KEZELÉSI – SZERELÉSI UTASÍTÁS

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USER'S MANUAL

IMMERGAS

Instruction and recommendation booklet **IE**

VICTRIX ZEUS 26 2 ErP

1.037936ENG

Dear Customer,

Our compliments for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a qualified 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 suggestions regarding the correct use of the appliance, the respect of which, will confirm your satisfaction for the Immergas product.

Contact our area authorised after-sales centre as soon as possible to request commissioning.

Our technician will verify the correct functioning conditions; he will perform the necessary calibrations and will demonstrate the correct use of the generator.

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

General recommendations

All Immergas products are protected with suitable transport packaging.

The material must be stored in dry environments protected against bad weather.

The instruction book is an integral and essential part of the product and must be consigned to the new user also 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.

This instructions manual provides technical information for installing Immergas boilers. As for the other issues related to boiler installation (e.g. safety in the work site, environment protection, injury prevention), it is necessary to comply with the provisions specified in the regulations in force and principles of good practice.

In compliance with 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, intending staff with specific technical skills in the plant sector, as envisioned by the Law.

Improper installation or assembly of the Immergas appliance and/or components, accessories, kit and devices can cause unexpected problems to people, animals and objects. Read the instructions provided with the product carefully to ensure a proper installation.

Maintenance must be carried out by skilled technical staff. The Authorised After-sales Service 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 book (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damages and the appliance warranty is invalidated.

For further information regarding legislative and statutory provisions relative to the installation of gas heat generators, consult the Immergas site at the following address: www.immergas.com

CE DECLARATION OF CONFORMITY
(according to ISO/IEC 17050-1)

The company **IMMERGAS S.p.A.**, with registered office in via Cisa Ligure 95 42041 Brescello (RE) whose design, manufacturing, and after sale assistance processes comply with the requirements of standard **UNI EN ISO 9001:2008**,

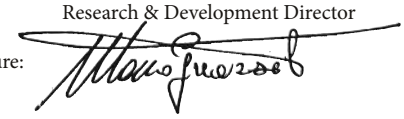
DECLARES that:

The boiler model Victrix Zeus 26 2 ErP complies with European Directives and Delegated European Regulations listed below:
"Eco-design" Directive 2009/125/EC, "Energy labelling" Directive 2010/30/EC, EU Regulation 811/2013, EU Regulation 813/2013, "Gas Appliance" Directive 2009/142/EC, "Electromagnetic Compatibility" Directive 2004/108/EC, "Performance" Directive 92/42/EC and "Low Voltage" Directive 2006/95/EC.

Mauro Guareschi

Research & Development Director

Signature:



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1 BOILER INSTALLATION

1.1 INSTALLATION RECOMMENDATIONS.

The Victrix Zeus 26 2 ErP boiler has been designed for wall mounted installation only; for 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 to allow (always in safety, efficiency and comfortable conditions):

- installation (according to the provisions of the 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 their eventual replacement 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. 1-1).
By varying the type of installation the classification of the boiler also varies, precisely:

- **Type B_{23} or B_{53}** 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 sealed chamber boilers for air intake and expulsion of flue gas.

Note: appliance classification is provided in the depictions of the various installation solutions shown on the following pages.

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.
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 normal servicing; therefore it is advisable to leave clearance of at least 3 cm between the boiler casing and the vertical sides of the cabinet. Leave adequate space above the boiler for possible water and flue removal connections. Keep all flammable objects away from the appliance (paper, rags, plastic, polystyrene, etc.).
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. Failure to comply with the above implies personal responsibility and invalidates the warranty.

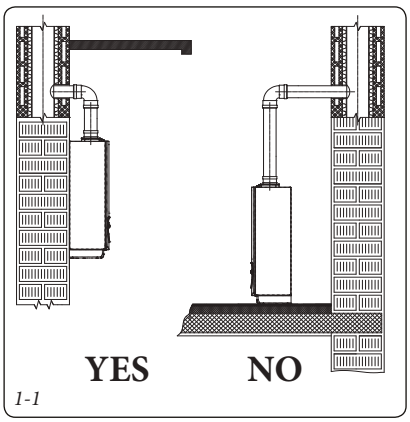
- Installation regulations:
  - this boiler can be installed outdoors in a partially protected area. A partially protected area is one in which the appliance is not exposed to the direct action of the weather (rain, snow, hail, etc..).
  - Installation in places with a fire risk is prohibited (for example: garages, closed parking stalls), gas appliances and relative flue ducts, flue exhaust pipes and combustion air intake pipes.
  - Installation is prohibited on the vertical projection of cooking hobs.
  - Installation is also prohibited in places/environments that constitute common parts of office condominiums such as stairs, cellars, entrance halls, attics, lofts, escape routes, etc. if they are not located inside technical compartments under the responsibility of each individual building and only accessible to the user (for the features of the technical compartments, see the technical standards in force).

Attention: wall mounting of the boiler must guarantee stable and efficient support for the generator
The plugs (standard supply) are only to be used to fix the appliance 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.

N.B.: the hex head screws supplied in the blister pack are to be used exclusively to fix the relative mounting bracket to the wall.

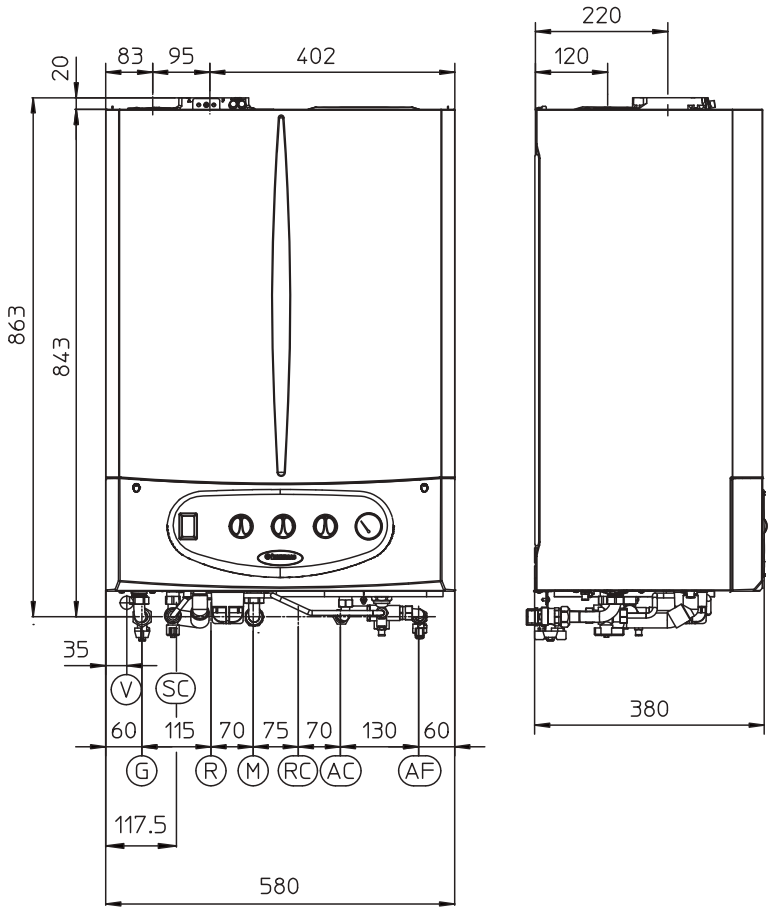
These boilers are used to heat water to below boiling temperature in atmospheric pressure.
They must be connected to a central heating system and hot water circuit suited to their performance and capacity.

"Anti-legionella" heat treatment of the Immergas storage tank (activated by the specific function present on the predisposed thermoregulatory systems): during this stage, the temperature of the water inside the storage tank exceeds 60°C with a relative risk of burns. Keep this domestic water treatment under control (and inform the users) to prevent unforeseeable damage to people, animals, things. If required install a thermostatic valve on the domestic hot water outlet to prevent scalding.



1-1

1.2 MAIN DIMENSIONS.



Key:

V - Electrical connection
G - Gas supply
SC - Condensate drain (minimum internal diameter 13 mm Ø)
R - System return
M - System flow
RC - Domestic hot water recirculation (optional)
AC - Domestic hot water outlet
AF - Domestic cold water inlet

N.B.: *Connection group (Optional)*

Height (mm)	Width (mm)		Depth (mm)	
863	580		380	
CONNECTIONS				
GAS	SYSTEM		DOMESTIC HOT WATER	
G	R	M	AC	AF
1/2"	3/4"	3/4"	1/2"	1/2"

1-2

1.3 ANTIFREEZE PROTECTION.

Minimum temperature -5°C. The boiler comes standard with an anti-freeze function that activates the pump and burner when the system water temperature in the boiler falls below 4°C. *In these conditions the boiler is protected against freezing to an ambient temperature of -5°C.*

Minimum temperature -15°C. In the event the boiler is installed in a place where the temperature falls below -5°C, the appliance can freeze. *To prevent the risk of freezing follow the instructions below:*

- protect the central heating circuit from freezing by inserting a good-quality antifreeze liquid into this circuit, which is specially 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. An aqueous solution must be made with potential pollution class of water 2 (EN 1717:2002).

  The materials used for the central heating circuit of Immergas boilers withstand ethylene and propylene glycol based antifreeze liquids (if the mixtures are prepared perfectly).

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

- Protect the domestic hot water circuit against freezing by using an accessory that is supplied on request (anti-freeze kit) comprising two electric heating elements, the relevant cables 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 (both -5°C and -15°C) is thus ensured only if:

- *the boiler is correctly connected to gas and electricity power supply circuits;*
- *the boiler is powered constantly;*
- *the boiler is not in stand-by (⏻).*
- *the boiler is not in anomaly conditions (parag. 2.5);*
- *the essential components of the boiler and/or antifreeze kit 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.

NOTE: if the boiler is installed in places where the temperature falls below 0°C the domestic hot water and central heating attachment pipes must be insulated.

1.4 GAS CONNECTION.

Our boilers are designed to operate with methane gas (G20) and LPG. Supply pipes must be the same as or larger than the 1/2"G 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 name plate). If different, the appliance must be converted for operation with the other type of gas (see converting appliance for other gas types). The dynamic gas supply (methane or LPG) pressure must also be checked according to the type used in the boiler, which must comply with the technical standards in force and relevant annexes, as insufficient levels can reduce generator output and cause malfunctions.
Ensure correct gas cock connection. 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 technical standards in force.

Fuel gas quality. The appliance was designed to operate with combustible gas free of 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 casing 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 heating power of the mixture delivered to the appliance, with subsequent change in its performance.

1.5 HYDRAULIC CONNECTION.

Attention: in order not to void the condensation module warranty, before making the boiler connections, carefully wash the heating system (pipes, radiators, etc.) with special pickling or descaling products to remove any deposits that could compromise correct boiler operation.

A chemical treatment of the thermal 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., lime scale), slurry or other hazardous deposits.

Water connections must be made in a rational way using the couplings on the boiler template. The boiler safety valves outlet must be connected to a draining funnel. Otherwise, the manufacturer declines any responsibility in case of flooding if the drain valve cuts in.

Attention: Immergas declines all liability in the event of damage caused by the inclusion of automatic filling that is not its own brand.

In order to meet the system requirements established by the technical regulation in force in relation to the 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. It is also recommended that the heat transfer fluid (e.g. water + glycol) entered in the primary circuit of the boiler (heating circuit), complies with the local regulations in force.

Attention: *to preserve the duration and the efficiency features of the appliance, in the presence of water whose features can lead to the deposit of scale, installation of the "polyphosphate dispenser" kit is recommended.*

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 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 (para. 1.21). Also, comply with national and local regulations on discharging waste waters.

1.6 ELECTRICAL CONNECTION.

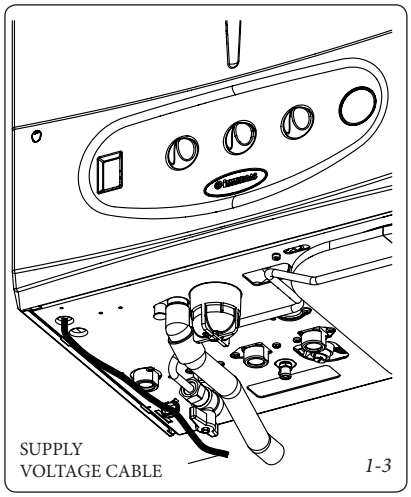
The boiler has an IPX4D protection rating for the entire appliance. Electrical safety of the appliance is reached only when it is correctly connected to an efficient earthing system as specified by current safety standards.

Attention: Immergas S.p.A. declines any responsibility for damage or physical injury caused by failure to connect the boiler to an efficient earth system or failure to comply with the reference standards.

Also ensure that the electrical installation corresponds to maximum absorbed power specifications as shown on the boiler data-plate. Boilers are supplied complete with an "X" type power 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 over-voltage category. When replacing the power supply cable, contact a qualified firm (e.g. the Authorised After-Sales Technical Assistance Service). The power cable must be laid as shown (Fig. 1-3).
In the event of mains fuse replacement on the P.C.B., use a 3.15A quick-blow fuse. For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.
If during connection the L-N polarities are not respected, the boiler does not detect flame presence and goes into ignition block.

Warning: even where L-N polarity is not complied with, if there is temporary residual voltage exceeding 30V on the neutral the boiler might still operate (but only temporarily). Measure the voltage using appropriate instruments, without trusting the voltage tester screwdriver.

Installation with system operating at direct low temperature. The boiler can directly feed a low temperature system by acting on the jumper (8 Fig. 3-4) and by setting the flow temperature adjustment range from 50 ÷ 20°C (Para. 3.17). In this situation it is good practice to insert a safety device in series with the power supply and boiler. This device is made up from a thermostat with a temperature limit of 60°C. The thermostat must be positioned on the system delivery pipe at a distance of at least 2 metres from the boiler.



SUPPLY VOLTAGE CABLE

1-3

1.7 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. 1-4).
All Immergas chrono-thermostats are connected with 2 wires only. Carefully read the user and assembly instructions contained in the accessory kit.

- On/Off Immergas digital chrono-thermostat. The chrono-thermostat allows:
  - set two room temperature value: one for daytime (comfort temperature) and one for night-time (reduced temperature);
  - set a weekly program with four daily switch on and switch off times;
  - select the required operating mode from the various possible alternatives:
  - manual operation (with adjustable temperature).
  - automatic operation (with set programme).
  - forced automatic operation (momentarily changing the temperature of the automatic programme).

  The chrono-thermostat is powered by two 1.5V LR 6 type alkaline batteries.
- Comando Amico Remoto Remote Control Device V2 (CAR V2) with climate chrono-thermostat function. In addition to the functions described in the previous point, the CAR V2 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 V2 is fed directly by the boiler by means of the same 2 wires used for the transmission of data between the boiler and device.

Important: If the system is divided into zones using the relevant kit, the CAR V2 must be used with its climate thermostat function disabled, i.e. it must be set to On/Off mode.

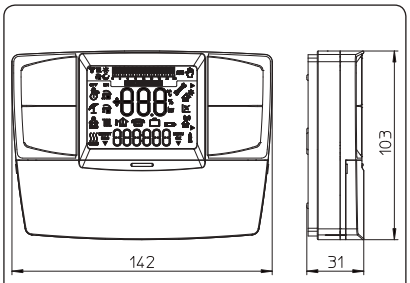
Comando Amico Remoto Remote Control V2 or On/Off chrono-thermostat electrical connections (Optional). *The operations described below must be performed after having removed the voltage from the appliance.* Any thermostat or On/Off environment chrono-thermostat must be connected to clamps 40 and 41 eliminating jumper X40 (Fig. 3-2). Make sure that the On/Off thermostat contact is of the "clean" type, i.e. independent of the mains voltage, otherwise the P.C.B. would be damaged. Any Comando Amico Remoto Remote Control V2 must be connected to clamps 42 and 43 eliminating jumper X40 on the P.C:B., paying attention not to invert the polarity in the connections (Fig. 3-2).

The boiler can only be connected to one remote control. The boiler works with the parameters set on the CAR V2 only if the boiler main selector is turned to DHW/Comando Amico Remoto( ).

Important: if the Comando Amico Remoto Remote Control V2 or any other On/Off chrono-thermostat is used, arrange two separate lines in compliance with current regulations regarding electrical systems. No boiler pipes must ever be used to earth the electric system or telephone lines. Ensure elimination of this risk before making the boiler electrical connections.

1.8 EXTERNAL TEMPERATURE PROBE (OPTIONAL).

The boiler is designed for the application of the Room Thermostat (Fig. 1-5) 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 V2 control panel if connected to the boiler) according to the curves shown in the diagram (Fig. 1-6). The electric connection of the external probe must be made on clamps 38 and 39 on the boiler P.C.B. (Fig. 3-2).



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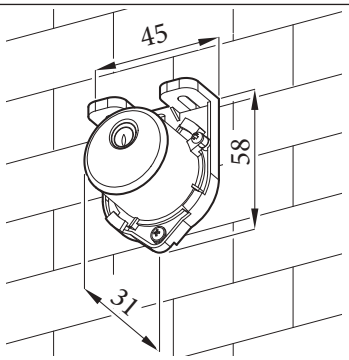

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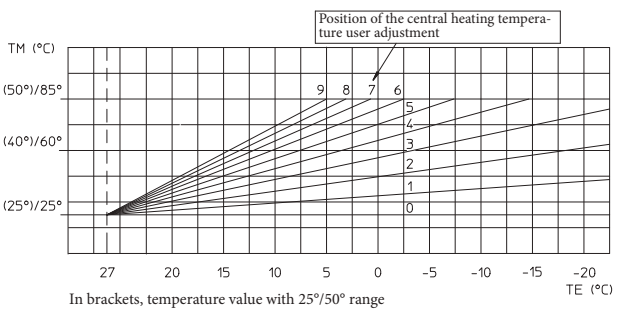

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1.9 IMMERGAS FLUE SYSTEMS.

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

Attention: the boiler must be installed exclusively with an original Immergas "Green Range" inspectionable air intake device and fumes extraction system made of plastic, as required by the regulations in force.

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

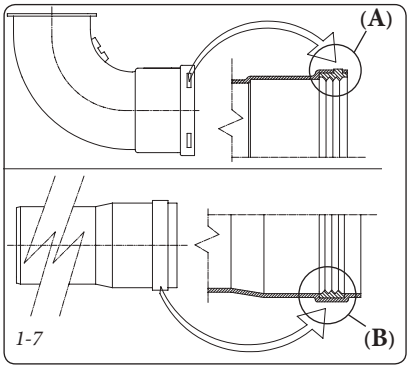
This system can be identified by an identification mark and special distinctive marking bearing the note: "only for condensing boilers".

- 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.
- **Positioning the gaskets (black) for "green range" flue systems.** Position the gasket correctly (for bends and extensions) (Fig. 1-7):
  - gasket (A) with notches, to use for bends;
  - gasket (B) without notches, to use for extensions;

  N.B.: if necessary, to ease the push-fitting, spread the elements with commonly-used talc.
- Coupling extension pipes and concentric elbows. 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.

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

- **N.B.:** for safety purposes, do not obstruct the boiler intake/exhaust terminal, even temporarily.
- **N.B.:** when installing horizontal pipes, a minimum inclination of 3% must be maintained and a section clip with pin must be installed every 3 metres.



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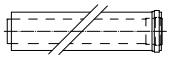
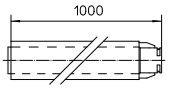
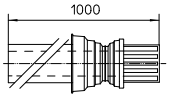
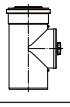
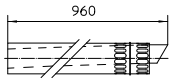
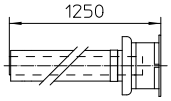
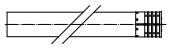
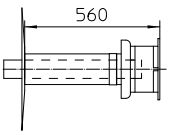
1.10 TABLES OF RESISTANCE FACTORS AND EQUIVALENT LENGTHS.

TYPE OF DUCT		Resistance Factor (R)	Equivalent length in m of concentric pipe Ø 80/125
Concentric pipe Ø 80/125 m 1		2.1	1
Concentric bend 90° Ø 80/125		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
Concentric bend 90° 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 metres of pipe Ø 80	Equivalent length in metres of pipe Ø 60	Equivalent length in m of concentric pipe Ø 80/125
Concentric pipe Ø 60/100 m 1		Intake and Exhaust 6.4	**m 1**	Intake m 7.3 Exhaust m 5.3	Exhaust m 1.9	m 3.0
Concentric bend 90° Ø 60/100		Intake and Exhaust 8.2	**m 1.3**	Intake m 9.4 Exhaust m 6.8	Exhaust m 2.5	m 3.9
Concentric bend 45° Ø 60/100		Intake and Exhaust 6.4	**m 1**	Intake m 7.3 Exhaust m 5.3	Exhaust m 1.9	m 3.0
Terminal complete with concentric horizontal intake-exhaust Ø 60/100		Intake and Exhaust 15	**m 2.3**	Intake m 17.2 Exhaust m 12.5	Exhaust m 4.5	m 7.1
Concentric horizontal intake- exhaust terminal Ø 60/100		Intake and Exhaust 10	**m 1.5**	Intake m 11.5 Exhaust m 8.3	Exhaust m 3.0	m 4.7
Terminal complete with concentric vertical intake-exhaust Ø 60/100		Intake and Exhaust 16.3	**m 2.5**	Intake m 18.7 Exhaust m 13.6	Exhaust m 4.9	m 7.7
Concentric vertical intake-exhaust terminal Ø 60/100		Intake and Exhaust 9	**m 1.4**	Intake m 10.3 Exhaust m 7.5	Exhaust m 2.7	m 4.3
Pipe Ø 80 m 1		Intake 0.87 Exhaust 1.2	m 0.1 m 0.2	**Intake m 1.0** **Exhaust m 1.0**	Exhaust m 0.4	m 0.4 m 0.5
Complete intake terminal Ø 80 m 1		Intake 3	m 0.5	**Intake m 3.4**	Exhaust m 0.9	m 1.4
Intake terminal Ø 80 Exhaust terminal Ø 80		Intake 2.2 Exhaust 1.9	m 0.35 m 0.3	**Intake m 2.5** **Exhaust m 1.6**	Exhaust m 0.6	m 1 m 0.9
Bend 90° Ø 80		Intake 1.9 Exhaust 2.6	m 0.3 m 0.4	**Intake m 2.2** **Exhaust m 2.1**	Exhaust m 0.8	m 0.9 m 1.2
Bend 45° Ø 80		Intake 1.2 Exhaust 1.6	m 0.2 m 0.25	**Intake m 1.4** **Exhaust m 1.3**	Exhaust m 0.5	m 0.5 0.7
Pipe Ø 60 m 1 for ducting		Exhaust 3.3	m 0.5	Intake 3.8 Exhaust 2.7	**Exhaust m 1.0**	m 1.5
Bend 90° Ø 60 for ducting		Exhaust 3.5	m 0.55	Intake 4.0 Exhaust 2.9	**Exhaust m 1.1**	m 1.6
Reduction Ø 80/60		Intake and Exhaust 2.6	m 0.4	Intake m 3.0 Exhaust m 2.1	**Exhaust m 0.8**	m 1.2
Terminal complete with exhaust vertical Ø 60 for ducting		Exhaust 12.2	m 1.9	Intake m 14 Exhaust m 10.1	**Exhaust m 3.7**	m 5.8

1.11 OUTDOOR INSTALLATION IN A PARTIALLY PROTECTED AREA.

N.B.: *a partially protected location is one in which the appliance is not exposed to the direct action of the weather (rain, snow, hail, etc..).*

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

- **Configuration type B, open chamber and forced draught.**

Using the special coverage kit one can achieve direct air intake (Fig. 1-8) and fumes exhaust in a single flue 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_{23}.
With this configuration:
- air intake takes place directly from the environment in which the appliance is installed (outside);
- the fumes exhaust must be connected to its own single flue (B23) or ducted directly outside via a vertical terminal for direct exhaust (B_{53}) or via an Immergas ducting system (B_{53}).

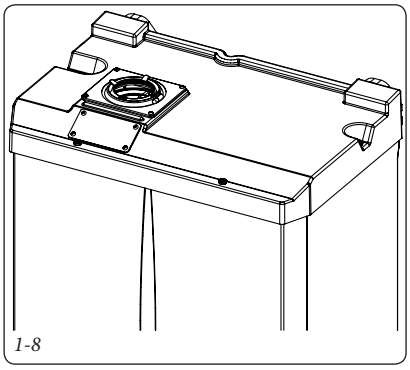
The technical regulations in force must be respected.

- **Coverage kit assembly (Fig. 1-9).** Remove the cap and gasket from the intake hole. Install the Ø 80 outlet flange on the central hole of the boiler, taking care to insert the gasket supplied with the kit and tighten by means of the screws provided. Place diaphragm Ø 41 on the intake hole. Install the upper cover, fixing it using the 4 screws present in the kit, positioning the relevant gaskets. Engage the 90° Ø 80 bend with the male end (smooth) in the female end (with lip seal) of the Ø 80 flange unit until it reaches the end stop. Introduce the gasket, making it run along the bend. Fix it using the metal-sheet steel plate and tighten by means of the clip present in the kit, making sure to block the 4 gasket flaps. Fit the male end (smooth) of the exhaust terminal into the the female end of the bend 90° Ø 80, 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 Ø60/100 and Ø 80/125 concentric intake/exhaust kits. Refer to the paragraph on indoor installation. In this configuration the upper cover kit assures additional protection for the boiler. It is recommended but not compulsory.



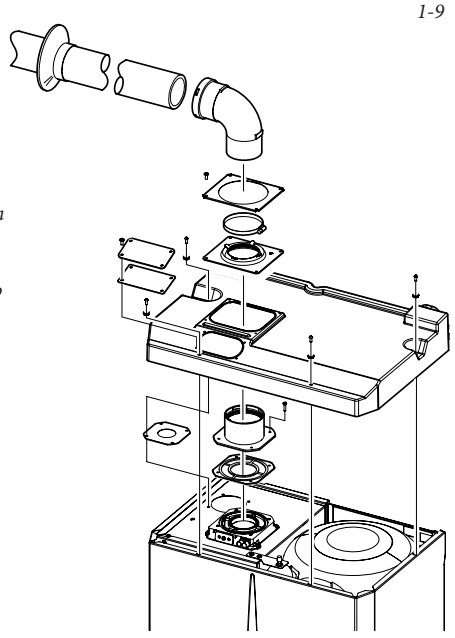
1-8

1-9

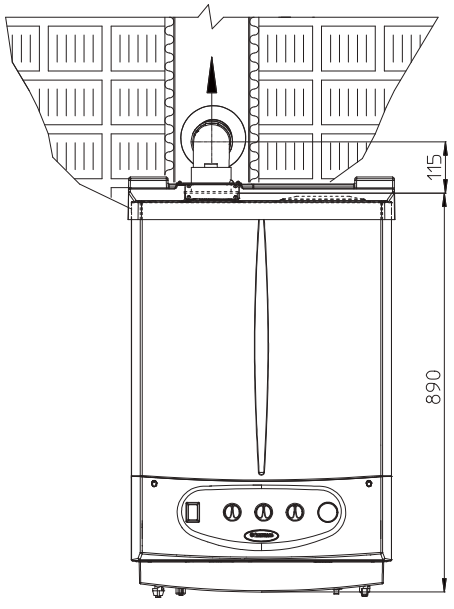
The cover kit includes:

1	*Thermoformed cover*
1	*Ø 41 Intake diaphragm*
N°1	*Gasket clamping plate*
N°1	*Gasket*
N°1	*Gasket tightening strap*

The terminal kit includes:
N° 1 Gasket
N° 1 Discharge flange Ø 80
N° 1 Bend 90° Ø 80
N° 1 Drain pipe Ø 80
N° 1 Wall sealing plate



1-10



1.12 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 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.

  N.B.: for proper system operation the terminal with grid must be installed correctly ensuring that, the "high" indication on the terminal is observed during installation.

Horizontal intake-exhaust kit Ø 60/100 Kit assembly (Fig. 1-11): 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. 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 plate have been fitted, this will ensure sealing and joining of the elements making up the kit.

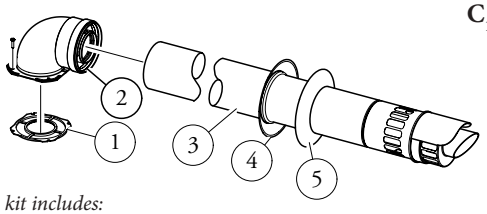
- Extensions for Ø 60/100 horizontal kit (Fig. 1-12). The kit with this configuration can be extended up to a *max. 12.9 horizontal m* including the terminal with grid and excluding the concentric bend leaving the boiler. This configuration corresponds to a resistance factor of 100. In this case the special extensions must be requested.

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.

Horizontal intake-exhaust kit Ø 80/125 Kit assembly (Fig. 1-13): to install the kit Ø 80/125 one must use the flanged adapter kit in order to install the flue system Ø 80/125. 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. Engage the bend (3) with the male side (smooth) to the end stop on the adapter (1). 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 top; making sure that the internal (6) and external wall sealing plate (7) have been fitted, this will ensure sealing and joining of the elements making up the kit.

- Extensions for horizontal kit Ø 80/125 (Fig. 1-14). 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.

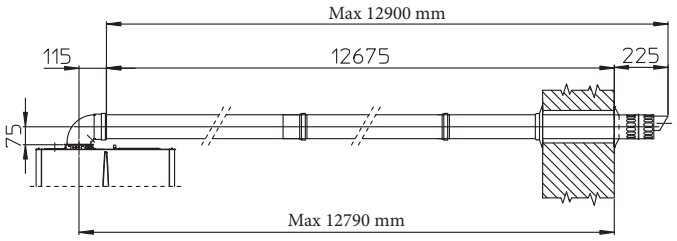
C_{13}



The kit includes:
N° 1 - Gasket (1)
N° 1 - Concentric bend Ø 60/100 (2)
N° 1 - Int./exhaust concentric terminal Ø 60/100 (3)
N° 1 - Internal wall sealing plate (4)
N° 1 - External wall sealing plate (5)

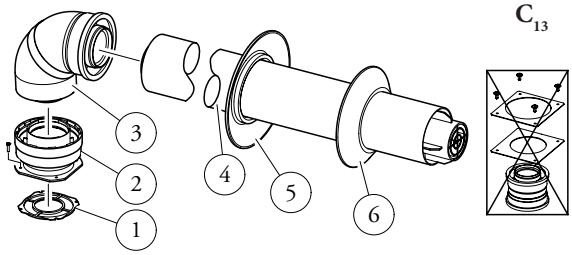
1-11

C_{13}



1-12

C_{13}

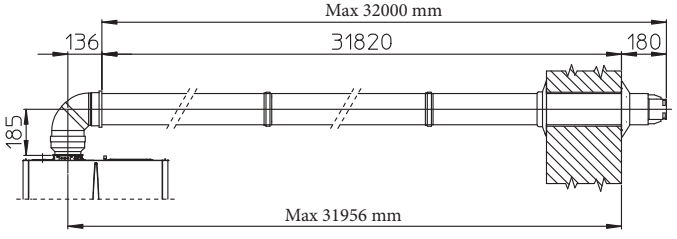


The adaptor kit includes:
N° 1 - Gasket (1)
N° 1 - Adaptor Ø 80/125 (2)

The Kit Ø 80/125 includes:
N° 1 - Concentric bend Ø 80/125 a 87° (3)
N° 1 - Int./exhaust concentric terminal Ø 80/125 (4)
N° 1 - Internal wall sealing plate (5)
N° 1 - External wall sealing plate (6)
The remaining kit components must not be used

1-13

C_{13}



1-14

1.13 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 exhaust.

N.B.: 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.

Vertical kit with aluminium tile Ø 60/100.
Kit assembly (Fig. 1-15): 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, and tighten using the screws contained in the kit.
Installation of the fake aluminium tile: replace the tiles with the aluminium sheet (4), shaping it to ensure that rainwater runs off. Position the fixed half-shell (6) on the aluminium tile and insert the intake-exhaust pipe (5). Fit the Ø 60/100 (3) 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.

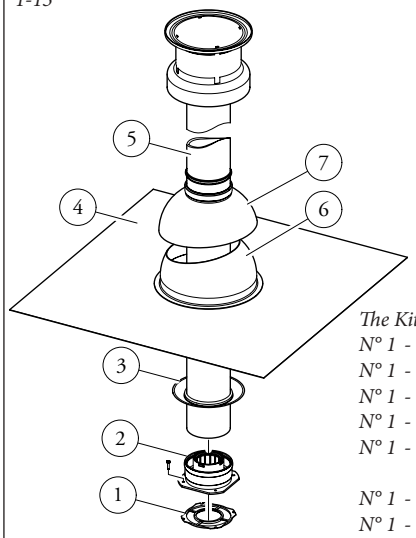
Note: *when the boiler is installed in areas where very cold temperatures may be reached, a special anti-icing kit is available that may be installed as an alternative to the standard kit.*

- Extensions for vertical kit Ø 60/100 (Fig. 1-16). The kit with this configuration can be extended to *a max. straight vertical 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.

Vertical kit with aluminium tile Ø 80/125.
Kit assembly (Fig. 1-17): to install the kit Ø 80/125 one must use the flanged adapter kit in order to install the flue system Ø 80/125. 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. Installation of the fake aluminium tile: replace the tiles with the aluminium sheet (4), shaping it to ensure that rainwater runs off. Position the fixed half-shell (5) on the aluminium tile and insert the intake-exhaust pipe (7). Fit the Ø 80/125 concentric terminal pipe with the male side (smooth) to the female side of the adapter (1) (with lip gaskets) 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.

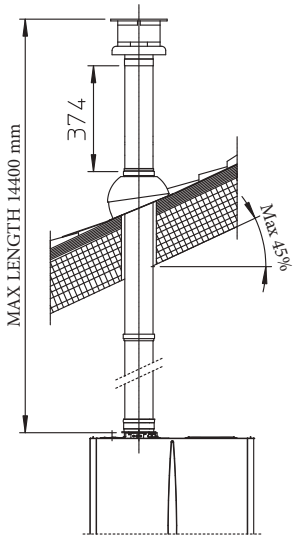
- Extensions for vertical kit Ø 80/125 (Fig. 1-18). The kit with this configuration can be extended up to a *max. length of 32 m* including the terminal. If additional components are assembled, the length equivalent to the maximum allowed must be subtracted. In this case specific extensions must be requested.

1-15 **C_{33}**

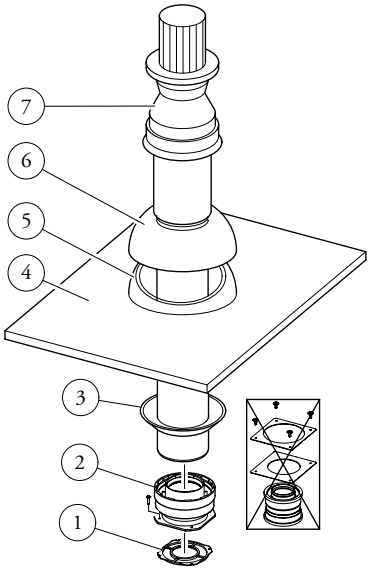


The Kit includes:
N° 1 - Gasket (1)
N° 1 - Female concentric flange (2)
N° 1 - Wall sealing plate (3)
N° 1 - Aluminium tile (4)
N° 1 - Int./exhaust concentric pipe Ø 60/100 (5)
N° 1 - Fixed half-shell (6)
N° 1 - Mobile half-shell (7)

1-16 **C_{33}**



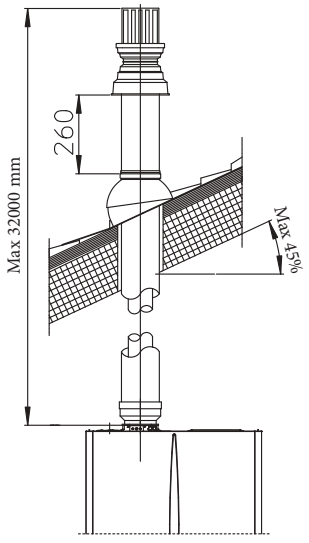
1-17 **C_{33}**



The adaptor kit includes:
N° 1 - Gasket (1)
N° 1 - Adaptor Ø 80/125 (2)

The Kit Ø 80/125 includes:
N° 1 - Wall sealing plate (3)
N° 1 - Aluminium tile (4)
N° 1 - Fixed half-shell (5)
N° 1 - Mobile half-shell (6)
N° 1 - Int./exhaust concentric pipe Ø 80/125 (7)
The remaining kit components must not be used

1-18 **C_{33}**



1.14 SEPARATOR KIT INSTALLATION. Type C configuration, sealed chamber and fan assisted.

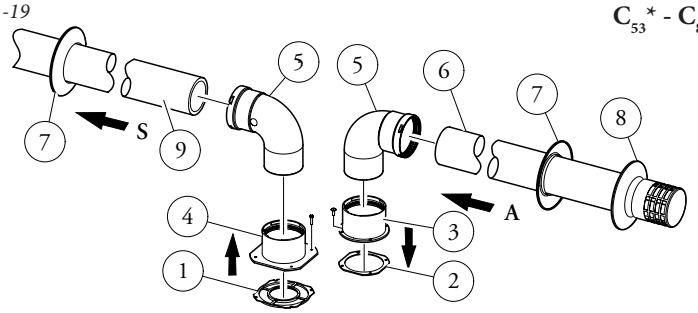
Separator kit Ø 80/80. This kit allows air to come in from outside the building and the fumes to exit from the chimney or flue through divided flue exhaust and air intake pipes. Combustion products are expelled from pipe (S) (in plastic, so as to resist acid condensate). Air is taken in through duct (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.

- Kit assembly (Fig. 1-19): install flange (4) 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 hex screws with flat tip contained in the kit. Remove the flat flange present in the lateral hole with respect to the central one (according to needs) and replace it with the flange (3), positioning the gasket (2) already present in the boiler and tighten using the supplied self-threading screws. Fit the male end (smooth) to the bends (5) in the female end of the flanges (3 and 4). 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. Fit the exhaust pipe (9) with the male side (smooth) to the female side 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.
- Installation clearances (Fig. 1-20). 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.

N.B.: 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. 1-21).

1-19

C_{53}* - C_{83}



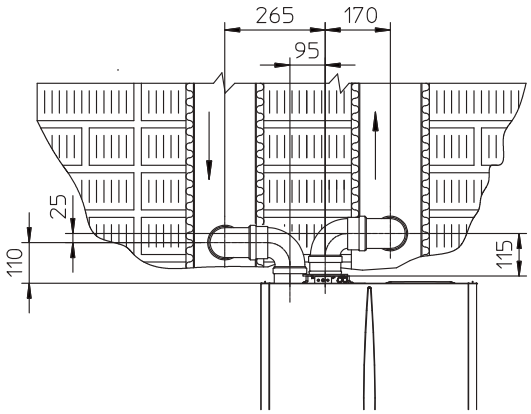
The kit includes:

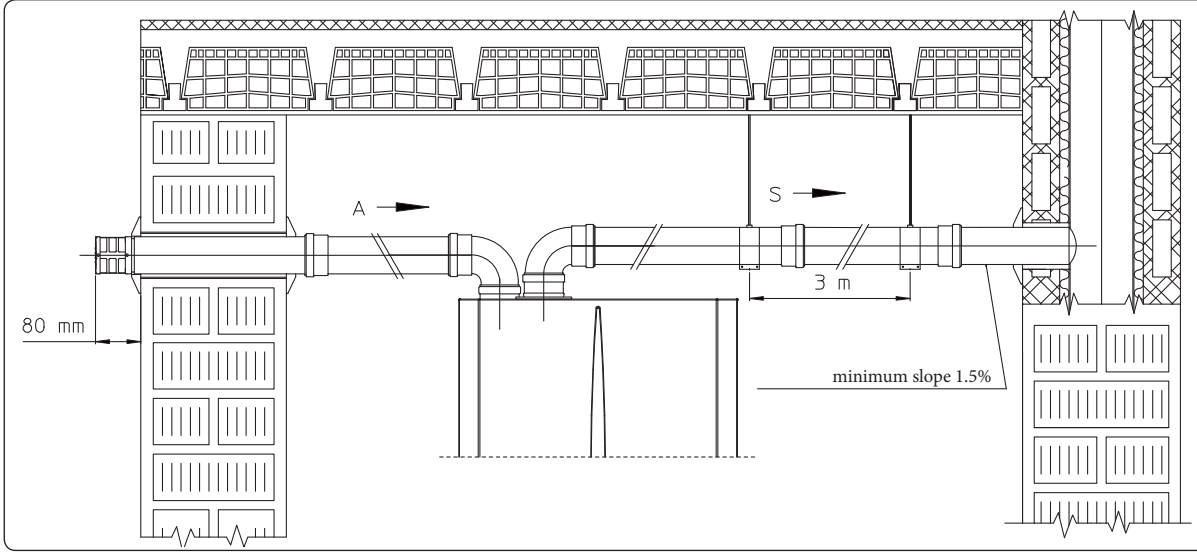
N° 1 - Exhaust gasket (1)
N° 1 - Flange seal gasket (2)
N° 1 - Female intake flange (3)
N° 1 - Female drain flange (4)
N° 2 - Bend 90° Ø 80 (5)
N° 1 - Intake terminal Ø 80 (6)
N° 2 - Internal wall sealing plates (7)
N° 1 - External wall sealing plate (8)
N° 1 - Drain pipe Ø 80 (9)

** to er complete C_{53} configuration also provide for a roof discharge terminal.*

1-20

C_{43}





C_{83}

1-21

1.15 ADAPTOR C9 KIT INSTALLATION.

This kit allows an Immergas boiler to be installed in "C_{93}" 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_{93} Ø 100 or Ø125 version
- ducting kit Ø 60 or Ø 80
- fumes exhaust kit Ø 60/100 or Ø 80/125 configured according to the installation and type of boiler.

Kit Assembly.

- Mount the components of kit "C9" on the door (A) of the ducting system (Fig. 1-23).
- (Version Ø 125 only) mount the flanged adaptor (11) interposing the concentric gasket (10) on the boiler, fitting it with the screws (12).
- Mount the ducting system as described in the relative instructions sheet.
- Calculate the distances between the boiler drain and the bend of the ducting system.
- Prepare the boiler flue system, making sure that the internal pipe of the concentric kit is fitted properly in the bend of the ducting system (quota "X" fig. 1-25), while the external pipe must be fitted on the adaptor until it stops (1).

  N.B.: 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%.
- Mount the cover (A) complete with adaptor (1) and caps (6) on the wall and assemble the flue system to the ducting system.

N.B.: (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.

Once all components have been assembled properly, the exhaust fumes will be expelled via the ducting system; the combustion air for normal boiler operation will be aspirated directly by the shaft (Fig. 1-24).

Technical data.

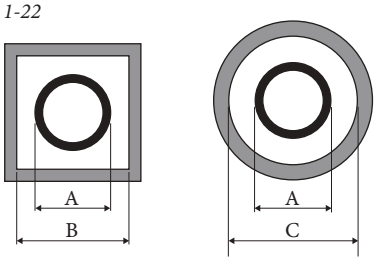
- The dimensions of the shafts must ensure a minimum gap between the outer wall of the smoke duct and the inner wall of the shaft: 30 mm for circular section shafts and 20 mm in the event of a square section shaft (Fig. 1-22).
- Maximum 2 changes of direction are allowed on the vertical section of the 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 60/10 at 90°, 1 m of horizontal pipe 60/100, 1 90° ducted bend Ø 60 and the roof terminal for ducting.

  To determine the C_{93} flue system in configurations other than that described (Fig. 1-24) 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 60/100 to 80/125, 1 87° bend Ø 80/125, 1 m of horizontal pipe 80/125, 1 90° ducted bend Ø 80 and the roof terminal for ducting.

  To determine the C_{93} flue system in configurations other than that described (Fig. 1-24) one must consider the following pressure drops:
  - 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.

1-22



Rigid Ø 60 ducting (A) mm	SHAFT (B) mm	SHAFT (C) mm
66	106	126

Rigid Ø 80 ducting (A) mm	SHAFT (B) mm	SHAFT (C) mm
86	126	146

Flexible Ø 80 ducting (A) mm	SHAFT (B) mm	SHAFT (C) mm
90	130	150

Kit composition:

Ref.	Qty	Description
1	1	Door adaptor Ø 100 or Ø 125
2	1	Door gasket made of neoprene
3	4	Screws 4.2 x 9 AF
4	1	Hex headed screw M6 x 20
5	1	Flat nylon washer M6
6	2	Door hole closure metal-sheet plate plug
7	1	Plug gasket made of neoprene
8	1	Toothed washer M6
9	1	Nut M6
10	1 (kit 80/125)	Concentric gasket Ø 60-100
11	1 (kit 80/125)	Flanged adapter Ø 80-125)
12	4 (kit 80/125)	Hex headed screws M4 x 16 slotted
-	1 (kit 80/125)	Bag of lubricating talc

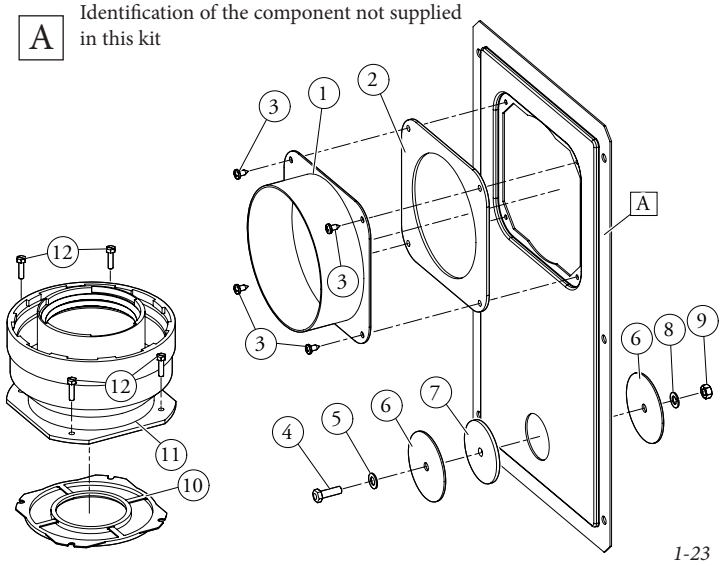
Supplied separately:

Ref.	Qty	Description
A	1	Ducting kit door

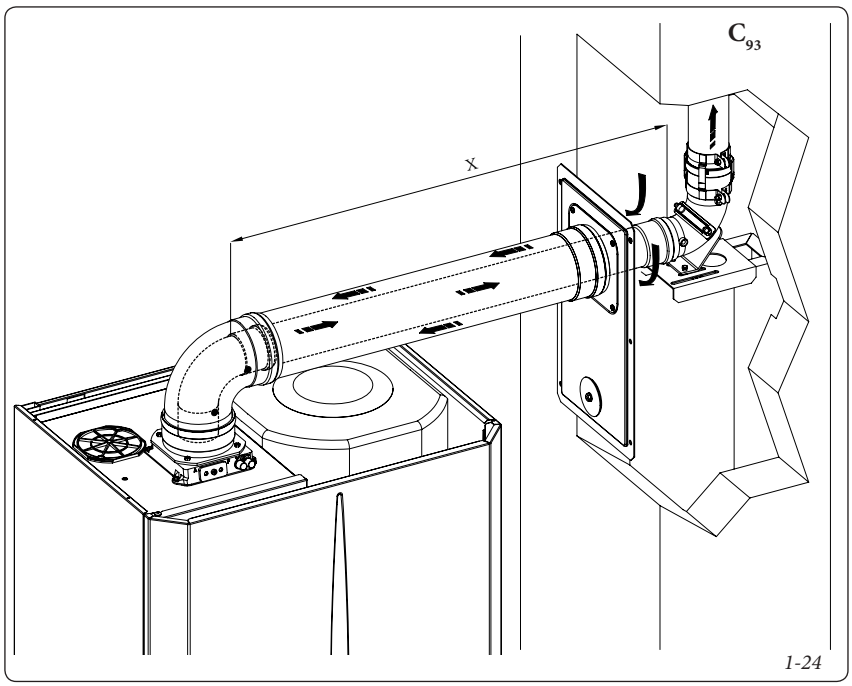
Installation drawings key:

(1) Unique identification of the component in the kit

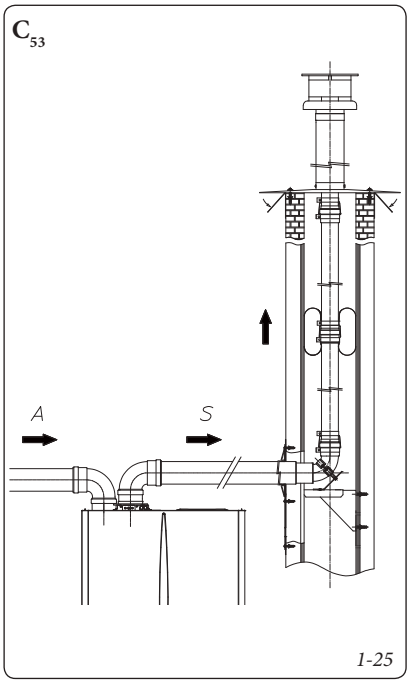
[A] Identification of the component not supplied in this kit



1-23



1-24



1-25

1.16 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. 1-25). 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 standards in force.

Immergas ducting system. *The Ø 60 rigid and Ø 80 flexible "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. The system or components of the system have a technical life complying with current standards, provided that:

- it is used in average atmospheric and environmental conditions, according to current regulations (absence of fumes, 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 and in compliance with the provisions in force.
- The max. possible length of the Ø 60 flexible ducting vertical section is equal to 22 m. This length is obtained considering the complete Ø 80 exhaust terminal, 1m of Ø 80 pipe in exhaust, two 90° Ø 80 bends at boiler outlet.
- The max. possible length of the Ø 80 flexible ducting vertical section is equal to 30 m. This length is obtained considering the complete exhaust terminal, 1m of Ø 80 pipe in exhaust, two 90° Ø 80 bends at boiler outlet for connecting to the ducting system and two direction changes of the flexible hose inside the chimney/ technical slot.
- The maximum possible length of the Ø 80 rigid ducting vertical section is equal to 30 m. This length is obtained considering the complete Ø 80 exhaust terminal, 1m of Ø 80 pipe in exhaust, two 90° Ø 80 bends on the boiler outlet.

1.17 CONFIGURATION TYPE B, OPEN CHAMBER AND FAN ASSISTED FOR INDOORS.

The appliance can be installed inside buildings in $_{23}$ or B_{53} mode; in this case, all technical rules and national and local regulations in force, must be complied with.

- 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 harmful for the components of the appliance and jeopardise operation.
- in B_{23} and B_{53} configuration, the boilers must not be installed in bedrooms, bathrooms or in studio flats.
- The installation of appliances in B_{23} and B_{53} configurations are only recommended outdoors (in a partially-protected place) or in places that are not lived in and which are permanently ventilated.

For installation the cover kit must be used, referred to in paragraph 1.11.

1.18 FLUE GAS EXHAUST TO FLUE/ CHIMNEY.

Flue exhaust does not necessarily have to be connected to a branched type traditional flue. The flue exhaust, for boiler clots installed in C configuration, can be connected to a special LAS type multiple flue. For B_{23} configurations, exhaust is only allowed into individual chimney or directly into the external atmosphere via a relevant terminal. The multiple flues and the combined flues must also only be connected to type C appliances of the same type (condensing), 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, by professionally qualified technical staff. Chimney or flue sections for connection of the exhaust pipe must comply with requisites of technical standards in force.

1.19 FLUES, CHIMNEYS, CHIMNEY POTS AND TERMINALS.

The flues, chimneys and chimney pots for the evacuation of combustion products must be in compliance with applicable standards. Chimneys and roof-installed exhaust terminals must comply with the outlet height and with the distance from technical volumes set forth by the technical standards in force.

Positioning the wall flue exhaust terminals. The wall flue exhaust terminals must:

- be installed on external perimeter walls of the building;
- 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.

1.20 SYSTEM FILLING.

Once the boiler is connected, proceed with system filling via the filling valve (Fig. 2-2). Filling is performed at low speed to ensure release of air bubbles in the water via the boiler and central heating system vents.

The pump may be noisy on start-up due to the presence of air. This noise should stop after a few minutes of functioning and however after having correctly bled the air contained in the hydraulic circuit.

The boiler has a built-in automatic venting valve on the boiler circulator. *Check if the cap is loose.*
Open the radiator vent valves.
Close radiator vent valves when only water escapes from them.
Close the filling cock when the boiler pressure gauge indicates approx. 1.2 bar.

N.B.: during these operations, turn on the circulating pump at intervals using the main switch on the control panel. *Vent the circulation pump by loosening the front cap and keeping the motor running and assuring that the liquid that escapes cannot cause injury/damage to persons/objects.* Tighten the cap after the operation.

1.21 CONDENSATE TRAP FILLING.

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. This means that the drain trap is filled with condensate to the correct level preventing the passage of flue gas.

1.22 GAS SYSTEM START-UP.

To start up the system, refer to the technical standard in force: This divides the systems and therefore the start-up operations into three categories: new systems, modified systems, re-activated systems.
In particular, for new gas systems:

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

1.23 BOILER START UP (IGNITION).

In order to issue the Declaration of Conformity required by the laws in force, one must fulfil the following requirements to commission the boiler (the operations listed below must only be performed by qualified personnel and in the presence of professionals only):

- ensure the internal system is properly sealed according to the specifications set forth by regulations in force;
- make sure that the type of gas used corresponds to boiler settings;
- Check that there are external factors that may cause the formation of fuel pockets;
- switch the boiler on and check correct ignition;
- make sure that the gas flow rate and relevant pressure values comply with those given in the manual (Par. 3.22);
- ensure that the safety device intervenes in the event of gas supply failure and check the relative intervention time;
- check the intervention of the main switch located upstream from the boiler and in the boiler;
- check that the intake/exhaust concentric terminal (if fitted) is not blocked.

The boiler must not be started up even if only one of the checks should be negative.

***N.B.:** only upon completing commissioning by an installer, may an authorised firm carry out an initial inspection of the boiler, which is required to activate the Immergas warranty. The test certificate and warranty is issued to the user.*

1.24 DOMESTIC HOT WATER STORAGE TANK UNIT.

The Victrix Zeus 26 2 ErP storage tank unit has a capacity of 45 litres. It contains a large coiled stainless steel heat exchanger pipe, which allows to notably reduce hot water production times. These storage tank units constructed with stainless steel casing and bottoms, guarantee long duration through time. The assembly concepts and welding (T.I.G.) are implemented to the minimum detail to ensure maximum reliability. The lower inspection flange ensures practical control of the storage tank unit and the coiled heat exchanger pipe and easy internal cleaning. The domestic hot water connections are placed on the flange cover (cold inlet and hot outlet) along with the Magnesium Anode support cap including the same, supplied as standard for internal protection of the storage tank unit from possible corrosion.

N.B.: have the efficiency of the storage tank Magnesium Anode checked annually by a qualified firm. The storage tank unit is prepared for introduction of the domestic hot water pump fitting.

1.25 KITS AVAILABLE ON REQUEST.

- System shut-off valve kits with or without inspection 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.
- System zone control unit kit (on request). If the heating system is to be divided into several zones **(max. three),** in order to interlock them with separate adjustments and to keep water flow rate high for each zone, Immergas supplies zone system kits by request.
- 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.
- P.C.B. to a relay (on request) The boiler is prepared for the installation of a P.C.B. to a relay, which allows to control the main zone using the CAR (optional).
- Cover kit (on request). If installed outdoors in a partially protected place with direct air intake,it is compulsory to mount the appropriate top protection cover for the correct functioning of the boiler and to protect it from adverse weather conditions.
- Recirculation kit (on request). The boiler storage tank unit is prepared for application of the pump kit. Immergas supplies a set of fittings and attachments to connect the storage tank to the domestic hot water system. The pump kit attachment is also envisioned on the template.

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

1.26 CIRCULATION PUMP.
The boiler is supplied with circulator fitted with speed regulator.
These settings are suitable for most systems.

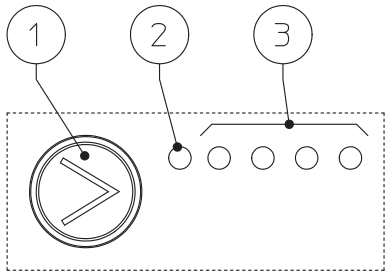
In fact, the pump is equipped with electronic control to set advanced functions. For proper operation one must select the most suitable type of operation for the system and select a speed in the available range, with a focus on energy savings.

By-pass Regulation (part. 30 Fig. 1-29). The boiler is supplied with by-pass closed by 1.5 turns with respect to all 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 to close the by-pass; turn anti-clockwise to open it.

Display of operation status. During normal operation the status LED (2) is on green, the four yellow LEDs (3) indicate circulator absorption according to the following table:

Circulating pump LED	Absorption
G Y Y Y Y On On Off Off Off	0 ÷ 25 %
G Y Y Y Y On On On Off Off	25 ÷ 50 %
G Y Y Y Y On On On On Off	50 ÷ 75 %
G Y Y Y Y On On On On On	75 ÷ 100 %

1-26



Key:
1 - Function selection button
2 - Green (G) / red (R) LED
3 - 4 yellow LEDs (Y)

Selection of operating mode. To see the current operation mode it is sufficient to press button (1) once.

To change operation mode press the button for between 2 to 10 seconds until the current configuration flashing, each time the button is pressed all possible functions are scrolled cyclically. After a few seconds without doing any operation the circulator memorises the selected mode and goes back to operation display.

Attention: The circulator has various built-in operation modes, however the constant curve operation mode must be selected according to the following table.

Circulating pump LED	Description
G Y Y Y Y On On On Off Off	Do not use
G Y Y Y Y On On On On Off	Constant curve speed 2
G Y Y Y Y On On On On On	Constant curve speed 3 **(default)**
G Y Y Y Y On On On Off On	Constant curve speed 4

Constant curve: the circulator operates maintaining constant speed.

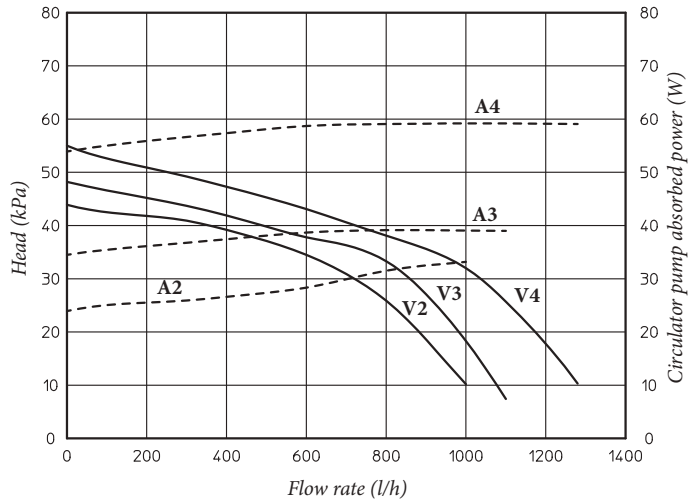
Selection button lock. The button has a feature that locks its operation to prevent accidental modifications, to lock the control panel it is necessary to press button (1) longer than 10 seconds (during which the current configuration flashes), the active lock is signalled by all LEDs of the control panel flashing. To unlock the button press again longer than 10 seconds.

Real time diagnostics: in the event of malfunction the LEDs provide information on the circulator operation status, see table (Fig. 1-27):

1-27

Circulating pump LED (first red LED)	Description	Diagnostics	Remedy
R Y Y Y Y On Off Off Off On	Circulator pump blocked	The circulator pump cannot restart automatically due to an anomaly	Wait for the circulator to make automatic release attempts or manually release the motor shaft acting on the screw in the centre of the head. If the anomaly persists replace the circulator.
R Y Y Y Y On Off Off On Off	Abnormal situation (the circulator continues operating). low power supply voltage	Voltage off range	Check power supply
R Y Y Y Y On Off On Off Off	Electrical fault (Circulator pump blocked)	The circulator is locked due to power supply too low or serious malfunction	Check the power supply, if the anomaly persists replace the circulator

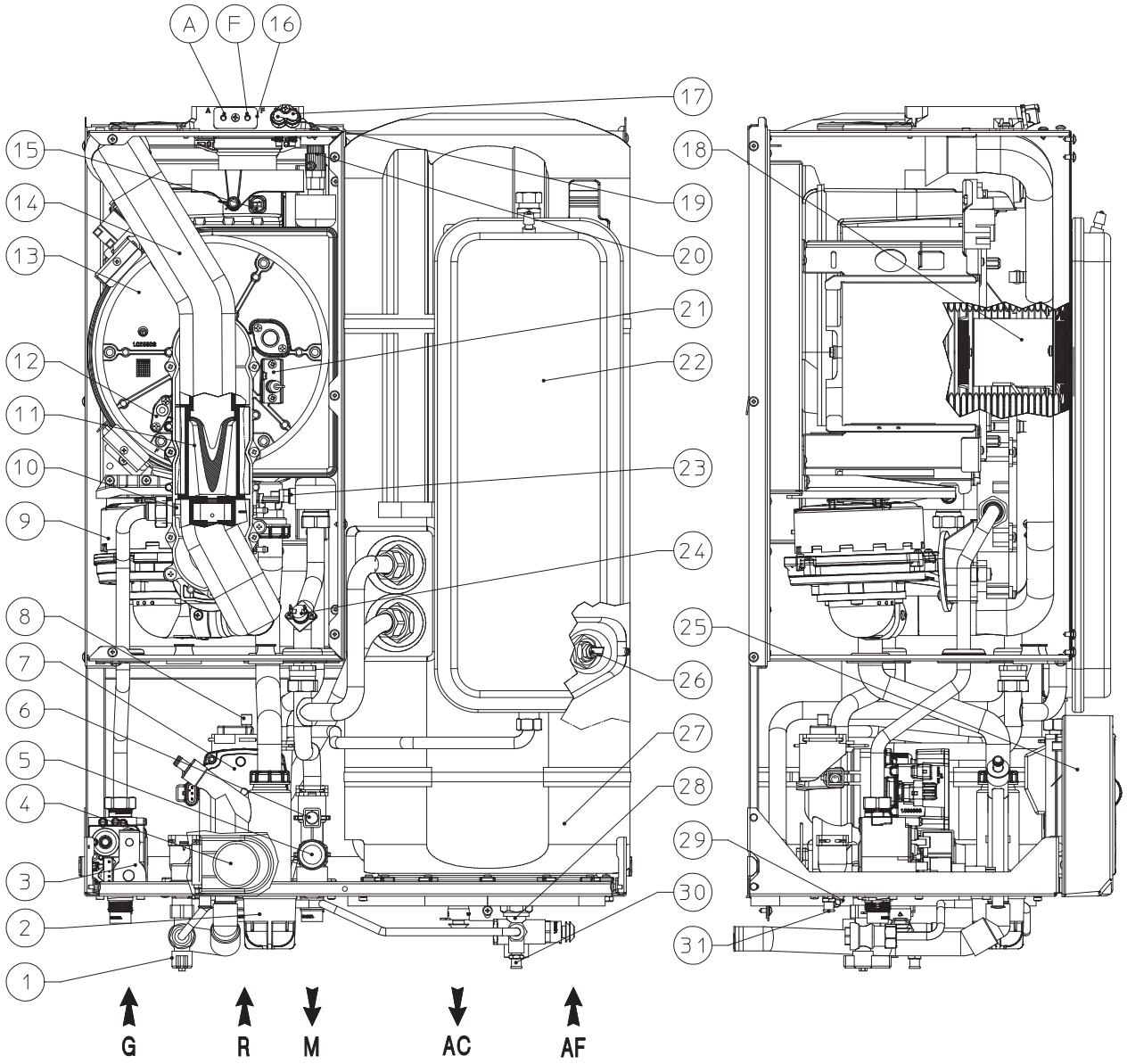
Head available to the system.



1-28

Key:
Vn = Available head
An = Circulating pump absorbed power

1.27 BOILER COMPONENTS.



Key:

1 - System filling valve
2 - Condensate drain trap
3 - Gas valve
4 - 3-way valve (motorised)
5 - 3 bar safety valve
6 - System pressure switch
7 - Boiler circulator pump
8 - Vent valve
9 - Fan
10 - Gas nozzle
11 - Venturi
12 - Detection electrode
13 - Condensation module
14 - Air intake pipe
15 - Flue safety thermofuse
16 - Sample points (air A) - (flue gas F)
17 - Negative signal pressure point
18 - Burner
19 - Positive signal pressure point
20 - Manual air vent valve
21 - Ignition electrode
22 - System expansion vessel
23 - Flow probe
24 - Safety thermostat
25 - Control panel.
26 - Domestic hot water probe
27 - Stainless steel storage tank
28 - 8 bar safety valve
29 - Adjustable by-pass
30 - orage tank unit draining valve
31 - System draining valve

***N.B.:** Connection group (Optional).*

1-29

2 USE AND MAINTENANCE INSTRUCTIONS

2.1 CLEANING AND MAINTENANCE.

Attention: to preserve the boiler's integrity and keep the safety features, performance and reliability, which distinguish it, unchanged over time, you must at least 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". Annual maintenance is essential to validate the Immergas warranty. We recommend stipulating a yearly cleaning and maintenance contract with an authorised local firm.

2.2 GENERAL WARNINGS.

Never expose the wall-mounted boiler to direct vapours from cooking hobs.
Use of the boiler by unskilled persons or children is prohibited.
For safety purposes, check that the concentric air intake/flue exhaust terminal (if fitted), is not blocked, even just temporarily.
If temporary shutdown of the boiler is required, proceed as follows:
a) drain the water system if antifreeze is not used;

b) shut-off all electrical, water and gas supplies.

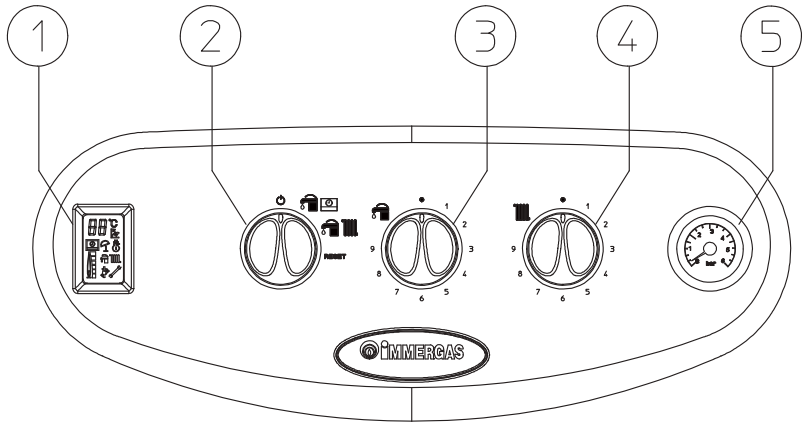
In the event of work or maintenance on structures located in the vicinity of ducting or devices for flue extraction and relative accessories, switch off the appliance and on completion of operations ensure that a qualified technician checks the efficiency of the ducting or other devices.
Never clean the appliance or connected parts with easily flammable substances.
Never leave containers or flammable substances in the same environment as the appliance.

- **Attention:** 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 nor leave the appliance exposed to weathering (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 power switch.

N.B.: the temperatures indicated by the display have a tolerance of +/- 3°C due to environmental conditions that cannot be attributed to the boiler.

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 qualified firm. Contact the manufacturer for disposal instructions.

2.3 CONTROL PANEL.



2-1

Key:
1 - Boiler status signal display
2 - Stand-by-Domestic hot water/Remote Control - Domestic hot water and Central Heating-Reset Selector switch
3 - Domestic hot water temperature selector
4 - Central heating temperature selector
5 - Boiler thermo-manometer

Key of control panel display symbols	
Description	**Symbol**
Numerical characters to indicate temperature, any error code or optional external probe temperature correlation factor	
Degrees symbol	
External probe connection symbol (Optional)	
Connection to Comando Amico Remoto remote control symbol	
Summer symbol (production of DHW only)	
Winter symbol (production of DHW and room central heating)	

DHW production phase symbol active	
Room central heating active phase symbol	
Chimney sweep function symbol	
Anomaly presence symbol (coupled to error code)	
Flame presence symbol	
Burner power scale symbol	

2.4 IGNITION OF THE BOILER.

Before ignition make sure the central heating system is filled with water and that the manometer (5) indicates a pressure of 1 - 1.2 bar;

- Open the gas cock upstream from the boiler.
- Turn the main selector switch (2) taking it to the Domestic Hot Water/Comando Amico Remoto ( ) control or Domestic Hot Water and Central heating ( )position.

• Operation with Comando Amico Remoto control (CAR^{V2}) (Optional). With selector switch (2) in position ( ) and Comando Amico Remoto control connected, the boiler selector switches (3) and (4) are excluded. The ( ) symbol is displayed.

The boiler adjustment parameters are set from the control panel of the Comando Amico Remoto remote control.

Signals and diagnostics - Display on CAR^{V2}(Optional). During normal boiler functioning the CAR^{V2} remote control display shows the room temperature value; in the event of malfunctioning or anomaly, the temperature display is replaced by the relevant error code.

warning: if the boiler is put in stand-by " ". The remote control is not powered, consequently if the batteries should run out all memorised programs will be lost.

• Operation without Comando Amico Remoto control. With the selector switch (2) in position ( ) the central heating adjustment selector switch (4) is excluded, the domestic hot water temperature is regulated by selector switch (3). The summer symbol ( ) is displayed. With the selector switch in position ( )the central heating adjustment selector switch (4) is used to regulate the radiator temperature, while selector (3) continues being used for domestic hot water. The winter symbol( ) is displayed.

Turn the selector switches clockwise to increase the temperature and anti-clockwise to decrease it. In the adjustment phase, the temperature being set appears temporarily on the display(central heating or production of DHW).

From this moment the boiler functions automatically. With no demand for heat (central heating or domestic hot water production) the boiler goes into "stand-by" function, equivalent to the boiler being powered without presence of flame. In this condition, only the boiler setting symbol is displayed (summer or winter and any connection to CAR^{V2}). Every time the burner ignites the relative flame presence symbol, the indication of the power emitted by the burner and the flow temperature coupled to the symbol relative to the type of request are displayed: ( ) for heating DHW and ( ) for room central heating.

2.5 TROUBLESHOOTING.

The Victrix Zeus 26 2 ErP boiler signals any anomalies using a code shown on the boiler display (1).

In case of malfunction or anomaly, this is signalled by the flashing symbol ( ) and the relevant code switching on:

Note: on the CAR^{V2} (Optional) the error code corresponds to the following list with the letter "E" in front (E.g. code 01 CAR^{V2} code E01).

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.	Turn the main selector temporarily to the "Reset" position (1)
02	**Safety thermostat block (overheating), flame control or flue gas thermofuse anomaly**	During normal operation, if a fault causes excessive overheating internally, or an anomaly occurs in the flame control section, a boiler lockout is triggered.	Turn the main selector temporarily to the "Reset" position (1)
05	**Flow probe anomaly**	The board detects an anomaly on the flow NTC probe.	The boiler does not start (1)
08	- **Reset selector fault** - **Maximum No. of resets**	- If, due to malfunctioning, the selector (2) remains positioned on Reset for more than 30 seconds, the boiler signals the anomaly. - Number of allowed resets already performed.	- Power cycle the boiler (1) - **Warning:** the anomaly can be reset 5 times consecutively, after which the function in inhibited for at least one hour. One attempt is gained every hour for a maximum of 5 attempts. By switching the appliance on and off again, the 5 attempts are re-acquired.
09	**Calibration function active (displayed on CAR^{V2})**	During boiler calibration the CAR^{V2} displays calibration in progress status.	The message ends upon completing calibration.
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 (1) that the system pressure is between 1÷1.2 bar and restore the correct pressure if necessary.
12	**Storage tank probe anomaly**	The board detects an anomaly on the storage tank probe.	The boiler cannot produce domestic hot water (1)
15	**Configuration error**	If the board detects an anomaly or incongruity on the electric wiring, the boiler will not start.	If normal conditions are restored the boiler restarts without having to be reset. Check that the boiler is configured correctly (1)
16	**Fan anomaly**	This occurs if the fan has a mechanical or electrical fault.	Turn the main selector temporarily to the "Reset" position (1)
20	**Parasite flame block**	This occurs in the event of a leak on the detection circuit or anomaly in the flame control unit.	Turn the main selector temporarily to the "Reset" position (1)

(1) If the shutdown or fault persists, contact an authorised firm (e.g. Authorised Technical After-Sales Service).
(2) This anomaly is not displayed by the CAR^{V2}.

Error Code	Anomaly signalled	Cause	Boiler status / Solution
27	**Insufficient circulation**	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); - pump blocked; free the pump.	Turn the main selector temporarily to the "Reset" position (1)
31	**Loss of communication with the CAR^{V2}**	This occurs 1 minute after communication is lost between the boiler and the CAR^{V2}.	Power cycle the boiler (1) (2).
37	**Low power supply voltage**	This occurs when the power supply voltage is lower than the allowed limits for the correct boiler operation.	If normal conditions are restored the boiler restarts without having to be reset (1) (2)
38	**Loss of flame signal**	This occurs when the boiler is ignited correctly and the burner flame switches off unexpectedly; a new attempt at ignition is performed and if normal conditions are restored, the boiler does not have to be reset.	(1) (2)
(1) If the shutdown or fault persists, contact an authorised firm (e.g. Authorised Technical After-Sales Service). **(2) This anomaly is not displayed by the CAR^{V2}.**			

2.6 BOILER SHUTDOWN

Disconnect the main selector switch (2) taking it to the "⏻" position and close the gas cock upstream from the appliance.
Never leave the boiler switched on if left unused for prolonged periods.

2.7 RESTORING CENTRAL HEATING SYSTEM PRESSURE.

Periodically check the system water pressure.
The boiler pressure gauge should read a pressure between 1 and 1.2 bar.
If the pressure falls below 1 bar (with the circuit cold) restore normal pressure via the valve located at the bottom of the boiler (Fig. 2-2).

N.B.: close the cock after the operation.
If pressure values reach around 3 bar the safety valve may be activated.
In this case, remove water from an air vent valve of a radiator until reaching pressure of 1 bar, or ask for assistance from professionally qualified personnel.

In the event of frequent pressure drops, contact qualified staff for assistance to eliminate the possible system leakage.

2.8 SYSTEM DRAINING.

To drain the boiler, use the special system draining valve (Fig. 2-2).
Before draining, ensure that the system filling valve is closed.

2.9 STORAGE TANK DRAINING.

To drain the storage tank, use the special draining valve (Fig. 2-2).

N.B.: before performing this operation, close the boiler cold water inlet valve and open any DHW system hot water valve in order to air into the cylinder.

2.10 ANTI-FREEZE PROTECTION.

The "Victrix Zeus 26 2 ErP" series boiler has an anti-freeze function that switches the burner on automatically when the temperature falls below 4°C (standard protection to minimum temperature of -5°C). All information relative to the anti-freeze protection is stated in Par. 1.3. 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 Anti-freeze Kit in the boiler. In the case of prolonged inactivity (second case), we also recommend that:

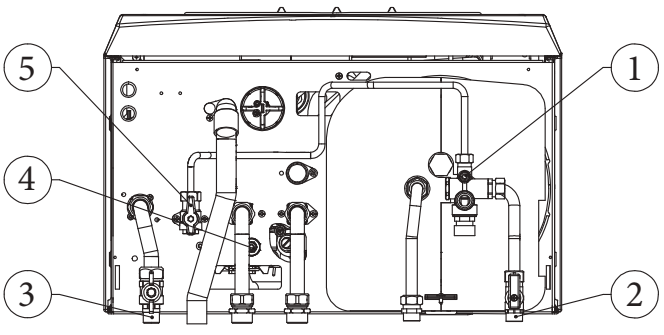
- disconnect the electric power supply;
- fully drain the central heating circuit (if not protected by anti-freeze liquid), the boiler domestic hot water circuit and the condensation trap. In systems that are drained frequently, filling must be carried out with suitably treated water to eliminate hardness that can cause limescale.

2.11 CASE CLEANING.

Use damp cloths and neutral detergent to clean the boiler casing. Never use abrasive or powder detergents.

2.12 DECOMMISSIONING.

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.



Key:
1 - Storage tank unit draining valve
2 - Cold water inlet cock
3 - Gas cock
4 - System draining valve
5 - System filling valve

2-2

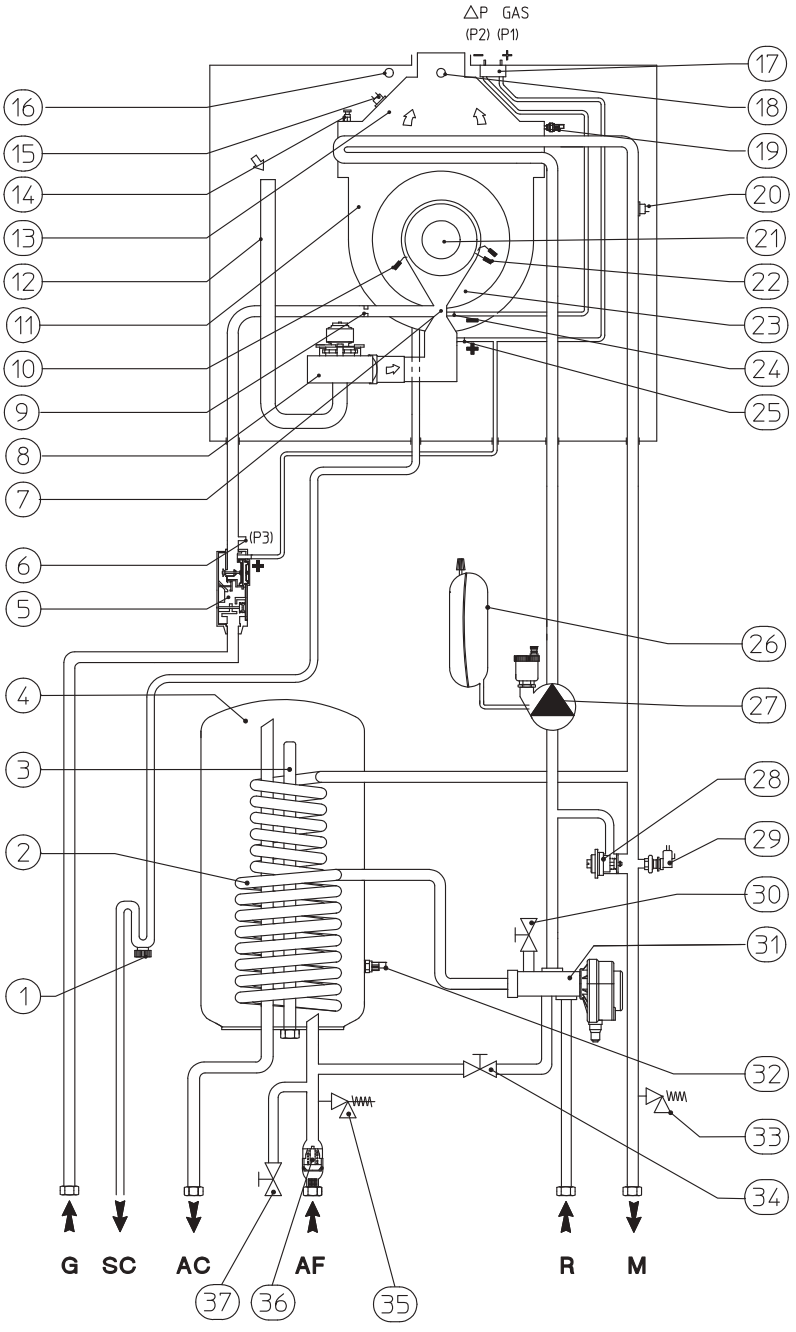
3 BOILER COMMISSIONING (INITIAL CHECK)

To commission the boiler:

- make sure that the declaration of conformity for installation is supplied with the appliance;
- make sure that the type of gas used corresponds to boiler settings;
- 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 pressure gauge indicates a pressure of 1-1.2 bar.
- make sure the air valve cap is open and that the system is well deaerated;
- switch the boiler on and check correct ignition;
- check the Δp gas values in domestic hot water and central heating modes;
- check the CO_2 in the fumes at maximum and minimum flow rate;
- check activation of the safety device in the event of no gas, as well as the relative activation time;
- check the intervention of the main switch located upstream of the boiler and in the boiler;
- check that the intake and/or exhaust terminals are not blocked;
- ensure activation of all adjustment devices;
- seal the gas flow rate regulation devices (if settings are modified);
- check the production of domestic hot water;
- check sealing efficiency of water circuits;
- check ventilation and/or aeration of the installation room where provided.

If even only a single safety check offers a negative result, do not commission the system.

3.1 PLUMBING DIAGRAM.



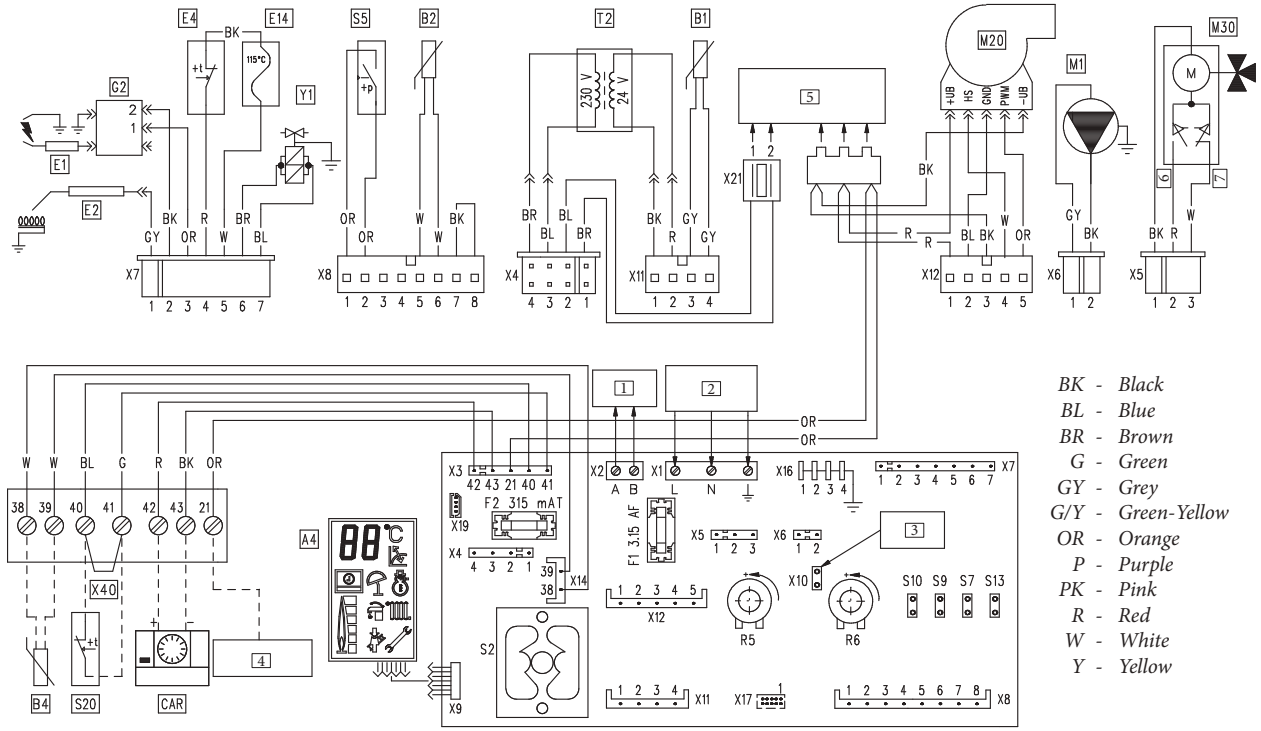
Key:

1 - Condensate drain trap
2 - Stainless steel coil for storage tank
3 - Magnesium anode
4 - Stainless steel storage tank
5 - Gas valve
6 - Gas valve outlet pressure point (P3)
7 - Air/gas Venturi manifold
8 - Fan
9 - Gas nozzle
10 - Detection electrode
11 - Condensation module
12 - Air intake pipe
13 - Fumes hood
14 - Manual air vent valve
15 - Flue safety thermofuse
16 - Air sample point
17 - Δp gas pressure point
18 - Flue sample point
19 - Flow probe
20 - Safety thermostat
21 - Burner
22 - Ignition electrodes
23 - Condensation module cover
24 - Venturi negative sign (P2)
25 - Venturi positive sign (P2)
26 - System expansion vessel
27 - Boiler circulator pump
28 - Adjustable by-pass
29 - System pressure switch
30 - System draining valve
31 - Three-way valve (motorised)
32 - Domestic hot water probe
33 - 3 bar safety valve
34 - System filling valve
35 - 8 bar safety valve
36 - Cold water inlet non-return valve
37 - Storage tank unit draining valve

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

3-1

3.2 WIRING DIAGRAM.



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

Key:

A4 - Display board
B1 - Flow probe
B2 - Domestic hot water probe
B4 - External probe (optional)
CAR - Comando Amico Remoto V2 control (optional)
E1 - Ignition electrodes
E2 - Detection electrode
E4 - Safety thermostat
E14 - Flue gas safety thermofuse
G2 - Igniter
M1 - Boiler circulator pump
M20 - Fan
M30 - Three-way valve (motorised)
S2 - Operation selector
S5 - System pressure switch
S7 - Central heating timer selector
S9 - Domestic hot water mode selector
S10 - Pump mode selector switch
S13 - Central heating temperature range selector
S20 - Room thermostat (optional)
T2 - Low voltage transformer
X40 - Room thermostat jumper
Y1 - Gas valve
1 - Anti-freeze kit
2 - 230 Vac 50 Hz power supply
3 - No. of fan revs.
4 - Zones control unit (optional)
5 - P.C.B. to a relay optional kit
6 - Domestic hot water
7 - Central heating

3-2

Comando Amico Remoto V2 (CAR^{V2}): the boiler is ready for application of the CAR^{V2}control, which must be connected to clamps 42 and 43 of the terminal board (located in the boiler control panel) complying with the polarity and eliminating jumper X40.

Room thermostat: the boiler is designed for the application of the Room Thermostat (S20). Connect it to clamps 40 – 41 eliminating jumper X40.

X19 used for the connection to the personal computer during maintenance operations.

X17 used to update software.

3.3 TROUBLESHOOTING.

N.B.: maintenance operations must be carried out by an authorised company (e.g. Authorised After-Sales Technical Assistance Service).

- Smell of gas. Caused by leakage from gas circuit pipelines. Check sealing efficiency of gas intake circuit.
- Repeated ignition blocks. It may be caused by: incorrect power supply, check compliance with L and N polarity. No gas, check the presence of pressure in the mains and that the gas intake cock is open. Incorrect adjustment of the gas cock, check the correct calibration of the gas valve.
- Irregular combustion or noisiness. It may be caused by: a dirty burner, incorrect combustion parameters, intake-exhaust terminal not correctly installed. Clean the above components and ensure correct installation of the terminal, check correct setting of the gas valve (Off-Set setting) and correct percentage of CO_2 in flue gas.
- Frequent interventions of the overheating safety thermostat. It can depend on the lack of water in the boiler, little water circulation in the system or blocked pump. Check on the manometer that the system pressure is within established limits. Check that the radiator valves are not closed and also the functionality of the pump.
- Drain trap clogged. This may be caused by dirt or combustion products deposited inside. Check, by means of the condensate drain cap, that there are no residues of material blocking the flow of condensate.
- Heat exchanger clogged. This may be caused by the drain trap being blocked. Check, by means of the condensate drain cap, that there are no residues of material blocking the flow of condensate.
- Noise due to air in the system. Check opening of the special air vent valve cap (Fig. 1-30). 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.
- Noise due to air inside the condensation module. Use the manual air vent valve (Part. 20 Fig. 1-30) to eliminate any air present in the condensation module. When the operation has been performed, close the manual vent valve.
- Domestic hot water probe faulty. In order to replace the DHW probe, the storage tank does not have to be emptied as the probe is not in direct contact with the DHW inside the storage tank.

3.4 CONVERTING THE BOILER TO OTHER TYPES OF GAS.

If the boiler has to be converted to a different gas type to that specified on the data nameplate, request the relative conversion kit for quick and easy conversion.
The gas conversion operation must be carried out by an authorised company (e.g. Authorised After-Sales Technical Assistance Service).
To convert to another type of gas the following operations are required:

- disconnect the appliance;
- replace the nozzle located between the gas pipe and gas/air mixing sleeve (10 Fig. 1-30), taking care to disconnect the appliance during this operation;
- re-power the appliance;
- enter the calibration phase (Par. 3.5);
- adjust the nominal and minimum heat output in domestic hot water phase (Par. 3.6) (to be performed even without cylinder unit connected) and the nominal heat output in boiler heating phase;
- confirm the parameters and exit the calibration phase;
- check the CO_2 value (Par. 3.7) in the flue at minimum output;
- check the CO_2 value (Par. 3.7) in the flue at maximum output;
- after completing the conversion, apply the sticker, contained in the conversion kit, near the data nameplate. Using an indelible marker pen, delete the data relative to the old type of gas.

These adjustments must be made with reference to the type of gas used, following that given in the table (Par. 3.20).

3.5 CALIBRATION PHASE.

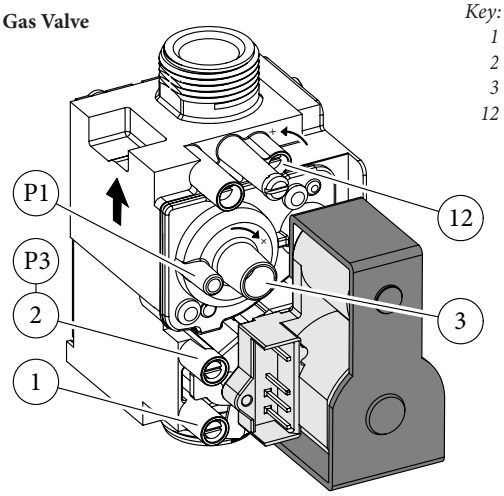
Proceed as follows to enter the calibration phase:

- turn the DHW and central heating selector switch to set the access code (supplied on request);
- turn the main selector onto reset for 15 seconds, release the selector when "id" is displayed; the calibration function is signalled when the "DHW" "flashing flame" symbol and the "power scale" symbol at maximum value are displayed;
- the active function leads to the ignition of the boiler at maximum output of the "DHW" mode;
- the calibration function has duration of 15 minutes;
- to confirm the parameters set, position the main selector switch on reset for 2 seconds (all active symbols on the display, flash);

N.B.: *after 2 seconds for confirmation, if the main selector is not released from the reset position after another 4 seconds, the boiler switches to the "chimney sweep" function.*

- switch the boiler off and then back on again to exit the calibration phase.

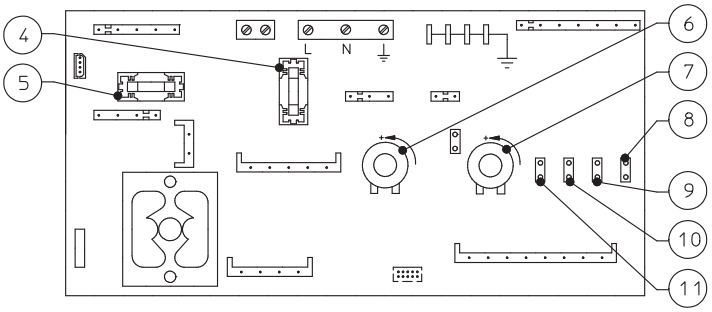
SIT 848 Gas Valve



Key:
1 - Gas valve inlet pressure point
2 - Gas valve outlet pressure point
3 - Off/Set adjustment screw
12 - Outlet gas flow rate regulator

3-3

P.C.B.



Key:
4 - Line fuse 3.15AF
5 - 315 mAT fuse
6 - Domestic hot water temperature trimmer
7 - Central heating temperature trimmer
8 - Central heating temperature range selector switch
9 - Central heating timer selector switch
10 - Domestic hot water mode selector switch
11 - Pump mode selector switch

3-4

3.6 NOMINAL HEAT OUTPUT CALIBRATION.

Warning: verification and calibration is necessary, in the event of adapting to other types of gas, during extraordinary maintenance with replacement of the PCB, air/gas circuit components or in the event of installations with flue systems, with horizontal concentric pipe measuring more than 1 metre.

The boiler heat output is correlated to the length of the air intake and flue exhaust pipes. This decreases slightly with the increase of pipe length. The boiler leaves the factory adjusted for minimum pipe length (1m). It is therefore necessary, especially in the case of maximum pipe extension, to check the Δp gas values after at least 5 minutes of the burner operating at nominal heat output, when the temperatures of the intake air and exhaust flue gas have stabilised. If necessary, enter the calibration phase and adjust the nominal heat output in the DHW mode and central heating mode as described successively and according to the values in the table (Par. 3.20).

- <u>*Adjustment of DHW nominal heat output*</u> (to be performed also without cylinder connected). Enter calibration and adjust DHW nominal output as follows: with "heating" temperature adjustment knob, moving it to the maximum value, the symbols "DHW" "flashing flame" and "power scale" at maximum value will be displayed. To increase the output turn the "DHW" knob clockwise and vice versa anti-clockwise to decrease it.
  - to confirm the parameter set, position the main selector switch on reset for 2 seconds;
- <u>*Adjustment of DHW and CH minimum heat output.*</u> Always during calibration and after setting correct DHW nominal output, adjust minimum DHW output as follows: with "heating" temperature adjustment knob, moving it to value "5", the symbols "DHW" "flashing flame" and "power scale" at minimum value will be displayed. To increase the output turn the "DHW" knob clockwise and vice versa anti-clockwise to decrease it.
  - to confirm the parameter set, position the main selector switch on reset for 2 seconds;
- <u>*Adjustment of CH nominal heat output.*</u> Always during calibration and after setting correct DHW maximum and minimum output, adjust nominal central heating output as follows: with "heating" temperature adjustment knob, moving it to minimum value, the symbols "CH" "flashing flame" and "power scale" with the first 3 segments will be displayed. To increase the output turn the "DHW" knob clockwise and vice versa anti-clockwise to decrease it.
  - to confirm the parameter set, position the main selector switch on reset for 2 seconds;

Use the differential manometers connected to the Δp gas pressure points as indicated (Par. 3.20). The check is necessary in the extraordinary maintenance phase, with replacement of components of the air and gas circuits or in the case of installation of the flue extraction elements with a length exceeding 1 m of horizontal concentric pipe.
On completion of any adjustments, check that:

- the pressure tests used for calibration are per-

fectly closed and there are no leaks from the gas circuit;

- seal the gas flow rate regulation devices (if settings are modified).

3.7 ADJUSTMENT OF THE AIR-GAS RATIO.

Attention: the CO_2 verification operations must be carried out with the casing mounted, while the gas valve calibration operations must be carried out with the casing open and disconnecting the boiler from the power supply.

Calibration of the maximum CO_2 (nominal heating power).
Enter the chimney sweep mode without withdrawing DHW and move the CH selector switch to maximum (turn it completely clockwise). To have an exact value of CO_2 in the flue gas the technician must insert the sampling probe to the bottom of the sample point, then check that the CO_2 value is as specified in the following table, otherwise adjust the screw (12 Fig. 3-3) (gas flow rate regulator). To increase the CO_2 value, turn the adjustment screw (12) in an anti-clockwise direction and vice versa to decrease it. At every adjustment variation it is necessary to wait for the boiler to stabilise itself at the value set (about 30 sec.).

Calibration of the minimum CO_2 (minimum heat output).
On completion of adjustment of the maximum CO_2 take the heating selector switch to minimum (turn it fully home in an anti-clockwise direction) always without withdrawing DHW. To have an exact value of CO_2 in the flue gas the technician must insert the sampling probe to the bottom of the sample point, then check that the CO_2 value is that specified in the table, otherwise adjust the screw (3 Fig. 3-3) (Off-Set adjuster). To increase the CO_2 value, turn the adjustment screw (3) in a clockwise direction and vice versa to decrease it.

	CO_2 at nominal output	CO_2 at minimum output
G 20	9.50% ± 0.2	9.00% ± 0.2
G 30	12.30% ± 0.2	11.80% ± 0.2
G 31	10.60% ± 0.2	10.20% ± 0.2

Warning: once the CO_2 has been calibrated at the minimum output, check that the CO_2 at the maximum output has remained set correctly.

3.8 CHECKS FOLLOWING CONVERSION TO ANOTHER TYPE OF GAS.

After making sure that conversion was carried out with a nozzle of suitable diameter for the type of gas used and the settings are made at the correct pressure, check that the burner flame is not too high or low and is stable (does not detach from burner);

Note: all boiler adjustment operations must be carried out by a qualified company (e.g. Authorised After-Sales Assistance).

3.9 PUMP OPERATING MODE.

By acting on the selector switch (11 Fig. 3-4) it is possible to select two pump functioning modes in the central heating phase.
With the jumper present, pump operation is activated by the room thermostat or by the Comando Amico Remoto remote control. With no jumper, the pump operates constantly during the winter phase.

3.10 DOMESTIC HOT WATER MODE SELECTOR SWITCH

With the setting of the domestic hot water thermostat "S9" (10 fig. 3-4) on "Hysterisis 1" the boiler ignites to heat the domestic hot water when the water contained in the storage tank unit falls by 3°C with respect to the temperature set, while on "Hysterisis 2" ignition takes place when the water contained in the storage tank unit falls by 10°C with respect to the temperature set.

DHW thermostat	**Selector switch (S9)**
Hysterisis 1 / solar deactivated (Standard setting)	Closed
Hysterisis 2 / solar activated	Open

3.11 SOLAR PANELS COUPLING FUNCTION.

The boiler is set-up to receive pre-heated water from a solar panels system up to a maximum temperature of 65 °C. In all cases, it is always necessary to install a mixing vale on the water circuit upstream from the boiler.
By setting the selector "S9" "Open" (10 fig. 3-4 and Par. 3.10) when the boiler inlet water is at a temperature that is equal or greater with respect to that set by the domestic hot water selector switch, the boiler does not switch on. To prevent useless and frequent ignitions the boiler waits 6 seconds before ignition to check inlet water temperature.

3.12 "CHIMNEY SWEEP" FUNCTION.

This function, if activated, forces the boiler for 15 minutes, at a power that can vary from a minimum to a maximum set in the calibration phase. This depends on the position of the heating selector switch.
In this state all adjustments are excluded and only the temperature safety thermostat and the limit thermostat remain active. To actuate the chimney sweep function the main selector (2) must be turned to Reset (Fig. 2-1) for at least 8 seconds with boiler in Stand-by, its activation is signalled by the chimney sweep symbol. This function allows the technician to check the combustion parameters. After the checks, deactivate the function switching the boiler off and then on again.

3.13 PUMP ANTI-LOCK FUNCTION.

During the "Summer" phase 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.

3.14 THREE-WAY ANTI-BLOCK FUNCTION.

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.

3.15 PERMANENT REDUCTION OF TIMING FUNCTION.

The boiler has an electronic timing device that prevents the burner from igniting too often in the heating phase. The boiler is supplied as per standard with a timer adjusted at 3 minutes. To take timing to 30 seconds the selector switch must be removed (9 fig. 3-4).

3.16 RADIATORS ANTIFREEZE FUNCTION.

If the system return water is below 4°C, the boiler starts up until reaching 30°C.

3.17 FLOW TEMPERATURE VALUE IN CENTRAL HEATING MODE.

By acting on the selector switch (8 Fig. 3-4) it is possible to select two flow temperature ranges in the central heating phase. With the jumper present the temperature range is 85° - 20°.
With the jumper not present the temperature range is 50° - 20°.

3.18 YEARLY APPLIANCE CHECK AND MAINTENANCE.

The following checks and maintenance should be performed at least once a year.

- Clean the flue side of the heat exchanger.
- Clean the main burner.
- 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.
- 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 fittings and traces of condensate residues inside the sealed chamber.
- Check contents of the condensate drain trap.
- Via the condensate drain cap check that there are no residues of material that clog condensate passage; also check that the entire condensate drain 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 seal gaskets and the lid 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 valves drain is not blocked.
- Check, after discharging the system pressure and bringing it to zero (read on boiler pressure gauge), that the expansion vessel charge is at 1.0 bar.
- Check that the domestic hot water expansion vessel charge is at a pressure between 3 and 3.5 bar.
- Check that the system static pressure (with system cold and after refilling the system by means of the filling cock) is between 1 and 1.2 bar.
- Visually check that the safety and control devices have not been tampered with and/or shorted, in particular:
  - temperature safety thermostat;
  - system pressure switch.
- Check integrity of the storage tank Magnesium anode.
- Check the condition and integrity of the electrical system and in particular:
  - supply voltage cables must be inside the fairleads;
  - there must be no traces of blackening or burning.
- Check ignition and operation.
- Check correct calibration of the burner in domestic hot water and central heating phases.
- Check the operation of the appliance control and adjustment devices and in particular:
  - intervention of the main electrical switch on the boiler;
  - system control thermostat intervention;
  - domestic hot water control thermostat intervention.
- Check sealing efficiency of the gas circuit and the internal system.
- Check the intervention of the device against no gas ionisation flame control. The relative intervention time must be less than 10 seconds.

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

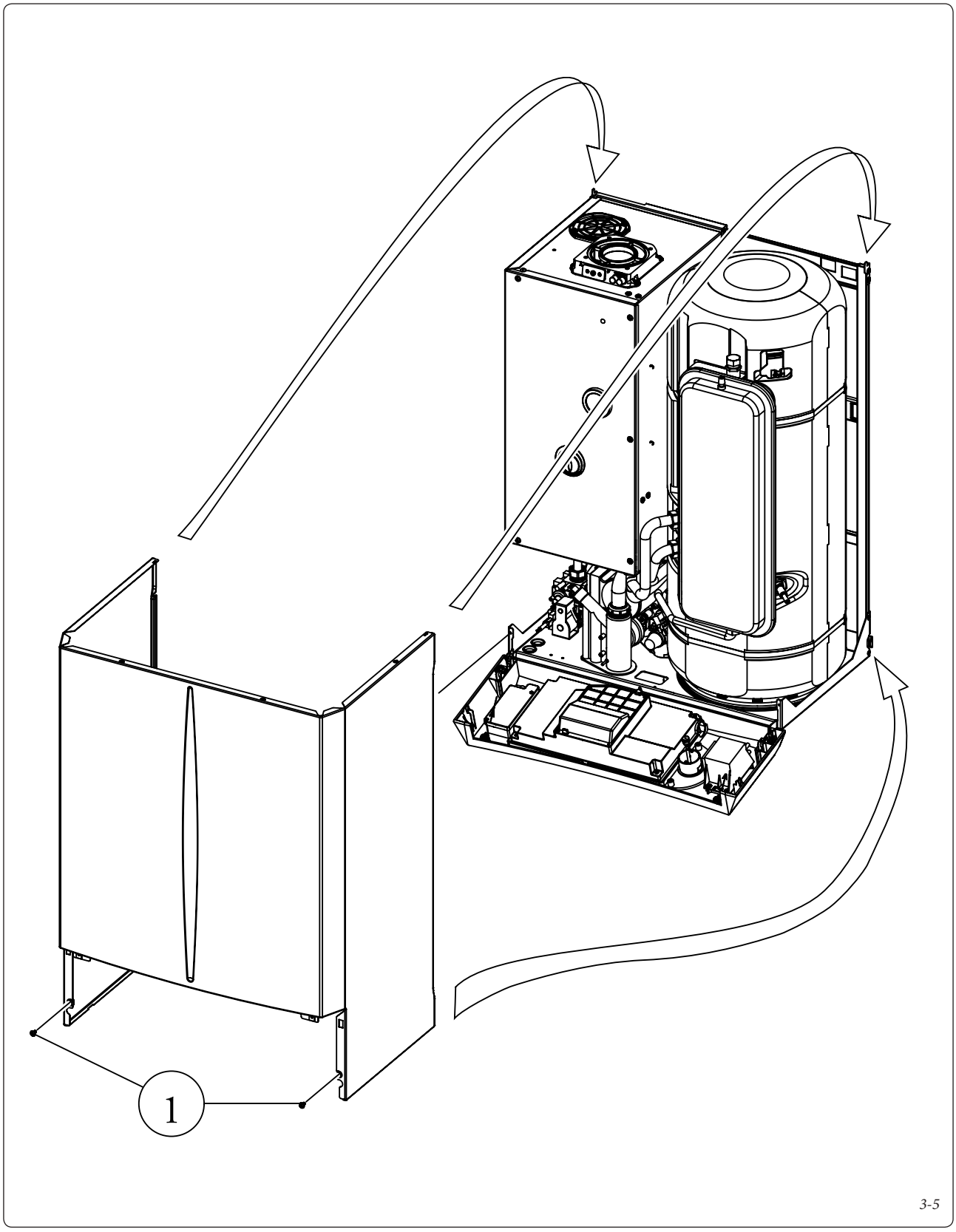
3.19 CASING REMOVAL.

To facilitate boiler maintenance the casing can be completely removed by following these simple instructions (Fig. 3-5):

- Unscrew the two screws securing the control panel and open it by tilting it towards you.
- Then unscrew the two fixing screws (1) on the casing.

Unhook the lower part of the casing as described in the figure.

- Pull the casing towards you and up at the same time (see figure) to detach it from the upper hooks.



3-5

3.20 VARIABLE HEAT OUTPUT.

N.B.: the pressures indicated in the table represent the differences of pressures at the ends of the Venturi mixer and can be measured from the pressure points in the upper part of the sealed chamber (see pressure test 17 and 19 Fig. 1-31). The adjustments must be made with a digital differential pressure gauge with scale in tenths of a mm or Pascal. The power data in the table has been obtained with an intake-exhaust pipe measuring 0.5 m in length. Gas flow rates refer to the lower calorific value at a temperature of 15°C and at a pressure of 1013 mbar. The burner pressure values refer to the use of gas at a temperature of 15°C.

			METHANE (G20)			BUTANE (G30)			PROPANE (G31)		
THERMAL POWER	THERMAL POWER		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES	
(kW)	(kcal/h)		(m^3/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)
26.0	22360	D.H.W.	2.85	5.80	59.1	2.13	5.85	59.6	2.09	7.61	77.6
25.0	21500		2.73	5.36	54.7	2.04	5.41	55.1	2.01	7.05	71.9
24.0	20640		2.62	4.95	50.5	1.96	4.99	50.9	1.92	6.52	66.4
23.6	20296	CEN. HEAT. + D.H.W.	2.58	4.79	48.9	1.92	4.83	49.3	1.89	6.31	64.3
22.0	18920		2.40	4.18	42.7	1.79	4.22	43.0	1.76	5.52	56.3
21.8	18733		2.38	4.11	41.9	1.77	4.14	42.2	1.74	5.42	55.3
20.0	17200		2.18	3.49	35.6	1.63	3.52	35.9	1.60	4.63	47.2
19.0	16340		2.07	3.18	32.4	1.55	3.20	32.6	1.52	4.21	42.9
18.0	15480		1.96	2.87	29.3	1.46	2.89	29.5	1.44	3.82	38.9
17.0	14620		1.86	2.59	26.4	1.38	2.60	26.5	1.36	3.44	35.1
16.0	13760		1.75	2.32	23.7	1.30	2.33	23.7	1.28	3.09	31.5
15.0	12900		1.64	2.07	21.1	1.22	2.07	21.1	1.20	2.75	28.1
14.0	12040		1.53	1.83	18.7	1.14	1.83	18.6	1.13	2.44	24.9
13.0	11180		1.43	1.61	16.4	1.06	1.60	16.3	1.05	2.14	21.9
12.0	10320		1.32	1.40	14.3	0.98	1.39	14.2	0.97	1.87	19.0
11.0	9460		1.21	1.21	12.3	0.90	1.19	12.2	0.89	1.61	16.4
10.0	8600		1.11	1.03	10.5	0.82	1.01	10.3	0.81	1.37	13.9
9.0	7740		1.00	0.87	8.8	0.74	0.84	8.6	0.73	1.15	11.7
8.0	6880		0.89	0.72	7.3	0.66	0.69	7.0	0.65	0.94	9.6
7.0	6020		0.78	0.58	6.0	0.58	0.55	5.6	0.57	0.76	7.7
6.0	5160		0.67	0.46	4.7	0.50	0.43	4.4	0.49	0.59	6.0
5.0	4300		0.56	0.36	3.7	0.42	0.32	3.3	0.41	0.44	4.5
4.0	3440		0.45	0.27	2.8	0.34	0.23	2.3	0.33	0.31	3.2
3.0	2580		0.34	0.20	2.0	0.25	0.15	1.5	0.25	0.20	2.0

3.21 COMBUSTION PARAMETERS.

		G20	**G30**	**G31**
Gas nozzle diameter	mm	5.60	4.00	4.00
supply pressure	mbar (mm H_2O)	20 (204)	29 (296)	37 (377)
Flue flow rate at nominal heat output	kg/h	42	38	43
Flue flow rate at min heat output	kg/h	5	5	5
CO_2 at Q. Nom./Min.	%	9.50 / 9.00	12.30 / 11.80	10.60 / 10.10
CO with 0% O_2 at Nom./Min. Q. Nom./Min.	ppm	235 / 3	680 / 4	220 / 4
NO_x at 0% of O_2 at Q. Nom./Min.	mg/kWh	44 / 12	148 / 26	35 / 13
Flue temperature at nominal output	°C	62	68	62
Flue temperature at minimum output	°C	50	55	50

3.22 TECHNICAL DATA.

Domestic hot water nominal heat input	kW (kcal/h)	26.9 (23147)
Central heating nominal heat input	kW (kcal/h)	24.4 (20941)
Minimum heat input	kW (kcal/h)	3.2 (2768)
Domestic hot water nominal heat output (useful)	kW (kcal/h)	26.0 (22360)
Central heating nominal heat output (useful)	kW (kcal/h)	23.6 (20296)
Minimum heat output (useful)	kW (kcal/h)	3.0 (2580)
*Effective thermal efficiency 80/60 Nom./Min.	%	96.9 / 93.2
*Effective thermal efficiency 50/30 Nom./Min.	%	105.3 / 106.8
*Effective thermal efficiency 40/30 Nom./Min.	%	107.5 / 108.8
Casing losses with burner On/Off (80-60°C)	%	0.58 / 0.90
Heat loss at flue with burner On/Off (80-60°C)	%	0.03 / 2.50
Central heating circuit max. operating pressure	bar	3
Maximum heating temperature	°C	90
Adjustable central heating temperature Pos 1	°C	25 - 85
Adjustable central heating temperature Pos 2	°C	25 - 50
System expansion vessel total volume	l	4.2
Heating expansion tank pre-charge	bar	1
Total volume domestic hot water expansion vessel	l	1.5
Domestic hot water expansion vessel pre-charge	bar	2.5
Appliance water content	l	4.2
Head available with 1000 l/h flow rate	kPa (m H_2O)	17.94 (1.80)
Hot water production useful heat output	kW (kcal/h)	26.0 (22360)
Domestic hot water adjustable temperature	°C	10 - 60
Domestic hot water circuit flow limiter at 2 bar	l/min	9.4
Domestic hot water circuit min. pressure (dynamic)	bar	0.3
Domestic hot water circuit max. operating pressure	bar	8
**Specific flow rate “D” according to EN 625	l/min	15.6
Flow rate capacity in continuous duty (ΔT 30°C)	l/min	13.3
Weight of full boiler	kg	108.6
Weight of empty boiler	kg	61.3
Electrical connection	V/Hz	230/50
Nominal absorption	A	0.51
Installed electric power	W	85
Pump absorbed power	W	60
EEI	-	≤ 0,20 - Part. 3
Fan power absorbed power	W	26
Equipment electrical system protection	-	IPX4D
Max temperature of combustion products	°C	75
NO_x class	-	5
Weighted NO_x	mg/kWh	52.0
Weighted CO	mg/kWh	15.0
Type of appliance	C13 / C13x / C33 / C33x / C43 / C43x / C53 / C63 / C83 / C93 / C93x / B33 / B53p	
Category	II2H3B/P	

- Flue temperature values refer to an air inlet temperature of 15°C and flow temperature of 50°C.

The data relevant 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 directly at the boiler outlet considering that to obtain the data declared mixing with cold water is necessary.

- * Yields refer to the lower heating value.
- ** Specific flow rate "D": domestic hot water flow rate corresponding to an average temperature increase of 30K, which the boiler can supply in two subsequent withdrawals.

3.23 KEY FOR DATA PLATE.

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

N.B.: the technical data is provided on the data plate on the boiler

	IE
Md	Model
Cod. Md	Model code
Sr N°	Serial Number
CHK	Check
Cod. PIN	PIN code
Type	Type of installation (ref. CEN TR 1749)
Qnw min.	Minimum DHW heat input
Qn min.	CH minimum heat input
Qnw max.	DHW maximum heat input
Qn max.	CH 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

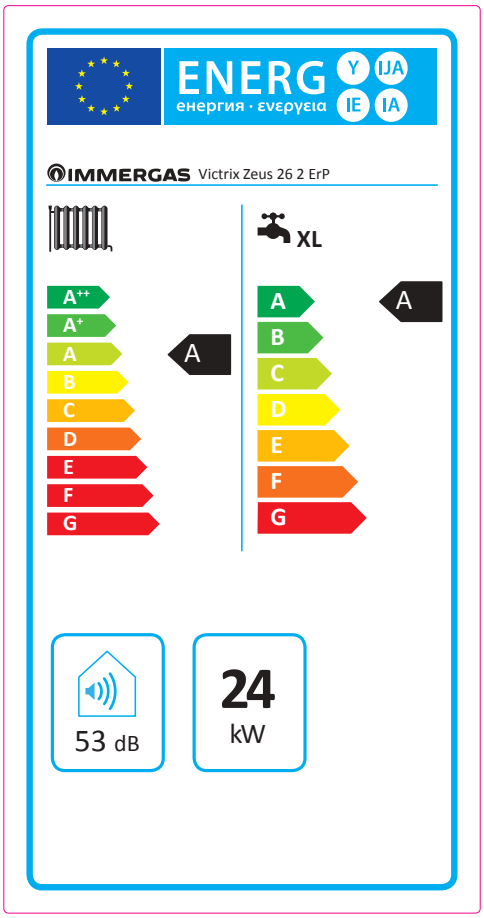
3.24 TECHNICAL PARAMETERS FOR MIXED BOILERS (IN COMPLIANCE WITH REGULATION 813/2013).

The yields in the following tables refer to the higher heating value.

Model/s:			Victrix Zeus 26 2 ErP				
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	24	kW	Seasonal energy efficiency of central heating	η_s	92	%
For central heating only and mixed boilers: useful heat output				For central heating only and mixed boilers: useful efficiency			
At nominal heat output in high temperature mode (*)	P_4	23.6	kW	At nominal heat output in high temperature mode (*)	η_4	87.5	%
At 30% of nominal heat output in a low temperature mode (**)	P_1	7.1	kW	At 30% of nominal heat output in a low temperature mode (**)	η_1	97.2	%
Auxiliary electricity consumption				Other items			
At full load	el_{max}	0.046	kW	Heat loss in standby	P_{stby}	0.086	kW
At partial load	el_{min}	0.022	kW	Ignition burner energy consumption	P_{ign}	0.000	kW
In standby mode	P_{SB}	0.008	kW	Emissions of nitrogen oxides	NO_X	47	mg / kWh
For mixed central heating appliances							
Stated load profile	XL			Domestic hot water production efficiency	η_{WH}	82	%
Daily electrical power consumption	Q_{elec}	0.238	kWh	Daily gas consumption	Q_{fuel}	23.660	kWh
Contact information	IMMERGAS S.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.

3.25 PRODUCT DATA SHEET (IN COMPLIANCE WITH REGULATION 811/2013).



Parameter	value
Yearly energy consumption for the heating function (Q_{HE})	41,8 GJ
Yearly electricity consumption for the domestic hot water function (AEC)	52 kWh
Yearly fuel consumption for the domestic hot water function (AFC)	18 GJ
Seasonal room heating yield (η_s)	92 %
Domestic hot water production yield (η_{wh})	82 %

For proper installation of the appliance 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.

3.26 PARAMETERS FOR FILLING IN THE ASSEMBLY SHEET.

In case you should wish to install an assembly, starting from the Victrix Zeus 26 2 ErP boiler, use the assembly charts in fig. 3-8 and 3-11.
For correctly filling in, enter the figures shown in tables fig. 3-7 and 3-10 (as shown in the facsimile assembly sheet fig. 3-6 and 3-9) .
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 sheet fig. 3-8 for "assemblies" related to the heating function (e.g.: boiler + temperature controller).
Use sheet fig. 3-11 for "assemblies" related to the domestic hot water function (e.g.: boiler + solar thermal system).

Facsimile for filling in room heating system assembly chart.

Seasonal central heating energy efficiency of the boiler — 1 'I' %

Temperature control 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 % — 2 + %

Supplementary boiler From boiler board — Seasonal central heating energy efficiency (in %) — (☐ - 'I') x 0.1 = ± 3 %

Solar contribution
From the board of the solar device
Dimensions of the manifold (in m²) — Volume of the tank (in m³) — 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
('III' x ☐ + 'IV' x ☐) x (0.9 x (☐ / 100) x ☐ = + 4 %

Supplementary heat pump *From the heat pump board* — Seasonal central heating energy efficiency (in %) — (☐ - 'I') x 'II' = + 5 %

Solar contribution and supplementary heat pump
Select the lowest value — 0.5 x 4 ☐ O 0.5 x 5 ☐ = - 6 %

Seasonal central heating energy efficiency of the set — 7 %

Seasonal central heating energy efficiency class of the set

G	F	E	D	C	B	A	A+	A++	A+++
< 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 ☐ + (50 x 'II') = ☐ %

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.

3-6

Parameters for filling in assembly chart.

Parameter	Victrix Zeus 26 2 ErP
'I'	92
'II'	*
'III'	1.11
'IV'	0.44

* *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.*

3-7

Room heating system assembly chart.

Seasonal central heating energy efficiency of the boiler — 1 ____ %

Temperature control 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 % — + 2 ____ %

Supplementary boiler From boiler board — Seasonal central heating energy efficiency (in %) (____ - ____) x 0.1 = ± 3 ____ %

Solar contribution
From the board of the solar device
Dimensions of the manifold (in m²) (___ x ____ + Volume of the tank (in m³) ___ x ____) x (0.9 x (Efficiency of the manifold (in %) ____ / 100) x Classification of the tank A* = 0.95, A = 0.91, B = 0.86, C = 0.83, D-G = 0.81 ____ = + 4 ____ %

Supplementary heat pump *From the heat pump board* — Seasonal central heating energy efficiency (in %) (____ - ____) x ____ = + 5 ____ %

Solar contribution and supplementary heat pump
Select the lowest value — 0.5 x 4 ____ O 0.5 x 5 ____ = - 6 ____ %

Seasonal central heating energy efficiency of the set — 7 ____ %

Seasonal central heating energy efficiency class of the set

G	F	E	D	C	B	A	A+	A++	A+++
< 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 ____ + (50 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.

3-8

Facsimile for filling in domestic hot water production system assembly chart.

Water heating energy efficiency of mixed boiler

1 'I' %

Stated load profile:

Solar contribution

From the board of the solar device

Auxiliary electricity

(1,1 x 'I' - 10 %) x 'II' - 'III' - 'I' = + 2 %

Water heating energy efficiency of the set in average climate conditions

3 %

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

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

Water heating energy efficiency class in colder and hotter climate conditions

Colder: 3 - 0.2 x 2 = %

Hotter: 3 + 0.4 x 2 = %

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 DHW package assembly chart.

Parameter	Victrix Zeus 26 2 ErP
'I'	82
'II'	*
'III'	*

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

3-10

Domestic hot water production system assembly chart.

Water heating energy efficiency of mixed boiler ① ____ %

Stated load profile: ☐

Solar contribution

From the board of the solar device

Auxiliary electricity

(1.1 x _____ - 10 %) x _____ - ____ - _____ = + ② ____ %

Water heating energy efficiency of the set in average climate conditions ③ ____ %

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

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

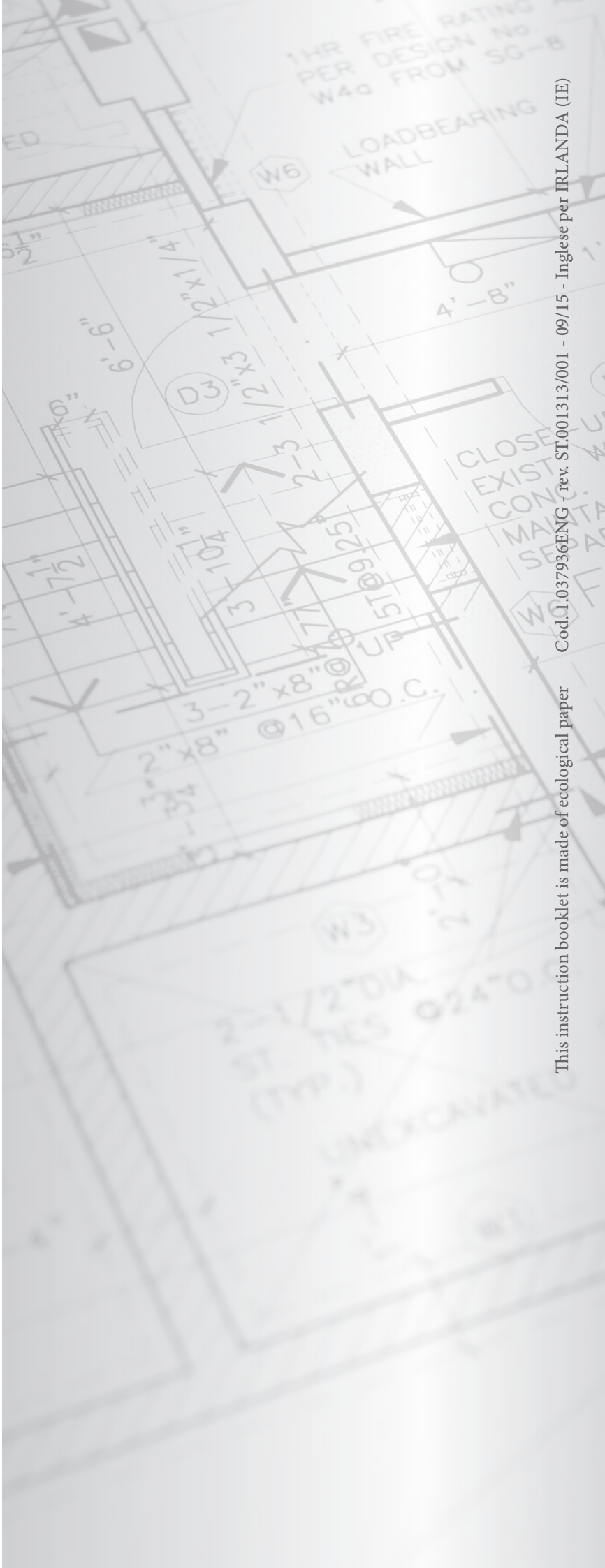
Water heating energy efficiency class in colder and hotter climate conditions

Colder: ③ ☐ - 0.2 x ② ☐ = ☐ %

Hotter: ③ ☐ + 0.4 x ② ☐ = ☐ %

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.

3-11



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Immergas Italia

immergas.com

Immergas S.p.A.
42041 Brescello (RE) - Italy
Tel. 0522.689011
Fax 0522.680617

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