer to a dynamic inlet pressure of 2 bar and an inlet temperature of 15°C; the values are measured immediately at the boiler outlet, considering that to obtain the data declared, mixing with cold water is required.

* The efficiency values refer to the lower calorific value.

The weighted NO_x value refer to the net calorific value.

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MAINTENANCE TECHNICIAN

TECHNICAL DATA

4.4 KEY FOR DATA NAMEPLATE

Md		Cod. Md	
Sr N°	CHK	Cod. PIN	
Type			
Q _{nw} /Q _n min.	Q _{nw} /Q _n max.	P _n min.	P _n max.
PMS	PMW	D	TM
NO _x Class			
			CONDENSING

41



The technical data is provided on the data nameplate on the boiler.

	ENG
Md	Model
Cod. Md	Model code
Sr N°	Serial Number
CHK	Check
Cod. PIN	PIN code
Type	Type of installation (ref. CENTR 1749)
Q _{nw} min.	Minimum DHW heat input
Q _n min.	Central heating minimum heat input
Q _{nw} max.	DHW maximum heat input
Q _n max.	Central heating maximum heat input
P _n min.	Minimum heat output
P _n max.	Maximum heat output
PMS	Maximum system pressure
PMW	Maximum domestic hot water pressure
D	Specific flow rate
TM	Maximum operating temperature
NO _x Class	NO _x Class
CONDENSING	Condensing boiler

4.5 TECHNICAL PARAMETERS FOR COMBINATION BOILERS (IN COMPLIANCE WITH REGULATION 813/2013)

Model/s:				MYTHOSH P				
Condensing Boilers:				YES				
Low temperature boiler:				NO				
Boiler type B1:				NO				
Co-generation appliance for central heating:				NO			Fitted with supplementary heating system:	NO
Mixed heating appliance:				YES				
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit	
Nominal heat output	P#p pp#	23	kW	Seasonal energy efficiency of central heating	η_S	86	%	
For central heating only and combination boilers: useful heat output				For central heating only and combination boilers: useful efficiency				
At nominal heat output in high temperature mode (*)	P4	22,6	kW	At nominal heat output in high temperature mode (*)	η_4	85,4	%	
At 30% of nominal heat output in a low temperature mode (**)	P1	7,2	kW	At 30% of nominal heat output in a low temperature mode (**)	η_1	90,5	%	
Auxiliary electricity consumption				Other items				
At full load	elmax	0,054	kW	Heat loss in standby	Pstby	0,077	kW	
At partial load	elmin	0,027	kW	Ignition burner energy consumption	Pign	0,000	kW	
In standby mode	PSB	0,004	kW	Emissions of nitrogen oxides	NOx	23	mg/ kWh	
For mixed central heating appliances								
Stated load profile	XL			Domestic hot water production efficiency	η_{WH}	80	%	
Daily electrical power consumption	Qelec	0,183	kWh	Daily gas consumption	Qfuel	24,510	kWh	
Contact information	IMMERGASS.p.A. Priemysel'ná ul. 4789, Poprad-Matejovce 05951							
(*) High temperature mode means 60°C on return and 80°C on flow.								
(**) Low temperature mode for condensation Boilers means 30°C, for low temperature boilers 37°C and for other appliances 50°C of return temperature.								

The efficiencies and NOx values in the following tables refer to the gross calorific value.

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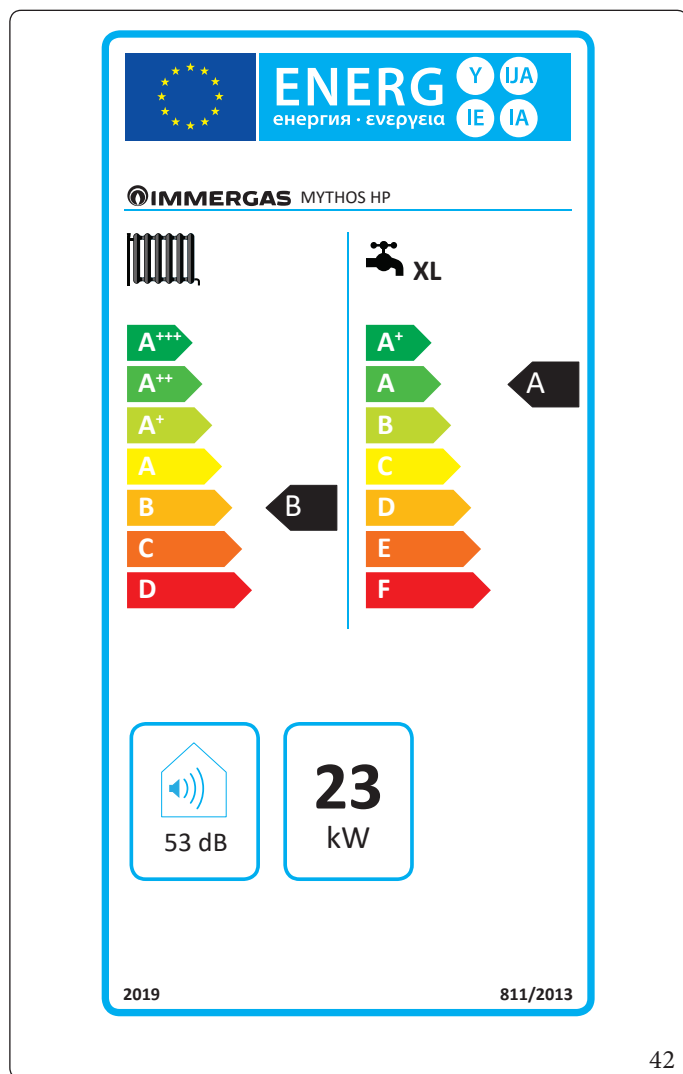
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TECHNICAL DATA

4.6 PRODUCT FICHE (IN COMPLIANCE WITH REGULATION 811/2013)

Mythos HP



Parameter	value
Annual energy consumption for the central heating mode (QHE)	75,9 GJ
Annual electricity consumption for the domestic hot water function (AEC)	40 kWh
Annual fuel consumption for the domestic hot water function (AFC)	19 GJ
Seasonal space heating energy efficiency (η_s)	86 %
Water heating energy efficiency (η_{wh})	80 %

For proper installation of the device, refer to chapter 1 of this booklet (for the installer) and current installation regulations. For proper maintenance refer to chapter 3 of this booklet (for the maintenance technician) and adhere to the frequencies and methods set out herein.

4.7 PARAMETERS FOR FILLING IN THE PACKAGE FICHE

In case you should wish to install an assembly, starting from this boiler, use the assembly charts in (Fig. 44 and 46).

To complete it properly, fill the relevant spaces as shown in the assembly chart facsimile (Fig. 43" and "45) with the values shown in tables "Parameters for filling in the assembly chart" and "Parameters for filling in the D.H.W. package assembly chart".

The remaining values must be obtained from the technical data sheets of the products used to make up the assembly (e.g. solar devices, integration heat pumps, temperature controllers).

Use board (Fig. 44) for "assemblies" related to the central heating mode (e.g.: boiler + temperature controller).

Use board (Fig. 46) for "assemblies" related to the domestic hot water function (e.g.: boiler + solar thermal system).

Facsimile for filling in the package fiche for room central heating systems.

Efficienza energetica stagionale di riscaldamento d'ambiente della caldaia	<input type="text" value="'I'"/>	%
Controllo della temperatura Dalla scheda di controllo della temperatura	Classe I = 1 %, Classe II = 2 %, Classe III = 1,5 %, Classe IV = 2 %, Classe V = 3 %, Classe VI = 4 %, Classe VII = 3,5 %, Classe VIII = 5 %	+ <input type="text"/>
Caldaia supplementare Dalla scheda della caldaia	Efficienza energetica stagionale di riscaldamento d'ambiente (in %)	(<input type="text"/> - 'I') x 0,1 = ± <input type="text"/>
Contributo solare Dalla scheda del dispositivo solare	Dimensioni del collettore (in m ²) Volume del serbatoio (in m ³) Efficienza del collettore (in %)	Classificazione del serbatoio A* = 0,95, A = 0,91, B = 0,86, C = 0,83, D-G = 0,81
	('III' x <input type="text"/> + 'IV' x <input type="text"/>) x (0,9 x (<input type="text"/> / 100) x <input type="text"/>	= + <input type="text"/>
Pompa di calore supplementare Dalla scheda della pompa di calore	Efficienza energetica stagionale di riscaldamento d'ambiente (in %)	(<input type="text"/> - 'I') x 'II' = + <input type="text"/>
Contributo solare E pompa di calore supplementare	Selezionare il valore più basso	0,5 x <input type="text"/> O 0,5 x <input type="text"/> = - <input type="text"/>
Efficienza energetica stagionale di riscaldamento d'ambiente dell'insieme		<input type="text"/>
Classe di efficienza energetica stagionale di riscaldamento d'ambiente dell'insieme	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> G F E D C B A A+ A++ A+++ < 30 % ≥ 30 % ≥ 34 % ≥ 36 % ≥ 75 % ≥ 82 % ≥ 90 % ≥ 98 % ≥ 125 % ≥ 150 %	
Caldaia e pompa di calore supplementare installata con emettitori di calore a bassa temperatura a 35 °C? Dalla scheda della pompa di calore	<input type="text"/>	+ (50 x 'II') = <input type="text"/>

L'efficienza energetica dell'insieme di prodotti indicata nella presente scheda può non corrispondere all'efficienza energetica effettiva a installazione avvenuta poiché tale efficienza è influenzata da ulteriori fattori, quali la dispersione di calore nel sistema di distribuzione e la dimensione dei prodotti rispetto alle dimensioni e alle caratteristiche dell'edificio.

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

Parameters for filling in the assembly chart

Parameter	MYTHOSH P
"I"	86
"II"	*
"III"	1,18
"IV"	0,46

* to be established by means of table 5 of Regulation 811/2013 in case of "assembly" including a heat pump to integrate the boiler. In this case the boiler must be considered as the main appliance of the assembly.

Room central heating system package fiche.

Efficienza energetica stagionale di riscaldamento d'ambiente della caldaia 1 %

Controllo della temperatura 2 %
 Dalla scheda di controllo della temperatura Classe I = 1 %, Classe II = 2 %, Classe III = 1,5 %, Classe IV = 2 %, Classe V = 3 %, Classe VI = 4 %, Classe VII = 3,5 %, Classe VIII = 5 %

Caldaia supplementare 3 %
 Dalla scheda della caldaia Efficienza energetica stagionale di riscaldamento d'ambiente (in %)
 $(\text{input} - \text{input}) \times 0,1 = \pm \text{input} \%$

Contributo solare 4 %
 Dalla scheda del dispositivo solare Dimensioni del collettore (in m²) Volume del serbatoio (in m³) Efficienza del collettore (in %) Classificazione del serbatoio
A* = 0,95, A = 0,91, B = 0,86, C = 0,83, D-G = 0,81
 $(\text{input} \times \text{input} + \text{input} \times \text{input}) \times (0,9 \times (\text{input} / 100) \times \text{input}) = + \text{input} \%$

Pompa di calore supplementare 5 %
 Dalla scheda della pompa di calore Efficienza energetica stagionale di riscaldamento d'ambiente (in %)
 $(\text{input} - \text{input}) \times \text{input} = + \text{input} \%$

Contributo solare E pompa di calore supplementare 6 %
 Selezionare il valore più basso $0,5 \times \text{input} \text{ O } 0,5 \times \text{input} = - \text{input} \%$

Efficienza energetica stagionale di riscaldamento d'ambiente dell'insieme 7 %

Classe di efficienza energetica stagionale di riscaldamento d'ambiente dell'insieme

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %

Caldaia e pompa di calore supplementare installata con emettitori di calore a bassa temperatura a 35 °C? 7 + (50 x) = %
 Dalla scheda della pompa di calore

L'efficienza energetica dell'insieme di prodotti indicata nella presente scheda può non corrispondere all'efficienza energetica effettiva a installazione avvenuta poiché tale efficienza è influenzata da ulteriori fattori, quali la dispersione di calore nel sistema di distribuzione e la dimensione dei prodotti rispetto alle dimensioni e alle caratteristiche dell'edificio.



Facsimile for filling in the domestic hot water production system package fiche

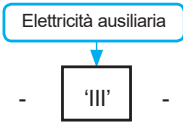
Efficienza energetica di riscaldamento dell'acqua della caldaia mista

¹
 %

Profilo di carico dichiarato:

Contributo solare

Dalla scheda del dispositivo solare



$$(1,1 \times 'I' - 10\%) \times 'II' - 'III' - 'I' = + \text{} \%$$

Efficienza energetica di riscaldamento dell'acqua dell'insieme in condizioni climatiche medie

³
 %

Classe di efficienza energetica di riscaldamento dell'acqua dell'insieme in condizioni climatiche medie

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
<input type="checkbox"/> M	< 27 %	≥ 27 %	≥ 30 %	≥ 33 %	≥ 36 %	≥ 39 %	≥ 65 %	≥ 100 %	≥ 130 %	≥ 163 %
<input type="checkbox"/> L	< 27 %	≥ 27 %	≥ 30 %	≥ 34 %	≥ 37 %	≥ 50 %	≥ 75 %	≥ 115 %	≥ 150 %	≥ 188 %
<input type="checkbox"/> XL	< 27 %	≥ 27 %	≥ 30 %	≥ 35 %	≥ 38 %	≥ 55 %	≥ 80 %	≥ 123 %	≥ 160 %	≥ 200 %
<input type="checkbox"/> XXL	< 28 %	≥ 28 %	≥ 32 %	≥ 36 %	≥ 40 %	≥ 60 %	≥ 85 %	≥ 131 %	≥ 170 %	≥ 213 %

Efficienza energetica di riscaldamento dell'acqua in condizioni climatiche più fredde e più calde

Più freddo: ³ - 0,2 x ² = %

Più caldo: ³ + 0,4 x ² = %

L'efficienza energetica dell'insieme di prodotti indicata nella presente scheda può non corrispondere all'efficienza energetica effettiva a installazione avvenuta poiché tale efficienza è influenzata da ulteriori fattori, quali la dispersione di calore nel sistema di distribuzione e la dimensione dei prodotti rispetto alle dimensioni e alle caratteristiche dell'edificio.

Parameters for filling in the DHW package fiche

Parameter	MYTHOSHP
"I"	80
"II"	*
"III"	*

* to be determined according to Regulation 811/2013 and transient calculation methods as per Notice of the European Community no. 207/2014.

Domestic hot water production system package fiche.

Efficienza energetica di riscaldamento dell'acqua della caldaia mista 1 %

Profilo di carico dichiarato:

Contributo solare

Dalla scheda del dispositivo solare

Elettricità ausiliaria

↓

(1,1 x - 10 %) x - - = + 2 %

Efficienza energetica di riscaldamento dell'acqua dell'insieme in condizioni climatiche medie 3 %

Classe di efficienza energetica di riscaldamento dell'acqua dell'insieme in condizioni climatiche medie

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	G	F	E	D	C	B	A	A⁺	A⁺⁺	A⁺⁺⁺
<input type="checkbox"/> M	< 27 %	≥ 27 %	≥ 30 %	≥ 33 %	≥ 36 %	≥ 39 %	≥ 65 %	≥ 100 %	≥ 130 %	≥ 163 %
<input type="checkbox"/> L	< 27 %	≥ 27 %	≥ 30 %	≥ 34 %	≥ 37 %	≥ 50 %	≥ 75 %	≥ 115 %	≥ 150 %	≥ 188 %
<input type="checkbox"/> XL	< 27 %	≥ 27 %	≥ 30 %	≥ 35 %	≥ 38 %	≥ 55 %	≥ 80 %	≥ 123 %	≥ 160 %	≥ 200 %
<input type="checkbox"/> XXL	< 28 %	≥ 28 %	≥ 32 %	≥ 36 %	≥ 40 %	≥ 60 %	≥ 85 %	≥ 131 %	≥ 170 %	≥ 213 %

Efficienza energetica di riscaldamento dell'acqua in condizioni climatiche più fredde e più calde

Più freddo: 3 - 0,2 x 2 = 4 %

Più caldo: 3 + 0,4 x 2 = 4 %

L'efficienza energetica dell'insieme di prodotti indicata nella presente scheda può non corrispondere all'efficienza energetica effettiva a installazione avvenuta poiché tale efficienza è influenzata da ulteriori fattori, quali la dispersione di calore nel sistema di distribuzione e la dimensione dei prodotti rispetto alle dimensioni e alle caratteristiche dell'edificio.





The instruction manual is printed on environmentally-friendly paper.



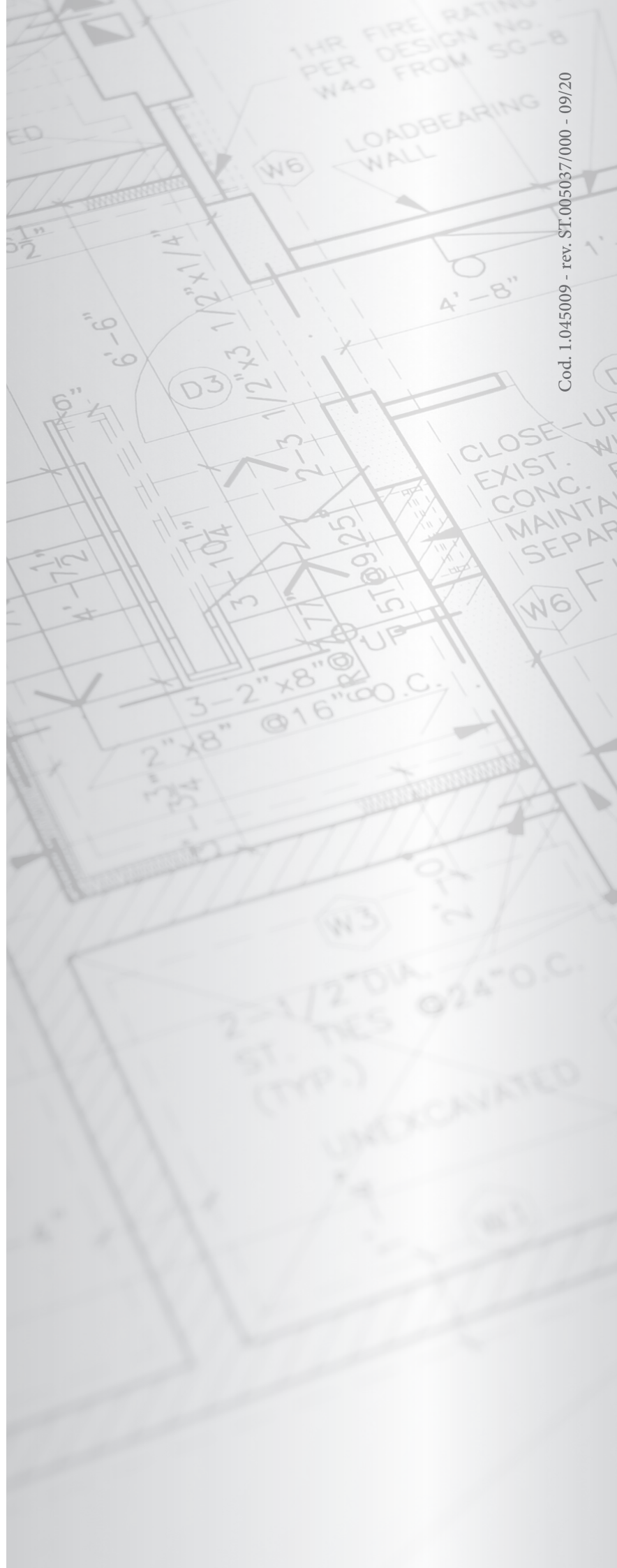
immergas.com

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IMMERGAS
UNI EN ISO 9001:2015
CERTIFIED
QUALITY SYSTEM

Design, manufacture and after-sales assistance of gas boilers, gas water heaters and relative accessories



Cod. 1.045009 - rev. ST.005037/000 - 09/20