USER'S MANUAL

IMMERGAS

Instruction and warning booklet IE

NIKE MINI 28 KW SPECIAL

1.040845ENG

Dear Customer,

Our compliments for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas Customer, you can also count on a qualified after-sales service, prepared and updated to guarantee constant efficiency of your boiler. Read the following pages carefully: you will be able to draw useful suggestions regarding the correct use of the appliance. By respecting these suggestions, you will no doubt be satisfied with your Immergas product.

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

General recommendations

All Immergas products are protected with suitable transport packaging.

The material must be stored in a dry place protected from the weather.

The instruction book is an integral and essential part of the product and must also be given to the new user in the case of transfer or succession of ownership.

It must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.

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

In compliance with the legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by an agreed company, intended as a company with specific technical skills in the system sector, as envisioned by the Law.

Improper installation or assembly of the appliance and/or Immergas 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.

Maintenance must be carried out by an authorised company. The Authorised After-sales Service represents a guarantee of qualifications and professionalism.

The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.

If errors occur during installation, operation and maintenance, due to non-compliance with technical laws in force, standards or instructions contained in this book (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damages and the appliance warranty is invalidated.

Product not intended for EU countries

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1 BOILER INSTALLATION

1.1 INSTALLATION RECOMMENDATIONS.

The Nike Mini 28 kW Special boiler has been designed for wall mounted installation only, for heating rooms and for the production of domestic hot water, for domestic use and similar purposes.
The wall surface must be smooth, without any protrusions or recesses enabling access to the rear part. They are not designed to be installed on plinths or floors (Fig. 1-1).

Only professionally enabled heating/plumbing technicians 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.

Attention: the manufacturer declines all liability for damages caused by boilers removed from other systems or for any non-conformities of such equipment.

Before installing the appliance, ensure that it is delivered in perfect condition; if in doubt, contact the supplier immediately. Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children. If the appliance is installed inside or between cabinets, ensure sufficient space for normal servicing; therefore it is advisable to leave clearance of at least 3 cm between the boiler casing and the vertical sides of the cabinet. Leave adequate space above the boiler for possible water and flue removal connections. It is just as important that the intake grids are not obstructed. Keep all flammable objects away from the appliance (paper, rags, plastic, polystyrene, etc.). Do not place household appliances underneath the boiler as they could be damaged if the safety valve intervenes (if not conveyed away by a draining funnel), or if there are leaks from the connections; on the contrary, the manufacturer cannot be held responsible for any damage caused to the household appliances. In the event of malfunctions, faults or incorrect operation, turn the appliance off immediately and contact a qualified technician (e.g. the Technical Assistance centre, which has specifically trained staff and original spare parts) Do not attempt to modify or repair the appliance alone. Failure to comply with the above implies personal responsibility and invalidates the warranty.

- Installation regulations:
  - these boilers cannot be installed in bedrooms, studio flats and bathrooms. They also cannot be installed in rooms with wood (or solid fuel) burning heat generators and in adjacent and communicating rooms.
  - Installation in places with a fire risk is prohibited (for example: garages, closed parking stalls), gas appliances and relative flue ducts, flue exhaust pipes and combustion air intake pipes.
  - Installation is prohibited on the vertical projection of cooking hobs.
  - Installation is also prohibited in places/environments that constitute common parts of office condominiums such as stairs, cellars, entrance halls, attics, lofts, escape routes, etc. if they are not located inside technical compartments under the responsibility of each individual building and only accessible to the user (for the features of the technical compartments, see the technical standards in force).
  - Type B open chamber boilers must not be installed in places where commercial, artisan or industrial activities take place, which use products that may develop volatile vapours or substances (e.g. acid vapours, glues, paints, solvents, combustibles, etc.), as well as dusts (e.g. dust deriving from the working of wood, coal fines, cement, etc.), which may be harmful for the components of the appliance and jeopardise operation.
  - They must also be installed in rooms where the temperature cannot fall below 0°C and must not be exposed to weathering.

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

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

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

They cannot be connected directly to low-temperature systems.

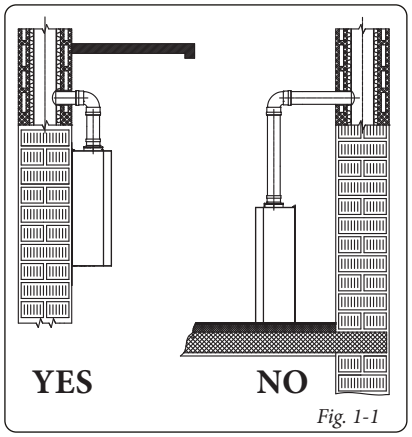
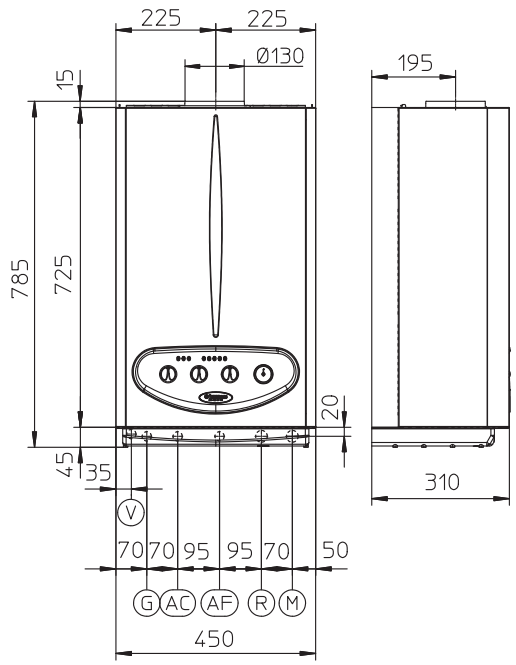


Fig. 1-1

1.2 MAIN DIMENSIONS.

Fig. 1-2



Height (mm)	Width (mm)		Depth (mm)	
785	450		310	
CONNECTIONS				
GAS	DOMESTIC HOT WATER		SYSTEM	
G	AC	AF	R	M
3/4"	1/2"	1/2"	3/4"	3/4"

Key:

G - Gas supply
AC - Domestic hot water outlet
AF - Domestic cold water inlet
R - System return
M - System flow
V - Electrical connection

N.B.: connection group (optional)

1.3 CONNECTIONS (OPTIONAL).

Gas connection (appliance category II_{2H3+}). Our boilers are designed to operate with methane gas (G20) and LPG. Supply pipes must be the same as or larger than the 3/4"G boiler fitting. Before connecting the gas line, carefully clean inside all the fuel feed system pipes to remove any residue that could impair boiler efficiency. Also make sure the gas corresponds to that for which the boiler is prepared (see boiler data-plate). If different, the appliance must be converted for operation with the other type of gas (see converting appliance for other gas types). The dynamic gas supply (methane or LPG) pressure must also be checked according to the type used in the boiler, which must comply with the regulations in force, as insufficient levels can reduce generator output and cause malfunctions. Ensure correct gas cock connection by following the mounting instructions illustrated in the figure. The gas supply pipe must be suitably dimensioned according to current regulations in order to guarantee correct gas flow to the burner even in conditions of maximum generator output and to guarantee appliance efficiency (technical specifications). The coupling system must conform to standards.

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

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

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

Hydraulic connection.

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

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

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

Attention: *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 .*

Electrical connection: The Nike Mini 28 kW Special boiler has an IPX4D protection rating for the entire appliance. Electrical safety of the appliance is reached only when it is correctly connected to an efficient earthing system as specified by current safety standards.

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

Also ensure that the electrical installation corresponds to maximum absorbed power specifications as shown on the boiler data-plate. Boilers are supplied complete with an "X" type power cable without plug. The power supply cable must be connected to a 230V ±10% / 50Hz mains supply respecting L-N polarity and earth connection; ⏚, this network must also have a multi-pole circuit breaker with class III over-voltage category. When replacing the power supply cable, contact a qualified technician (e.g. the Immergas After-Sales Technical Assistance Service). The power cable must be laid as shown (Fig. 1-3). In the event of mains fuse replacement on the P.C.B., use a 2A quick-blow fuse. For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.

1.4 REMOTE CONTROLS AND ROOM CHRONO-THERMOSTATS (OPTIONAL).

The boiler is prepared for the application of room chrono-thermostats or remote controls, which are available as optional kits. (Fig. 1-4)
All Immergas chrono-thermostats are connected with 2 wires only. Carefully read the user and assembly instructions contained in the accessory kit.

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

  The chrono-thermostat is powered by two 1.5V LR 6 type alkaline batteries;
- Comando Amico Remoto Remote Control Device ^{V2} (CAR^{V2}) with climate chrono-thermostat function. In addition to the functions described in the previous point, the CAR^{V2} panel enables the user to control all the important information regarding operation of the appliance and the heating system with the opportunity to easily intervene on the previously set parameters, without having to go to where the appliance is installed. The panel is provided with self-diagnosis to display any boiler functioning anomalies. The climate chrono-thermostat incorporated into the remote panel enables the system flow temperature to be adjusted to the actual needs of the room being heated, in order to obtain the desired room temperature with extreme precision and therefore with evident saving in running costs. The chrono-thermostat is fed directly by the boiler by means of the same 2 wires used for the transmission of data between boiler and chrono-thermostat.

CAR^{V2} or chrono-thermostat On/Off electric connection (Optional). *The operations described below must be performed after having removed the voltage from the appliance.* Any On/Off room chrono-thermostat must be connected to clamps 40 and 41 eliminating jumper X40 (Fig. 3-2). Make sure that the On/Off thermostat contact is of the "clean" type, i.e. independent of the mains supply, otherwise the P.C.B. would be damaged. Any CAR^{V2} must be connected to clamps 40 and 41 eliminating jumper X40 on the circuit board, paying attention not to invert the polarity in the connections (Fig. 3-2). 3-2). Connection with the wrong polarity prevents functioning, but without damaging the CAR^{V2} The boiler can only be connected to one remote control.

Important: if the CAR^{V2} remote control is used, arrange two separate lines in compliance with current regulations regarding electrical systems. No boiler pipes must ever be used to earth the electric system or telephone lines. Ensure elimination of this risk before making the boiler electrical connections.

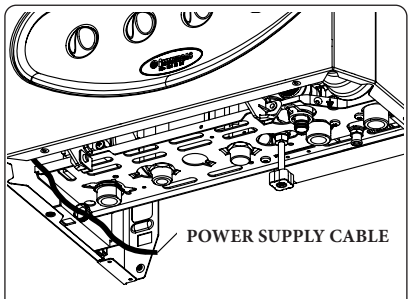


Fig. 1-3

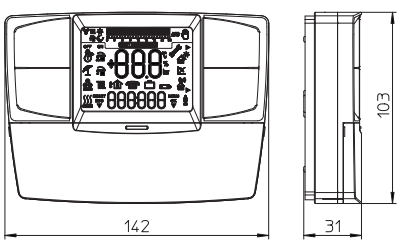


Fig. 1-4

1.5 EXTERNAL PROBE (OPTIONAL).

The boiler is designed for the application of the Room Thermostat (Fig. 1-5) which is available as an optional kit. Refer to the relative instruction sheet for positioning of the external probe.
The probe can be connected directly to the boiler electrical system and allows the max. system flow temperature to be automatically decreased when the external temperature increases, in order to adjust the heat supplied to the system according to the change in external temperature.
The external probe always acts when connected independently from the presence or type of room thermostat used. The correlation between system flow temperature and outdoor temperature is determined by the position of the selector switch on the boiler control panel according to the curves shown in the diagram (Fig. 1-6). The electric connection of the external probe must be made on clamps 38 and 39 on the boiler P.C.B. (Fig. 3-2).

1.6 VENTILATION OF THE ROOMS.

In the room in which the boiler is installed it is necessary that at least as much air flows as that requested for by normal combustion of the gas and ventilation of the room. Natural air flow must take place directly through:
- permanent openings in the walls of the room to be ventilated that lead towards the outside;
- ventilation pipes, individual or branched type.

The air used for ventilation must be withdrawn directly from outside, in an area away from sources of pollution. Natural air flow is also allowed indirectly by air intake from adjoining rooms. For further information relative to ventilation of the rooms follow that indicated by the standards in force and the following modifications and integrations.

Evacuation of foul air. In the rooms where the gas appliances are installed it may also be necessary, as well as the intake of combustion agent air, to evacuate foul air, with consequent intake of a further equal amount of clean air. This must be realised respecting the provisions of the technical regulations in force.

1.7 FLUE DUCTS.

The gas appliances with attachment for the flue gas discharge pipe must have direct connection to chimneys or safely efficient flues.
The combustion products can be discharged directly outside only if these are missing, as long as the standard regulations for the flue terminal are respected as well as the existing laws.

Connection to chimneys or flues. The connection of the appliances to a chimney or flue takes place by means of flue ducts.
In the event of fittings with pre-existing flues, these must be perfectly clean because the detachment of any waste from the walls during functioning, could block the passage of flue gases, thus causing extremely dangerous situations for the user.
The flue ducts must be connected to the chimney or flue in the same room in which the appliance is installed or, at most, in the adjoining room and must comply with the requirements indicated by the regulation.

1.8 FLUES/CHIMNEYS.

For the appliances with natural draught individual chimneys and branched flues can be used.

Individual chimneys. The individual flues must be dimensioned with respect to the standard in force.

Branched flues. In buildings with lots of floors, branched flues can be used for the natural draught evacuation of combustion products. New flues must be designed following the calculation method and provisions of the regulation.

Chimney caps. The chimney cap is a device positioned on the top of an individual chimney or branched collective flue. This device promotes the dispersion of combustion products, even in adverse weather conditions, and prevents the deposit of foreign bodies.
It must satisfy the requisites set forth in the relative regulation.
The outlet quota, corresponding to the top of the chimney/flue, independently of any caps, must be out of the "backflow area", in order to prevent the formation of counter-pressures that impede the free discharge of the combustion products into the atmosphere. It is therefore necessary to use the minimum heights indicated in the figures stated in the regulation, depending on the slope of the roof.

Direct exhaust outside. The natural draught appliances, envisioned to be connected to a chimney or a flue, can discharge the combustion products directly to the outside, through a pipe passing through the perimeter walls of the building. In this case discharge takes place through an exhaust flue, which is connected to a draught terminal at the outside.

Exhaust flue. The exhaust flue must be in compliance with the same requisites listed for the flue ducts, with further provisions stated in the regulation in force.

Positioning the draught terminals. The draught terminals must:
- be installed on external perimeter walls of the building;
- be positioned according to the minimum distances specified in current technical standards.

Fume exhaust of forced draught appliances in closed open-top environments. In spaces closed on all sides with open tops (ventilation pits, courtyards etc.), direct flue gas exhaust is allowed for natural or forced draught gas appliances with a heating power range from 4 to 35 kW, provided the conditions as per the current technical standards are respected.

Important: it is prohibited to put the fumes exhaust control device out of order voluntarily. Every piece of this device must be replaced using original spare parts if they have deteriorated. In the case of repeated interventions of the fumes exhaust control device, check the fumes exhaust flue and the ventilation of the room in which the boiler is located.

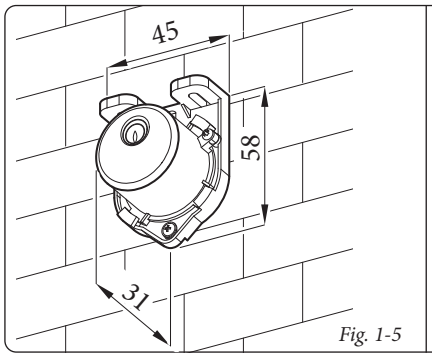


Fig. 1-5

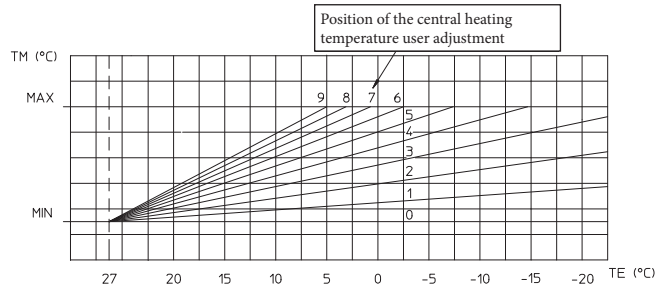


Fig. 1-6

1.9 SYSTEM FILLING.

Once the boiler is connected, proceed with system filling via the filling valve (Fig. 2-2). Filling is performed at low speed to ensure release of air bubbles in the water via the boiler and heating system vents. The boiler has a built-in automatic venting valve on the circulator. Open the radiator vent valves. Close radiator vent valves when only water escapes from them. Close the filling valve when the boiler pressure gauge indicates approx. 1.2 bar.

N.B.: during these operations start up the circulation pump at intervals, acting on the main switch positioned on the control panel. *Vent the circulation pump by loosening the front cap and keeping the motor running.*
Tighten the cap after the operation.

1.10 GAS SYSTEM START-UP.

To start up the system, make reference to the Standard: This divides the systems and therefore the start-up operations into three categories: new systems, modified systems, re-activated systems. In particular, for new gas systems:
- open windows and doors;
- avoid presence of sparks or open flames;
- bleed all air from the pipelines;
- check that the internal system is properly sealed according to specifications.

1.11 BOILER START-UP (IGNITION).

To issue the required Declaration of Conformity, the following must be performed for boiler start-up:
- check that the internal system is properly sealed according to the regulations in force;
- make sure that the type of gas used corresponds to boiler settings;
- switch the boiler on and check correct ignition;
- make sure that the gas flow rate and relevant pressure values comply with those given in the manual (par. 3.16);
- check the correct ventilation of the rooms;
- check the existing draught during normal functioning of the appliance, e.g. a draught gauge positioned at the exit of the appliance combustion products;
- check that there is no backflow of combustion products into the room, even during functioning of fans;
- ensure that the safety device intervenes in the event of gas supply failure and check the relative intervention time;
- check activation of the main switch located upstream of the boiler.

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

1.12 CIRCULATION PUMP.

The boilers are supplied with a built-in circulation pump with 3-position electric speed control.
The boiler does not operate correctly with the circulation pump on first speed.
To ensure optimal boiler operation, in the case of new systems (single pipe and module) it is recommended to use the pump at maximum speed. The circulation pump is already fitted with a capacitor.

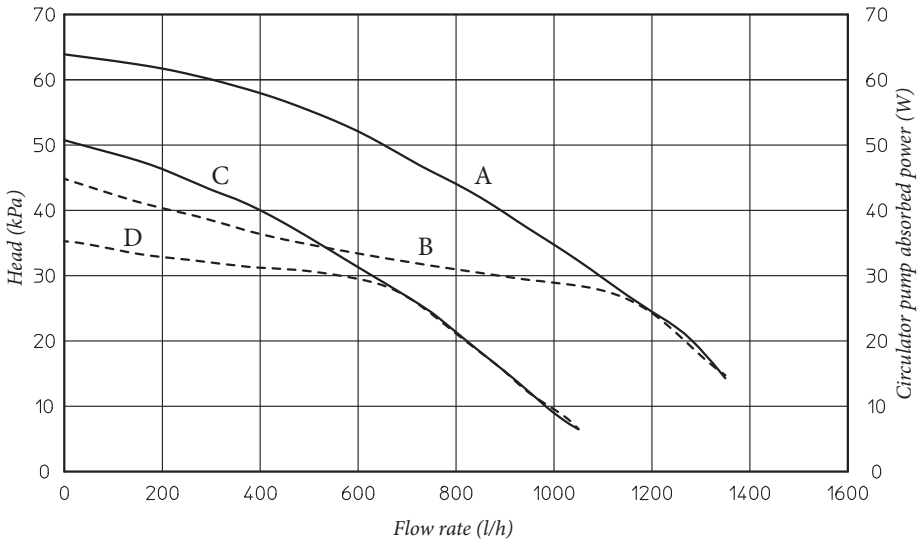
Pump release. If, after a prolonged period of inactivity, the circulation pump is blocked, unscrew the front cap and turn the motor shaft using a screwdriver. Take great care during this operation to avoid damage to the motor.

1.13 KITS AVAILABLE ON REQUEST.

- System cut-off valves kit (on request). The boiler is designed for installation of system interception cocks to be placed on flow and return pipes of the connection assembly. This kit is particularly useful for maintenance as it allows the boiler to be drained separately without having to empty the entire system.
- Zone system kit (on request). If the heating system is to be divided into several zones **(max. three),** in order to interlock them with separate adjustments and to keep water flow rate high for each zone, Immergas supplies zone system kits by request.
- Polyphosphate dispenser kit (on request). The polyphosphate dispenser reduces the formation of lime-scale and preserves the original heat exchange and domestic hot water production conditions. The boiler is prepared for application of the polyphosphate dispenser kit.

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

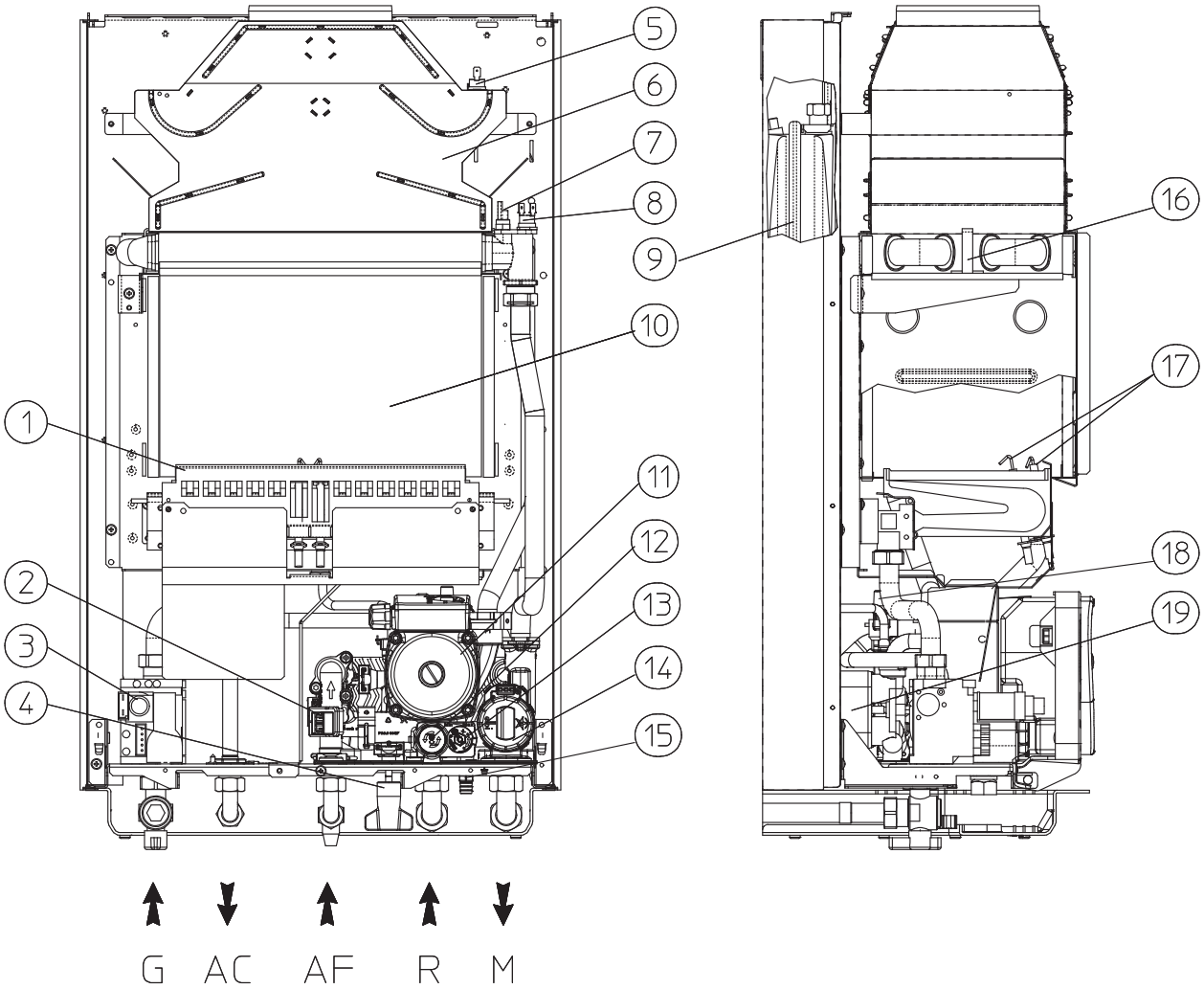
Head available to the system.



A = Head available to the system at maximum speed with by-pass excluded.
B = Head available to the system at maximum speed with by-pass inserted.
C = Head available to the system at second speed with by-pass excluded.
D = Head available to the system at second speed with by-pass inserted.

Fig. 1-7

1.14 BOILER COMPONENTS.



Key:

1 - Burner
2 - Domestic hot water flow switch
3 - Gas valve
4 - System filling valve
5 - Flue safety thermostat
6 - Fumes hood
7 - Delivery probe
8 - Safety thermostat
9 - System expansion vessel
10 - Combustion chamber
11 - Boiler circulator pump
12 - 3 bar safety valve
13 - By-pass
14 - Three-way valve (motorised)
15 - System draining valve
16 - Primary heat exchanger
17 - Ignition and detection electrodes
18 - Vent valve
19 - DHW heat exchanger

N.B.: connection group (optional)

Fig. 1- 8

2 INSTRUCTIONS FOR USE AND MAINTENANCE

2.1 CLEANING AND MAINTENANCE.

Attention: the heating systems must undergo periodical maintenance (regarding this, see the section dedicated to the maintenance engineer, relating to "yearly appliance check and maintenance") and regular energy efficiency checks in compliance with national, regional or local provisions in force.

This ensures that the optimal safety, performance and operation characteristics of the boiler remain unchanged over time.

2.2 VENTILATION OF THE ROOMS.

In the room in which the boiler is installed it is necessary that at least as much air flows as that requested for by normal combustion of the gas and ventilation of the room. The provisions relative to ventilation, the flue ducts, chimneys and caps are stated in Par. 1.6, 1.7 and 1.8. If in doubt regarding correct ventilation, refer to professional, qualified staff.

2.3 GENERAL WARNINGS.

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

Use of the boiler by unskilled persons or children is strictly prohibited.

If temporary shutdown of the boiler is required, proceed as follows:

a) drain the heating system if anti-freeze 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.

It is prohibited and dangerous to obstruct the air intake, even partially, for the ventilation of the room in which the boiler is installed.

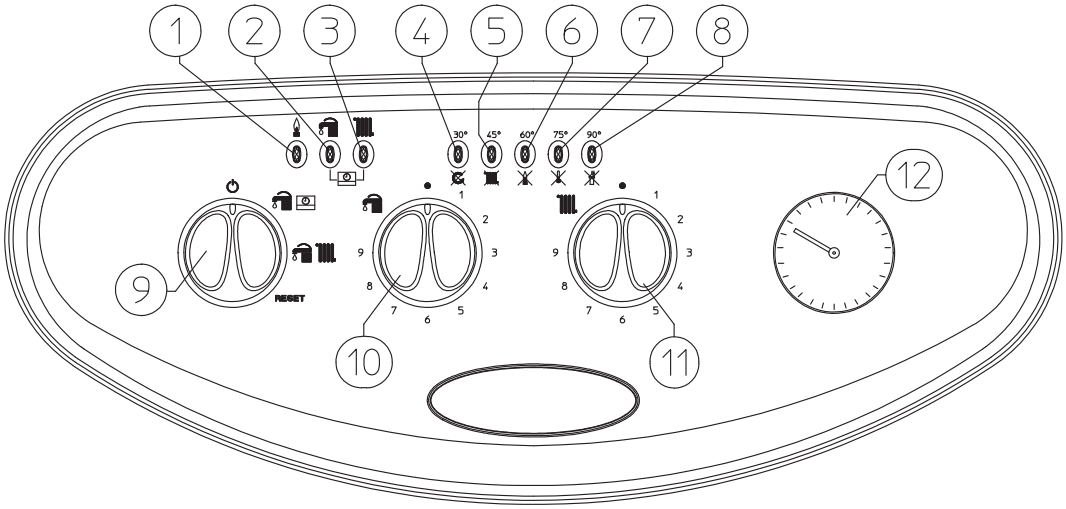
Due to the danger, functioning is also prohibited in the same room as suction devices, chimneys or similar at the same time as the boiler unless there are additional openings dimensioned in a way to satisfy the further necessity for air. For the dimensioning of these additional openings, refer to qualified technical staff. In particular, an open fire must have its own air supply.

On the contrary, the boiler cannot be installed in the same room.

- **Attention:** the use of components involving use of electrical power requires some fundamental rules to be observed:
  - 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 weathering (rain, sunlight, etc.);
  - the appliance power cable must not be replaced by the user;
  - in the event of damage to the cable, switch off the appliance and contact exclusively qualified staff for replacement;
  - if the appliance is not to be used for a certain period, disconnect the main power switch.

2.4 CONTROL PANEL.

Fig. 2-1



Key:

1 - Flame presence LED
2 - Domestic hot water LED
3 - Heating LED
4 - Temperature LED – Insufficient circulation anomaly
5 - Temperature LED – Flow probe anomaly
6 - Temperature LED – Ignition block anomaly
7 - Temperature LED – Overheating block
8 - Temperature LED - Flue gas pressure switch block
9 - Stand-by-Domestic water / Remote Control - Domestic water and Heating-Reset Selector
10 - Domestic hot water temperature selector
11 - Central heating temperature selector
12 - Boiler pressure gauge

2.5 IGNITION OF THE BOILER.

Before ignition make sure the central heating system is filled with water and that the pressure gauge (12) indicates a pressure of 1 - 1.2 bar;

- Open the gas cock upstream from the boiler.
- Turn the main selector switch (9) to Domestic Hot Water/Comando Amico Remoto^{V2} (CAR^{V2}) ( ) or Domestic Hot Water and Central heating( ).

N.B.: Once the main selector switch has been placed (9) on one of these positions, the presence of voltage is indicated by the switch-on with a fixed light of one of the LEDS from 4 to 8, which indicate the temperature of the output water from the main heat exchanger.

Attention: if any one of the LEDs 4 to 8 starts flashing, this means that there is a fault. Refer to the next paragraph.

Functioning of the boiler in domestic water mode and in heating mode is indicated respectively by the switch-on of LED 2 or LED 3 with a fixed light (in absence of remote controls).

- Operation with Remote Control (Optional). With selector switch (9) in position ( ) and Remote Control connected to the boiler selector switches (10) and (11) excluded. The boiler adjustment parameters are set from the control panel of the Remote Friend Control. Connection to the Remote Control is indicated by the contemporary fixed switch-on of LEDs 2 and 3 ( ). Also in the presence of Remote Control the indications of the temperature and any faults are maintained on the control panel.
- Operation without Remote Control. With the selector switch (9) in position ( ) the heating adjustment selector switch (11) is cut out, the domestic hot water temperature is regulated by selector switch (10). With the selector switch in position ( ) the heating adjustment selector switch (11) is used to regulate the temperature of radiators, while selector (10) continues to be used for domestic hot water. Turn the selector switches clockwise to increase the temperature and anti-clockwise to decrease it.

From this moment the boiler functions automatically. With no demand for heat (heating or domestic hot water production) the boiler goes to "standby" function, equivalent to the boiler being powered without presence of flame (LED corresponding to the ignited boiler temperature). Each time the boiler lights up, the relative flame present symbol is displayed by the green LED 1 ( ).

N.B.: The boiler may start-up automatically if the anti-freeze function is activated.

2.6 TROUBLESHOOTING.

The Nike Mini 28 kW Special boiler signals an anomaly by flashing of one of the LEDs from 4 to 8 or LEDs 1 and 2 coupled to LED 7. The error code will be displayed on any remote control by a numerical code preceded or followed by the letter E (e.g. CAR^{V2} = Exx).

Anomaly signalled	LED flashing	Remote display
Insufficient circulation	LED 4 ( )	27
Flow probe anomaly	LED 5 ( )	05
No ignition block	LED 6 ( )	01
Safety thermostat block (over-temperature)	LED 7 ( )	02
Flue safety thermostat block	LED 8 ( )	03
Contacts resistance block	LEDs 2 ( ) and 7 ( ) flash at the same time	04
Parasite flame block	LEDs 1 ( ) and 7 ( ) flash at the same time	20
Loss of remote control communication	LEDs 2 and 3 flash alternately ( )	31

Insufficient water circulation. This occurs if there is overheating in the boiler due to insufficient water circulating in the primary circuit; the causes can be:

- low system circulation; check that no shut-off devices are closed on the heating circuit and that the system is free of air (deaerated);
- pump blocked; free the pump.

If this phenomenon occurs frequently, contact a qualified technician for assistance (e.g. After-Sales Technical Assistance Service).

Delivery probe anomaly. If the board detects an anomaly on the system NTC flow probe (code 05) the boiler will not start; contact a qualified technician for assistance (e.g. After-Sales Technical Assistance Service).

Ignition block. The boiler lights up with each demand for room heating or hot water production. If the burner does not ignite within 10 seconds, the boiler remains in stand-by for 30 seconds, tries again and if the second attempt fails it goes into "ignition block" (LED 6 flashing). To eliminate "ignition block" the main selector (9) must be temporarily turned to the Reset position. The anomaly can be reset 5 consecutive times, after which the function is inhibited for at least one hour. It is possible to try once every hour, for a maximum of 5 attempts. By switching the appliance on and off the 5 attempts are re-acquired. On commissioning or after extended appliance downtime, it may be necessary to eliminate the "ignition block". If this phenomenon occurs frequently, contact a qualified technician for assistance (e.g. After-Sales Technical Assistance Service).

Safety thermostat block (overheating). During operation, if a fault causes excessive overheating internally, in the exhaust, or an anomaly occurs in the flame control section, an overheating block is triggered in the boiler (LED 7 flashing). To eliminate the "overheating block" the main selector (9) must be temporarily turned to the Reset position. If this phenomenon occurs frequently, contact a qualified technician for assistance (e.g. After-Sales Technical Assistance Service).

Flue safety thermostat block. This occurs if the fumes evacuation pipe does not function correctly. The boiler goes into stand-by for 30 minutes, after which, if normal working conditions are restored, it re-starts without having to be reset. In the case of 3 consecutive blocks, the boiler itself blocks and it must be reset in order to re-start. It is nevertheless necessary to call a qualified technician (e.g. After-Sales Technical Assistance Service) in order to solve the problem.

Contacts resistance block. This occurs in the case of faults to the safety thermostat over-temperature). The boiler does not start and a technician must be called (e.g. After-Sales Service).

Parasite flame block. This occurs in case of a leak on the detection circuit or anomaly in the flame control unit. The boiler does not start and a technician must be called (e.g. After-Sales Service).

Loss of remote control communication. This occurs if an incompatible remote control is connected, or if communication between the boiler and CAR^{V2} is lost. Try the connection procedure again by turning the boiler off and turning the selector switch (9) to position ( ). If the CAR^{V2} is still not detected on re-starting the boiler will switch to local operating mode, i.e. using the controls on the boiler itself. If this phenomenon occurs frequently, contact a qualified technician for assistance (e.g. After-Sales Technical Assistance Service).

Signalling and diagnostics - Display on Remote Friend Control screen (optional). During normal boiler operation the room temperature value is displayed on the remote control screen (CAR^{V2}); in case of malfunction or anomaly, the temperature value is replaced by the relative error code provided in table on page 11.

Attention: if the boiler is in stand-by " " code error "CON" will be displayed on CAR^{V2}. The remote controls are powered constantly so as not to loose the memorised programs.

2.7 BOILER SHUTDOWN

Disconnect the main selector switch (9) by placing it on " " (LEDs 1 to 8 are off), disconnect the external omni-polar switch to the boiler and close the gas cock upstream of the appliance. Never leave the boiler switched on if left unused for prolonged periods.

2.8 RESTORING CENTRAL HEATING SYSTEM PRESSURE.

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

N.B.: close the valve after the operation.
If pressure values reach around 3 bar the safety valve may be activated.
In this case contact a professional technician for assistance.

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

2.9 SYSTEM DRAINING.

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

2.10 ANTI-FREEZE PROTECTION.

The boiler is equipped with an antifreeze function, as per standard, that activates pump and burner operation when the temperature of the water inside the boiler falls below 4°C and stops when it reaches 42°C. The antifreeze function is only guaranteed if the boiler is fully operative, is not in "block" status and is electrically powered with the main selector on Summer or Winter. To avoid keeping the system switched on in case of a prolonged absence, the system must be drained completely or antifreeze substances must be added to the heating system water. In both cases the boiler domestic hot water circuit must be drained. In systems that are drained frequently, filling must be carried out with suitably treated water to eliminate hardness that can cause lime-scale.

2.11 CASE CLEANING.

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

2.12 DECOMMISSIONING.

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

Bottom view.

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

N.B.: connection group (optional)

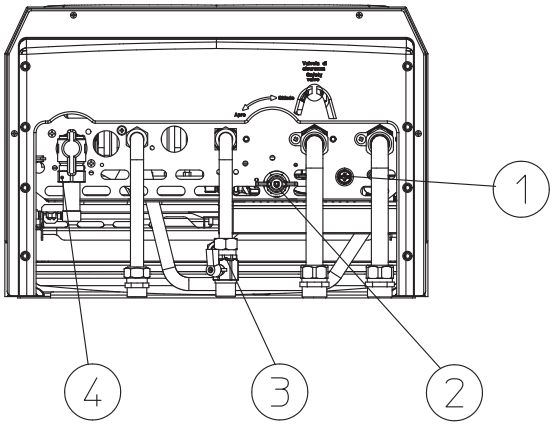


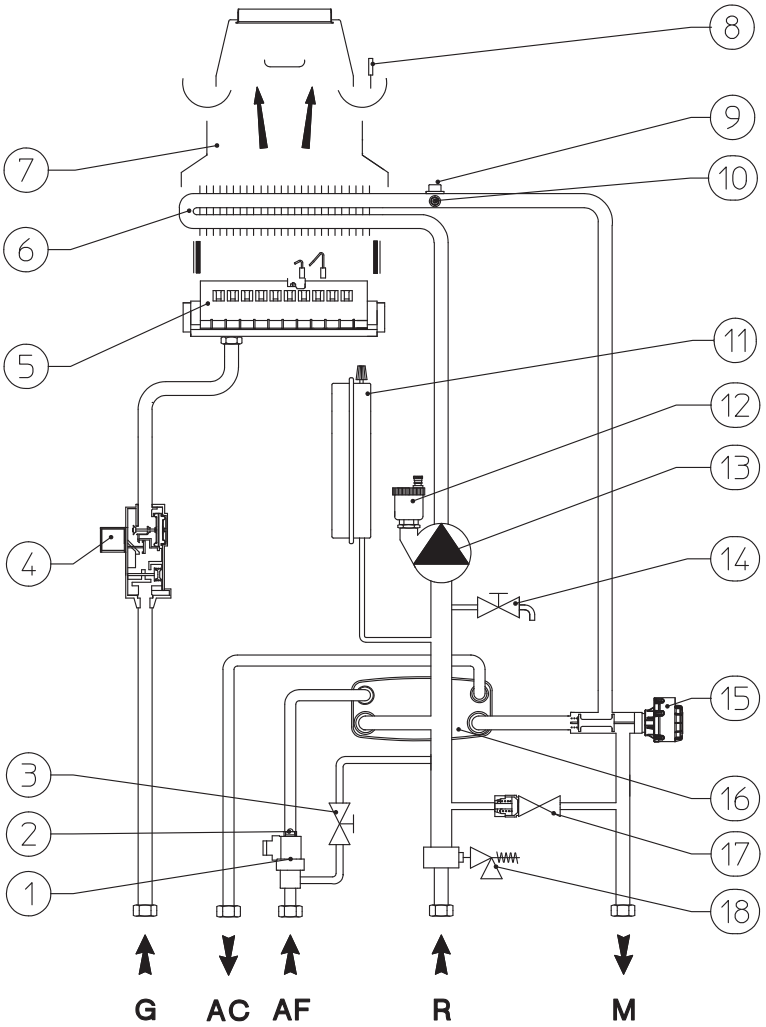
Fig. 2-2

3 BOILER START-UP (INITIAL CHECK)

To commission the boiler:
- make sure that the type of gas used corresponds to boiler settings;
- check connection to a 230V-50Hz power mains, correct L-N polarity and the earthing connection;
- make sure the central heating system is filled with water and that the pressure gauge indicates a pressure of 1-1.2 bar;
- switch the boiler on and check correct ignition;
- make sure the gas maximum, intermediate and minimum flow rate and pressure values correspond to those given in the handbook (par. 3.16);
- make sure the gas supply failure safety device is working, within its relative intervention time;
- check activation of the main switch located upstream of the boiler;
- check the existing draught during normal functioning of the appliance, e.g. a draught gauge positioned at the exit of the appliance combustion products;
- check that there is no backflow of combustion products into the room, even during functioning of fans;
- ensure activation of all adjustment devices;
- seal the gas flow rate regulation devices (if settings are modified);
- check the production of domestic hot water;
- check sealing efficiency of water circuits;
- check ventilation and/or aeration of the installation room where required.

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

3.1 HYDRAULIC DIAGRAM.

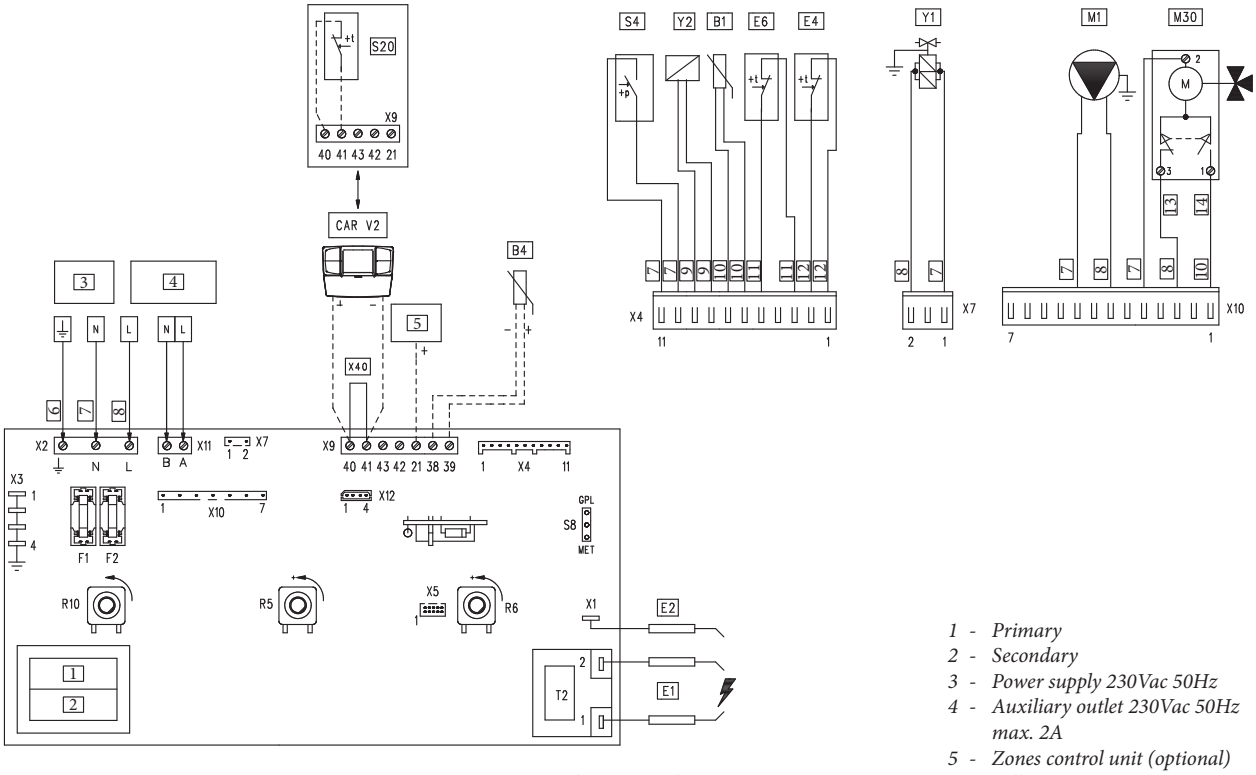


Key:
- *1 - Domestic hot water flow switch*
- *2 - Flow limiter*
- *3 - System filling valve*
- *4 - Gas valve*
- *5 - Burner*
- *6 - Primary heat exchanger*
- *7 - Fumes hood*
- *8 - Flue safety thermostat*
- *9 - Delivery probe*
- *10 - Safety thermostat*
- *11 - System expansion vessel*
- *12 - Vent valve*
- *13 - Boiler circulator pump*
- *14 - System draining valve*
- *15 - Three-way valve (motorised)*
- *16 - DHW heat exchanger*
- *17 - Automatic by-pass*
- *18 - 3 bar safety valve*

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

Fig. 3-1

3.2 WIRING DIAGRAM.



Key:

- *B1 - Flow probe*
- *B4 - External probe (optional)*
- *CAR[V2] - Comando Amico Remoto remote control [V2] (optional)*
- *E1 - Ignition electrodes*
- *E2 - Detection electrode*
- *E4 - Safety thermostat*
- *E6 - Flue safety thermostat*
- *F1 - Neutral fuse*
- *F2 - Line fuse*
- *M1 - Boiler circulator pump*
- *M30 - Three-way valve*
- *R5 - Domestic hot water temperature trimmer*
- *R6 - Central heating temperature trimmer*
- *R10 - Main selector*
- *S4 - Domestic hot water flow switch*
- *S8 - Gas type selector*
- *S20 - Room thermostat (optional)*
- *T2 - Ignition transformer*
- *X40 - Room thermostat jumper*
- *Y1 - Gas valve*
- *Y2 - Gas valve modulator*

1 - *Primary*
2 - *Secondary*
3 - *Power supply 230Vac 50Hz*
4 - *Auxiliary outlet 230Vac 50Hz max. 2A*
5 - *Zones control unit (optional)*
6 - *Yellow/Green*
7 - *Blue*
8 - *Brown*
9 - *Red*
10 - *Black*
11 - *Grey*
12 - *White*
13 - *Central heating*
14 - *Domestic hot water*

Fig. 3-2

Remote Controls: the boiler is set-up for the application of the Comando Amico Remoto remote control [V2] (CAR[V2]) which must be connected to clamps 40 and 41 of the X9 connector on the P.C.B. (respecting the polarity) and eliminating jumper X40.

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

Connector X12 (RS 232) is used for automatic inspection for connection to the personal computer.

3.3 TROUBLESHOOTING.

N.B.: Maintenance must be carried out by a qualified technician (e.g. Technical After-Sales Assistance Service).

- Smell of gas. Caused by leakage from gas circuit pipelines. Check sealing efficiency of gas intake circuit.
- Irregular combustion (red or yellow flame). Can be caused by: dirty burner, clogged lamellar pack, intake - exhaust terminal not installed properly. Clean the above components and ensure correct installation of the terminal.
- Frequent interventions of the over heating safety thermostat. It can depend on reduced water pressure in the boiler, little circulation in the heating system, the blocked pump or an anomaly of the boiler P.C.B. Check on the pressure gauge that the system pressure is within established limits. Check that radiator valves are not all closed.
- The boiler produces condensate. This can be caused by obstructions of the chimney or flues with height or section not proportioned to the boiler. It can also be determined by functioning at boiler temperatures that are excessively low. In this case, make the boiler run at higher temperatures.
- Frequent interventions of the flue safety thermostat. This can be caused by obstructions in the fumes circuit. Check the flue. The flue may be obstructed or by height or section not suitable for the boiler. Ventilation may be insufficient (see room ventilation point). In this case the boiler waits for 30 minutes, before trying to start up again. To exclude the meter, cut the voltage off by temporarily disconnecting the electrical power supply plug.
- Presence of air in the system. Check opening of the special air vent valve cap (Fig. 1-8). Make sure the system pressure and expansion vessel factory-set pressure values are within the set limits; the factory-set value for the expansion vessel must be 1.0 bar, and system pressure between 1 and 1.2 bar.
- Ignition block and Chimney block. (See par. 2.6 and 1.3 (electric connection).

3.4 CONVERTING THE BOILER TO OTHER TYPES OF GAS.

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.
Boiler conversion must be carried out by a qualified technician (e.g. After-Sales Technical Assistance Service).
To convert to another type of gas the following operations are required:

- disconnect the appliance;
- replace the main burner injectors, making sure to insert the special seal rings supplied in the kit, between the gas manifold and the injectors;
- move jumper 16 (Fig. 3-3) to the correct position for the type of gas in use (Methane or L.P.G.);
- to access adjustments on the circuit board, the cover must be removed from the dashboard by taking out the rear fixing screws;
- re-power the appliance;
- adjust the maximum heat power of the boiler;
- adjust the minimum heat power of the boiler;
- adjust (if necessary) the heating power;
- seal the gas flow rate regulation devices (if settings are modified);
- after completing the conversion, apply the sticker, contained in the conversion kit, near the data-plate. Using an indelible marker pen, cancel the data relative to the old type of gas.

These adjustments must be made based on the type of gas used, following the indications provided in the tables (Par. 3.16).

3.5 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:

- there is no flame in the combustion chamber;
- the burner flame is not too high or low and that it is stable (does not detach from burner);
- the pressure testers used for calibration are perfectly closed and there are no leaks from the gas circuit.

N.B.: All boiler adjustment operations must be carried out by a qualified technician (e.g. After-Sales Technical Assistance Service).
Burner adjustment must be carried out using a "U" or digital pressure gauge connected to the gas valve outlet pressure point (Part. 4 Fig. 3-3), keeping to the pressure value provided in the tables (Par. 3.16) according to the type of gas for which the boiler is prepared.

3.6 POSSIBLE ADJUSTMENTS OF THE GAS VALVE.

- Adjustment of boiler nominal heat output (see previous figure).

- Turn the domestic hot water temperature selector (10 Fig. 2-1) to maximum;
- open the domestic hot water cock in order to prevent modulation from starting up;
- adjust the nominal boiler power from the brass nut (3), keeping to the maximum pressure values provided in the tables (Par. 3.16) depending on the type of gas;
- by turning it clockwise the heating potential increases and by turning it anti-clockwise the heating potential decreases.

- Adjustment of minimum boiler heat output (Fig. 3-3).

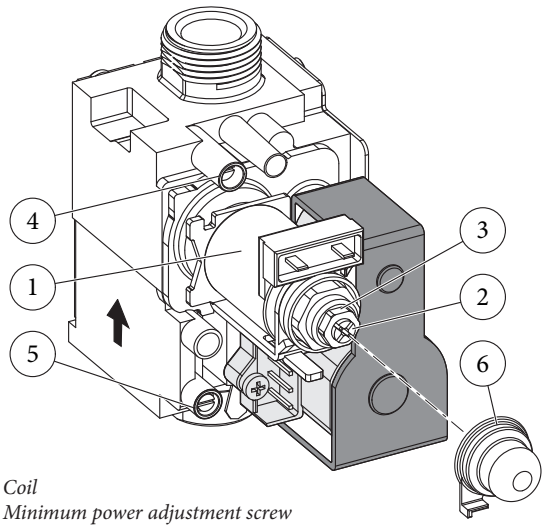
N.B.: only proceed after having calibrated the nominal pressure.

Adjustment of the minimum thermal input is obtained by operating on the cross plastic screws (2) on the gas valve maintaining the brass nut blocked (3);

- disconnect the power supply to the modulating coil (just disconnect a faston); by turning the screw in a clockwise direction, the pressure increases, and counter-clockwise it decreases. On completion of calibration, re-apply the power supply to the modulating coil. The minimum boiler power must not be adjusted to a pressure value below the levels stated in the tables (Par. 3.16) depending on the type of gas.

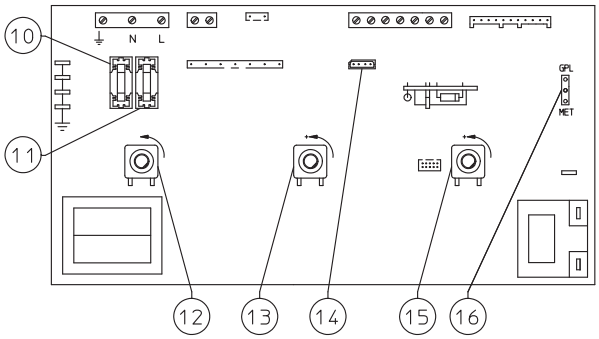
N.B.: to adjust the gas valve, remove the plastic cap (6); after the adjustment, put the cap back on.

SIT 845 GAS Valve



Key:
1 - Coil
2 - Minimum power adjustment screw
3 - Maximum power adjustment nut
4 - Gas valve outlet pressure point
5 - Gas valve inlet pressure point
6 - Protection hood

P.C.B.



10 - Phase fuse 3.15AF
11 - Neutral fuse 3.15AF
12 - Main switch
13 - Domestic hot water temperature trimmer
14 - RS232 computer interface
15 - Central heating temperature trimmer
16 - METHANE L.P.G. gas type selector

Fig. 3-3

3.7 PROGRAMMING THE P.C.B.

The Nike Mini 28 kW Special boiler is prepared for possible programming of several operation parameters. By modifying these parameters as described below, the boiler can be adapted according to specific needs.

To access the programming phase, do the following: place the main selector on Reset for an amount of time ranging between 15 and 20 seconds (after approx. 10 sec. LEDs 2 and 3 will start flashing simultaneously. Wait for this to stop and then place the main selector on DHW and Central Heating). At this point, place the main selector switch back on domestic hot water-heating ( ).

When the programming phase has been activated, enter the first level where it is possible to choose the parameter to be set.
The parameter is marked by one of the fast flashing LEDs between 1 and 8 (Fig. 2-1).
The selection is made by turning the DHW temperature selector (10). For association of the LED to the parameter, see the following table:

List of parameters	Flashing LED (fast)
Minimum CH output (DO NOT USE)	LED 1
Maximum CH output (DO NOT USE)	LED 2
Central heating ignitions timer	LED 3
Heating power output ramp	LED 4
Heating switch-on delay request from Room thermostat and Comando Amico Remoto remote control V2	LED 5
DHW thermostat	LED 6
Pump functioning	LED 7
Functioning gas	LED 8
Boiler mode (DO NOT USE) (it establishes whether the boiler operates in instantaneous or storage mode)	LEDs 8 and 1

Once the parameter to be modified has been selected, confirm by turning the main selector switch to Reset momentarily until the LED relative to the parameter switches-off, then release.
Given the OK for selection, pass to the second level where it is possible to set the value of the parameter selected. The value is indicated by the slow flashing of one of the LEDs between 1 and 8. The value is selected by turning the central heating temperature selector (11).
Once the value of the parameter to be modified has been selected, confirm the selection by momentarily turning the main selector switch onto Reset momentarily until the LED relative to the parameter switches off, then release.
Programming mode is exited if no operation is carried out for 30 seconds or if the main selector switch is positioned at OFF from the "parameter setting" level.
For association of the LED to the relative value, see the following tables:

Heating output. The boiler is produced and calibrated in the central heating phase at nominal output.

Permanent reduction of the timer. The boiler has an electronic timing device that prevents the burner from igniting too often in the heating phase. The boiler has a standard supply of a timer adjusted at 180 seconds.

Heating switch-on timer (continuous variation)	Flashing LED (slow)
30 seconds	LED 1
55 seconds	LED 2
80 seconds	LED 3
105 seconds	LED 4
130 seconds	LED 5
155 seconds	LED 6
180 seconds (Standard setting)	LED 7
255 seconds	LED 8

Central heating ramp timing. The boiler distributes the maximum power set in the previous parameter. The boiler performs an ignition ramp of about 650 seconds to arrive from minimum power to nominal heating power.

Central heating ramp timer (continuous variation)	Flashing LED (slow)
65 seconds	LED 1
130 seconds	LED 2
195 seconds	LED 3
390 seconds	LED 4
455 seconds	LED 5
520 seconds	LED 6
585 seconds	LED 7
650 seconds (standard setting)	LED 8

Heating switch-on delay request from Room thermostat and Comando Amico Remoto V2 .
The boiler is set to switch-on immediately after a request. In the case of particular systems (e.g. area systems with motorised thermostatic valves etc.) it may be necessary to delay ignition.

Heating switch-on delay request from Room thermostat and Comando Amico Remoto remote control V2 (continuous variation)	Flashing LED (slow)
0 seconds (Standard setting)	LED 1
54 seconds	LED 2
131 seconds	LED 3
180 seconds	LED 4
206 seconds	LED 5
355 seconds	LED 6
400 seconds	LED 7
510 seconds	LED 8

DHW thermostat. With the "correlated" thermostat setting the switch-off of the boiler takes place on the basis of the temperature set using the domestic hot water adjustment selector switch (10). While with the setting of the "fixed" DHW thermostat the switch-off temperature is fixed at the maximum value independently from the position of the selector switch.

DHW thermostat	Flashing LED (slow)
Correlated	LED 1
Fixed (Standard setting)	LED 8

Circulating pump function. Two circulating pump operational modes can be selected in heating phase.
In "intermittent" mode it is activated from the room thermostat or from the remote control, in "continuous" mode the pump always runs when the main switch (9) is on CH.

Pump function	Flashing LED (slow)
Intermittent (Standard setting)	LED 1
Continuous	LED 8

Town Gas G110 – Industrial gas. The setting of this function is used to adjust the boiler in order to function with gases from the first family.

Gas G110 - Industrial gas (first family gas)	Flashing LED (slow)
Off (Standard setting)	LED 1
On	LED 8

3.8 AUTOMATIC SLOW IGNITION FUNCTION WITH TIMED RAMP DELIVERY.

In the ignition phase the P.C.B. carries out an increasing gas delivery ramp (with pressure values that depend on the type of gas selected) with preset duration. This prevents every calibration or precision adjustment of the boiler ignition phase in any conditions of use.

3.9 "CHIMNEY SWEEP FUNCTION"

When activated, this function forces the boiler at max. output for 15 minutes.
In this state all adjustments are excluded and only the safety thermostat and the limit thermostat remain active. To activate the chimney sweep function it is necessary to position the main switch on Reset for a time between 8 and 15 seconds without DHW or CH requests. Its activation is signalled by the simultaneous flashing of the LEDs (2) and (3). This function allows the technician to check the combustion parameters. After the checks, deactivate the function switching the boiler off and then on again.

3.10 PUMP ANTI-BLOCK FUNCTION.

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

3.11 THREE-WAY ANTI-BLOCK FUNCTION.

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

3.12 RADIATORS ANTI-FREEZE FUNCTION.

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

3.13 P.C.B. PERIODICAL SELF-CHECK.

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

N.B.: during self-check, the boiler remains off, including signalling.

3.14 YEARLY APPLIANCE CHECK AND MAINTENANCE.

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

- Clean the flue side of the heat exchanger.
- Clean the main burner.
- Visually check the draught-breaker/anti-wind device for deterioration or corrosion.
- Check ignition and operation.
- Check correct calibration of the burner in domestic hot water and central heating phases.
- Check the operation of the appliance control and adjustment devices and in particular:
  - intervention of the main electrical switch on the boiler;
  - system control thermostat intervention;
  - domestic hot water control thermostat intervention.
- Check that the internal system is properly sealed according to specifications.
- Make sure the ionisation flame control gas supply failure safety device is working. It must start-up in less than 10 seconds.
- Visually check for water leaks or oxidation from/on connections.
- Visually check that the water safety drain valves is not blocked.
- Check, after discharging the system pressure and bringing it to zero (read on boiler pressure gauge), that the expansion vessel charge is at 1.0 bar.
- Check that the system static pressure (with system cold and after refilling the system by means of the filling valve) is between 1 and 1.2 bar.
- Visually check that the safety and control devices have not been tampered with and/or shorted, in particular:
  - over-temperature safety thermostat;
  - system pressure switch;
  - flue thermostat.
- Check the condition and integrity of the electrical system and in particular:
  - electrical power cables must be inside the fairleads;
  - there must be no traces of blackening or burning.

3.15 CASING REMOVAL.

To facilitate boiler maintenance the casing can be completely removed by following these simple instructions (Fig. 3-4):

- Remove the lower grid (2) by taking out the 4 lower screws (1);
- remove the front (3) of the boiler by pushing it upwards and pulling it towards yourself at the same time to release it from the top hooks;
- tilt the control panel (4) towards you, taking care to remove the 2 fixing screws (5).

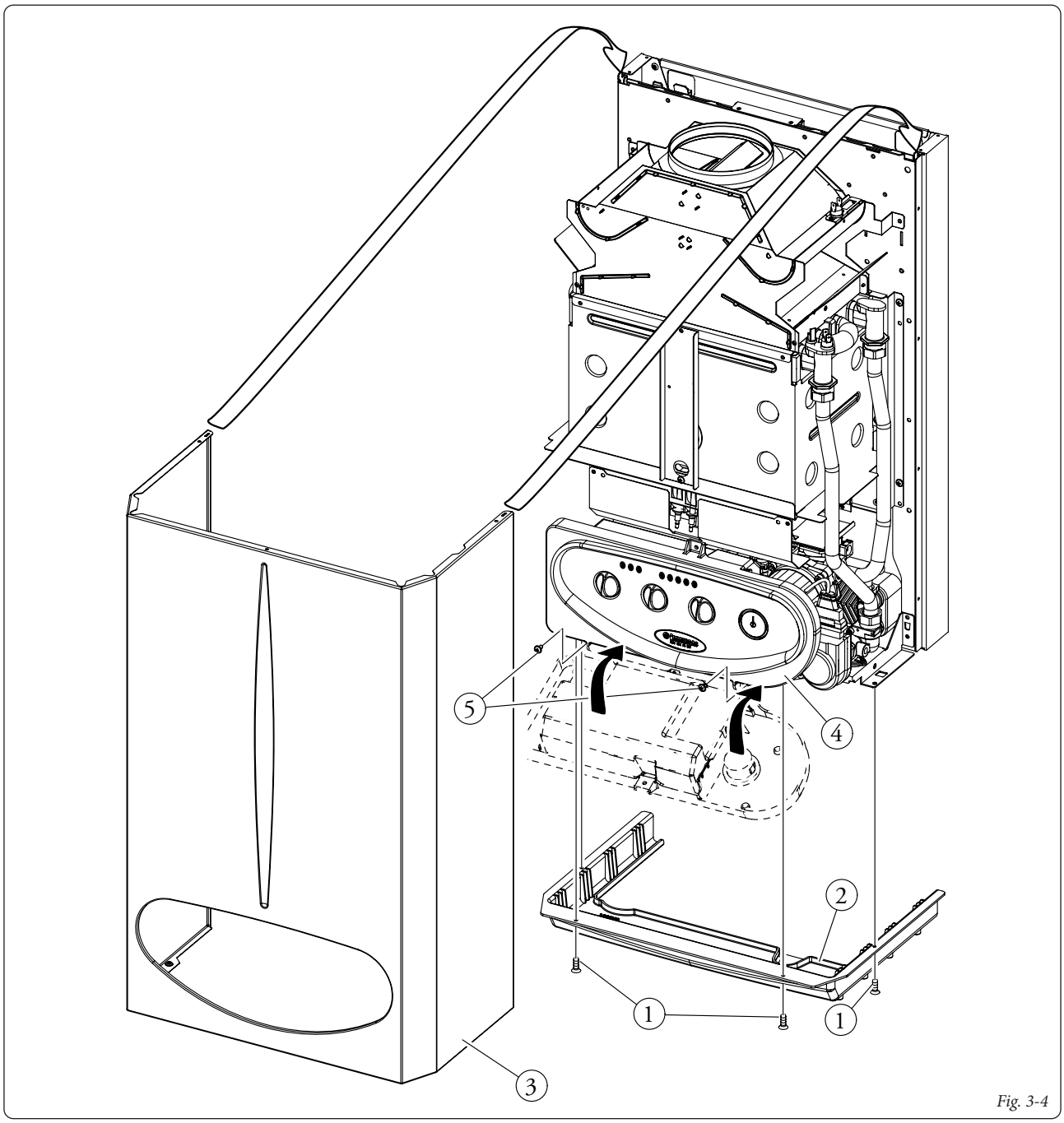


Fig. 3-4

3.16 HEAT OUTPUT.

			METHANE (G20)			BUTANE (G30)			PROPANE (G31)		
	THERMAL POWER	THERMAL POWER	BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES	
	(kW)	(kcal/h)	(m^3/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)
NOM. OUTPUT	27,9	23994	3,27	12,00	122,4	2,44	27,70	282,5	2,40	35,90	366,1
MIN. OUTPUT	10,5	9030	1,27	2,00	20,4	0,95	4,10	41,8	0,94	5,60	57,1

N.B.: gas flow rates refer to heating power below a temperature of 15°C and a pressure of 1013 mbar. Burner pressure values refer to use of gas at 15°C.

3.17 COMBUSTION PARAMETERS.

		G20	G30	G31
Gas nozzle diameter	mm	1,30	0,78	0,78
Supply pressure	mbar (mm H_2O)	20 (204)	29 (296)	37 (377)
Flue flow rate at nominal heat output	kg/h	73	69	72
Flue flow rate at min heat output	kg/h	63	63	63
CO_2 at Q. Nom./Min.	%	6,00 / 2,60	7,40 / 3,00	7,00 / 3,00
CO with 0% O_2 at Nom./Min. Q. Nom./Min.	ppm	70 / 32	133 / 53	77 / 41
NO_x at 0% of O_2 at Q. Nom./Min.	mg/kWh	231 / 134	356 / 139	420 / 150
Flue temperature at nominal output	°C	100	107	103
Flue temperature at minimum output	°C	79	79	79

3.18 TECHNICAL DATA.

Nominal heat input	kW (kcal/h)	30,9 (26571)
Minimum heat input	kW (kcal/h)	12 (10356)
Nominal heat output (useful)	kW (kcal/h)	27,9 (23994)
Minimum heat output (useful)	kW (kcal/h)	10,5 (9030)
Efficiency at nominal heat output	%	90,3
Efficiency at 30% nominal heat output load	%	89,3
Heat loss at case with burner On/Off	%	3,60 / 1,07
Heat loss at flue with burner On/Off	%	6,10 / 0,24
Central heating circuit max. operating pressure	bar	3
Central heating circuit max. operating temperature	°C	90
Adjustable central heating temperature	°C	38 - 85
System expansion vessel total volume	l	4,5
Expansion vessel factory-set pressure	bar	1
Water content in generator	l	2,9
Head available with 1000 l/h flow rate	kPa (m H_2O)	28,9 (2,95)
Hot water production useful heat output	kW (kcal/h)	27,9 (23994)
Domestic hot water adjustable temperature	°C	38 - 77
Domestic hot water circuit flow limiter	l/min	11
Domestic circuit min. pressure (dynamic)	bar	0,3
Domestic hot water circuit max. working pressure	bar	10
Minimum D.H.W. flow rate	l/min	1,5
Specific flow rate (ΔT 30°C)	l/min	12,8
Flow rate capacity in continuous duty (ΔT 30°C)	l/min	13,2
Weight of full boiler	kg	33,9
Weight of empty boiler	kg	31,0
Electrical connection	V/Hz	230/50
Nominal absorption	A	0,5
Installed electric output	W	120
Pump consumption	W	98
Equipment electrical system protection	-	IPX4D
Boiler flue circuit resistance	Pa	1,3
NO_x class	-	3
Weighted NO_x	mg/kWh	140
Weighted CO	mg/kWh	32
Type of appliance	B11BS	
Category	II2H3+	

- * Temperature adjustment with a domestic hot water flow of 9.3l/min. with inlet temperature of 15°C.
- The data relating to domestic hot water performance refer to a dynamic inlet pressure of 2 bar and an inlet temperature of 15°C; the values are measured immediately at the boiler outlet, considering that to obtain the data declared, mixing with cold water is required.
- The maximum sound level emitted during boiler operation is < 55dBA. The sound level value is referred to semianechoic chamber tests with the boiler operating at max. heat output, with extension of the flue gas exhaust system according to product standards.

3.19 KEY FOR DATA PLATE.

Md			Cod. Md	
Sr N°		CHK	Cod. PIN	
Type				
Q_{nw}/Q_n min.	Q_{nw}/Q_n max.	P_n min.	P_n max.	
PMS	PMW	D	TM	
NO_x Class				

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

	ENG
Md	Model
Cod. Md	Model code
Sr N°	Serial Number
CHK	Check
Cod. PIN	PIN code
Type	Type of installation (ref. CEN TR 1749)
Q_{nw} min.	Minimum DHW heat input
Q_n min.	CH minimum heat input
Q_{nw} max.	DHW maximum heat input
Q_n max.	CH maximum heat input
P_n min.	Minimum heat output
P_n max.	Maximum heat output
PMS	Maximum system pressure
PMW	Maximum domestic hot water pressure
D	Specific flow rate
TM	Maximum operating temperature
NO_x Class	NO_x Class

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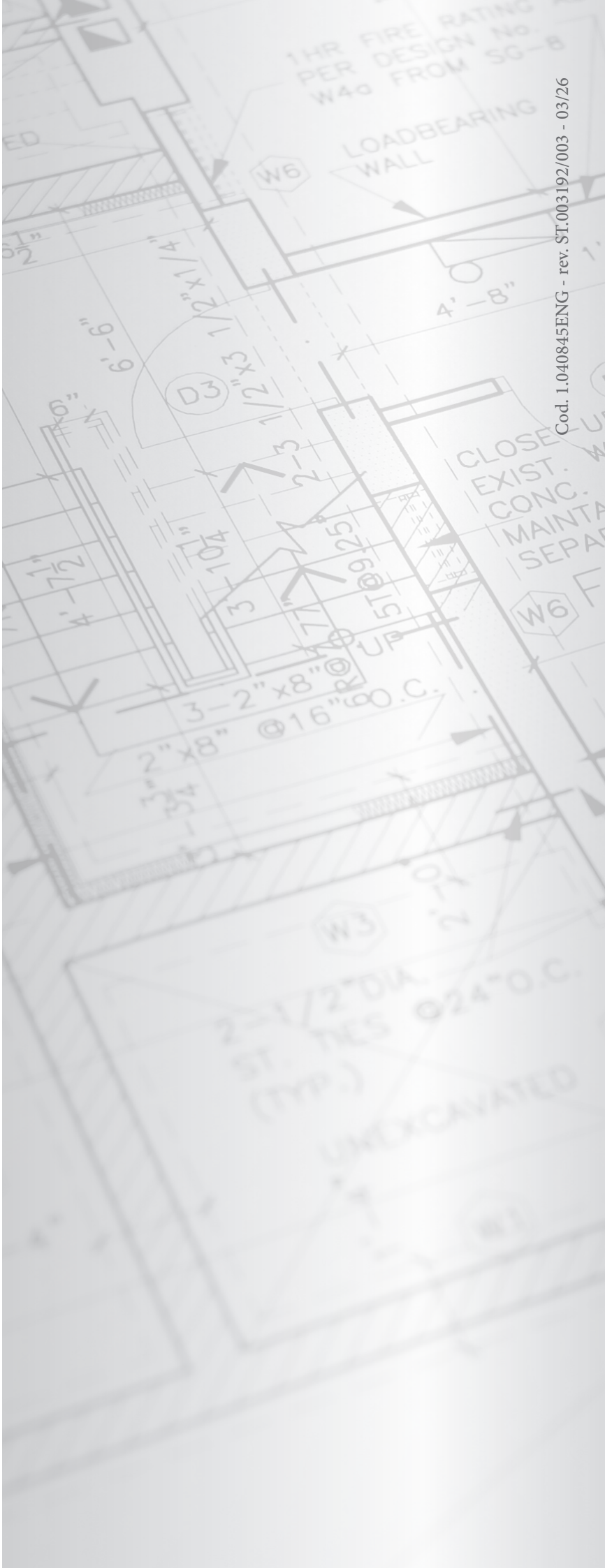

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Design, manufacture and post-sale assistance of gas boilers, gas water heaters and related accessories