IMMERGAS

USER'S MANUAL

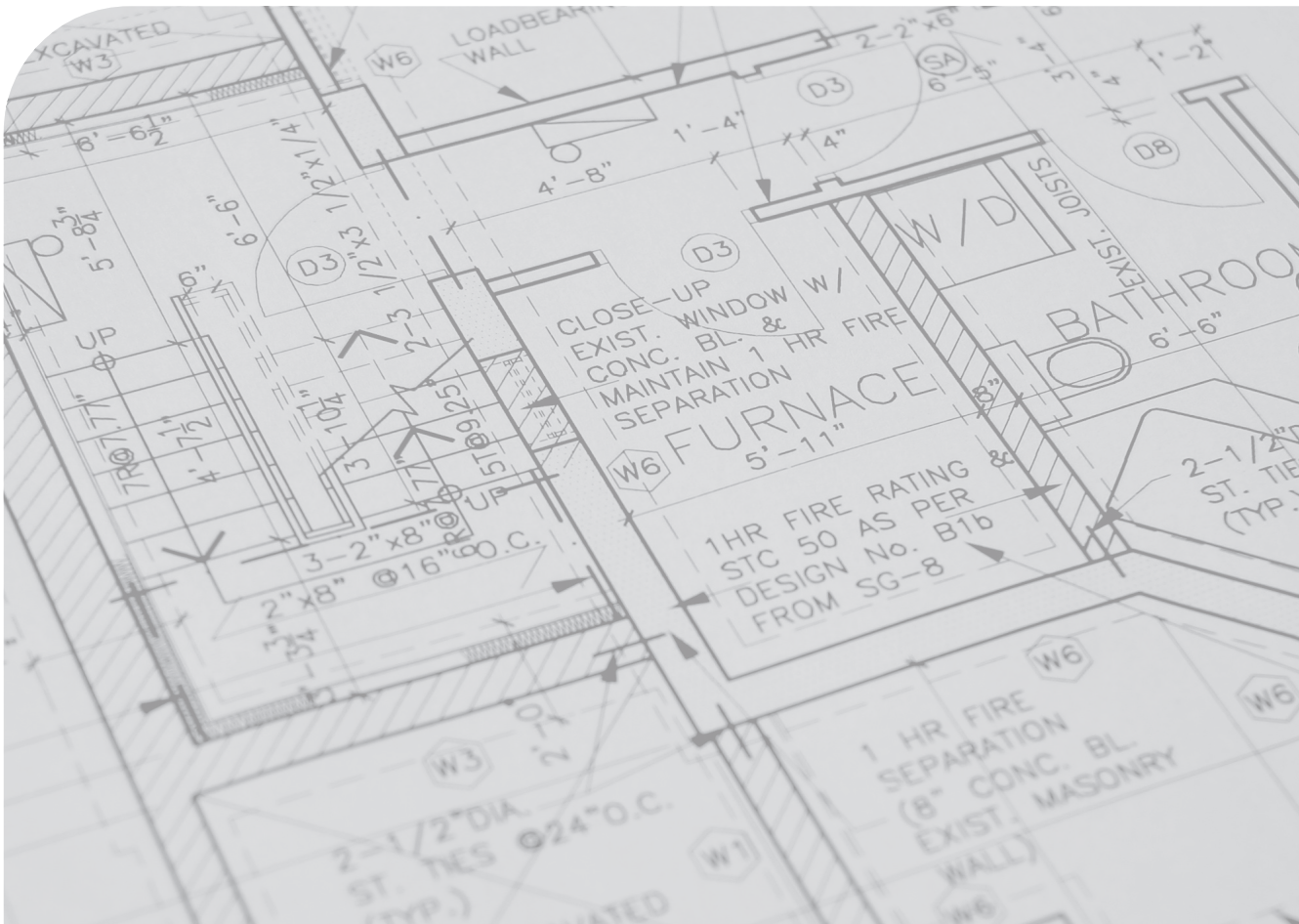
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Instructions and recommendations

Installer
User
Control Panel
Maintenance technician
Technical Data

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INDEX

Dear Customer 4
General Recommendations 5
Safety symbols used 6
Personal protective equipment 6

1 Unit installation 7
1.1 Installation warnings 7
1.2 Data nameplate and installation information sticker 14
1.2.1 Data nameplate positioning 14
1.2.2 Key for data nameplate 15
1.2.3 Installation information sticker 15
1.3 Main dimensions 16
1.4 Minimum installation distances 17
1.5 Antifreeze protection 18
1.6 Installation inside the recessed frame (Optional) 19
1.7 Appliance connection unit 20
1.8 Gas connection 21
1.9 Hydraulic connection 22
1.10 Electrical connection 23
1.11 Remote controls and room chrono-thermostats (Optional) 25
1.12 External temperature probe (Optional) 26
1.13 General examples of types of installation of flue systems 27
1.14 Immergas flue systems 28
1.15 Maximum flue length 30
1.16 Equivalent lengths of "Green Range" flue system components. 31
1.17 Outdoor installation or in a partially protected area 37
1.18 Internal installation using a recessed frame with direct air intake 39
1.19 Concentric horizontal kit installation 40
1.20 Concentric vertical kit installation 44
1.21 Installation of vertical terminals Ø 80 49
1.22 Separator kit installation 50
1.23 Adaptor kit installation C_9 53
1.24 Ducting of flues or technical slots 55
1.25 Configuration $C_{(15)3}$ concentric kit 56
1.26 Configuration $C_{(10)3}$ concentric kit (Ø 80/125) 57
1.27 Configuration $C_{(10)3}$ - $C_{(12)3}$ separator kit (Ø 80/80) 60
1.28 Configuration for C_6 flue installation 66
1.29 Open chamber appliance configuration (type B) with fan on the combustion circuit 67
1.30 Flue exhaust to flue/chimney. 67
1.31 Flues, chimneys and chimney caps. 68
1.32 Water treatment plant filling 69
1.33 System filling 70
1.34 Filling the condensate drain trap 70
1.35 Gas system start-up 70
1.36 Appliance start-up (Ignition) 71
1.37 Circulation pump 72
1.38 Kits available on request 73
1.39 Main components 74

2 Instructions for use and maintenance 75
2.1 General recommendations 75
2.2 Cleaning and maintenance 77
2.3 Appliance switch-off 78

2.4 Restore central heating system pressure 78
2.5 Draining the system 78
2.6 Emptying the D.H.W. circuit 78
2.7 Antifreeze protection 79
2.8 Prolonged inactivity 79
2.9 Cleaning the case 79
2.10 Permanent shutdown 79

3 Control panel 80
3.1 Control panel 80
3.2 Using the appliance 81
3.3 Fault and anomaly signals 83
3.4 Parameters menu, information and P.C.B. programming 86

4 Instructions for maintenance and initial check 92
4.1 General recommendations 92
4.2 Initial check 93
4.3 Yearly appliance check and maintenance 94
4.4 Hydraulic diagram 96
4.5 Wiring diagram 97
4.6 Troubleshooting 98
4.7 Converting the appliance to other types of gas 99
4.8 Fan speed calibration 100
4.9 CO_2/O_2 regulation 101
4.10 Checks following conversion to another type of gas 102
4.11 Password-protected special functions 102
4.12 Screed heater 103
4.13 Automatic vent function (dl) 104
4.14 Flue installation (FU) 104
4.15 Maintenance function (MA) 104
4.16 Chimney sweep 105
4.17 Solar panels coupling 106
4.18 Pump anti-block 106
4.19 Three-way anti-block 106
4.20 Radiator antifreeze 106
4.21 Casing removal 107
4.22 Replacing the manifold insulating panel 110
4.23 Assembling the manifold on the condensation module 111

5 Technical data 112
5.1 Variable heat output 112
5.2 Combustion parameters 113
5.3 Technical data table 114
5.4 Technical parameters for combination boilers (in compliance with Regulation 813/2013) 115
5.5 Product fiche (in compliance with Regulation 811/2013) 116
5.6 Parameters for filling in the package fiche 117

Dear Customer

Congratulations for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas customer you can also count on a Qualified Authorised After-Sales Technical Assistance Centre, prepared and updated to guarantee the constant efficiency of your products. Read the following pages carefully: you will be able to draw useful tips on the proper use of the device, compliance with which will confirm your satisfaction with the Immergas product.
For assistance and routine maintenance, contact Authorised Technical Service Centres: they have original spare parts and are specifically trained directly by the manufacturer.

The company **IMMERGAS S.p.A.**, with registered office in via Cisa Ligure 95 42041 Brescello (RE), declares that the design, manufacturing and after-sales assistance processes comply with the requirements of standard **UNI EN ISO 9001:2015**.
For further details on the product CE marking, request a copy of the Declaration of Conformity from the manufacturer, specifying the appliance model and the language of the country.
The manufacturer declines all liability due to printing or transcription errors, reserving the right to make any modifications to its technical and commercial documents without forewarning.

GENERAL RECOMMENDATIONS

This book contains important information for the:
Installer (section 1);
User (section 2);
Maintenance Technician (section 3).

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

SAFETY SYMBOLS USED



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



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



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



DANGER OF HOT SURFACES
The symbol indicates the appliance's very hot components that can cause burns.



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



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



INFORMATION
Indicates useful tips or additional information.



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



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

PERSONAL PROTECTIVE EQUIPMENT



SAFETY GLOVES



EYE PROTECTION



SAFETY FOOTWEAR

1 UNIT INSTALLATION

1.1 INSTALLATION WARNINGS

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

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

The place of installation of the appliance and relative Immergas accessories must have suitable features (technical and structural) such to allow (always in safety, efficiency and easy conditions):
- installation (according to the provisions of technical legislation and technical regulations);
- maintenance operations (including scheduled, periodic, routine and special maintenance);
- removal (to outdoors in the place for loading and transporting the appliances and components) as well as the eventual replacement of those with appliances and/or equivalent components.

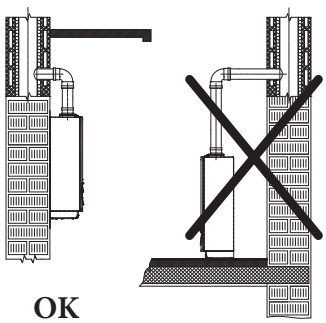
The wall surface must be smooth, without any protrusions or recesses enabling access to the rear part. They are not designed to be installed on plinths or floors (Fig. 1).

By varying the type of installation the classification of the appliance and precisely:
- **Open chamber appliances (type B)** if installed using the relevant terminals for air intake directly from the room in which the appliance has been installed.
- **Type C appliance** if installed using concentric pipes or other types of pipes envisioned for the sealed chamber appliance for intake of air and expulsion of flue gas.

The equipment classification is shown in the illustrations of the various installation solutions 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.



OK

1

It is forbidden to install appliances removed from other systems.
The manufacturer declines all liability in the event of damage caused by appliances removed from other systems or for any non-conformities with such equipment.

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

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

If installing a kit or servicing the appliance, first empty the system's circuit when necessary, so as not to compromise the appliance's electrical safety (Parag. 2.5).
Always disconnect the appliance from voltage and, depending on the type of operation, decrease the pressure and/or bring it to zero in the gas and DHW circuits.

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 and below the boiler to enable interventions on the water and flue removal connections (Fig.6).

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

It is recommended to check that no flue gas recirculation is found in the air sample points (0.5% maximum permitted CO_2).

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

Keep all combustible material away from the appliance (paper, rags, plastic, polystyrene, etc.).

Split exhaust ducts must not pass through walls of combustible material.

Do not place household appliances underneath the appliance 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 appliance.

In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts).
Do not attempt to modify or repair the appliance alone.

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

Installation standards

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

This appliance can be installed outdoors in a partially protected area.
By partially protected area, we mean one in which the unit is not directly exposed to the elements (rain, snow, hail, etc.).

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

Do not install on the vertical projection of hobs (for appliances up to 35 kW).

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

These appliances, if not adequately isolated, are not suitable for installation on walls of combustible material.

Installation is forbidden in places/rooms that constitute common parts of apartment buildings such as cellars, entrance halls, attics, lofts, internal stairs or other elements making up escape routes, unless otherwise provided by local regulations.

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

The recessed frame kit ensures appropriate support only if installed correctly (according to the rules of good practice), following the instructions on its instructions leaflet.
For safety reasons against any leaks it is necessary to plaster the boiler housing in the brick wall.
The recessed frame for the boiler is not a supporting structure and must not replace the wall removed. It is necessary to position the boiler inside the wall.
The plugs (standard supply) that come with the appliance are only to be used to fix the latter 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 mount. Appliances must be installed in such a way as to avoid knocks or tampering.

Wall mounting of the appliance must guarantee stable and efficient support for the generator.

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

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

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

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

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

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

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

Make sure the combustion air is not fed through chimneys that were previously used with boilers or other central heating appliances powered by liquid or solid fuels. In fact, these may cause an accumulation of soot in the chimney

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

PX42 Gas Valve

Leak sprays and liquids clog the reference hole P1. Ref. (Fig. 71) of the gas valve, damaging it irreparably.
During installation and maintenance, do not use spray or liquids on the gas valve (electric connections side).

SIT 848 GAS Valve

Leak sprays and liquids clog the venting hole (Ref. 4 and 7 Fig. 72) of the gas valves, damaging it irreparably.
During installation and maintenance, do not use spray or liquids on the gas valve (electric connections side).

Filling the condensate drain trap

⚠ When the appliance is switched on for the first time, combustion products come out of the condensate drain. After a few minutes of operation, check that combustion flue gases are no longer coming out of the condensate drain; this means that the drain trap has filled to a correct condensate height that the flue gases cannot pass through.

Special provisions for appliances installed in an open chamber configuration (type B with fan on the combustion circuit)

⚠ Open chamber appliances (type B) 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.). These may be damaging for the components of the appliance and jeopardise functioning.

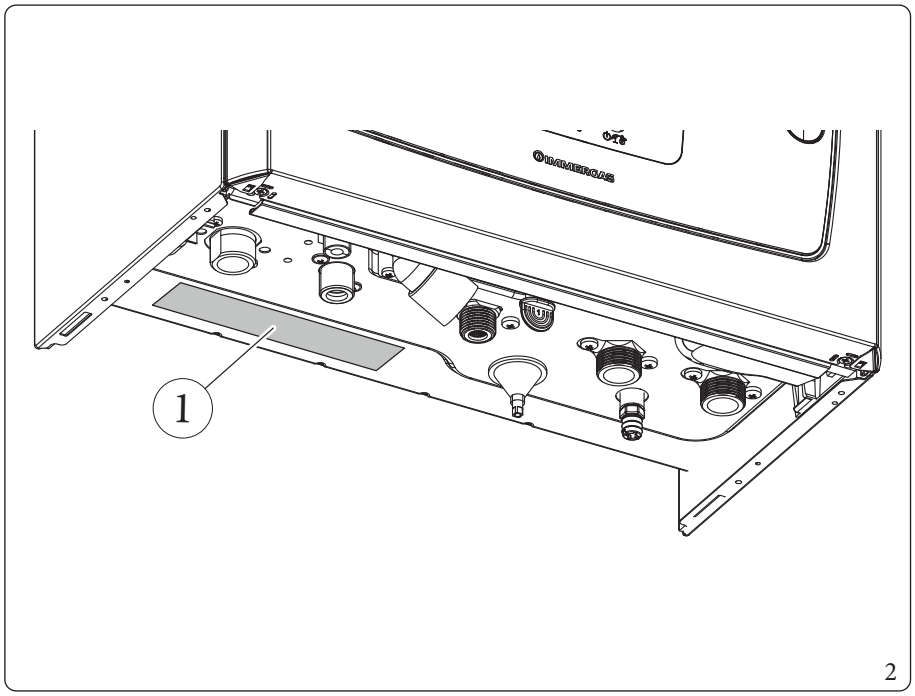
⚠ Open chamber appliances (type B), unless otherwise specified by local regulations, must not be installed in bedrooms, bathrooms, toilets or studios; They must neither be installed in rooms containing solid fuel heat generators nor in rooms communicating with said rooms.

⚠ For open chamber appliances (type B) for domestic use (up to 35 kW), the installation rooms must be permanently ventilated, in compliance with the local regulations in force (at least 6 cm^2 for every kW of installed heat input, except in the event of any increases needed for electro-mechanical vacuum cleaners or other devices that could put the installation room under vacuum).

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

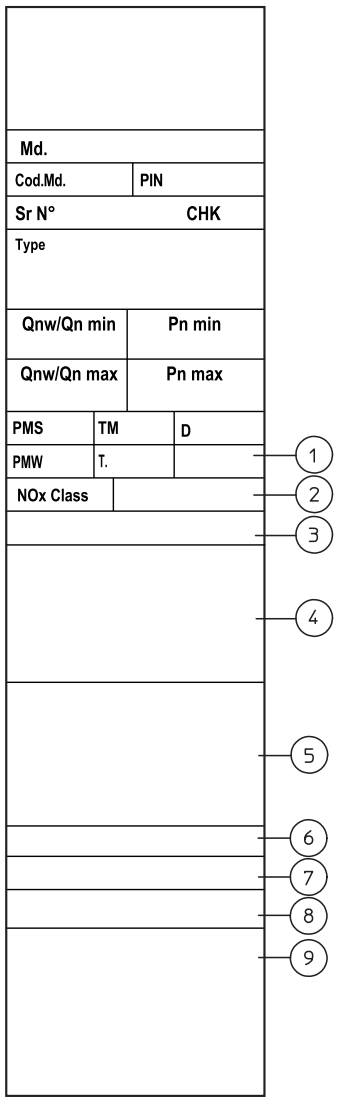
1.2 DATA NAMEPLATE AND INSTALLATION INFORMATION STICKER

1.2.1 Data nameplate positioning



Key (Fig. 2)
1 - Data plate

1.2.2 Key for data nameplate



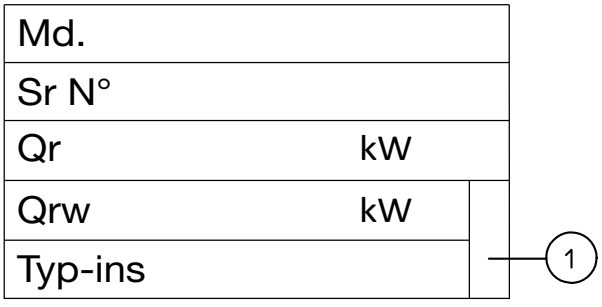
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	ENG
Md.	Model
Cod. Md.	Model code
PIN	PIN code
Sr N°	Serial Number
CHK	Check
Type	Type of installation (ref. UNI EN 1749)
Qnw min	Minimum DHW heat input
Qn min	Central heating minimum heat input
Pn min	Minimum heat output
Qnw max	DHW maximum heat input
Qn max	Central heating maximum heat input
Pn max	Maximum heat output
PMS	Maximum system pressure
TM	Maximum operating temperature
D	Specific flow rate
PMW	Maximum domestic hot water pressure
T.	Minimum and maximum installation temperature
1	IP protection rating
NOx Class	NOx Class
2	Rated voltage - Power supply symbol - Rated frequency - Rated output (Absorption)
3(*)	Maximum additional absorption of kits that can be installed (to be added to the Rated output)
4	Logos and markings
5	Gas categories and countries of destination
6(*)	Specific information for Belgium
7	Factory calibration
8(*)	Hydrogen ready
9	Type of appliance

(*) = if present.

The technical data are provided on the data plate on the appliance.

1.2.3 Installation information sticker

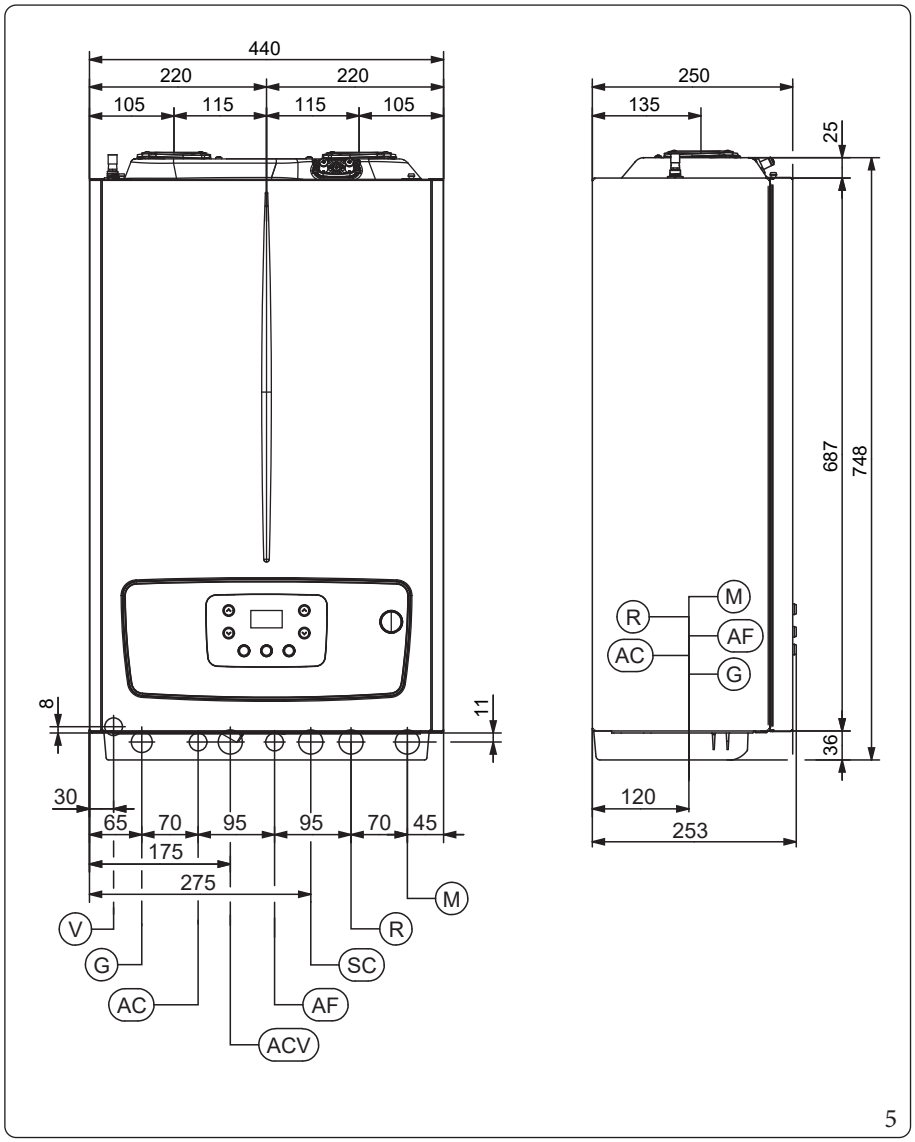


4

	ENG
Md.	Model
Sr N°	Serial Number
Qr	Central heating output set
Qrw	DHW output set
Typ-ins	Type of flue installed
1	Adhesive item code

At the time of installation, the authorised technician must fill in the facsimile of the installation information sticker (Fig. 4) with the information indicated. This sticker is inside the warranty group, it must also be filled out and applied on the outside of the appliance (in visible position) (see paragraph 4.2 Initial check).

1.3 MAIN DIMENSIONS



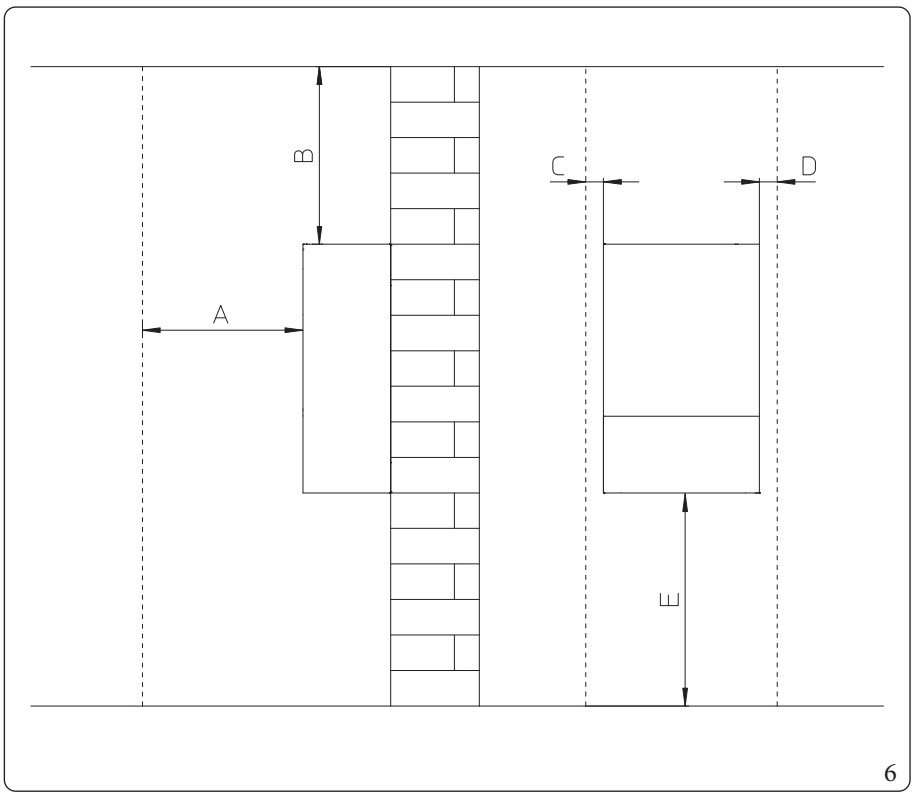
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Key (Fig. 5)

- *V* - *Electrical connection*
- *G* - *Gas supply*
- *AC* - *Domestic hot water outlet*
- *ACV* - *Solar valve kit DHW inlet (optional)*
- *AF* - *Domestic hot water inlet*
- *SC* - *Condensate drain (minimum internal diameter Ø 13 mm)*
- *M* - *System flow*
- *R* - *System return*

Height (mm)	**Width (mm)**		**Depth (mm)**	
748	440		253	
CONNECTIONS				
GAS	D.H.W.		SYSTEM	
G	AC	AF	R	M
3/4"	1/2"	1/2"	3/4"	3/4"

1.4 MINIMUM INSTALLATION DISTANCES



Key (Fig. 6):

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

1.5 ANTIFREEZE PROTECTION

Appliance antifreeze protection is thus only ensured if:
- the appliance is correctly connected to gas and electricity power supply circuits;
- the appliance is powered constantly;
- the appliance is not in "off" mode.
- the appliance is not in anomaly conditions (Parag. 3.3);
- the appliance essential components are not faulty.

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 appliance. The antifreeze liquid must not be harmful to one's health. The instructions of the manufacturer of this liquid must be strictly followed regarding the necessary percentage with respect to the minimum temperature at which the system must be kept.
- The materials used for the central heating circuit of Immergas appliances resist propylene glycol based antifreeze liquids (if the mixtures are prepared perfectly).
- An aqueous solution must be made with potential pollution class of water 2 (EN 1717:2002 or local standards in force).

Follow the supplier's instructions for the life cycle duration and possible disposal of the antifreeze liquid.

The antifreeze systems described in this chapter are only to protect the appliance; the presence of these functions and devices does not exclude the possibility of parts of the system or domestic hot water circuit outside the appliance from freezing.

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

Minimum room temperature -5°C

Insulate the visible pipes and fittings with 10 mm thick insulating material (cooling inlet pipe, heating outlet pipe and condensate draining pipe).
The appliance comes as per standard with an antifreeze function that activates the pump and the burner when the system water temperature in the appliance falls below 4°C.

In these conditions, previously listed, the appliance is protected against freezing up to an ambient temperature of -5°C.

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

When installing the appliance in locations where the temperature falls below -5°C, installation of the antifreeze kit is required, respecting all the conditions listed above.

Minimum room temperature -15°C

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

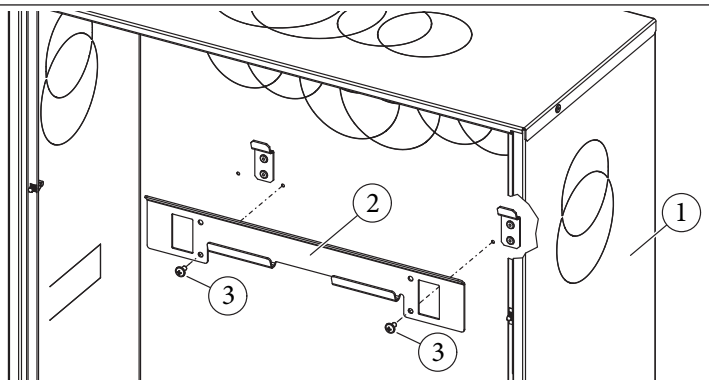
In the previously listed conditions ad with the addition of the antifreeze kit, the appliance is protected against freezing up to a temperature of -15°C.

1.6 INSTALLATION INSIDE THE RECESSED FRAME (OPTIONAL)

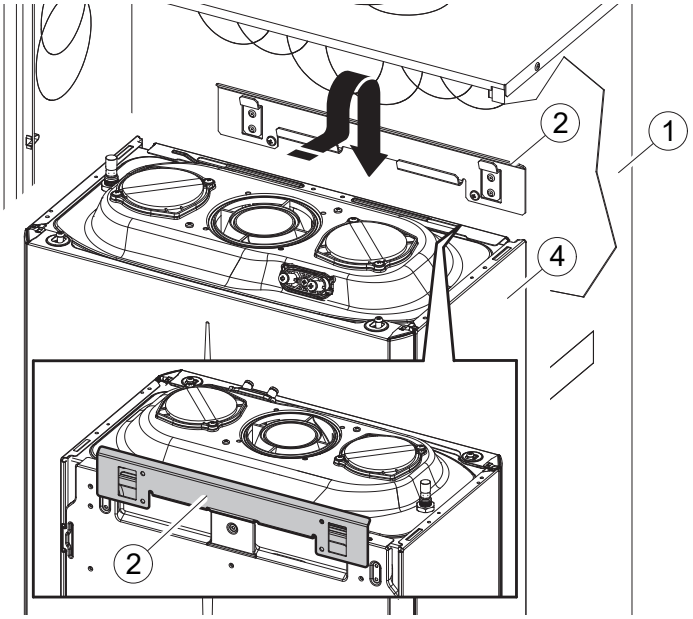
The appliance is designed for installation inside the Immergas recessed frame (supplied as optional).
The necessary parts for this type of installation (brackets) must also be purchased separately as optional kit.
To install proceed as follows:

- Install the bracket (2) inside the recessed frame fixing it with the screws (3) in the pre-drilled holes (Fig. 7).
- Hang the boiler (4) to the bracket (2) (Fig. 8).
- Block the boiler (4) by mounting the brackets (5) and fixing them with their screws (6) (Fig.9).

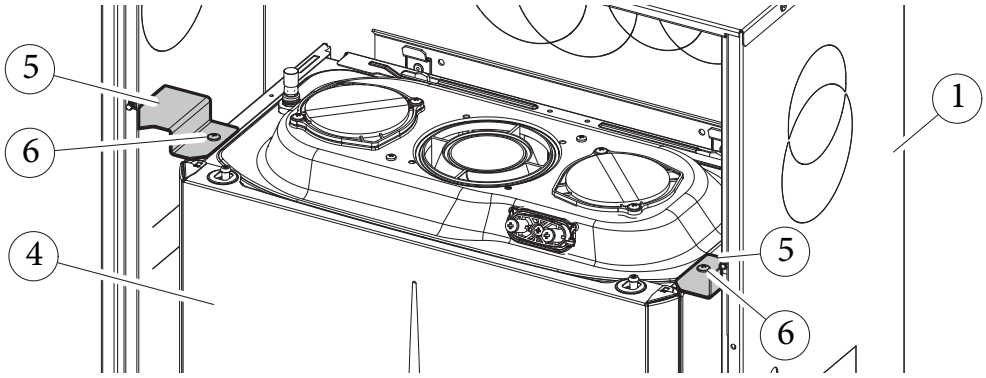
The brackets (5) used to centre the appliance on the frame and hold it in place stop against the frame (1) so do not require fixing to the frame itself.



7



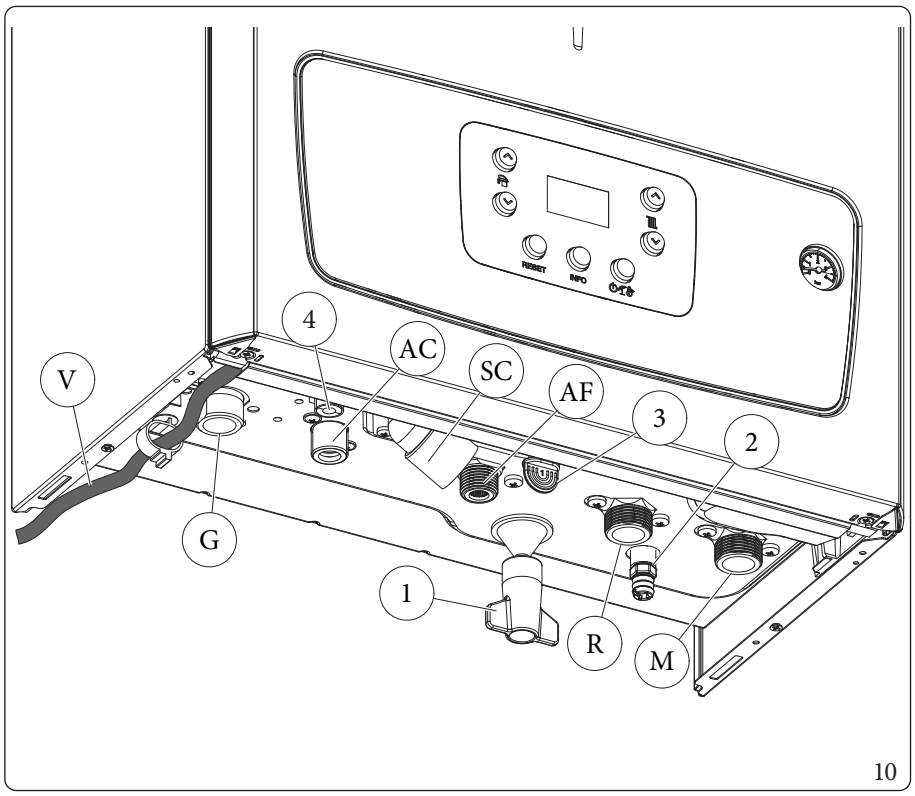
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9

1.7 APPLIANCE CONNECTION UNIT

The connection unit consisting of all the necessary parts to perform the hydraulic and gas system connections of the appliance comes as optional kit, perform the connections in accordance with the type of installation to be made and respecting the arrangement shown in figure 10:



10

Key (Fig. 10)

V	-	*Electrical connection*
G	-	*Gas supply*
AC	-	*Domestic hot water outlet*
AF	-	*Domestic hot water inlet*
SC	-	*Condensate drain (minimum internal diameter Ø 13 mm)*
M	-	*System flow*
R	-	*System return*
1	-	*System filling valve*
2	-	*System draining valve*
3	-	*3 bar safety valve drain fitting signal*
4	-	*Air vent valve drain*

1.8 GAS CONNECTION

Our appliances are built to operate with methane gas (G20), LPG and methane and hydrogen mixtures up to 20% by volume (G20Y20), referring to the gas distributed in the network.The supply pipe must be equal to or higher than the appliance connection.

Before connecting the gas line, carefully clean inside all the fuel feed system pipes to remove any residue that could impair appliance efficiency.
Also make sure the gas corresponds to that for which the appliance is prepared (see appliance data nameplate).
If different, the boiler must be converted for operation with the other type of gas (see converting appliance for other gas types).

It is also important to check the dynamic pressure of the mains (methane or LPG) used to supply the boiler, which must comply with EN 437 and its attachment, as insufficient levels may reduce generator output and cause discomfort to the user.
Static/dynamic network pressures higher than those required for regular operation may cause serious damage to the appliance control elements; in this case shut the gas line off.
Do not operate the device.
Have the system inspected by skilled personnel.

According to the local regulation in force, make sure that a gas isolation valve is installed upstream of each connection between the appliance and the gas system.
This valve, if supplied by the appliance's manufacturer, can be directly connected to the appliance (i.e. downstream from the pipes connecting the system to the appliance), according to the manufacturer's instructions.
The Immergas connection unit, supplied as an optional kit, also includes the gas cock, whose installation instructions are provided in the kit.
In any case, make sure the gas isolation valve is connected properly.

The gas supply pipe must be suitably dimensioned according to current regulations in order to guarantee correct gas flow rate to the burner even in conditions of maximum generator output and to guarantee appliance efficiency (technical specifications).
The coupling system must conform to standards in force (EN 1775).

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

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

- New LPG storage tanks may contain residual inert gases (nitrogen) that degrade the mixture delivered to the appliance 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 calorific value of the mixture delivered to the appliance, with subsequent change in its performance.

1.9 HYDRAULIC CONNECTION

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

The current technical standards in force prescribes the washing and treatment of the water in the heating and water system, in order to protect the system and the appliance from deposits (e.g. scale), slurry or other hazardous deposits.
In order not to void the heat exchanger warranty, you are required to comply with what has been prescribed in (Par. 1.32).
Hydraulic connections must be made in a rational way using the couplings on the appliance template.

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

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

To preserve the duration of appliance efficiency features, in the presence of water whose features can lead to the deposit of lime scale, installation of the "polyphosphate dispenser" kit is recommended .
The dispenser cannot be installed inside the recessed frame.

3 bar safety valve

Discharge of the safety valve has been conveyed to the condensate drain trap outlet. Consequently, in the event of valve intervention, the discharged liquid will end up in the sewer system through the drain pipe of the condensate drain trap.
In any case, the lower part of the appliance is fitted with a drain fitting (Ref. 3 Fig. 10) with the relative closure cap to check for the presence of liquid in the discharge circuit and to check the intervention of the 3 bar safety valve.

Condensate drain

To drain the condensate produced by the appliance, it is necessary to connect to the drainage system by means of acid condensate resistant pipes, with an internal Ø of at least 13 mm.
The system connecting the appliance to the drainage system must be carried out in such a way as to prevent occlusion and freezing of the liquid contained in it.
Before appliance ignition, ensure that the condensate can be correctly removed. After first ignition, check that the drain trap is filled with condensate (Parag. 1.34).
Also, comply with national and local regulations on discharging waste waters.
In the event condensate is not discharged into the wastewater drainage system, a condensate neutraliser must be installed to ensure compliance with the parameters established by the legislation in force.

1.10 ELECTRICAL CONNECTION

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

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

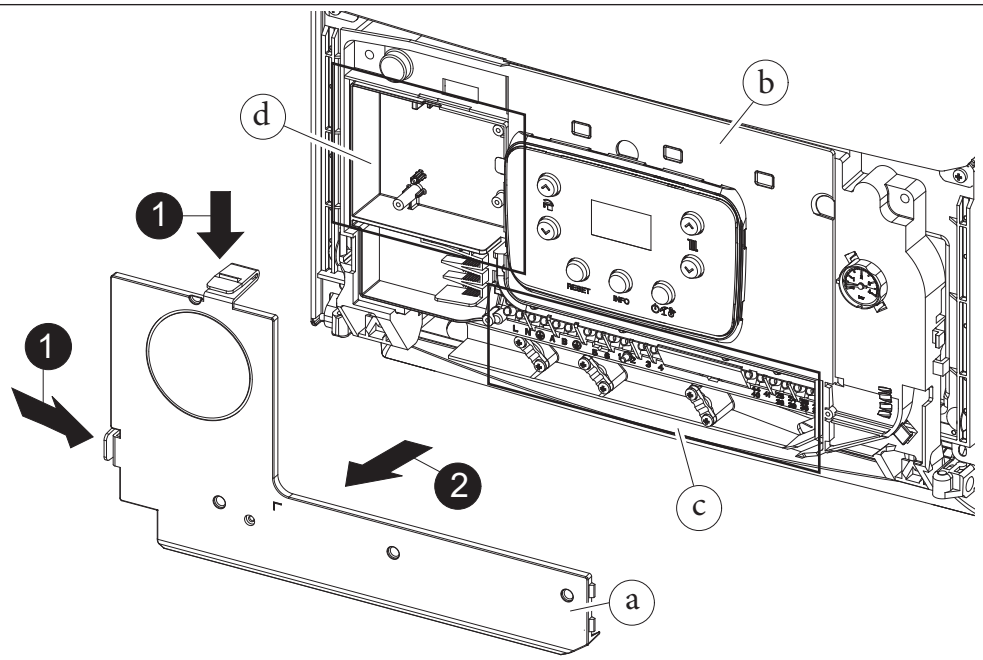
Open the control panel connections compartment (Fig. 11).

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

1. Remove the front casing (Fig. 79).
2. Disassemble the cover (a).
3. Press the two hooks on the connections compartment cover.
4. Remove the cover (a) from the control panel (b).

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

The compartment (d) has cable clamps and screws to be used for connection of the optional external connections.



11

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

Boilers are supplied complete with a special "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 overvoltage category in compliance with installation regulations.

To protect from possible leakage of DC voltage, it is necessary to provide a type A or type F residual current safety device with 30 mA sensitivity.

If the power supply cable is damaged, it must be replaced by a special cable or assembly, which are only available from the manufacturer or its Authorised After-Sales Technical Assistance Centre.

It is recommended to contact a qualified company (e.g. the Authorised After-Sales Technical Assistance Centre) for replacement to avoid a hazard.

The power cable must be laid as shown (Fig. 10).
If the network fuse indicated in the wiring diagram (Fig. 70) as component "F1" on the P.C.B. needs to be changed, this operation must also be performed by qualified personnel using a 3.15A rapid type (F) 250VAC fuse (dimension 5 x 20).
For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.

Installation with system operating at direct low temperature.

The boiler can directly supply a low-temperature system by setting the flow temperature adjustment range "t0" and "t1" (Par. 3.4).
In this situation it is good practice to insert a relevant safety kit (optional) made up from a thermostat (with adjustable temperature).
The thermostat must be positioned on the system flow pipe at a distance of at least 2 metres from the boiler.

1.11 REMOTE CONTROLS AND ROOM CHRONO-THERMOSTATS (OPTIONAL)

The appliance is set up for room chrono-thermostats or remote controls, available as optional kits.
Carefully read the user and assembly instructions contained in the accessory kit.

Disconnect power to the unit before making any electrical connections.

Immergas digital chrono-thermostat On/Off.

The chrono-thermostat allows:

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

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

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

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

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

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

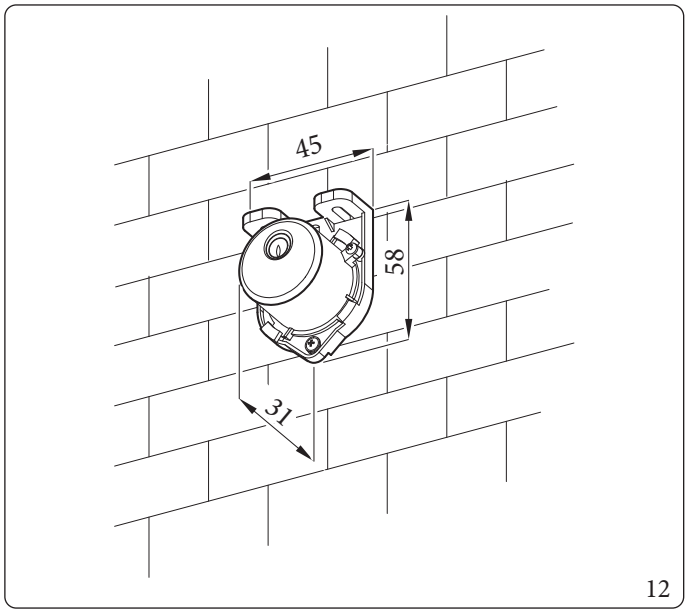
Any room thermostat On/Off must be connected to terminals 44/40 and 41 by removing the X40 link (Fig. 70).
Make sure that the On/Off thermostat contact is of the "clean" type, i.e. independent of the mains voltage, otherwise the P.C.B. would be damaged.
Any Comando Amico Remoto remote control V2 must be connected to terminals 44/40 and 41, eliminating link X40 on the P.C.B. (Fig. 70).
The boiler can only be connected to one remote control.

If the Comando Amico Remoto remote control V2 or any other On/Off chrono-thermostat is used arrange two separate lines in compliance with current regulations regarding electrical systems.
All appliance pipes must never be used to earth the electric or telephone system.
Ensure elimination of this risk before making the appliance electrical connections.

1.12 EXTERNAL TEMPERATURE PROBE (OPTIONAL)

The appliance is prepared for the application of the external probe (Fig. 12), 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 appliance 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.
Use the curve shown in the diagram in Fig. 13 when CAR^{V2} is not connected to the boiler; use the curve shown in the CAR^{V2} instruction booklet when CAR^{V2} is connected to the boiler.
The electric connection of the external probe must be made on terminals 38 and 39 on the terminal board on the appliance control panel (Fig. 70).

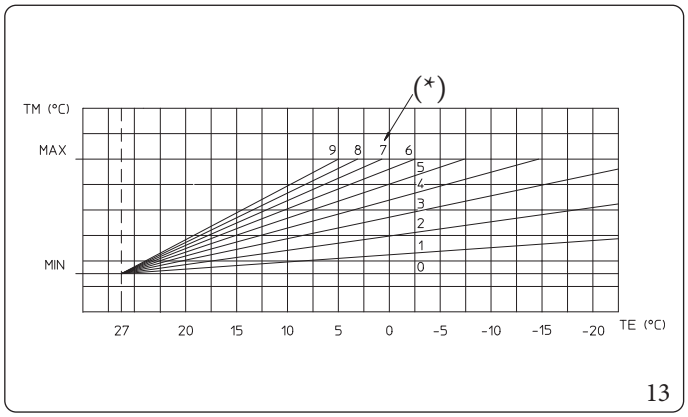
If the probe is used, it is mandatory to set up two separate lines in compliance with current regulations regarding electrical systems.



12

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

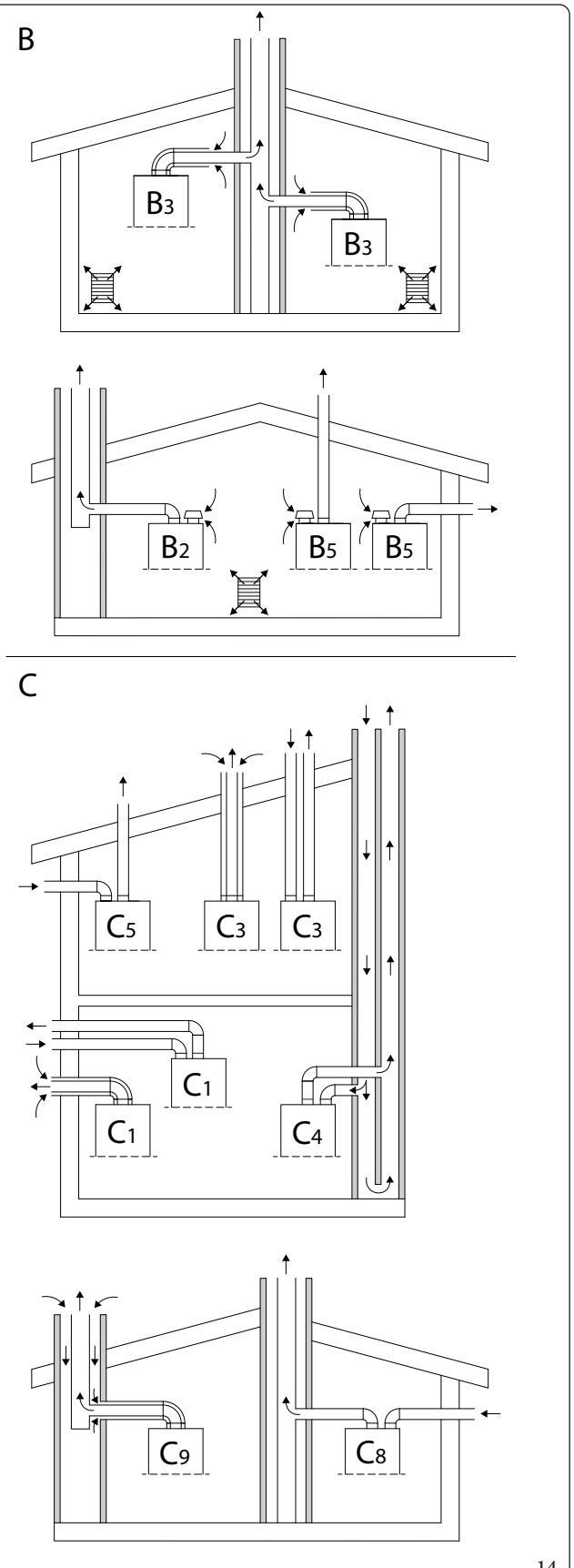
* Position of the central heating temperature control.



13

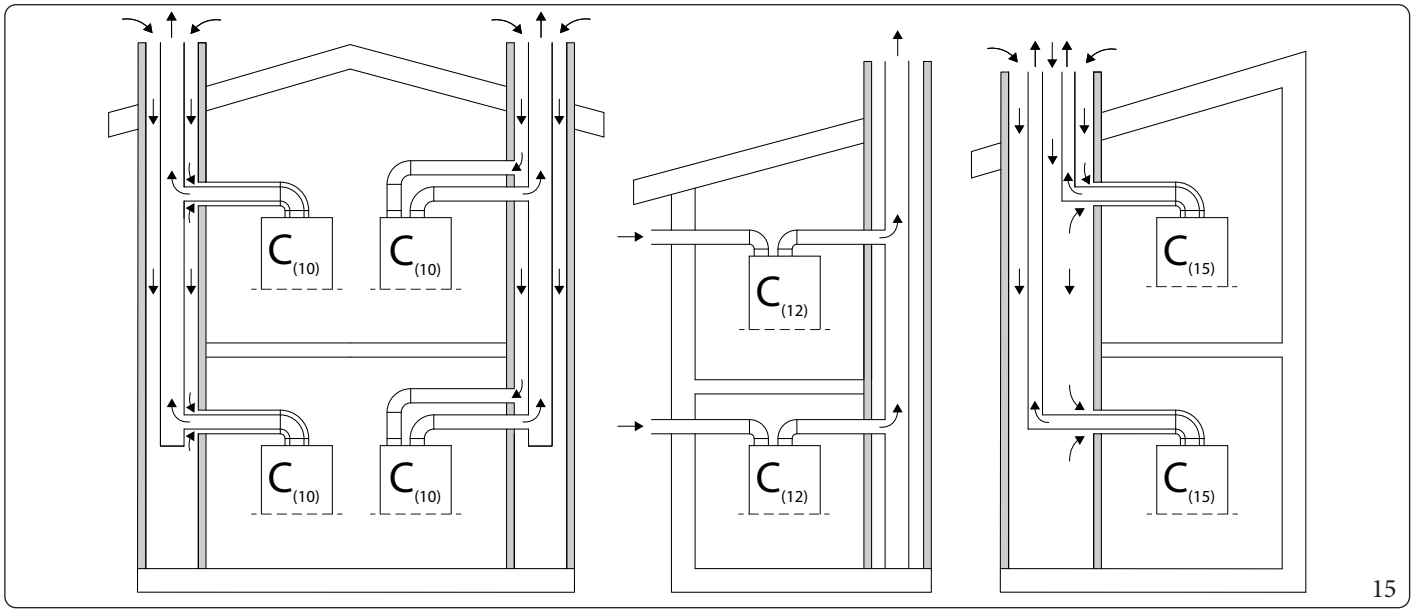
1.13 GENERAL EXAMPLES OF TYPES OF INSTALLATION OF FLUE SYSTEMS

For the types of installation of "Green Series" flue systems approved for this product, strictly follow the table in Parag. 5.3, in the line "Type of flue installation".



14

Installation types summarised table (Fig. 14):	
B	Appliance that withdraws air from the environment where it is installed and releases combustion products outside (either directly or through the flue).
B_2	Appliance that withdraws air from the environment where it is installed and releases combustion products in the flue.
B_3	Appliance connected to a conventional flue. A concentric pipe connects the flue to the appliance, in which the pressurised exhaust pipe is completely enveloped by combustion air withdrawn from inside the room. The combustion air is withdrawn by calibrated orifices present in the intake pipe.
B_5	Appliance that withdraws air from the environment where it is installed and directly releases combustion products outside (through wall or roof).
C	Appliance whose combustion circuit (air feed, combustion chamber, heat exchanger and exhaust of combustion products) is sealed with respect to the room where the appliance is installed.
C_1	Appliance with pipes connecting to a horizontal terminal, which simultaneously allows the inlet of combustion air and the release of flue gas through concentric orifices or close enough to be in similar wind conditions.
C_3	Appliance with pipes connecting to a vertical terminal, which simultaneously allows the inlet of combustion air and the release of flue gas through concentric orifices or close enough to be in similar wind conditions.
C_4	Appliance with two separate pipes connecting to a collective conventional flue. The flue consists of two pipes, concentric or separate, with air intake in one and flue gas release in the other and are in similar wind conditions.
C_5	Appliance that withdraws air from outside and directly releases combustion products outside (through wall or roof). These pipes can end up in different pressure zones.
C_6	Type C appliance intended to be connected to an approved system and sold separately.
C_8	Appliance connected, through the exhaust pipe, to an individual or collective conventional flue. A second pipe is provided for the intake of combustion air from outside.
C_9	Appliance connected, through a ducted exhaust pipe, to a vertical terminal. The exhaust pipe, by means of the cavity, also acts as a combustion air intake pipe.



15

Installation types summarised table (Fig. 15):	
$C_{(10)}$	Appliance intended for connection, via its ducts, to a collective flue designed for more than one appliance. This flue consists of two ducts connected to a terminal, which simultaneously allows combustion air to enter and flue gas to be exhausted through orifices that are concentric or close enough to be in similar wind conditions.
$C_{(12)}$	Appliance intended for connection, via its exhaust duct, to a collective flue designed for more than one appliance. A second duct, an integral part of the appliance, is provided for the intake of combustion air from outside.
$C_{(15)}$	Appliance connected to a vertical flue exhaust terminal and a common vertical duct, designed for more than one appliance, for air intake. This duct simultaneously allows the inlet of combustion air and the release of flue gas through concentric orifices or close enough to be in similar wind conditions.

The technical combustion parameters (except configurations C_6) are displayed in Paragraph Chapter 5.2 "Combustion parameters"

Note for appliances with flue configuration C..$_X$ (e.g. C_{13X}, C_{33X}, C_{43X}.....C_{93X}, etc...)
In accordance with Standard EN1749-2020, these types of installations foresee that the flue gas exhaust pipes may be pressurised. Therefore, on the basis of regulations in some European countries, exhaust ducts have to be encased in suction ducts connected directly to the outside.

The technical data required for configuration C6 (commercial flue) are indicated in Paragraph Chapter 1.28 "Configuration for C_6 flue installation".

1.14 IMMERGAS FLUE SYSTEMS

Immergas supplies various solutions separately from the appliances regarding the installation of air intake and flue exhaust terminals, which are fundamental for appliance operation.
These solutions form an integral part of the product.

The appliance must be installed with an original Immergas "Green Range" inspectionable air intake system and flue gas extraction system made of plastic, with the exception of configuration C_6 in the configurations envisaged in Parag. 1.13, as required by the regulations in force and by the product's approval. This flue can be identified by an identification mark and special distinctive marking bearing the note "only for condensation boilers".
For non-original flue system, refer to the technical data of the appliance.

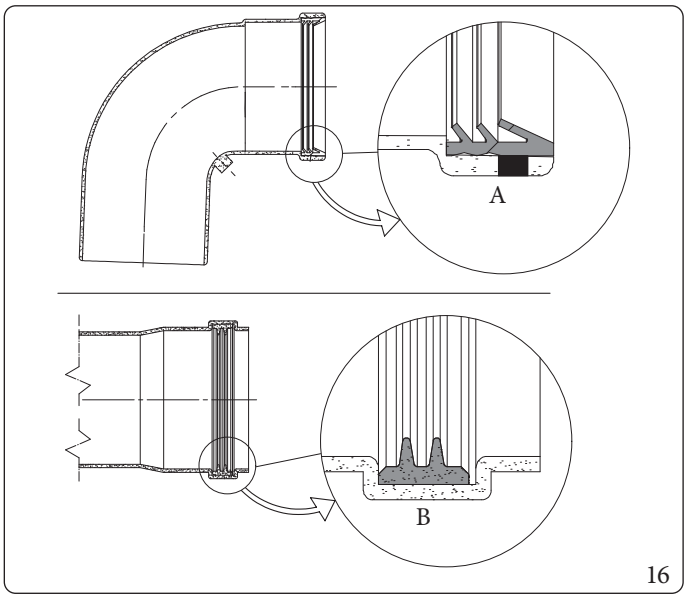
The plastic pipes cannot be installed outdoors, for tracts longer than 40 cm, without suitable protection from UV rays and other atmospheric agents.

Positioning the gaskets for "green range" flue systems.

Position the gasket correctly (for bends and extensions) (Fig. 16):

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

If necessary, to ease the push-fitting, spread the supplied lubricants on the parts.



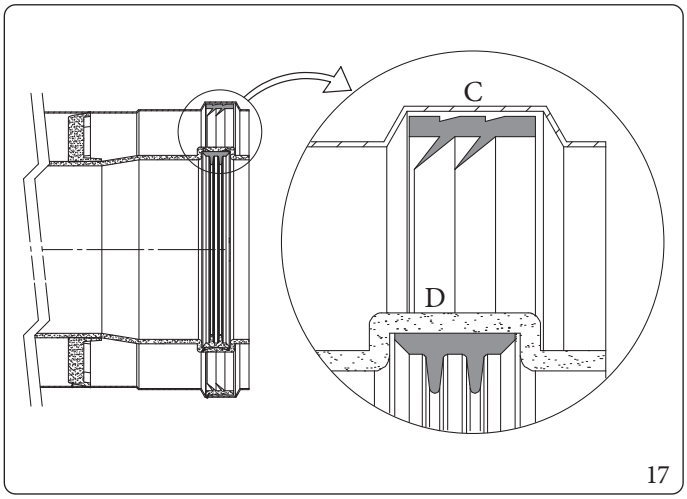
16

Positioning of 80/125 "green series" flue gaskets

Position the gasket correctly (for bends and extensions) (Fig.17):

- external gasket (C);
- internal gasket (D).

If necessary, to ease the push-fitting, spread the supplied lubricants on the parts.



17

Extension pipes and concentric elbows push-fittings.

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

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

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

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

When installing horizontal pipes, a minimum inclination of 5% towards the appliance must be maintained, and a section clamp with plug must be installed every 3 metres.

1.15 MAXIMUM FLUE LENGTH

The maximum flue length (L max)) is understood to include the terminal.

To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.16, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.15. (L ≤ L max).

For further information on functional check calculations of any flue configuration, consult the Immergas website of your country or contact the indicated Customer Service.

Should L be higher than L max, consider using another type of flue.

Type	Installation		VICTRIX TERA V3 28 E
			L max = Maximum length (m)
Ø 60/100mm	C_{13} (curve+terminal)		13
	C_{33} (vertical+terminal)		14,5
Ø 80/125mm	C_{13} (curve+terminal) C_{33} (vertical)		35
	$C_{(10)3}$ - $C_{(15)3}$		10
Ø 80/80mm	C_{43} - C_{53} - C_{83} (split)		35
	$C_{(10)3}$ - $C_{(12)3}$		15
	B_{23} - B_{23p} - B_{33} - B_{53} - B_{53p}		30
Ø 50 flexible	C_{53}	Split 80/80 with intake by own terminal and exhaust in exposed or ducted Immergas pipe.	20
Ø 60mm rigid			25
Ø 80mm rigid			35
Ø 80 flexible			30
Ø 50 flexible	C_{93} $C_{(15)3}$	Concentric 60/100 or 80/125 with exhaust in ducted pipe and intake from technical slot.	20
Ø 60mm rigid			25
Ø 80mm rigid			35
Ø 80 flexible			30

The values indicated in the table are the maximum available lengths.
Adjustment of the maximum boiler speed depending on the length of the actual pipes installed must refer to the Table in Par. 4.8.
The flue parameter (heat output) must be calibrated by the maintenance technician at initial testing.

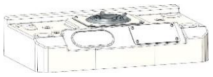
The unit of measurement is in "mm" if not specified otherwise.

1.16 EQUIVALENT LENGTHS OF "GREEN RANGE" FLUE SYSTEM COMPONENTS.

Equivalent concentric lengths Ø 60/100				
Ø duct [mm]	**Type of duct**	**Picture**	**Equivalent length in [m] of concentric pipe Ø 60/100 mm**	
60/100	Pipe Ø 60/100 mm L = 1 m			1,0
	90° bend Ø 60/100 mm			1,3
	45° bend Ø 60/100 mm			1,0
	Horizontal terminal Ø 60/100 mm L = 1 m			
	Horizontal terminal Ø 60/100 mm L = 1 m adjustable		0° spout	
			45° spout	
	Vertical terminal Ø 60/100 mm L = 1,25 m			

The values of the equivalent lengths in metres of concentric pipe of the Ø60/100 terminals are not the actual ones, but are weighted values to be used for the calculation of the flue.

Equivalent concentric lengths Ø 80/125				
Ø duct [mm]	**Type of duct**	**Picture**	**Equivalent length in [m] of concentric pipe Ø 80/125 mm**	
80/125	Pipe Ø 80/125 mm L = 1 m			1,0
	90° bend Ø 80/125 mm			1,5
	45° bend Ø 80/125 mm			1,0
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,4
	Horizontal terminal Ø 80/125 mm L = 1 m			
	Vertical terminal Ø 80/125 mm L = 1 m			

Equivalent lengths split Ø 80/80 and rigid ducting Ø 80				
Ø duct [mm]	**Type of duct**	**Picture**	**Equivalent length in [m] of pipe Ø 80 mm**	
80/80 and rigid 80	Pipe Ø 80 mm L = 1 m		Exhaust	1,0
			Intake	0,7
	90° bend Ø 80 mm		Exhaust	2,1
			Intake	1,6
	45° bend Ø 80 mm		Exhaust	1,3
			Intake	1,0
	Horizontal terminal Ø 80 mm L = 1 m		Exhaust	3,5
			Intake	2,5
	Horizontal terminal Ø 80 mm grid part		Exhaust	2,5
			Intake	1,8
	Vertical terminal Ø 80 mm L = 1 m		Exhaust	3,0
	Stainless steel vertical terminal Ø 80 mm L = 1 m		Exhaust	3,0
	Suction kit Ø 80 mm for configuration B		Intake	4,3
	Vertical terminal Ø 80 mm L = 1,25 m		Exhaust	4,6
	Pipe Ø 80/125 mm L = 1 m			1,8
	90° bend Ø 80/125 mm			2,5
	45° bend Ø 80/125 mm			1,8
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,9
	Thermoformed kit for type B installation		Intake	4,0

Equivalent lengths Ø 50 flexible ducting				
Ø duct [mm]	**Type of duct**	**Picture**	**Equivalent length in [m] of flexible hose Ø 50 mm**	
50 Hose	Corrugated hose Ø 50 mm L = 1 m		Exhaust	1,0
	Kit T Ø 80 mm + reduction to Ø 50 mm		Exhaust	0,6
	Exhaust T-terminal kit Ø 80 mm + reduction to Ø 50 mm		Exhaust	1,0
	Ø 80 mm bend kit + reduction to Ø 50 mm		Exhaust	1,2
	Vertical terminal Ø 80 mm + reduction to Ø 50 mm		Exhaust	0,5
	Female/female kit Ø 50 mm		Exhaust	0,4
	Pipe Ø80 mm L = 1 m		Exhaust	0,1
			Intake	0,1
	90° bend Ø 80 mm		Exhaust	0,3
			Intake	0,2
	45° bend Ø 80 mm		Exhaust	0,2
			Intake	0,1
	Horizontal terminal Ø 80 mm L = 1 m			
			Intake	0,3
	Horizontal terminal Ø 80 mm grid part			
			Intake	0,2
	Pipe Ø 60/100 mm L = 1 m			0,6
	90° bend Ø 60/100 mm			0,8
	45° bend Ø 60/100 mm			0,6
	Pipe Ø 80/125 mm L = 1 m			0,2
	90° bend Ø 80/125 mm			0,3
	45° bend Ø 80/125 mm			0,2
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,1
	Suction kit Ø 80 mm for configuration B		Intake	0,5

Equivalent ducting lengths Ø 60 rigid				
Ø duct [mm]	**Type of duct**	**Picture**	**Equivalent length in [m] of rigid pipe Ø 60 mm**	
60 rigid	Pipe Ø 60 mm L = 1 m		Exhaust	1,0
	90° bend Ø 60 mm		Exhaust	1,1
	45° bend Ø 60 mm		Exhaust	0,6
	Vertical terminal Ø 60 mm L = 1 m		Exhaust	3,7
	Reduction Ø 80 to Ø 60 mm		Exhaust	0,8
	Pipe Ø80 mm L = 1 m		Exhaust	0,4
			Intake	0,3
	90° bend Ø 80 mm		Exhaust	0,8
			Intake	0,6
	45° bend Ø 80 mm		Exhaust	0,5
			Intake	0,4
	Horizontal terminal Ø 80 mm L = 1 m			
			Intake	0,9
	Horizontal terminal Ø 80 mm grid part			
			Intake	0,7
	Pipe Ø 60/100 mm L = 1 m		Exhaust	2,0
	90° bend Ø 60/100 mm		Exhaust	2,5
	45° bend Ø 60/100 mm		Exhaust	2,0
	Suction kit Ø 80 mm for configuration B		Intake	1,6

Equivalent lengths Ø 80 flexible ducting				
Ø duct [mm]	**Type of duct**	**Picture**	**Equivalent length in [m] of flexible hose Ø 80 mm**	
80 Hose	Corrugated hose Ø 80 mm L = 1 m		Exhaust	1,0
	70° bend Ø 80 mm		Exhaust	1,0
	T-kit Ø 80 mm		Exhaust	1,1
	T-shaped exhaust terminal Ø 80 mm		Exhaust	1,6
	Vertical terminal Ø 80 mm		Exhaust	0,7
	Adapter Ø 80 mm flexible/male		Exhaust	0,2
	Adapter Ø 80 mm flexible/flexible		Exhaust	0,2
	Adapter Ø 80 mm flexible/flexible		Exhaust	0,3
	Vertical terminal Ø 80mm L = 1,25 m		Exhaust	1,7
	Pipe Ø 80 mm L = 1 m		Exhaust	0,4
			Intake	0,3
	90° bend Ø 80 mm		Exhaust	0,8
			Intake	0,6
	45° bend Ø 80 mm		Exhaust	0,5
			Intake	0,4
	Horizontal terminal Ø 80 mm L = 1 m			
			Intake	0,9
	Horizontal terminal Ø 80 mm grid part			
			Intake	0,7
	Pipe Ø 80/125 mm L = 1 m			0,7
	90° bend Ø 80/125 mm			0,9
	45° bend Ø 80/125 mm			0,7
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,3
	Suction kit Ø80 mm for configuration B		Intake	1,6

Equivalent lengths $C_{(10)3}$ - $C_{(12)3}$ concentric Ø 80/125 mm

Ø duct [mm]	Type of duct	Picture	Equivalent length in [m] of pipe $C_{(10)3}$ - $C_{(12)3}$ concentric Ø 80/125 mm	
$C_{(10)3}$ - $C_{(12)3}$ 80/125	Clapet Ø 80 mm		Exhaust	
	Pipe Ø 80/125 mm L = 1 m			1,0
	90° bend Ø 80/125 mm			1,4
	45° bend Ø 80/125 mm			1,0
	Reduction kit from Ø 60/100 to Ø 80/125 mm			0,5
	Pipe Ø80 mm L = 1 m		Exhaust	0,6
	90° bend Ø 80 mm		Exhaust	1,2
	45° bend Ø 80 mm		Exhaust	0,7

Equivalent lengths $C_{(10)3}$ - $C_{(12)3}$ split Ø 80/80 mm

Ø duct [mm]	Type of duct	Picture	Equivalent length in [m] of pipe $C_{(10)3}$ - $C_{(12)3}$ split Ø 80/80 mm	
$C_{(10)3}$ - $C_{(12)3}$ 80/80	Clapet Ø 80 mm		Exhaust	
	Pipe Ø80 mm L = 1 m		Exhaust	1,0
			Intake	0,7
	90° bend Ø 80 mm		Exhaust	2,1
			Intake	1,6
	45° bend Ø 80 mm		Exhaust	1,3
			Intake	1,0
	Horizontal terminal Ø 80 mm L = 1 m			
			Intake	2,5
	Horizontal terminal Ø 80 mm grid part			
			Intake	1,8

1.17 OUTDOOR INSTALLATION OR IN A PARTIALLY PROTECTED AREA

This appliance can be installed outdoors in a partially protected area.
By partially protected area, we mean one in which the unit is not directly exposed to the elements (rain, snow, hail, etc.).

If the appliance is installed in a location where the ambient temperature falls below -5°C, use the optional antifreeze kit, checking the ambient temperature range for operation in the technical data table in this instruction manual (Section 'Technical Data').

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

Configuration of open chamber appliances (type B) with fan on the combustion circuit

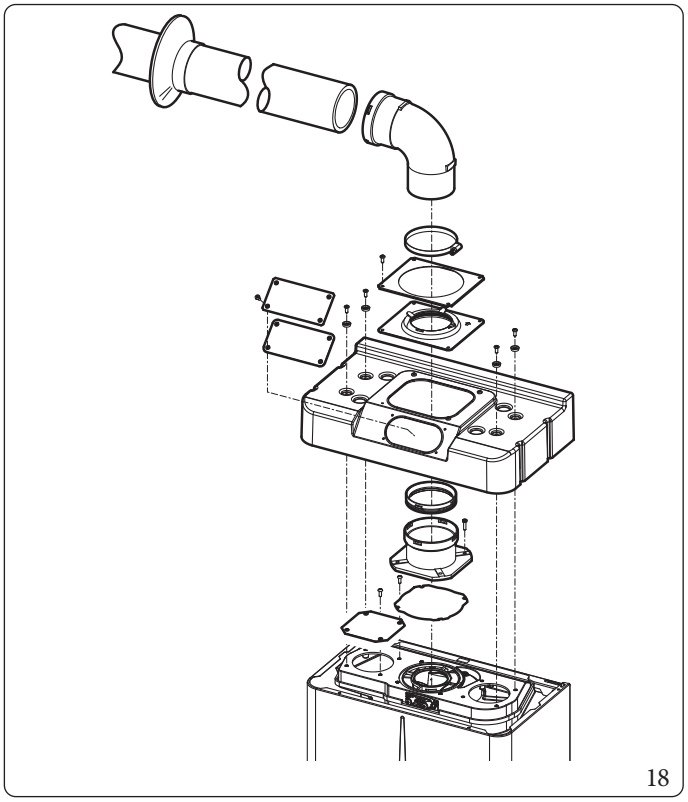
Using the relevant cover kit, direct air intake is possible and flue gas is exhausted into a single flue or directly to the outside. In this configuration it is possible to install the appliance in a partially protected place. In this configuration the appliance is classified as type B.
With this configuration:

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

The technical regulations in force must be respected.

Cover kit assembly (Fig.18).

Remove the two plugs and the gaskets present from the two lateral holes with respect to the central one. Now cover the left intake hole using the relevant plate, fixing it onto the right side using the 2 previously-removed screws.
Install the Ø 80 outlet flange on the central hole of the boiler, taking care to insert the gasket supplied with the kit and tighten by means of the screws provided.
Install the 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 to the end stop. Introduce the gasket, making it run along the bend. Fix it using the metal sheet plate and tighten by means of the clips present in the kit, making sure to block the 4 gasket flaps.
Fit the male end (smooth) of the exhaust pipe into the female end of the 90° Ø 80 bend, making sure that the relevant wall sealing plate is already fitted; this will ensure hold and joining of the elements making up the kit.



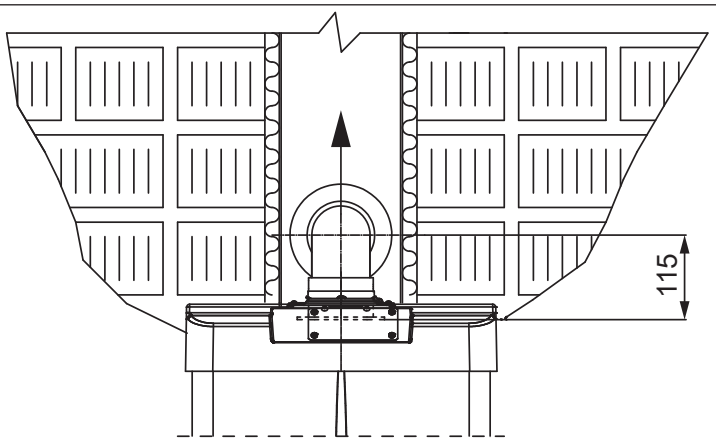
18

The cover kit includes (Fig. 18):

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

The terminal kit includes (Fig. 18):

No.1 Gasket
No.1 Exhaust flange Ø 80
No.1 90° bend Ø 80
No.1 Exhaust pipe Ø 80
No.1 Wall sealing plate



19

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 appliance).

By leaving the side plugs fitted it is possible to install the appliance externally without the cover kit.
Installation takes place using the Ø 60/100 and Ø 80/125 concentric intake/ exhaust kits. Refer to the paragraph on indoor installation.

The top cover kit, which provides additional protection for the boiler, CANNOT be used with Ø 80/80 separator configuration, Ø 60/100 concentric and Ø 80/125.

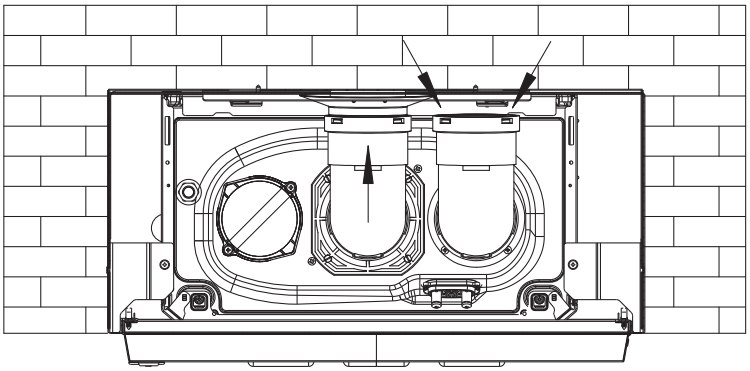
1.18 INTERNAL INSTALLATION USING A RECESSED FRAME WITH DIRECT AIR INTAKE

Configuration type B, open chamber and fan assisted

In this configuration the appliance is classified as type B.
Using a kit separator, one can achieve direct air intake (Fig. 20) and flue exhaust in a single chimney or directly outside.
With this configuration:

- air intake takes place directly from the environment in which the appliance is installed and only functions in permanently ventilated rooms;
- the flue gas exhaust must be connected to its own individual chimney and channelled directly into the external atmosphere.

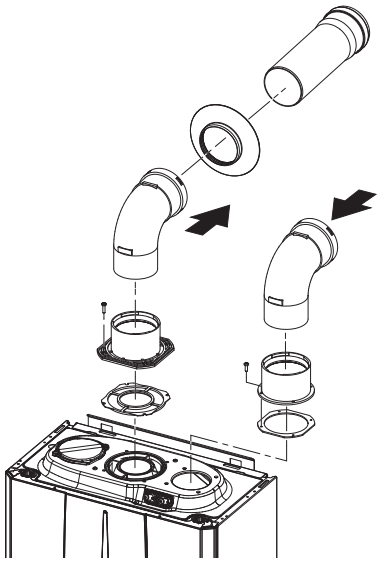
The technical regulations in force must be respected.



20

Separator kit installation (Fig. 21).

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



21

In case of installation $C_{(10)3}$/$C_{(12)3}$ the flue gas non-return valve must be installed and ONLY the vertical outlet can be installed in the recessed frame.

1.19 CONCENTRIC HORIZONTAL KIT INSTALLATION

Type C configuration, sealed chamber and fan assisted

The position of the terminal (in terms of distances from openings, overlooking buildings, floor, etc.) must be in compliance with the regulations in force.
This terminal is connected directly to the outside of the building for air intake and flue gas exhaust.
The horizontal kit can be installed with the rear, right side, left side or front outlet.
For installation with frontal outlet, one must use the fixing plate and a concentric bend coupling in order to ensure sufficient space to carry out the tests required by law upon commissioning.

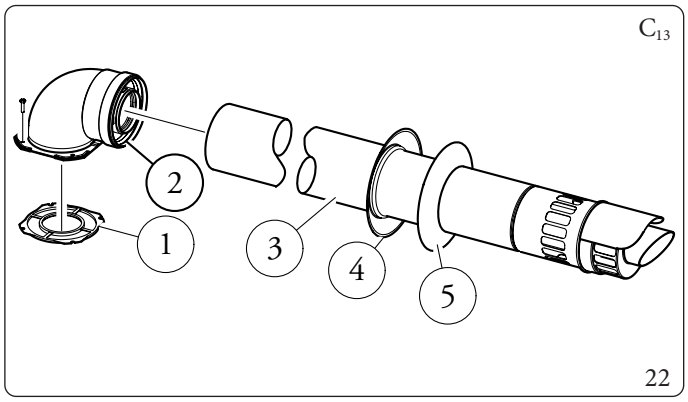
External grid

Make sure that the external silicone wall sealing plate is properly inserted in the wall.

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

Horizontal intake/exhaust assembly kits Ø 60/100 (Fig. 22)

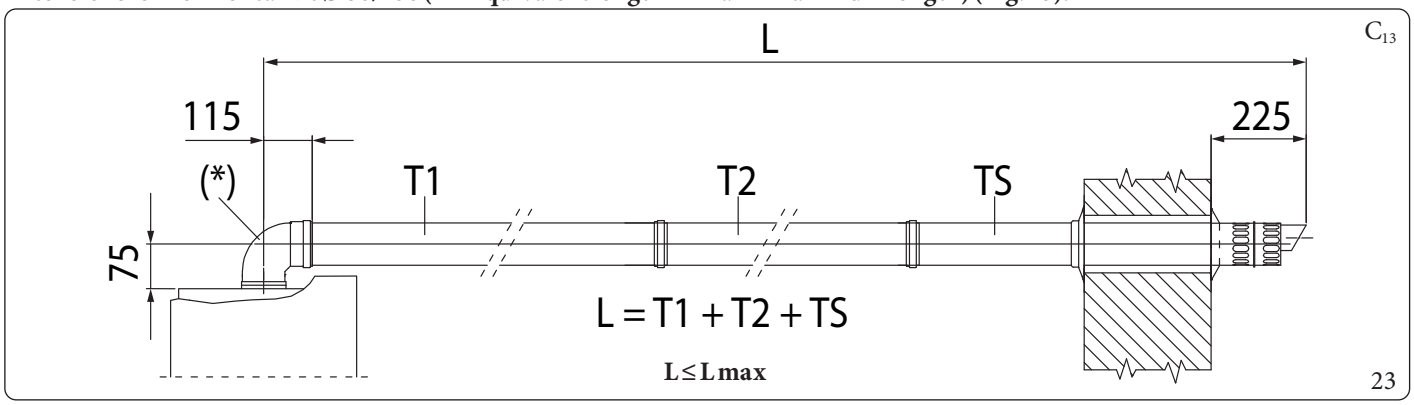
1. Install the curve with flange (2) on the central hole of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange, and tighten using the screws contained in the kit.
2. Fit the Ø 60/100 (3) concentric terminal pipe with the male side (smooth)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



The kit includes (Fig. 22):

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)*

Extensions for horizontal kit Ø 60/100 (L = Equivalent length - L max = Maximum length) (Fig. 23).

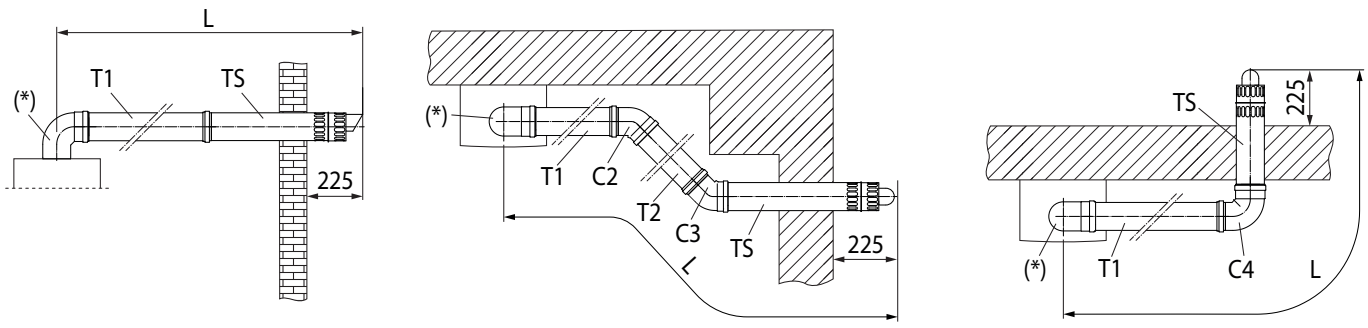


Key Fig. 23:

- *T1 - Concentric pipe Ø60/100*
- *(*) - Flanged 90° concentric elbow Ø60/100 (do not consider when calculating the equivalent length)*
- *T2 - Concentric pipe Ø60/100*
- *TS - Concentric intake / exhaust terminal Ø 60/100*
- *L - Equivalent length*
- *Lmax - Maximum length*

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

Installation examples



L = T1 + TS

L = T1 + C2 + T2 + C3 + TS

L = T1 + C4 + TS

Calculation example (VICTRIX TERA V3 28 E):

L = 1 + 1 + 1 + 1 + 1 = 5 m

5 m ≤ 13 m

L ≤ L max

24

Key Fig. 24:

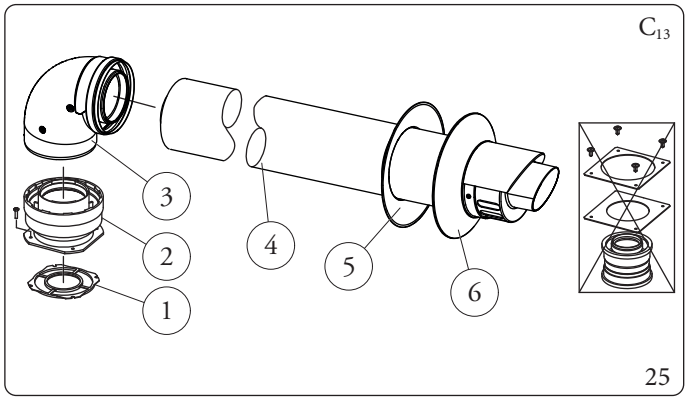
T1 - *Concentric pipe Ø60/100*
(*) - *Flanged 90° concentric elbow Ø60/100 (do not consider when calculating the equivalent length)*
T2 - *Concentric pipe Ø60/100*
C2 - *Ø60/100 45° concentric elbow*
C3 - *Ø60/100 45° concentric elbow*
C4 - *Ø60/100 90° concentric elbow*
TS - *Concentric intake / exhaust terminal Ø 60/100*
L - *Equivalent length*
Lmax - *Maximum length*

To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.16, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.15. (L ≤ L max).

Assembly of horizontal intake - exhaust kit Ø 80/125 (Fig.25)

To install the Ø 80/125 kit, you need to use the flanged adapter kit (pos.2, Fig.25).

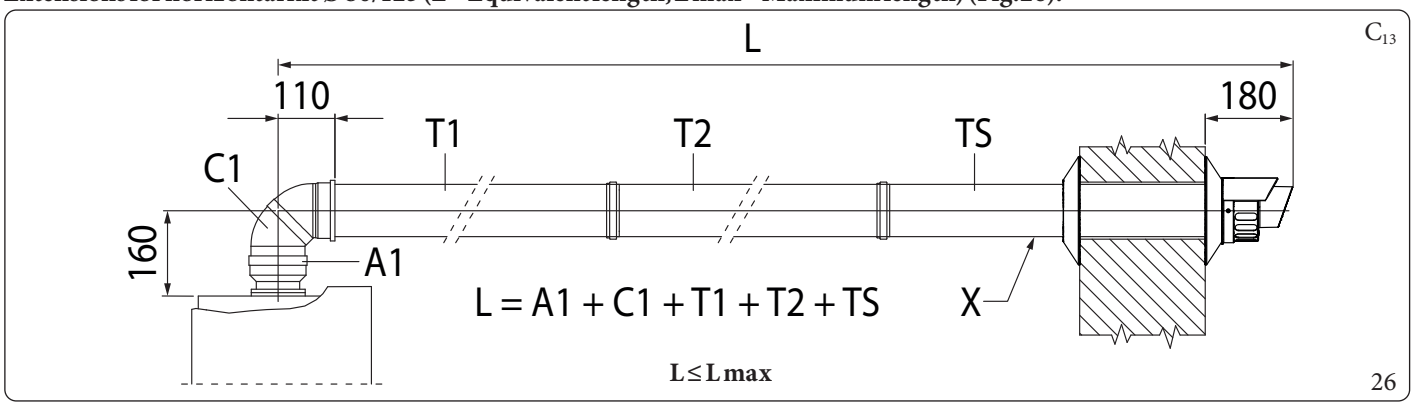
1. Install the flanged adaptor (2) on the central hole of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange, and tighten using the screws contained in the kit.
2. Engage the bend (3) with the male side (smooth) to the end stop on the adapter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



The flanged adapter kit includes (Fig.25):
N°1 Gasket (1)
N°1 Flanged adapter Ø 80/125 (2)

The Ø80/125 kit includes (Fig.25):
N°1 Concentric bend Ø 80/125 at 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

Extensions for horizontal kit Ø 80/125 (L = Equivalent length; L max = Maximum length) (Fig.26).

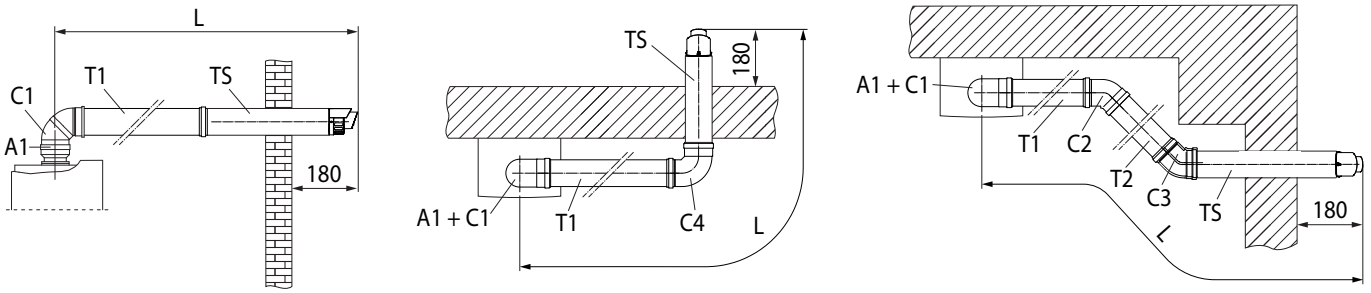


Key (Fig. 26)

A1	-	*Flanged adapter Ø80/125*
C1	-	*87° concentric curve Ø80/125*
T1	-	*Concentric pipe Ø80/125*
T2	-	*Concentric pipe Ø80/125*
TS	-	*Concentric intake / exhaust terminal Ø80/125*
X	-	*Minimum slope 5%*
L	-	*Equivalent length*
Lmax	-	*Maximum length*

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

Installation examples



L = A1 + C1 + T1 + TS

L = A1 + C1 + T1 + C4 + TS

L = A1 + C1 + T1 + C2 + T2 + C3 + TS

Calculation example (VICTRIX TERA V3 28 E):

L = 0,5 + 1,4 + 1 + 1,4 + 1 = 5,3 m

5,3 m ≤ 35 m

L ≤ L max

27

Key (Fig. 27)

- *A1 - Flanged adapter Ø80/125*
- *C1 - Ø80/125 90° concentric elbow*
- *T1 - Concentric pipe Ø80/125*
- *T2 - Concentric pipe Ø80/125*
- *C2 - Ø80/125 45° concentric elbow*
- *C3 - Ø80/125 45° concentric elbow*
- *C4 - Ø80/125 90° concentric elbow*
- *TS - Concentric intake / exhaust terminal Ø80/125*
- *L - Equivalent length*
- *Lmax - Maximum length*

To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.16, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.15. (L ≤ L max).

1.20 CONCENTRIC VERTICAL KIT INSTALLATION

Type C configuration, sealed chamber and fan assisted

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

The vertical kit with aluminium slate 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.

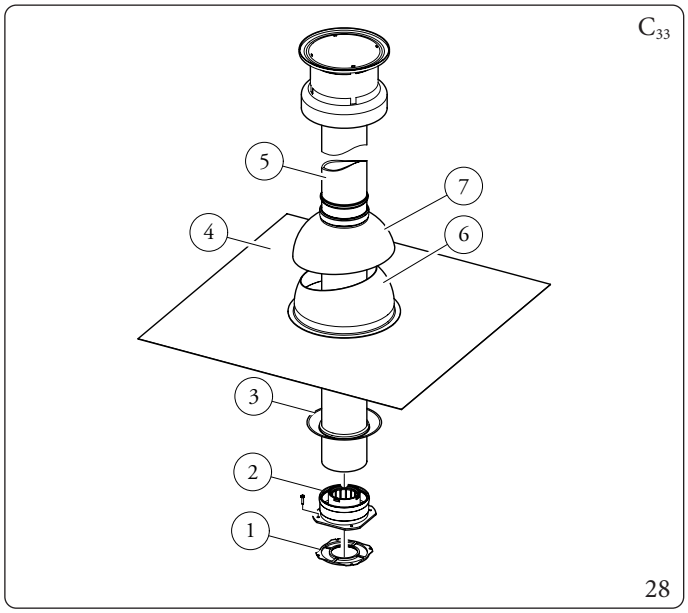
Vertical kit assembly with aluminium slate Ø60/100 (Fig. 28)

1. Install the concentric flange (2) on the flue exhaust of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange.
2. Tighten the concentric flange with the screws in the kit.

Imitation aluminium slate installation:

3. Replace the slates with the aluminium sheet (4), shaping it to ensure that rainwater runs off.
4. Position the fixed half-shell (6) on the aluminium slate.
5. Insert the intake-exhaust pipe (5).
6. Fit the Ø 60/100 concentric terminal pipe with the male side (5) (smooth) into the flange (2) up to the end stop, making sure that the wall sealing plate has been fitted (3); this will ensure sealing and joining of the elements making up the kit.

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



The kit includes (Fig. 28):

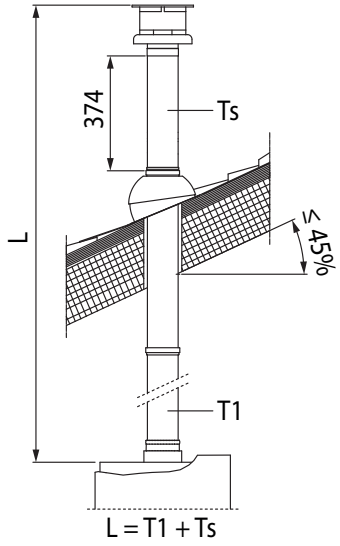
- *N°1 Gasket (1)*
- *N°1 Female concentric flange (2)*
- *N°1 Wall sealing plate (3)*
- *N°1 Aluminium slate (4)*
- *N°1 Concentric intake/exhaust pipe Ø 60/100 (5)*
- *N°1 Fixed half-shell (6)*
- *N°1 Mobile half-shell (7)*

Extensions for vertical kit Ø 60/100 (L = Equivalent length - L max = Maximum length) (Fig. 29).

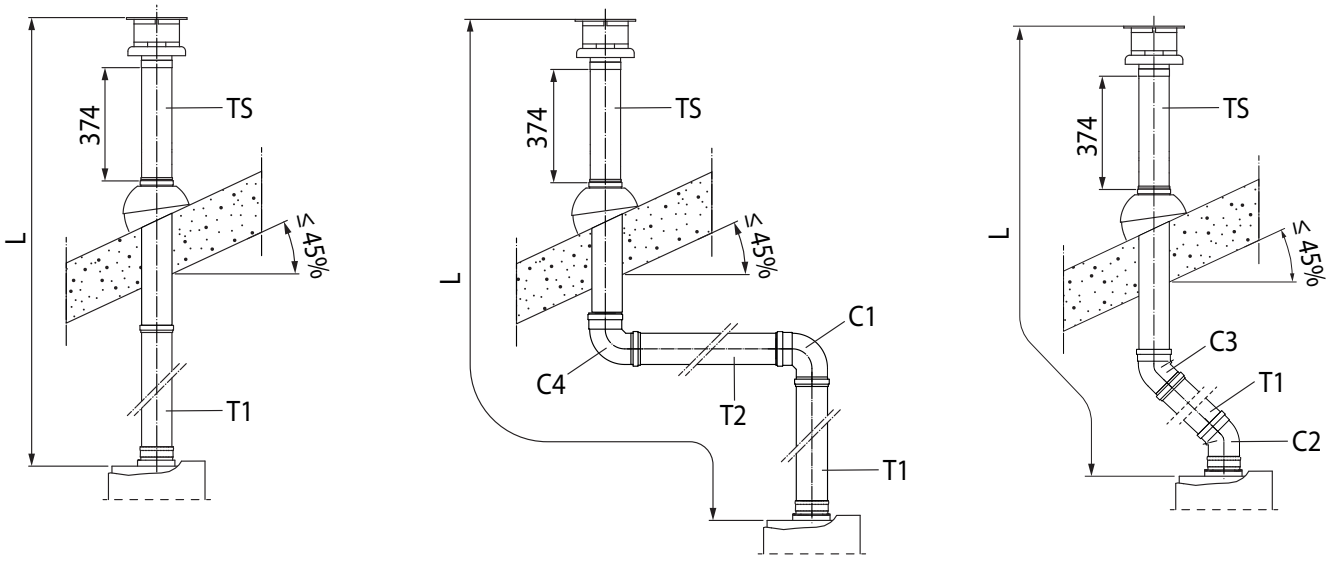
The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

Key Fig. 29:

T1	-	*Concentric pipe Ø60/100*
TS	-	*Concentric intake / exhaust terminal Ø 60/100*
L	-	*Equivalent length*
Lmax	-	*Maximum length*



Installation examples



Calculation example (VICTRIX TERA V3 28 E):

L = 1 + 1,3 + 1 + 1,3 + 1,25 = 5,85 m

5,85 m ≤ 14,5 m

L ≤ L max

30

Key Fig. 30:

- *T1* - *Concentric pipe Ø60/100*
- *C1* - *Ø60/100 90° concentric elbow*
- *T2* - *Concentric pipe Ø60/100*
- *C2* - *Ø60/100 45° concentric elbow*
- *C3* - *Ø60/100 45° concentric elbow*
- *C4* - *Ø60/100 90° concentric elbow*
- *TS* - *Concentric intake / exhaust terminal Ø 60/100*
- *L* - *Equivalent length*
- *Lmax* - *Maximum length*

To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.16, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.15. (L ≤ L max).

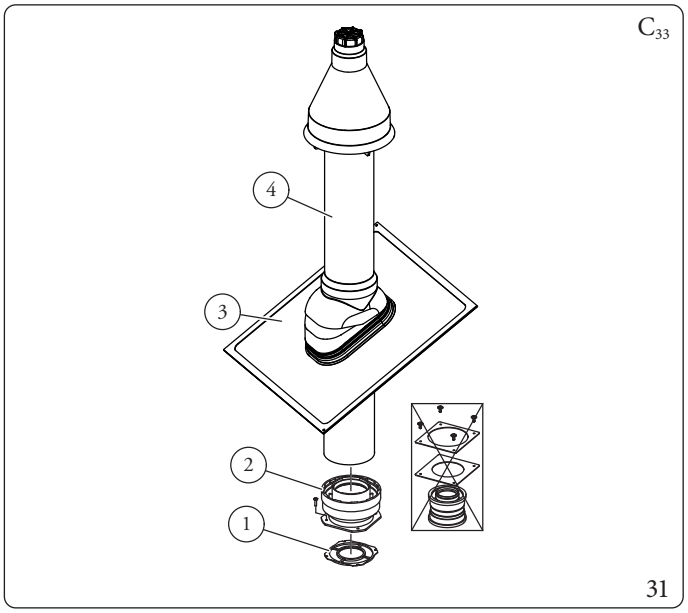
Assembly of vertical kit with Ø 80/125 aluminium tile (Fig. 31)

To install the Ø 80/125 kit, you need to use the flanged adapter kit (pos.2, Fig.31).

1. Install the concentric flange (2) on the flue exhaust of the appliance, positioning gasket (1) with the circular projections downwards in contact with the appliance flange.

Imitation aluminium slate installation:

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



The flanged adapter kit includes (Fig.31):

N°1 Gasket (1)
N°1 Flanged adapter Ø 80/125 (2)

The kit Ø 80/125 includes (Fig.31):

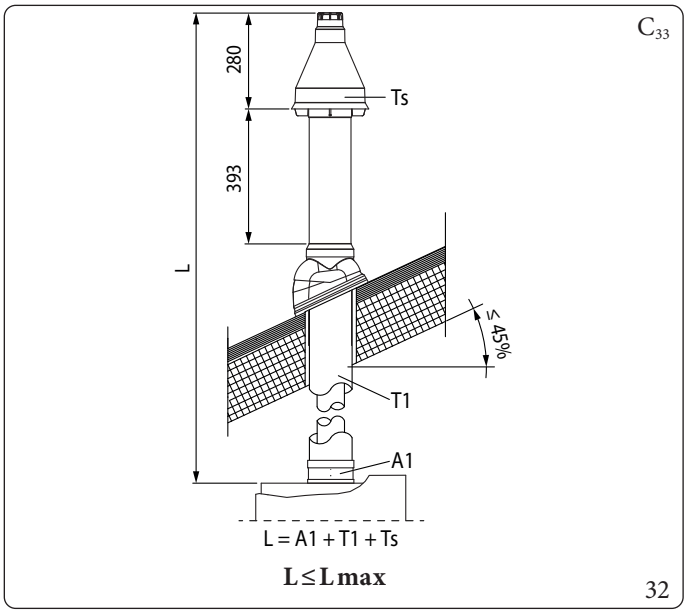
N°1 Aluminum converse (3)
N°1 Concentric intake/exhaust terminal Ø 80/125 (4)
The remaining kit components must not be used

Extensions for vertical kit Ø 80/125 (L = Equivalent length; L max = Maximum length) (Fig.32).

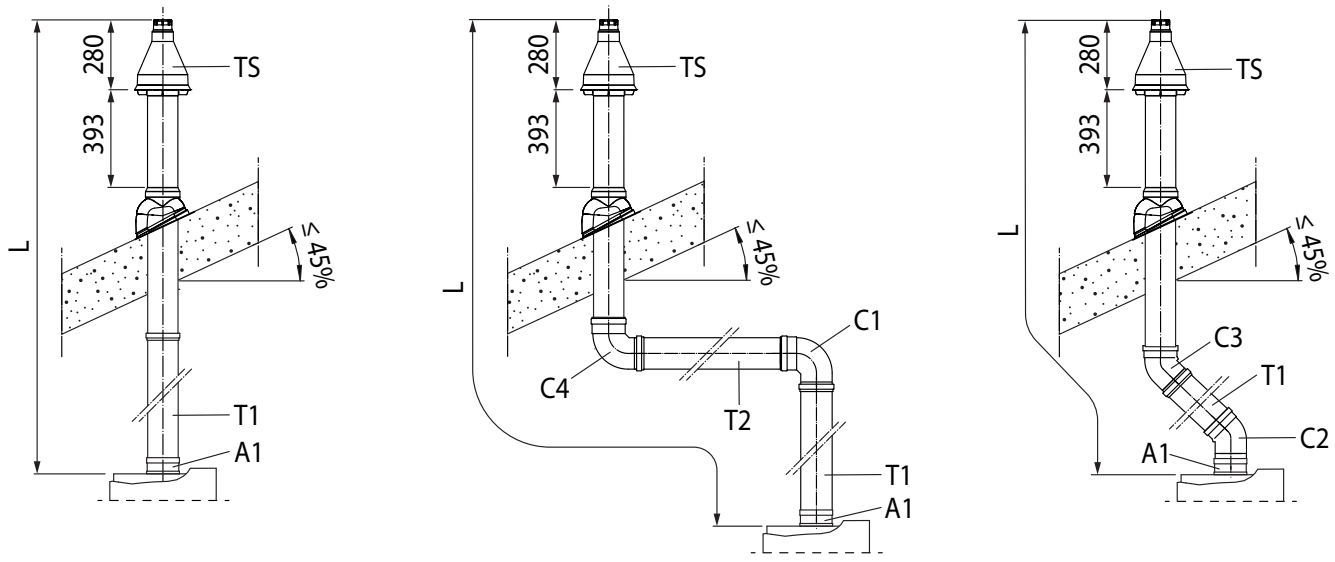
The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

Key (Fig. 32)

A1 - Flanged adapter Ø80/125
T1 - Concentric pipe Ø80/125
TS - Concentric intake / exhaust terminal Ø80/125
L - Equivalent length
Lmax - Maximum length



Installation examples



L = A1 + T1 + TS

L = A1 + T1 + C1 + T2 + C4 + TS

L = A1 + C2 + T1 + C3 + TS

Calculation example (VICTRIX TERA V3 28 E):

L = 0,5 + 1 + 1,4 + 1 + 1,4 + 1 = 6,3 m

6,3 m ≤ 35 m

L ≤ L max

33

Key (Fig. 33)

- *A1* - *Flanged adapter Ø80/125*
- *T1* - *Concentric pipe Ø80/125*
- *C1* - *Ø80/125 90° concentric elbow*
- *T2* - *Concentric pipe Ø80/125*
- *C2* - *Ø80/125 45° concentric elbow*
- *C3* - *Ø80/125 45° concentric elbow*
- *C4* - *87° concentric curve Ø80/125*
- *TS* - *Concentric intake / exhaust terminal Ø80/125*
- *L* - *Equivalent length*
- *Lmax* - *Maximum length*

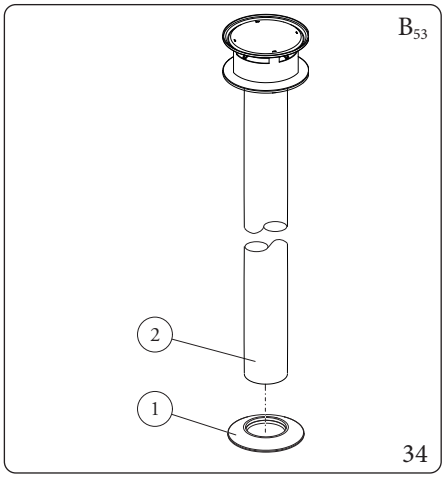
To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.16, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.15. (L ≤ L max).

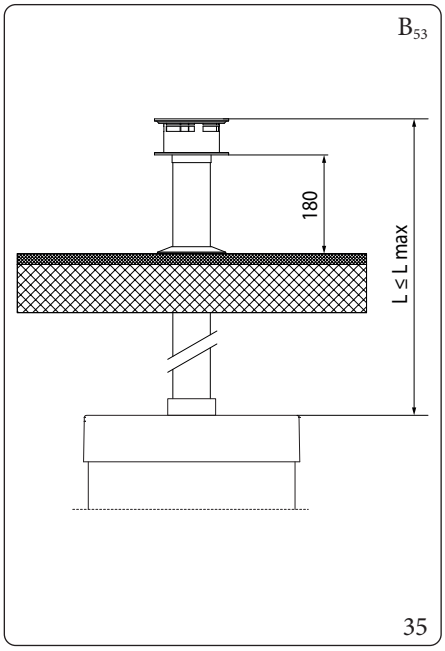
1.21 INSTALLATION OF VERTICAL TERMINALS Ø 80

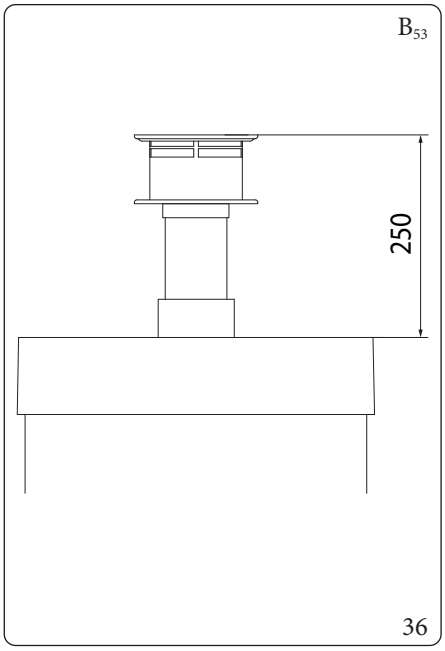
Configuration type B, open chamber and fan assisted

Mounting the vertical kit Ø 80 (Fig. 34)

1. Install the Ø 80 terminal (2) on the central hole on the appliance up to the end stop, making sure that the wall sealing plate (1) has been fitted. This will ensure the sealing efficiency of the kit components.







The Kit includes (Fig. 34):
N°1 Wall sealing plate (1)
N°1 Exhaust terminal Ø 80 (2)

Maximum length (L = Length - L max = Maximum length) (Fig. 35).
Using the Ø 80 vertical terminal for direct discharge of the combustion products, the terminal must be shortened (see quotas fig. 136).
The wall sealing plate (1) must also be inserted in this case going up to stop on the appliance cover.

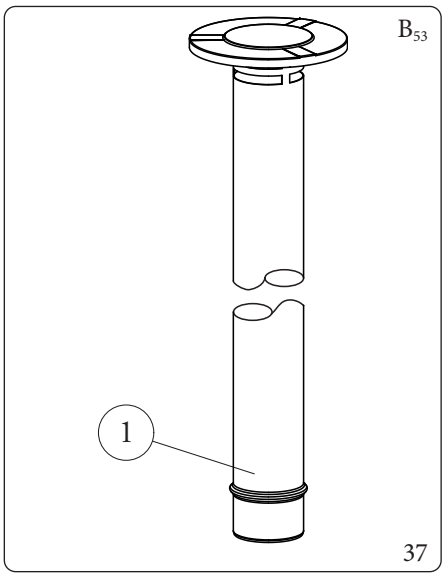
The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

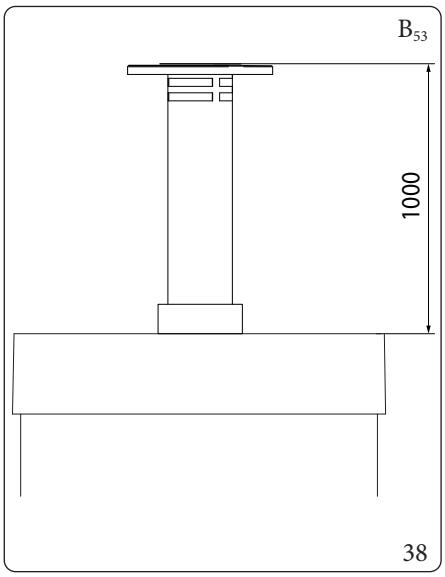
Ø80 vertical kit installation (in stainless steel) (Fig. 37)

1. Install the Ø 80 terminal (1) on the central hole on the appliance up to the end stop, ensuring the sealing efficiency of the kit components.

The 80 Ø steel terminal is used to install the boiler outdoors with a direct exhaust. The terminal cannot be shortened and once it is installed it will extend out by 1000 mm (Fig. 38).

The Kit includes (Fig. 37):
N°1 Steel exhaust terminal Ø 80 (1)





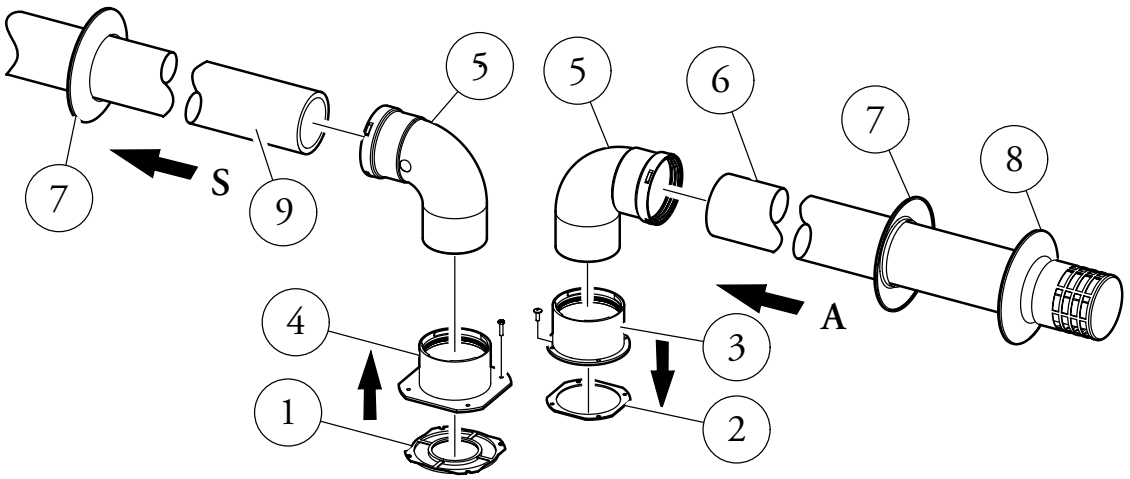
1.22 SEPARATOR KIT INSTALLATION

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

This kit allows air to come in from outside the building and the exhaust to exit from the chimney, flue or intubated duct through divided flue exhaust and air intake pipes.
Combustion products are expelled from pipe (S) (in plastic, so as to resist acid condensate).
Air is taken in through duct (A) for combustion (this is also in plastic).
Both ducts can be routed in any direction.

Assembly of separator kit Ø 80/80 (Fig. 39):

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



The kit includes (Fig. 39):

N°1	*Exhaust gasket (1)*
N°1	*Flange gasket (2)*
N°1	*Female intake flange (3)*
N°1	*Female exhaust flange (4)*
N°2	*Ø 80 90° bend (5)*
N°1	*Intake terminal Ø 80 (6)*
N°2	*Internal wall sealing plates (7)*
N°1	*External wall sealing plate (8)*
N°1	*Exhaust pipe Ø 80 (9)*

* to complete C_{53} configuration, also provide for a "green range" roof discharge terminal. The configuration on walls opposite the building is not allowed.

** configuration C_8 envisages connection to flues working with natural draught.

For technical data concerning the C_8 configuration, please refer to the table in par. 5.2.

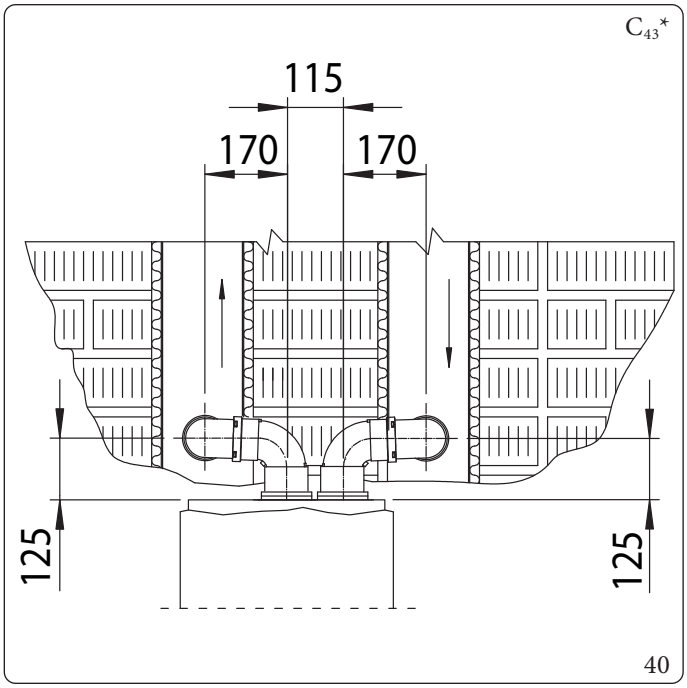
Installation clearances (Fig. 40)

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

** Configuration C_4 envisages connection to flues working with natural draught.*

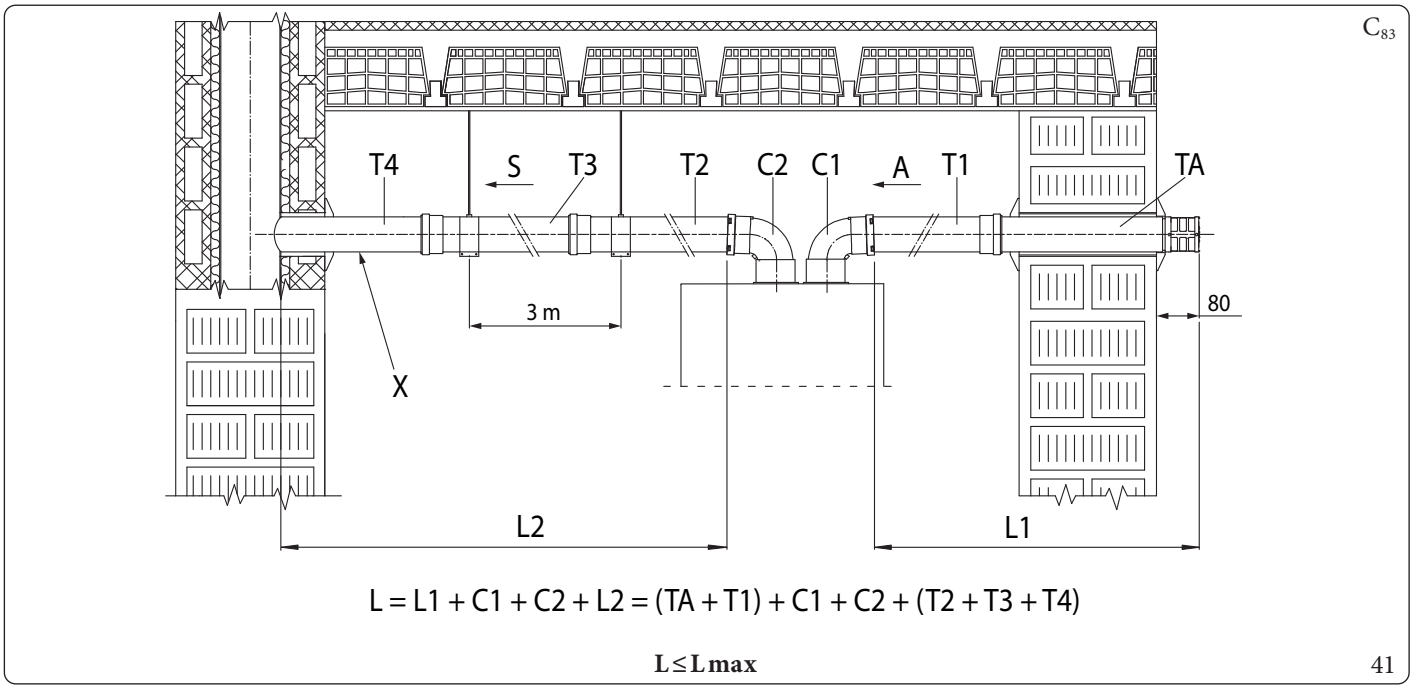
To preserve proper operation of the appliance and in particular of its condensate drain system in the configurations C_4 - C_8, it is not allowed to drain the condensate coming from the existing exhaust duct in the building through the boiler.

For technical data concerning the C_4 configuration, please refer to the table in par. 5.2.



Extensions for separator kit Ø 80/80 (L = Equivalent length - L max = Maximum length).

To aid in the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the appliance with a minimum slope of 5% (Fig. 41).

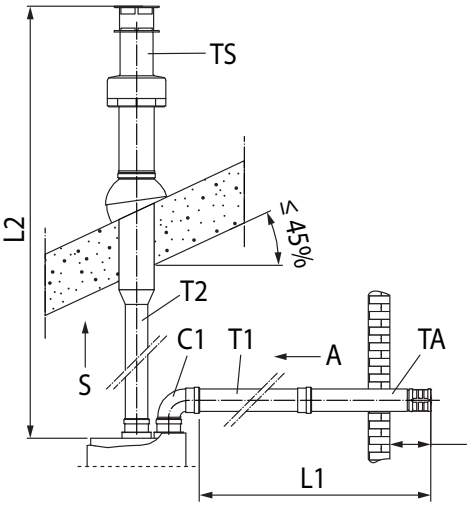


Key (Fig. 41):

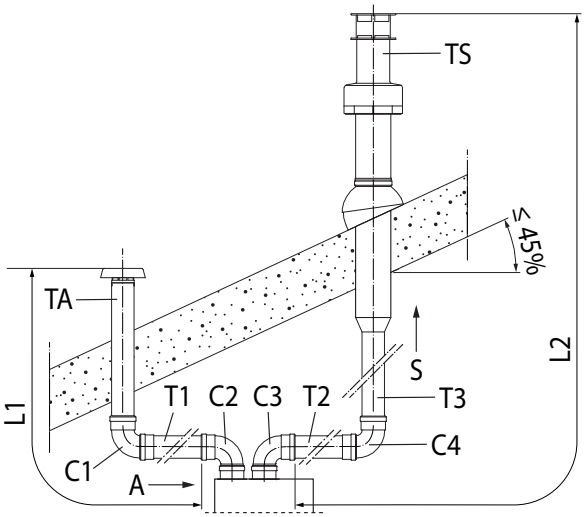
- *A* - *Intake*
- *X* - *Minimum slope 5%*
- *S* - *Exhaust*
- *TA* - *Intake terminal Ø80*
- *T1* - *Pipe Ø80*
- *T2* - *Pipe Ø80*
- *T3* - *Pipe Ø80*
- *T4* - *Pipe Ø80*
- *C1* - *Ø80 90° elbow*
- *C2* - *Ø80 90° elbow*
- *L* - *Equivalent length*
- *L max* - *Maximum length*

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

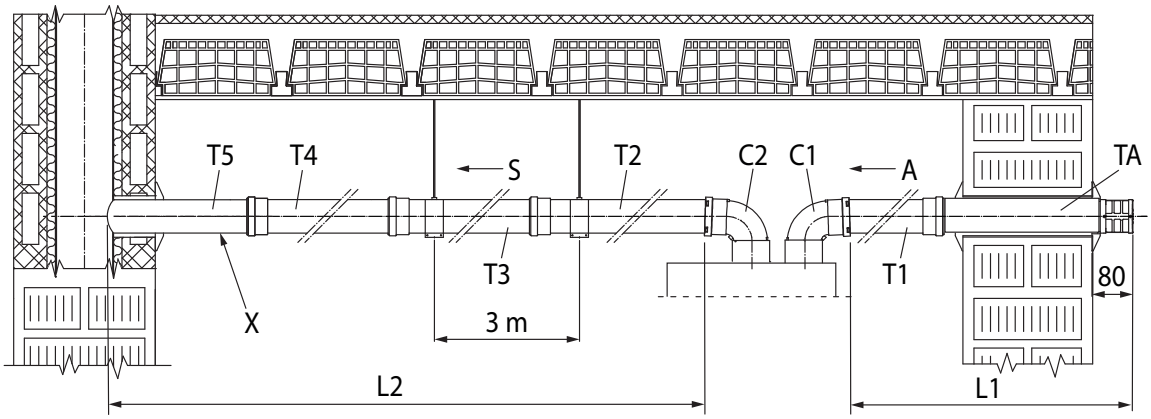
Installation examples



L = L1 + C1 + L2 = (TA + T1) + C1 + (T2 + TS)



L = L1 + C2 + C3 + L2 = (TA + C1 + T1) + C2 + C3 + (T2 + C4 + T3 + TS)



L = L1 + C1 + C2 + L2 = (TA + T1) + C1 + C2 + (T2 + T3 + T4 + T5)

Calculation example (VICTRIX TERA V3 28 E):

L = (2,5 + 0,7) + 1,6 + 2,1 + (1 + 1 + 1 + 1) = 10,9 m

10,9 m ≤ 35 m

L ≤ L max

42

Key Fig. 42:

- *TA - Intake terminal Ø80*
- *TS - Exhaust terminal Ø80*
- *T1 - Pipe Ø80*
- *T2 - Pipe Ø80*
- *T3 - Pipe Ø80*
- *T4 - Pipe Ø80*
- *T5 - Pipe Ø80*
- *C1 - Ø80 90° elbow*
- *C2 - Ø80 90° elbow*
- *C3 - Ø80 90° elbow*
- *C4 - Ø80 90° elbow*
- *X - Minimum slope 5%*
- *A - Intake*
- *S - Exhaust*
- *L - Equivalent length*
- *Lmax - Maximum length*

To calculate the equivalent length of the flue (L), simply add, for each component you intend to use, the corresponding value indicated in the column "Length equivalent to m of pipe" in the table in par. 1.16, and check that the resulting sum is equal to or less than the maximum length (L max) indicated in par. 1.15. (L ≤ L max).

1.23 ADAPTOR KIT INSTALLATION C_9

This kit allows an Immergas appliance 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 rigid Ø 60 and Ø 80 and flexible Ø 50 and Ø 80;
- flue exhaust kit Ø 60/100 or Ø 80/125 configured according to the installation and type of appliance.

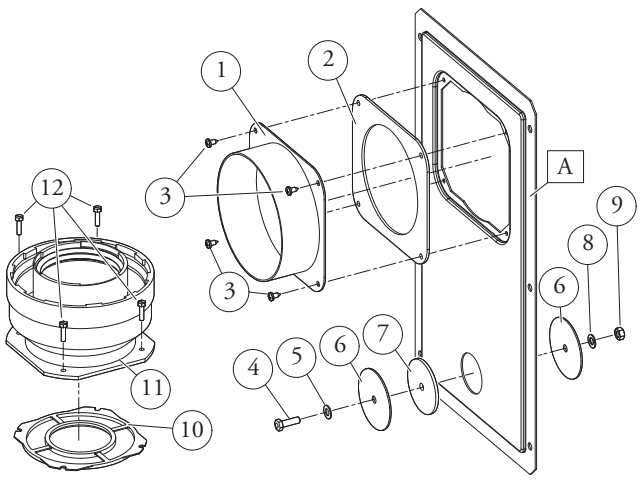
Mounting adapter kit C_9 (Fig. 43)

(Version Ø 125 only) before assembly check the gaskets are in the right position.
To ease the push-fitting, spread the supplied lubricants on the parts.

To aid in the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the appliance with a minimum slope of 5% (Fig. 41).

1. Mount the components of kit C_9 on the door (A) of the ducting system (Fig.43).
2. (Version Ø 125 only) mount the flanged adaptor (11) interposing the concentric gasket (10) on the appliance, fitting it with the screws (12).
3. Mount the ducting system as described in the relative instructions sheet.
4. Calculate the distances between the appliance drain and the bend of the ducting system.
5. Prepare the appliance flue system, making sure that the internal pipe of the concentric kit is fitted up to the end stop in the ducting system curve (Quota "X" Fig. 45), whereas the external pipe must reach the end stop of the adapter (1).
6. Mount the cover (A) complete with adaptor (1) and caps (6) on the wall.
7. Assemble the flue system to the ducting system.

Once all components have been assembled properly, the exhaust fumes will be expelled via the ducting system; the combustion air for normal boiler operation will be aspirated directly by the shaft (Fig. 45).



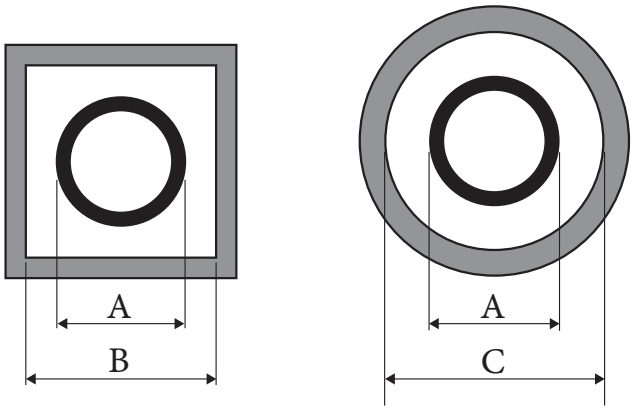
43

The adapter kit includes (Fig. 43):

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

Supplied separately (Fig. 43):

N°1	*Ducting kit door (A)*



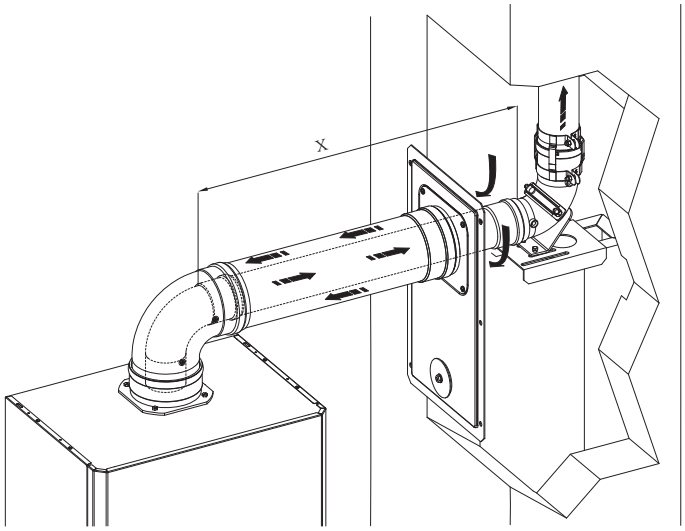
44

Ducting	ADAPTOR (A) mm	SHAFT (B) mm	SHAFT (C) mm
Ø 60 Rigid	66	106	126
Ø 50 Flexible	66	106	126
Ø 80 Rigid	86	126	146
Ø 80 Flexible	103	143	163

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. 44).
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.

C_{93}



45

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

1.24 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. 46).
Ducting requires ducts declared to be suitable for the purpose by the manufacturer, following the installation and user instructions, provided by the manufacturer and the requirements of the regulations in force.

Immergas ducting systems

The Ø 60 rigid, Ø 50 and Ø 80 flexible and Ø80 rigid "Green Range" ducting systems must only be used for domestic use and with Immergas condensing boilers.

In any case, ducting operations must respect the provisions contained in the standard and in current technical regulations; in particular, the declaration of conformity must be compiled at the end of work and on commissioning of the ducted system.
The instructions in the project or technical report must likewise be followed, in cases provided for by the standard and current technical regulations.
To guarantee reliability and operation over time of the ducting system, make sure:

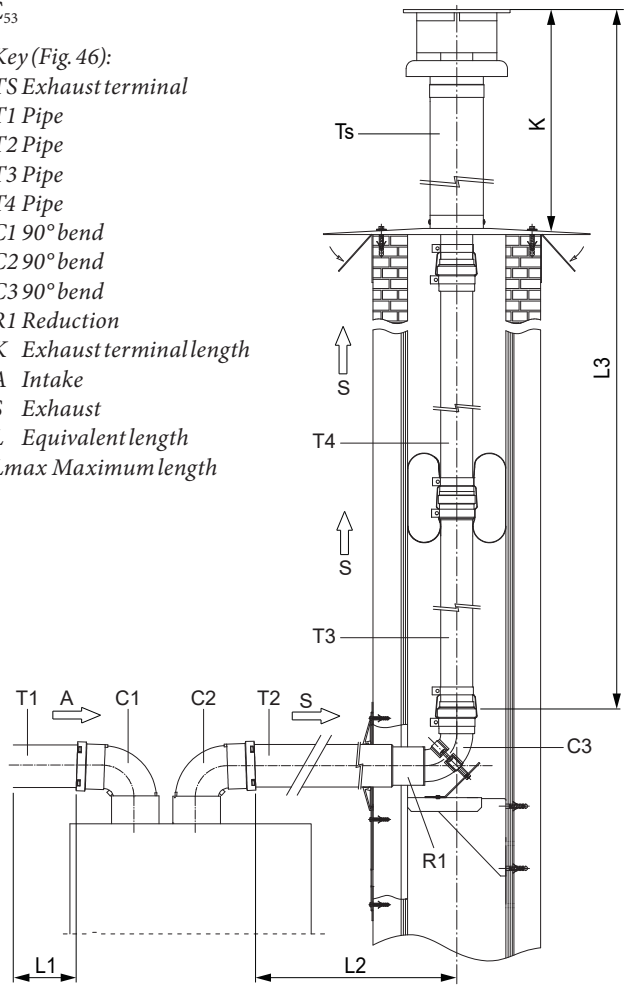
- it is used in average atmospheric and environmental conditions, according to current regulations (absence of combustion products, dusts or gases that can alter the normal thermophysical or chemical conditions; existence of temperatures coming within the standard range of daily variation, etc.).
- Installation and maintenance must be performed according to the indications supplied by the manufacturer included with the "green range" ducting system chosen and in compliance with the regulations in force.
- To guarantee long-time reliability and functionality of the ducting system, the maximum length specified by the manufacturer (Par. 1.15) must be complied with.

In flexible and rigid ducting configurations C_{53}, the maximum length (Lmax) does not include the 3 elbows and the exhaust terminal. They must therefore be considered when calculating the equivalent length (L).

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

C_{53}

Key (Fig. 46):
TS Exhaust terminal
T1 Pipe
T2 Pipe
T3 Pipe
T4 Pipe
C1 90° bend
C2 90° bend
C3 90° bend
R1 Reduction
K Exhaust terminal length
A Intake
S Exhaust
L Equivalent length
Lmax Maximum length



L = L1 + C1 + C2 + L2 + L3 = (T1) + C1 + C2 + (T2 + R1 + C3) + (T3 + T4 + TS)

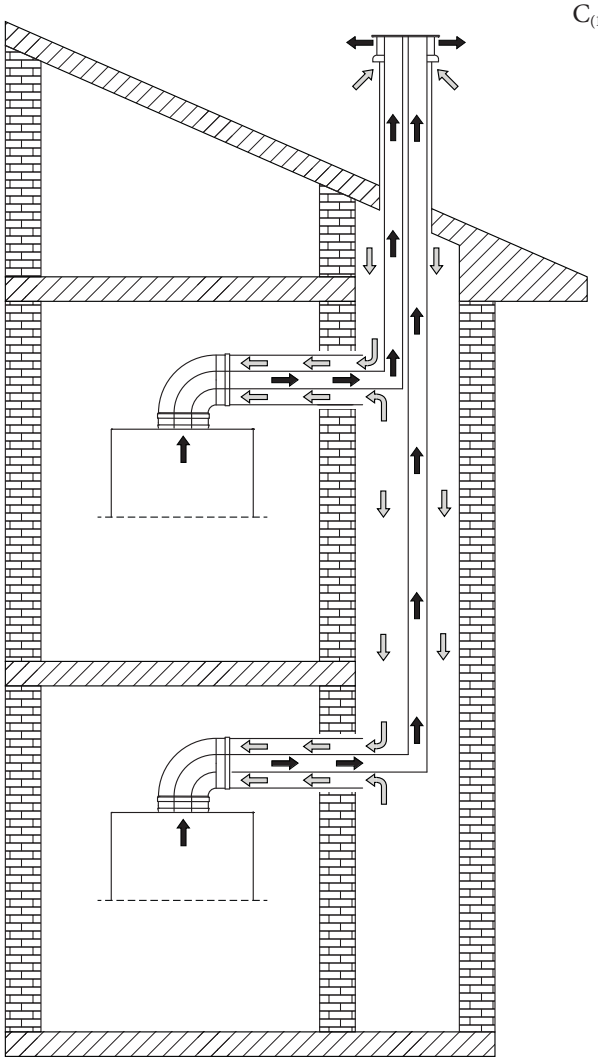
L ≤ L max

46

Exhaust terminal lengths table

Ducting type	Terminal	K(m)
Ø 50 Flexible	Terminal with 90° bend kit	0,27
	T terminal kit	0,16
	Ø80/125 vertical terminal kit	0,48
Ø60 Rigid	Concentric vertical terminal kit Ø60	0,49
Ø 80 flexible	Ø80/125 vertical terminal kit	0,48
Ø80 rigid	Concentric vertical terminal kit Ø80	0,65

1.25 CONFIGURATION $C_{(15)3}$ CONCENTRIC KIT



47

Installation in $C_{(15)3}$ configuration of an Immergas appliance, makes it possible to extract combustion air directly from the shaft where the flue gas exhaust is present in the dedicated flue.

Information for $C_{(15)3}$ installations

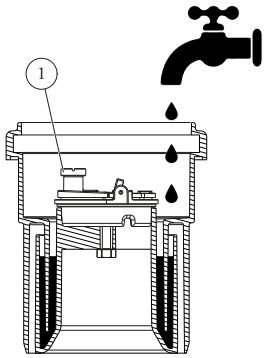
The appliance is suitable for operating in a $C_{(15)3}$ or $C_{(15)3X}$ system, correctly sized by a thermotechnical designer.
The roof terminal, which is an integral part of the project, must also meet the legislative and regulatory obligations prescribed for this component. In particular, it must ensure that the degree of recirculation of the flue gas is always below 10%.
The common supply shaft must be sized so that, in combination with the intake part of the roof terminal, a vacuum greater than 5 Pa is not generated at the point of the shaft where the appliance draws the combustion air from the shaft itself, when the appliance works at maximum heat output and the entire multiple ducting system works at maximum design power.
If the single terminal complies with the following head losses conditions at the maximum appliance heat input:

Model	Pa
VICTRIX TERA V3 28 E	10

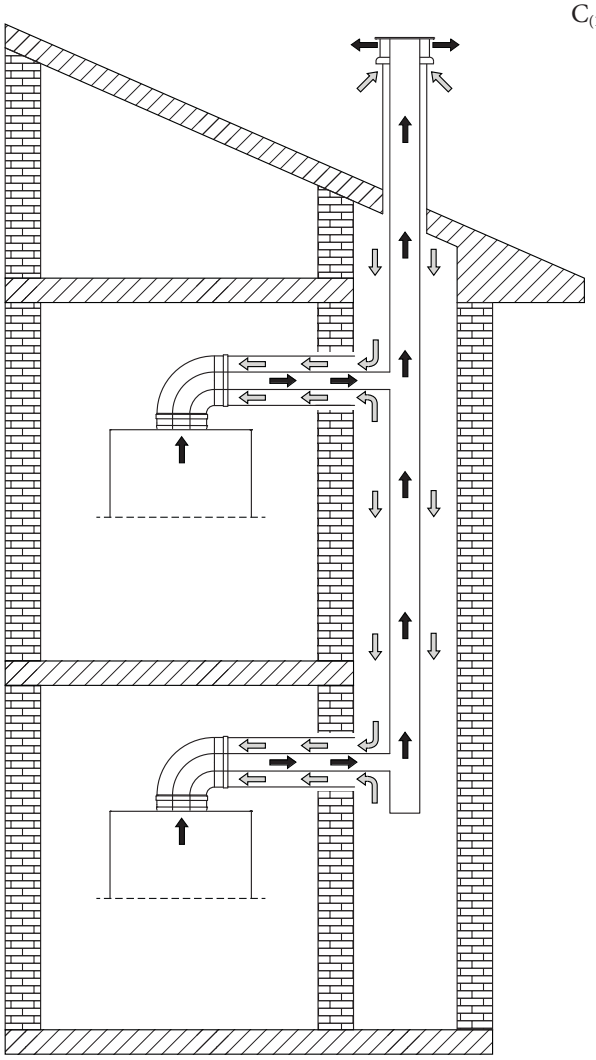
in compliance with the conditions described above, the maximum extensions that can be achieved in the shaft are those defined in this manual with C_{93} configuration, using the same appliance settings.

1.26 CONFIGURATION $C_{(10)3}$ CONCENTRIC KIT (Ø 80/125)

In the $C_{(10)3}$ installations, the appliance flue exhaust must be fitted with a flue gas non-return valve kit, supplied by Immergas as an optional, consisting of the valve itself with instructions, specification and relative sticker with additional safety information (Fig.48).



48



49

Installation in $C_{(10)3}$ configuration of an Immergas appliance (only permitted with type-approved original flue, including the specific non-return valve), makes it possible to extract combustion air directly from the shaft where the flue gas exhaust is present in the collective flue.

Coupling to the shaft for intake is possible with male flue Ø 125 or Ø 125 cut female.
The collective flue coupling for the exhaust is possible with female Ø 80 flue with gasket (Fig. 51).

Concentric kit assembly in $C_{(10)3}$ configuration (Fig. 51)

To aid in the removal of possible condensate forming in the exhaust pipe, tilt the pipes towards the appliance with a minimum slope of 5% (Fig.50)

Before installation, in the absence of a shut-off flue adjusting device at the coupling point of the flue in the pressurised collective flue, it will be necessary to turn off all the boilers connected to the pressurised collective flue itself, or make sure to intercept the connection point to avoid the dispersion of combustion products into the environment.

1. Position the flanged adaptor (14) interposing the concentric gasket (15) on the appliance, fitting it with the screws (13) (see Fig. 51).
2. Maintain the counterweight supplied as per standard (h. 3,5 mm) mounted on the large flap of the valve and discard the one supplied bulk (h. 6,5 mm) inside of the kit (Ref. 1, Fig. 48).
3. Insert the non-return valve kit on flue gas Ø80 in the flanged adapter, taking care to remove the spacer Ø 80 th. 5 mm (see Fig. 51).

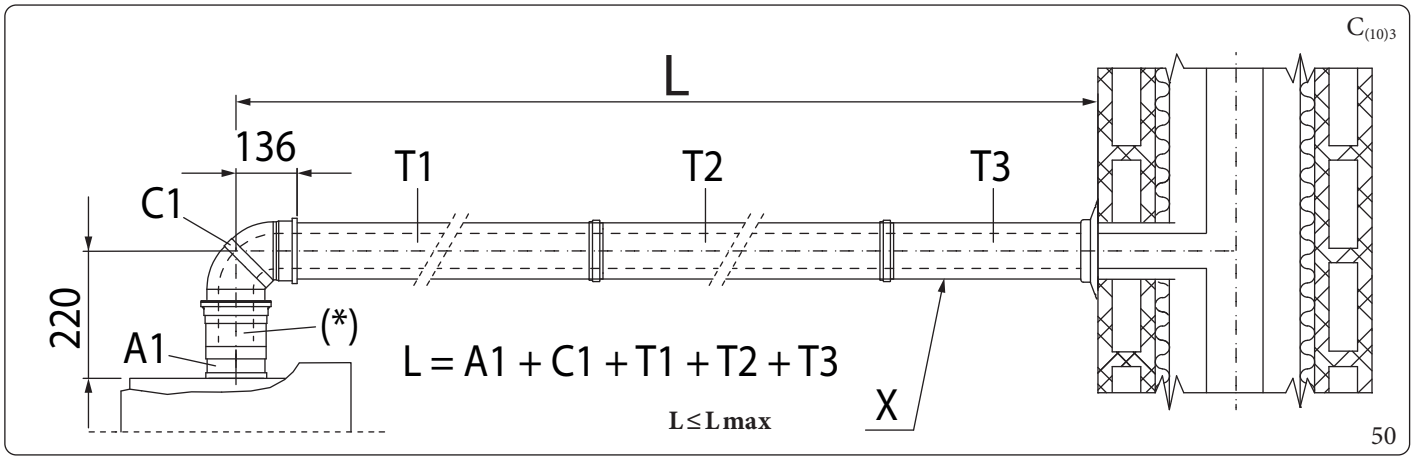
Make sure to fill the flue gas non-return valve siphon with water (Fig. 48):

4. Fit the Ø 125 extension in the flanged adapter.
5. Insert the Ø 80/125 bend on the non-return valve.
6. Calculate the distances between the bend and the connection to the collective flue and the shaft.
7. Adapt the extension (10), calculating that the inner pipe of the concentric kit must fit as far as it will go into the collective flue. The outer pipe must engage up to the door.

Before mounting it, ensure that the gaskets are in the correct position.
To ease the push-fitting, spread the supplied lubricants on the parts.

8. Mount the cover (A) complete with adaptor (1) and caps (6) on the wall.
9. Assemble the flue to the collective flue exhaust system.
10. Set parameter P8 = 1.
11. Set the fan rpm according to the table (par. 4.8).
12. Calibrate the CO_2 at maximum and minimum output (Ref. Par. 5.2).

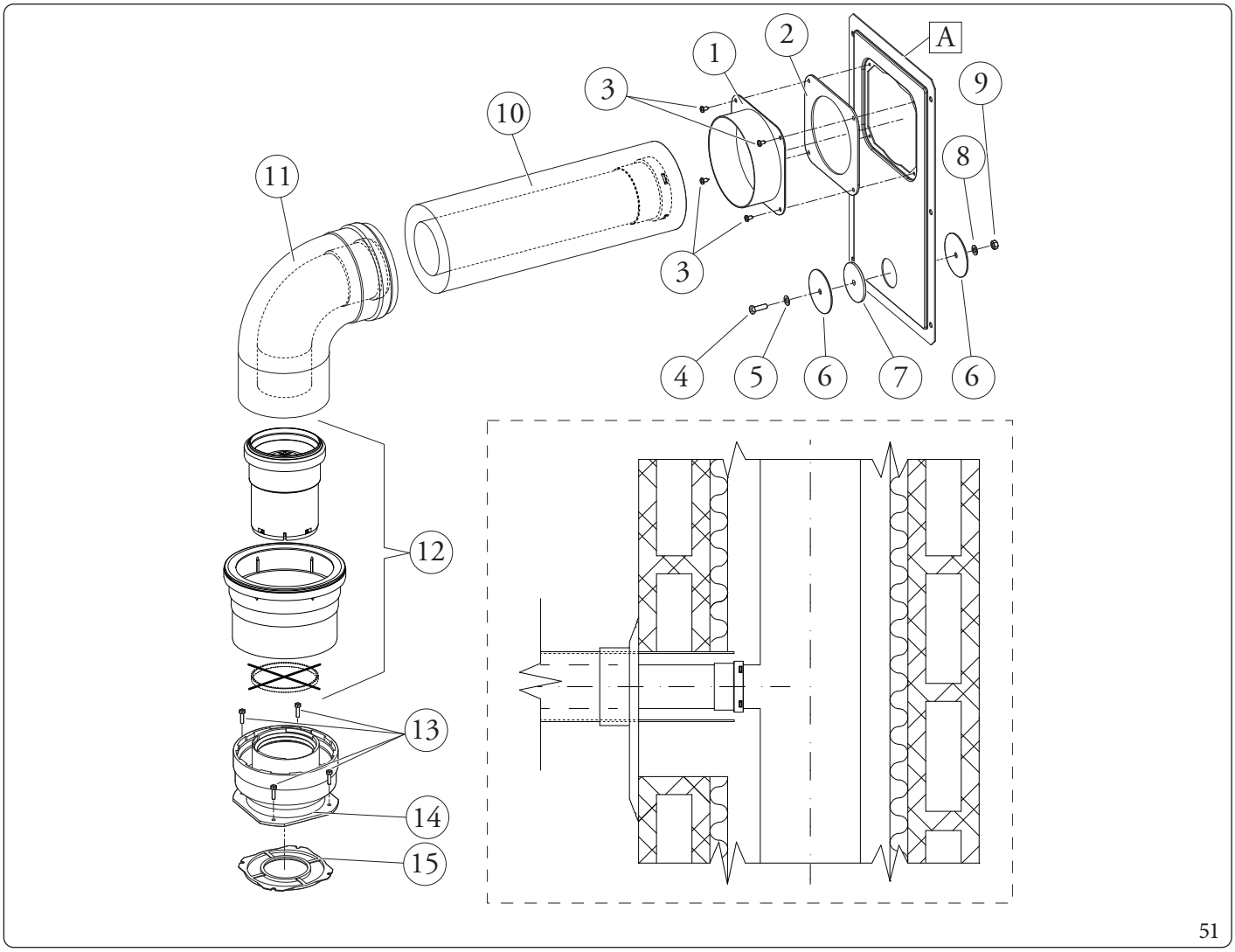
Once all components have been assembled properly, the exhaust flue gas will be expelled in the collective flue, the combustion air for normal appliance operation will be aspirated directly by the shaft (Fig. 45).



Key (Fig. 50)

X	-	*Minimum slope 5%*
A1	-	*Flanged adapter Ø80/125*
(*)	-	*Non-return valve on flue gas (do not consider when calculating the equivalent length)*
C1	-	*90° elbow Ø80/125*
T1	-	*Pipe Ø80/125*
T2	-	*Pipe Ø80/125*
T3	-	*Pipe Ø80/125*
L	-	*Equivalent length*
L max	-	*Maximum length*

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.



51

Key (Fig. 51)

The $C_{(10)3}$ adaptor kit includes:

1 Door adaptor Ø 100 or Ø 125 (1)
No.1 Door gasket made of neoprene (2)
No.4 Screws 4.2 x 9 ST (3)
No.1 Hex headed screw M6 x 20 (4)
No.1 Flat nylon washer M6 (5)
No.2 Door hole closure metal-sheet plate plug (6)
No.1 Plug gasket made of neoprene (7)
No.1 Toothed washer M6 (8)
No.1 M6 nut (9)

The Ø 80/125 extension pipe kit includes:

1 Extension pipe unit Ø 80/125 (10)

The bend kit Ø 80/125 includes:

1 Concentric bend Ø 80/125 at 87° (11)

The non-return valve kit on the flues Ø 80 (12) includes:

1 Gasket Ø 80
1 Non-return valve on flues Ø 80
1 Extension Ø 125
1 Spacer Ø 80 th. 5 mm (to be excluded for this configuration)
No.1 Information sticker
1 Counterweight 6.5 mm (to be excluded, as standard counterweight h 3.5 mm is already used)

The adaptor kit includes:

4 (kit Ø 80/125) M4 hex headed screws x 16 slotted screwdriver (13)
1 (kit Ø 80/125) Flanged adapter Ø 80/125 (14)
1 (kit Ø 80/125) Concentric gasket (15)

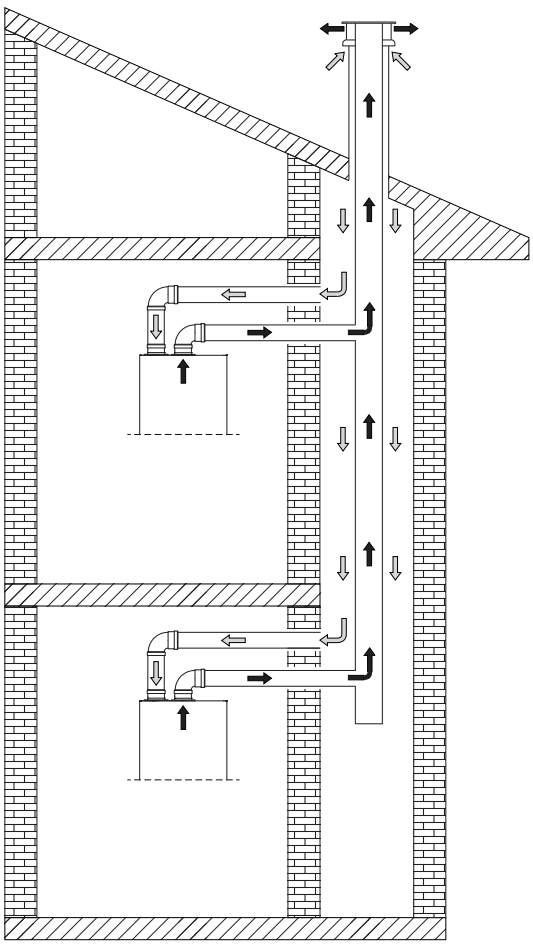
Supplied separately (Fig. 51):

No.1 Ducting kit door (A)

1.27 CONFIGURATION $C_{(10)3}$ - $C_{(12)3}$ SEPARATOR KIT (Ø 80/80)

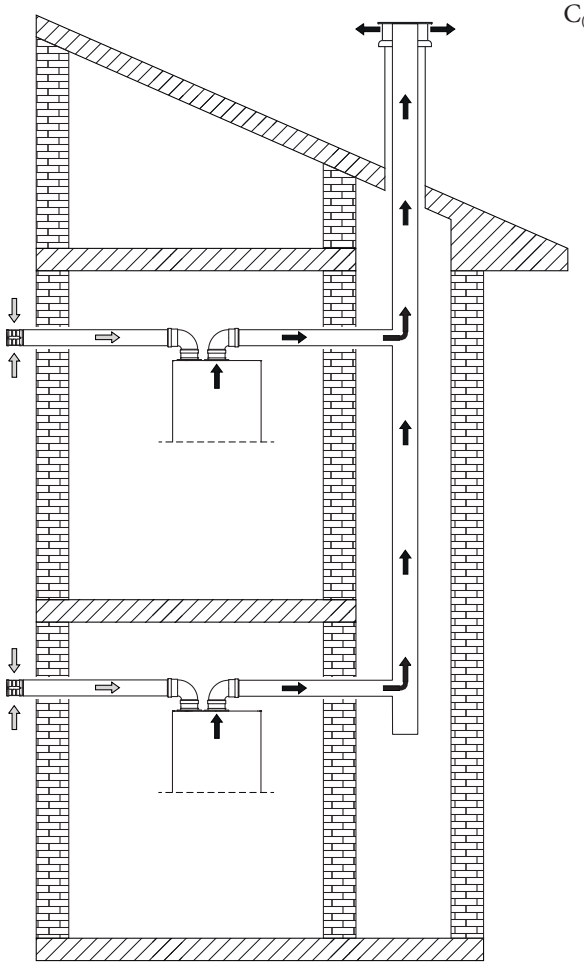
In the $C_{(10)3}$ and $C_{(12)3}$ installations, the appliance flue exhaust must be fitted with a flue gas non-return valve kit, supplied by Immergas as an optional, consisting of the valve itself with instructions, specification and relative sticker with additional safety information (Fig.48).

$C_{(10)3}$



52

$C_{(12)3}$



53

This configuration (allowed only with the approved original flue, including the specific non-return valve), makes it possible to suck the air outside the home or directly from the shaft where the flue gas exhaust is present and the evacuation of the flue gas itself inside a collective flue.

$C_{(10)3}$ (Fig. 52):
Coupling to the shaft for intake is possible with male flue Ø 80 or Ø 80 cut female.
$C_{(10)3}$ - $C_{(12)3}$ (Fig. 52 - 53)
The collective flue coupling for the exhaust is possible with female Ø 80 flue with gasket.

Assembly of separator kit Ø 80/80 (Fig. 54):

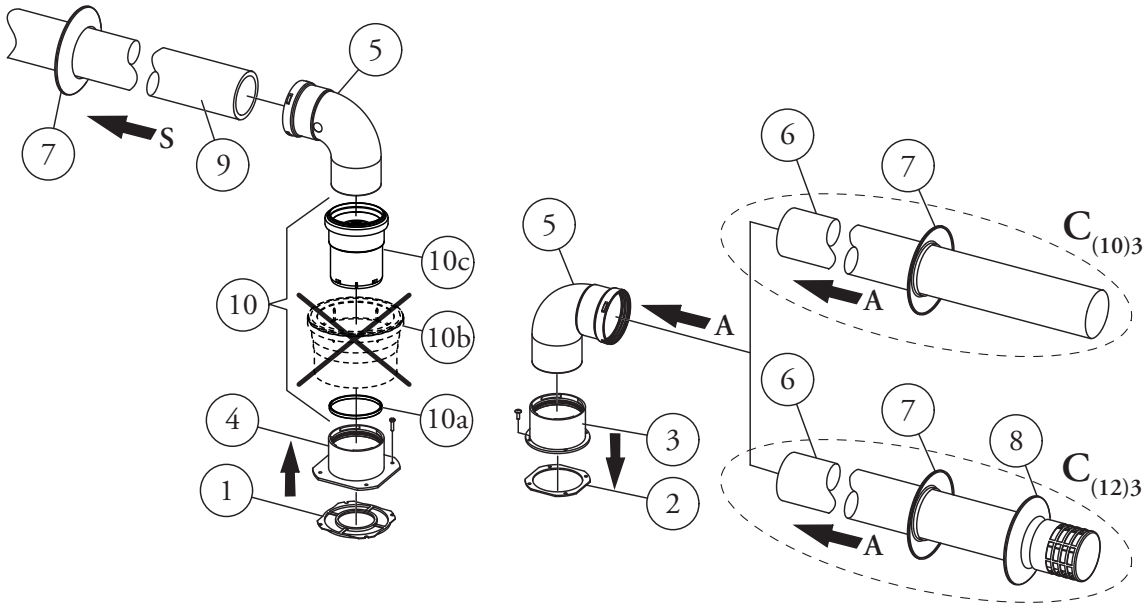
Before installation, in the absence of a shut-off flue adjusting device at the coupling point of the flue in the pressurised collective flue, it will be necessary to turn off all the boilers connected to the pressurised collective flue itself, or make sure to intercept the connection point to avoid the dispersion of combustion products into the environment.

1. Install the discharge flange (4) on the appliance sample point flange, positioning the relative gasket (1) with the circular projections downwards in contact with the appliance flange, and tighten using the hex screws with flat tip contained in the kit.
2. Remove the flat flange present in the intake hole and replace it with the intake flange (3), positioning the gasket (2) contained in the separator kit Ø 80/80 and tighten using the supplied self-threading screws.
3. Eliminate the extension Ø 125 (10b) from the non-return valve kit on the flue gas.
4. **Insert the spacer Ø 80 th. 5 mm (10a) into the flue exhaust flange.**
5. Maintain the counterweight supplied as per standard (h. 3,5 mm) mounted on the large flap of the valve and discard the one supplied bulk (h. 6,5 mm) inside of the kit (Ref. 1, Fig. 48).
6. Insert the flue gas non-return valve on the Ø 80 (10c) flues inside the flue exhaust flange.

Make sure to fill the flue gas non-return valve siphon with water (Fig. 48):

7. Fit the bends with male side (smooth) (5) in the female side of the flanges (3 and 4).
8. For intake from shaft ($C_{(10)3}$) i.e. from common intake duct, connect the intake ducts Ø 80 (6) to the bend (5), making sure that the internal wall sealing plate (7) has already been inserted. For wall intake ($C_{(12)3}$), 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 (7) and external (8) wall sealing plates are fitted.
9. Connect the Ø 80 drain pipe making sure to have already inserted the internal wall sealing plate (7) inside the end section of the pipe.
10. Set parameter P8 = 1.
11. Set the fan rpm according to the table (par. 4.8).
12. Calibrate the CO_2 at maximum and minimum output (Ref. Par. 5.2).

$C_{(10)3}$ - $C_{(12)3}$



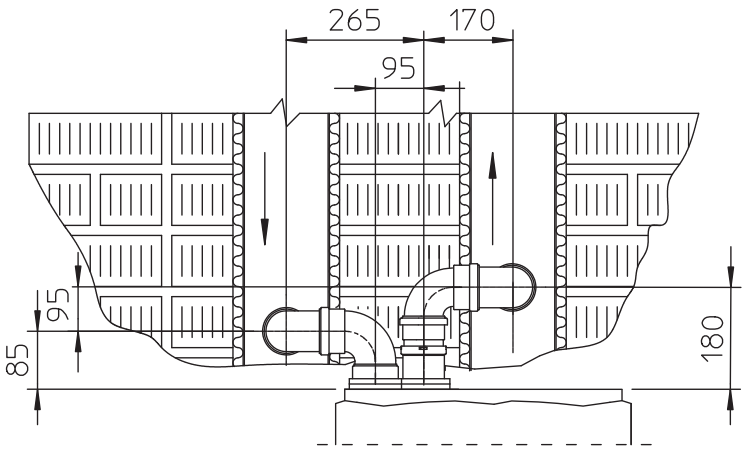
54

The kit includes (Fig. 54):

- *No.1 Exhaust gasket (1)*
- *No.1 Flange gasket (2)*
- *No.1 Female intake flange (3)*
- *No.1 Female exhaust flange (4)*
- *No.2 Bend 90° Ø 80 (5)*
- *1 Extension Ø 80 (6) (only $C_{(10)3}$)*
- *1 Intake terminal Ø 80 (6) (only $C_{(12)3}$*
- *No.2 Internal wall sealing plates (7)*
- *1 External wall sealing plate (8) (only $C_{(12)3}$)*
- *No.1 Exhaust pipe Ø 80 (9)*
- *1 Non-return valve kit on flue gas Ø 80) (10)*
  - *- 1 Spacer Ø 80 (10a)*
  - *- 1 Extension Ø 125 (10b)*
  - *- 1 Non-return valve on flue gas Ø 80 (10c)*

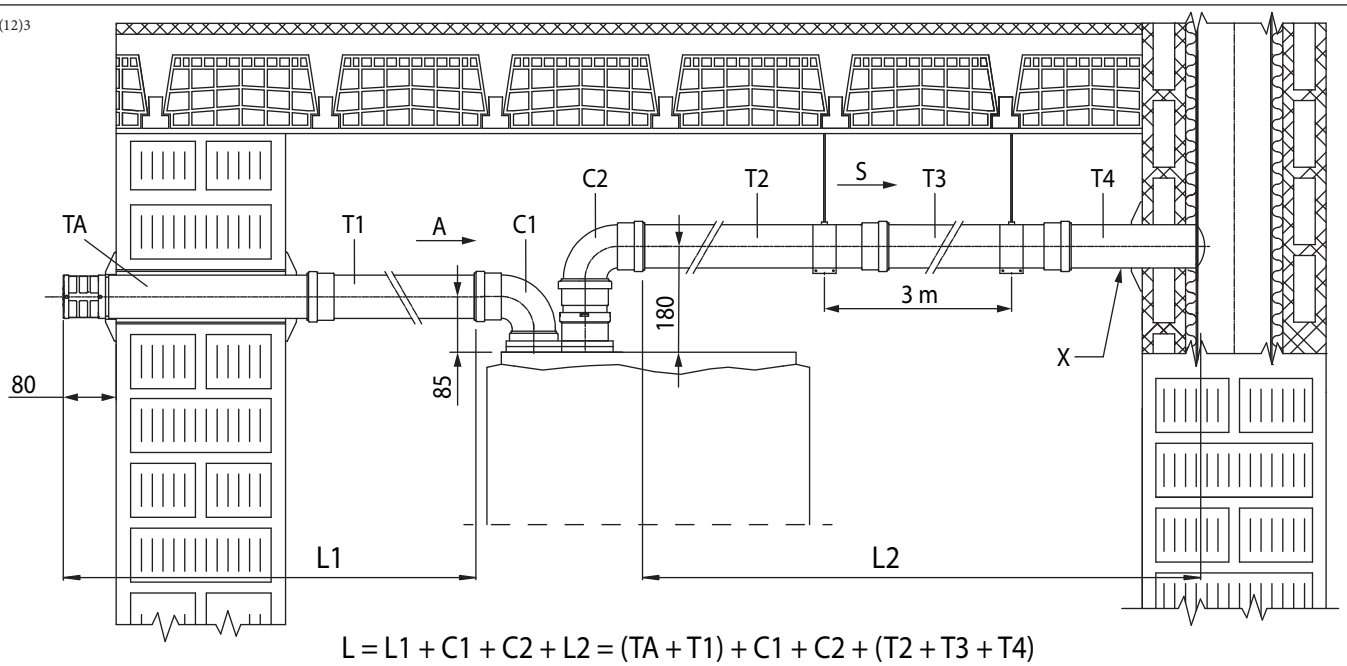
N.B.: remove extension Ø 125

$C_{(10)3}$



55

$C_{(12)3}$



$$L = L1 + C1 + C2 + L2 = (TA + T1) + C1 + C2 + (T2 + T3 + T4)$$

$$L \leq L\,max$$

56

Key (Fig. 56)

- *A* - *Intake*
- *X* - *Minimum slope 5%*
- *S* - *Exhaust*
- *TA* - *Intake terminal Ø80*
- *T1* - *Pipe Ø80*
- *T2* - *Pipe Ø80*
- *T3* - *Pipe Ø80*
- *T4* - *Pipe Ø80*
- *C1* - *Ø80 90° elbow*
- *C2* - *Ø80 90° elbow*
- *L* - *Equivalent length*
- *L max* - *Maximum length*

The maximum lengths ((L max) of the various flues that can be installed are given in the summary table in parag. 1.15.

Information for installations $C_{(10)3}$ and $C_{(12)3}$

The appliance is suitable for operation in a $C_{(10)3}$ or $C_{(12)3}$ system only with the supply of methane gas (2H and 2E categories).

The appliances are developed to operate on collective pressurised flues with a safety pressure at the minimum heat input of 25 Pa and a safety pressure at the maximum heat input of 100 Pa.

In boilers installed in flue systems type $C_{(10)}$ or $C_{(12)}$, the parameter "Presence of clapet valve on flue gas" (P8 = 1). must be enabled. CO_2 emission levels are affected by the operating pressures induced in the multiple flue, with particular reference to the minimum heat input or any recirculation phenomena induced by the flue system.

The appliance must be connected to a flue system designed by a heating engineer in compliance with the local regulation in force.
The collective flue system must be suitably sized to allow the appliance to operate with the following specifications with which it was designed:

- the maximum pressure, when n-1 appliance is working at maximum heat input (with n= number of total appliances connected or that can be connected to the same collective duct), and a boiler works at minimum heat input, is 25 Pa;
- the minimum pressure difference allowed between the combustion product outlet and the combustion air inlet is -200 Pa (- 400 Pa for $C_{12)3}$ including 100 Pa (-300 Pa $C_{(12)3}$) of pressure generated by wind;
- the duct must have been sized with a nominal temperature of the combustion products of 25°C.
- the maximum allowed recirculation rate for wind action is 10%;
- the common flue must be certified to admit an overpressure of at least 200 Pa (minimum pressure class P1);
- no draught-breaker devices must be provided in the duct system.

In particular, at the coupling point to the pressurised collective flue, a plate must be visible showing at least the following technical information:

- the name and trademark of the common flue gas pipe manufacturer;
- suitability for operation with certified boilers $C_{(10)3}$ or $C_{(12)3}$;
- the maximum flue gas mass value allowed in kg/h;
- the dimensions of the common duct (collective pipe) for each push fit point;

The openings for combustion air and the inlet of combustion products of the pressurised collective flue must be closed and their tightness must be checked when the appliance is disconnected.

The appliance connection to the pressurised collective flue must be made as instructed, without exceeding the specific maximum extensions stated.
The flue pipe must be inclined (5% slope) towards the appliance to facilitate the evacuation of condensate.

The appliance flue gas outlet must be installed with the flue gas non-return valve kit, which ensures correct operation of the appliance and facilitates its maintenance operations.

Furthermore, the safety sticker must be affixed on the front casing. This sticker is contained in the appropriate Kit $C_{(10)3}$ $C_{(12)3}$, which contains the additional exhaust flue gas non-return valve, necessary for the pressurised collective flues.

It is advisable to affix the sticker in a clearly visible position on the front casing.

Summary table of information for $C_{(10)3}$ installations (Only Methane 2E - 2H)

		VICTRIX TERA V3 28 E	
		Qmin	**Qn max**
Heat input	kW	4,2	28,7
CO_2% of reference [%]	%	8,5	9,2
Maximum boiler outlet pressure	Pa	25	93
Minimum boiler outlet pressure $C_{(10)3}$	Pa	-200	-200
Minimum boiler outlet pressure $C_{(12)3}$	Pa	-400	-400
Maximum flue gas flow rate	kg\h	7	46
Flue gas temperature 80°C\60°C	°C	71	82
Available head at the flue with a back pressure of 25Pa	Pa	27	56
Available fan head with a back pressure of 25Pa	Pa	110	190
Maximum flue duct length 80\125	m	10	
Maximum flue duct length 80\80	m	15	
Boiler settings (as indicated in the instruction booklet)	-	See Par. 1.27 from point 9 on.	

1.28 CONFIGURATION FOR C_6 FLUE INSTALLATION

Appliance designed to be connected to a commercial exhaust/intake system.

Victrix Tera V3 28 E

Gas type		G20	G31
Flue temperature at maximum output	°C	82	83
Flue gas mass at maximum power	kg/h	46	48
Flue temperature at minimum output	°C	71	71
Flue gas mass at minimum power	kg/h	7	7
CO_2 at Q. max.	%	9,2 (9,0 ÷ 9,4)	10,2 (10,0 ÷ 10,4)
CO_2 a Q. minimum	%	8,5 (8,3 ÷ 8,7)	9,7 (9,5 ÷ 9,9)
Maximum head available at maximum power (maximum resistance value of the commercial flue system)	Pa	167	
Maximum head available at minimum power	Pa	4	
Maximum flue gas circuit temperature	°C	120	

- Ducts must withstand condensation (only for condensing models);
- Air intake ducts must withstand working air temperatures of up to 60°C;
- The maximum permissible percentage of flue gas recirculation in windy conditions is 10%;
- Suction and exhaust pipes cannot be installed on opposing walls;
- With flues in configuration C_6 discharge into pressurised flues is not permitted.

1.29 OPEN CHAMBER APPLIANCE CONFIGURATION (TYPE B) WITH FAN ON THE COMBUSTION CIRCUIT

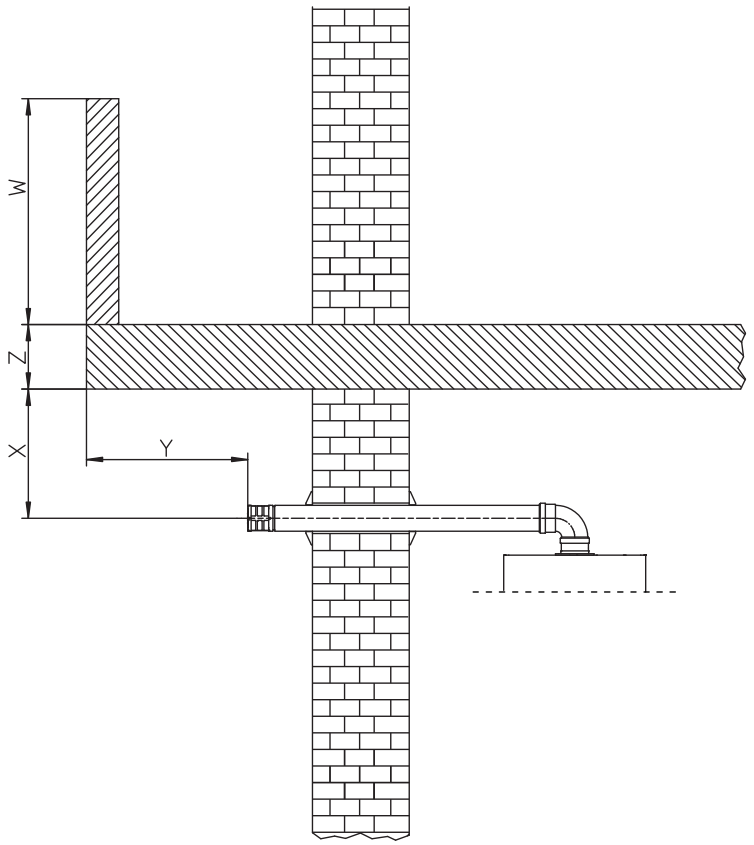
The open chamber appliance (type B) can be installed inside buildings; in this case, all technical rules and national and local regulations in force, must be complied with.
For installation the cover kit must be used, referred to in Parag. 1.17.

1.30 FLUE EXHAUST TO FLUE/CHIMNEY.

Flue exhaust does not necessarily have to be connected to a branched type traditional flue for type B appliances with natural draught (CCR).
The flue exhaust, for boiler clots installed in C configuration, can be connected to a single flue or to a multiple flue.
For open chamber appliances (type B), exhaust is only allowed into individual chimney or directly into the external atmosphere via a relevant terminal, unless otherwise provided by local regulations.
The multiple flues must also only be connected to type C appliances of the same type (condensation), having nominal heat inputs that do not differ by more than 30% less with respect to the maximum that can be attached and powered by the same fuel.
The thermo-fluid dynamic features (flue flow rate, % of carbon dioxide, % humidity etc.) of the appliances attached to the same multiple flues, must not differ by more than 10% with respect to the average appliance attached.
Multiple flues must be specially designed according to the calculation method and requirements of the standards (such as UNI 13384), by professionally qualified technical staff.
Chimney or flue sections for connection of the flue exhaust pipe must comply with requisites of technical standards in force.
It is possible to replace a type C conventional device with one provided with condensation, connected to multiple flues, only if the derogation conditions established by the regulations in force have been met.
The flues, chimneys and chimney caps for the evacuation of combustion products must be in compliance with applicable standards.

1.31 FLUES, CHIMNEYS AND CHIMNEY CAPS.

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



57

Positioning the wall flue exhaust terminals.

The wall flue exhaust terminals must:

- be installed on external perimeter walls of the building (Fig. 57);
- 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.

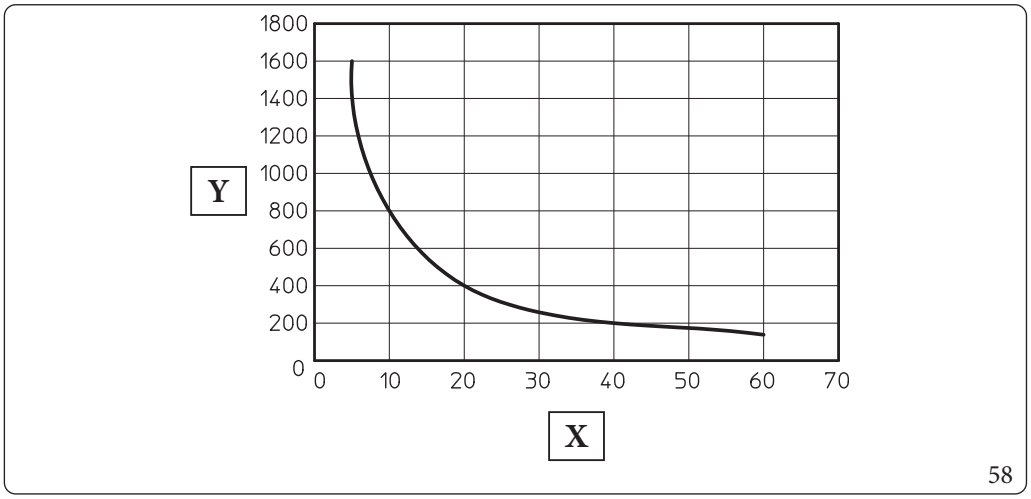
In spaces closed on all sides with open tops (ventilation pits, courtyards etc.), direct combustion product exhaust is allowed for natural draught or fan assisted gas appliances with a heat input range from 4 to 35 kW, provided the conditions as per the current technical standards are respected.

1.32 WATER TREATMENT PLANT FILLING

The technical standard in force requires washing and treatment of the system water of the water and DHW thermal system, following the indicated methods and provisions of local standards in force.
The parameters that influence the duration and proper operation of the heat exchanger are the water's PH, total hardness, conductivity, and oxygen, together with the system's processing residues (any welding residues), any oil present and corrosion products that can, in turn, cause damage to the heat exchanger.
In order to prevent this from happening, you are recommended to:

- Before installation on new systems as well as old ones, clean the system with clean water to eliminate solid residues.
- clean the system with a chemical treatment:
  - clean the new system with a suitable cleaning device (for example Sentinel X300, Fernox Cleaner F3 or Jenaqua 300) combined with thorough washing;
  - clean the old system with a suitable cleaning device (for example Sentinel X400 or X800, Fernox Cleaner F3 or Jenaqua 400) combined with thorough washing;
- Check the maximum total hardness and amount of filling water with reference to the graph (Fig. 58), if the contents and hardness of the water are below the indicated curve, no specific treatment is required; otherwise, to limit the content of calcium carbonate, you must provide for water-filling treatment.
- If it is necessary to provide for water treatment, it should be done through complete desalination of the filling water. As opposed to the complete softening process, desalinating the water completely not only removes hardening agents (Ca, Mg), but also eliminates all other minerals to reduce water-filling conductivity up to 10 microsiemens/cm. Given its low conductivity, desalinated water does not only prevent the formation of lime scale, but also serves as protection against corrosion.
- Insert a suitable inhibitor / passivator (for example Sentinel X100, Fernox Protector F1, or Jenaqua 100); if required, also insert appropriate antifreeze (such as for example Sentinel X500, Fernox Alphi 11 or Jenaqua 500).
- Check electrical conduction of the water, which should be higher than 2000 µs/cm in the case of treated water and lower than 600 µs/cm in the case of non-treated water.
- To prevent corrosion, the water system's PH should be between 7.5 and 9.5.
- Check the maximum content of chlorides, which should be less than 250 mg/l.

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



58

Key (Fig. 58):
X - Total water hardness °F
Y - Litres of system water

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

1.33 SYSTEM FILLING

Once the appliance is connected, proceed with system filling via the filling valve (Part 27, Fig. 61).
Filling is performed at low speed to ensure release of air bubbles in the water via the appliance and central heating system vents.
The appliance has a built-in automatic vent valve on the pump.
Check if the cap is loose.
Then open the radiator vent valves.
Close radiator vent valves when only water escapes from them.
The filling valve must be closed when the appliance pressure gauge indicates approximately 1.2 bar cold.

During these operations, enable the automatic vent functions on the appliance (Parag. 4.13);

1.34 FILLING THE CONDENSATE DRAIN TRAP

When the appliance is switched on for the first time, combustion products come out of the condensate drain. After a few minutes of operation, check that combustion flue gases are no longer coming out of the condensate drain; this means that the drain trap has filled to a correct condensate height that the flue gases cannot pass through.

1.35 GAS SYSTEM START-UP

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

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

1.36 APPLIANCE START-UP (IGNITION)

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

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



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

1.37 CIRCULATION PUMP

The appliances are supplied with a variable speed circulator pump.
In the central heating mode, the following operating modes are available and can be selected from the "P.C.B. programming" menu (Par. 3.4).

The ΔT can be controlled compatibly with the characteristics of the central heating system and of the appliance.

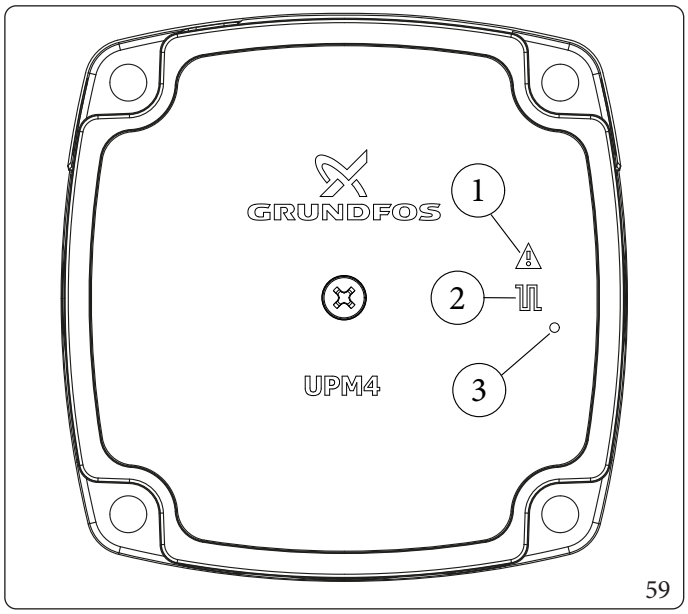
- **Proportional head (A3 = 0):** the circulator speed varies according to the power emitted by the burner, the greater the power the greater the speed.
- **ΔT Constant (A3 = 5 - 25 K):** the pump speed varies to maintain the ΔT constant between the system flow and return according to set value K (**A3 = 15 Default**).
- **Fixed:** by setting parameters "A1" and "A2" at the same value (5/6 ÷ 9), the pump operates at constant speed. For the boiler to work properly, it is not allowed to drop below the minimum value indicated above.

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

Pump symbols (Fig. 59):

With the pump powered and the pwm control signal connected and operating (pump ON or in stand-by), the symbol 2 flashes green (- -).
If the symbol 2 turns steady green ( ), the pump detects no command on the pwm signal and always runs at maximum speed.
If the pump detects an alarm, symbol 1 lights up red ( ). This can mean that there is one of the following faults:
- Low power supply voltage.
- Rotor seized (Cautiously turn the screw in the centre of the head to manually release the motor shaft).
- Electrical error.

These anomalies will be signalled on the boiler display as errors "E60" or "E61".



59

Key (Fig. 59):
1 - Alarm signal (Red)
2 - Functioning status signal (Steady green/Flashing green)
3 - Led (Not used on this model)

Pump release.

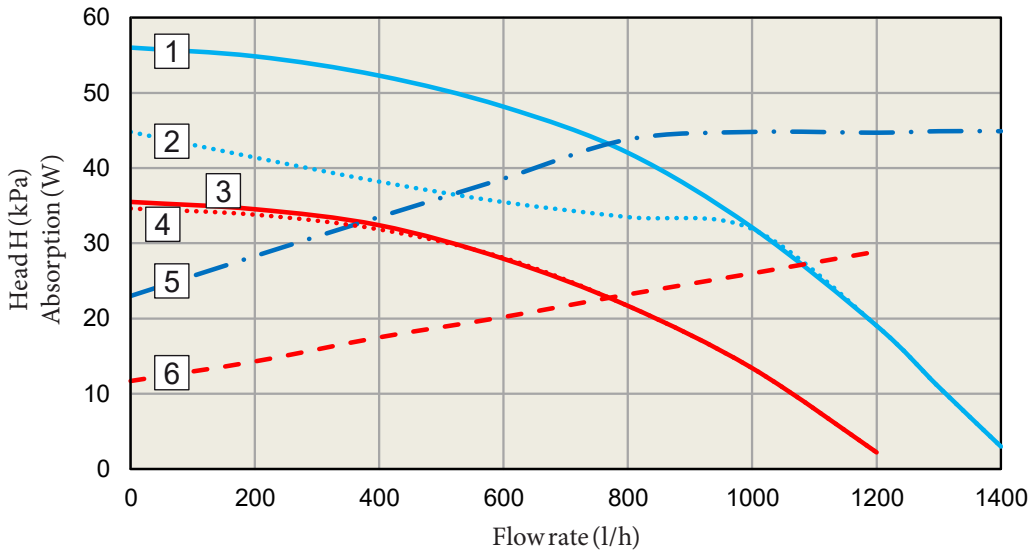
If after a long period of inactivity, the circulator is blocked, adjust the screw in the centre of the head in order to manually release the motor shaft.
Take great care during this operation to avoid damage to the motor.

Bypass Adjustment (Parag.1.39).

The appliance leaves the factory with the bypass open.
If necessary, the by-pass can be regulated to system requirements from minimum (by-pass closed) to maximum (by-pass open).
Adjust using a flat head screwdriver, turn clockwise and open the by-pass, anticlockwise it is closed.

The bypass ensures minimum circulation of the water in the appliance and its correct operation if the systems are divided into more than one zone.

Flow rate - Head - Absorption Graph VICTRIX TERA V3 28 E



60

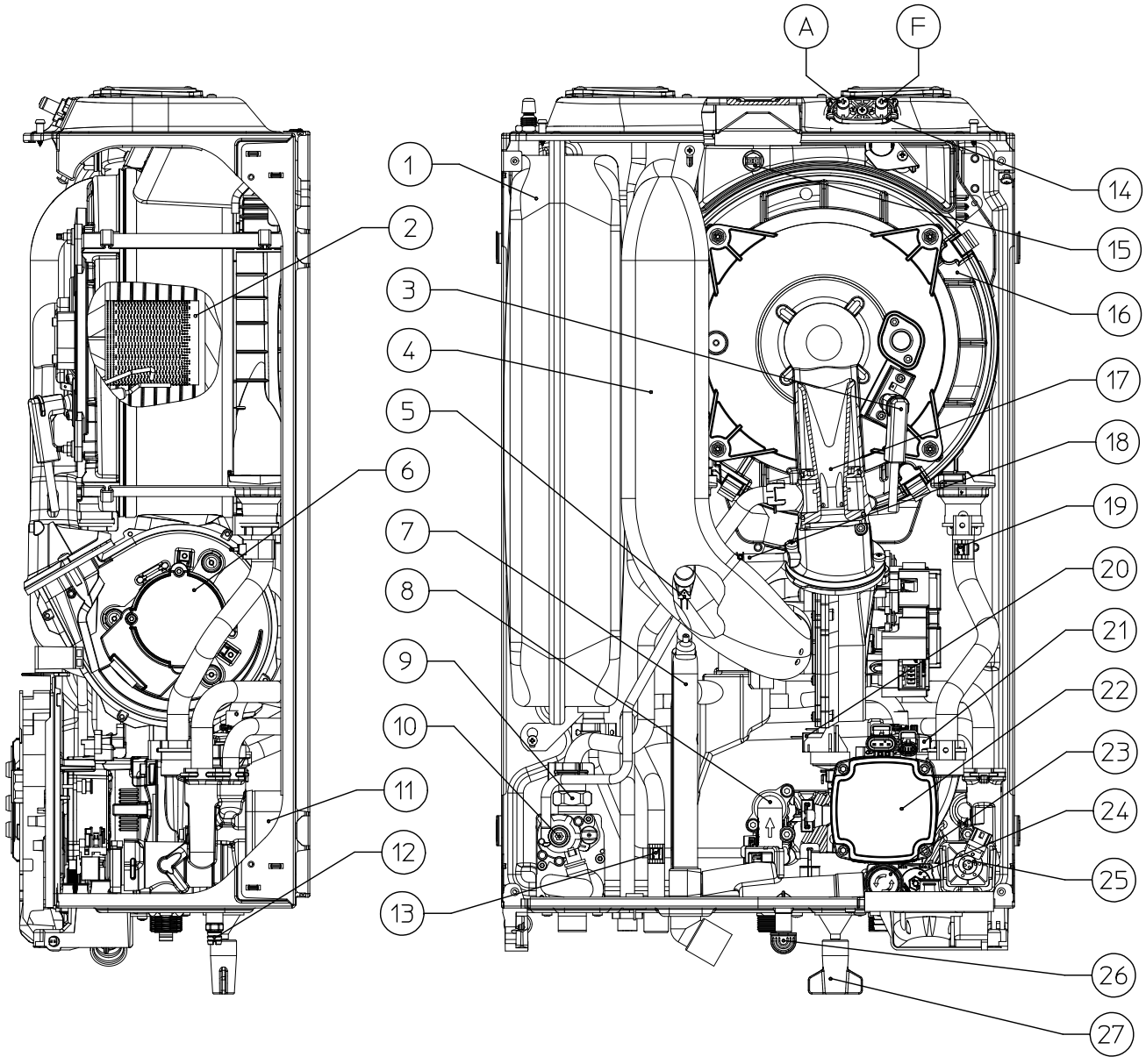
Key (Fig. 60)

1 = Head available to the system at speed 95% with by-pass closed
2 = Head available to the system at speed 95% with by-pass open
3 = Head available to the system at speed 65% with by-pass closed
4 = Head available to the system at speed 65% with by-pass open
5 = Circulator absorbed power at 95% speed with closed by-pass
6 = Circulator absorbed power at 65% speed with closed by-pass
Area between curves 1 and 3 = Head available to the system with by-pass closed
Area between curves 2 and 4 = Head available to the system with by-pass open
Area between curves 5 and 6 = Circulator absorbed power with bypass closed

1.38 KITS AVAILABLE ON REQUEST

Check the complete list of kits available and which can be combined with the product, consult the Immergas website, the Immergas Price List or the technical-commercial documentation (catalogues and data sheets).

1.39 MAIN COMPONENTS



61

Key (Fig. 61):

1	-	*System expansion vessel*
2	-	*Burner*
3	-	*Ignition/detection electrode*
4	-	*Air intake pipe*
5	-	*Flow probe*
6	-	*Fan*
7	-	*Condensate drain trap*
8	-	*D.H.W. flow switch*
9	-	*Gas nozzle*
10	-	*Gas valve*
11	-	*D.H.W. heat exchanger*
12	-	*System draining valve*
13	-	*D.H.W. probe*
14	-	*Sample points (air A) - (flue gases F)*
15	-	*Flue probe*
16	-	*Condensation module*
17	-	*Venturi*
18	-	*Pressure signal vent fitting*
19	-	*Return probe*
20	-	*System pressure switch*
21	-	*Air vent valve*
22	-	*Boiler circulating pump*
23	-	*3 bar safety valve*
24	-	*By-pass*
25	-	*3-way valve (motorised)*
26	-	*Valve drain fitting signal*
27	-	*System filling valve*

2 INSTRUCTIONS FOR USE AND MAINTENANCE

2.1 GENERAL RECOMMENDATIONS

Never expose the wall-mounted appliance to direct vapours from a hob.

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

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

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

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

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

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

Do not open or tamper with the appliance.

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

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

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

In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts).
Do not attempt to modify or repair the appliance alone.

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

- **do not touch the appliance with wet or moist parts of the body; do not touch when barefoot;**
- **never pull electrical cables or leave the appliance exposed to atmospheric agents (rain, sunlight, etc.);**
- **the appliance power cable must not be replaced by the user;**
- **in the event of damage to the power supply 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 appliance external switch.**

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

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

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

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

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

2.2 CLEANING AND MAINTENANCE

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

2.3 APPLIANCE SWITCH-OFF

Switch the appliance off by putting it in "off" mode, disconnect the main switch outside of the appliance and close the gas isolation valve upstream of the appliance.
Never leave the appliance switched on if left unused for prolonged periods.

2.4 RESTORE CENTRAL HEATING SYSTEM PRESSURE

1. Periodically check the system water pressure (the appliance's pressure gauge hand must indicate a cold value between 1 and 1.2 bar).
2. If the pressure is below 1 bar (with the circuit cool), restore normal pressure from the relative valve (Part. 1, Fig. 10).
3. Close the valve after the operation.
4. If the pressure rises to values close to 3 bar, there is a risk of the safety valve tripping (in this case, remove water from an air release valve on a radiator or by acting on the drain valve (Det. 2, Fig. 10) until the pressure is restored to 1 bar, or call in professionally qualified personnel).

If the system is hot, be sure to let it cool down before draining to avoid the risk of scalding.

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

2.5 DRAINING THE SYSTEM

To drain the boiler, use the special draining valve (Part. 2, Fig. 10).
Before draining, ensure that the filling valve is closed.

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

2.6 EMPTYING THE D.H.W. CIRCUIT

To do this, always close the domestic cold water inlet upstream of the appliance.
Open any domestic hot water tap to discharge the pressure from the circuit.

2.7 ANTIFREEZE PROTECTION

The appliance has an antifreeze function that switches the burner on automatically when the temperature drops below 4°C (standard protection to minimum temperature of -5°C).
In order to guarantee the integrity of the appliance and the domestic hot water heating system in areas where the temperature drops below zero, we recommend protecting the central heating system using anti-freeze liquid and installing the Immergas Antifreeze Kit in the appliance.
All information on antifreeze protection can be found in the Installer section at Parag. 1.5.

2.8 PROLONGED INACTIVITY

In case of prolonged inactivity (e.g. second home), we recommend:
1. close the gas;
2. to switch off the power supply;
3. completely empty the CH circuit (to be avoided if glycol is present in the system). In systems that are drained frequently, filling must be carried out with suitably treated water to limit hardness that can cause lime-scale.

2.9 CLEANING THE CASE

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



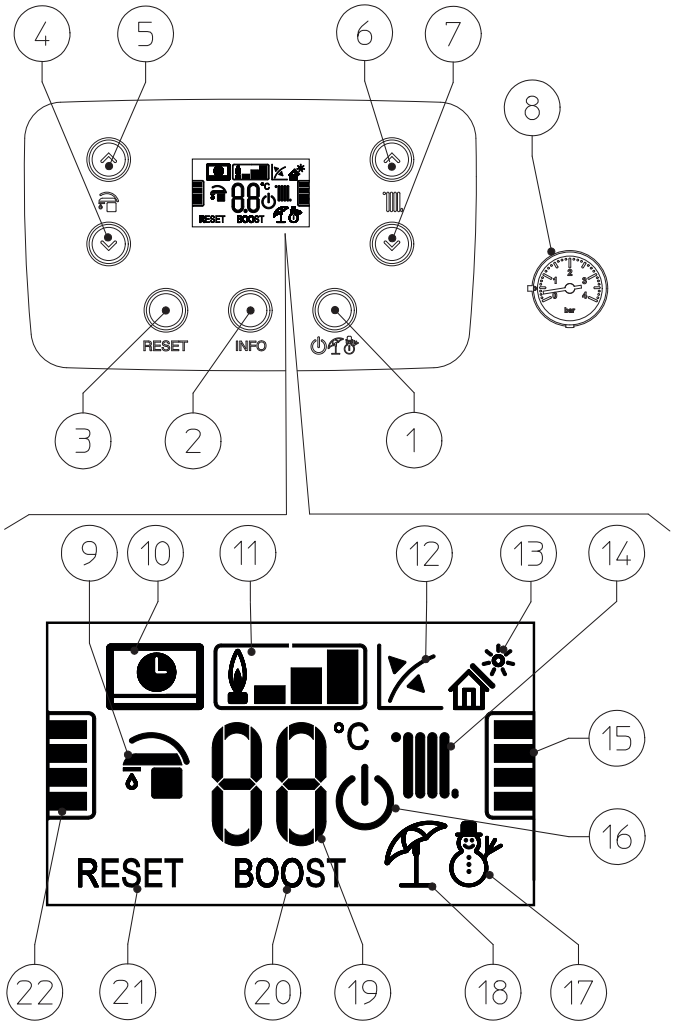
Never use abrasive or powder detergents.

2.10 PERMANENT SHUTDOWN

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

3 CONTROL PANEL

3.1 CONTROL PANEL



62

Key (Fig. 62):

1 - *Off/Stand-by/Summer/Winter button*
2 - *Information buttons*
3 - *Reset Button*
4 - *Button to reduce the domestic hot water temperature*
5 - *Button to increase the domestic hot water temperature*
6 - *Button to increase the system water flow temperature*
7 - *Button to decrease the system water flow temperature*
8 - *Boiler manometer*
9 - *DHW production phase operating mode active*
10 - *Boiler connected to remote control V2 (optional) or to other external devices*
11 - *Flame presence symbol and relative output scale*
12 - *Operation with external temperature probe active (optional)*
13 - *Solar function active*
14 - *Central heating room mode function active*
15 - *Central heating temperature level indicator*
16 - *Boiler in Stand-by mode*
17 - *Operation in winter mode*
18 - *Operation in summer mode*
19 - *Temperature indicator, boiler info and error codes*
20 - *Not used on this model*
21 - *Blocked boiler, it needs to be unblocked by pressing the "RESET" button*
22 - *D.H.W. temperature level indicator*

3.2 USING THE APPLIANCE

Before ignition make sure the heating system is filled with water and that the manometer (8) indicates a pressure of 1 - 1.2 bar.

– Open the gas isolation valve upstream from the appliance.
– Press the button "⏻ ☂ ☃" repeatedly to cyclically switch from "stand-by" (⏻) to "summer" (☂) and "winter" (☃) mode.

Summer ☂
In this mode, the boiler functions only to produce the DHW, the temperature is set via the buttons and the relative temperature is shown on the display via the indicator (19). Moreover, the temperature level that can be selected is shown on the indicator (22).

Winter (☃)
In this mode the boiler works both for producing domestic hot water and for central heating. The temperature of the DHW is always regulated via buttons "", the central heating temperature is regulated via buttons and the relative temperature is shown on the display by the indicator (Fig. 62), the selectable temperature level is also shown on the indicator (Fig. 62).
From this moment the boiler functions automatically. With no demand for heat (central heating or domestic hot water production) the boiler goes to "standby" function, equivalent to the boiler being powered without presence of flame. Each time the burner ignites, the symbol (Fig. 62) related to the flame presence is displayed with relative power scale.

Operation with Comando Amico Remoto^{V2} (CAR^{V2}) (optional)
If the CAR^{V2} is connected, the ( ) symbol will appear on the display. The boiler regulation parameters can be set via the CAR^{V2} control panel and the Reset button remains active on the boiler control panel (Fig. 62), along with the switch-off button (Fig. 62) ("Off" mode only) and the display where the functioning state is shown.

If the appliance is put into "off" mode, the "ERR>CM" connection error symbol will appear on the CAR^{V2}. The CAR^{V2} is however powered constantly so as not to lose memorised programs.

Solar function

This function is activated if the boiler detects a probe at the DHW input (optional) and setting parameter P.15 = 1 to enable the input or if the parameter 'Solar ignition delay' (t.2) is greater than 0 seconds.
During a withdrawal, if the inlet water is hot enough or if there is "Solar ignition delay" time, the boiler does not switch on, the D.H.W. withdrawal symbol ( ) appears on the display along with the flashing solar function symbol ( ).
When the water supplied by the solar system is at a temperature lower than what is set, and if the "Solar ignition delay" time has elapsed, the boiler switches on. At this point, the solar function symbol remains permanently on.

Operation with optional external probe (optional).

In the case of a system with an external probe, the boiler flow temperature for room heating is managed by the external probe based on the outdoor temperature measured (Par. 1.12). The flow temperature can be modified by selecting the functioning curve via buttons (or from the control panel of CAR^{V2}, if it is connected to the boiler), selecting a value from "0 to 9".
With external probe present, the relative symbol will appear on the display.(Fig. 62).
In the central heating mode, if the temperature of the water contained in the system is sufficient to heat the radiators, the boiler can only function with the activation of the pump.

"Stand-by" Mode

Press the " " button in succession until the ( ) symbol appears. The boiler remains off from this moment, though the antifreeze, pump anti-block and 3-way function and signalling of any anomalies are guaranteed.

OFF mode

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

In "Stand-by" and "Off" mode, the appliance is to be considered still live. In "Off" mode, a lit "dot" is displayed in the centre of the display.

Display operation

The display lights up when using the control panel. After a set inactivity period, the brightness decreases. The lighting mode can be varied via parameter "t8" in the P.C.B. programming menu.

3.3 FAULT AND ANOMALY SIGNALS

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.	Press the Reset button (1)
02	**Safety thermostat function block (NTC flow/return overheating)**	During normal operation, if a fault causes excessive overheating internally, the boiler goes into overheating block.	Press the Reset button (1)
03	**Flue safety thermostat block**	During normal operation, if a fault causes excessive flue gas overheating, the boiler blocks	Press the Reset button (1)
04	**Contacts resistance block/Damaged hardware board**	The P.C.B. detects a fault on the gas valve supply. Check its connection. (The fault is detected and displayed only in the presence of a request). Upon confirming that the fault does not concern the gas valve, you must replace the P.C.B. if the fault does not disappear after pressing the Reset button.	Press the Reset button (1)
05	**Delivery probe fault**	The board detects an anomaly on the flow NTC probe.	The boiler does not start (1)
06	**DHW probe fault**	The board detects an anomaly on the domestic hot water NTC probe. In this case the antifreeze function is also inhibited	In this case the boiler continues to produce domestic hot water but not with optimal performance (1)
08	**Maximum N° of resets**	Number of allowed resets already performed.	The anomaly can be reset 5 times consecutively, after which the function is 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.
10	**Insufficient system pressure**	Water pressure inside the central heating circuit that is sufficient to guarantee the correct operation of the boiler is not detected.	Check on the boiler pressure gauge that the system pressure is between 1÷1.2 bar and restore the correct pressure if necessary.
(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)			
(2) The anomaly can only be verified in the list of errors in the "Information" menu			

Error Code	Anomaly signalled	Cause	Boiler status / Solution
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.	Press the Reset button (1)
20	**Parasite flame block**	This occurs in the event of a leak on the detection circuit or anomaly in the flame control unit.	Press the Reset button (1)
23	**Return probe anomaly**	The board detects an anomaly on the return NTC probe	The boiler does not start (1)
24	**Push button control panel anomaly**	The board detects an anomaly on the pushbutton panel.	If normal conditions are restored the boiler restarts without having to be reset (1).
29	**Flue probe anomaly**	The board detects an anomaly on the flue probe.	The boiler does not start (1)
31	**Loss of remote control communication**	This occurs if an incompatible remote control is connected, or if communication between the boiler and the remote control is lost.	Disconnect and reconnect the power to the boiler. If the remote control is still not detected on re-starting, the boiler will switch to local operating mode, i.e. using the controls on the control panel. In this case, the "Central Heating" (1) function cannot be activated.
37	**Low power supply voltage**	This occurs when the power supply voltage is lower than the allowed limits for the correct boiler operation.	If normal conditions are restored the boiler restarts without having to be reset (1)
38	**Loss of flame signal**	This occurs when the boiler is ignited correctly and the burner flame switches off unexpectedly; a new attempt at ignition is performed and if normal conditions are restored, the boiler does not have to be reset.	If normal conditions are restored the boiler restarts without having to be reset (1) (2)
43	**Block due to loss of flame signal**	This occurs if the "Flame signal loss" error occurs many times in a row within a preset period (38).	Press the Reset button, before restarting, the boiler will run a post-ventilation cycle. (1)
44	**Block for exceeding gas valve frequent maximum opening time (if present)**	This occurs if the gas valve remains open for longer than required for normal operation, without the boiler switching on.	Press the Reset button (1)
(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)			
(2) The anomaly can only be verified in the list of errors in the "Information" menu			

Error Code	Anomaly signalled	Cause	Boiler status / Solution
45	**ΔT high**	The boiler detects a sudden, unexpected increase in the ΔT between the flow probe and the system return probe.	The power of the burner is limited to prevent damage to the condensation module; once the right ΔT is restored, the boiler resumes regular operation. Make sure there is water circulating in the boiler, that the pump is configured according to system requirements and that the return probe works properly. (1)
47	**Burner power limitation**	Should flue high temperature be detected, the boiler reduces power supplied so as not to damage it.	(1)
49	**High temperature block on return probe**	The temperature measured by the return probe is above 90°C. The block is with manual reset.	The error disappears when the temperature detected by the return probe drops below 70°C. Press the Reset button (1)
51	**CAR Wireless communication failure**	If there is no communication between the boiler and Wireless version CAR, an anomaly is signalled. From this moment, it is only possible to control the system by means of the control panel of the boiler itself.	Check operation of the Wireless CAR, check the battery charge (refer to the relative instructions booklet).
60	**Anomaly pump blocked**	The pump is stopped due to one of the following causes: Impeller blocked, electrical fault	Try to unblock the pump as described in the relative section. If normal conditions are restored the boiler restarts without having to be reset (1)
61	**Air in circulator**	Air is detected inside the pump; the pump cannot work.	Vent the pump and the central heating circuit. If normal conditions are restored the boiler restarts without having to be reset (1)
69	**Damaged swing check valve recirculation alarm**	The flue probe reading detects possible flue gas recirculation (installation C_{10}) presumably caused by a damaged external swing check valve. NON-blocking fault.	(1).
70	**Return/flow probe exchange**	In case of an incorrect boiler wiring connection the error is detected	The boiler does not start (1)
75	**Return and/or flow probe malfunction**	Possible failure of one or both system return and flow probes	The boiler does not start (1)
76	**Flow and/or return probes temperature drift**	A malfunction of one or both system return and flow probes is detected.	The boiler does not start (1)
(1) If the shutdown or fault persists, contact an authorised company (e.g. Authorised Service Centre)			
(2) The anomaly can only be verified in the list of errors in the "Information" menu			

3.4 PARAMETERS MENU, INFORMATION AND P.C.B. PROGRAMMING

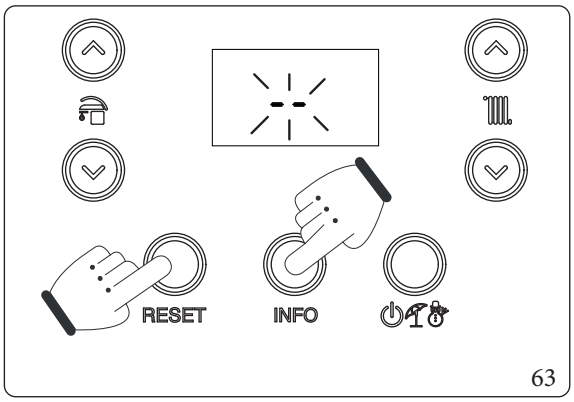
Information menu

By pressing the button " INFO ", the "Information menu" is activated for at least 1 second, displaying some boiler operating parameters.
Press buttons to scroll through the various parameters.
With the menu active on the indicator (Fig. 62) the parameter via the letter "d" plus the number of the parameter that is being displayed will alternately show.
To view the parameter value, select it by pressing the button "".
Press "RESET" or wait 15 minutes to go back to the previous screen or exit the menu.

Parameter ID	Description
d 0.0	Not used
d 0.1	Displays the flame signal
d 0.2	Displays the primary heat exchanger outlet instant CH flow temperature (°C)
d 0.3	Displays the instant output temperature from the DHW heat exchanger (°C)
d 0.4	Displays the values set for central heating set
d 0.5	Displays the values set for DHW set
d 0.6	Displays the external environment temperature (*C) (if optional external probe present). If the temperature is below zero, the value is displayed flashing.
d 0.7	Displays the temperature of the inlet DHW (°C) (with optional DHW inlet probe present)
d 0.8	Displays the system return water temperature (°C)
d 0.9	Displays the list of the last eight faults (to scroll the list press the "central heating temperature regulation" buttons ( )
d 1.0	Anomaly list reset. Once "d 10" is displayed, press Stand-by; the display shows "--". Then press the Stand-by key again for at least 3 seconds; deletion is confirmed via the "88" symbols flashing for two seconds.
d 1.1	Not used
d 1.2	Displays the pump operating speed
d 1.3	Not used
d 1.4	Displays the pump flow rate (l/h)
d 1.5	Displays the fan operating speed (rpm)
d 1.6	Displays the temperature read on the flue probe (°C)
d 1.7	Displays the calculated flow temperature (°C)
d 1.8	At the end of the screed heater function, displays for how many hours the flow temperature remained at "Top set"
d 1.9	Toggles between the safety software version and the functional software version
d 2.0	Displays the flow temperature of zone two (°C) (optional)
d 2.1	Displays the flow temperature of zone three (°C) (optional)
d 2.2	Not used

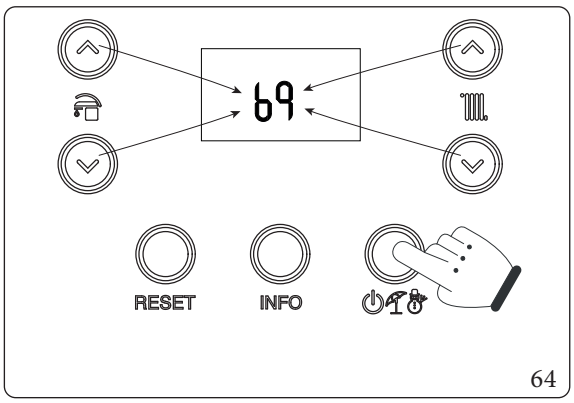
P.C.B. programming

The device is prepared for possible programming of several operation parameters.
By modifying these parameters as described below, the device can be adapted according to specific needs.



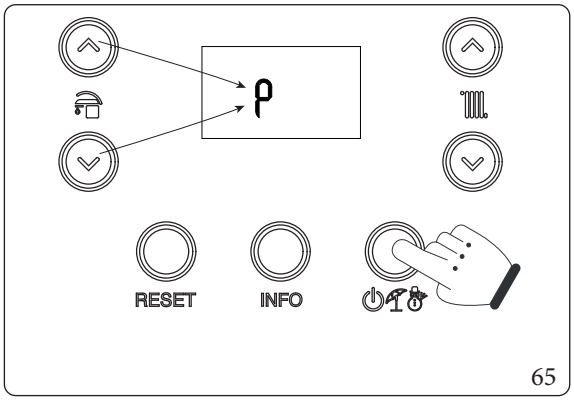
63

To access the programming phase, press and hold the buttons "RESET" and "INFO" for more than 5 seconds; the display shows two dashes "--" flashing and you must enter the password (09) to access the programming menus.



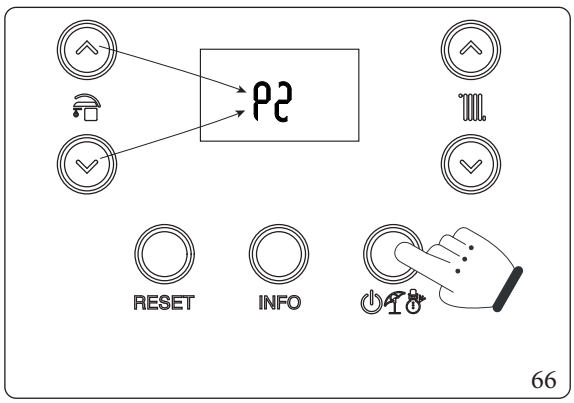
64

To enter the first digit use the buttons to adjust the DHW "", to enter the second digit use the buttons to adjust the central heating temperature "".
To confirm the password and access the menu, press the operating mode button "⏻"



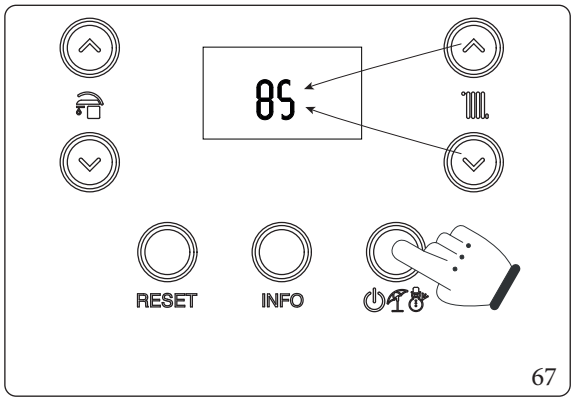
65

Once in the menu, you can cyclically scroll the four submenus (P, t, A, S) by pressing the DHW buttons "", to access the menu press the button "⏻".



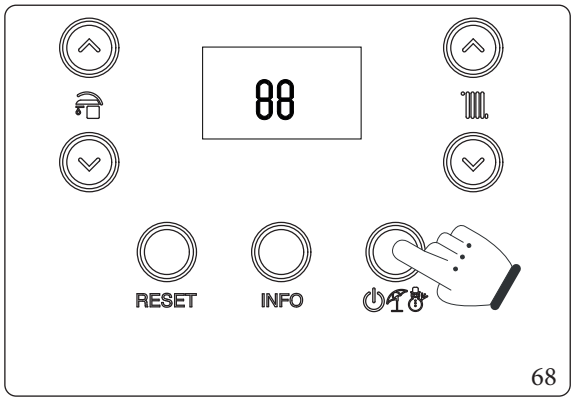
66

The first digit of the central indicator (Fig. 62) shows the family of the parameter, while the second digit shows its number.



67

Pressing the mode of operation button "⏻" displays the value of the selected parameter and by pressing the buttons to adjust the central heating temperature "" you can adjust its value.



68

Press the mode of operation button "⏻" for more than 1 second to store the parameter value; confirmation is given by the word "88" which appears for 2 seconds.

If you want to exit a parameter without changing its value, press the button "RESET".
Wait for 15 minutes or press the "RESET" button to exit programming mode.

Programming phase sequence							
RESET + INFO > 5"	Menu "P", "t", "A", "S"	← RESET ⏻→	P0 - P5 t0 - t9 A0 - A6 S0 - S2	← RESET ⏻→	Parameter value	← RESET (without memorising) ⏻ > 1" (Memorise)	88

Id Parameter	Parameter	Description	Range	Default	Customised value
P0	Max DHW output	Defines the maximum heat output percentage of the boiler during the D.H.W. phase compared to the maximum heat output available	0 - 100 %	100 %	
P1	Min CH output	Defines the minimum output percentage of the boiler in central heating mode	0 - P2	0 %	
P2	Max CH output	Defines the maximum heat output percentage of the boiler during the central heating mode compared to the maximum heat output available	0 - 100 %	VICTRIX TERA V3 28 E	
				G20 = 83	
				G31 = 83	
P3	-	Not available for this model	-	-	
P4	Pump functioning	The pump can function in two ways. 0 intermittent: in winter "mode" the circulator is managed by the room thermostat or by the remote control. 1 continuous: in "winter" mode the circulator is always powered and is therefore always in operation.	0 - 1	0	
P5	External probe correction	If the reading of the external probe is not correct it is possible to correct it in order to compensate any environmental factors.	-9 ÷ 9 K	0	
P6	-	Not available for this model	-	-	
P7	Remote control	Sets the dialogue protocol with the remote device 0: IMG BUS. Select this mode when connecting an Immergas remote control (e.g. CARv2) to terminals 44-41 1: Not available on this model 2: Select this mode when a commercial remote control is connected to terminals 44-41 (with this selection, the control of the domestic hot water adjustments and max set central heating flow remains available on the boiler panel)	0 - 2	0	
P8	Non-return valve head on flue gas	Activates the safety function in case of malfunctioning of the non-return valve	0 - 1	0	

Id Parameter	Parameter	Description	Range	Default	Customised value
t0	Central heating set point minimum temperature	Defines the minimum flow temperature.	20 ÷ 50 °C	25	
t1	Central heating set point maximum temperature	Defines the maximum flow temperature.	(t0+5) ÷ 85 °C	85	
t2	Solar delay timing	The boiler is set to switch-on immediately after a request for DHW. In the case of coupling with a solar storage tank positioned upstream from the boiler, it is possible to compensate the distance between the storage tank and the boiler in order to allow the water to reach the boiler. Set the time necessary to verify that the water is hot enough (see par. Solar panels coupling).	0 - 30 seconds	0	
t3	D.H.W. priority timing	In winter mode the boiler, at the end of a domestic hot water request, is ready to switch to central heating mode if there is an active request. Timing sets a time period in which the boiler waits before changing the operating mode, in order to quickly and comfortably satisfy an additional request for domestic hot water.	0 - 100 seconds (step 10 sec)	2	
t4	Central heating ignitions timer	The boiler has an electronic timer, which prevents the burner from igniting too often in central heating mode.	0 - 600 seconds (step 10 sec)	18	
t5	Heating ramp timing	In central heating mode, the boiler performs an ignition ramp in order to reach the maximum output set.	0 - 840 seconds (step 10 sec)	18	
t6	CH ignition delay from TA and CR request	The boiler is set to switch-on immediately after a request. In the event of particular systems (e.g. area systems with motorised thermostatic valves etc.) it may be necessary to delay ignition	0 - 600 seconds (step 10 sec)	0	
t7	Display lighting	Establishes the display lighting mode. 0: the display lights up during use and lowers after 15 seconds of inactivity. In the case of anomaly the display flashes. 1: display lighting off. 2: the display is always lit up.	0 - 2	0	
t8	Display	Establishes what the indicator displays (Fig. 62). “Summer” mode: 0: the indicator is always off. 1: pump active displays the flow temperature, pump off the indicator is off. "Winter" mode: 0: it always displays the value set on the central heating selector. 1: circulator pump active displays the flow temperature, pump off displays the value set on the central heating selector.	0 - 1	1	
t9	Flow off temperature increase	Increases the flow off temperature at ignition only in the first 60 seconds. After the flame is detected, the temperature is increased by t9.	0 - 15	0	

Id Parameter	Parameter	Description	Range	Default	Value customized
A0	Hydraulic model	Defines the type of hydraulics in the boiler (0 = instant; 1 = storage tank).	0 ÷ 1	0	
A1	Maximum pump speed	Defines the maximum operating speed of the circulator (If A1 = A2 circulator operating at set speed).	A2 - 9	9	
A2	Minimum pump speed	Defines the minimum operating speed of the circulator.	1 - A1	Victrix Tera V3 28 E 6	
A3	Circulating pump mode	Sets the pump operating mode - DELTA T = 0: proportional head (see par. 1.29). - DELTA T = 5 - 25 K: ΔT constant (see Par. 1.29).	0 ÷ 25	15	
A4	Storage tank flow offset	Not available for this model	-	-	
A5	Storage tank activation offset	Not available for this model	-	-	
A6	D.H.W. thermostat	Establishes the switch-off method in DHW mode. 0 Fixed: the switch-off temperature is fixed at the maximum value regardless of the value set on the control panel. 1 Correlated: the boiler switches off according to the temperature set.	0 ÷ 1	0	

Id Parameter	Parameter	Description	Range	Default	Customised value
S0	DHW minimum no. of fan revs	Defines the operating speed of the fan at minimum DHW output	20 - 60 (x 50 = RPM)	G20 : 27	
				G31 : 27	
S1	DHW maximum no. of fan revs	Defines the operating speed of the fan at maximum DHW output	S0 - 140 (x 50 = RPM)	G20 : 120	
				G31 : 120	
S2	Ignition phase no. of fan revs	Defines the operating speed of the fan during the ignition phase	40 - 80 (x 50 = RPM)	G20 : 68	
				G31 : 60	

4 INSTRUCTIONS FOR MAINTENANCE AND INITIAL CHECK

4.1 GENERAL RECOMMENDATIONS

Operators who install and service the appliance must wear the suitable personal protective equipment (PPE) required by applicable law.
The list of possible PPE is not all-comprehensive as it is indicated and chosen by the Employer of the authorised company (installer or maintenance).

Before carrying out any maintenance work, make sure that:
– you have disconnected the power to the appliance;
– you have closed the gas isolation valve;
– you have discharged the pressure from the system and domestic hot water circuit.

PX42 Gas Valve

Risk of material damage after using sprays and liquids to search for leaks
Leak sprays and liquids clog the reference hole P1. Ref. (Fig. 71) of the gas valve, damaging it irreparably.
During installation and maintenance, do not use spray or liquids on the gas valve (electric connections side).

SIT 848 GAS Valve

Risk of material damage after using sprays and liquids to search for leaks
Leak sprays and liquids clog the venting hole (Ref. 4 and 7 Fig. 72) of the gas valves, damaging it irreparably.
During installation and maintenance, do not use spray or liquids on the gas valve (electric connections side).

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

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

4.2 INITIAL CHECK

Commissioning the appliance requires you to:

- check that there are the declaration of conformity and relative annexes mandatory for the installation as set forth by relevant legislation in force;
- ensure that the type of gas used corresponds to the appliance 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 the cooling appliance pressure gauge reads a pressure of 1-1.2 bar;
- switch the appliance on and check correct ignition;
- check the proper calibration of the number of fan revolutions;
- check the CO_2/O_2 in the flue gas at maximum and minimum flow rate;
- the values comply with the relevant tables (Par. 4.3);
- fill in and affix the installation information sticker on the appliance next to the data nameplate, with the same data as in this instruction manual (Par. 1.2) on the facsimile of the sticker;
- check activation of the safety device in the event of no gas, as well as the relative activation time;
- check the activation of the main switch located upstream of the appliance;
- check that the intake and/or exhaust terminals are not blocked;
- ensure activation of all adjustment devices;
- seal the gas flow regulation devices (if the settings are changed);
- ensure production of domestic hot water;
- check the tightness of the hydraulic circuits;
- check ventilation and/or aeration of the installation room where provided;

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

4.3 YEARLY APPLIANCE CHECK AND MAINTENANCE

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

- Clean the flue side of the heat exchanger.
- Clean the main burner.
- Check the correct positioning, integrity and cleanliness of the detection and ignition electrode; remove any oxide present.
- If deposits are detected in the combustion chamber they must be removed and the heat exchanger coils must be cleaned using nylon or broomcorn brushes; it is forbidden to use brushes made of metal or other materials that may damage the combustion chamber. It is also forbidden to use alkaline or acid detergents.
- Check the integrity of the insulating panels inside the combustion chamber and if damaged replace them.
- Visually check for water leaks or oxidation from/on connections and traces of condensate residues inside the sealed chamber.
- Check the contents of the condensate drain trap.
- Visually check that the siphon is properly filled with condensate and top it up if necessary.
- Check that there are no material residues in the condensate drain siphon clogging the condensate passage; also check that the entire condensate drainage circuit is clear and efficient.
- In the event of obstructions (dirt, sediment, etc.) with consequent leakage of condensate in the combustion chamber, one must replace the insulating panels.
- Every time the gas manifold is opened, the condition and integrity of the ceramic fibres must be verified and replaced, if necessary. The gas manifold gasket, on the other hand, must be replaced every 4 years. After replacing the external silicone gasket, it is mandatory to check the fume tightness.
- Check that the burner is intact, that it has no deformations or cuts and that it is properly fixed to the gas manifold; otherwise it must be replaced.
- Visually check that the water safety drain valve is not blocked.
- Check that, after discharging the system pressure and bringing it to zero (read on boiler pressure gauge), the expansion vessel pressure is at 1.0 bar.
- Check that the system static pressure (with system cold and after refilling the system by means of the filling valve) is between 1 and 1.2 bar.
- Check visually that the safety and control devices have not been tampered with and/or shorted, in particular:
- the power supply wires must be housed in the cable glands;
- there must be no traces of blackening or burning.
- Check correct lighting and operation.
- Check the CO_2/O_2 by using the chimney sweep function at the three reference heat outputs, using the parameters in the table of Par. .. If values outside the indicated tolerances are detected, recheck the calibration (see Par. .).
- Check correct operation of control and adjustment devices and in particular:
  - system regulation probes intervention;
  - Domestic hot water control thermostat intervention.
- Check sealing efficiency of gas circuit and the internal system.
- Check the intervention of the device against no gas ionisation flame control. Intervention time must be less than 10 seconds.

If the flue gas non-return valve in the flues must be removed to inspect and clean it, temporarily plug the exhaust pipe connected to the collective flue. This prevents the return of fumes from the other appliances connected to the flue itself.

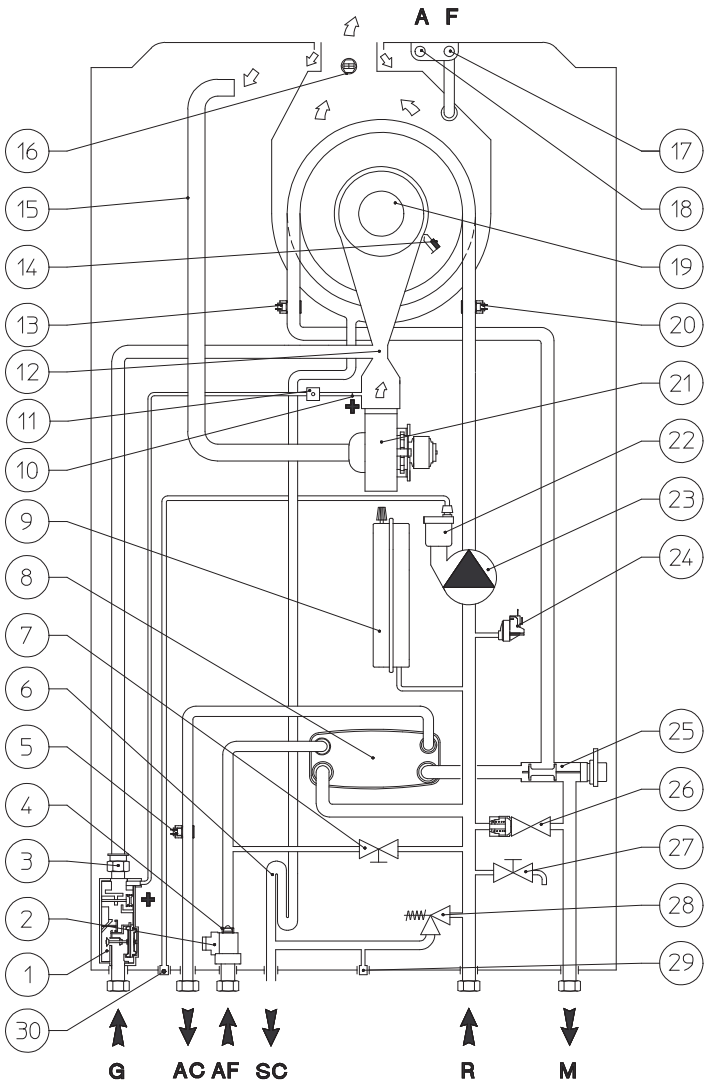
In the case of an annual inspection of the device, the max CO must be less than 700 ppm (0% O_2). If the CO value is higher, the device requires maintenance/repair.
Following maintenance/repair work, the maximum CO must be less than 500 ppm.

If a Hydrogen ready installation is planned for H_2 percentages up to 20%, (referring to the gas distributed in the network) all calibration of the gas valve must refer to the O_2 values in the table in Par.5.2.

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

In the nominal heat output regulation, if the O_2 values are not reached with gas flow regulator fully open (indicated in the table in Parag.5.2), no further adjustments are necessary.

4.4 HYDRAULIC DIAGRAM

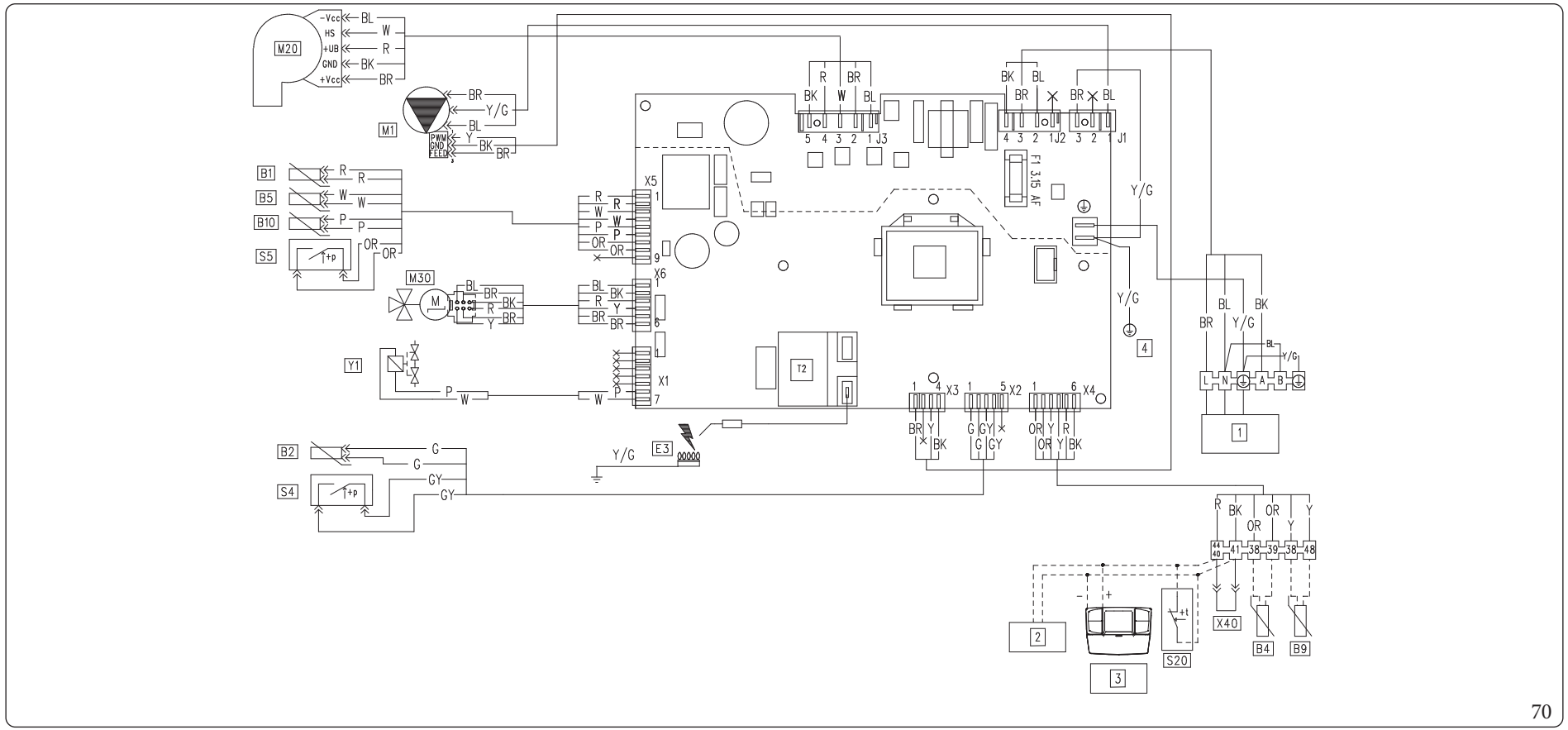


69

Key (Fig. 69)

1 - Gas valve
2 - D.H.W. flow switch
3 - Gas nozzle
4 - Flow limiter
5 - D.H.W. probe
6 - Condensate drain trap
7 - System filling valve
8 - D.H.W. heat exchanger
9 - System expansion vessel
10 - Positive (+) pressure point
11 - Pressure signal vent fitting
12 - Venturi
13 - Flow probe
14 - Ignition / detection electrode
15 - Air intake pipe
16 - Flue probe
17 - Flue sample point
18 - Air sample point
19 - Burner
20 - Return probe
21 - Fan
22 - Air vent valve
23 - Boiler circulating pump
24 - Absolute pressure switch
25 - 3-way valve (motorised)
26 - By-pass
27 - System draining valve
28 - 3 bar safety valve
29 - 3 bar safety valve drain fitting signal
30 - Air vent valve drain

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



70

Key (Fig. 70):

B1	-	*Flow probe*
B2	-	*D.H.W. probe*
B4	-	*External probe (optional)*
B5	-	*Return probe*
B9	-	*DHW inlet probe (optional)*
B10	-	*Flue probe*
CAR^{V2}	-	*Comando Amico Remoto ^{V2} remote control (optional)*
E3	-	*Ignition and detection electrode*
M1	-	*Boiler circulating pump*
M20	-	*Fan*
M30	-	*Three-way stepper motor*
S4	-	*D.H.W. flow switch*
S5	-	*System pressure switch*
S20	-	*Room thermostat (optional)*
T2	-	*Ignition transformer*
X40	-	*Room thermostat link*
Y1	-	*Gas valve*

Colour code key (Fig. 70):

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

1	-	*230 Vac - 50Hz Power supply*
2	-	*IMG BUS (optional)*
3	-	*CARV$_2$*
4	-	*Earth - Frame*

Comando Amico Remoto^{V2}: the boiler is prepared for the application of the Comando Amico Remoto remote control ^{V2} (CAR^{V2}), which must be connected to clamps 41 and 44/40 of the terminal board (located in the boiler control panel) respecting the polarity and eliminating link X40.

Room thermostat: the boiler is prepared for the application of the room thermostat (S20), which must be connected to clamps 44/40 - 41 of the terminal board (located in the boiler control panel) eliminating link X40.

4.6 TROUBLESHOOTING

⚠ Maintenance operations must be carried out by an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

Trouble	Possible causes	Solutions
Smell of gas	Caused by leakage from gas circuit pipelines.	Check sealing efficiency of gas intake circuit.
Repeated ignition blocks	No gas. Condensate drain clogged.	Check the presence of pressure in the network and that the gas adduction valve is open. Restore the function of the condensate drain, checking that the condensate has not affected: combustion components, fan and gas valve.
Irregular combustion or noisiness	Dirty burner, clogged primary heat exchanger, incorrect combustion parameters, intake-exhaust terminal not correctly installed.	Check the indicated components.
Frequent trips of the overheating safety device thermostat function.	Lack of water in the appliance, little water circulation in the system or blocked pump (Par.1.37).	Check on the pressure gauge that the system pressure is within established limits. Check that the radiator valves are not closed and also the functionality of the pump.
Siphon blocked	Dirt or combustion products deposited inside.	Check that there are no residues of material blocking the flow of condensate.
Heat exchanger blocked.	This may be caused by the drain trap being blocked.	Check that there are no residues of material blocking the flow of condensate.
Abnormal noises in the system	Air in the system.	Check opening of the special air vent valve cap (Par.1.39). Make sure the system pressure and expansion tank factory-set pressure 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.
Abnormal noises in the condensation module	Air in the module.	Use the manual air vent valve (Parag. 1.39) to remove any air inside the condensation module. When the operation has been performed, close the manual air vent valve.
Poor production of D.H.W.	Clogged condensing module or D.H.W. exchanger.	Contact After-Sales Assistance Service that has procedures to clean the module or D.H.W. heat exchanger.

4.7 CONVERTING THE APPLIANCE TO OTHER TYPES OF GAS

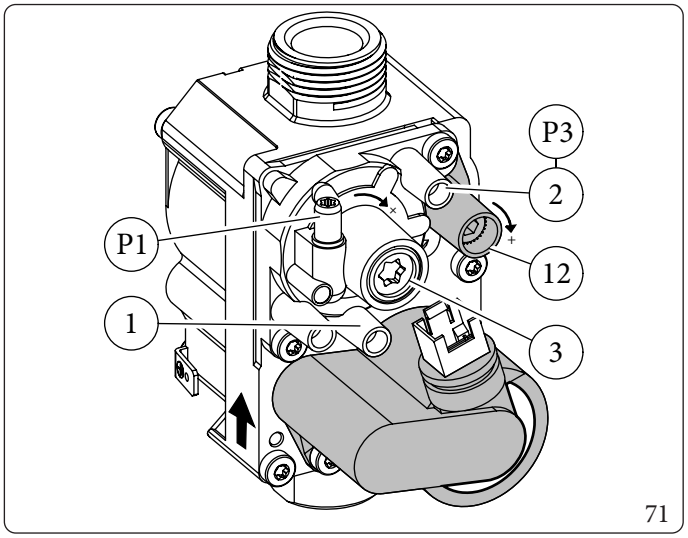
The gas conversion operation must be carried out by an authorised company (e.g. Authorised Technical Assistance Service).

If the appliance needs to be converted to a different gas type to that specified on the data plate, request the relative conversion kit for quick and easy conversion.
To convert to another type of gas the following operations are required:

- Disconnect power to the appliance;
- Replace the nozzle (Part 9, Fig. 61), taking care to disconnect the voltage to the appliance during this operation;
- Re-power the appliance;
- Calibrate fan speed (Par. 4.8);
- Adjust the CO_2/O_2 (Par. 4.9).
- Seal the gas flow rate regulation devices (if settings are modified);
- After completing the conversion, apply the sticker, contained in the conversion kit, on the data plate (Fig. 2) in the area relating to the type of gas. 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 (Parag. 5.2).

PX42 Gas Valve

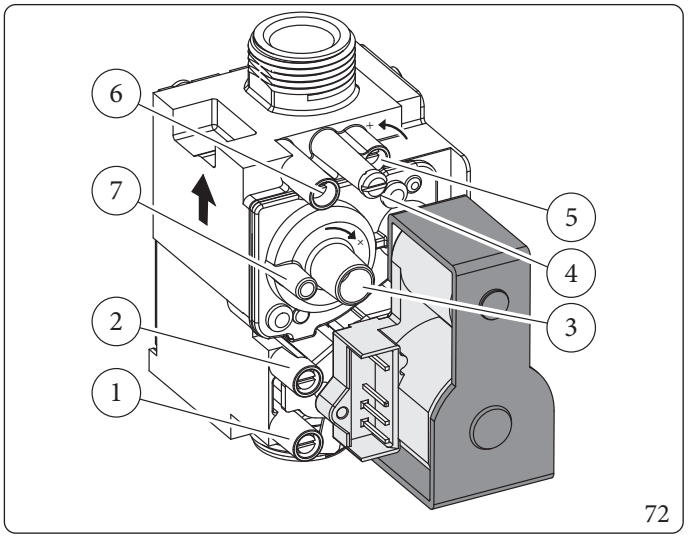


71

Key (Fig. 71)

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

SIT 848 GAS Valve



72

Key (Fig. 72)

1 - Gas valve inlet pressure point
2 - Offset measurement pressure point
3 - Offset adjustment screw (under the cap)
4 - Venting with protection cap
5 - Gas flow rate adjustment screw
6 - Gas valve outlet pressure point Pout
7 - Air signal connection point (internal venting hole)

4.8 FAN SPEED CALIBRATION

Verification and calibration are necessary, in the case of transformation to other types of gas, in the extraordinary maintenance phase with replacement of the PCB, air/gas circuit components or in the case of installations with flue extraction systems, with horizontal concentric pipe measuring more than 1 metre.

The appliance's heat output is correlated to the length of the air intake and flue exhaust pipes.
This decreases with the increase of pipe length.
The appliance leaves the factory adjusted for minimum pipe length (1m coaxial).

- Activate flue test (Par. 4.14);
- Detect the flue signal ΔP (Ref. 14, Fig. 61);
- When replacing the P.C.B. or adapting to another type of gas, set the parameters "S0" and "S2" as shown in the table in the paragraph "3.4 Parameters menu, information and P.C.B. programming" and the "S1" parameter as shown in the table below.
- When replacing the P.C.B. or adapting to another type of gas, set the heating output (parameter "P2") as shown in the table in the paragraph "3.4 Parameters menu, information and P.C.B. programming".

(*) The values shown in the table are parameters to be multiplied by 50 to obtain the actual speed in rpm.

VICTRIX TERA V3 28 E

	ΔP < 210 Pa	**210 Pa ≤ ΔP < 280 Pa**	**280 Pa ≤ ΔP < 370 Pa**	**ΔP ≥ 370 Pa**
G20 (*)	S0 = 27			
	S1 = 120	S1 = 124	S1 = 128	S1 = 130
	S2 = 68	S2 = 60	S2 = 50	
G31 (*)	S0 = 27			
	S1 = 120	S1 = 124	S1 = 128	S1 = 130
	S2 = 60			

Installation $C_{(10)}$ - $C_{(12)}$

	ΔP < 285 Pa	**ΔP ≥ 285 Pa**
G20 (*)	S0 = 44	
	S1 = 124	S1 = 126
	S2 = 48	

4.9 CO_2/O_2 REGULATION

The verification operations of the CO_2/O_2 must be carried out with the casing mounted, while the gas valve calibration operations must be done with the casing open.

The calibrations described below must be carried out in the correct sequence and more precisely, first the calibration of the CO_2/O_2 at maximum output and then the calibration of the CO_2/O_2 at minimum output.

- **PX42 Gas Valve**

Calibration of the CO_2 at maximum output

Enter the chimney sweep mode without withdrawing DHW and set the output to maximum (99%).
To have an exact value of CO_2 in the flue, 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 (Ref. Par. 5.2), otherwise adjust the screw (Part. 12, Fig. 71) (gas flow rate regulator).
To increase the CO_2 value, turn the adjustment screw (Part. 12, Fig. 71) clockwise and vice-versa to decrease it.
At every adjustment variation on the screw (Part. 12, Fig. 71), it is necessary to wait for the boiler to stabilise itself at the value set (about 30 sec.).

Calibration of the CO_2 at minimum output

After setting the CO_2 to maximum power while keeping the chimney sweep function active and without drawing domestic water, set the output to minimum (0%).
To have an exact value of CO_2 in the flue, 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 (Ref. Parag. 5.2), otherwise adjust the screw (Part. 3, Fig. 71) (Offset regulator) after removing the cover cap.
To increase the CO_2 value, turn the adjustment screw (Part. 3, Fig. 71) clockwise and vice-versa to decrease it.

In the case where the calibration refers to O_2 the adjustment logic is reversed from the above for CO_2.

- **Gas Valve 848**

Calibration of the CO_2 at maximum output

Enter the chimney sweep mode (Par. 4.16) without withdrawing DHW and set the output to maximum (99%).
To have an exact value of CO_2 in the flue, 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 (Ref. Par. 5)2, otherwise adjust the screw (Det. 5, Fig. 72) (gas flow rate regulator).
To increase the CO_2 value, turn the adjustment screw (Part. 5, Fig. 72) anti-clockwise and vice-versa to decrease it.
At every adjustment of the adjustment screw (Det. 5, Fig. 72), it is necessary to wait for the boiler to stabilise itself at the value set (about 30 sec.).

Calibration of the CO_2 at minimum output

After setting the CO_2 to maximum power while keeping the chimney sweep function active and without drawing domestic water, set the output to minimum (0%).
To have an exact value of CO_2 in the flue, 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 table (Ref. Par. 5.2), otherwise adjust the screw (Part. 3, Fig. 72) (Offset regulator) after removing the cover cap.
To increase the CO_2 value, turn the adjustment screw (Part. 3, Fig. 72) clockwise and vice-versa to decrease it.

In the case where the calibration refers to O_2 the adjustment logic is reversed from the above for CO_2.

4.10 CHECKS FOLLOWING CONVERSION TO ANOTHER TYPE OF GAS

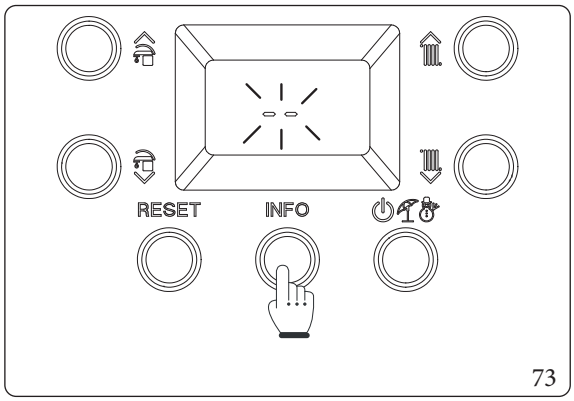
After making sure that conversion was carried out with a nozzle of suitable diameter for the type of gas used and the settings are made at the correct pressure, check that the burner flame is not too high or low and is stable (does not detach from burner).

Maintenance operations must be carried out by an authorised company (e.g. Authorised After-Sales Technical Assistance Centre).

4.11 PASSWORD-PROTECTED SPECIAL FUNCTIONS

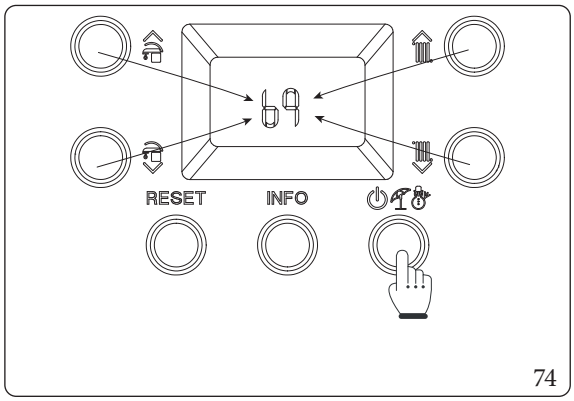
The appliance is equipped with some special functions, access to which is granted if this is in stand-by ( ).

If the appliance is connected to the CAR^{V2}, the "stand-by" function is only obtained via the remote control panel.



73

Press and hold the " INFO " button for more than 5 seconds.
The display will show two dashes "--" flashing.
Now enter the password ( ) to access the programming menus.



74

To enter the first digit use the buttons to adjust the DHW " ", to enter the second digit use the buttons to adjust the central heating temperature " ".
To confirm the password and access the menu, press the operating mode button " "

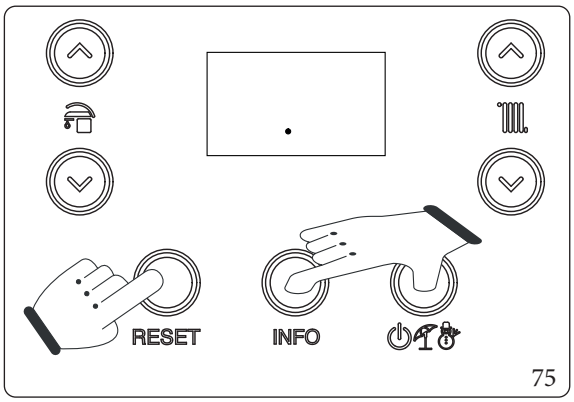
Once you have entered the menu, you can cycle through the three available functions (dI, MA, FU) by pressing the domestic water buttons " ". To enter the menu, press the " " button; to exit, wait 15 minutes or press the " RESET " button.

4.12 SCREED HEATER

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

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

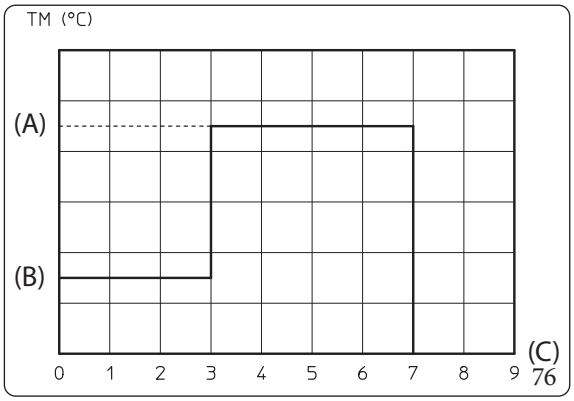
To be able to activate the function there must be no remote control connected, while in case of system divided into zones it must be properly connected, both hydraulically and electrically.



75

The function is activated from boiler in "off" by pressing and holding the "RESET", "INFO" and "⏻" buttons for more than 5 seconds.

The function lasts in total 7 days, 3 days at the lower temperature set and 4 days at the higher temperature set (Fig. 76).
After activating the function, the lower set (range 20 ÷ 45 °C default = 25 °C) and the higher set (range 25 ÷ 55 °C default = 45 °C) appear in sequence.
The temperature is selected by means of the buttons "i" and confirmed by pressing the button "⏻".
The display now shows the countdown of days alternated with the current flow temperature, as well as the normal operating symbols of the boiler.
In case of failure or lack of supply voltage, the function is suspended and will resume when the normal operating conditions are reset from the point where it was interrupted.
When the time expires, the boiler automatically goes back to "Stand-by" mode, the function can also be stopped by pressing the button "⏻".



76

Key (Fig. 76):
(A) - Top set
(B) - Lower set
(C) - Days
TM - Flow temperature

4.13 AUTOMATIC VENT FUNCTION (DL)

In the case of new central heating systems and in particular mode for floor systems, it is very important that deaeration is performed correctly. The function consists of cyclical activation of the pump (100 seconds ON, 20 seconds OFF) and the 3-way valve (120 seconds domestic hot water, 120 seconds heating).
The function is activated by accessing the special "dl" function as described in the Paragraph 4.11.
The function lasts for 16.5 hours and it can be stopped by simply pressing the button "RESET".
Activation of the function is signalled by the countdown shown on the indicator (Fig. 62).

4.14 FLUE INSTALLATION (FU)

To activate the "Flue" function access the special functions as described in Paragraph 4.11 and select the "FU" function.

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

Using this function activates the fan at a fixed speed (6000 rpm) for 15 minutes.
In this phase the symbols ( ) and ( ) are displayed flashing, while the symbol ( ) is displayed permanently on, the function can be stopped by simply pressing the button "RESET".

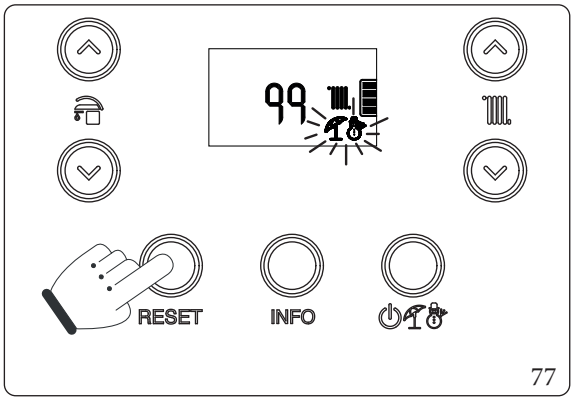
4.15 MAINTENANCE FUNCTION (MA)

Using this function, you can activate some operating devices of the appliance without starting it, thus verifying operation.
The function is active for 15 minutes and it can be stopped by pressing the button "RESET".
To activate the "Maintenance" function, access the special functions as described in Paragraph 4.11 and select the "MA" function.
The following loads can be activated within this function:

- Fan (Fn): the fan is brought to ignition speed. Using the buttons " " you can increase or decrease the fan speed.
- Circulator (Pu): the circulator is brought to maximum speed, the relative speed is shown on the display, using the buttons " " you can increase or decrease the circulator speed.
- Three-way (3d): the symbol is shown on the display according to the position of the valve, DHW ( ) or central heating ( ), using the buttons " " you can change the valve position, taking care to wait for the completion of passage between statuses.
- Configurable relay (rl): the configurable relay in the boiler is energised.

4.16 CHIMNEY SWEEP

When activated, this function forces the boiler to variable output for 15 minutes.
In this state all adjustments are excluded and only the safety thermostat and the limit thermostat remain active.



77

To activate the chimney sweep function, press the "RESET" button until activation of the function in the absence of DHW requests.
Its activation on the boiler display is confirmed by the indicators flashing at the same time (Fig. 62).

This function allows the technician to check the combustion parameters.
Once the function is activated, it is possible to select whether to make the check in CH status or DHW status by opening any hot water valve.
Using the buttons "⚙" you can select between three predefined power levels:
- "0%";
- Max CH output (P2);
- Max DHW output (P0).

While by using the buttons "⚙" you can select the power from 0% to max DHW output (P0), with intervals of 1%.
The central heating or DHW operating mode is displayed by the relative symbols " " or " ".
After the checks, deactivate the function by switching the boiler off and then back on again.

4.17 SOLAR PANELS COUPLING

The device is set up to receive pre-heated water from a system of solar panels up to a maximum temperature of 65°C. In any case, it is always necessary to install a mixing valve on the hydraulic circuit upstream of the device, on the cold water inlet.
To optimise the operation, where the probe is not already fitted on the boiler, the solar inlet probe kit is available on request (see wiring diagram Fig. 70):

- If there is no probe kit, it is advisable to set parameter A6 (DHW thermostat) at "1";
- Otherwise, where the kit is installed or the probe is already present in the boiler, parameter A6 must be left at "0". This kit allows connecting a probe on the domestic cold water inlet pipe of the boiler to prevent unnecessary ignitions in systems with water heating through solar systems or alternative sources. The boiler will not turn on if the inlet water is sufficiently hot.

In both conditions (probe present or not), we recommend setting parameter t3 (solar delay timing) at a time sufficient to let the water inside the D.H.W. circuit upstream of the boiler drain.
The greater the distance from the storage tank, the longer wait time will have to be set.
With these adjustments made, when a domestic withdrawal is requested, once the time set on parameter "t3" has passed, if the water entering the boiler is at a temperature that is equal to or greater than that set, the boiler will not turn on.

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

4.18 PUMP ANTI-BLOCK

The appliance has a function that starts up the pump at least once every 24 hours for 30 seconds in order to reduce the risk of the pump locking up due to prolonged inactivity.

4.19 THREE-WAY ANTI-BLOCK

Both in "Domestic hot water" and in"Domestic hot water-Central heating" phase the appliance 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.

4.20 RADIATOR ANTIFREEZE

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

4.21 CASING REMOVAL

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

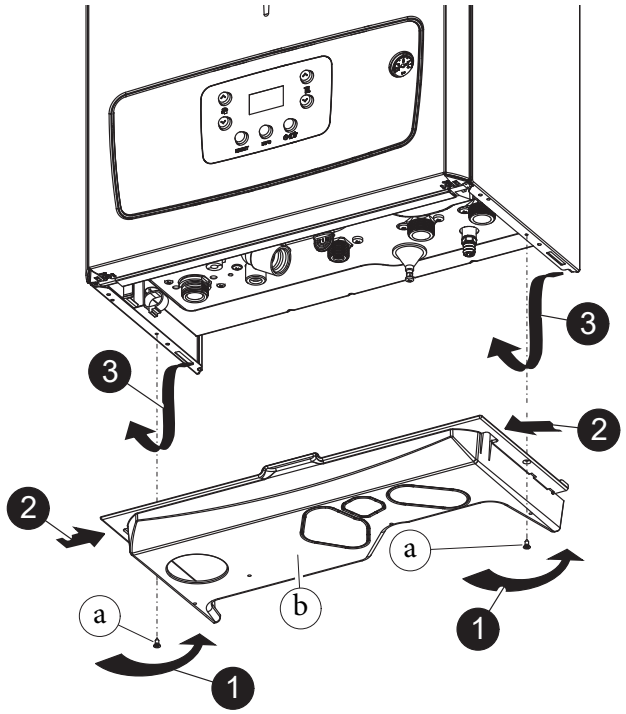
Lower grid (Fig. 78)

- Loosen the two screws (a);
- Press the hooks inwards, which block the lower grid (b).
- Remove the grid (b).

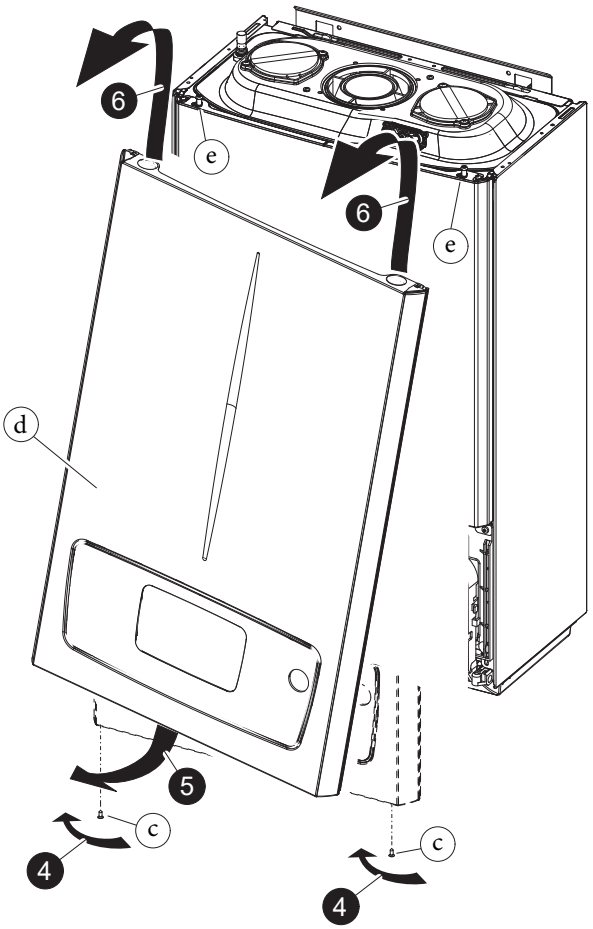
Front casing (Fig. 79)

- Loosen the screws (c).
- Pull the front casing (d) towards yourself from the underside to release it from the control panel.
- Lift the front casing and remove it from the upper pins (e).

To reattach the front, proceed in reverse order, taking care to press around the area of the keys to reattach the front.



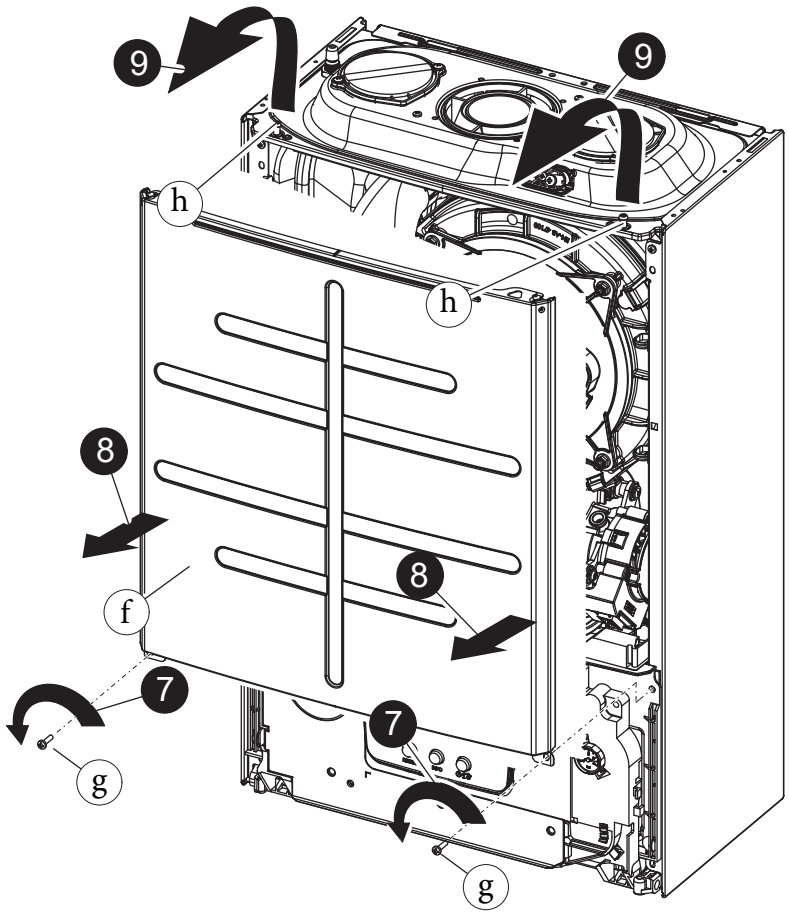
78



79

Insulating panel (Fig. 80)

- Loosen the two screws at the bottom of the sides of the panel (g).
- Pull the panel (f) slightly towards you.
- Release the panel (f) from pins (h) pulling it towards you while pushing it upwards.



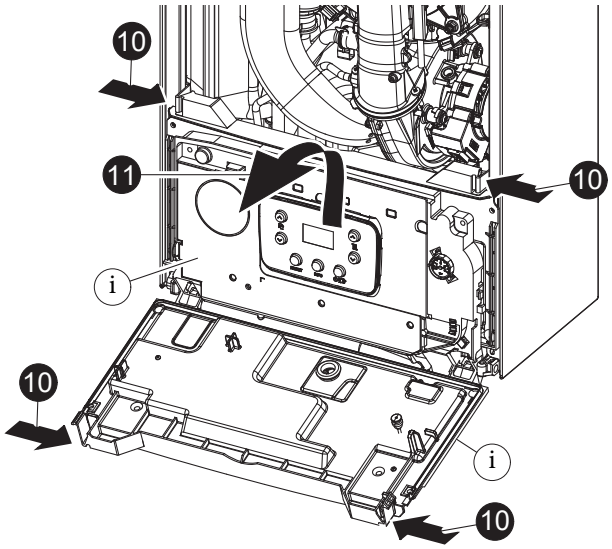
80

Control panel (Fig. 81)

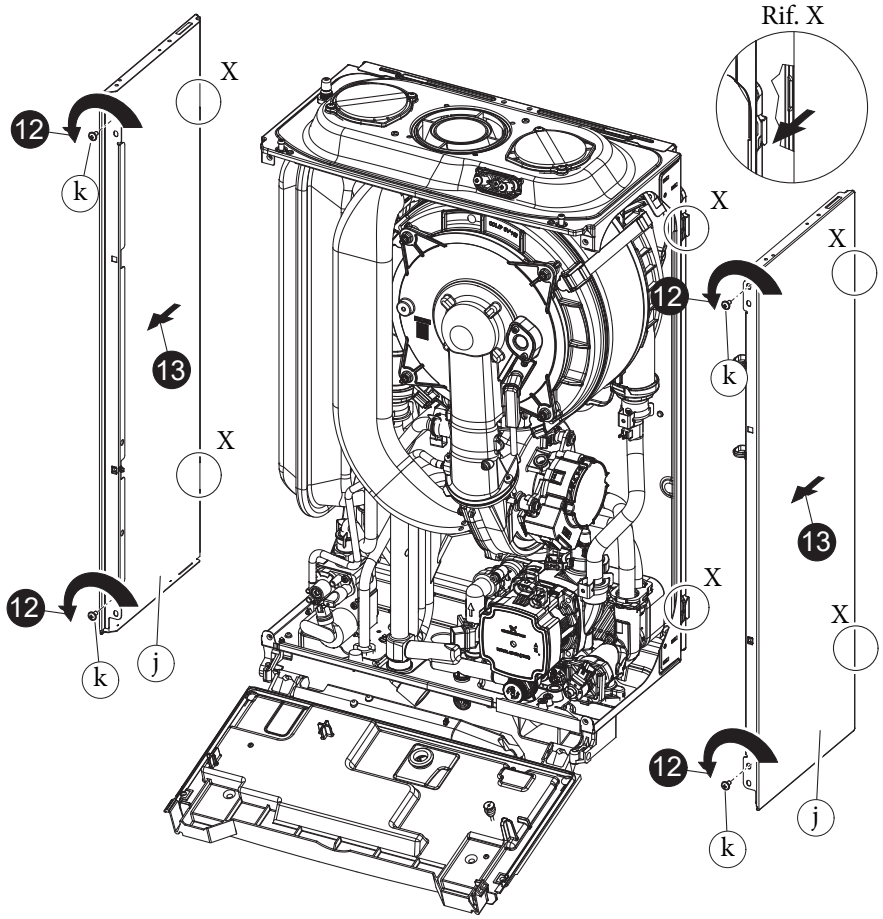
- Press the hooks on the side of the control panel (i).
- Tilt the control panel (i) towards you.

Sides (Fig. 82)

- Loosen screws (k) of side fastening (j).
- Remove the sides by extracting them from their rear seat (Ref. X).



81



82

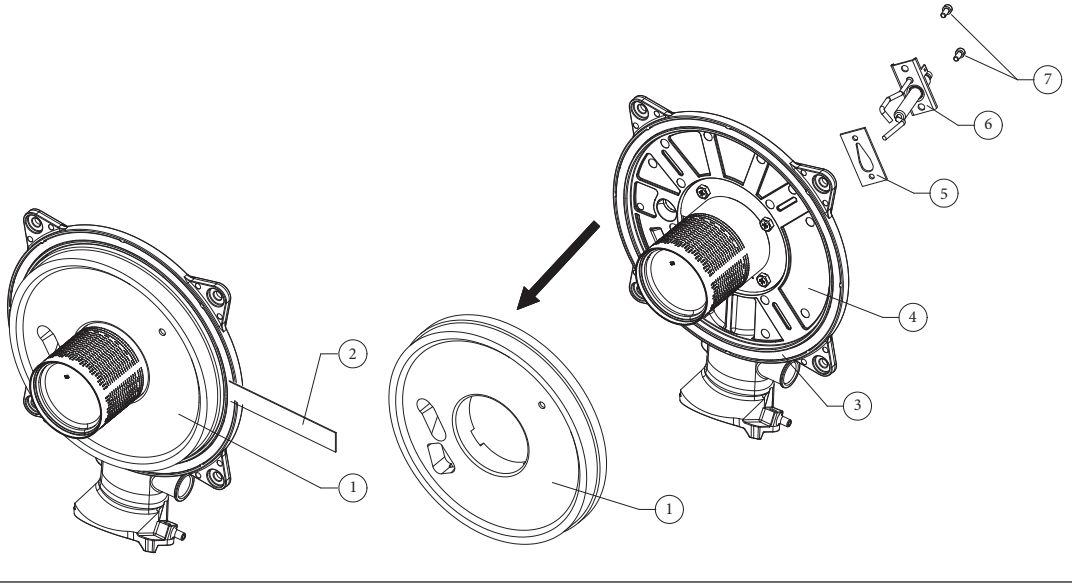
4.22 REPLACING THE MANIFOLD INSULATING PANEL

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

1. To access the inside of the appliance, remove the casing as indicated in Paragr. 4.21.
2. Loosen the 4 manifold fastening nuts (1, Fig. 83) and gently pull it out at a right angle towards you.
3. Unscrew the fixing screws (7) of the ignition and detection electrode (6) and remove it.
4. Remove the insulating panel (1) by actuating a blade (2) under its surface.
5. Remove the residue of the fixing adhesive from the surface of the manifold (4).
6. Replace the insulating panel (1).

The new insulating panel, used as a spare to replace the removed one, does not need to be fixed with glue as its shape with the interference on the burner ensures correct coupling with the manifold.

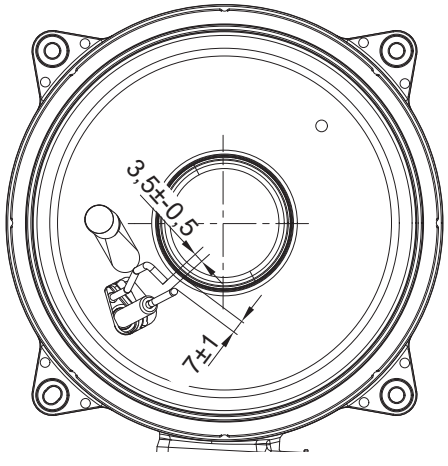
7. Refit the ignition and detection electrode (6) using the previously removed screws (7) and replace the relative gasket (5).



83

Electrode distance

To regain optimal operation, make sure that the following variables are respected when refitting the electrodes.



84

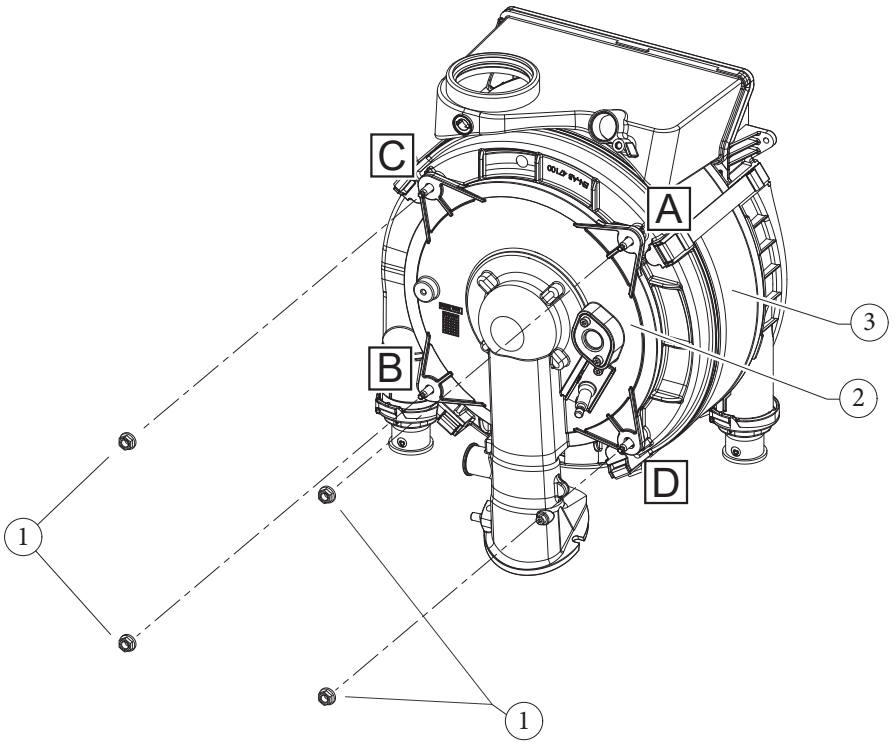
4.23 ASSEMBLING THE MANIFOLD ON THE CONDENSATION MODULE

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

Every time the manifold is opened, it is necessary to check the condition and integrity of the insulating panels and gaskets and replace them if necessary. The replacement of the manifold seal (3, Fig. 83) and of the manifold insulating panel (4, Fig. 83) must however be carried out every 4 years.
After each opening of the collector, it is mandatory to check the flue gas gasket.

1. Position the manifold (2, Fig. 85) on the module (3, Fig. 85).
2. Tighten the 4 nuts (1, Fig. 85) on the condensing module (3, Fig. 85) following the sequence (A, B, C, D in Fig. 85) indicated in the drawing.

The tightening torque when assembling the manifold (2) on the condensation module (3) must be **6 ± 0.5 Nm.**



85

5 TECHNICAL DATA

5.1 VARIABLE HEAT OUTPUT

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

VICTRIX TERA V3 28 E

			METHANE (G20)			PROPANE (G31)		
FLOW RATE OUTPUT	HEAT OUTPUT		FAN REVS		GAS FLOW RATE BURNER	FAN REVS		GAS FLOW RATE BURNER
(kW)	(kW)		(rpm)	(%)	(m^3/h)	(rpm)	(%)	(kg/h)
28,7	28,0	D.H.W.	6000	100	3,04	6000	100	2,23
24,6	24,0	HEAT. + D.H.W.	5200	83	2,60	5200	83	1,91
23,5	22,9		5000	79	2,49	5000	79	1,83
22,0	21,5		4725	73	2,33	4725	73	1,71
21,0	20,5		4525	68	2,22	4525	68	1,63
19,5	19,0		4250	63	2,06	4250	63	1,51
18,0	17,6		3950	56	1,90	3950	56	1,40
17,0	16,6		3775	52	1,80	3775	52	1,32
15,5	15,2		3475	46	1,64	3475	46	1,20
14,4	14,1		3275	42	1,52	3275	42	1,12
13,0	12,7		3025	36	1,38	3025	36	1,01
12,0	11,7		2825	32	1,27	2825	32	0,93
10,5	10,2		2550	26	1,11	2550	26	0,82
9,5	9,2		2350	22	1,01	2350	22	0,74
8,0	7,7		2075	16	0,85	2075	16	0,62
6,5	6,3		1775	9	0,69	1775	9	0,50
5,5	5,3		1600	5	0,58	1600	5	0,43
4,2	4,0		1350	0	0,44	1350	0	0,33

5.2 COMBUSTION PARAMETERS

Combustion parameters: measuring conditions of useful efficiency (flow temperature/return temperature= 80/60 °C), ambient temperature reference = 20 °C.

In case of using G20Y20 mixtures with percentages of H_2 up to 20% (referring to the gas distributed in the network), all calibration operations of the appliance must refer to the O_2 values of G20 gas reported in the following tables.

Gas type		G20	G31
Supply pressure	mbar	20,0	37,0
Gas nozzle diameter	mm	4,90	3,70
Flue flow rate at D.H.W. nominal heat output	kg/h	46	48
Flue flow rate at heating nominal heat output	kg/h	40	41
Flue flow rate at minimum heat output	kg/h	7	7
CO_2 at Nominal Q. O_2 at Nominal Q.	%	9,2 (9,0 ÷ 9,4) 4,4 (4,8 ÷ 4,1)	10,2 (10,0 ÷ 10,4) 5,3 (5,6 ÷ 5,0)
CO_2 at Minimum Q. O_2 at Minimum Q.	%	8,5 (8,3 ÷ 8,7) 5,7 (6,0 ÷ 5,3)	9,7 (9,5 ÷ 9,9) 6,1 (6,4 ÷ 5,8)
CO with 0% O_2 at Nom./Min. Q.	ppm	233 / 4	234 / 8
NO_x with 0% O_2 at Nom./Min. Q.	mg/kWh	56 / 19	42 / 32
Flue temperature at nominal output	°C	82	83
Flue temperature at minimum output	°C	71	71

5.3 TECHNICAL DATA TABLE

		VICTRIX TERA V3 28 E	
DHW nominal heat input (Qnw)	kW	28,7	
Central heating nominal heat input (Qn)	kW	24,6	
Minimum heat input (Qmin)	kW	4,2	
DHW nominal heat input with G20Y20 gas (Qrnw)	kW	27,4	
Central heating nominal heat input with G20Y20 gas (Qrn)	kW	23,3	
Minimum heat input with G20Y20 gas (Qrmin)	kW	4,2	
Domestic hot water nominal heat output (useful) (Pnw)	kW	28,0	
Central heating nominal heat output (useful) (Pn)	kW	24,0	
Minimum heat output (useful) (Pmin)	kW	4,0	
Domestic hot water nominal heat output with G20Y20 gas (useful) (Prnw)	kW	26,7	
Central heating nominal heat output with G20Y20 gas (useful) (Prn)	kW	22,7	
Minimum heat output with G20Y20 gas (useful) (Prmin)	kW	4,0	
*Effective thermal efficiency 80/60 Nom./Min.	%	97,5 / 96,3	
*Effective thermal efficiency 50/30 Nom./Min.	%	106,7 / 105,7	
*Effective thermal efficiency 40/30 Nom./Min.	%	107,6 / 108,0	
Efficiency at 100% heat output (η100) ref. UNI EN 15502-1	%	97,8	
Efficiency at partial heat load (η30) ref. UNI EN 15502-1	%	109,4	
Casing losses with burner On/Off	%	0,33 / 0,10	
Chimney losses with burner Off/On	%	0,04 / 2,40	
Maximum heating temperature	°C	90	
Adjustable central heating temperature (min. operating field)	°C	20	
Adjustable central heating temperature (max operating field)	°C	85	
System expansion vessel nominal volume	l	8,0	
System expansion vessel useful volume	l	3,1	
System expansion vessel total volume	l	4,9	
Expansion vessel pre-charged pressure	bar	1,0	
Appliance water content	l	2,3	
Domestic hot water adjustable temperature	°C	30 / 60	
Central heating circuit max. operating pressure	bar	3,0	
Domestic hot water circuit min. pressure (dynamic)	bar	0,3	
Domestic hot water circuit max. operating pressure	bar	10,0	
Flow rate capacity in continuous duty (ΔT 30°C)	I/min	14,1	
Weight of full boiler	kg	36,6	
Weight of empty boiler	kg	31,2	
Electrical connection	V/Hz	230 / 50	
Nominal absorbed current	A	0,81	
Installed electric power	W	85	
Equipment electrical system protection	IP	X5D	
Ambient operating temperature range	°C	-5 ÷ 40	
Ambient operating temperature range with antifreeze kit (optional)	°C	-15 ÷ 40	
Relative humidity range (min/max)	%	10 / 90	
NO_X class	-	6	
*Weighted NO_X G20	mg/kWh	32	
Weighted CO G20	mg/kWh	19	
Weighted NO_X G31	mg/kWh	38	
Weighted CO G31	mg/kWh	26	
Type of appliance	-	B_{23} B_{23p} B_{33} B_{53} B_{53p} C_{13} C_{33} C_{43} C_{53} C_{63} C_{83} C_{93} C_{13X} C_{33X} C_{43X} C_{53X} C_{63X} C_{83X} C_{93X} $C_{(10)3}$ $C_{(12)3}$ $C_{(10)3X}$ $C_{(12)3X}$ $C_{(15)3}$ $C_{(15)3X}$	
Market	IE		MT
Category	II2HY203P		II2HY203P

* Efficiencies and weighted NOx refer to the net calorific value.
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 appliance outlet considering that to obtain the data declared mixing with cold water is necessary.
Configurations $C_{(10)3}$ and $C_{(12)3}$ are only permitted with original, approved flue system.
The appliance is suitable for operation in a $C_{(10)3}$ or $C_{(12)3}$ system only with the supply of methane gas (2H and 2E categories).

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

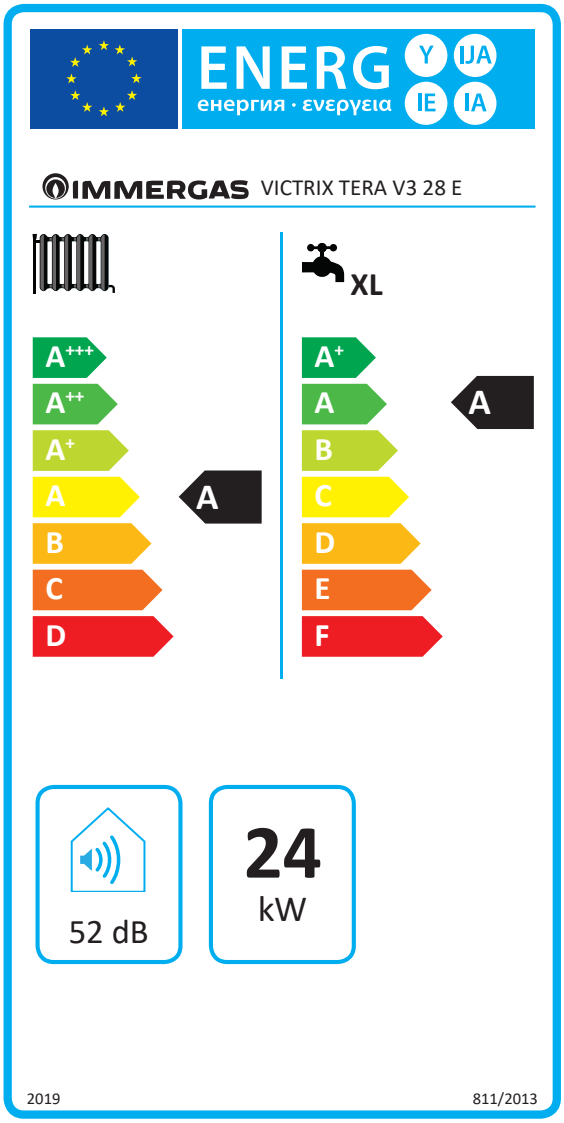
The efficiencies and NO_x values in the following tables refer to the gross calorific value.

Model	**VICTRIX TERA V3 28 E**		
Condensing Boiler	YES		
Low temperature boiler	NO		
Boiler type B1	NO		
Co-generation appliance for central heating	NO		
Mixed heating appliance	YES		
Nominal heat output	P_n	24	kW
Seasonal energy efficiency of central heating	η_S	94	%
For central heating only and combination boilers: useful heat output			
At nominal heat output in high temperature mode (*)	P_4	24,0	kW
At 30% of nominal heat output in a low temperature mode (**)	P_1	8,0	kW
For central heating only and combination boilers: useful efficiency			
At nominal heat output in high temperature mode (*)	η_4	88,1	%
At 30% of nominal heat output in a low temperature mode (**)	η_1	98,5	%
Auxiliary electricity consumption			
At full load	el_{max}	0,012	kW
At partial load	el_{min}	0,007	kW
In standby mode	P_{SB}	0,002	kW
Other items			
Heat loss in standby	P_{stby}	0,054	kW
Ignition burner energy consumption	P_{ign}	0,000	kW
Emissions of nitrogen oxides	NO_x	28	mg\kWh
For mixed central heating appliances			
Stated load profile	XL		
Domestic hot water production efficiency	η_{WH}	87	%
Daily electrical power consumption	Q_{elec}	0,110	kWh
Annual electrical power consumption	AEC	24	kWh
Daily gas consumption	Q_{fuel}	22,457	kWh
Annual gas consumption	AFC	18	GJ

(*) 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.

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

VICTRIX TERA V3 28 E



86

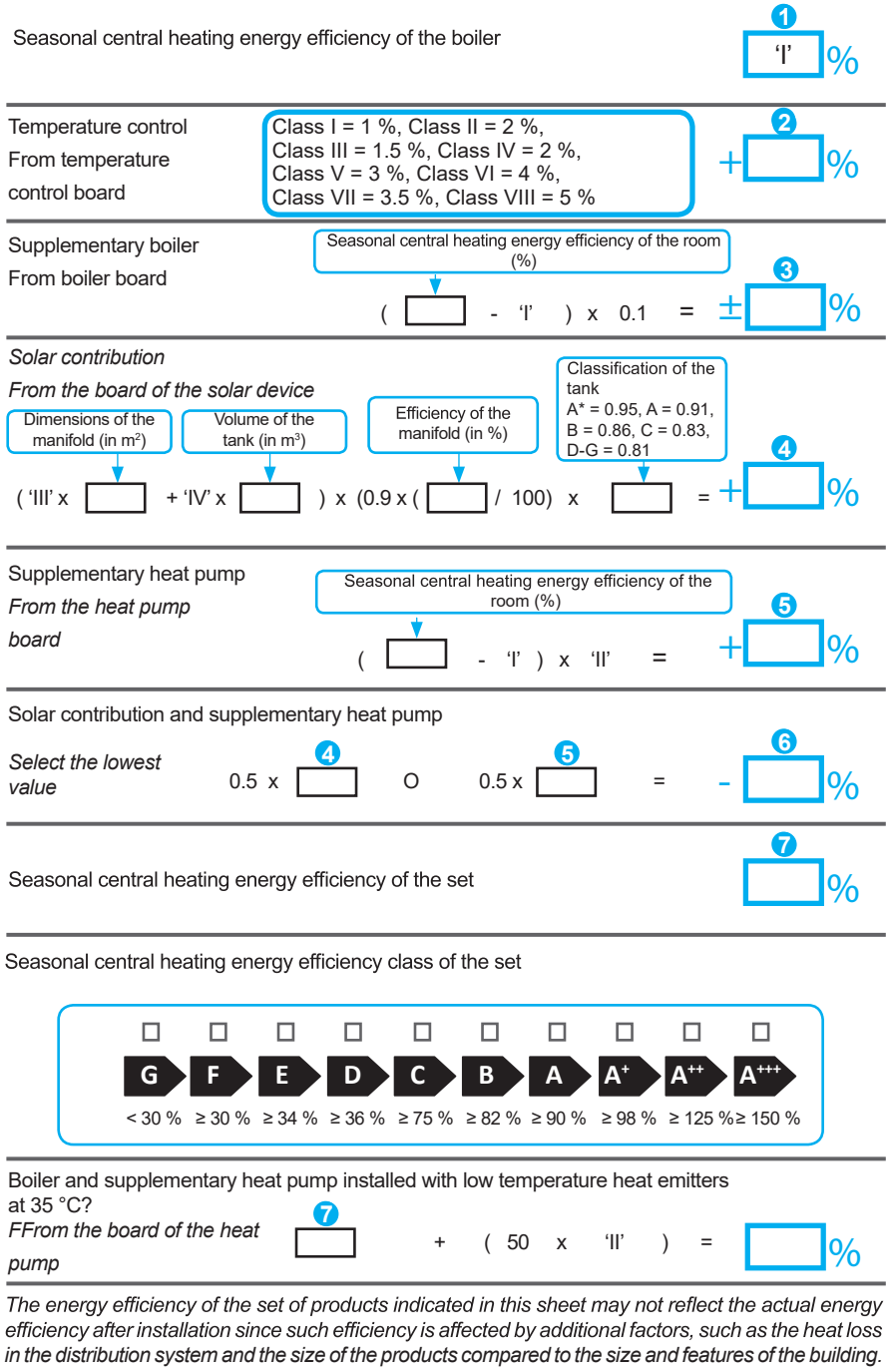
Parameter		Value
Annual energy consumption for the central heating mode (QHE)	GJ	43
Annual electricity consumption for the domestic hot water function (AEC)	kWh	24
Annual fuel consumption for the domestic hot water function (AFC)	GJ	18
Seasonal space heating energy efficiency (ηs)	%	94
Water heating energy efficiency (ηwh)	%	87

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.

5.6 PARAMETERS FOR FILLING IN THE PACKAGE FICHE

If an assembly is to be made from this device, use the assembly sheets shown in (Fig. 88 and 90).
For the correct compilation, insert into the appropriate spaces (as shown in the facsimile package fiche (Fig. 87 and 89) the values set out in the tables **"Parameters for compiling package fiche"** and **"Parameters for compiling DHW pack package fiche"**.
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. 88) for "assemblies" related to the heating function (e.g.: boiler + temperature controller).
Use sheet (Fig. 90) for "assemblies" related to the domestic hot water function (e.g.: boiler + solar thermal system).

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



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.

87

Parameters for filling in the assembly chart

Parameter	VICTRIX TERA V3 28 E
"I"	94
"II"	*
"III"	1,12
"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.*

Room central heating system package fiche.

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 of the room (%)
(____ - ____) 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
(____ x ____ + ____ x ____) x (0.9 x (____ / 100) x ____ = 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.

88

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

Water heating energy efficiency of combination 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 assembly in average climate conditions

3 ☐ %

Water heating energy efficiency class of the assembly 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.

89

Parameters for filling in the DHW package fiche

Parameter	VICTRIX TERA V3 28 E
"I"	87
"II"	*
"III"	*

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

Domestic hot water production system package fiche.

Water heating energy efficiency of combination boiler ❶ ____ %

Stated load profile: ☐

Solar contribution

From the board of the solar device

Auxiliary electricity

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

Water heating energy efficiency of the assembly in average climate conditions ❸ ____ %

Water heating energy efficiency class of the assembly 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: ❸ ____ - 0.2 x ❷ ____ = ____ %

Hotter: ❸ ____ + 0.4 x ❷ ____ = ____ %

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.

90

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IMMERGAS SPA - ITALY
CERTIFIED COMPANY
UNI EN ISO 9001:2015

Design, manufacture and post-sale assistance of gas boilers, gas water heaters and related accessories

Cod. 1.051305ENG - rev. ST.009196/004 - 07/26

This instruction booklet is made of ecological paper.

