

MANUALS  
USERS

Instructions and recommendations

IE

Installer

User

Maintenance technician

\*L042016ENG\*



 **IMMERGAS**

**VICTRIX OMNIA**





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## Dear Customer

Our compliments for having chosen a top-quality Immergas product, able to ensure well-being and safety for a long period of time. As an Immergas Customer, you can also count on a qualified after-sales service, prepared and updated to guarantee constant efficiency of your boiler. Read the following pages carefully: you will be able to draw useful tips on the correct use of the device, compliance of which will confirm your satisfaction with the Immergas product.

For assistance and routine maintenance, contact Authorised Technical Service Centres: they have original spare parts and are specifically trained directly by the manufacturer.



## 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.
- **Every operation carried out on the heat pump (e.g. set up, inspection, installation and commissioning), must mandatorily be performed by authorised personnel alone and in possession of a technical engineering or professional degree qualifying them to perform these tasks. They must also have attended a refresher course acknowledged by competent authorities. This particularly applies to personal specialised in C.H. and air-conditioning systems and qualified electricians who, due to their specialised training, skills and experience are experts in the correct installation and maintenance of C.H., cooling and air-conditioning systems.**
- 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.

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

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

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.

## 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:

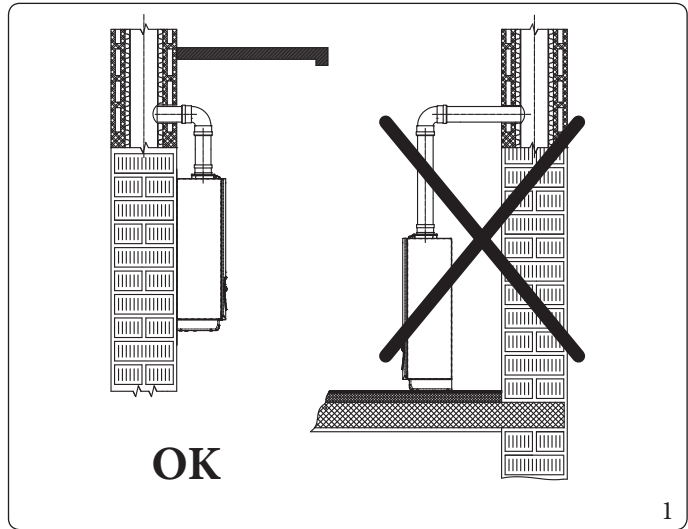
- **Type B<sub>23</sub> or B<sub>33</sub>** boiler if installed using the relevant terminal for air intake directly from the room in which the boiler has been installed.
- **Type C boiler** if installed using concentric pipes or other types of pipes envisioned for the sealed chamber boiler for intake 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 or propane air supply 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).**



If installing a kit or servicing the appliance, always empty the system's domestic hot water circuit first so as not to compromise the appliance's electrical safety (Parag. 2.9, 2.10).

Always disconnect the appliance from voltage and, depending on the type of operation, decrease the pressure and/or bring it to zero in the gas and DHW circuits.



If the boiler is connected to a low temperature direct area, it is necessary to check the necessary flow rate and, if necessary, add a booster pump.



Before installing the appliance, ensure that it is delivered in perfect condition; if in doubt, contact the supplier immediately.

Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children.

If the appliance is installed inside or between cabinets, ensure sufficient space for routine servicing; for minimum installation distances, see Fig. 3.



**It is just as important that the intake grids and exhaust terminals are not obstructed.**



**Check that no flue gas recirculation is found in the air sample points. Allow the appliance to reach the maximum heat output; the CO<sub>2</sub> value measured in the air must be less than 10% of that measured on the flue gas.**



Keep all flammable objects away from the appliance (paper, rags, plastic, polystyrene, etc.).



The minimum distance for exhaust pipes from flammable materials must be at least 25 cm.



Do not place household appliances underneath the boiler as they could be damaged if the safety valve intervenes, if the drain trap is blocked, or if there are leaks from the hydraulic connections; otherwise, the manufacturer cannot be held responsible for any damage caused to the household appliances.



For the aforementioned reasons, we recommend not placing furnishings, furniture, etc. under the boiler.



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.



Any modification to the appliance that is not explicitly indicated in this section of the booklet is forbidden.



## Installation standards



This boiler can be installed outdoors in a partially protected area.

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



This type of installation is possible when permitted by the laws in force in the appliance's country of destination.



**Installation of gas appliances, flue exhaust pipes and combustion air intake pipes is forbidden in places with a fire risk (for example: garages, closed parking stalls), and in potentially dangerous places.**



**Do not install on the vertical projection of hobs.**



**Do not install in places/rooms that constitute public areas of apartment buildings, internal stairways or other escape routes (e.g. floor landings, entrance halls, etc.).**



**Installation is also forbidden in places/rooms that constitute public areas of apartment buildings such as cellars, entrance halls, attics, lofts, etc., unless otherwise provided for by local regulations in force.**



**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. 41) 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.**



**Unless otherwise provided for by local regulations in force, in configurations B<sub>23</sub> and B<sub>53</sub>, the boilers must not be installed in bedrooms, bathrooms or bedsits. Moreover, they must not be installed in places where solid fuel heat generators are present and in adjoining rooms.**



**The installation rooms must be permanently ventilated, in compliance with the local regulations in force (at least 6 cm<sup>2</sup> 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).**

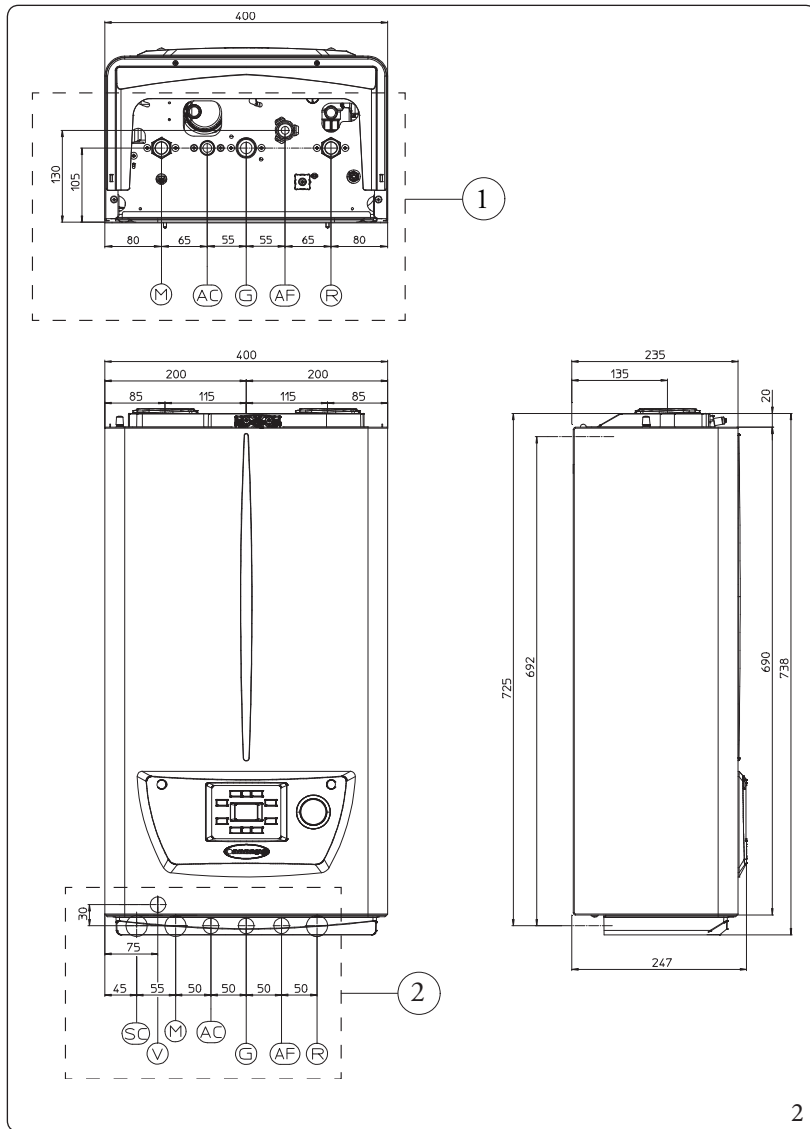


Install the appliances in B<sub>23</sub> and B<sub>53</sub> configuration in non-residential premises and which are permanently ventilated.



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

## 1.2 MAIN DIMENSIONS

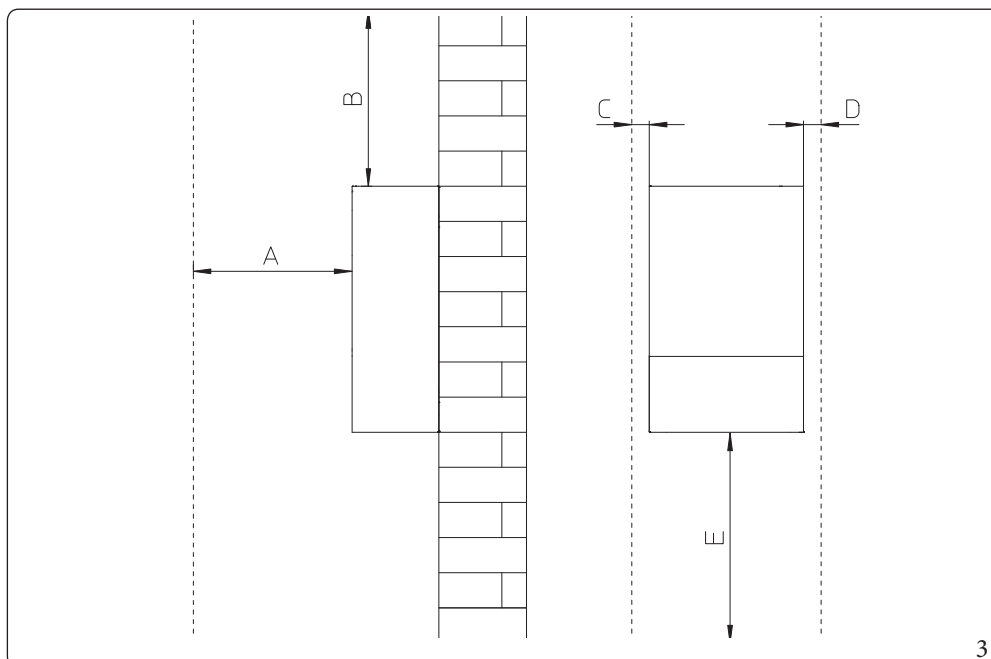


Key (Fig. 2):

- 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
  
- 1 - Boiler direct hydraulic connection
- 2 - Wall-mounted hydraulic connection with Immergas DIN template

Height (mm)	Width (mm)	Depth (mm)		
738	400	247		
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).

### 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.

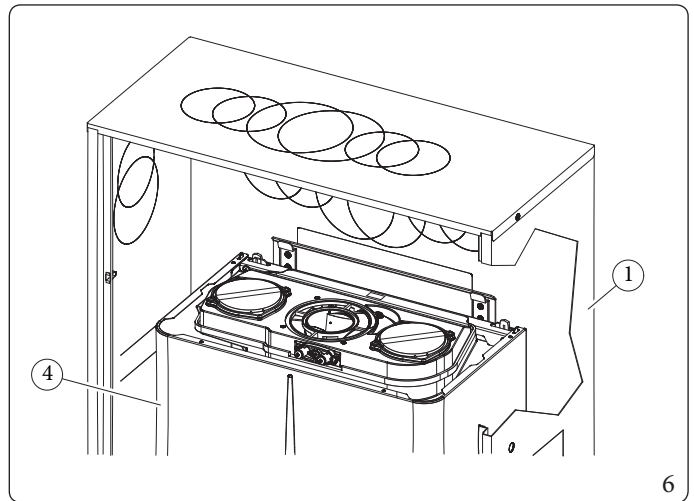
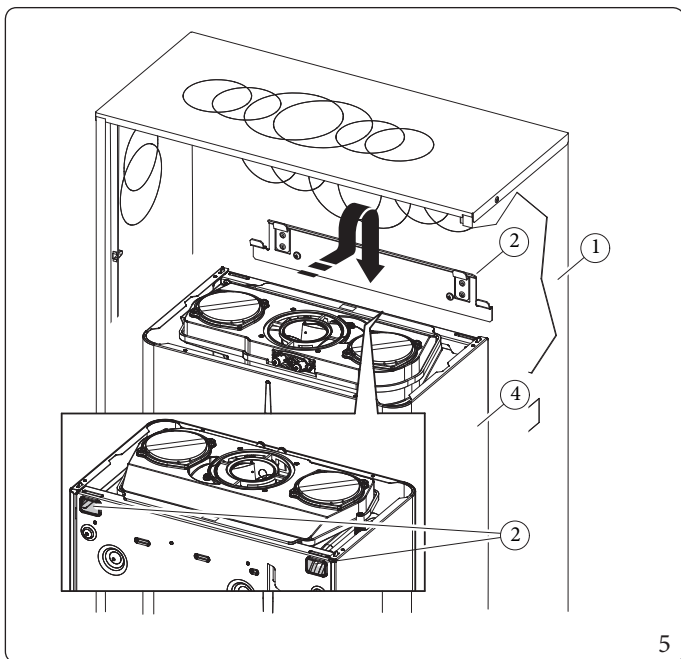
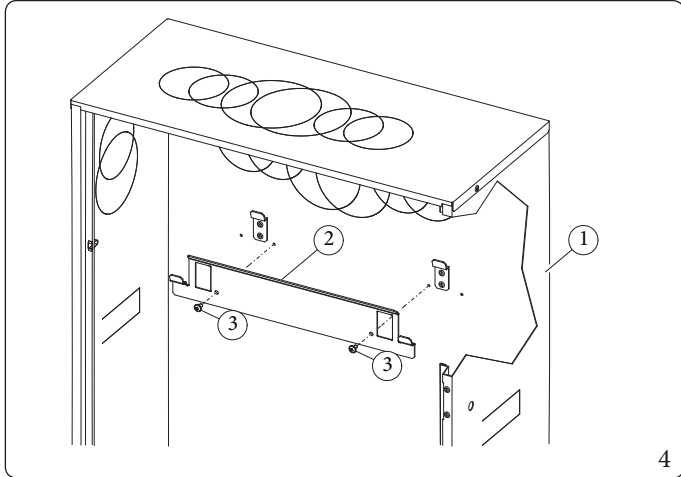
## 1.5 INSTALLATION INSIDE THE RECESSED FRAME (OPTIONAL)

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

The necessary parts for this type of installation (bracket) must also be purchased separately as optional kit.

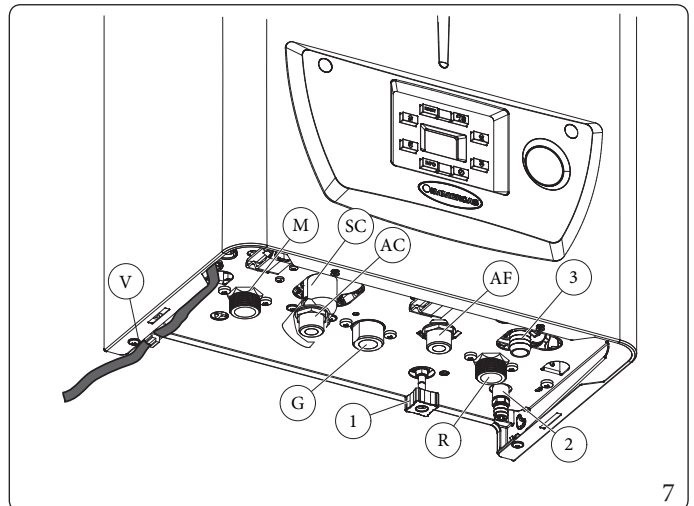
To install proceed as follows:

- Install the bracket (2) inside the recessed frame fixing it with the screws (3) in the pre-drilled holes (Fig. 4).
- Wall-mount the boiler (4) by inserting the hooks of the bracket (2) in the relative seats (Fig. 5).
- The boiler (4) is now mounted inside the recessed frame (1) (Fig. 6).



## 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 in accordance with the type of installation to be made and respecting the arrangement shown in (Fig. 7):



Key (Fig. 7):

- 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) LPG and propane air (50% air - 50% propane). 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 gastypes).



**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 condensation module warranty before making the boiler connections, carefully clean the heating system (pipes, radiators, etc.) with special pickling or descaling 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.

In order not to void the heat exchanger warranty, you are required to comply with what has been prescribed (Par. 1.24).

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 category 2 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. 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. Rotate the control panel and then loosen the screw (b) that secures the control panel's (d) cover.
3. Press the three hooks (c) on the cover (d).
4. Remove the cover (d) from the control panel (e).

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 mm<sup>2</sup> 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.**

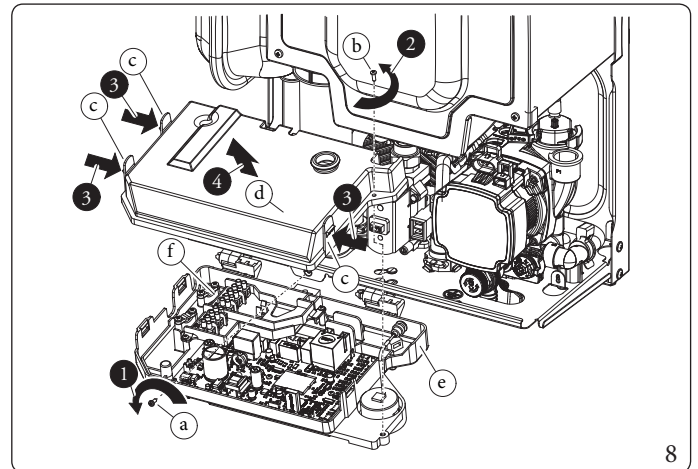
The power cable must follow the prescribed route (Par. 1.6); If the network fuse on the connection terminal board needs replacing, this must also be done by qualified personnel: use a 3.15 A fast fuse.

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 setting the flow temperature adjustment range "t0" and "t1" (Par. 3.13). In this case, it is suitable to add a specific safety kit (optional) made up of a thermostat (with adjustable temperature).

The thermostat must be positioned on the system flow pipe at a distance of at least 2 metres from the boiler.



8



## 1.10 REMOTE CONTROLS AND ROOM CHRONO-THERMOSTATS (OPTIONAL)

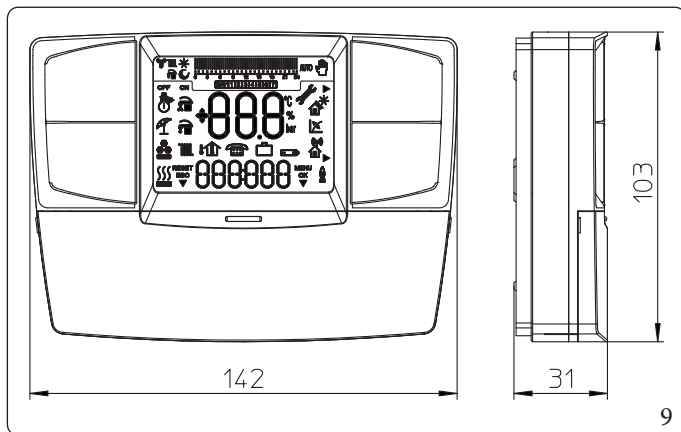
The boiler is prepared for the application of room chrono-thermostats or remote controls, which are available as optional kits (Fig. 9).

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 LR6 type alkaline batteries.

### “Comando Amico Remoto” (Remote Control Device) V<sup>2</sup> (CAR<sup>V2</sup>) with climate chrono-thermostat function.

In addition to the functions described in the previous point, the CAR<sup>V2</sup> 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 CAR<sup>V2</sup> 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) V<sup>2</sup> or On/Off chrono-thermostat electrical connection (Optional).



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

Any On/Off room thermostat or chrono-thermostat must be connected to terminals 44/40 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) V<sup>2</sup> must be connected to terminals 44/40 and 41, eliminating jumper X40 on the P.C.B. (Fig. 40).

The boiler can only be connected to one remote control.



If the Comando Amico Remoto remote control V<sup>2</sup> 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 EXTERNAL TEMPERATURE PROBE (OPTIONAL)

The boiler is designed for the application of the external temperature probe (Fig. 10), which is available as an optional kit.

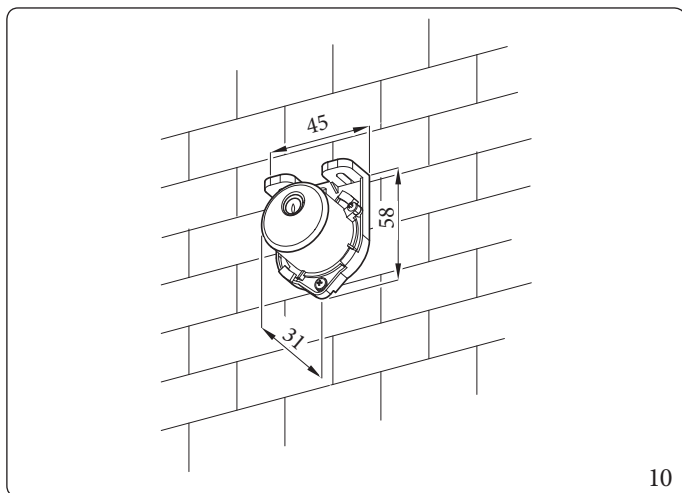
Refer to the relative instruction sheet for positioning of the external probe.

The probe can be connected directly to the boiler electrical system and allows the max. system flow temperature to be automatically decreased when the external temperature increases, in order to adjust the heat supplied to the system according to the change in external temperature.

The external probe always operates when connected, regardless of the presence or type of room chrono-thermostat used and can work in combination with Immergas chrono-thermostats.

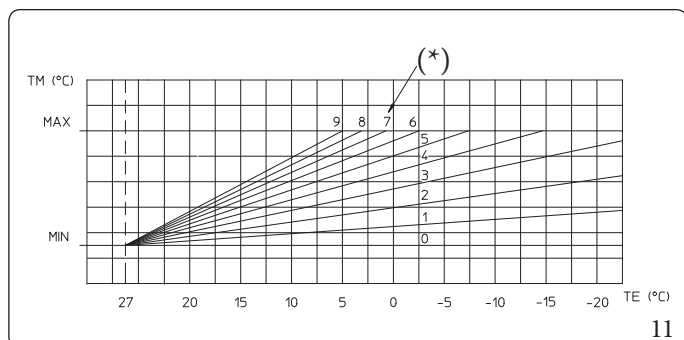
The correlation between system flow temperature and external temperature is determined by the position of the central heating selector switch on the boiler control panel (or on the CAR<sup>V2</sup> control panel if connected to the boiler) according to the curves shown in the diagram (Fig. 11).

The electric connection of the external probe must be made on terminals 38 and 39 on the terminal board in the boiler control panel (Fig. 40).



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**Correction law of the flow temperature depending on the external temperature and user adjustment of the central heating temperature.**



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\* Position of the central heating temperature control.

## 1.12 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 C<sub>6</sub> 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.

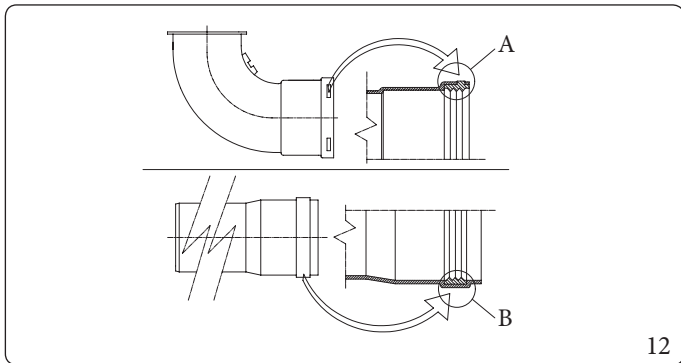
**All boilers have an experimentally obtainable maximum Resistance Factor equal to 100.**

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).



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

Position the gasket correctly (for bends and extensions) (Fig. 12):

- 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.

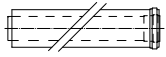


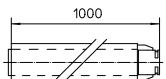
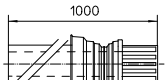




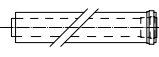


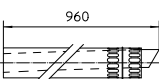











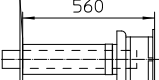
When installing horizontal pipes, a minimum inclination of 1.5% towards the boiler must be maintained, and a section clip with pin must be installed every 3 metres.

#### 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.

### 1.13 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		2,1	1
90° concentric bend 80/125 Ø		3,0	1,4
Concentric bend 45° Ø 80/125		2,1	1
Terminal complete with concentric horizontal intake-exhaust Ø 80/125		2,8	1,3
Terminal complete with concentric vertical intake-exhaust Ø 80/125		3,6	1,7
90° concentric bend Ø 80/125 with inspection		3,4	1,6
Stub pipe with inspection Ø 80/125		3,4	1,6

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 pipe Ø 60	Equivalent length in m of concentric pipe Ø 80/125
Concentric pipe Ø 60/100 m 1		Intake m 6.4	m 1	Intake m 7.3	Exhaust m 1.9	m 3,0
		Exhaust m 6.4		Exhaust m 5.3		
90° concentric bend Ø 60/100		Intake m 8.2	m 1,3	Intake m 9.4	Exhaust m 2.5	m 3,9
		Exhaust m 8.2		Exhaust m 6.8		
45° concentric bend Ø 60/100		Intake m 6.4	m 1	Intake m 7.3	Exhaust m 1.9	m 3,0
		Exhaust m 6.4		Exhaust m 5.3		
Terminal complete with concentric horizontal intake-exhaust Ø 60/100		Intake m 15	m 2,3	Intake m 17.2	Exhaust m 4.5	m 7,1
		Exhaust m 15		Exhaust m 12.5		
Concentric horizontal intake-exhaust terminal Ø 60/100		Intake m 10	m 1,5	Intake m 11.5	Exhaust m 3.0	m 4,7
		Exhaust m 10		Exhaust m 8.3		
Terminal complete with concentric vertical intake-exhaust Ø 60/100		Intake m 16.3	m 2,5	Intake m 18.7	Exhaust m 4.9	m 7,7
		Exhaust m 16.3		Exhaust m 13.6		
Concentric vertical intake-exhaust terminal Ø 60/100		Intake m 9	m 1,4	Intake m 10.3	Exhaust m 2.7	m 4,3
		Exhaust m 9		Exhaust m 7.5		
Pipe Ø 80 m 1		Intake m 0.87	m 0,1	Intake m 1.0	Exhaust m 0.4	m 0,4
		Exhaust m 1.2	m 0,2	Exhaust m 1.0		m 0,5
Complete intake terminal Ø 80 m 1		Intake m 3	m 0,5	Intake m 3.4	Exhaust m 0.9	m 1,4
Intake terminal Ø 80 Exhaust terminal Ø 80		Intake m 2.2	m 0,35	Intake m 2.5	Exhaust m 0.6	m 1
		Exhaust m 1.9	m 0,3	Exhaust m 1.6		m 0,9
90° bend Ø 80		Intake m 1.9	m 0,3	Intake m 2.2	Exhaust m 0.8	m 0,9
		Exhaust m 2.6	m 0,4	Exhaust m 2.1		m 1,2
45° bend Ø 80		Intake m 1.2	m 0,2	Intake m 1.4	Exhaust m 0.5	m 0,5
		Exhaust m 1.6	m 0,25	Exhaust m 1.3		m 0,7
Pipe Ø 60 m 1 for ducting		Exhaust m 3.3	m 0,5	Intake m 3.8	Exhaust m 1.0	m 1,5
				Exhaust m 2.7		
90° bend Ø 60 for ducting		Exhaust m 3.5	m 0,55	Intake m 4.0	Exhaust m 1.1	m 1,6
				Exhaust m 2.9		
Reduction Ø 80/60		Intake m 2.6	m 0,4	Intake m 3	Exhaust m 0.8	m 1,2
		Exhaust m 2.6		Exhaust m 2.1		
Terminal complete with vertical exhaust Ø 60 for piping		Exhaust m 12.2	m 1,9	Intake m 14	Exhaust m 3.7	m 5,8
				Exhaust m 10.1		

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

## 1.14 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  $-5^{\circ}\text{C}$ , use the optional anti-freeze 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 ( $B_{23}$ or $B_{53}$ ).

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 gas exhaust must be connected to its own single chimney ( $B_{23}$ ) or ducted directly outside via a vertical terminal for direct exhaust ( $B_{53}$ ) or via an Immergas ducting system ( $B_{53}$ ).

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. Now cover the left intake hole using the relevant plate, fixing it onto the right side using the 2 previously-removed screws.

Install the  $\varnothing 80$  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 upper cover, fixing it using the 4 screws present in the kit, positioning the relevant gaskets.

Engage the  $90^{\circ} \varnothing 80$  bend with the male end (smooth) in the female end (with lip seal) of the  $\varnothing 80$  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  $90^{\circ} \varnothing 80$  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 flue pipe (both vertical or horizontal) can be extended to a max. length of 30 linear metres.

### 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.

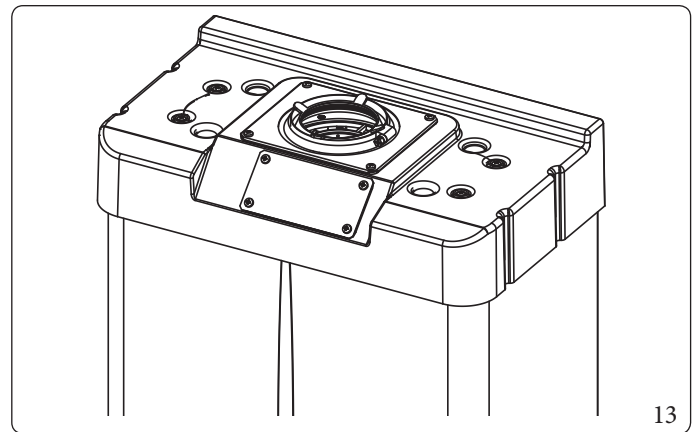
### Configuration without cover kit in a partially protected location (type C boiler).

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

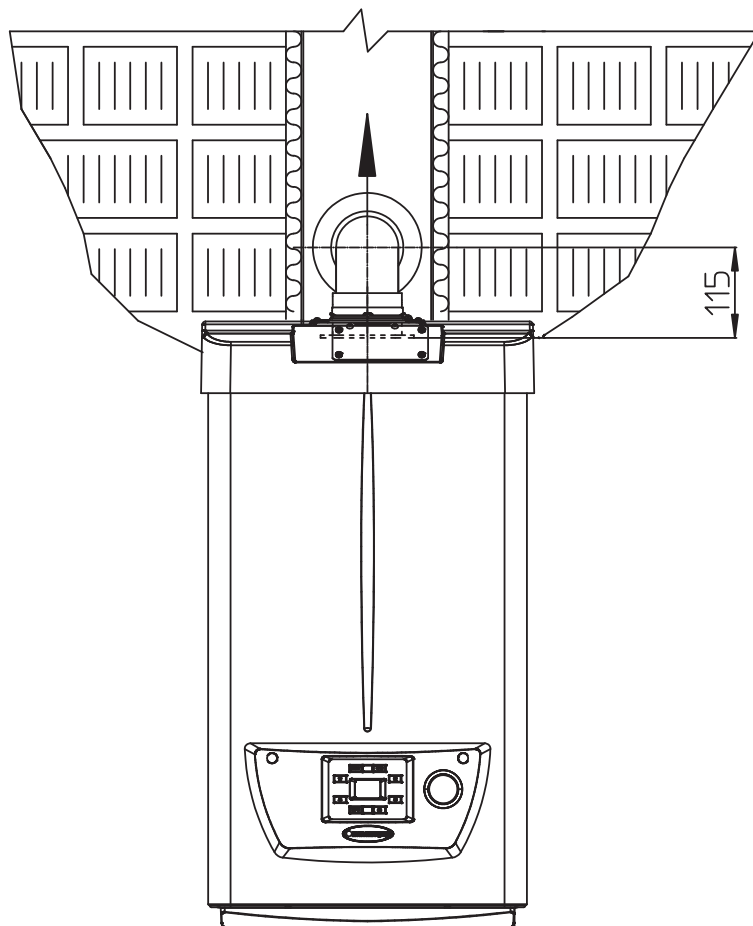
Installation takes place using the  $\varnothing 60/100$  and  $\varnothing 80/125$  concentric intake/ exhaust kits. Refer to the paragraph on indoor installation.

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

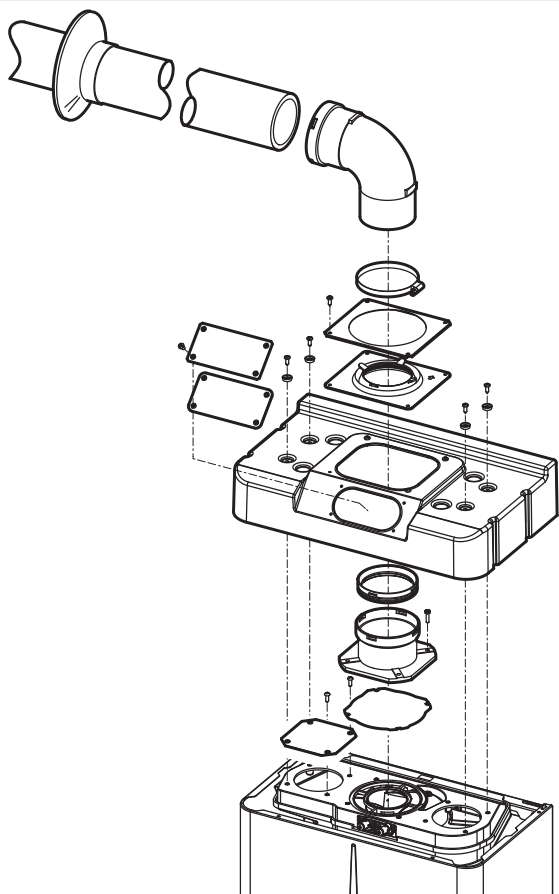
The  $\varnothing 80/80$  separating device cannot be used in this configuration (coupled with the cover kit).



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The cover kit includes (Fig. 15):

- No.1 Thermoformed cover
- No.1 Gasket clamping plate
- No.1 Gasket
- No.1 Gasket tightening clip
- No.1 Intake hole covering plate

The terminal kit includes (Fig. 15):

- No.1 Gasket
- No.1 Exhaust flange Ø80
- No.1 90° bend Ø80
- No.1 Exhaust pipe Ø80
- No.1 Wall sealing plate

## 1.15 INTERNAL INSTALLATION USING A RECESSED FRAME WITH DIRECT AIR INTAKE

### Configuration type B, open chamber and fan assisted

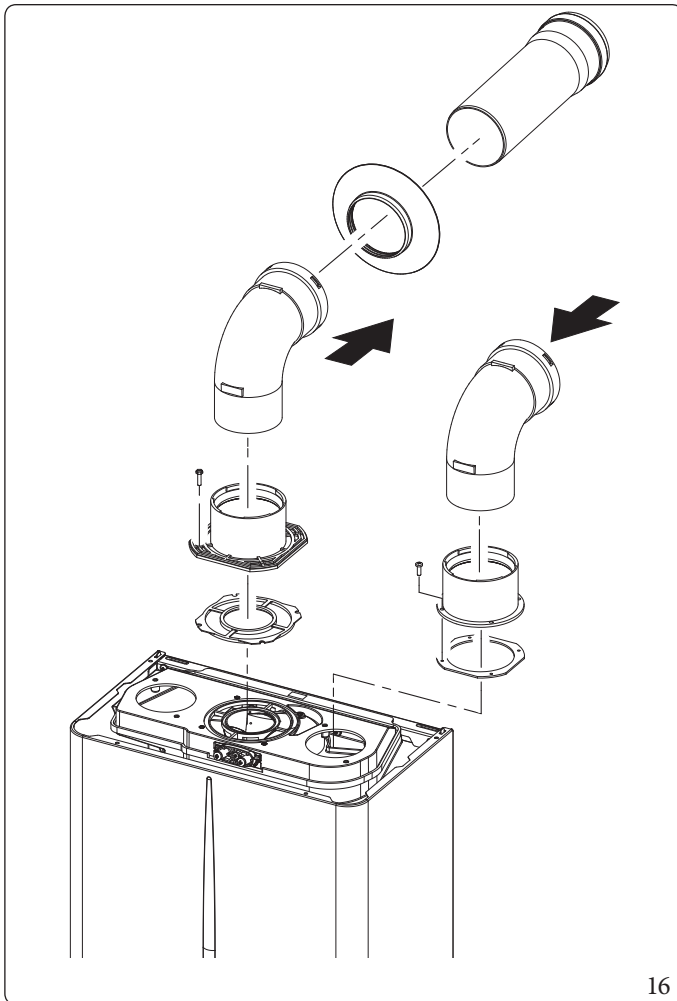
Using a kit separator one can achieve direct air intake (Fig. 17) and flue gas exhaust in a single chimney or directly outside.

In this configuration the boiler is classified as type B<sub>23</sub>.

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.



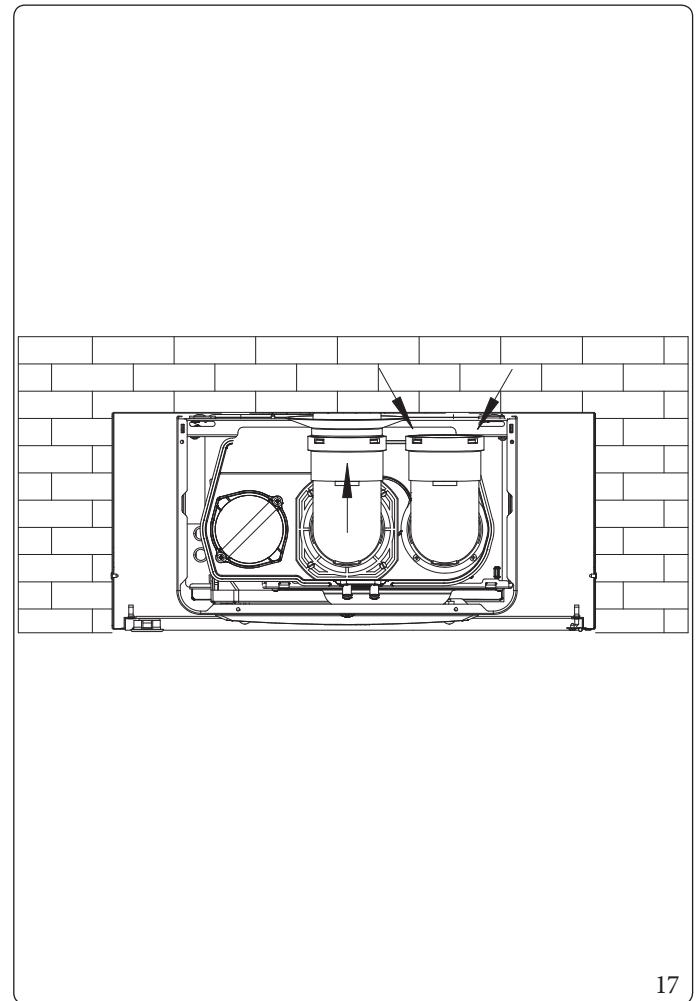
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### Separator kit installation (Fig. 16).

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 flue pipe (both vertical or horizontal) can be extended to a max. length of 36 linear metres.



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## 1.16 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

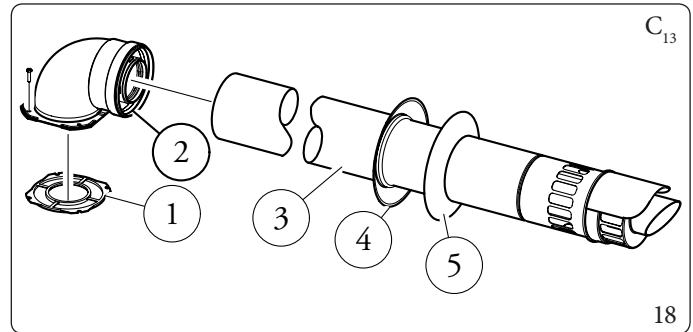
Both the Ø 60/100 and Ø 80/125 intake/exhaust terminal, if properly installed, is pleasant to look at on the outside of the building. Make sure that the external silicone wall sealing plate is properly inserted in the wall.



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)

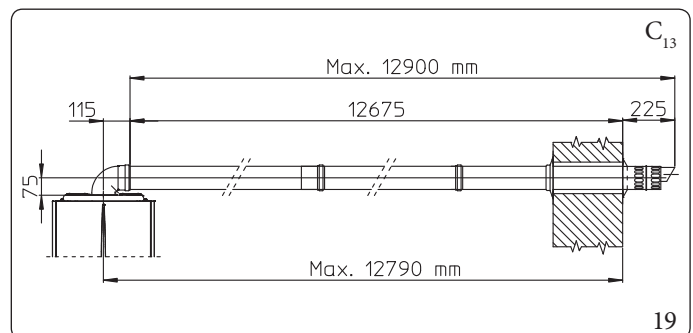
### Extensions for Ø 60/100 horizontal kit. Kit assembly (Fig. 19)

The kit with this configuration can be extended up to a max. horizontal length of 12.9 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 specific extensions must be requested.

This configuration corresponds to a resistance factor of 100.

In this case the special extensions must be requested.

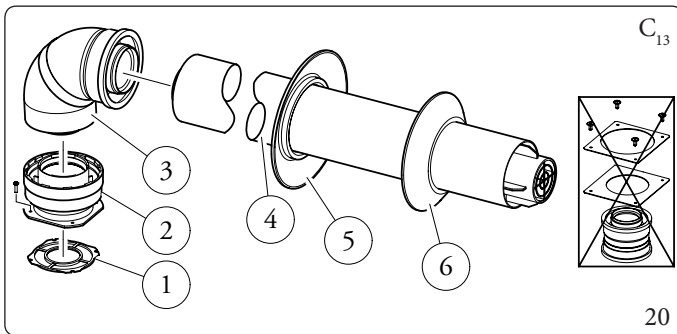
Immergas also provides a Ø 60/100 simplified terminal, which in combination with its extension kits allows you to reach a maximum extension of 11.9 metres.



### Mounting the horizontal intake-exhaust kit Ø 80/125 (Fig. 20)

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 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 Ø 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 Ø 80/125 (2)

The Kit Ø 80/125 includes (Fig. 20):

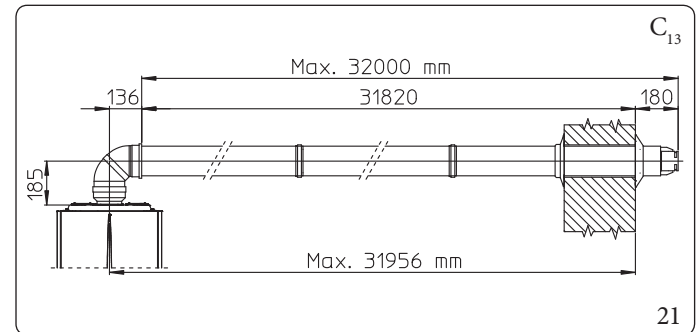
- No.1 Concentric bend Ø 80/125 at 87° (3)
  - No.1 Int./exhaust concentric terminal Ø 80/125 (4)
  - No.1 Internal wall sealing plate (5)
  - No.1 External wall sealing plate (6)
- The remaining kit components must not be used

### Extensions for Ø 80/125 horizontal kit. Kit assembly (Fig. 21)

The kit with this configuration can be extended up to a max. length of 32 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.



### 1.17 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.



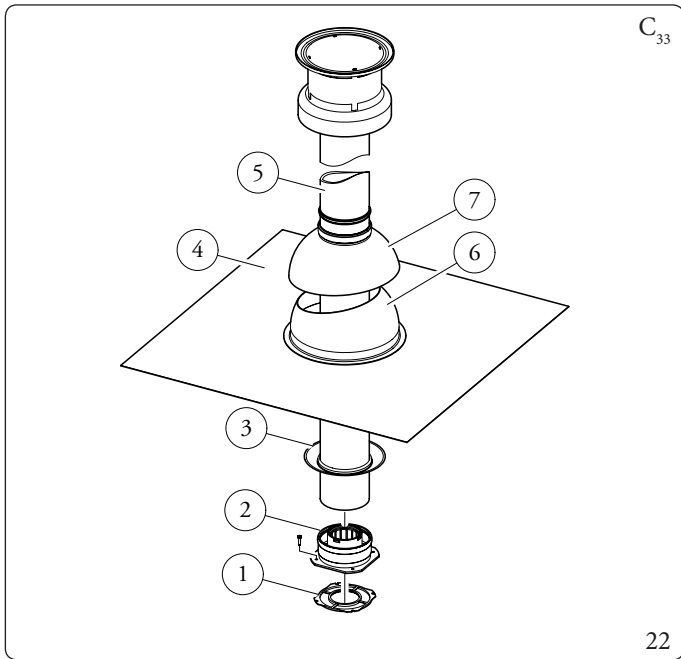
The vertical kit with aluminium tile enables installation on terraces and roofs with a maximum slope of 45% (approx. 25°) and the height between the terminal cap and half-shell (374 mm for Ø 60/100 and 260 mm for Ø 80/125) must always be observed.

#### 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.

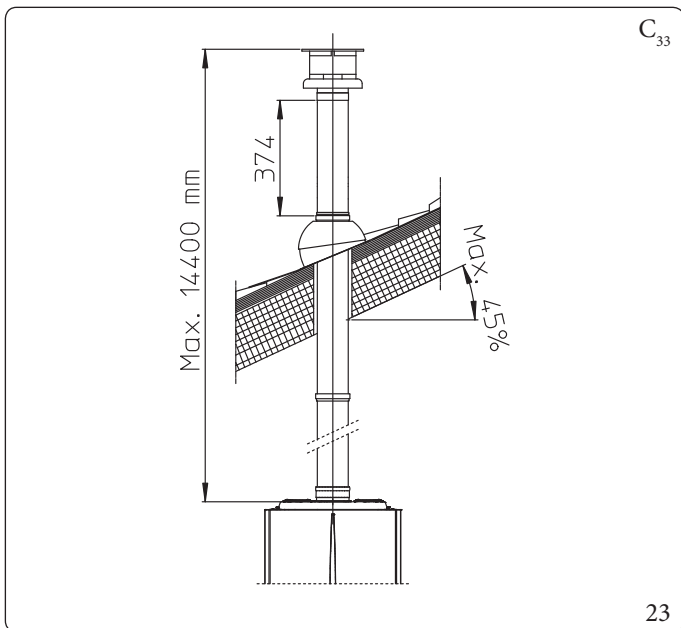


The kit includes (Fig. 22):

- 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  $\varnothing 60/100$  (5)
- No.1 Fixed half-shell (6)
- No.1 Mobile half-shell (7)

#### Extensions for $\varnothing 60/100$ vertical kit (Fig. 23)

The kit with this configuration can be extended up to a max. vertical straight length of 14.4 m including the terminal. This configuration corresponds to a resistance factor of 100. In this case specific extensions must be requested.

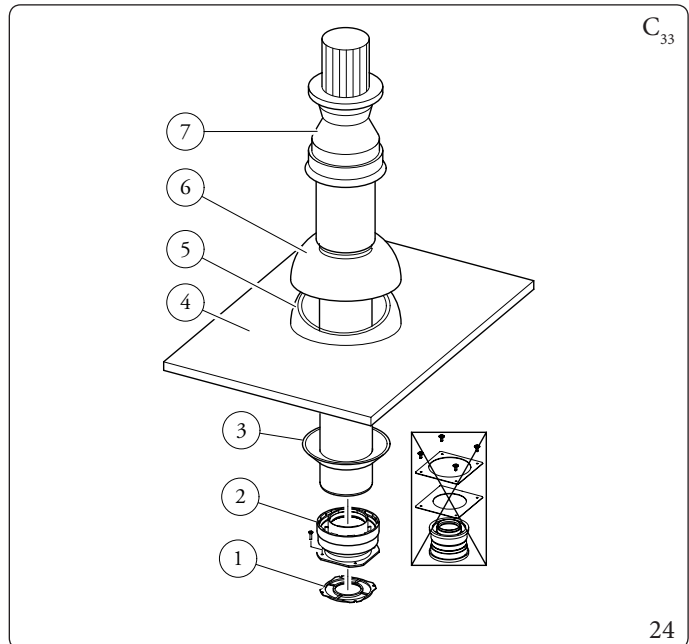


#### Mounting the vertical kit with aluminium tile $\varnothing 80/125$ (Fig. 24)



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

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  $\varnothing 80/125$  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):

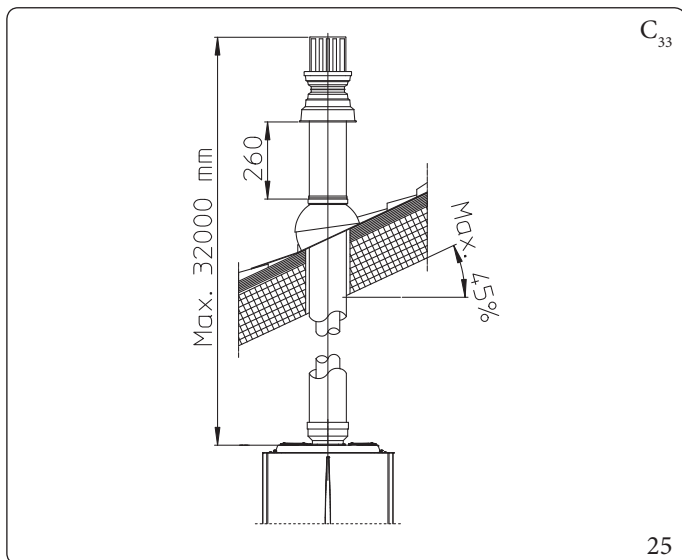
- No.1 Gasket (1)
- No.1 Adapter  $\varnothing 80/125$  (2)

The Kit  $\varnothing 80/125$  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  $\varnothing 80/125$  (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 32 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.



## 1.18 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).

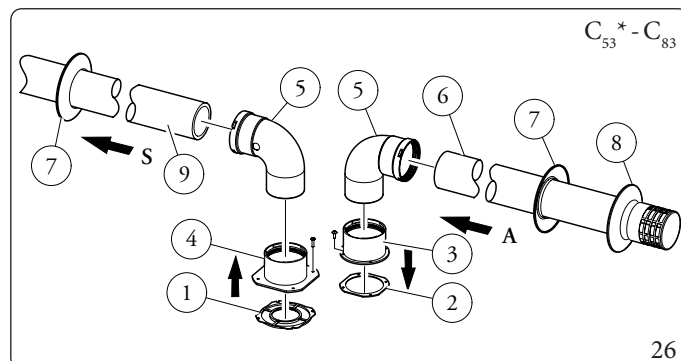
The intake pipe (A) can be installed either on the right or left hand side of the central exhaust pipe (S).

Both ducts can be routed in any direction.

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

1. Install the 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 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):

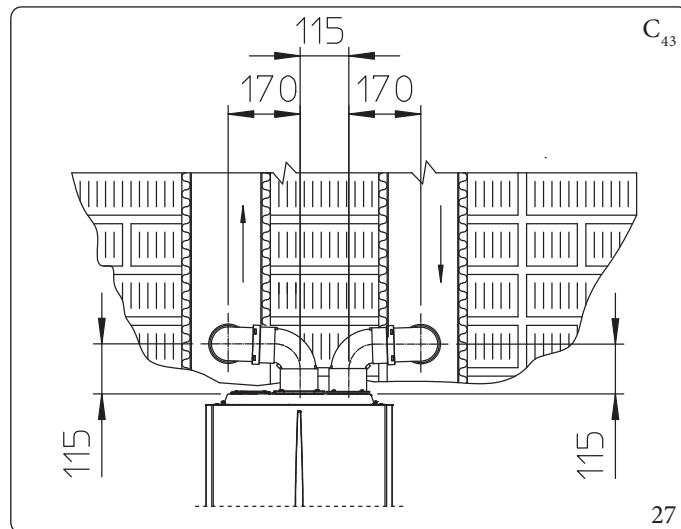
- No.1 Exhaust gasket (1)
- No.1 Flange gasket (2)
- No.1 Female intake flange (3)
- No.1 Female exhaust flange (4)
- No.2 Bend 90° Ø 80 (5)
- No.1 Intake terminal Ø 80 (6)
- No.2 Internal wall sealing plates (7)
- No.1 External wall sealing plate (8)
- No.1 Exhaust pipe Ø 80 (9)

\* to complete C53 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 41 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 36 metres, regardless from whether they are used for intake or exhaust.

Please note the type of installation  $C_{43}$  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)

## 1.19 C<sub>9</sub> ADAPTOR KIT INSTALLATION

This kit allows an Immergas boiler to be installed in "C<sub>93</sub>" 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 C<sub>93</sub> Ø 100 or Ø 125 version;
- rigid ducting Ø 60 and Ø 80 and flexible Ø 50 and Ø 80 kit;
- flue exhaust kit Ø 60/100 or Ø 80/125 configured according to the installation and type of boiler.

### Mounting the C<sub>9</sub> adapter kit (Fig. 30)



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

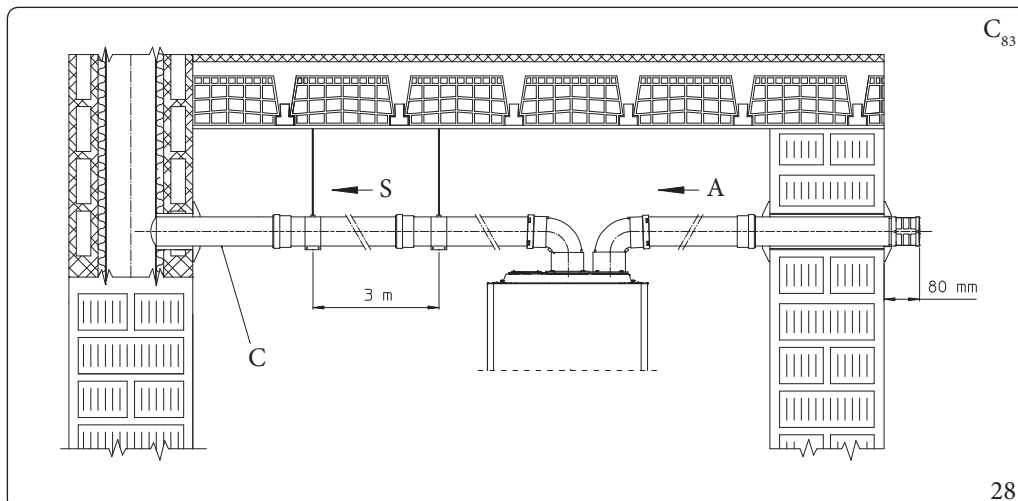
In the event component lubrication (already carried out by the manufacturer) is not sufficient, remove the residual lubricant using a dry cloth, then to ease fitting coat the parts with common or industrial talc.



To encourage the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the boiler with a minimum slope of 1.5%.

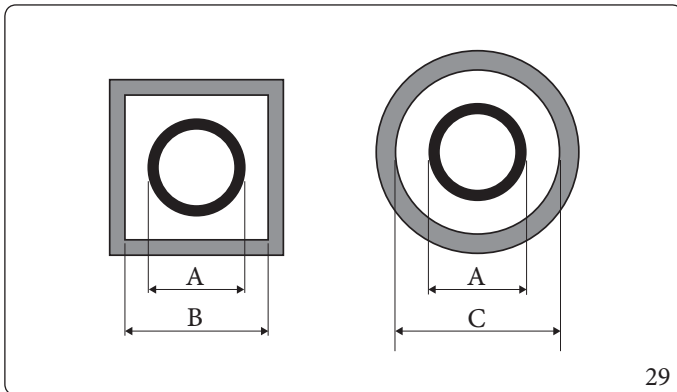
1. Mount the components of kit "C<sub>9</sub>" on the door (A) of the ducting system (Fig. 30).
2. (Version Ø 125 only) mount the flanged adaptor (11) interposing the concentric gasket (10) on the boiler, fitting it with the screws (12).
3. Mount the ducting system as described in the relative instructions 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 (Height "X" Fig. 31), whereas the external pipe must reach the end stop of the adapter (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).



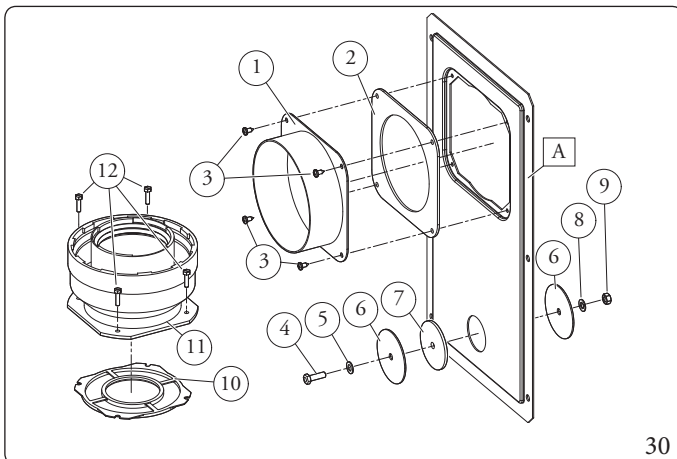
Key (Fig. 28):

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



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Ducting	ADAPTOR (A) mm	SHAFT (B) mm	SHAFT (C) mm
Ø60 Rigid	66	106	126
Ø50 Flexible	66	106	126
Ø80 Rigid	86	126	146
Ø80 Flexible	90	130	150



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The adapter 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 4.2x9ST (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 M4x16 flat-tipscrewdriver (12)
- No.1 (kit Ø 80/125) Bag of lubricating talc

Supplied separately (Fig. 30):

- No.1 Ducting kit door (A)

### 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 60 ducting system is 13 m, the maximum extension includes 1 bend Ø 60/100 at 90°, 1 m of horizontal pipe Ø 60/100, 1 90° ducted bend Ø 60 and the roof terminal for ducting.

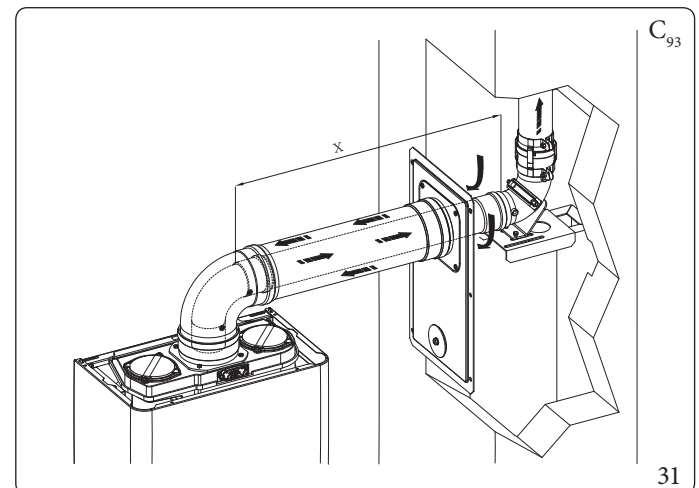
To determine the C<sub>93</sub> flue system in configurations other than that described (Fig. 31) one must consider that 1 metre of ducted pipe according to the indications described has a resistance factor equal to 4.9.

The maximum vertical extension using a Ø 80 ducting system is 28 m, the maximum extension includes 1 adapter Ø 60/100 to Ø 80/125, 1 87° bend Ø 80/125, 1 m of horizontal pipe Ø 80/125, 1 90° ducted bend Ø 80 and the roof terminal for ducting.

To determine the C<sub>93</sub> 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 28 m available.



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## 1.20 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 60 rigid, Ø 50 and 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.

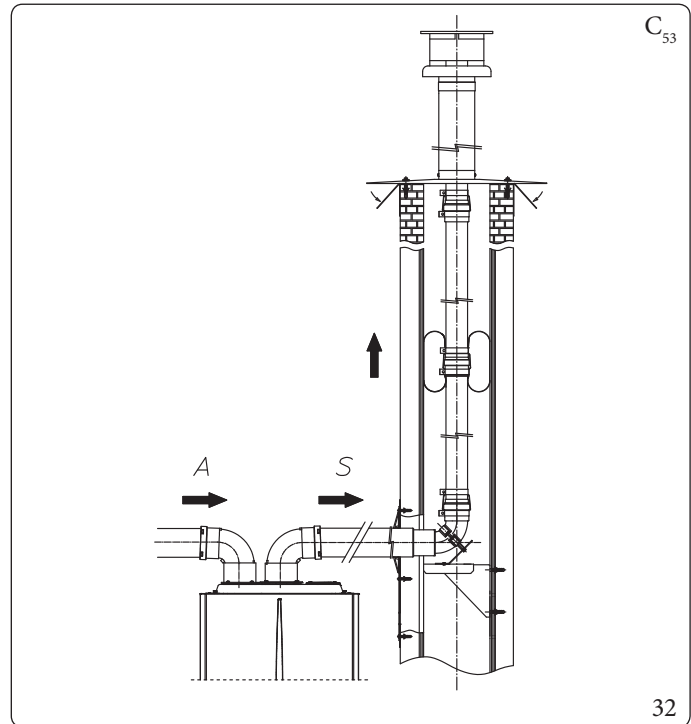
The instructions in the project or technical report must likewise be followed, in cases provided for by the standard and current technical regulations.

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:
  - The max. possible length of the Ø 80 flexible ducting vertical section is equal to 18 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.



You can also install an additional Ø 50 flexible ducting system the specifications of which are found on the relevant instructions sheet inside the kit.



## 1.21 CONFIGURATION TYPE B, OPEN CHAMBER AND FAN ASSISTED FOR INDOORS

The appliance can be installed inside buildings in B<sub>23</sub> or B<sub>53</sub> mode; in this case, all technical rules and national and local regulations in force, must be complied with.

For installation, the cover kit must be used, referred to in (Par. 1.14).

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

## 1.22 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 B<sub>23</sub> 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.

Multiple and combined flues must be specially designed according to the calculation method and requirements of the standards (such as UNI 13384), by professionally qualified technical staff.

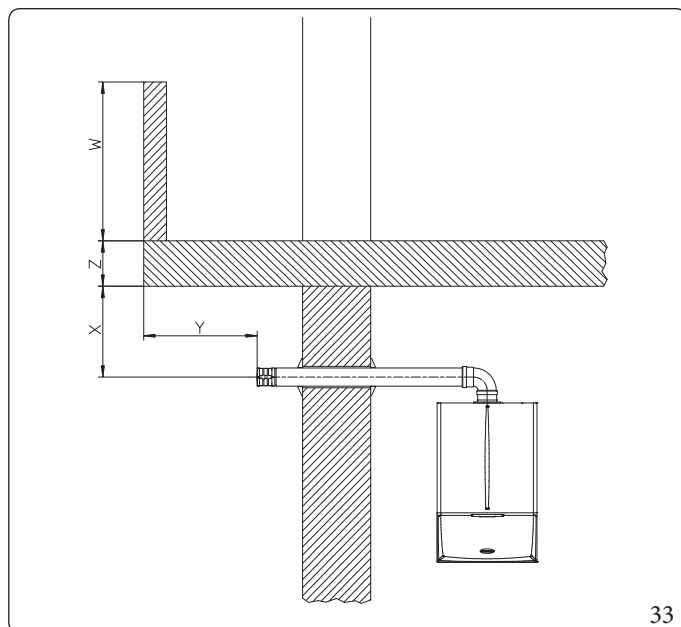
Chimney or flue sections for connection of the flue exhaust pipe must comply with requisites of technical standards in force.

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.

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

## 1.23 FLUES, CHIMNEYS AND CHIMNEY CAPS.

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.



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### 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.



## 1.24 WATER TREATMENT PLANT FILLING

As already mentioned in the previous paragraphs, a treatment of the thermal and domestic system water is required, in compliance with the local standards in force.

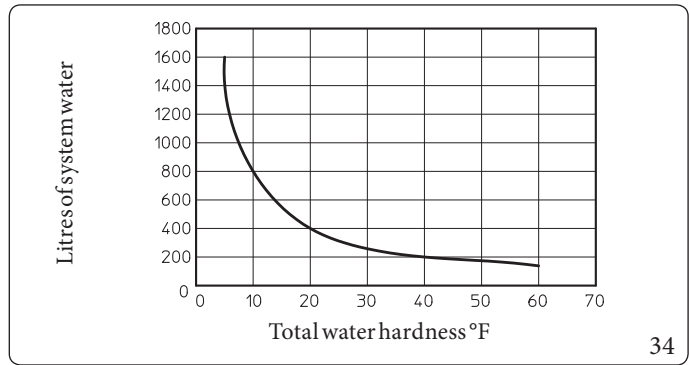
The parameters that influence the duration and proper operation of the heat exchanger are the water's PH, total hardness, conductivity, and oxygen, together with the system's processing residues (any welding residues), any oil present and corrosion products that can, in turn, cause damage to the heat exchanger.

In order to prevent this from happening, you are recommended to:

- clean the system with clean water to eliminate solid residues before installation on new and old systems;
- clean the system with a chemical treatment:
  - clean the new system with a suitable cleaning device (for example Sentinel X300, Fernox Cleaner F3 or Jenaqua 300) combined with thorough washing;
  - clean the old system with a suitable cleaning device (for example Sentinel X400 or X800, Fernox Cleaner F3 or Jenaqua 400) combined with thorough washing;
- Check the maximum total hardness and quantity of filling water referring to the graphics (Fig. 34); if the contents and hardness of the water are below the indicated curve, no specific treatment is required; otherwise, to limit the content of calcium carbonate, you must provide for water-filling treatment.
- If it is necessary to provide for water treatment, it should be done through complete desalination of the filling water. As opposed to the complete softening process, desalinating the water completely not only removes hardening agents (Ca, Mg), but also eliminates all other minerals to reduce water-filling conductivity up to 10 microsiemens/cm. Given its low conductivity, desalinated water does not only prevent the formation of lime scale, but also serves as protection against corrosion.
- Insert a suitable inhibitor / passivator (for example Sentinel X100, Fernox Protector F1, or Jenaqua 100); if required, also insert appropriate antifreeze (such as for example Sentinel X500, Fernox Alphi 11 or Jenaqua 500).
- Check electrical conduction of the water, which should be higher than 2000  $\mu\text{s}/\text{cm}$  in the case of treated water and lower than 600  $\mu\text{s}/\text{cm}$  in the case of non-treated water.
- To prevent corrosion, the water system's PH should be between 7.5 and 9.5.
- Check the maximum content of chlorides, which should be less than 250 mg/l.



For quantities and methods of use of water-treatment products, refer to the instructions provided by their manufacturer.



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The graph refers to the entire life cycle of the system. Therefore, also consider scheduled and unscheduled maintenance, which involves emptying and filling the said system.

## 1.25 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. Close the filling cock when the boiler pressure gauge indicates approx. 1.2 bar.
4. Open the radiator vent valves.
5. Close radiator vent valves when only water escapes from them.



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

## 1.26 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.**

## 1.27 GASSYSTEM 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, reactivated 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.

## 1.28 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. Ensure that the type of gas used corresponds to the boiler settings (the type of gas appears on the display on first connection to the power supply, or by checking the relative parameter "G");
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. Perform the flue test and, if needed, set the correct value of the parameter "F0";
9. **Activate the quick Calibration function:**
10. switch the boiler on and ensure correct ignition;
11. Check that the gas flow rate and the relative pressure values comply with those indicated in the booklet;
12. ensure that the safety device intervenes in the event of gas supply failure and check the relative intervention time;
13. 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.

## 1.29 CIRCULATION PUMP

During central heating mode, the Auto and Fixed operating modes are available.

- **Auto (A5 = 0):** automatic circulator pump speed and proportional head: the circulator pump speed varies according to the power supplied by the burner, the greater the power the greater the speed. Moreover, within the parameter, one can also adjust the circulator pump operating range by setting the maximum speed "A3" parameter (adjustable from 6 to 9) and the "A4" minimum speed parameter (adjustable from 6 to max set speed).
- **ΔT Constant (A5 = 5 ÷ 25 K):** the pump speed varies to maintain the ΔT constant between the system flow and return according to set value K (A5 = 15 Default).
- **Fixed (6 ÷ 9):** by setting parameters "A3" and "A4" at the same value, the pump operates at constant speed.



For the boiler to work properly, it is not allowed to drop below the speed minimum value.



In domestic hot water mode, the circulator pump always runs at full speed.

### 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. 1.32).

The boiler leaves the factory with the bypass open.

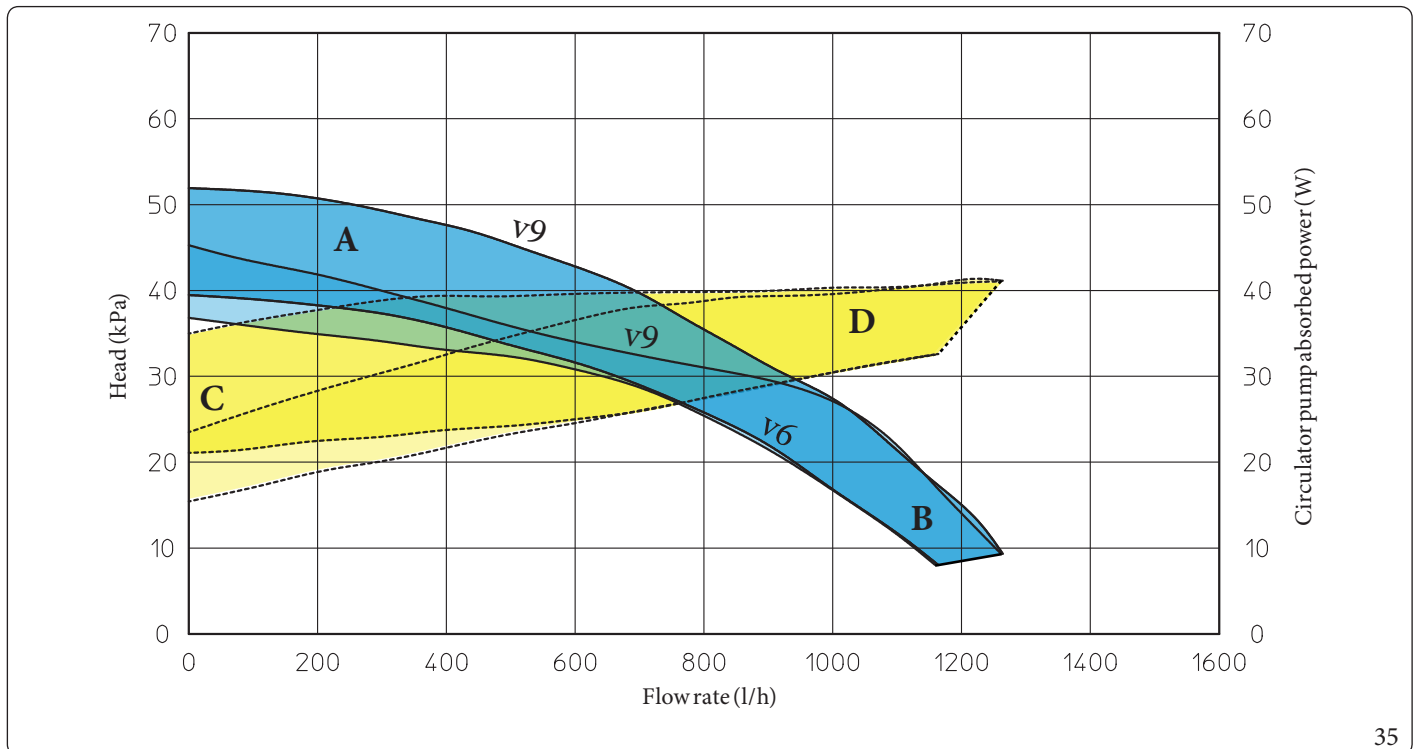
If necessary, the by-pass can be regulated to system requirements from minimum (by-pass closed) to maximum (by-pass open).

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.



Key (Fig. 35):

- A+B = Head available with by-pass closed
- B = Head available with by-pass open
- C+D = Power absorbed by the pump with by-pass closed (dotted area)
- D = Power absorbed by the pump with by-pass open (dotted area)

Speed (Fig. 35):

- v6 = Speed 6
- v9 = Speed 9

### 1.30 WAVE 3 CIRCULATION PUMP

During central heating mode, the Auto and Fixed operating modes are available.

- **Auto (A5 = 0):** automatic circulator pump speed and proportional head: the circulator pump speed varies according to the power supplied by the burner, the greater the power the greater the speed. Moreover, within the parameter, one can also adjust the circulator pump operating range by setting the maximum speed "A3" parameter (adjustable from 6 to 9) and the "A4" minimum speed parameter (adjustable from 6 to max set speed).
- **ΔT Constant (A5 = 5 ÷ 25 K):** the pump speed varies to maintain the ΔT constant between the system flow and return according to set value K (**A5 = 15 Default**).
- **Fixed (6 ÷ 9):** by setting parameters "A3" and "A4" at the same value, the pump operates at constant speed.



For the boiler to work properly, it is not allowed to drop below the speed minimum value.



In domestic hot water mode, the circulator pump always runs at full speed.

#### Pump LED.

The LED flashes green when the pump is powered and the pwm control signal is connected.



The LED lights up steady green when the pump is powered and the signal cable disconnected. In these conditions the pump works at maximum and without control.

#### Alarm warnings.

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 (Parag. 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. 1.32).

The boiler leaves the factory with the bypass open.

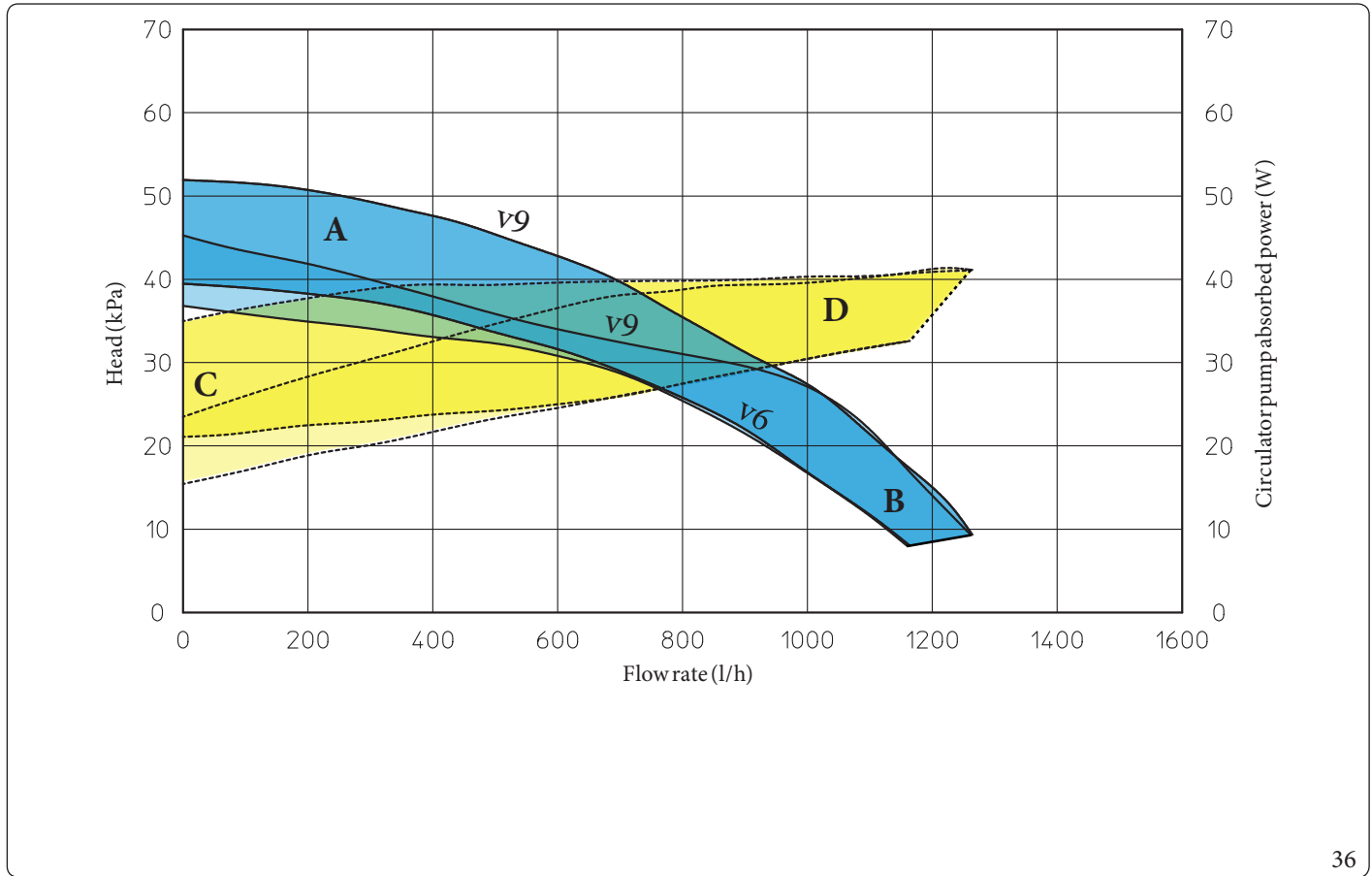
If necessary, the by-pass can be regulated to system requirements from minimum (by-pass closed) to maximum (by-pass open).

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.**



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Key (Fig. 35):

- A+B = Head available with by-pass closed
- B = Head available with by-pass open
- C+D = Power absorbed by the pump with by-pass closed (dotted area)
- D = Power absorbed by the pump with by-pass open (dotted area)

Speed (Fig. 35):

- v6 = Speed 6
- v9 = Speed 9

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

### 1.31 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.



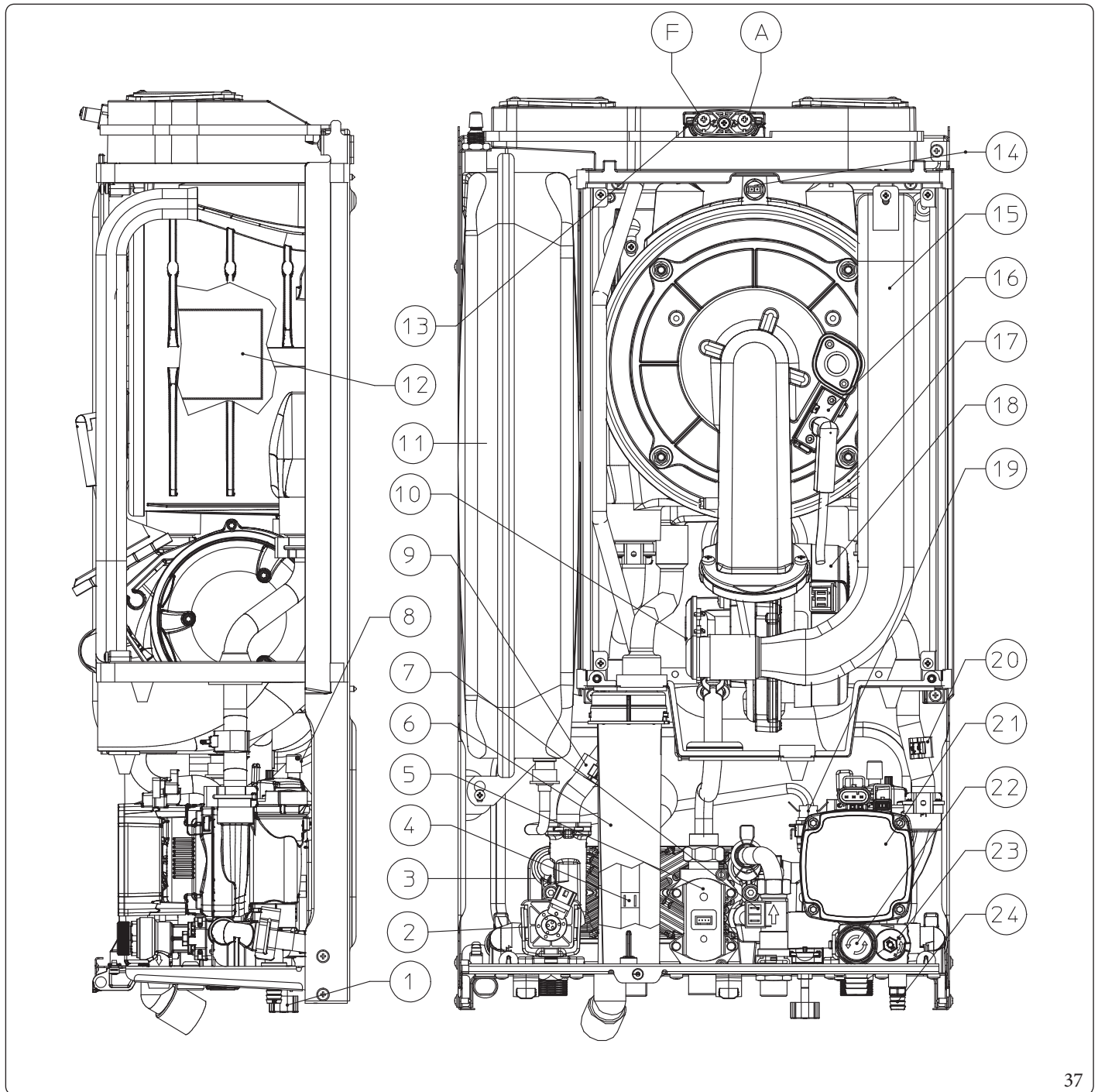
This is a type of chemical conditioning treatment for domestic hot water, if provided for by current regulations.

- Cover kit (on request). If installed outdoors in a partially protected place with direct air intake, it is compulsory to mount the appropriate top protective cover for the correct functioning of the boiler and to protect it from adverse weather conditions.
- 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.

## 1.32 MAIN COMPONENTS



Key (Fig. 37):

- |    |                           |    |  |
|----|---------------------------|----|--|
| 1  | - System filling cock     | 13 | - Sample points (air A) - (flue gases F) |
| 2  | - 3-way valve (motorised) | 14 | - Flue probe                             |
| 3  | - D.H.W. heat exchanger   | 15 | - Air intake pipe                        |
| 4  | - D.H.W. probe            | 16 | - Ignition/detection electrode           |
| 5  | - Gas valve               | 17 | - Condensation module                    |
| 6  | - Condensate drain trap   | 18 | - Fan                                    |
| 7  | - D.H.W. flow switch      | 19 | - System pressure switch                 |
| 8  | - Manual air vent valve   | 20 | - Return probe                           |
| 9  | - Flow probe              | 21 | - Boiler circulating pump                |
| 10 | - Air/gas mixer           | 22 | - 3 bar safety valve                     |
| 11 | - System expansion vessel | 23 | - By-pass                                |
| 12 | - Burner                  | 24 | - System draining cock                   |

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## 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:

- drain the heating system if antifreeze is not used;
- 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.





**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.

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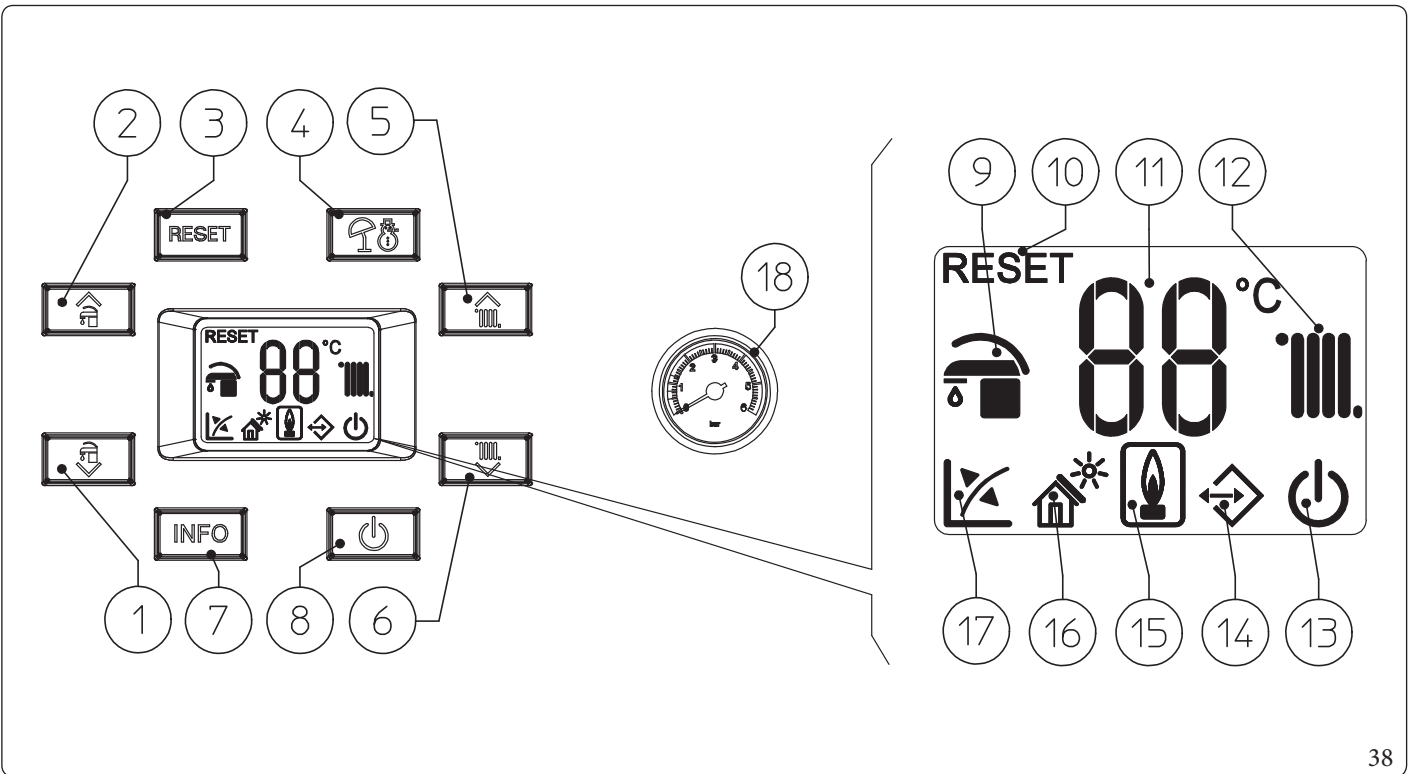
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## 2.2 CLEANING AND MAINTENANCE



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. 38):

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1 - Button to reduce the domestic hot water temperature</li> <li>2 - Button to increase the domestic hot water temperature</li> <li>3 - Reset Button</li> <li>4 - Summer/Winter Button</li> <li>5 - Key to increase the system water temperature</li> <li>6 - Key to reduce the system water temperature</li> <li>7 - Information buttons</li> <li>8 - Off/Stand-by/On Button</li> <li>9 - DHW Mode in progress (flashing) / Summer mode (steady on)</li> </ul> | <ul style="list-style-type: none"> <li>10 - Blocked boiler, it needs to be unblocked by pressing the "RESET" button</li> <li>11 - Temperature indicator, boiler info and error codes</li> <li>12 - Room C.H. mode operation in progress (flashing) / Winter mode (steady on)</li> <li>13 - Boiler in Stand-by mode</li> <li>14 - Presence of external connected devices</li> <li>15 - Flame presence symbol</li> <li>16 - Solar function active</li> <li>17 - Operation with external temperature probe active (optional)</li> <li>18 - Boiler manometer</li> </ul> |
|--|---|

## 2.4 BOILER USE

### Boiler activation



Before ignition make sure the heating system is filled with water and that the pressure gauge (18) indicates a pressure of  $1 \div 1.2$  bar.

- Open the gas cock upstream from the boiler.
- If the boiler is “off”, press the button until the display switches on. At this point, the boiler goes to the state previous to switch-off.
- If the boiler is on “Stand-by”, press again to enable it, otherwise go to the next point.
- Then press the button and set the boiler in the summer or winter + mode.

### Summer

In this mode the boiler functions only to produce the DHW, the temperature is set via the buttons and the relative temperature is shown on the display via the indicator .

### Winter +

In this mode the boiler works both for producing domestic hot water and for central heating. The temperature of the DHW is always regulated via buttons , the central heating temperature is regulated via buttons and the relative temperature is shown on the display by the indicator . In the central heating mode, if the temperature of the water contained in the system is sufficient to heat the radiators, the boiler can only function with the activation of the pump.

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 Remoto (Remote control) <sup>v2</sup> (CAR<sup>v2</sup>) (optional)

If the CAR<sup>v2</sup> is connected, the symbol will appear on the display. The boiler regulation parameters can be set via the CAR<sup>v2</sup> control panel and the **RESET** button remains active on the boiler control panel, along with for switch-off (“off” mode only) and the display where the functioning state is shown.



If the boiler is put into “off” mode, the “ERR>CM” connection error symbol will appear on the CAR<sup>v2</sup>. The CAR<sup>v2</sup> is however powered constantly so as not to lose memorised programs.

### Solar function

This function is automatically activated if the “t3” is more than 0 seconds.

During a withdrawal, as long as the “Solar ignition delay” function is active, the boiler does not switch on; the D.H.W. withdrawal symbol flashes on the display along with the flashing solar function symbol .

When the “Solar ignition delay” time has elapsed, the boiler switches on.

### Operation with optional external probe (optional).

In the case of a system with external probe, the boiler flow temperature for room central heating is managed by the external probe depending on the external temperature measured (Par. 1.11). The flow temperature can be modified by selecting the functioning curve via buttons (or from the control panel of CAR<sup>v2</sup>, if it is connected to the boiler), selecting a value from “0 to 9”.

With external probe present, the relative symbol will appear on the display.

### “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 and signalling of any anomalies is guaranteed.

### “Off” mode

By holding the button down for 8 seconds, only the frame of the symbol remains lit on the display and the boiler is off completely. The safety functions are not guaranteed in this mode.



**In “Stand-by” and “Off” mode, the boiler is still powered.**

## 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)
03	Flue safety thermostat block	During normal operation, if a fault causes excessive flue gas overheating, the boiler blocks	Press the Reset button (1)
04	Contacts resistance block	The P.C.B. detects a fault on the gas valve supply. Check its connection. (the anomaly is detected and displayed only in the event of a request).	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)
08	Maximum N° of resets	Number of allowed resets already performed.	The anomaly can be reset 5 consecutive times, after which the function is inhibited for at least one hour and it is possible to try once every hour, for a maximum of 5 attempts. By switching the appliance on and off again, the 5 attempts are re-acquired
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)
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)
23	Return probe anomaly	The board detects an anomaly on the return NTC probe	The boiler does not start (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)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)</b>			
<b>(2) The anomaly can only be verified in the list of errors in the “Information” menu</b>			

Error Code	Anomaly signalled	Cause	Boiler status / Solution
27	<b>Circulation insufficient</b>	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)
29	<b>Flue probe anomaly</b>	The board detects an anomaly on the flue probe.	The boiler does not start (1)
31	<b>Loss of remote control communication</b>	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
36	<b>IMG Bus communication loss</b>	Communication between the various components is interrupted due to an anomaly on the boiler control unit, on the zone control unit or on the IMG Bus.	The boiler does not satisfy the room heating requests (1).
37	<b>Low power supply voltage</b>	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	<b>Loss of flame signal</b>	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	<b>Block due to loss of flame signal</b>	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	<b>Block for exceeding gas valve frequent maximum opening time</b>	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)
45	<b><math>\Delta T</math> high</b>	The boiler detects a sudden, unexpected increase in the $\Delta T$ between the flow probe and the system return probe.	The power of the burner is limited to prevent damage to the condensation module and once the right $\Delta T$ is restored, the boiler resumes regular operation. Make sure there is water circulating in the boiler, that the pump is configured according to system requirements and that the return probe works properly. (1) (2)
47	<b>Burner power limitation</b>	Should flue high temperature be detected, the boiler reduces power supplied so as not to damage it.	(1)
51	<b>CAR Wireless communication failure</b>	If there is no communication between the boiler and Wireless version CAR, an anomaly is signalled. From this moment, it is only possible to control the system by means of the control panel of the boiler itself.	Check operation of the Wireless CAR, check the battery charge (refer to the relative instructions booklet)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)</b>			
<b>(2) The anomaly can only be verified in the list of errors in the "Information" menu</b>			

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Error Code	Anomaly signalled	Cause	Boiler status/ Solution
59	Main supply voltage frequency block	The board detects a main supply voltage frequency anomaly	The boiler does not start (1)
60	Anomaly pump blocked	The pump is stopped due to one of the following causes: Impeller blocked, electrical fault.	Try to unblock the pump as described in the relative section. If normal conditions are restored the boiler restarts without having to be reset (1)
61	Air in circulator	Air is detected inside the pump; the pump cannot work.	Vent the pump and the central heating circuit. If normal conditions are restored the boiler restarts without having to be reset (1)
62	Complete calibration required	Missing calibration is detected by the P.C.B. It may occur in the event the P.C.B. is replaced or if the parameters are altered in the air / gas section, thus requiring "complete calibration".	The boiler does not start (1)
70	Return/flow probe exchange	In case of an incorrect boiler wiring connection the error is detected.	The boiler does not start (1)
72	Fast calibration required	The P.C.B. detects that some parameters have been altered, thus requiring "fast calibration".	The boiler does not start (1)
76	Flow and/or return probes temperature drift	A malfunction of one or both system return and flow probes is detected.	The boiler does not start (1)
77	Combustion control fault	Out of range current is detected on the gas valve.	The boiler does not start (1)
78	Combustion control fault	High current on the gas valve is detected.	The boiler does not start (1)
79	Combustion control fault	Reduced current on the gas valve is detected.	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)
84	Combustion anomaly - power reduction in progress	A low supply pressure is detected on the gas line. As a result the appliance power is limited and the anomaly is reported.	If normal conditions are restored the boiler restarts without having to be reset (1) (2)
87	Block - gas valve control	A malfunction of one of the components that controls the gas valve has been detected.	The boiler does not start (1)
88	Block - gas valve control	A malfunction of one of the components that controls the gas valve has been detected.	The boiler does not start (1)
89	Combustion signal unstable	The flame is unstable due to: presence of flue gas recirculation, wind, unstable gas pressure, unstable fan speed, or due to system malfunction.	The boiler keeps working (1) (2)
90	Combustion signal beyond limit	The combustion signal is beyond the adjustment range required for an extended period of time.	The boiler keeps working (1) (2)
91	Incorrect ignition block	The board has exhausted all possible actions in order to obtain optimal ignition of the burner.	Press the Reset button (1)
92	Fan revs correction limit	The system has exhausted all possible corrections of the number of fan revs.	The boiler keeps working (1) (2)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)</b>			
<b>(2) The anomaly can only be verified in the list of errors in the "Information" menu</b>			

Error Code	Anomaly signalled	Cause	Boiler status / Solution
93	<b>Combustion signal beyond limit</b>	The combustion signal is beyond the adjustment range required for a limited period of time.	The boiler keeps working (1) (2)
94	<b>Combustion anomaly</b>	A problem is detected on the combustion control, which may be due to: gas low pressure, flue recirculation, defective gas valve or P.C.B.	If normal conditions are restored the boiler restarts without having to be reset (1) (2)
95	<b>Combustion signal discontinuous</b>	The system detects a discontinuous combustion signal.	The boiler keeps working (1) (2)
96	<b>Clogged flue</b>	This occurs in the event an obstruction is detected in the flue system.	The boiler does not start (1) If normal conditions are restored the boiler restarts without having to be reset
98	<b>Block - maximum no. of software errors</b>	The maximum number of software errors possible has been reached.	Press the Reset button (1)
99	<b>General block</b>	A boiler anomaly has been detected.	Press the Reset button (1)
<b>(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)</b>			
<b>(2) The anomaly can only be verified in the list of errors in the “Information” menu</b>			

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## 2.6 PARAMETERS AND INFORMATION MENU




By pressing the button “INFO”, the “Information menu” is activated for at least 1 second, displaying some boiler operating parameters.

Press buttons   to scroll through the various parameters.

With the menu active on the indicator (  ) the parameter via the letter “d” plus the number of the parameter that is being displayed will alternately show.

To view the parameter value, select it by pressing the button .

Press “INFO” or wait 15 minutes to go back to the previous screen or exit the menu.

Parameter ID	Description
d0.0	Not used
d0.1	Displays the combustion signal
d0.2	Displays the primary heat exchanger output instant heating flow temperature
d0.3	Displays the instant output temperature from the DHW exchanger
d0.4	Displays the values set for central heating set
d0.5	Displays the values set for DHW set
d0.6	Displays the external environment temperature (if optional external probe present) If the temperature is below zero, the value is displayed flashing.
d0.7	Not used
d0.8	Displays the system return water temperature
d0.9	Displays the list of the last five anomalies. Press the “  ” button to display the anomalies. Then press the   keys to scroll the list of anomalies.
d1.0	Anomaly list reset. Once “d1.0” is displayed, press the Reset button; deletion is confirmed via the “88” symbols flashing for two seconds.
d1.1	Not used
d1.2	Displays the pump operating speed
d1.3	Not used
d1.4	Displays the pump flow rate (lh/100)
d1.5	Displays the fan operating speed (rpm/100)
d1.6	Displays the temperature read on the flue probe
d1.7	Displays the calculated flow temperature
d1.8	At the end of the screed heater function, displays for how many hours the flow temperature remained at “Top set”
d1.9	Toggles between the safety software version and the functional software version
d2.0	Displays the flow temperature of zone two (optional)
d2.1	Displays the flow temperature of zone three (optional)
d2.2	Gas valve functioning meter *
d2.3	Ignition cycle meter *

(\*) H-number\_H, M-number\_M, L-number\_L will be displayed alternatively and the corresponding number will be the succession of the three.

Example: Number\_H = 12, Number\_M = 34, Number\_L = 56 will be displayed as 123456 ( number of hours per d2.2; number of cycles per d2.3)



## 2.7 BOILERSWITCH-OFF

Switch the boiler off by putting it in “off” mode, disconnect the onnipolar switch outside of the boiler and close the gas cock upstream from the appliance.

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

## 2.8 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.

## 2.9 DRAINING THE SYSTEM

### Emptying the system

1. Ensure that the filling cock is closed.
2. Open the draining cock (Parag. 1.32).
3. Open all vent valves.
4. At the end, close the emptying cock.
5. Close all previously opened vent valves.



If fluid containing glycol was added to the system circuit, make sure it is recovered and disposed of in accordance with standard EN 1717.

## 2.10 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.

## 2.11 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.

## 2.12 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.

## 2.13 CLEANING THE CASE

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



Never use abrasive or powder detergents.

## 2.14 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. 41) 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:**

- ensure that the type of gas used corresponds to the boiler settings (the type of gas appears on the display on first electrical power supply, on the data nameplate or by checking the relative parameter "G");
- 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 proper calibration of the number of fan revolutions;
- check the CO<sub>2</sub> flow rate in the flue:
  - maximum
  - intermediate
  - 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 upstream of 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.**

### 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.
- Check the correct positioning, integrity and cleanliness of the detection and ignition electrode; remove any oxide present.
- If deposits are detected in the combustion chamber they must be removed and the heat exchanger coils must be cleaned using nylon or broomcorn brushes; it is forbidden to use brushes made of metal or other materials that may damage the combustion chamber. It is also forbidden to use alkaline or acid detergents.
- Check the integrity of the insulating panels inside the combustion chamber and if damaged replace them.
- Visually check for water leaks or oxidation from/on connections and traces of condensate residues inside the sealed chamber.
- 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 clogging the condensate passage; also check that the entire condensate drainage circuit is clear and efficient.
- In the event of obstructions (dirt, sediment, etc.) with consequent leakage of condensate in the combustion chamber, one must replace the insulating panels.
- Check that the burner and gas manifold seal gaskets are intact and perfectly efficient, otherwise replace them. In any case the gaskets must be replaced at least every two years, regardless of their state of wear.
- Check that the burner is intact, that it has no deformations or cuts and that it is properly fixed to the combustion chamber lid; otherwise it must be replaced.
- Visually check that the water safety drain valve is not blocked.
- Check that, after discharging the system pressure and bringing it to zero (read on boiler pressure gauge), the expansion vessel pressure is at 1.0 bar.
  - system regulation probes 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 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;
  - system pressure switch.
- Check the condition and integrity of the electrical system and in particular:
  - The power cables must be inside the cable fixings;
  - There must be no traces of blackening or burning.
- Check the CO<sub>2</sub> by using the chimney sweep function at the three reference heat outputs, using the parameters in the table below. Should values out of the indicated tolerance range be detected, check the integrity of the ignition / detection electrode and, if required, change it, also changing the relative gasket. At this point, activate the "complete calibration" function.
- Check the CO<sub>2</sub> by using the chimney sweep function at the two reference heat outputs, using the parameters in the table below. Should values out of the indicated tolerance range be detected, check the integrity of the ignition / detection electrode and, if required, change it, also changing the relative gasket. At this point, activate the "Adjustment of the air-gas ratio" function.
- Check correct operation of control and adjustment devices and in particular:
  - system regulation probes 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.

Gas type	CO <sub>2</sub> to nominal Q.	CO <sub>2</sub> to ignition Q.	CO <sub>2</sub> to minimum Q.
G20	9.2% (±0,5)	9% (±0,5)	9% (±0,5)
G31	10.2% (±0,5)	10% (±0,5)	10% (±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.

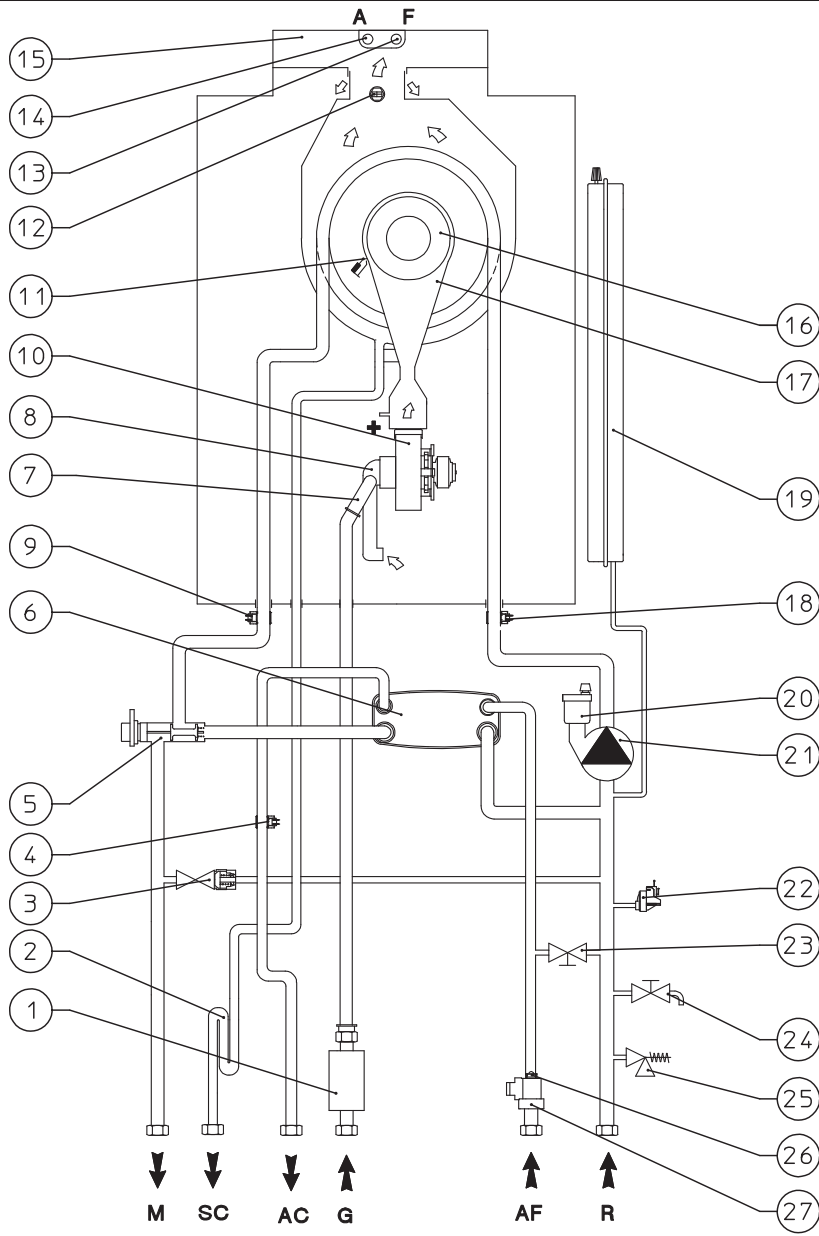
INSTALLER

USER

**MAINTENANCE TECHNICIAN**

TECHNICAL DATA

### 3.4 HYDRAULIC DIAGRAM



Key (Fig. 39):

- 1 - Gas valve
- 2 - Condensate drain trap
- 3 - By-pass
- 4 - D.H.W. probe
- 5 - 3-way valve (motorised)
- 6 - D.H.W. heat exchanger
- 7 - Gas nozzle
- 8 - Air/gas mixer
- 9 - Flow probe
- 10 - Fan
- 11 - Ignition/detection electrode
- 12 - Flue probe
- 13 - Flue sample point
- 14 - Air sample point
- 15 - Flue hood
- 16 - Burner
- 17 - Air/gas manifold

- 18 - Return probe
  - 19 - System expansion vessel
  - 20 - Air vent valve
  - 21 - Boiler circulating pump
  - 22 - System pressure switch
  - 23 - System filling cock
  - 24 - System draining cock
  - 25 - 3 bar safety valve
  - 26 - Flow limiter
  - 27 - D.H.W. flow switch
- 
- G - Gas supply
  - AC - Domestic hot water outlet
  - AF - Domestic hot water inlet
  - SC - Condensate drain
  - M - System flow
  - R - System return

INSTALLER

USER

MAINTENANCE/TECHNICIAN

TECHNICAL DATA

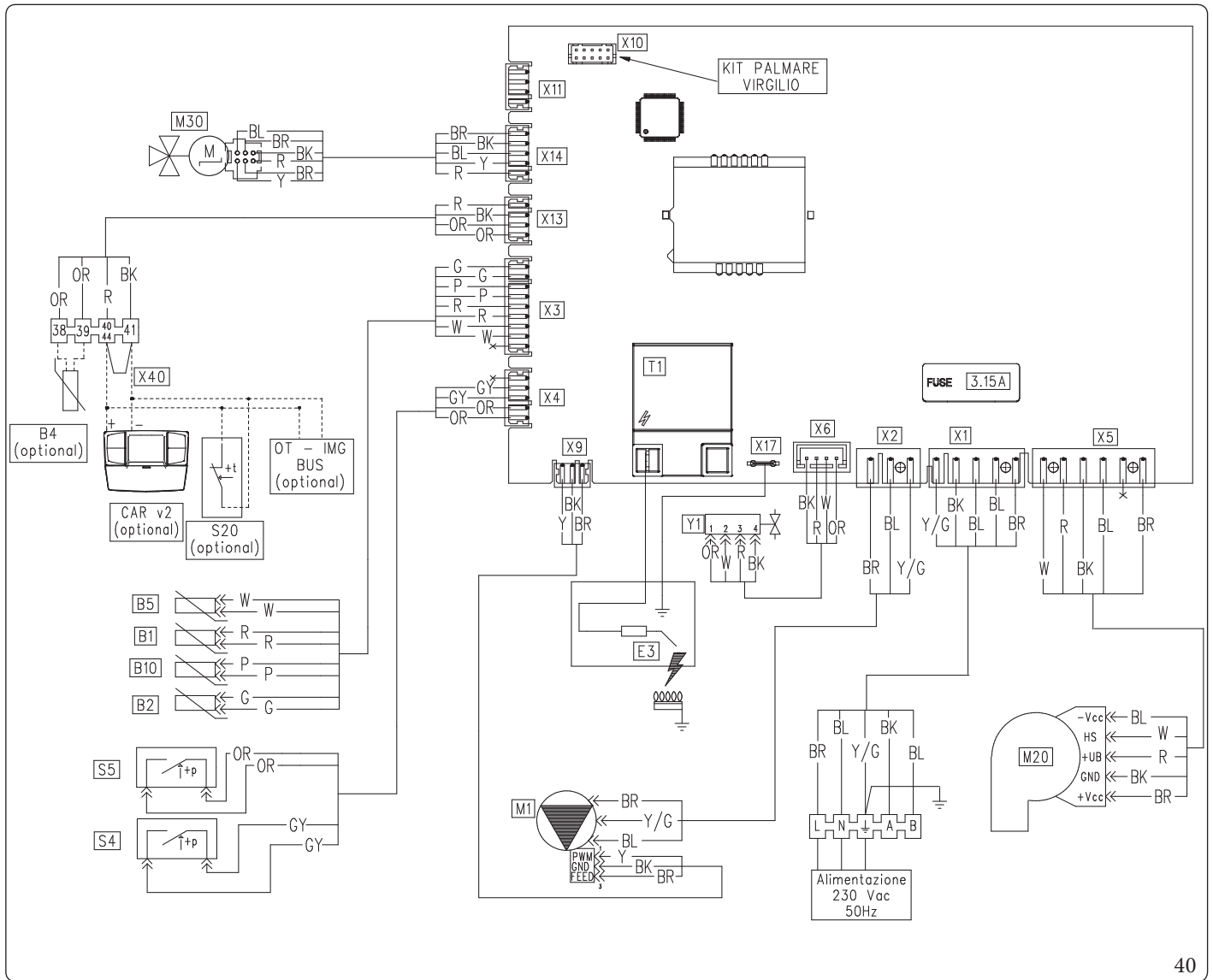
### 3.5 WIRING DIAGRAM

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA



40

Key (Fig. 40):

- B1 - Flow probe
- B2 - D.H.W. probe
- B4 - External probe (optional)
- B5 - Return probe
- B10 - Flue probe
- CAR<sup>v2</sup> - Comando Amico Remoto (remote control) <sup>v2</sup> (optional)
- E3 - Ignition and detection electrode
- M1 - Boiler circulating pump
- M20 - Fan
- M30 - Three-way motor stepper
- S4 - D.H.W. flow switch
- S5 - System pressure switch
- S20 - Room thermostat (optional)
- T2 - Ignition transformer
- X40 - Room thermostat jumper
- Y1 - Gas valve

Colour code key (Fig. 40):

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

Comando Amico Remoto<sup>v2</sup>: the boiler is prepared for the application of the Comando Amico Remoto remote control <sup>v2</sup> (CAR<sup>v2</sup>), which must be connected to clamps 41 and 44/40 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 44/40 - 41 of the terminal board (located in the boiler control panel) eliminating jumper X40.

The connector X10 is used for software updating operations.

### 3.6 TROUBLESHOOTING



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

There can be three possible causes for this anomaly:

#### Red pump LED

Trouble	Possible causes	Solutions
<b>Low power supply voltage</b>	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.
<b>Rotor seized</b>	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.
<b>Electrical error</b>		Check that there is no fault on the pump (on its wiring or electronics).

Trouble	Possible causes	Solutions
<b>Smell of gas</b>	Caused by leakage from gas circuit pipelines.	Check sealing efficiency of gas intake circuit.
<b>Repeated ignition blocks</b>	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.
<b>Irregular combustion or noisiness</b>	Dirty burner, clogged primary heat exchanger, incorrect combustion parameters, intake-exhaust terminal not correctly installed.	Check the indicated components.
<b>Non-optimal ignition of first ignitions of the burner.</b>	The first ignitions of the burner (after calibration) may not be optimal.	The system automatically adjusts the burner ignition until the best ignition conditions are found.
<b>Frequent trips of the overheating safety device thermostat function.</b>	Lack of water in the boiler, poor water circulation in the system or blocked circulating pump (Par. 1.29, 1.30).	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.
<b>Siphon blocked</b>	Dirt or combustion products deposited inside.	Check that there are no residues of material blocking the flow of condensate.
<b>Condensing heat exchanger clogged</b>	Siphon and/or duct between condensing exchanger and siphon clogging.	Check that there are no residues of material blocking the flow of condensate.
<b>Abnormal noises in the system</b>	Air in the system.	Check the opening of the cap of the air vent valve (Par. 1.32). Make sure the system pressure and expansion vessel pre-charge values are within the set limits. The factory-set pressure values of the expansion vessel must be 1.0 bar, the value of system pressure must be between 1 and 1.2 bar.
<b>Abnormal noises in the condensation module</b>	Air in the module.	Use the manual air vent valve (Par. 1.32) to eliminate any air present in the condensation module. When the operation has been performed, close the manual vent valve.

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 After-Sales Centre).

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

- Select, via programming menu "G", the type of gas by selecting "nG" for methane gas and "LG" for LPG gas (Par. 3.13).
- Alternatively, by accessing the appropriate sub-menu, it is possible to choose "AP" propane-air gas operation.
- Carry out complete calibration (Par. 3.9); during the procedure check and, if necessary, correct the CO<sub>2</sub> value.
- Upon completing the conversion, apply the sticker regarding the modified gas content onto the data nameplate in the connection box.

These adjustments must be made with reference to the type of gas used, following the indications given in the table (Par. 4.2).

#### 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:

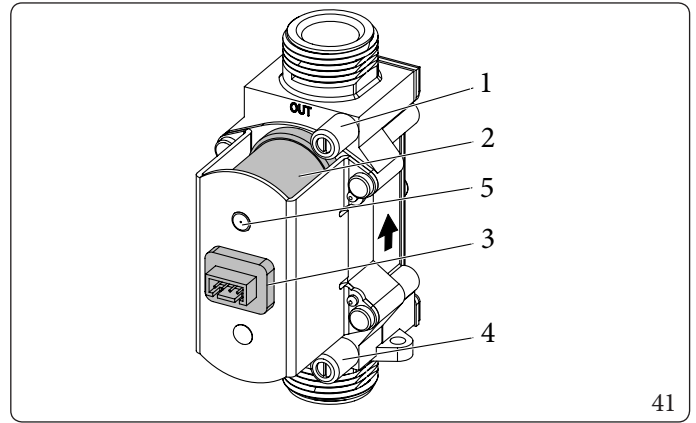
- there is no flame in the combustion chamber;
- the burner flame is not too high or low and that it is stable (does not detach from burner);



**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 After-Sales Technical Assistance Service).



Key (Fig. 41):

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

### 3.8 CALIBRATION TYPE INVOLVING THE REPLACEMENT OF A COMPONENT.

When performing extraordinary maintenance on the boiler, involving the replacement of a component, such as the P.C.B. or components in the air, gas and flame control circuits, the boiler will need to be calibrated.

Select the type of calibration to be carried out according to the table below.

Component replaced	Type of calibration required
Gas valve	Quick calibration
Fan	Quick calibration
Burner	Complete calibration with CO <sub>2</sub> check
Ignition / detection electrode	Complete calibration with CO <sub>2</sub> check
P.C.B.	Restore the parameters as described in Par. 3.13 P.C.B. programming Complete calibration with CO <sub>2</sub> check



### 3.9 COMPLETE CALIBRATION FUNCTION



Before carrying out complete calibration, ensure that all the requirements indicated in the relevant paragraphs have been met (Par. 1.25 e 1.26).

To access this function it is crucial that there are no active requests for central heating or DHW production and that the boiler is not in “Stand-by” mode.

In the event of anomaly “62” or “72” (Par. 2.5) the boiler cancels any requests by itself.

During the various calibration stages, the CO<sub>2</sub> value can be checked and possibly corrected as described in (Par. 3.10).

The energy produced is dissipated via the heating circuit; alternatively, the energy can be released from the DHW circuit by opening any hot water tap.



In this case the only active temperature control is the flow probe that limits the maximum temperature exiting the boiler at 90°C, therefore be careful not to get burned.

The calibration procedure involves various stages:

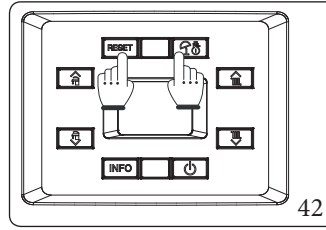
- nominal heat output calibration;
- intermediate heat output ignition calibration;
- minimum heat output calibration;
- calibration self-check.

Each calibration procedure, if carried out without altering the parameters, lasts 5 minutes at the most, after which it switches automatically to the next parameter until the calibration process is complete.





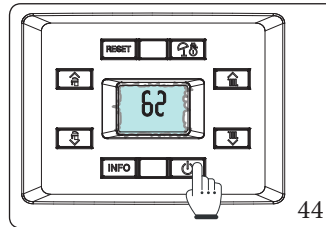
Once activated, to cancel the complete calibration function, press the button (INFO) for 2 seconds or disconnect the power supply. The adjustments present before activating the function will be maintained.

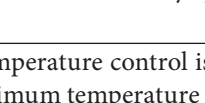
#### Complete calibration activation procedure.




Press and hold buttons “RESET” and “

The display will show two dashes “--” flashing. Now enter the password “62” to activate the complete calibration (enter the first digit by pressing the 1-2 buttons () and the second digit by pressing the buttons 5-6 (






Press the “



Only after the “” button.

### Ignition intermediate heat output

Once the nominal heat output calibration is confirmed, the boiler is calibrated with the intermediate heat output (or ignition heat output).




At this stage the display features flashing icons: “” and “” and the operating temperature alternated with the current operating heat output (e.g.: 41%) is displayed; once the parameters are detected and stabilised, the “” symbol will start flashing, meaning that the nominal heat output settings have been set.

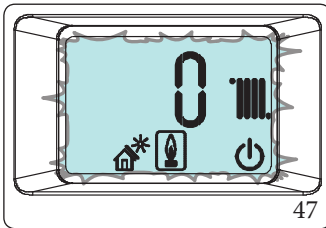




Only after the “” symbol flashes is it possible to change the CO<sub>2</sub> value (Par. 3.10) or switch to the next heat output parameter by pressing the “” button.

### Minimum heat output

After having calibrated the boiler with the intermediate heat output, it is calibrated with the minimum heat output.

At this stage the display features flashing icons: “” and “” and the operating temperature alternated with the current operating heat output (0%) is displayed; once the parameters are detected and stabilised, the “” symbol will start flashing, meaning that the minimal heat output settings have been set.



Only after the “” symbol flashes is it possible to change the CO<sub>2</sub> value (Par. 3.10) or switch to the calibration self-check phase by pressing the “” button.

### Calibration self-check

Once calibration operations are complete, the boiler runs a self-check for about one minute. During this check, the boiler can run at different powers and it is not possible to apply modifications to the operating parameters or to delete the operation in progress. Moreover, it is important not to cut the boiler's power.

## 3.10 CO<sub>2</sub> REGULATION






During the complete calibration (Par. 3.9) it is possible to modify the CO<sub>2</sub> values.


In order to have an exact value of CO<sub>2</sub> in the flue gas, the technician must insert the sampling probe into the well to the bottom

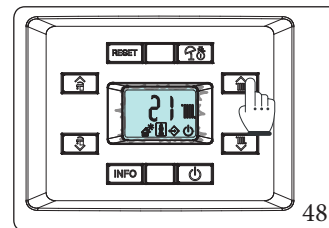




In case of calibration for propane air, select the analyser in LPG gas mode.

Check that the CO<sub>2</sub> value is the one indicated in the table (Par. 4.2), (considering a maximum tolerance of ± 0.2%), otherwise change the value as described below:

During calibration, when the “” symbol starts flashing (indicating the correct acquisition of the parameters) it is possible to alter the CO<sub>2</sub> value by pressing the buttons 5 or 6 (   ).

In this phase, the previously activated icons together with the “external connected devices presence icon” (  ) will flash on the display and the operating temperature alternated with combustion setting is displayed.



To increase the combustion setting, press the button 5 (  ), to decrease it, press the button 6 (  ). As the combustion setting increases, the CO<sub>2</sub> value decreases and vice-versa.

Once the parameter has been altered wait for the value to be saved (displayed via the “” symbol flashing).

To confirm the value set, press “” followed by “” again in order to go to the next calibration.

### 3.11 QUICK CALIBRATION

This function allows you to calibrate the boiler automatically without requiring or giving the possibility to alter the parameters. Typically “fast calibration” is used after having set the type of flue in menu “F”, which once altered causes anomaly “72”.



Before carrying out the fast calibration, ensure that all the requirements indicated in the relevant paragraphs have been met (Par. 1.25 - 1.26).



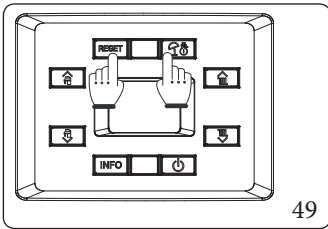
No active requests for central heating or D.H.W. production must be present and the boiler must not be in “Stand-by” mode.

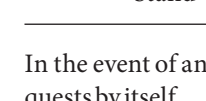
In the event of anomaly “72” (Par. 2.5) the boiler cancels any requests by itself.

The energy produced is dissipated via the heating circuit; alternatively, the energy can be released from the DHW circuit by opening any hot water tap.

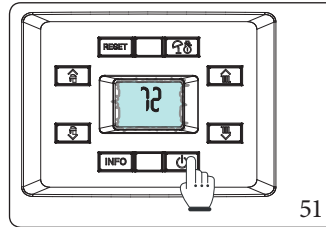


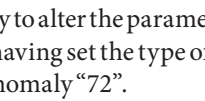
In this case the only active temperature control is the flow probe that limits the maximum temperature exiting the boiler at 90°C, therefore be careful not to get burned.





Press and hold buttons “RESET” and “

The display will show two dashes “- -” flashing. Now enter the password “72” to activate fast calibration.



Press the “

At this stage the display features flashing icons: “” and “” and the operating temperature is displayed, alternated with the current operating heat output.

The calibration stages (nominal, intermediate and minimum) progress **automatically** and you must wait until calibration is complete.

### 3.12 FLUE TEST

To define the value to set in the "flue length" "F0" parameter, detect the parameters during the "flue test".



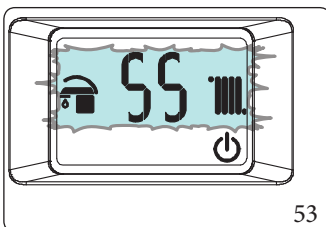
Before performing the test, ensure that the condensate drain trap has been filled correctly and check that there are no obstructions in the air intake circuit and flue exhaust and that the sealed chamber is perfectly closed and the flue has already been installed.

Once the test has been carried out properly, note the detected value in the relevant table, in order to have it available for future checks.

To activate this mode, the boiler must be in "Stand-by" mode.



If the boiler is connected to the CAR<sup>V2</sup> the "stand-by" function can only be activated via the remote control panel.



To activate the function, press the buttons "RESET" and "⏻" simultaneously until function activation, which is displayed by indicating the fan operation speed (in hundreds of revs) and ignition of the flashing "🌀" and "🔥" symbols.

The appliance remains in this mode for a maximum period of 15 minutes, keeping the fan speed constant.

This function ends once 15 minutes have elapsed, or by disconnecting supply voltage to the boiler, or by pressing the "RESET" button.

Check the ΔP between the two pressure test outlets (Fig. 37) and set parameter F0 according to the values shown in the table below:

VictrixOmnia	
Parameter F0	Pressure
0	< 90 Pa
1	90 ÷ 120 Pa
2	120 ÷ 150 Pa
Value detected on first check	



Examinations are carried out by sealing the holes provided to analyse the flues, making them pneumatically sealed.

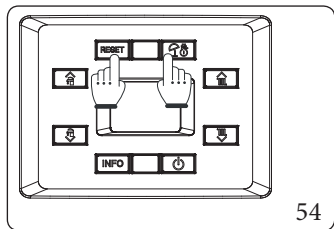



Should there be a boiler malfunction, you can carry out a flue test to check that there are no obstructions in the flue system. Different values to those indicated in the previous tables indicate a flue system malfunction, especially a flue system with excessive load losses or obstructed system.


### 3.13 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, press and hold the buttons “RESET” and “

Now enter the password “69” to access the parameter menu. To enter the first digit, use the buttons to adjust the D.H.W. “


To confirm the password “69” and access the menu, press the “


Once in the menu, you can cyclically scroll the submenus by pressing the D.H.W. buttons “

The first digit of the central indicator (

The second digit shows the parameter number.

Press the “

Its value can be adjusted by using the central heating temperature adjustment buttons “

Press the mode of operation button “

If you want to exit a parameter without changing its value, press the button “INFO”.

Exit the programming mode by waiting 15 minutes or by pressing the “INFO” button until you return to the desired display.



If necessary the default values relating to parameters “S” and “P0 ÷ P2” can be altered by temporarily modifying the type of gas (parameter “G”) and by restoring it according to the actual operating conditions (wait for approximately 10 seconds between the gas change and the when it is restored).

The restored values will be those relating to the type of boiler set in parameters “n” and “F”.

At the end of this operation, anomaly “E62” will appear and complete calibration will be required.

#### Menus “G” - “S” - “n”.

These menus are reserved for air-gas control settings.

Every time these parameters are altered, the complete calibration function must be activated (Par. 3.9).

Id Parameter	Parameter	Description	Range	Default	Value value
G	Gastype	Defines operation with methane gas	nG	nG	
		Defines operation with LPG gas	LG		
		Defines operation with propane air gas (can be activated by means of a special menu)	AP		

In the event of an alteration, an anomaly "E62" appears and complete calibration is required.

Id Parameter	Parameter	Description	Range	Default	Value value
n	Boiler model	Define the boiler model	0 ÷ 1	0 = Victrix Omnia 1 = Not used	

In the event of an alteration, an anomaly "E62" appears and complete calibration is required.

Id Parameter	Parameter	Description	Range	Default	Value value
S0	Min output	The P.C.B. defines the operating mode and the boiler output according to the combination of several parameters. The proper operating output of the appliance is defined according to the combination of the parameters of menus "n" and "F". For this reason it is recommended not to alter the parameters of this menu in order not to compromise the proper operation of the boiler.	750 ÷ 1700 rpm	1300 (nG/LG)	
S1	Max output		S0 ÷ 6900 rpm	6200 (nG/LG)	
S2	Ignition output		2000 ÷ 4500 rpm	3200 (nG/LG)	

In the event of an alteration, an anomaly "E62" appears and complete calibration is required.

Id Parameter	Parameter	Description	Range	Default	Value value
P0	DHW max	Defines the maximum heat output percentage of the boiler during the D.H.W. phase compared to the maximum heat output available	0 - 99 %	99%	
P1	Min output	Defines the minimum heat output percentage of the boiler compared to the minimum heat output available	0 - P2	0%	
P2	Central heating max	Defines the maximum heat output percentage of the boiler during the central heating mode compared to the maximum heat output available	0 - 99%	79%	
P3	-	Not used	-	-	
P4	-	Not used	-	-	
P5	-	Not used	-	-	
P6	Pump functioning	The pump can function in two ways. 0 intermittent: in winter "mode" the circulator is managed by the room thermostat or by the remote control. 1 continuous: in "winter" mode the circulator is always powered and is therefore always in operation	0 - 1	0	
P7	External probe correction	If the reading of the external probe is not correct it is possible to correct it in order to compensate any environmental factors.	-9 ÷ 9 K	0	
P8	-	Not used	-	-	

<b>Id Parameter</b>	<b>Parameter</b>	<b>Description</b>	<b>Range</b>	<b>Default</b>	<b>Value value</b>
t0	Central heating set point minimum temperature	Defines the minimum flow temperature.	20 ÷ 50 °C	25	
t1	Central heating set point maximum temperature	Defines the maximum flow temperature.	(t0+5) ÷ 85 °C	85	
t2	D.H.W. thermostat	The boiler switches off on the basis of the temperature set. 0 = Fixed: the switch-off temperature is fixed at the maximum value regardless of the value set on the control panel. 1 = Correlated: the boiler switches off according to the temperature set.	0 - 1	0	
t3	Solar delay timing	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 (Par. 3.14 Solar panels coupling function).	0 - 30 seconds	0	
t4	D.H.W. priority timing	In winter mode the boiler, at the end of a domestic hot water request, is ready to switch to central heating mode if there is an active request. Timing sets a time period in which the boiler waits before changing the operating mode, in order to quickly and comfortably satisfy an additional request for domestic hot water.	0 - 100 seconds (step 10 sec)	2	
t5	Heating activation timing	The boiler has an electronic timer, which prevents the burner from igniting too often in central heating mode.	0 - 600 seconds (step 10 sec)	18	
t6	Heating ramp timing	In central heating mode, the boiler performs an ignition ramp in order to reach the maximum output set.	0 - 840 seconds (step 10 sec)	18	
t7	CH ignition delay from TA and CR request	The boiler is set to switch-on immediately after a request. In the event of particular systems (e.g. area systems with motorised thermostatic valves etc.) it may be necessary to delay ignition.	0 - 600 seconds (step 10 sec)	0	
t8	Display lighting	0 = Automatic: the display lights up during use and goes off after 15 seconds of inactivity. In the event of an anomaly the display "flashes". 1 = Off: the display is always off. 2 = On: the display is always lit up.	0 - 2	0	
t9	Display	Establishes what the indicator 11 displays (Fig. 38). "Summer" mode: 0: the indicator is always off 1: active pump displays the flow temperature, pump off the indicator is off "Winter" mode: 0: always displays the value set on the C.H. selector 1: active pump displays the flow temperature, pump off always displays the value set on the C.H. selector	0 - 1	1	

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Id Parameter	Parameter	Description	Range	Default	Value value
t10	Flow off temperature increase	Increases the flow off temperature at ignition only in the first 60 seconds. After the flame is detected, the temperature is increased by t10	0 - 15	0	
t11		Not used on this boiler model	0 - 1	0	

Id Parameter	Parameter	Description	Range	Default	Value value
A0	Hydraulic model	Defines the type of hydraulics in the boiler	0	0	
A1	-	Not used on this boiler model	-	-	
A2	Circulating pump model	Defines the type of circulator in the boiler	0 ÷ 1	0	
A3	Maximum pump speed	Sets the maximum pump operating speed	1 ÷ 9	9	
A4	Minimum pump speed	Sets the minimum pump operating speed	1 ÷ A3	7	
A5	Circulating pump mode	Sets the pump operating mode - DELTA T = 0: proportional head (Parag. 1.29, 1.30) - DELTA T = 5 - 25 K: ΔT constant (Parag. 1.29, 1.30)	0 ÷ 25	15	

Id Parameter	Parameter	Description	Range	Default	Value value
F0	Flue length	Defines the length of the flue (Par. 3.12)	0 - 2	0	
F1	-	Not used on this boiler model	-	-	

In the event of an alteration, anomaly "E72" appears and fast calibration is required.



### 3.14 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 t2 (DHW thermostat) must be set at “1” and parameter t3 (solar delay time) 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.



### 3.15 "CHIMNEY SWEEP" FUNCTION

When activated, this function forces the boiler to variable output for 15 minutes.



In this state, all adjustments are excluded and the safety thermostat and the limit thermostat functions remain active. To activate the chimney sweep function, press the “RESET” button until activation of the function in the absence of DHW requests.

Its activation on the boiler display is confirmed by the indicators flashing at the same time (  ,  ), while on the CAR<sup>V2</sup> (optional) it is reported as “ERR>07”.


This function allows the technician to check the combustion parameters.

Once the function is activated, it is possible to select whether to make the check in C.H. status or D.H.W. status by opening any hot water cock adjusting the power via the buttons (   ).

The maximum power than can be supplied (99 %) is relative to the power set by parameter “P2” (Par. 13).

The central heating or D.H.W. operating mode is displayed by the relative symbols  or .

After the checks, deactivate the function by switching the boiler off and starting it again using “”.

**i** The boiler needs a certain amount of time to stabilise itself before carrying out a combustion parameters check. It is thus necessary to wait for the boiler to carry out a self-diagnosis test, which is signalled by the (  ) flashing symbol. Once the symbol stops flashing, it is possible to check the combustion parameters.

### 3.16 PUMP ANTI-BLOCK FUNCTION

The boiler has a function that starts the pump at least once every 24 hours for the duration of 30 seconds in order to reduce the risk of the pump becoming blocked due to prolonged inactivity.

### 3.17 THREE-WAY ANTI-BLOCK SYSTEM

Both in “domestic hot water” and in “domestic hot water-central heating” phase the boiler is equipped with a function that starts the three-way motorised group 24 hours after it was last in operation, running it for a full cycle so as to reduce the risk of the three-way group becoming blocked due to prolonged inactivity.

### 3.18 RADIATORS ANTIFREEZE FUNCTION

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


### 3.19 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.

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

### 3.20 AUTOMATIC VENTING FUNCTION

In the case of new central heating systems and in particular mode for floor systems, it is very important that deaeration is performed correctly. The function consists of the cyclic activation of the pump (100 s ON, 20 s OFF) and the 3-way valve (120 s D.H.W., 120 s C.H.).

The function is activated by pressing buttons “INFO” + “” at the same time for 5 seconds with boiler in stand-by.

**i** If the boiler is connected to the CAR<sup>V2</sup> the “stand-by” function can only be activated via the remote control panel.

The function lasts for 18 hours and it can be stopped by simply pressing the button “RESET”.

Activation of the function is signalled by the countdown shown on the indicator (  ).

### 3.21 SCREED HEATER FUNCTION

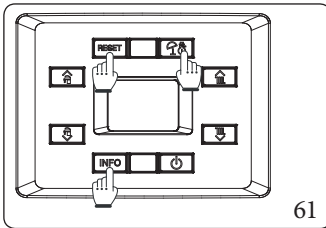
The boiler is equipped with a function to perform the thermal shock on new radiant panel systems, as required by the applicable standard.




Contact the manufacturer of the radiant panels for the thermal shock characteristics and its correct execution.



To be able to activate the function there must be no remote control connected, while in case of system divided into zones it must be properly connected, both hydraulically and electrically.



The function is activated from boiler in “off” by pressing and holding the “RESET”, “INFO” and “

The display now shows the countdown of days alternated with the current flow temperature, as well as the normal operating symbols of the boiler.

In case of failure or lack of supply voltage, the function is suspended and will resume when the normal operating conditions are reset from the point where it was interrupted.

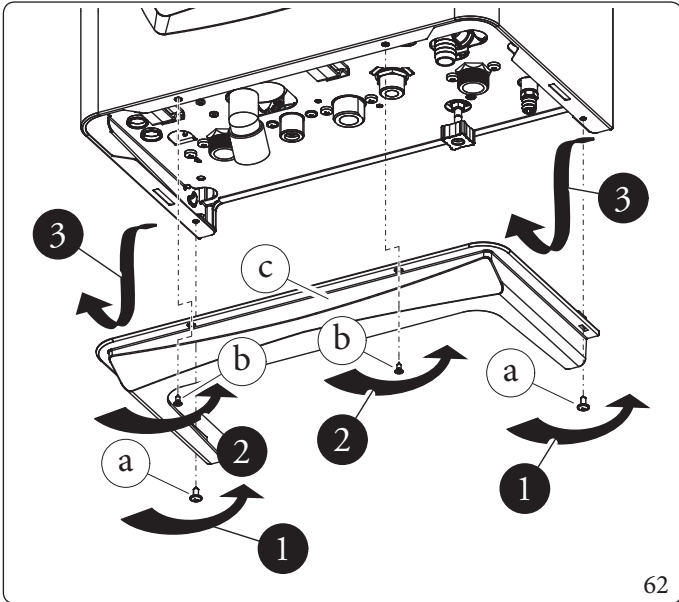
When the time expires, the boiler automatically goes back to “Stand-by” mode, the function can also be stopped by pressing the button “RESET”.

### 3.22 CASINGREMOVAL

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

#### Lower grid (Fig. 62)

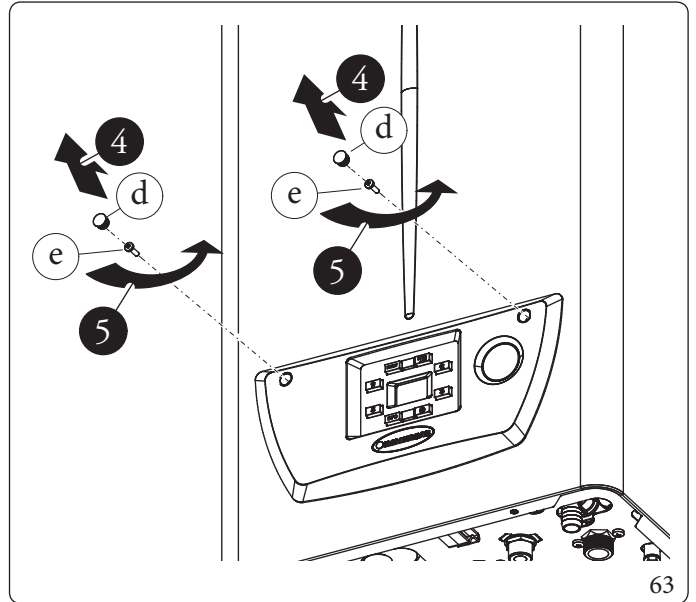
- Loosen the two side screws (a).
- Loosen the two screws under the front panel (b).
- Remove the grid (c).



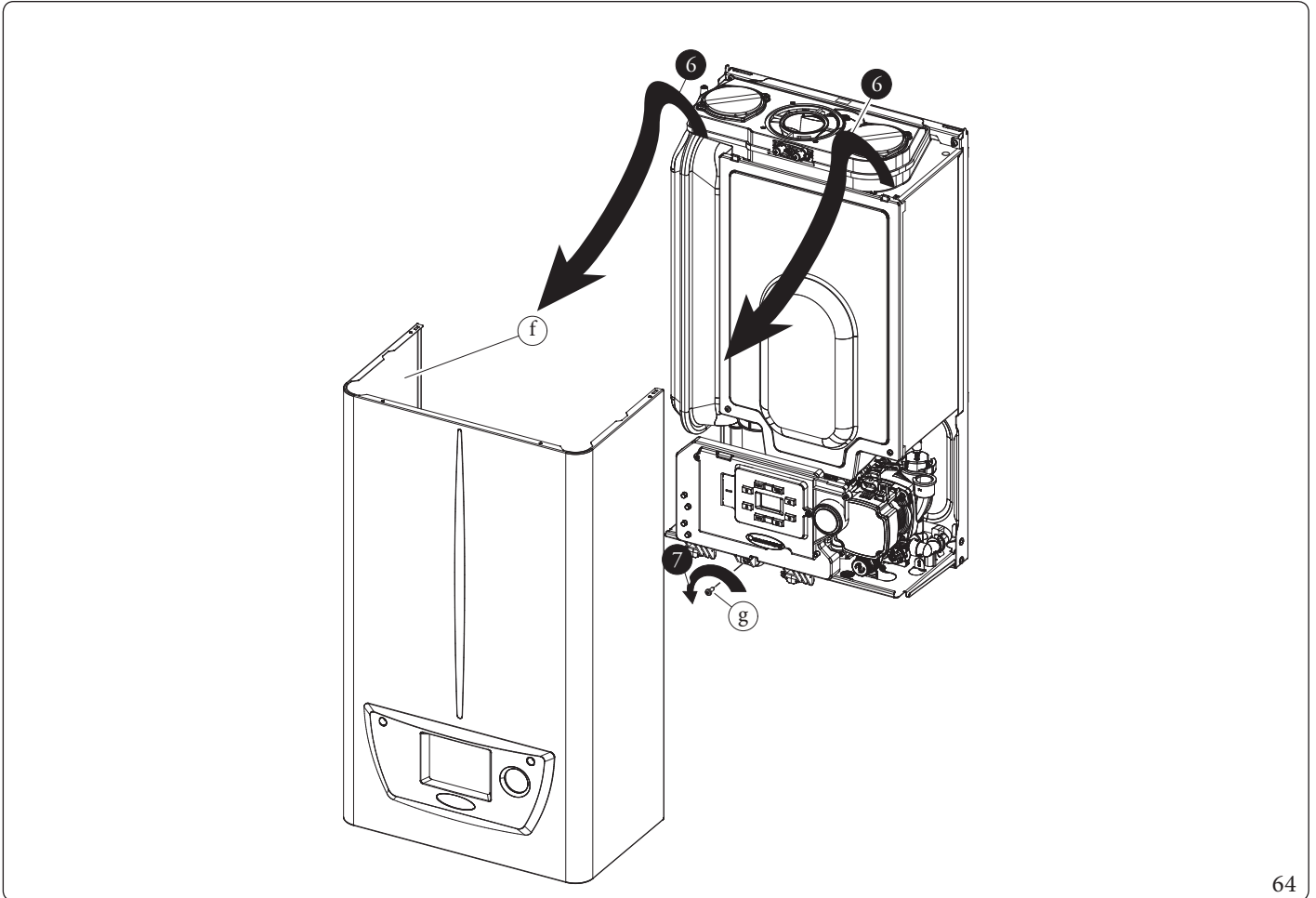
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#### Casing and control panel (Fig. 63-64)

- Remove the covering caps (d).
- Then unscrew the two fixing screws on the control panel (e).
- Pull the casing (f) towards you and release it from its lower seat.
- Loosen the screw (g) that secures the control panel.



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# 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		MODULATION	GASFLOW RATE BURNER	MODULATION	GASFLOW RATE BURNER	
(kW)	(kcal/h)		(%)	(m <sup>3</sup> /h)	(%)	(kg/h)	
25,0	21500	D.H.W.	99	2,72	99	2,00	
24,0	20640		95	2,61	95	1,92	
23,0	19780		91	2,50	91	1,84	
22,0	18920		87	2,40	87	1,76	
20,2	17372		79	2,20	79	1,62	
20,0	17200	HEAT. + D.H.W.	78	2,18	78	1,60	
19,0	16340		74	2,07	74	1,52	
18,0	15480		69	1,96	69	1,44	
17,0	14620		65	1,86	65	1,36	
16,0	13760		60	1,75	60	1,28	
15,0	12900		56	1,64	56	1,20	
14,0	12040		51	1,53	51	1,13	
13,0	11180		46	1,43	46	1,05	
12,0	10320		42	1,32	42	0,97	
11,0	9460		37	1,21	37	0,89	
10,0	8600		32	1,10	32	0,81	
9,0	7740		27	0,99	27	0,73	
8,0	6880		22	0,88	22	0,65	
7,0	6020		17	0,78	17	0,57	
6,0	5160		11	0,67	11	0,49	
5,0	4300		6	0,56	6	0,41	
4,1	3526		1	0,46	1	0,34	

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## 4.2 COMBUSTION PARAMETERS

Gastype		G20	G31
Supply pressure	mbar (mm H <sub>2</sub> O)	20 (204)	31 (377)
Gas nozzle diameter	mm	5	5
Flue flowrate at D.H.W. nominal heat output	kg/h (g/s)	42 (11.54)	43 (11.83)
Flue flowrate at heating nominal heat output	kg/h (g/s)	34 (9.44)	34 (9.56)
Flue flowrate at min heat output	kg/h (g/s)	7 (1.98)	7 (2.02)
CO <sub>2</sub> to nominal Q.	%	9.2 (±0,2)	10.2 (±0,2)
CO <sub>2</sub> to ignition Q.	%	9 (±0,2)	10 (±0,2)
CO <sub>2</sub> to minimum Q.	%	9 (±0,2)	10 (±0,2)
CO with 0% O <sub>2</sub> at Nom./Min. Q.	ppm	230 / 9	240 / 69
NO <sub>x</sub> with 0% O <sub>2</sub> at Nom./Min. Q.	mg/kWh	37 / 26	43 / 39
Flue temperature at nominal output	°C	65	65
Flue temperature at minimum output	°C	56	57
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.

Available head intake / exhaust with F0=0	Available head intake / exhaust with F0=1	Available head intake / exhaust with F0=2
Pa	Pa	Pa
68	113	152

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### 4.3 TECHNICAL DATA TABLE

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Domestic hot water nominal heat input	kW (kcal/h)	25.7 (22119)
Central heating nominal heat input	kW (kcal/h)	20.8 (17885)
Minimum heat input	kW (kcal/h)	4.3 (3715)
Domestic hot water nominal heat output (useful)	kW (kcal/h)	25 (21500)
Central heating nominal heat output (useful)	kW (kcal/h)	20.2 (17372)
Minimum heat output (useful)	kW (kcal/h)	4.1 (3526)
*Effective thermal efficiency 80/60 Nom./Min.	%	97.1 / 94.9
*Effective thermal efficiency 50/30 Nom./Min.	%	105 / 105.8
*Effective thermal efficiency 40/30 Nom./Min.	%	106.9 / 107.7
Casing losses with burner On/Off (80-60°C)	%	0,38 / 0,05
Chimney losses with burner On/Off (80-60°C)	%	0,02 / 2,75
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	20-50
Adjustable central heating temperature (max operating field)	°C	55-85
System expansion vessel total volume	l	5.8
Expansion vessel pre-charged pressure	bar (MPa)	1,0 (0,10)
Appliance water content	l	2
Head available with 1000l/h flow rate	kPa (mH <sub>2</sub> O)	26,7 (2,7)
Hot water production useful heat output	kW (kcal/h)	25 (21500)
Domestic hot water adjustable temperature	°C	20-60
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	12.5
Weight of full boiler	kg	31
Weight of empty boiler	kg	29
Electrical connection	V/Hz	230 / 50
Nominal power absorption	A	0.67
Installed electric power	W	90
Pump absorbed power	W	40
EEI value	-	≤0.20 - Part. 3
Fan power absorbed power	W	87.9
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
NO <sub>x</sub> class	-	6
Weighted NO <sub>x</sub>	mg/kWh	36
Weighted CO	mg/kWh	23
**Type of appliance	-	C13-C13x-C33-C33x-C43-C43x-C53-C63-C83-C93-C93xB23-B33

Category	-	II 2H3P
----------	---	---------

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<sub>x</sub> value refer to the net calorific value.

\*\* For type C63 it is forbidden to install the appliance as it came out of the factory, in configurations that require shared flues in positive pressure.

#### 4.4 KEY FOR DATA NAMEPLATE

Md				Cod. Md			
Sr N°		CHK	Cod. PIN				
Type							
Qnw/Qn min.		Qnw/Qn max.		Pn min.		Pn max.	
PMS	PMW	D		TM			
NOx Class							
				CONDENSING			

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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)
Qnw min.	Minimum DHW heat input
Qn min.	Central heating minimum heat input
Qnw max.	DHW maximum heat input
Qn max.	Central heating maximum heat input
Pn min.	Minimum heat output
Pn max.	Maximum heat output
PMS	Maximum system pressure
PMW	Maximum domestic hot water pressure
D	Specific flow rate
TM	Maximum operating temperature
NOx Class	NOx Class
CONDENSING	Condensing boiler

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

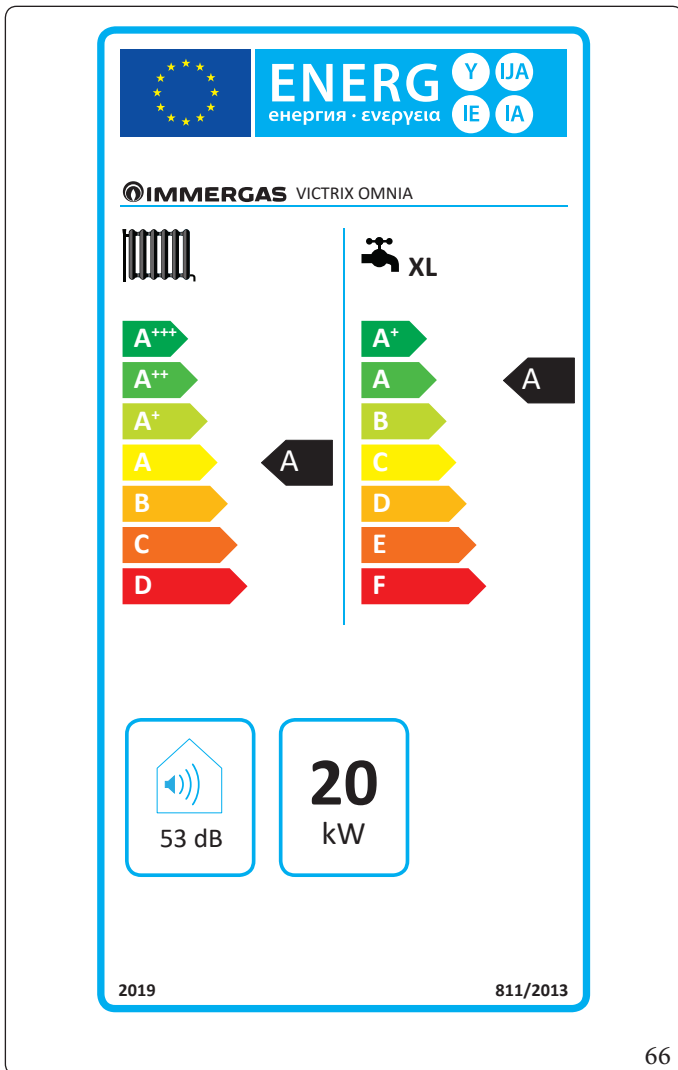
Model/s:				VICTRIX OMNIA				
Condensing Boilers:				SI				
Low temperature boiler:				NO				
Boiler type B1:				NO				
Co-generation appliance for central heating:				NO		Fitted with supplementary heating system:		NO
Mixed heating appliance:				SI				
Element	Symbol	Value	Unit	Element	Symbol	Value	Unit	
Nominal heat output	$P_n$	20	kW	Seasonal energy efficiency of central heating	$\eta_s$	91	%	
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 (*)	$P_4$	20,2	kW	At nominal heat output in high temperature mode (*)	$\eta_4$	87,3	%	
At 30% of nominal heat output in a low temperature mode (**)	$P_1$	6,6	kW	At 30% of nominal heat output in a low temperature mode (**)	$\eta_1$	95,8	%	
Auxiliary electricity consumption				Other items				
At full load	$el_{max}$	0,018	kW	Heat loss in standby	$P_{stby}$	0,055	kW	
At partial load	$el_{min}$	0,011	kW	Ignition burner energy consumption	$P_{ign}$	0,000	kW	
In standby mode	$P_{SB}$	0,004	kW	Emissions of nitrogen oxides	$NO_x$	32	mg/kWh	
For mixed central heating appliances								
Stated load profile	XL			Domestic hot water production efficiency	$\eta_{WH}$	82	%	
Daily electrical power consumption	$Q_{elec}$	0,138	kWh	Daily gas consumption	$Q_{fuel}$	23,932	kWh	
Contact information	IMMERGASS.p.A. VIA CISA LIGURE, 95 - 42041 BRESCELLO (RE) ITALY							
(*) 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  $NO_x$  values in the following tables refer to the gross calorific value.



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

Victrix Omnia



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.

Parameter	value
Annual energy consumption for the central heating mode (QHE)	38,5 GJ
Annual electricity consumption for the domestic hot water function (AEC)	30 kWh
Annual fuel consumption for the domestic hot water function (AFC)	18 GJ
Seasonal space heating energy efficiency ( $\eta_s$ )	91 %
Water heating energy efficiency ( $\eta_{wh}$ )	82 %

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## 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. 68 e 70). To complete it properly, fill the relevant spaces as shown in the assembly chart facsimile (Fig. 67” and “69) 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. 68) for “assemblies” related to the central heating mode (e.g.: boiler + temperature controller). Use board (Fig. 70) 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.

Seasonal central heating energy efficiency of the boiler	<div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;">I</div> %
Temperature control From temperature control board	<div style="border: 1px solid black; padding: 2px; display: inline-block; width: 200px;">           Class I = 1 %, Class II = 2 %,            Class III = 1.5 %, Class IV = 2 %,            Class V = 3 %, Class VI = 4 %,            Class VII = 3.5 %, Class VIII = 5 %         </div> <div style="margin-left: 10px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">2</div> <div style="margin: 0 5px;">+</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;"> </div> %         </div>
Supplementary boiler From boiler board	<div style="border: 1px solid black; padding: 2px; display: inline-block; width: 200px;">           Seasonal central heating energy efficiency of the room (%)         </div> <div style="margin-left: 10px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">3</div> <div style="margin: 0 5px;">±</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;"> </div> %         </div>
<p><i>Solar contribution</i></p> <p><i>From the board of the solar device</i></p> <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 20%;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 80px;">             Dimensions of the manifold (in m<sup>2</sup>)           </div> <div style="margin-left: 20px;">↓</div> </div> <div style="width: 20%;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 80px;">             Volume of the tank (in m<sup>3</sup>)           </div> <div style="margin-left: 20px;">↓</div> </div> <div style="width: 20%;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 80px;">             Efficiency of the manifold (in %)           </div> <div style="margin-left: 20px;">↓</div> </div> <div style="width: 20%;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 80px;">             Classification of the tank  <small>A* = 0.95, A = 0.91, B = 0.86, C = 0.83, D-G = 0.81</small> </div> <div style="margin-left: 20px;">↓</div> </div> </div>	
	$('III' \times \text{[ ]} + 'IV' \times \text{[ ]}) \times (0.9 \times (\text{[ ]} / 100) \times \text{[ ]}) = + \text{[ ]} \%$ <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;">4</div>
Supplementary heat pump From the heat pump board	<div style="border: 1px solid black; padding: 2px; display: inline-block; width: 200px;">           Seasonal central heating energy efficiency of the room (%)         </div> <div style="margin-left: 10px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">5</div> <div style="margin: 0 5px;">+</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;"> </div> %         </div>
Solar contribution and supplementary heat pump	$0.5 \times \text{[ ]} \text{ O } 0.5 \times \text{[ ]} = - \text{[ ]} \%$ <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;">6</div>
Select the lowest value	<div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;">7</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;"> </div> %
Seasonal central heating energy efficiency of the set	<div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;">7</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;"> </div> %
Seasonal central heating energy efficiency class of the set	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">G</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">F</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">E</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">D</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">C</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">B</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">A</div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">A<sup>+</sup></div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">A<sup>++</sup></div> <div style="border: 1px solid black; padding: 2px; width: 20px; height: 20px; text-align: center;">A<sup>+++</sup></div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>&lt; 30 %</span> <span>≥ 30 %</span> <span>≥ 34 %</span> <span>≥ 36 %</span> <span>≥ 75 %</span> <span>≥ 82 %</span> <span>≥ 90 %</span> <span>≥ 98 %</span> <span>≥ 125 %</span> <span>≥ 150 %</span> </div> </div>
Boiler and supplementary heat pump installed with low temperature heat emitters at 35 °C?	<div style="border: 1px solid black; padding: 2px; display: inline-block;">7</div> <div style="margin-left: 10px;">+</div> <div style="margin-left: 10px;">( 50 x 'II' ) =</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 30px; text-align: center;"> </div> %
<p><i>The energy efficiency of the set of products indicated in this sheet may not reflect the actual energy efficiency after installation since such efficiency is affected by additional factors, such as the heat loss in the distribution system and the size of the products compared to the size and features of the building.</i></p>	

## Parameters for filling in the assembly chart

Parameter	VICTRIX OMNIA
"I"	91
"II"	*
"III"	1,32
"IV"	0,52

\* 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.

Seasonal central heating energy efficiency of the boiler 1  %

---

Temperature control 2  %  
 From temperature control board

Class I = 1 %, Class II = 2 %,  
 Class III = 1.5 %, Class IV = 2 %,  
 Class V = 3 %, Class VI = 4 %,  
 Class VII = 3.5 %, Class VIII = 5 %

Supplementary boiler 3  %  
 From boiler board

Seasonal central heating energy efficiency of the room (%)

$$(\text{ } - \text{ } ) \times 0.1 = \pm \text{ } \%$$

Solar contribution 4  %  
 From the board of the solar device

Dimensions of the manifold (in m<sup>2</sup>)

Volume of the tank (in m<sup>3</sup>)

Efficiency of the manifold (in %)

Classification of the tank  
A\* = 0.95, A = 0.91,  
B = 0.86, C = 0.83,  
D-G = 0.81

$$(\text{ } \times \text{ } + \text{ } \times \text{ } ) \times (0.9 \times ( \text{ } / 100 ) \times \text{ } ) = + \text{ } \%$$

Supplementary heat pump 5  %  
 From the heat pump board

Seasonal central heating energy efficiency (in %)

$$( \text{ } - \text{ } ) \times \text{ } = + \text{ } \%$$

Solar contribution and supplementary heat pump 6  %

Select the lowest value  $0.5 \times \text{ } \text{ O } 0.5 \times \text{ } = - \text{ } \%$

---

Seasonal central heating energy efficiency of the set 7  %

---

Seasonal central heating energy efficiency class of the set

□	□	□	□	□	□	□	□	□	□	□
<b>G</b>	<b>F</b>	<b>E</b>	<b>D</b>	<b>C</b>	<b>B</b>	<b>A</b>	<b>A<sup>+</sup></b>	<b>A<sup>++</sup></b>	<b>A<sup>+++</sup></b>	
< 30 %	≥ 30 %	≥ 34 %	≥ 36 %	≥ 75 %	≥ 82 %	≥ 90 %	≥ 98 %	≥ 125 %	≥ 150 %	

Boiler and supplementary heat pump installed with low temperature heat emitters at 35 °C?  
 From the board of the heat pump 7  %

$$\text{ } + ( 50 \times \text{ } ) = \text{ } \%$$

The energy efficiency of the set of products indicated in this sheet may not reflect the actual energy efficiency after installation since such efficiency is affected by additional factors, such as the heat loss in the distribution system and the size of the products compared to the size and features of the building.

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

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

Water heating energy efficiency of combination boiler

**1**  
 %

Stated load profile:

Solar contribution

From the board of the solar device

Auxiliary electricity

$$( 1.1 \times \text{'I'} - 10 \% ) \times \text{'II'} - \text{'III'} - \text{'I'} = + \text{2} \text{ } \text{ } \%$$

Water heating energy efficiency of the assembly in average climate conditions

**3**  
 %

Water heating energy efficiency class of the assembly in average climate conditions

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

Water heating energy efficiency class in colder and hotter climate conditions

Colder:  <sup>3</sup> - 0.2 x  <sup>2</sup> =  %

Hotter:  <sup>3</sup> + 0.4 x  <sup>2</sup> =  %

*The energy efficiency of the set of products indicated in this sheet may not reflect the actual energy efficiency after installation since such efficiency is affected by additional factors, such as the heat loss in the distribution system and the size of the products compared to the size and features of the building.*

Parameters for filling in the DHW package fiche

Parameter	VICTRIX OMNIA
"I"	82
"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.

Water heating energy efficiency of combination boiler

%

Stated load profile:

Solar contribution

From the board of the solar device

Auxiliary electricity

( 1.1 x  - 10 % ) x  -  = +  %

Water heating energy efficiency of the assembly in average climate conditions

%

Water heating energy efficiency class of the assembly in average climate conditions

	<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 %

Water heating energy efficiency class in colder and hotter climate conditions

Colder:  - 0.2 x  =  %

Hotter:  + 0.4 x  =  %

The energy efficiency of the set of products indicated in this sheet may not reflect the actual energy efficiency after installation since such efficiency is affected by additional factors, such as the heat loss in the distribution system and the size of the products compared to the size and features of the building.

INSTALLER

USER

MAINTENANCE TECHNICIAN

TECHNICAL DATA







This instruction booklet is made of ecological paper.



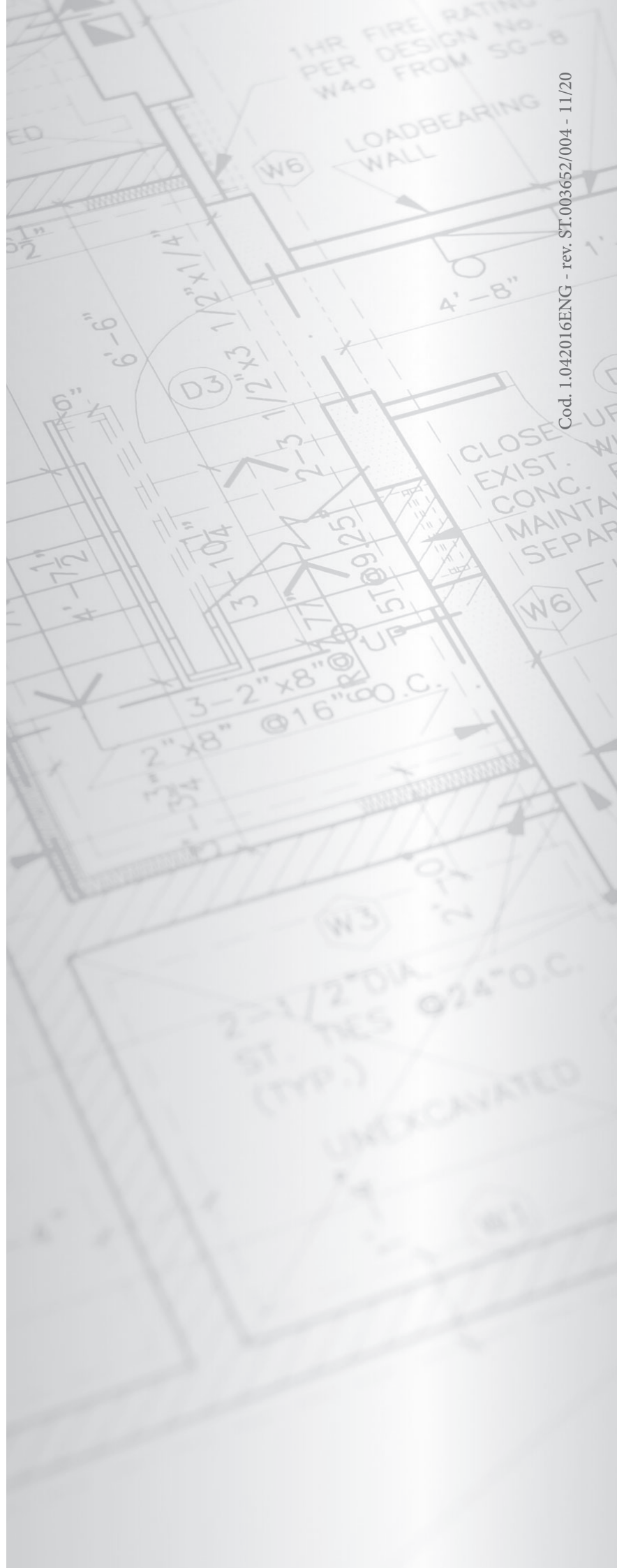
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Design, manufacture and after-sales  
assistance of gas boilers, gas  
water heaters and relative accessories



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