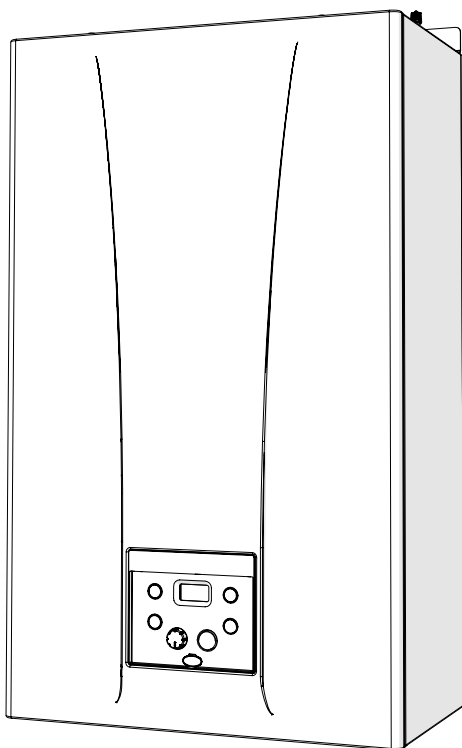


Condensing sealed wall-mounted boiler

GIULIA SYSTEM 25

USER, INSTALLATION AND SERVICING INSTRUCTIONS



ENSURE THAT THESE
INSTRUCTIONS ARE LEFT
FOR THE USER AFTER
COMPLETION OF THE
BENCHMARK SECTION

PLEASE READ THE
IMPORTANT NOTICE
WITHIN THIS GUIDE
REGARDING YOUR BOILER
WARRANTY



To consult the documentation,
visit our website www.sime.it



BOILER DETAILS

please position here a sticker
from installation pack

IMPORTANT NOTICE

For the first year all of our appliances are protected by our manufacturer's guarantee which covers both parts and labour.

As you would expect from Sime Ltd, it is our aim to provide our valued customers with the best in after sales and service.

To take advantage of any extended warranty offered, all you have to do is to adhere to these 3 simple conditions:

- The installation must be carried out to Manufacturers/Benchmark Standards by a Gas Safe Registered Engineer, and recorded in the installation manual.
- The appliance must be registered with both Sime Ltd and Gas Safe within 30 days of installation.
- The appliance must be serviced every 12 months, within 30 days of the anniversary of the installation date, by either Sime Ltd or a Gas Safe registered engineer- ensuring that the Benchmark service record in the installation manual is completed.

Failure to comply with the above will result in only the 12 month warranty being offered. In the absence of any proof of purchase, the 12 month warranty period will commence from the date of manufacture of the boiler as shown on the appliance data plate.

SAFE HANDLING

This boiler may require 2 or more operatives to move it into its installation site, remove it from its packaging and during movement into its installation location. Manoeuvring the boiler may include the use of a sack truck and involve lifting pushing and pulling.

Caution should be exercised during these operations.

Operatives should be knowledgeable in handling techniques when performing these tasks and the following precautions should be considered:

- Grip the boiler at the base
- Be physically capable
- Use personal protective equipment as appropriate e.g. gloves, safety footwear.

During all manoeuvres and handling actions, every attempt should be made to ensure the following unless unavoidable and/or the weight is light.

- Keep back straight
- Avoid twisting at the waist
- Always grip with the palm of the hand
- Keep load as close to the body as possible
- Always use assistance

WARNING

Caution should be exercised when performing any work on this appliance.

Protective gloves and safety glasses are recommended.

- Avoid direct contact with sharp edges.
- Avoid contact with any hot surfaces.

NOTICE

Please be aware that due to the wet testing of the appliance, there may be some residual water in the hydraulic circuit.

- Protect any surfaces, carpets or floorings.
- Use a suitable container to catch any water that escapes when removing the protective caps from the connections.

Code Of Practice

For the installation, commissioning and servicing of domestic heating and hot water products

Benchmark places responsibilities on both manufacturers and installers.* The purpose is to ensure that customers** are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. Installers are required to carry out work in accordance with the following:

Standards of Work

- Be competent and qualified to undertake the work required.
- Install, commission, service and use products in accordance with the manufacturer's instructions provided.
- Ensure that where there is responsibility for design work, the installation is correctly sized and fit for purpose.
- Meet the requirements of the appropriate Building Regulations. Where this involves notifiable work be a member of a Competent Persons Scheme or confirm that the customer has notified Local Authority Building Control (LABC), prior to work commencing.
- Complete all relevant sections of the Benchmark Checklist/Service Record when carrying out commissioning or servicing of a product or system.
- Ensure that the product or system is left in a safe condition and, whenever possible, in good working order.
- Highlight to the customer any remedial or improvement work identified during the course of commissioning or servicing work.
- Refer to the manufacturer's helpline where assistance is needed.
- Report product faults and concerns to the manufacturer in a timely manner.

Customer Service

- Show the customer any identity card that is relevant to the work being carried out prior to commencement or on request.
- Give a full and clear explanation/demonstration of the product or system and its operation to the customer.
- Hand over the manufacturer's instructions, including the Benchmark Checklist, to the customer on completion of an installation.
- Obtain the customer's signature, on the Benchmark Checklist, to confirm satisfactory demonstration and receipt of manufacturer's instructions.
- Advise the customer that regular product servicing is needed, in line with manufacturers' recommendations, to ensure that safety and efficiency is maintained.
- Respond promptly to calls from a customer following completion of work, providing advice and assistance by phone and, if necessary, visiting the customer.
- Rectify any installation problems at no cost to the customer during the installer's guarantee period.



*The use of the word "installer" is not limited to installation itself and covers those carrying out installation, commissioning and/or servicing of heating and hot water products, or the use of supporting products (such as water treatment or test equipment).

**Customer includes householders, landlords and tenants.

The Benchmark Scheme

Sime Ltd is a licensed member of the Benchmark Scheme which aims to improve the standards of installation and commissioning of domestic heating and hot water systems in the UK and to encourage regular servicing to optimise safety, efficiency and performance.

Benchmark is managed and promoted by the Heating and Hotwater Industry Council.

For more information visit www.centralheating.co.uk.

Please ensure that the installer has fully completed the Benchmark Checklist in the use and maintenance section of the installation instructions supplied with the product and that you have signed it to say that you have received a full and clear explanation of its operation.

The installer is legally required to complete a commissioning checklist as a means of complying with the appropriate Building Regulations (England and Wales).

All installations must be notified to Local Area Building Control either directly or through a Competent Persons Scheme.

A Building Regulations Compliance Certificate will then be issued to the customer who should, on receipt, write the Notification Number on the Benchmark Checklist.

This product should be serviced regularly to optimise its safety, efficiency and performance.

The service engineer should complete the relevant Service Record on the Benchmark Checklist after each service.

The Benchmark Checklist may be required in the event of any warranty work and as supporting documentation relating to home improvements in the optional documents section of the Home Information Pack.

Important Information

IT IS A STATUTORY REQUIREMENT THAT ALL GAS APPLIANCES ARE INSTALLED BY COMPETENT PERSONS, IN ACCORDANCE WITH THE GAS SAFETY (INSTALLATION AND USE) REGULATIONS (CURRENT EDITION). The manufacturer's instructions must not be taken as overriding any statutory requirements, and failure to comply with these regulations may lead to prosecution.

No modifications to the appliance should be made unless they are fully approved by the manufacturer.

GAS LEAKS: DO NOT OPERATE ANY ELECTRICAL SWITCH, OR USE A NAKED FLAME. TURN OFF THE GAS SUPPLY AND VENTILATE THE AREA BY OPENING DOORS AND WINDOWS CONTACT THE GAS EMERGENCY SERVICE ON 0800111999.



Please refer to commissioning instructions for filling in the checklist at the back of this installation guide.

Note: All Gas Safe registered installers carry a ID Card.

You can check your installer is Gas Safe Registered by calling 0800 408 5577

SIME COMBINATION BOILERS Installer checklist

Please remember to carry out the following checks after installation. This will achieve complete customer satisfaction, and avoid unnecessary service calls. A charge will be made for a service visit where the fault is not due to a manufacturing defect.

- Has a correct by-pass been fitted and adjusted?
- Has the system and boiler been flushed?
- Is the system and boiler full of water, and the correct pressure showing on the pressure gauge?
- Is the Auto Air Vent open?
- **Has the pump been rotated manually?**
- Is the gas supply working pressure correct?
- Is the boiler wired correctly? (See installation manual).
- **Has the D.H.W. flow rate been set to the customer requirements?**
- Has the customer been fully advised on the correct use of the boiler, system and controls?
- Has the Benchmark Checklist in the use and maintenance section of this manual, been completed?

SAFETY WARNINGS AND REGULATIONS



WARNINGS

- After having unpacked the boiler ensure that it is undamaged and complete including the valve pack, hanging bracket and template.
- The appliance must be used as intended. **Sime** declines all responsibility for any injury or damage to persons, animals, or property as a result of improper installation, adjustment, maintenance or use.
- In the event of water leaks, disconnect the appliance from the mains power supply, close the water mains and seek help from a qualified engineer.
- Periodically check that the operating pressure of the water heating system when cold is **1-1.2 bar**. If required, increase the pressure or seek help from a qualified engineer.
- If the appliance is not used for a long period of time, the following operations must be carried out:
 - *set the main isolation switch to "OFF";*
 - *close the gas and water valves for the water heating system.*
- To ensure continued efficient operation of the appliance it is recommended that it is serviced regularly, at least once a year. This is also a condition of the boiler warranty. It is the law that any service or repair is carried out by a Gas Safe Registered engineer. Services must be recorded in the maintenance section of this installation guide.
- If the power cable is damaged, replace it with a cable ordered as a spare part with the same characteristics (type X). Assembly must be carried out by a qualified professional.



WARNINGS

- **It is recommended that all operators** read this manual carefully in order to use the appliance in a safe and rational manner.
- **This manual** is an integral part of the appliance. It must therefore be kept for future reference and must always accompany the appliance.
- **Installation and maintenance** of this appliance must be carried out by a qualified company or by a professionally qualified technician in accordance with the instructions contained in the manual. Once the work is complete, the company or technician will issue a declaration of conformity with national and local technical standards and legislation in force in the country where the appliance will be used.
- **Any repairs on the appliance** must be carried out solely by professionally qualified personnel, using original spare parts only. Failure to comply with these instructions can jeopardise the appliance's safety and void the warranty with immediate effect.
- **Fonderie SIME S.p.A.** reserves the right to make improvements to its products at any time without prior notice, without compromising their essential characteristics. The graphic illustrations and/or images in this document may show optional accessories that vary according to the country in which the appliance is used.

**DO NOT**

- To allow children under the age of 8 to use the appliance. The appliance can be used by children no younger than 8 years old, by people with physical or cognitive disabilities, and by people lacking experience or the necessary knowledge, provided that they are supervised or have been instructed on how to use the appliance safely and that they understand the risks associated with it.
- To allow children to play with the appliance.
- To allow unsupervised children to perform user maintenance and cleaning.
- To use electrical devices or appliances such as switches, electrical appliances etc if you can smell gas. If this should happen:
 - *open the doors and windows to ventilate the room;*
 - *turn the gas off at the meter;*
 - *call the emergency service 0800 111999.*
- To touch the appliance with bare feet or with any wet part of the body.
- To carry out any repair, maintenance or cleaning operation before having disconnected the appliance from the mains power by setting the main switch to "OFF", and closing the gas supply.
- To modify the safety or adjustment devices without authorization and instructions from the manufacturer.

**DO NOT**

- To block the condensate drain.
- To pull, detach or twist the electrical cables coming out of the appliance even if the appliance is disconnected from the mains power supply.
- To expose the boiler to atmospheric agents. These boilers can also be installed in partially covered areas, as per EN 15502, with a maximum ambient temperature of 60 °C and a minimum ambient temperature of - 5 °C. It is generally advisable to install the boilers below weathered roofs, on the balcony or in a protected niche, to protect them from exposure to weathering agents (rain, hail and snow). All boilers provide a standard antifreeze function.
- To block or reduce the size of the ventilation openings of the room where the appliance is installed, if present.
- Remove the mains power and gas supply from the appliance if the external temperature could fall below ZERO (risk of freezing).
- To leave containers with flammable substances in the room where the appliance is installed.
- To dispose of the packaging material irresponsibly as it could be dangerous. Packaging must be disposed of as specified by the legislation in force in the country where the appliance will be used.

Dear Customer,
Thank you for purchasing a **Sime GIULIA SYSTEM** boiler, a new-generation condensing modulating device possessing technical and performance characteristics capable of satisfying your heating requirements with the utmost safety and with limited running costs.

RANGE

MODEL	CODE	GAS COUNCIL NUMBER
GIULIA SYSTEM 25	8116692	GCN 41-283-66

NOTE: Some models may *NOT* be available in some countries.

COMPLIANCE

Our company declares that **GIULIA SYSTEM** boilers comply with the following directives:

- Gas Appliances EU Regulation 2016/426
- Boiler Efficiency Directive 92/42/EEC
- Low Voltage Directive 2014/35/UUE
- Electromagnetic Compatibility Directive 2014/30/EU
- Ecodesign Directive 2009/125/EC
- Regulation (UE) N. 811/2013 - 813/2013
- Energy labelling Regulation (EU) No. 2017/1369

SYMBOLS



WARNING

To indicate actions which, if not carried out correctly, can result in injury of a general nature or may damage or cause the appliance to malfunction; these actions therefore require particular caution and adequate preparation.



ELECTRICAL HAZARD

To indicate actions which, if not carried out correctly, could lead to injury of an electrical nature; these actions therefore require particular caution and adequate preparation.



DO NOT

To indicate actions which **MUST NOT BE** carried out.



CAUTION

To indicate particularly important and useful information.

MANUAL STRUCTURE

This manual is organized as follows.

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INSTALLATION AND SERVICING INSTRUCTIONS

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USER INSTRUCTIONS

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VERY IMPORTANT!

PLEASE MAKE SURE YOUR COMMISSIONING CHECKLIST AND THE SERVICE INTERVAL RECORDS ENCLOSED ARE FILLED IN CORRECTLY.

ALL GAS SAFE REGISTERED INSTALLERS CARRY A GAS SAFE ID CARD.

BOTH SHOULD BE RECORDED IN YOUR COMMISSIONING CHECKLIST AND A SERVICE INTERVAL RECORDS.

YOU CAN CHECK YOUR INSTALLER IS GAS SAFE REGISTERED

BY CALLING ON 0800 408 5500 OR ALTERNATIVELY WWW.GASSAFEREGISTER.CO.UK

1 USING THE BOILER GIULIA SYSTEM 25

1.1 Control panel

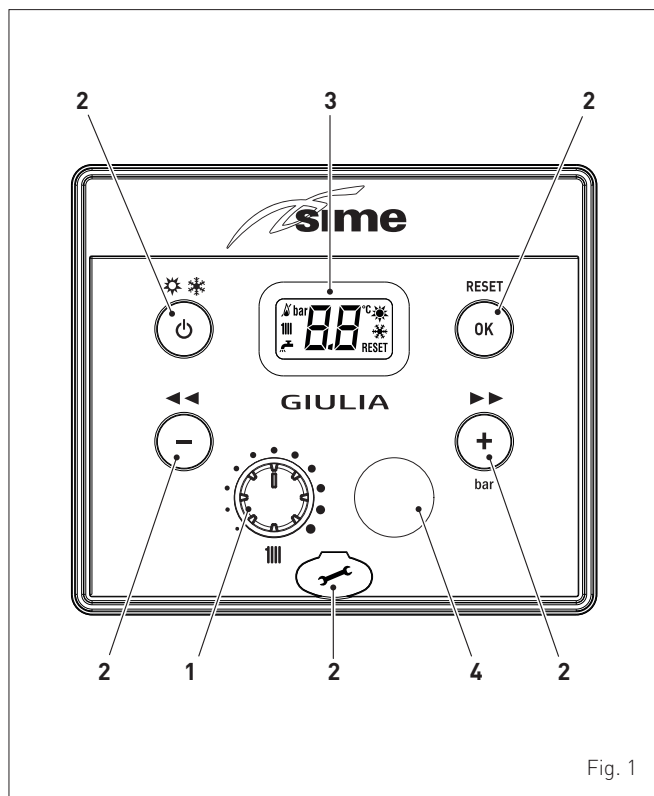


Fig. 1

1 KNOBS

III The heating knob allows the user to set the flow temperature to between 20 and 80°C during normal operation.

2 FUNCTIONAL BUTTONS

⏻ Press for more than one second and release to step through the operating modes (Stand-by – Summer – Winter).

– This allows the engineer to scroll through the parameters or decrease the values.

+ This allows the engineer to scroll through the parameters or increase the values.

bar If pressed once or more times for at least 1 second during normal operation, this button allows the user to visualize on display the system pressure.

OK This allows the engineer to confirm the selected parameter or to modify the value.

RESET This allows the engineer to reset the appliances from a lockout failure.

🔧 Programming connector cover plug.

NOTE: pressing any one of these buttons for more than 30 seconds generates a fault on the display without preventing boiler operation. The warning disappears when the button is released.

3 DISPLAY

☀ **"SUMMER"**. This function is NOT USED on these boilers. This symbol appears when the boiler is operating in Summer mode (used when commissioning the boiler). If the symbols ☀ and ❄ are flashing, this indicates that the chimney sweep function is active.

❄ **"WINTER"**. This symbol appears when the boiler is operating in Winter mode. If no operating modes have been enabled both symbols ☀ and ❄ will be off.

RESET **"RESET REQUIRED"**. This message only appears if there is a malfunction which must be or may be restored manually.

III **"HEATING"**. This symbol is present during heating operation or when the chimney sweep function is operating; it flashes during the heating set point selection.

🔥 **"LOCKOUT" DUE TO NO FLAME.**

💧 **"FLAME LIT".**

AL **"ALARM"**. This indicates that a fault has occurred. The number specifies the cause which generated the alarm (see section **"Fault / malfunction codes"**).

SE **"MAINTENANCE REQUEST"**. If active, it shows it is time to perform maintenance on the boiler.

4 (NOT USED on these boilers)

1.2 Preliminary checks



WARNING

- Should it be necessary to access the areas in the bottom part of the appliance, make sure that the system components and pipes are not hot (risk of burning).
- Before replenishing the heating system, put on protective gloves.

Prior to use the **GIULIA SYSTEM** boiler must be installed and commissioned by a Gas Safe Registered engineer. It may be necessary for the user to occasionally have to start the boiler, for instance after a holiday or after an interruption of the gas supply. In these cases the following operations must be carried out.

- check that the gas isolation and water system valves are open
- using the pressure gauge (1) check that the pressure in the heating system, when cold, is **1-1.2 bar**. If the pressure is less than this, use the external filling device to repressurise the system to **1-1.2 bar**
- ensure that the filling device is turned off after use.

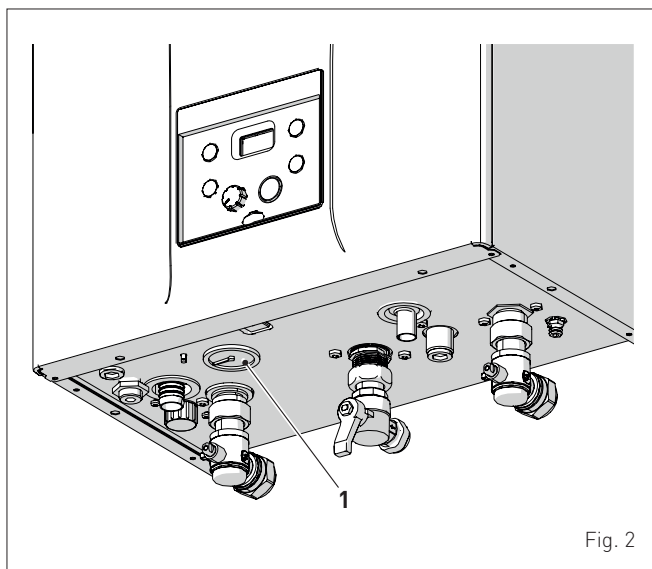


Fig. 2

1.3 Ignition

After having carried out the preliminary checks, proceed as follows:

- set the main system switch to "ON"

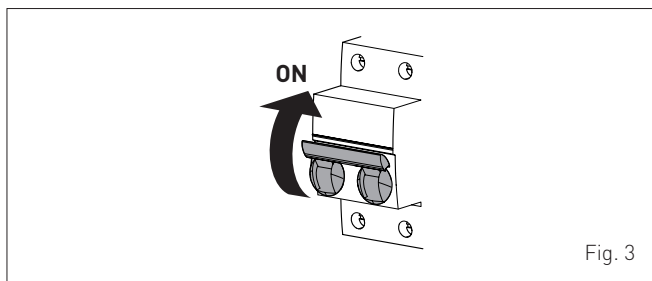


Fig. 3

Once the boiler has been operated in "SUMMER mode" ☀️ "WINTER mode" ❄️ can be selected by pressing and holding the button ⏻ for at least 1 second. The internal temperature of the boiler will appear on the display. Ensure that any timers and room thermostats are in the on position. The IIII will appear on the display and the boiler will ignite.



1.4 Adjusting the delivery temperature

Should you wish to increase or decrease the boiler delivery temperature, turn the dial IIII to the desired setpoint. The value can be set to between 20°C and 80°C.

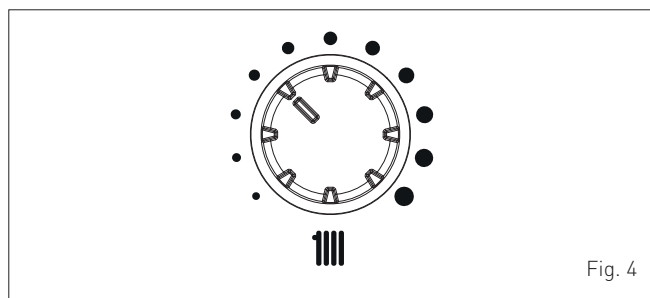


Fig. 4

1.5 Fault / malfunction codes

If a fault/malfunction is detected during boiler operation, the message "AL" will appear on the display followed by the fault code.

If you see alarm "02" (low water pressure in the system):

- press the button **+** (bar) to view the value pressure on the display or using the pressure gauge (1) check that the pressure in the heating system, when cold, is **1-1.2 bar**. If the pressure is less than this, use the external filling device to repressurise the system to **1-1.2 bar**
- ensure that the filling device is turned off after use
- press and hold the **OK RESET** button for more than 3 seconds and check whether normal operating conditions are restored.

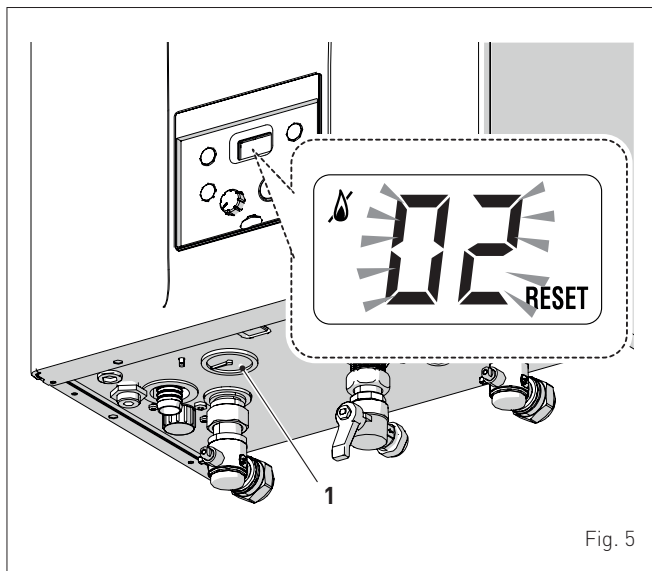
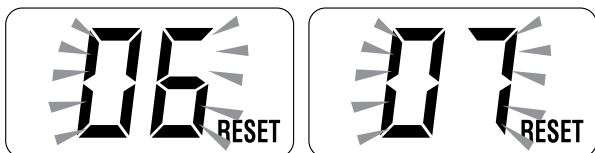


Fig. 5

If you see alarm "06" (no flame detected) and "07" (safety thermostat intervention):

- press and hold the **OK RESET** button for more than 3 seconds and check whether normal operating conditions are restored.



If this operation is not successful, **ONLY ONE MORE ATTEMPT** can be made, therefore:

- close the gas cock
- isolate the power supply
- contact the Qualified Technical Personnel.

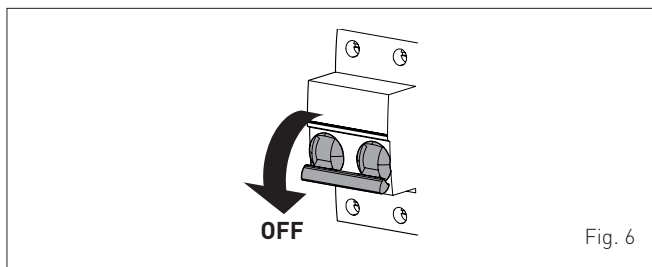


Fig. 6



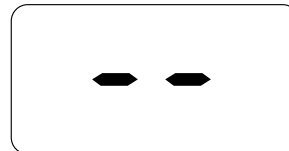
CAUTION

Should you see an alarm not described here, contact a qualified technical professional

2 SHUTDOWN

2.1 Temporary shutdown

To temporarily interrupt the boiler operation press and hold the button for at least one second, once if in "WINTER mode" or twice if in "SUMMER mode" . "- -" will appear on the display the boiler will be in STAND-BY. The boiler anti freeze function will be enabled.



ELECTRICAL HAZARD

The boiler will still be powered.

If the user is away temporarily, for a weekend, short trip etc and if the outside temperature is at ZERO:

- press and hold the button once if in "WINTER mode" or twice if in "SUMMER mode" to put the boiler into stand-by
- isolate the power supply
- isolate the gas cock.

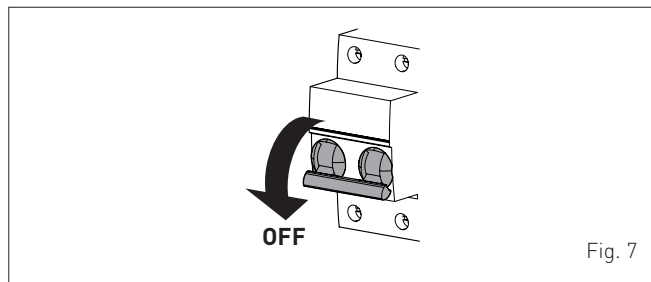


Fig. 7



CAUTION

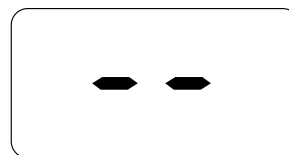
If the outside temperature might fall below ZERO, since the appliance is equipped with an "antifreeze function"

- ONLY PUT THE BOILER INTO STAND-BY
- leave the main system switch set to "ON" (boiler is powered)
- leave the gas cock open.

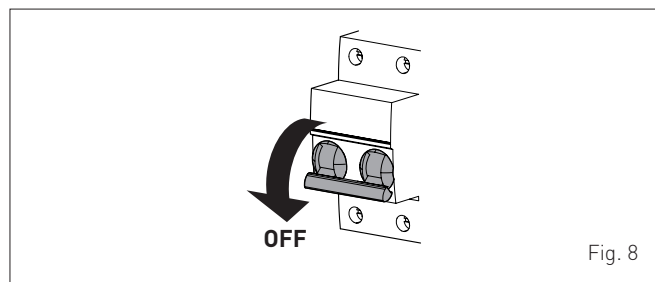
2.2 Shutting down for long periods

If the boiler is to be left unused for a long period, the following operations need to be carried out:

- press and hold the button for at least 1 second, once if in "WINTER mode" or twice if in "SUMMER mode" to put the boiler into stand-by "- -" will appear on the display



- isolate the power supply



- isolate the gas cock
- close the heating and domestic hot water isolation valves
- drain the heating and domestic hot water system if there is the risk of freezing.



CAUTION

Contact the Qualified Technical Personnel if the procedure described above cannot be easily carried out.

3 MAINTENANCE

3.1 Servicing

As a condition of the warranty and to ensure correct operation and efficiency, it is important that the boiler is serviced every 12 months, within 30 days of the anniversary of the installation date ensure the required information is recorded in the Gas Boiler System Service Interval Record (Benchmark).



CAUTION

Maintenance must ONLY be carried out by qualified professionals who follow the indications provided in the INSTALLATION AND MAINTENANCE INSTRUCTIONS.

3.2 External cleaning



WARNING

- Should it be necessary to access the areas in the bottom part of the appliance, make sure that the system components and pipes are not hot (risk of burning).
- Before performing any maintenance, put on protective gloves.

3.2.1 Cleaning the case

When cleaning the cladding, use a cloth dampened with soap and water or alcohol for stubborn marks.



DO NOT

Do not use abrasive products.

4 DISPOSAL

4.1 Disposal of the equipment (European Directive 2012/19/EU)



At the end of their life span, the appliance and electrical and electronic devices coming from households or classifiable as household waste must be delivered to appropriate waste collection systems, in accordance with the law and with Directive 2012/19/EU. This product was designed and manufactured for minimising its impact on the environment and on human health, but it contains components that could be detrimental if managed improperly. The symbol (crossed-out wheeled bin) depicted here and also appearing on your appliance means that the appliance at the end of its life must be managed in accordance with the law and treated as electrical and electronic waste. Before delivering the appliance for its disposal, consult the applicable provisions of the laws in force in the country where the appliance is used and get information on the authorised waste disposal facilities by contacting the relevant local offices.



DO NOT

dispose of the product with urban waste.

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5 DESCRIPTION OF THE APPLIANCE

5.1 Characteristics

GIULIA SYSTEM are condensing wall mounted boilers which **Sime** has produced for installation into domestic properties for system heating. The main design choices made by **Sime** for the **GIULIA SYSTEM** boilers are:

- the total pre-mix microflame burner combined with a steel heat exchanger
- room sealed, Type C appliance. Suitable for use on sealed heating systems
- the microprocessor electronic control board, which makes the heating production system easier to manage offers the option to be connected to room thermostats and also to an external sensor. Where connected to an external sensor, the boiler temperature varies on the basis of the external temperature, according to the selected optimal climatic curve. This provides significant energy and cost savings.

Other special features of the **GIULIA SYSTEM** boilers are:

- the anti-freeze function which activates automatically if the temperature of the water inside the boiler falls below the threshold of the value set at parameter "tS 1.0" and, if there is an external sensor, if the external temperature falls below the threshold of the value set at parameter "tS 1.1".
- anti jamming function of the pump. This activates automatically every 24 hours if no request for heat has been made
- the chimney sweep function lasts 15 minutes and makes the job of the qualified technician easier when measuring the parameters and combustion efficiency
- screen display of the operating and self-diagnostic parameters with error code display when the fault occurs. This makes repair interventions easier and allows appliance operation to be restored correctly.

5.2 Check and safety devices

The **GIULIA SYSTEM** boilers are equipped with the following check and safety devices:

- thermal safety thermostat 100°C
- 3 bar relief valve
- heating water pressure switch
- delivery sensor
- exhaust sensor.



DO NOT

Do not commission or operate the appliance with safety devices which do not work or which have been tampered with.



WARNING

Safety device may only be replaced by professional qualified personnel using **Sime** original spare parts.

5.3 Identification

The **GIULIA SYSTEM** boilers can be identified by means of:

- 1 Packaging label:** this is located on the outside of the packaging and provides a code, the serial number of the boiler and the bar code
- 2 Energy Efficiency Label:** this is positioned on the outside of the packaging to notify the User of the level of energy savings and reduced environmental pollution produced by the appliance
- 3 Technical Data Plate:** this is located on the side of the appliance and provides the technical data, appliance performance and any other information required by law.
- 4 Sticker of product identification.**

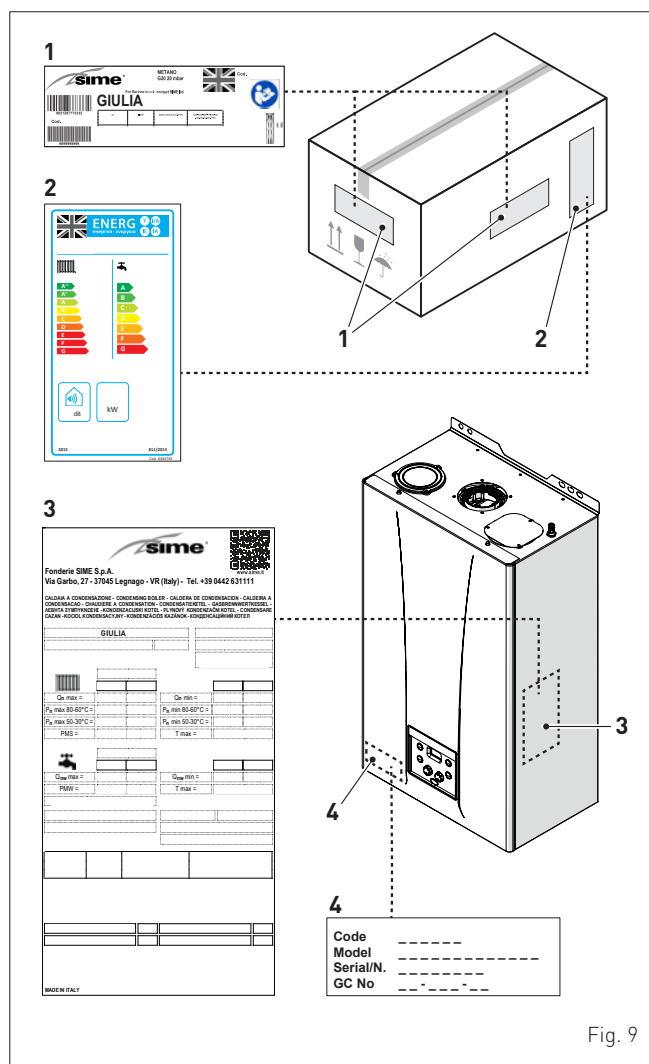


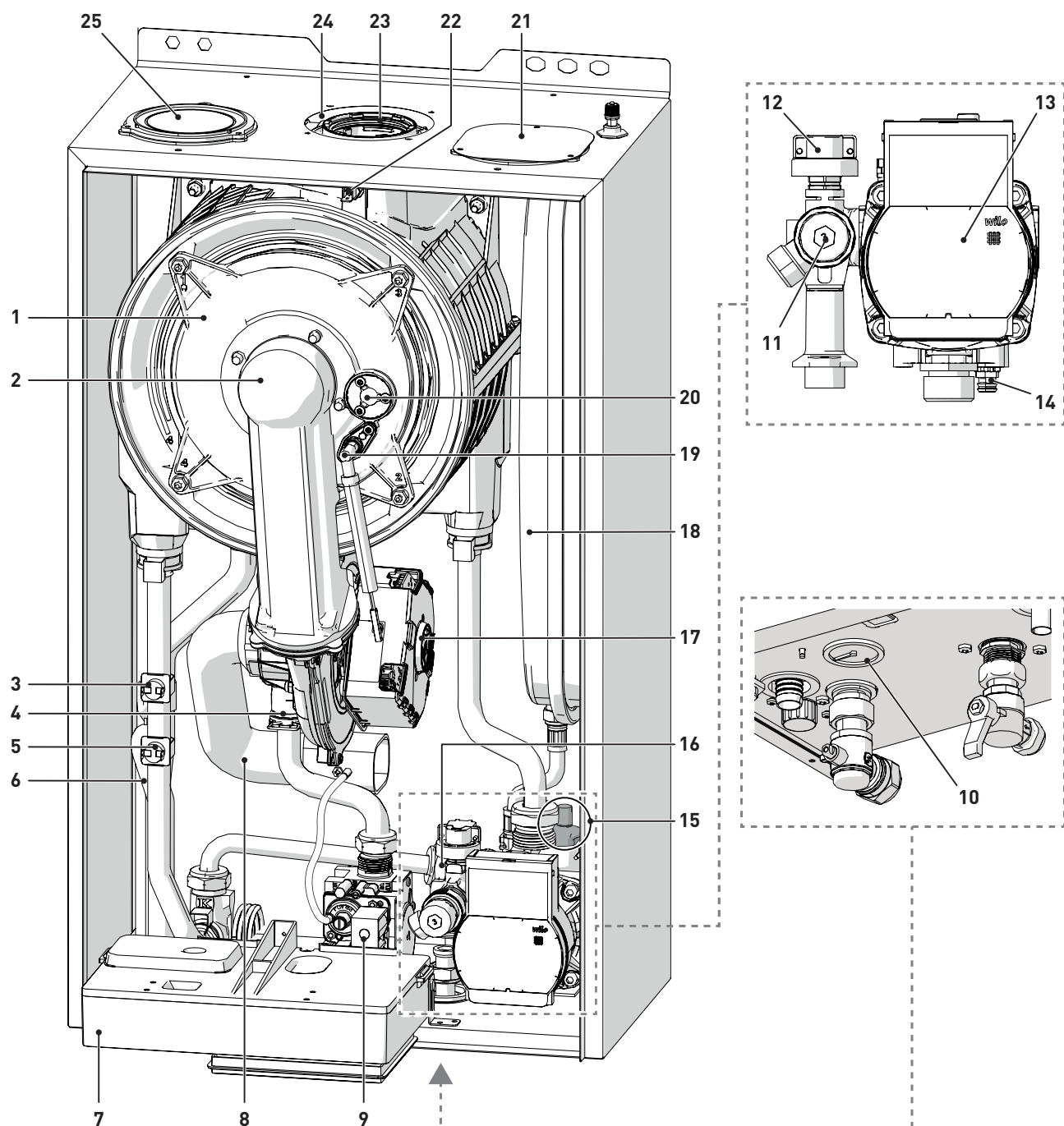
Fig. 9



CAUTION

Tampering with, removing or failing to display the identification plate or carrying out any other operation which does not allow safe identification of the product or which may hinder installation and maintenance operations.

5.4 Structure



- | | | |
|--------------------------------|---|--|
| 1 Combustion chamber door | 12 Water pressure transducer (TPAC) | 22 Exhaust sensor (SF) |
| 2 Air/gas duct | 13 System circulator pump | 23 Smoke outlet duct (CSFU) |
| 3 Safety thermostat | 14 System drainage outlet (SI) | 24 Boiler air inlet duct (concentric ducts) (CAA) |
| 4 Air-gas mixer | 15 Automatic bleed valve | 25 Plug/socket for attaching the air inlet pipe (separate ducts) |
| 5 Boiler delivery sensor (SMC) | 16 Automatic by-pass | |
| 6 Condensate siphon | 17 Fan (V) | |
| 7 Control panel | 18 Expansion vessel (VE) | |
| 8 Venturi air exhaust pipe | 19 Ignition/detection electrode (EAR) | |
| 9 Gas valve | 20 Flame viewing window | |
| 10 Pressure gauge (MA) | 21 Air inlet closing plate (separate ducts) | |
| 11 Relief valve (VS) | | |

Fig. 10

5.5 Technical features

DESCRIPTION		GIULIA SYSTEM
		25
CERTIFICATIONS		
Country of intended installation		GB
Fuel		G20 /G31
PIN number		1312DN6705
Category		II2H3P
Type		C13 - C33
Class NO _x (*)		6 (< 56 mg/kWh)
HEATING PERFORMANCE		
HEAT INPUT (**)		
Nominal flow (Q _n max)	kW	24
Minimum (G20-G31) (Q _n min)	kW	4,8 / 5,5
HEAT OUTPUT		
Nominal (80-60°C) (P _n max)	kW	23,6
Nominal (50-30°C) (P _n max)	kW	25,6
Minimum G20 (80-60°C) (P _n min)	kW	4,6
Minimum G20 (50-30°C) (P _n min)	kW	5,0
Minimum G31 (80-60°C) (P _n min)	kW	5,3
Minimum G31 (50-30°C) (P _n min)	kW	5,8
EFFICIENCY		
Max useful efficiency (80-60°C)	%	98,5
Min useful efficiency (80-60°C)	%	95,7
Max useful efficiency (50-30°C)	%	106,8
Min useful efficiency (50-30°C)	%	104,9
Useful efficiency at 30% of load (40-30°C)	%	108,7
Thermal efficiency (EEC 92/42)		★★★★
Losses after shutdown at 50°C	W	82
ENERGY PERFORMANCE		
HEATING		
Heating seasonal energy efficiency class		A
Heating seasonal energy efficiency	%	93
Sound power	dB(A)	55
ELECTRICAL SPECIFICATIONS		
Power supply voltage	V	230
Frequency	Hz	50
Absorbed electrical power (Q _n max)	W	78
Absorbed electrical power at (Q _n min)	W	56
Absorbed electrical power in stand-by	W	4
Electrical protection degree	IP	X5D
COMBUSTION DATA		
Smoke temperature at Max/Min flow (80-60°C)	°C	75 / 67
Smoke temperature at Max/Min flow (50-30°C)	°C	58 / 50
Smoke flow Max/Min	g/s	11,3 / 2,3
CO ₂ at Max/Min flow rate (G20)	%	9,3 / 9,0
CO ₂ at Max/Min flow rate (G31)	%	10,2 / 10,0
NO _x measured	mg/kWh	32
Gas consumption at Max/Min flow rate (G20)	m ³ /h	2,54 / 0,51
Gas consumption at Max/Min flow rate (G31)	kg/h	1,86 / 0,43
Gas supply pressure (G20/G31)	mbar	20 / 37
	kPa	2 / 3,7

(*) NO_x class according to UNI EN 15502-1:2021

(**) Heat input calculated using the lower heat output (Hi)

DESCRIPTION		GIULIA SYSTEM
		25
Number of nozzles	No.	1
Nozzle diameter (G20-G31)	mm	5,3 / 4,2
TEMPERATURE - PRESSURE		
Max operating temperature (T max)	°C	85
Heating adjustment range	°C	20÷80
Max operating pressure (PMS)	bar	3
	kPa	300
Water content in boiler	l	2,45

Lower Heat Output (Hi)

G20 Hi. 9.45 kW/m³ [15°C, 1013 mbar] - **G31 Hi.** 12.87 kW/kg [15°C, 1013 mbar]

5.6 Main water circuit

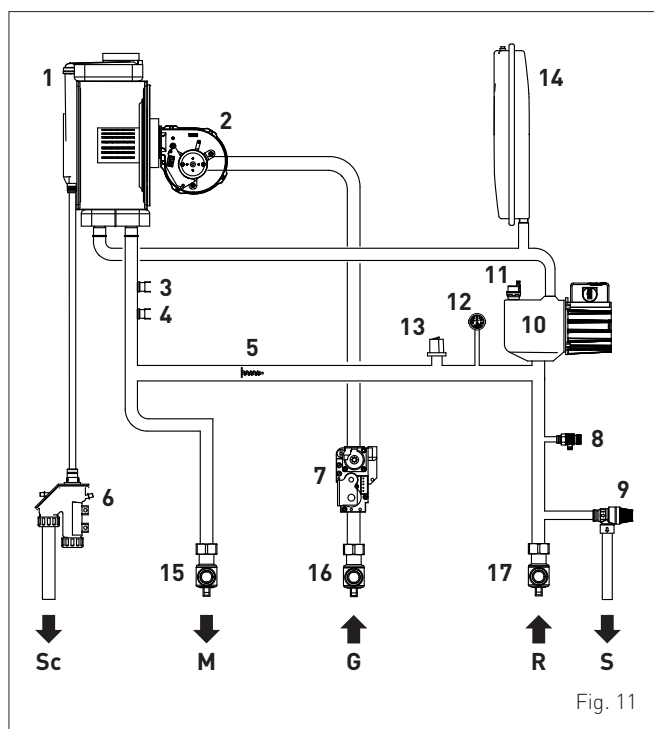


Fig. 11

- 1 Primary heat exchanger group
- 2 Fan (V)
- 3 Safety thermostat
- 4 Heating probe
- 5 Automatic by-pass
- 6 Condensate siphon outlet
- 7 Gas valve
- 8 System drainage outlet (SI)
- 9 System relief valve (VS)
- 10 System circulator pump
- 11 Automatic bleed valve
- 12 Pressure gauge (MA)
- 13 Water pressure transducer (TPAC)
- 14 Expansion vessel (VE)
- 15 System flow cock (if supplied)
- 16 Gas cock (if supplied)
- 17 System return cock (if supplied)

KEY:

- M System flow
- R System return
- G Gas supply
- S Safety valve outlet
- Sc Condensate outlet

5.7 Sensors

The sensors installed have the following characteristics:

- Dual sensor (thermal safety/output) NTC R25°C; 10kΩ β 25°-85°C: 3435
- External temperature sensor NTC R25°C; 10kΩ β 25°-85°C: 3435

Correspondence of Temperature Detected/Resistance

Examples of reading:

TR=75°C → R=1925Ω

TR=80°C → R=1669Ω.

TR	0°C	1°C	2°C	3°C	4°C	5°C	6°C	7°C	8°C	9°C
0°C	27279	26135	25044	24004	23014	22069	21168	20309	19489	18706
10°C	17959	17245	16563	15912	15289	14694	14126	13582	13062	12565
20°C	12090	11634	11199	10781	10382	9999	9633	9281	8945	8622
30°C	8313	8016	7731	7458	7196	6944	6702	6470	6247	6033
40°C	5828	5630	5440	5258	5082	4913	4751	4595	4444	4300
50°C	4161	4026	3897	3773	3653	3538	3426	3319	3216	3116
60°C	3021	2928	2839	2753	2669	2589	2512	2437	2365	2296
70°C	2229	2164	2101	2040	1982	1925	1870	1817	1766	1717
80°C	1669	1622	1577	1534	1491	1451	1411	1373	1336	1300
90°C	1266	1232	1199	1168	1137	1108	1079	1051	1024	998
100°C	973									

Resistance R (Ω)

5.8 Expansion vessel

The expansion vessel installed on the boilers has the following characteristics:

Description	U/M	GIULIA SYSTEM
		25
Total capacity	l	7,0
Prefilling pressure	kPa	100
	bar	1,0
Useful capacity	l	4,45
Maximum system content (*)	l	110

(*) Conditions of:

Average operating temperature 70°C (with high temperature system 80/60°C)

Start temperature at system filling 10°C.



CAUTION

- For systems with water content exceeding the maximum system content (as indicated in the table) an additional expansion vessel must be fitted.
- The difference in height between the relief valve and the highest point of the system cannot exceed 6 metres. If the difference is greater than 6 metres, increase the prefilling pressure of the expansion vessel and the system when cold by 0.1 bar for each meter increase.

5.9 Circulation pump

The flow-head performance curve available for the heating system is shown in the graph below.

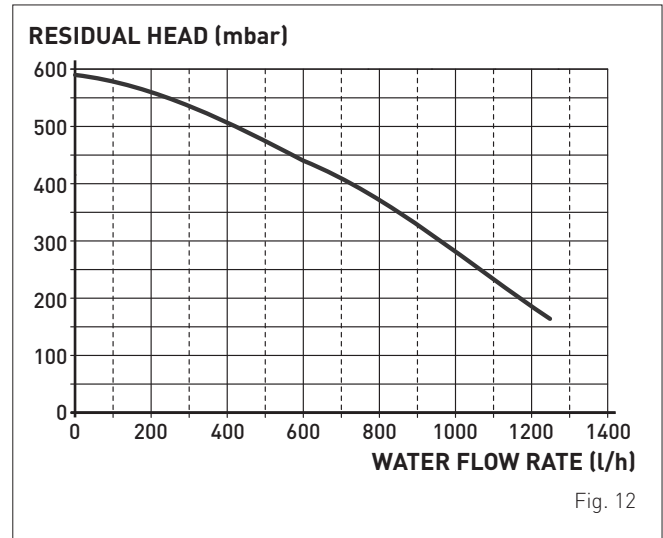


Fig. 12



CAUTION

The appliance is equipped with a by-pass which ensures water circulation in the boiler when thermostatic valves are used in the system. The heating system design should incorporate a room thermostat. Thermostatic radiator valves fitted to all radiators except the room where the room thermostat is fitted. Properties with floor areas exceeding 150square metres should be zoned.

5.10 Control panel

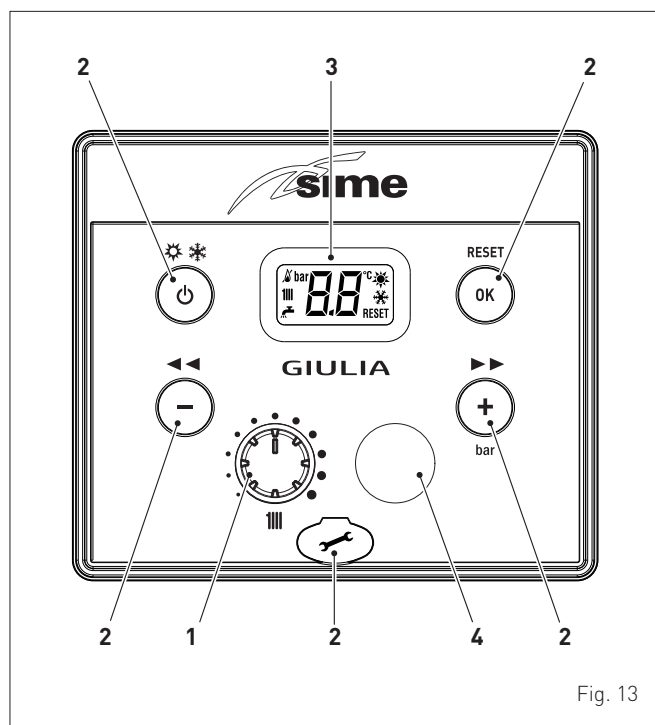


Fig. 13

1 KNOBS

III The heating knob allows the user to set the flow temperature to between 20 and 80°C during normal operation.

2 FUNCTIONAL BUTTONS

⏻ Press for more than one second and release to step through the operating modes (Stand-by – Summer – Winter).

– This allows the engineer to scroll through the parameters or decrease the values.

+ This allows the engineer to scroll through the parameters or increase the values.

bar If pressed once or more times for at least 1 second during normal operation, this button allows the user to visualize on display the system pressure.

OK This allows the engineer to confirm the selected parameter or to modify the value.

RESET This allows the engineer to reset the appliances from a lockout failure.

🔧 Programming connector cover plug.

NOTE: pressing any one of these buttons for more than 30 seconds generates a fault on the display without preventing boiler operation. The warning disappears when the button is released.

3 DISPLAY

☀ “**SUMMER**”. This function is NOT USED on these boilers. This symbol appears when the boiler is operating in Summer mode (used when commissioning the boiler). If the symbols ☀ and ❄ are flashing, this indicates that the chimney sweep function is active.

❄ “**WINTER**”. This symbol appears when the boiler is operating in Winter mode. If no operating modes have been enabled both symbols ☀ and ❄ will be off.

RESET “**RESET REQUIRED**”. This message only appears if there is a malfunction which must be or may be restored manually.

III “**HEATING**”. This symbol is present during heating operation or when the chimney sweep function is operating; it flashes during the heating set point selection.

🔥 “**LOCKOUT**” DUE TO NO FLAME.

🔥 “**FLAME LIT**”.

AL “**ALARM**”. This indicates that a fault has occurred. The number specifies the cause which generated the alarm (see section “**Fault / malfunction codes**”).

SE “**MAINTENANCE REQUEST**”. If active, it shows it is time to perform maintenance on the boiler.

4 (NOT USED on these boilers)

5.11 Wiring diagram

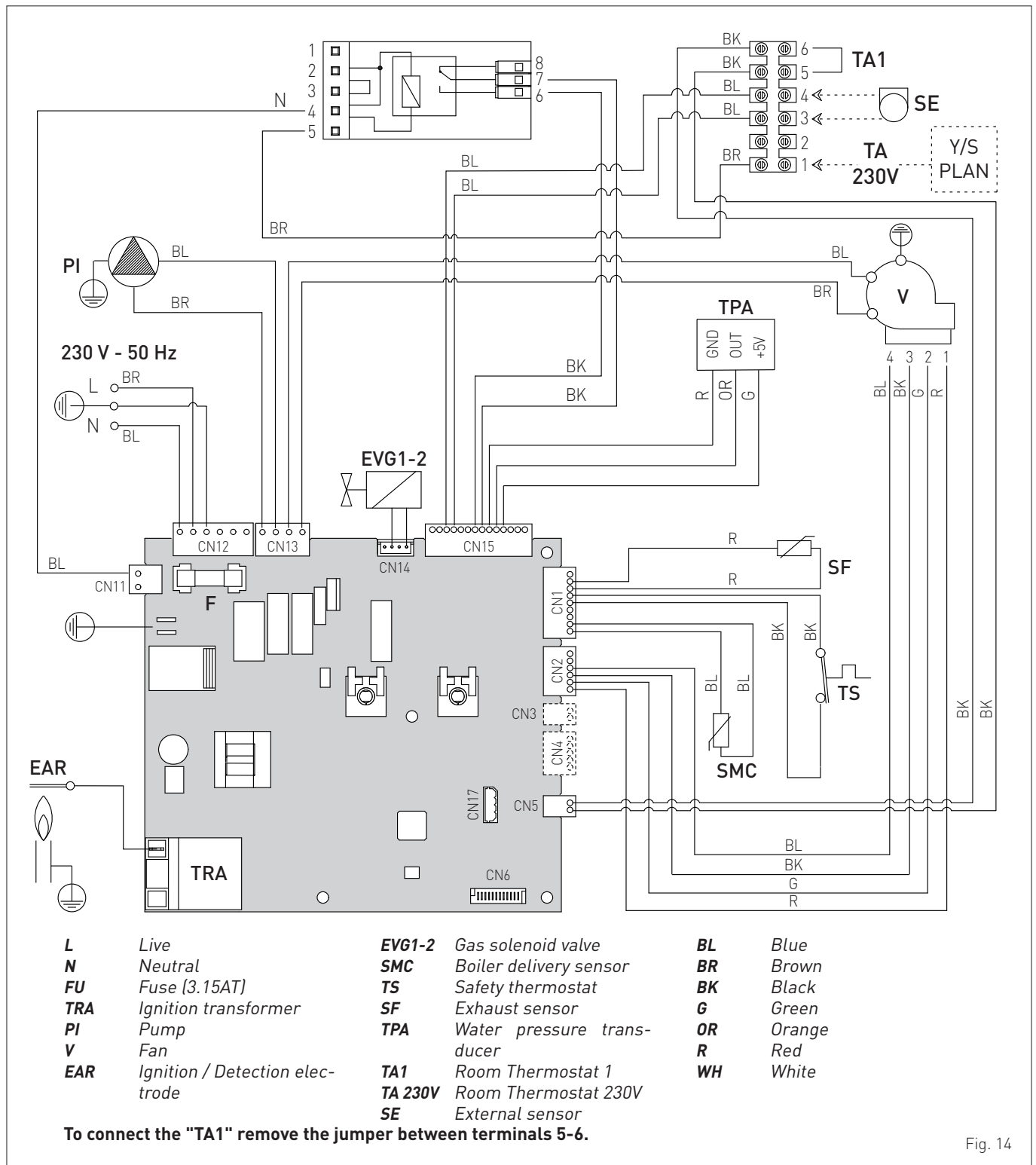


Fig. 14



CAUTION

Installer must:

- To mount an omnipolar residual-current circuit breaker conforming to EN standards that allows for completely disconnecting the system in overvoltage category III conditions (that is, with a gap of at least 3 mm between the open contacts).
- Respect the connections L (Live) - N (Neutral).
- Ensure that the special power cable is only replaced with a cable ordered as a spare part and connected by professionally qualified personnel.



CAUTION

Installer must:

- Connect the earth wire to an effective earthing system. **Sime declines all responsibility for any injury or damage to persons, animals, or property as a result of failure to provide adequate earthing of the appliance.**



DO NOT

Do not use water pipes for earthing the appliance.

5.11.1 "Y" type

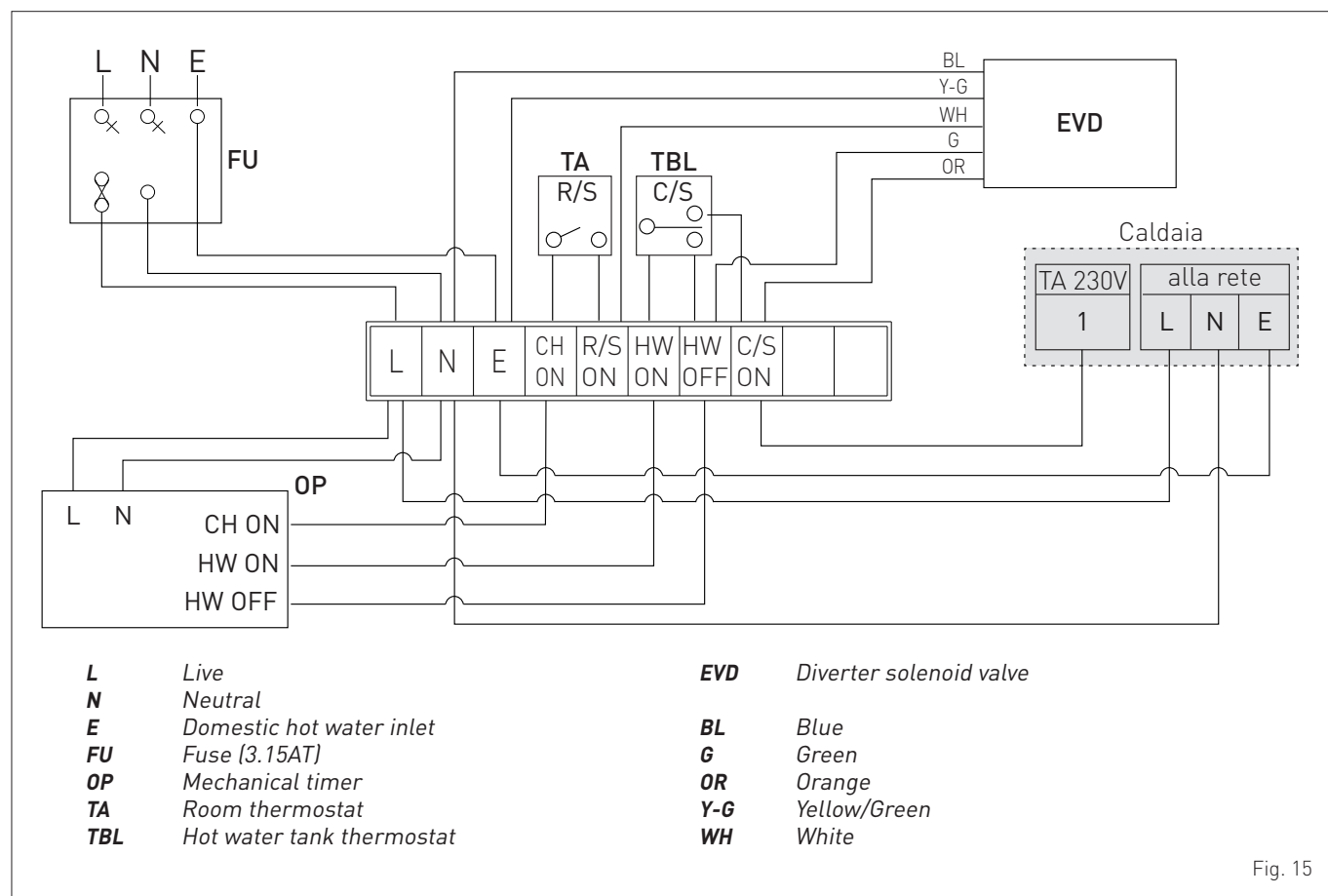


Fig. 15

5.11.2 "S" type

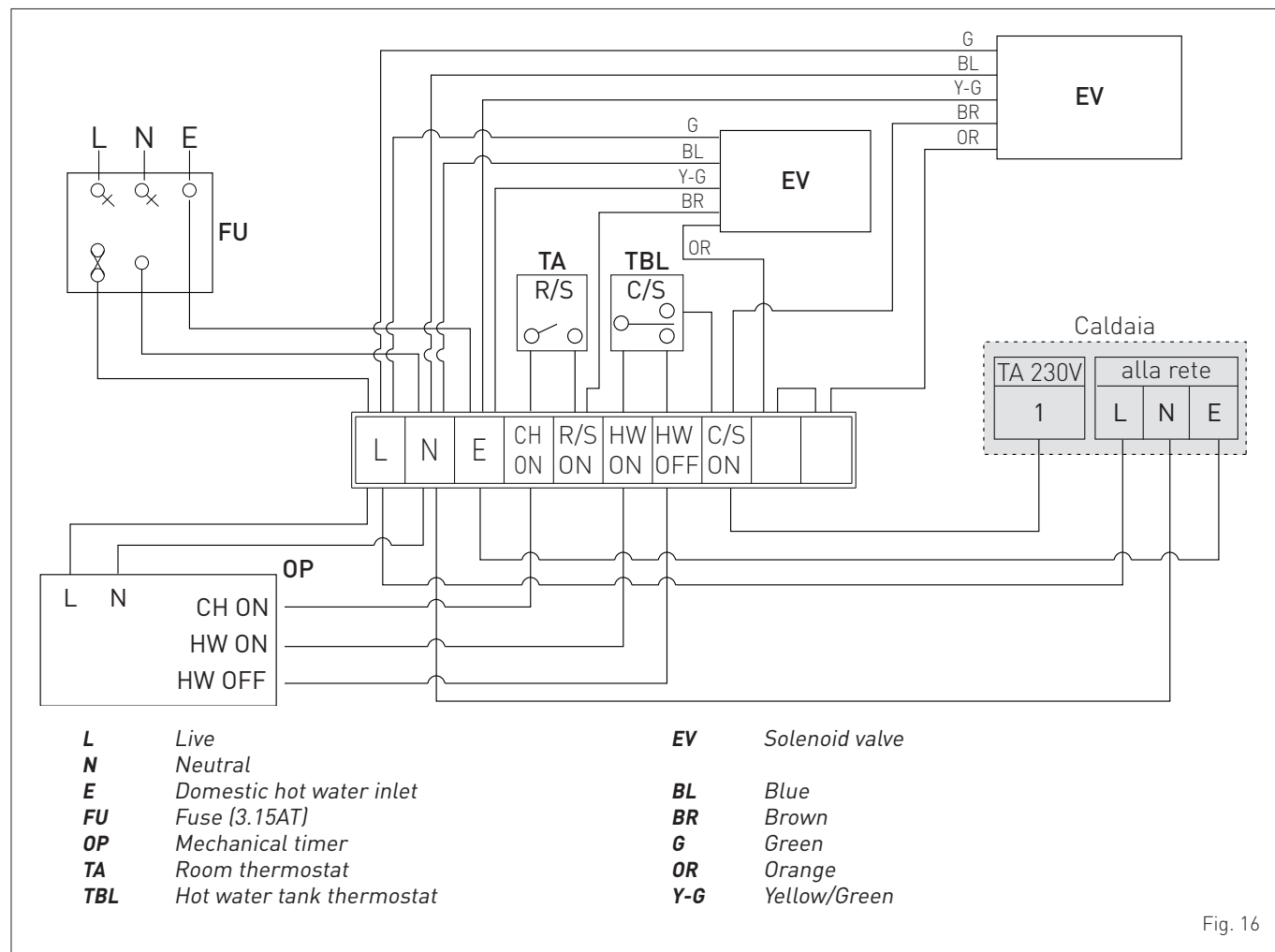


Fig. 16

The Benchmark Scheme

Benchmark places responsibilities on both manufacturers and installers.

The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the requirements of the appropriate Building Regulations.

The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme.

INSTALLATION AND SERVICING INSTRUCTIONS

Installer Checklist

Please remember to carry out the following checks after installation. This will achieve complete customer satisfaction, and avoid unnecessary service calls. A charge will be made for a service visit where the fault is not due to a manufacturing defect.

Has a correct by-pass been fitted and adjusted?

Has the system and boiler been flushed?

Is the system and boiler full of water, and the correct pressure showing on the pressure gauge?

Is the Auto Air Vent open?

Has the pump been rotated manually?

Is the gas supply working pressure correct?

Is the boiler wired correctly? [See installation manual].

Has the D.H.W. flow rate been set to the customer requirements?

Has the customer been fully advised on the correct use of the boiler, system and controls?

Has the Benchmark Checklist in the use and maintenance section of this manual, been completed?

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6 INSTALLATION



CAUTION

The appliance must only be installed by the **Sime** Technical Service or by qualified professionals **who MUST wear** suitable protective safety equipment.

6.1 Receiving the product

GIULIA SYSTEM appliances are delivered in a single unit protected by cardboard packaging.

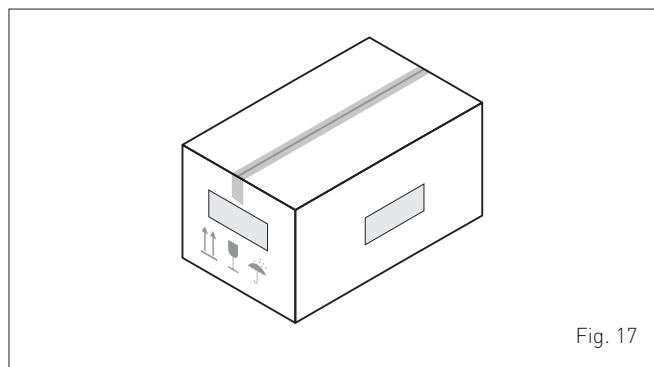


Fig. 17

The plastic bag found inside the packaging contains the following:

- Installation, use and maintenance manual
- Paper template for boiler installation
- Certificate of warranty
- Hydrostatic test certificate
- Connection pack



DO NOT

To leave packaging material around or near children since it could be dangerous. Dispose of it as prescribed by legislation in force.

6.2 Dimensions and weight

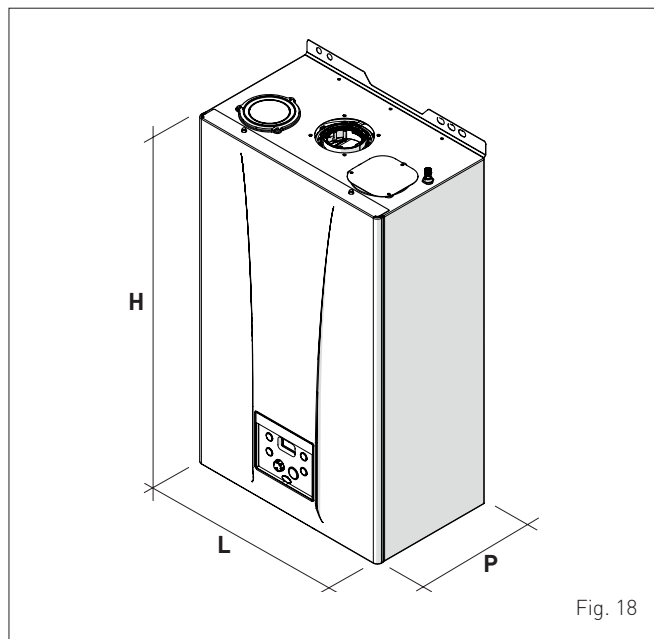


Fig. 18

Description	GIULIA SYSTEM 25
W (mm)	420
D (mm)	262
H (mm)	700
Weight (kg)	27

6.3 Handling

Once the packaging has been removed, the appliance is to be handled manually, tilting it slightly, lifting it and applying pressure in the points indicated in the figure.

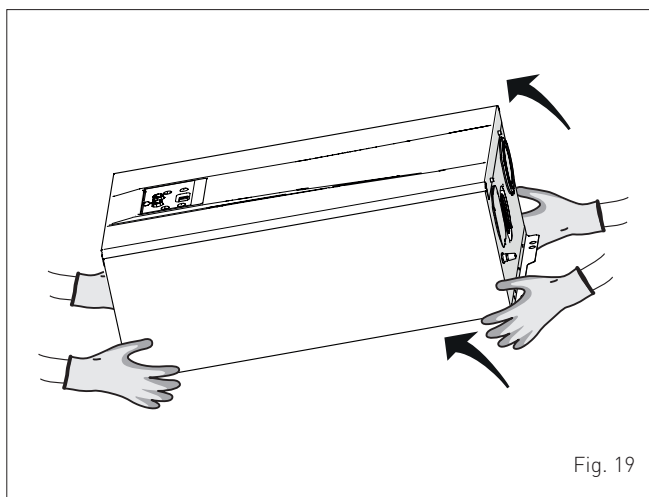


Fig. 19



DO NOT

To grip the appliance casing. Hold the "solid" parts of the appliance such as the base and structural frame.



WARNING

Use suitable tools and personal protection when removing the packaging and when handling the appliance. Observe the maximum weight that can be lifted per person.

6.4 Ventilation requirements

Detailed recommendations for the air supply are given in BS 5440-2. The following note is given for guidance. It is not necessary to have purpose provided air vents in the room or compartment that the appliance is installed.

The minimum temperature of the installation room must NOT be lower than **-5 °C**.



CAUTION

- Make sure that the appliance is protected against direct sunlight, the weather and damp and wet conditions.
- Before assembling the appliance, the installer **MUST** make sure that the wall supports the weight.
- Remember to consider the space needed in order to access the safety/adjustment devices and to carry out maintenance interventions (see Fig. 20).

APPROXIMATE MINIMUM DISTANCES

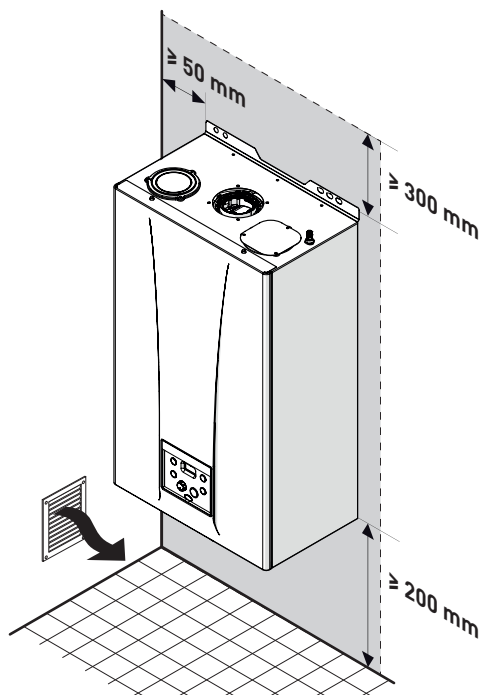


Fig. 20

6.5 New installation or installation of a replacement appliance

The boiler must be installed in a fixed location and only by specialized and qualified person in compliance with all instructions contained in this manual.

The installation of this boiler must be in accordance with the relevant requirements of the current Gas Safety (installation and use), the local building regulations and I.E.E. wiring regulations.

Detailed recommendations for air supply and fluing are given in BS5440.

The following notes are for general guidance: it is not necessary to have a purpose provided air vent in the room or compartment in which the appliance is installed.



CAUTION

It is a condition of the warranty that the boiler is installed in accordance with the instructions in this manual. The boiler must be registered with Gas Safe Register, the Benchmark record must be completed and the boiler is serviced annually and recorded in this manual.



CAUTION

If the domestic water supply is metered or should a water meter be added at a later time, a small expansion vessel should be included in the domestic water pipework.

6.6 Cleaning the system

Before connecting the boiler it is recommended that the system be flushed in accordance to BS 7593, to eliminate any foreign bodies that may be detrimental to the operating efficiency of the appliance.



CAUTION

Failure to flush and add inhibitor to the system may invalidate the warranty.

6.7 Characteristics of feedwater and system treatment

- All recirculatory systems will be subject to corrosion unless an appropriate water treatment is applied. This means that the efficiency of the system will deteriorate as corrosion sludge accumulates within the system, risking damage to pump and valves, boiler noise and circulation problems.
- Before connecting the boiler the associated central heating system must be flushed in accordance with the guidelines given in BS 7593 "Treatment of water in domestic hot water central heating systems".
- **Sime** recommends only the use of FERNOX products for the flushing and final treatment of the system water. This is particularly important in hard water areas. Failure to flush and add inhibitor to the system may invalidate the appliance warranty. Artificially softened water must not be used to fill the heating system. Naturally soft water areas can corrode aluminium heat exchangers. Adding Fernox F1 or Mb-1 will guard against corrosion.
- **Sime** promote the fitting of TF1 System filter with any new boiler installation.
- It is important to check the inhibitor concentration after installation, system modification and annually on a service visit in accordance with the manufacturer's instructions. (Note on benchmark service record this has been complete). Test kits are available from inhibitor stockists; the return of the Fernox test report should be kept with the Benchmark to validate warranty.
- Where Central heating systems are susceptible to freezing a mixture of inhibitor and anti-freeze should be added in accordance with the DWTa code of practice and the Manufacturers instructions.
- The addition of sealing agents to system water is not recommended because deposits can be left in heat exchanger causing circulation issues.

6.8 Boiler installation

GIULIA SYSTEM boilers leave the factory with a paper template for installation onto a solid wall.

For installation:

- position the bracket (1) on the wall (2), where you want to install the boiler
- check that it is straight and mark where to make the holes for the plugs
- drill the holes and insert the expansion plugs (3) which will be used to fix the bracket securely
- hook the boiler onto the pins (4) and secure it using the nuts and washers supplied.

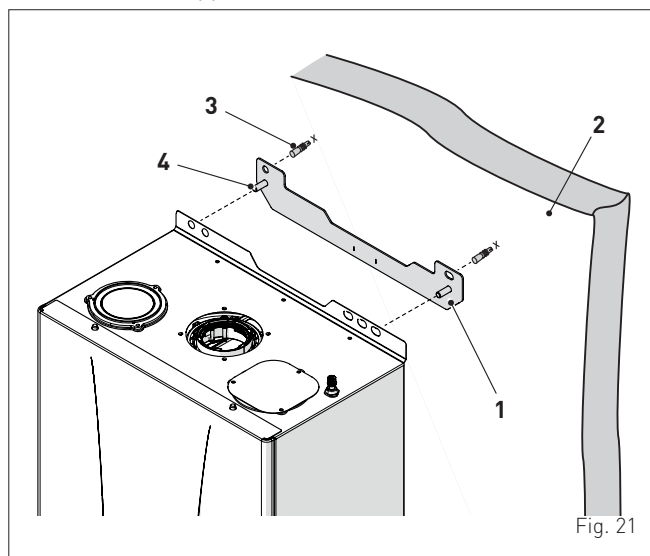


Fig. 21



CAUTION

The boiler should be located observing the required clearances, and provide safe, adequate service access.

6.9 Plumbing connections

The plumbing connections have the following characteristics and dimensions.

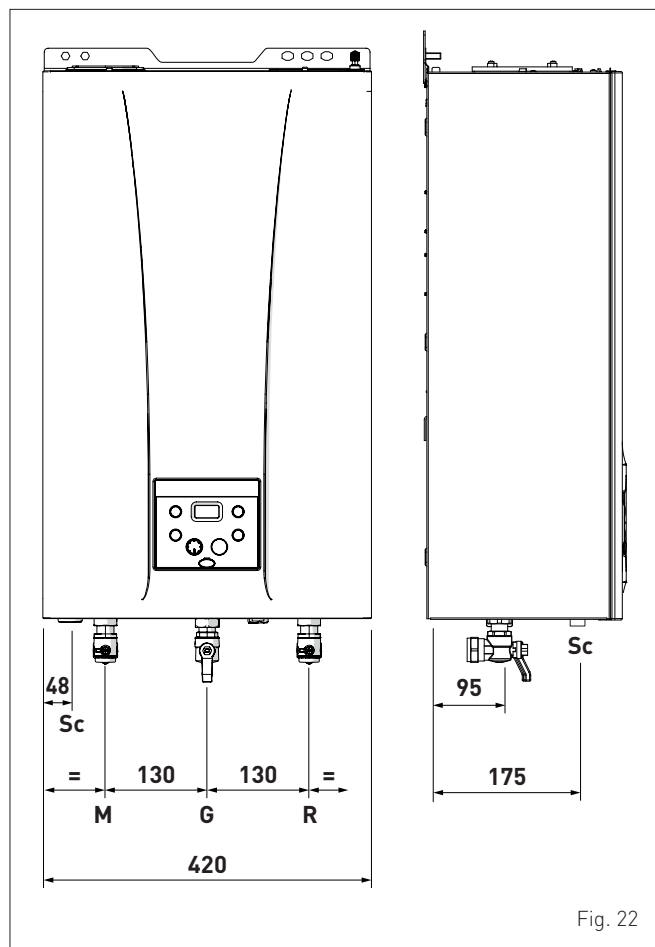


Fig. 22

Description	GIULIA SYSTEM
	25
M - System flow	Ø 22 mm
R - System return	Ø 22 mm
G - Gas cock connection	Ø 15 mm
Sc - Condensate outlet	Ø 21.5 mm



CAUTION

A sealed system must only be filled by a competent person (see section **Method of filling a sealed system** page 38).

6.9.1 Plumbing accessories (optional)

To facilitate plumbing and gas connections to the systems, the accessories as shown in the table below are available and are to be ordered separately from the boiler.

DESCRIPTION	CODE
Installation plate	8075448

NOTE: kit instructions are supplied with the accessory itself or are to be found on the packaging.

6.10 Condensate outlet/collection

To ensure safe disposal of the condensate produced by the flue gases, reference should be made to BS6798:2009.

The boiler incorporates a condensate trap which has a seal of 75 mm, therefore no additional trap is required.

The condensate trap can be filled prior to the installation of the flue by carefully pouring 1 litre of water into the exhaust connection.

NOTE: All pipework must have a continuous fall from the boiler and must be resistant to corrosion by condensate, copper or steel is NOT suitable. It should be noted that the connection of a condensate pipe to a drain may be subject to local building control requirements (Dealing with Condensate - see Appendix 1).

6.11 Gas supply

GIULIA SYSTEM boilers leave the factory configured for G20 gas and can also work with G31 gas. It is necessary to select parameter "01" (see "**Parameter setting and display**"), set it on the basis of the type of gas to be used and replace the nozzle (consult the table in the "**Circuit Board Replacement**" paragraph).

If changing the type of gas to be used, carry out the entire appliance "**COMMISSIONING**" phase (page 40).

The gas connection must be made using seamless steel or copper tube.

Where the piping has to pass through walls, a suitable insulating sleeve must be provided.

When sizing gas piping, from the meter to the boiler, take into account both the volume flow rates (consumption) in m³/h and the relative density of the gas in question.

The sections of the piping making up the system must be such as to guarantee a supply of gas sufficient to cover the maximum output available from the boiler, limiting pressure loss between the gas meter and any apparatus being used to not greater than 1.0 mbar for family II gases (natural gas).

An adhesive data badge is sited inside the front panel; it contains all the technical data identifying the boiler and the type of gas for which the boiler is arranged.



WARNING

Once installation has been completed, check that the joints are air tight as indicated in the installation Standards.



CAUTION

It is recommended that the gas line has a suitable filter.



CAUTION

If the gas supply is changed from G20 to G31, mark the box on the TECHNICAL DATA PLATE.

G31 - 37 mbar



6.12 Connecting the flue



CAUTION

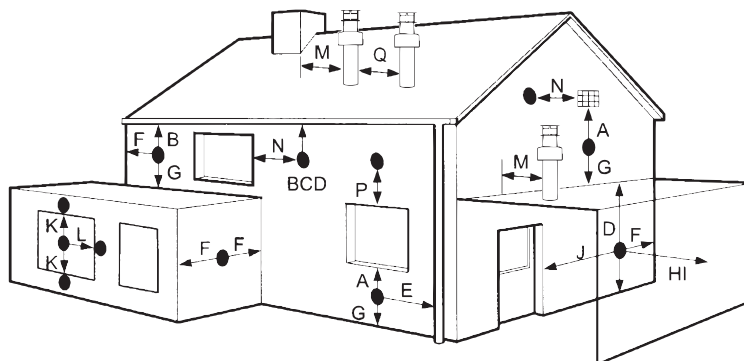
- The appliance must be installed as a room sealed device and unless stated in writing from the manufacturer, in accordance with the current edition of BS 5440-1. The information shown in this manual is for guidance and parts identification.



CAUTION

- Prior to fitting the flue, the condensate trap can be filled by carefully pouring water into the exhaust section of the flue connection.

6.12.1 Flue Terminal Positions



Terminal position	Minimum spacing	
A Directly below an openable window, air vent or any other ventilation opening	300 mm	12 in
B Below guttering, drain pipes or soil pipes (**)	75 mm	3 in
C/D Below eaves, balconies or carport roof (*)	200 mm	8 in
E From vertical drain pipes or soil pipes	75 mm	3 in
F From internal or external corners	300 mm	12 in
G Above adjacent ground, roof or balcony level	300 mm	12 in
H From a boundary or surface facing the boiler	600 mm	24 in
I From a terminal facing the terminal	1,200 mm	48 in
J From an opening in the carport (eg door, window into dwelling)	1,200 mm	48 in
K Vertically from a terminal on the same wall	1,500 mm	60 in
L Horizont. from a terminal on the same wall	300 mm	12 in
M Horizont. from a vertical terminal to a wall	300 mm	12 in
N Horizont. from an openable window or other opening	300 mm	12 in
P Above an openable window or other opening	300 mm	12 in
Q From an adjacent vertical terminal	600 mm	24 in

(*) This dimension to be used with ventilated soffits. With unvented soffits this can be reduced to 75 mm and further reduced to 25 mm when a flue shield is used to protect from the effects of heat and condensation.

(**) This can be reduced to 25 mm but it may be necessary to protect the surfaces from the effects of heat and condensation.

- If the terminal discharges into a pathway or passageway check that combustion products will not cause nuisance and that the terminal will not obstruct the passageway.
- Where the lowest part of the terminal is fitted less than 2 m (78 in) above ground, above a balcony or above a flat roof to which people have access, the terminal **MUST** be protected by a purpose designed guard.
- The air inlet/outlet flue duct **MUST NOT** be closer than 10 mm (0.4 in) to combustible material.
- In certain weather conditions the terminal may emit a plume of steam. This is normal but positions where this would cause a nuisance should be avoided.

Fig. 23

6.12.2 Installation of coaxial flues 60/100mm – 80/125mm

Coaxial flue kits that are supplied separately. The diagrams below, illustrate some examples of fluing options allowed and the maximum lengths than can be achieved. It is essential that a flue gas analysis point is made available directly above the boiler.

IMPORTANT:

- The insertion of each additional 90° bend with a diameter of 60/100 (code 8095850) reduces the available section by 1.5 meters.
- The insertion of each additional 90° bend with a diameter of 80/125 (code 8095870) reduces the available section by 2 meters.
- Each additional 45° curve installed a diameter of 60/100 (code 8095950) reduces the available length by 1.0 metres.
- Each additional 45° curve installed a diameter of 80/125 (code 8095970) reduces the available length by 1.0 metres.

HORIZONTAL FLUES MUST BE LEVEL

NOTE: Before connecting accessories, it is always advisable to lubricate the internal part of the gaskets with silicon products. Avoid using oils and greases.

Model	Length of pipe Ø 60/100			Length of pipe Ø 80/125		
	H (m)	V (m)		H (m)	V (m)	
		Min.	Max.		Min.	Max.
GIULIA SYSTEM 25	6	1,3	8	12	1,2	15

LIST OF Ø 60/100 ACCESSORIES

- 1a Coaxial duct kit L. 790 code 8096250
- 1b Telescopic coaxial duct kit L. 695 code 8098605
- 2a Extension L. 1000 code 8096150
- 2b Extension L. 500 code 8096151
- 3 Vertical extension L. 140 with coupling code 8086950
- 5 Tile for joint code 8091300
- 6 Terminal for roof exit L. 1285 code 8091212 (includes 8086950)

LIST OF Ø 80/125 ACCESSORIES

- 1 Coaxial duct kit L. 785 code 8096253
- 2a Extension L. 1000 code 8096171
- 2b Extension L. 500 code 8096170
- 3 Adapter for Ø 80/125 code 8093150
- 5 Tile for joint code 8091300
- 6 Terminal for roof exit L. 1285 code 8091212 (includes 8093150)

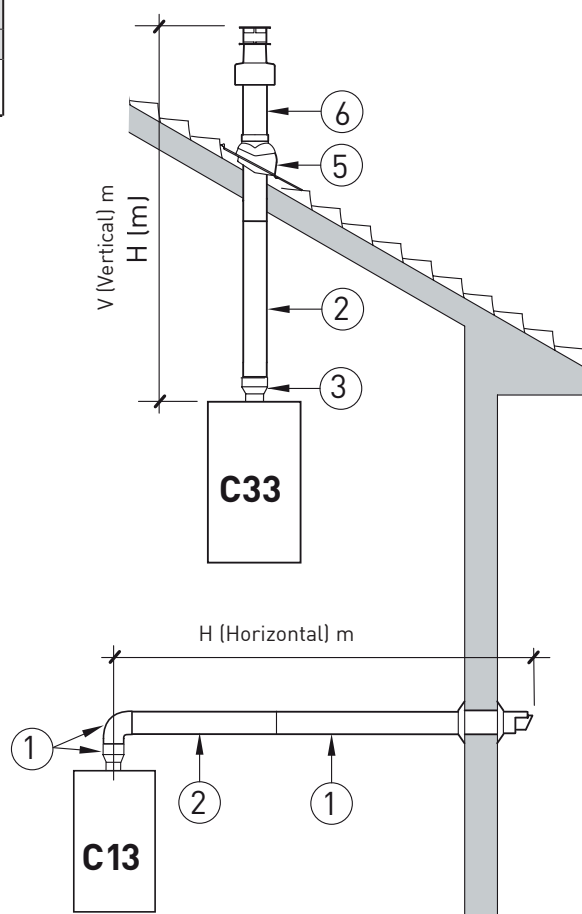
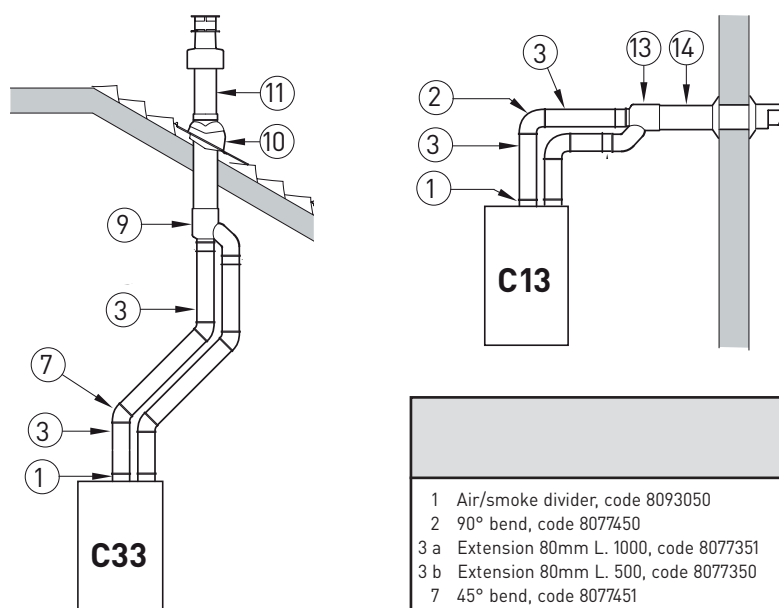


Fig. 24

6.12.3 Installation of separate ducts 80mm

The boiler can be installed with separate air inlet and exhaust ducts. The figure below illustrate some examples of the fluing options allowed and the associated losses of the accessories. The total load loss is the sum of the load losses of the accessories used. The maximum load loss **must not exceed 15 mm H₂O**, and the maximum flue length **must not exceed 25 m** inelt and exhaust.



NOTE
Before connecting accessories, it is always advisable to lubricate the internal part of the gaskets with silicon products. Avoid using oils and greases.

	GIULIA SYSTEM 25 Load loss - mm H ₂ O		GIULIA SYSTEM 25 Load loss - mm H ₂ O	
	Inlet	Exhaust	Inlet	Exhaust
1 Air/smoke divider, code 8093050	0	0	0	0
2 90° bend, code 8077450	0.20	0.25	0.25	0.30
3 a Extension 80mm L. 1000, code 8077351	0.15	0.15	0.20	0.20
3 b Extension 80mm L. 500, code 8077350	0.075	0.075	0.10	0.10
7 45° bend, code 8077451	0.15	0.15	0.20	0.20
9 Inlet/ exhaust fitting, code 8091401	--	--	--	--
10 Articulated tile, code 8091300	--	--	--	--
11 Vertical roof terminal, code 8091204 *	0.80	0.10	1.10	0.15
13 Inlet/ exhaust fitting, code 8091401	--	--	--	--
14 Coaxial Terminal, code 8091204 *	0.80	0.10	1.10	0.15

* This loss includes the losses with use of item 9 or 13

Fig. 25

Plug/socket for attaching the air inlet pipe (separate ducts)

The plug (1) must be modified as detailed below before it can be used:

- disassemble the plug (1) from the boiler
- remove the pre-cut bottom (2) from inside the plug
- turn the plug over and refit it on the opening it was removed from, first slotting in the gasket (3). The cylindrical part should be facing upwards; the first part of the piping will be attached here.

NOTE: If the combustion air inlet duct needs to be connected to the right attachment, move the air inlet closing plate (4) from the right to the left and proceed with modifying the plug (1) as described above.

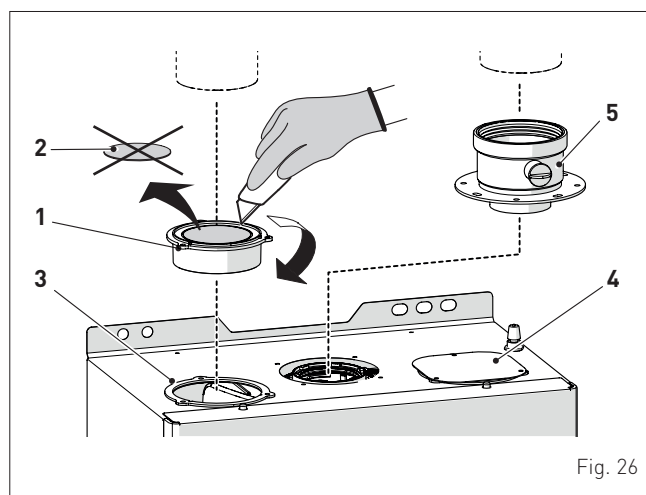


Fig. 26

KEY:

- 1 Plug/socket for attaching the air inlet pipe (separate ducts)
- 2 Pre-cut bottom
- 3 Gasket
- 4 Air inlet closing plate
- 5 Smoke outlet collar



CAUTION

- The maximum total length of the ducts, obtained by adding the lengths of the inlet and outlet pipes, is determined by the load losses of the individual accessories used and **must not exceed 15 H2O mm**.
- For all boiler versions, the total extension for ducts $\varnothing 80$ mm must not in any case exceed 25 m (inlet) + 25 m (outlet).

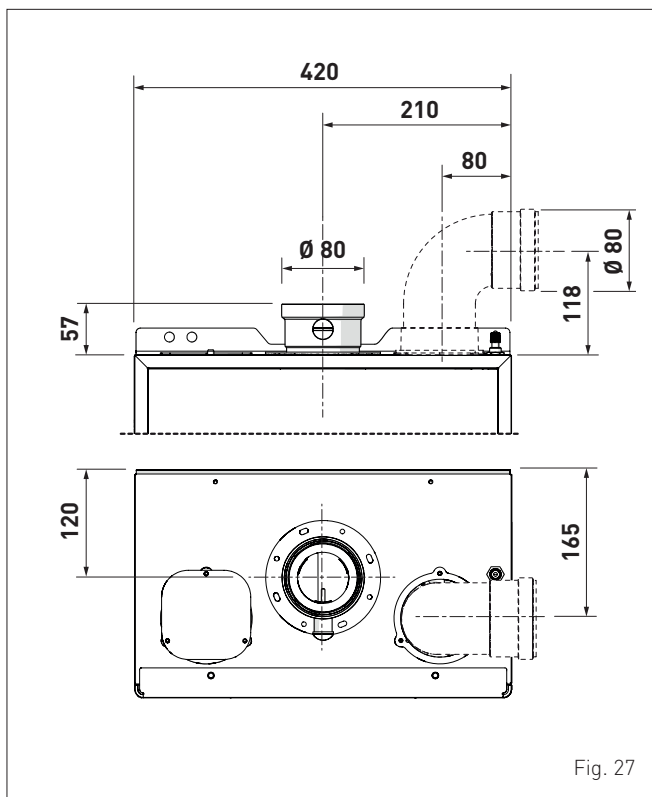


Fig. 27

6.13 Electrical connections and External controls

The boiler is supplied with a mains cable. Connect the boiler to a 230V -50Hz single phase power supply through a fused mains switch, with at least 3 mm spacing between contacts, fused at 3 amps.

The heating control of the boiler can be achieved by connection of either a volt free room thermostat, room thermostat/timer or a dedicated control (listed below). For connection details see section "External timers and Room Thermostats". If this cable needs to be replaced, an original spare must be requested from Sime.

DESCRIPTION	CODE
External sensor kit ($\beta=3435$, NTC 10KOhm at 25°C)	8094101
Power cable (dedicated)	6329627



CAUTION

Only qualified persons in compliance with the instructions contained in this manual are permitted to install, commission and maintain this boiler. The installation of this boiler must be in accordance with the relevant requirements of the current Gas Safety (installation and use) Regulation 1998, the local building regulations, and I.E.E. wiring regulations.



WARNING

Before carrying out any interventions described:

- isolate the power supply
- isolate the gas cock
- avoid contact with any hot surfaces.

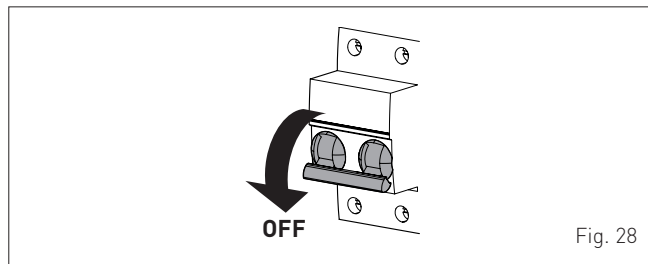


Fig. 28

To make the electrical connections:

- remove the screws (1), pull the front panel (2) forwards and release it from the top by lifting it

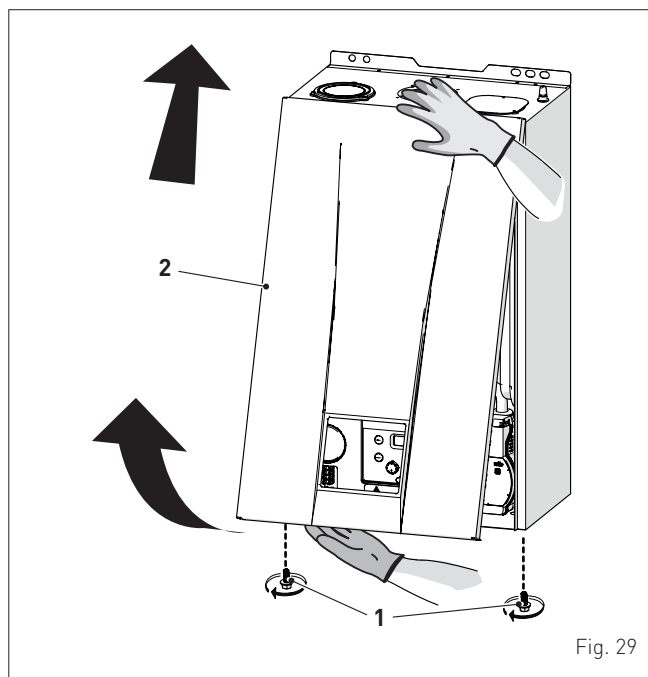


Fig. 29

- remove the screws (3) securing the control panel (4)
- move the panel (4) upwards (a) but keeping it in the side guides (5) to the end of travel
- bring it forwards and down (b) until it is horizontal

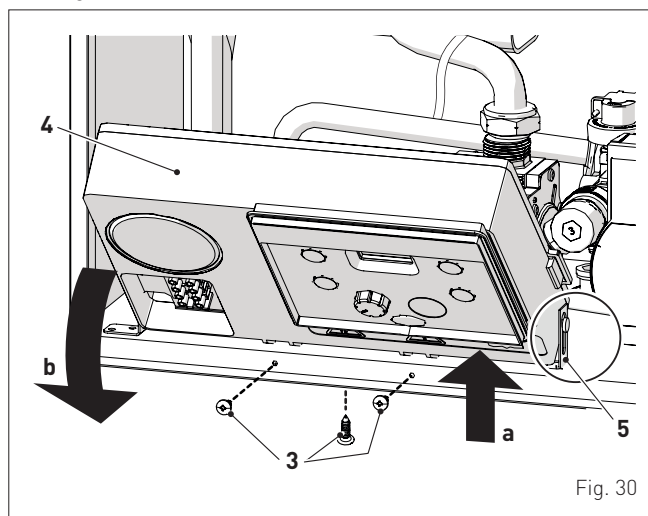


Fig. 30

- insert the connection wires through the grommet (6) and the opening (7) on the control panel

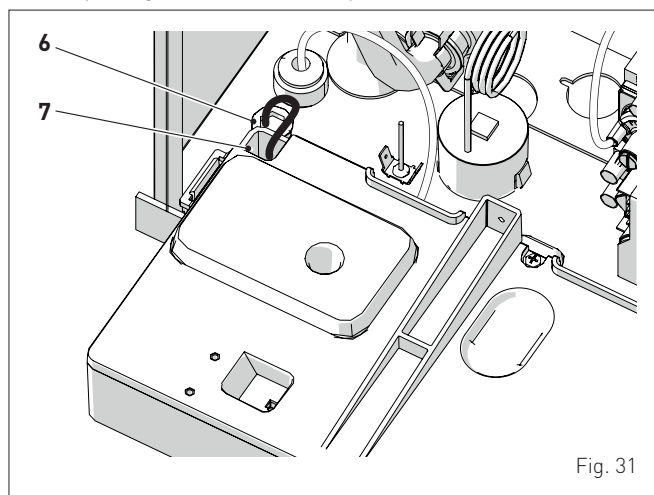


Fig. 31

- bring the control panel (4) to the original position and secure it with the screws (3) which were removed previously
- connect the component wires to the terminal board (8) following the indications provided on the data plate (9) and as shown in section "Wiring diagram".

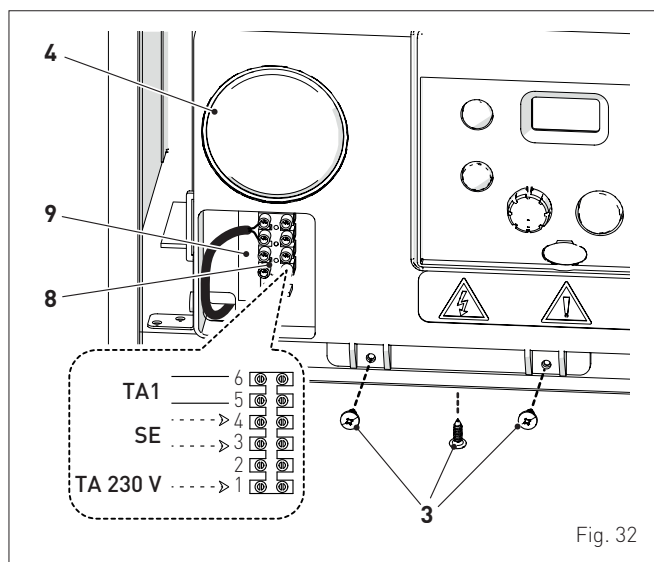


Fig. 32



CAUTION

It is compulsory:

- to use an omnipolar cut-off switch, disconnect switch, in compliance with EN standards (contact opening of at least 3 mm)
- if the power cable is to be replaced, that ONLY a special cable is used with a factory produced re-wired connector, ordered as a spare part and connected by a professionally qualified person
- to connect the earth wire to an effective earthing system (*)
- that before any work is done on the boiler, the mains power is disconnected by setting the main system switch to "OFF".

(*) **Sime** declines all responsible for any injury or damage to persons, animals, or property as a result of failure to provide adequate earthing of the appliance.



DO NOT

Do not use water pipes for earthing the appliance.

6.13.1 External temperature sensor

The boiler is designed for connection to an external temperature sensor code 8094101, which will automatically regulate the central heating delivery temperature.

This means that the delivery temperature of the boiler can vary on the basis of the external temperature depending on the climatic curve selected from those shown in the diagram (Fig. 33).

When fitting the sensor on the outside of the building, follow the instructions provided on the packaging of the product itself.

Climatic curve

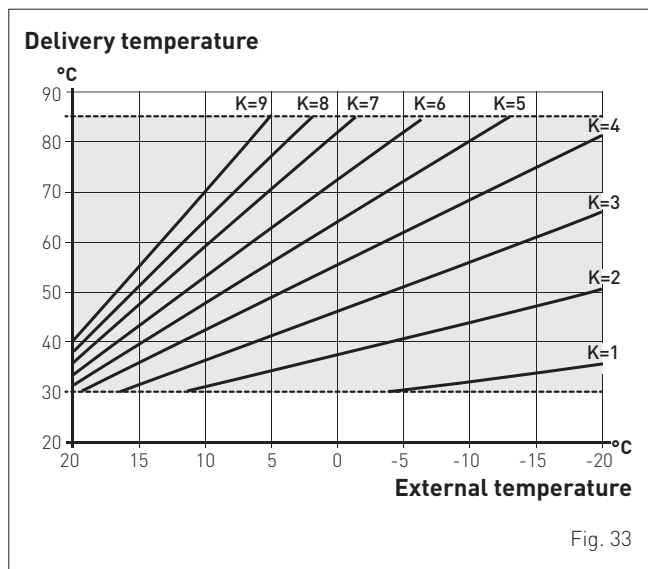


Fig. 33



CAUTION

If there is an external sensor, turn the heating knob  until the required curve K has been selected within the range K=0.0 - K=9.0 in order to select the optimal climatic curve for the system and therefore the delivery temperature based on the external temperature.

6.13.2 External timers and Room Thermostats

The heat demand can be by a "clean contact" conforming to EN607301 connected to TA (see section "Wiring diagram") or by use of a dedicated Sime Remote Control (Home or Home Plus). The boiler will automatically detect when a dedicated control is connected.

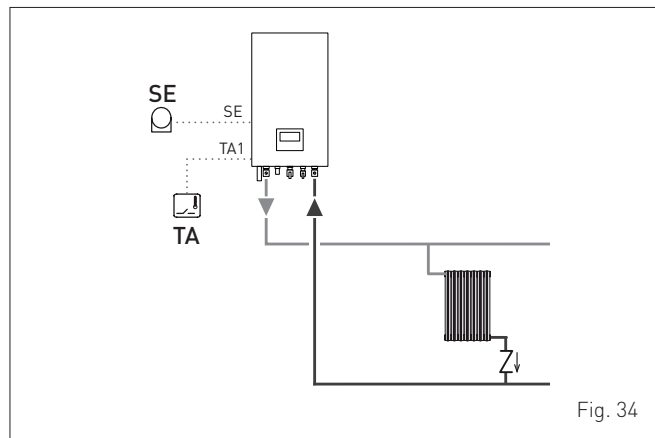
6.14 System solutions

6.14.1 Heating system solutions

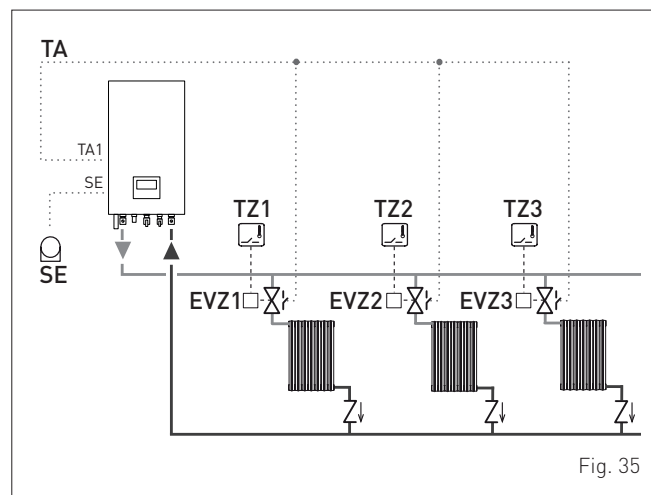
KEY

- SE External temperature sensor
- TA Room thermostat for boiler activation
- TZ1÷TZ3 Zone ambient thermostat
- EVZ1÷EVZ3 Zone solenoid valve
- KA1÷KA3 Zone relays
- PI1÷PI3 Pump
- SP Hydraulic separator

ONE DIRECT ZONE system, external sensor and room thermostat.



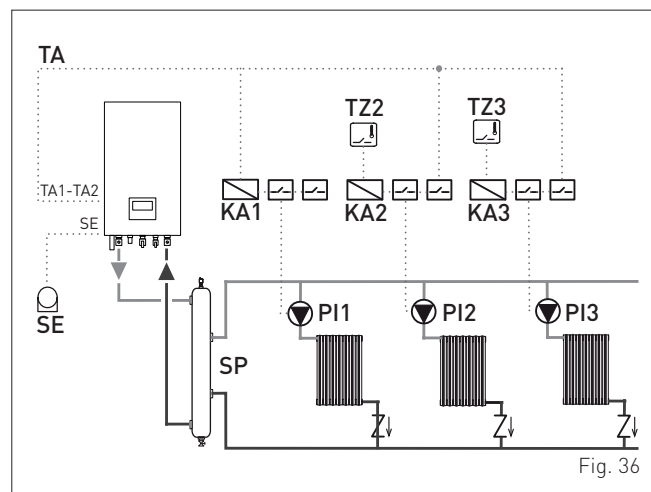
MULTI ZONE system - with zone valve, room thermostat and external sensor.



CAUTION

Set the parameter "tS 1.7 = DELAY SYSTEM PUMP ACTIVATION" to allow the opening of zone valve EVZ.

MULTI ZONE system - with pump, room thermostat and external sensor.



6.14.2 Heating system solutions "Y" and "S" type

Type "Y" and "S" heating systems are designed to control the central heating system, ensuring that heated water is diverted to the correct areas.

The type "Y" system is completed with room thermostats, boiler thermostat and programmer.

It consists solely of a three-way valve that provides either heating only or heating and domestic hot water. Hot water heated by the boiler enters the valve, which sends this water flow to either the heating distribution system, or the domestic hot water system, or both, to operate both central heating and domestic hot water simultaneously.

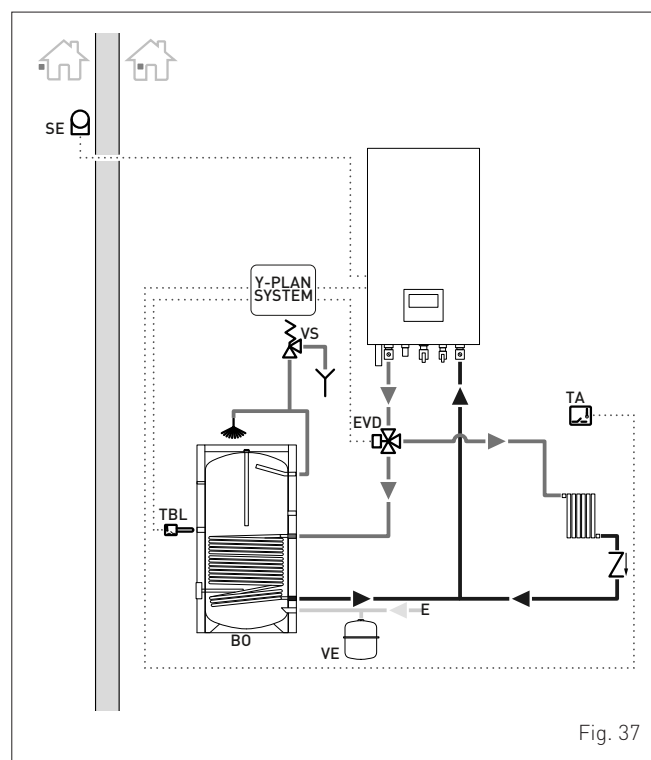
The type "S" system is completed with room thermostats, boiler thermostat and programmer.

It consists of two separate motorized valves, one controlling heating and the other controlling domestic hot water. These valves can be used individually.

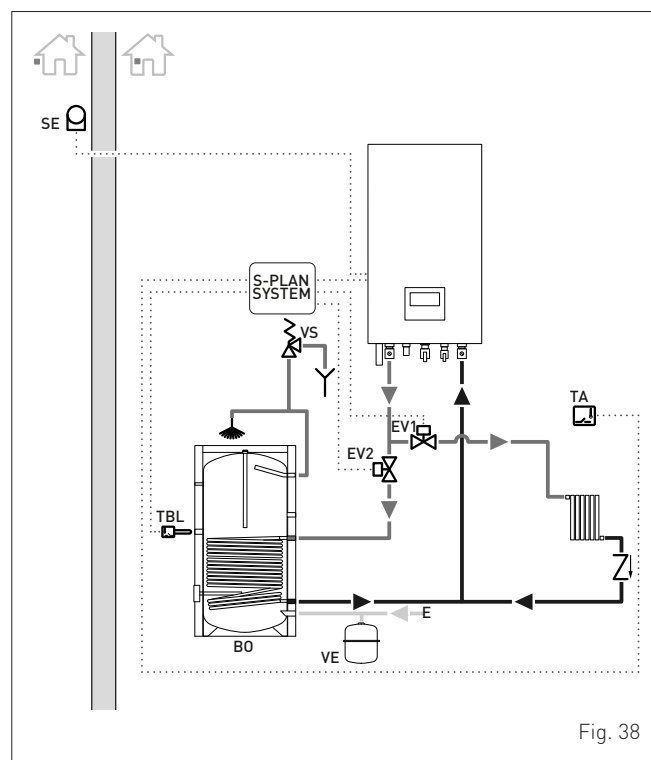
KEY

E	Domestic hot water inlet
SE	External temperature sensor
TA	Room thermostat for boiler activation
TZ1÷TZ3	Zone ambient thermostat
EVZ1÷EVZ3	Zone solenoid valve
EV1÷EV2	Solenoid valves
VS	Relief valve
KA1÷KA3	Zone relays
PI1÷PI3	Pump
SP	Hydraulic separator
TBL	Hot water tank thermostat
BO	Calorifier
VE	Expansion vessel

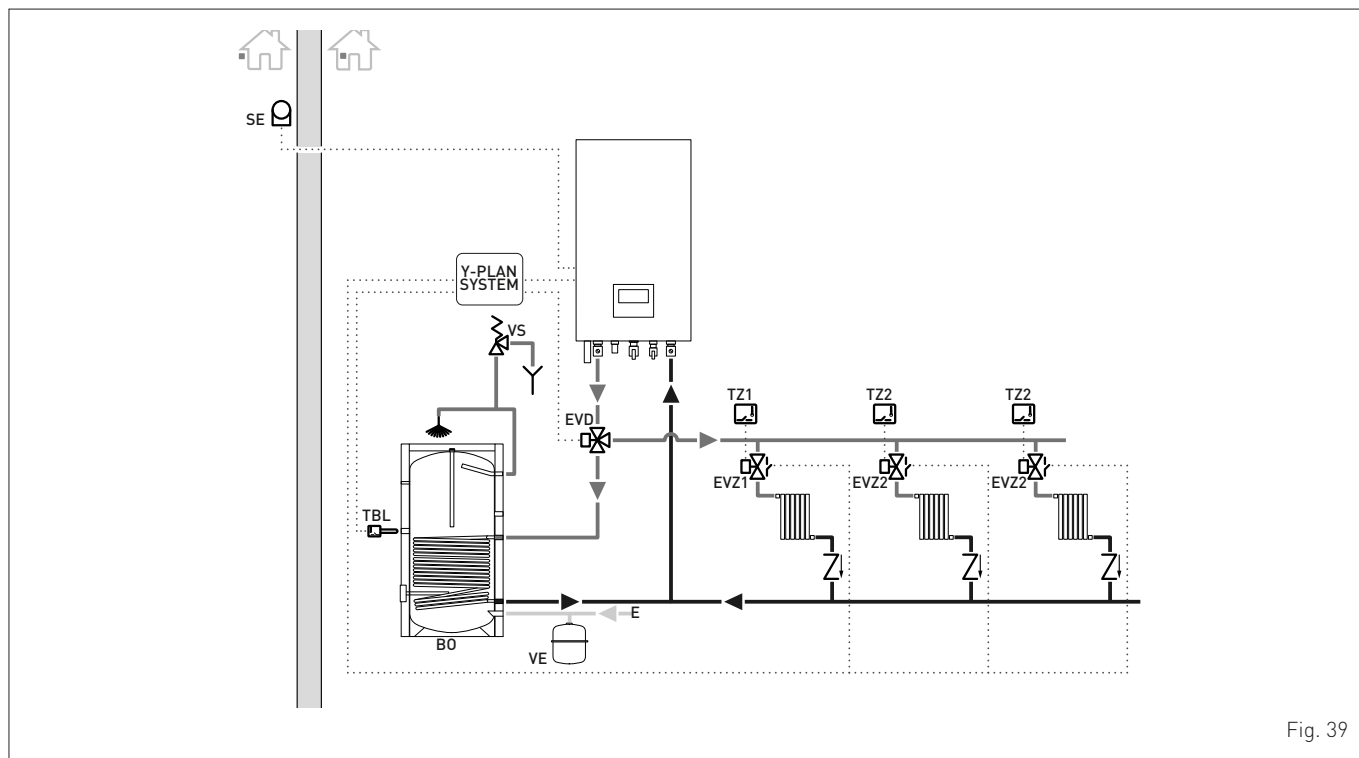
System TYPE "Y" - ONE DIRECT ZONE, external sensor and air thermostat.



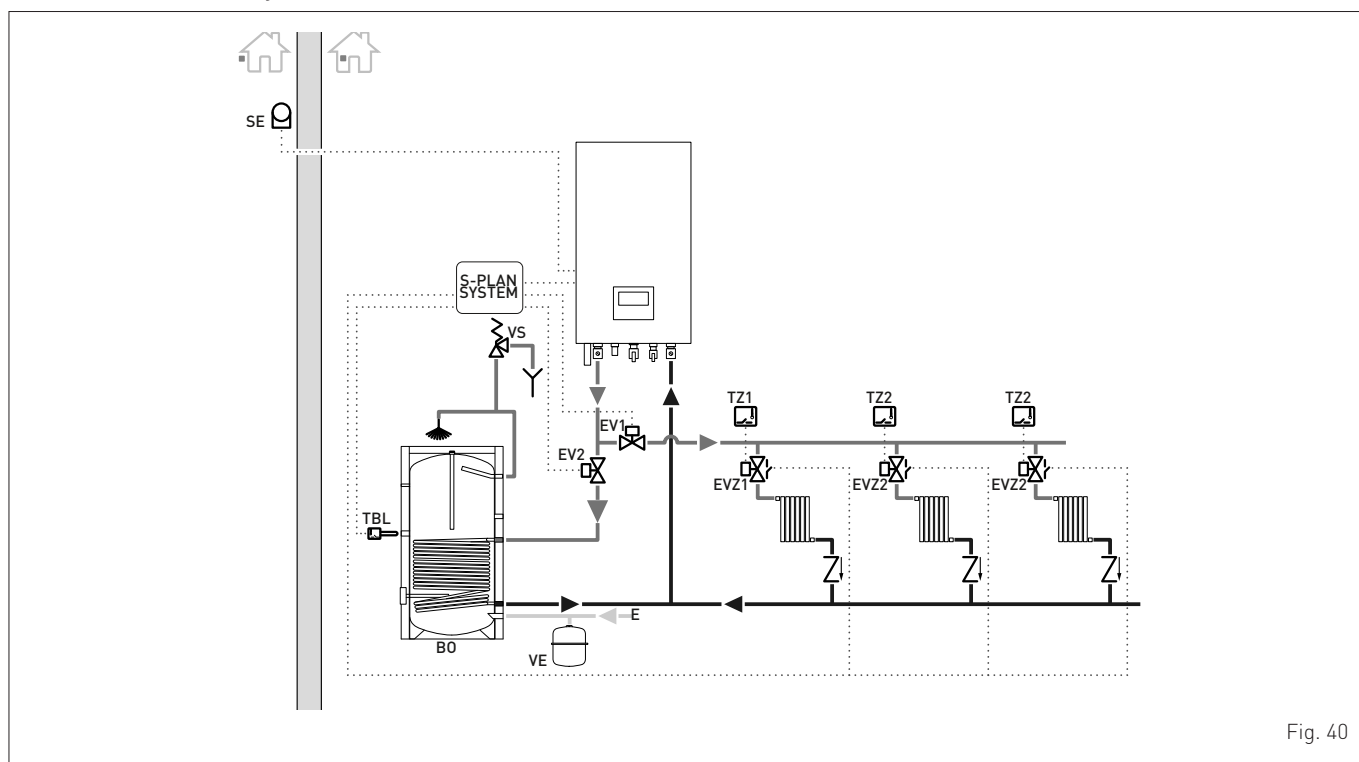
System TYPE "S" - ONE DIRECT ZONE, external sensor and air thermostat.



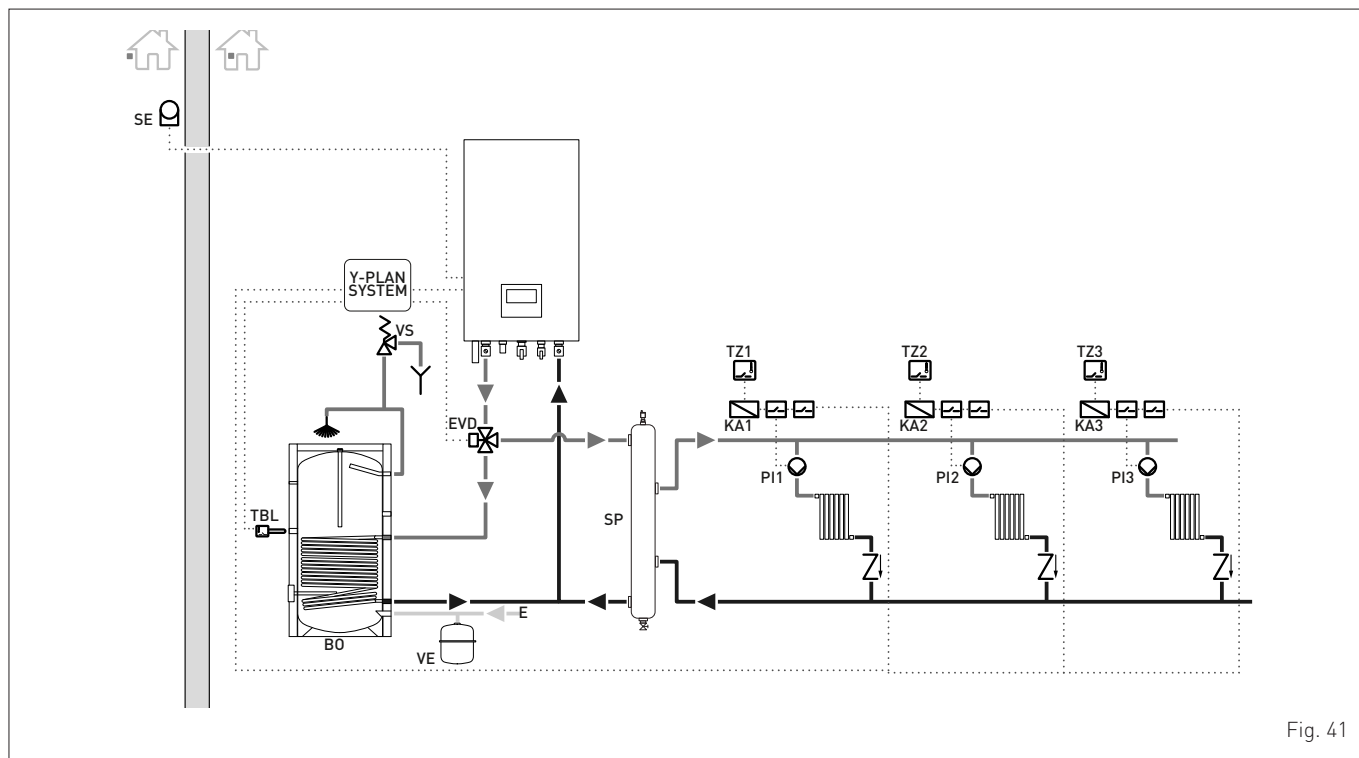
MULTI ZONE TYPE "Y" system - with zone valve, air thermostat and external sensor.



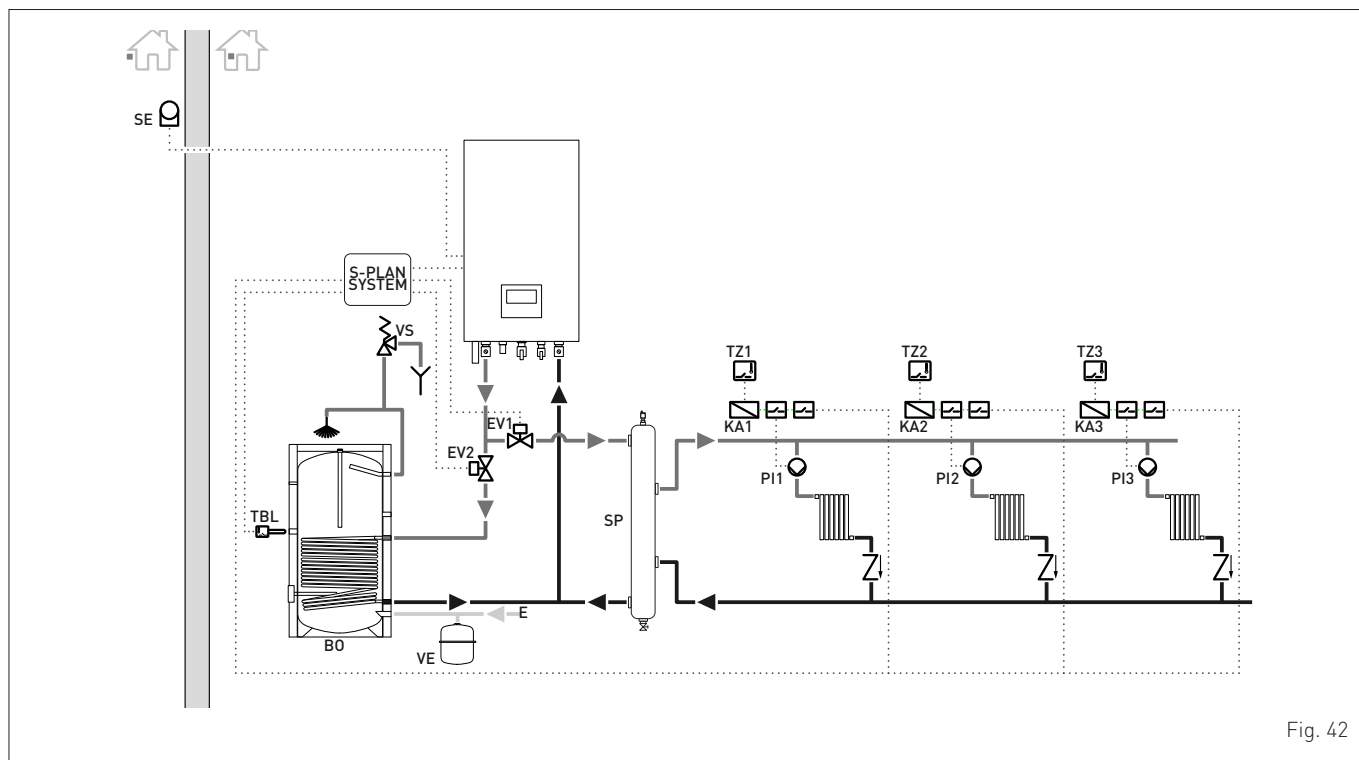
MULTI ZONE TYPE "S" system - with zone valve, air thermostat and external sensor.



MULTI ZONE TYPE "Y" system - with pump, air thermostat and external sensor.



MULTI ZONE TYPE "S" system - with pump, air thermostat and external sensor.



6.15 Refilling or emptying

Before carrying out the operation described below, isolate the boiler power supply.

Ensure that the inhibitor concentration is correct on refilling.

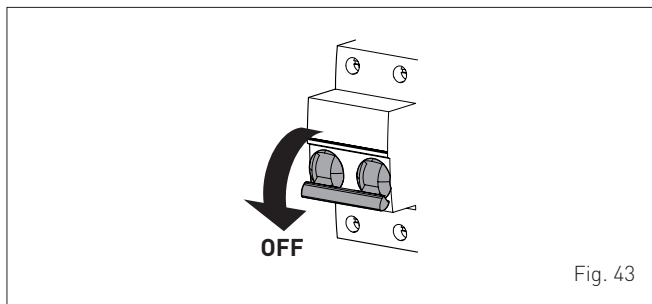


Fig. 43

6.15.1 Method of filling a sealed system

A sealed system must only be filled by a competent person using a method similar to that shown in figure below.

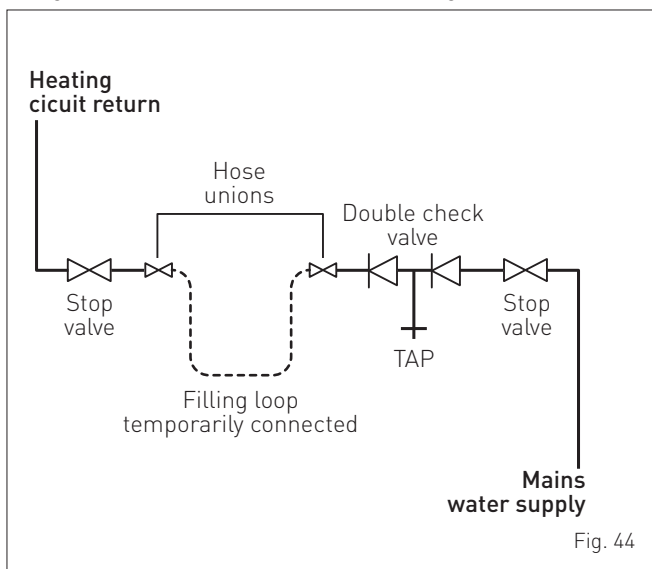


Fig. 44

6.15.2 SYSTEM Filling

Remove the front panel:

- remove the two screws (1), pull the front panel (2) forwards and release it from the top by lifting it.

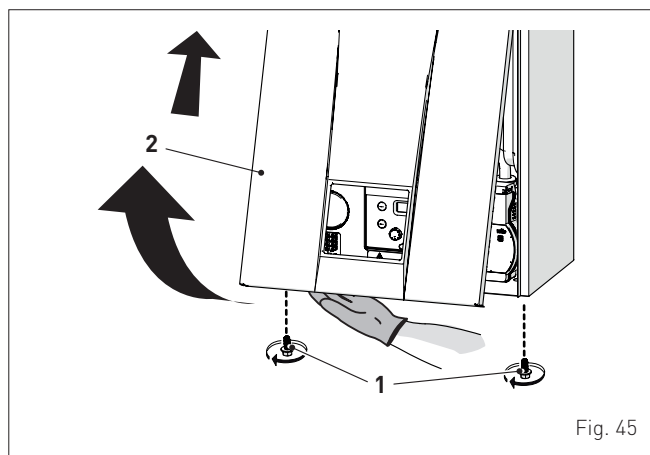


Fig. 45

Heating circuit:

- open the isolation and air bleeding valves in the highest points of the system
- loosen the automatic bleed valve (3)
- open the heating circuit isolation valves (8) and (9)
- activate the filling system "**Method of filling a sealed system**", and fill the heating system until a pressure of **1-1.2 bar** is shown on the pressure gauge (5)
- stop the filling system
- check that there is no air in the system by bleeding all the radiators and the circuit in the various high points of the system.

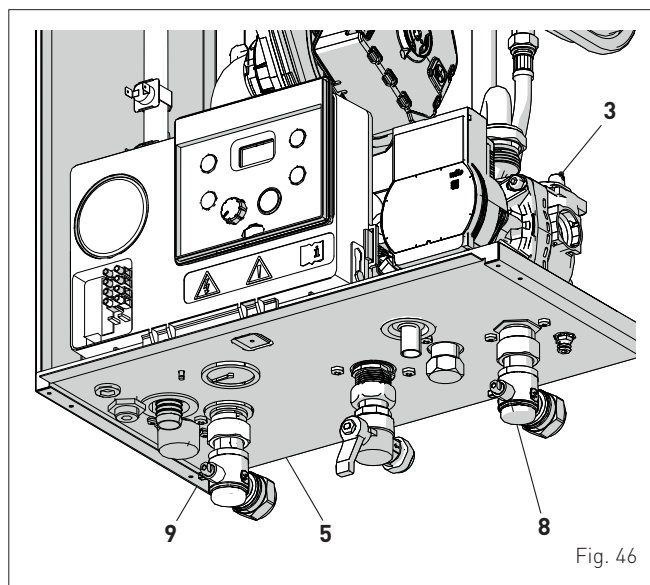


Fig. 46

NOTE: to completely remove all air from the system, it is recommended that this operation is repeated a number of times.

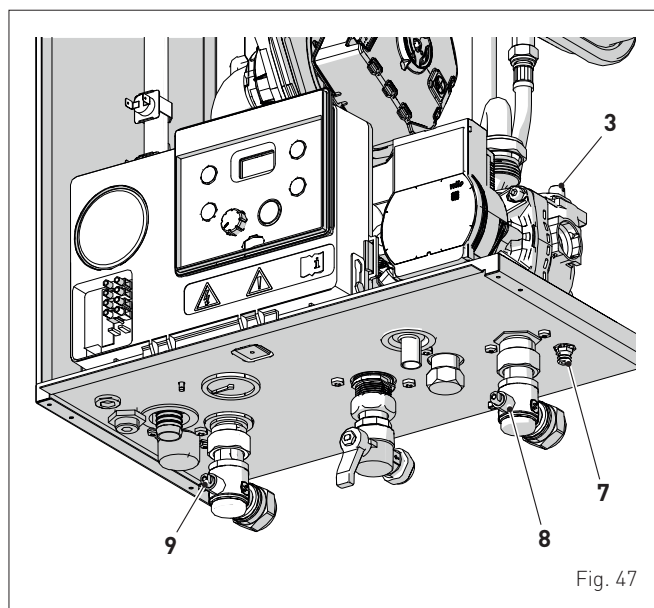
- check the pressure on the pressure gauge (5) and if necessary top up until the correct pressure reading appears
- close the automatic bleed valve (3)
- it is recommended that the condensate trap is filled prior to fitting the flue, by carefully pouring water into the exhaust connection.

Refit the front panel of the boiler hooking it on at the top, pushing it forwards and securing it with the screw (1) which was removed previously.

6.15.3 EMPTYING operations

Boiler:

- loosen the automatic bleed valve (3)
- close the heating circuit isolation valves (8) and (9)
- connect a rubber hose to the boiler drain valve (7) and open it
- when it has fully emptied, close the drain valve (7)
- close the automatic bleed valve (3).



7 COMMISSIONING

7.1 Preliminary operations



WARNING

- Should it be necessary to access the areas in the bottom part of the appliance, make sure that the system components and pipes are not hot (risk of burning).
- Before replenishing the heating system, put on protective gloves.

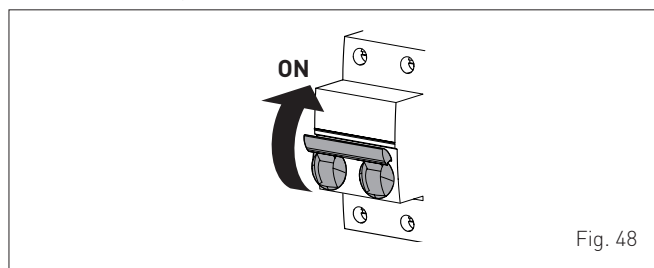
Before commissioning the appliance, check that:

- the type of gas is correct for the appliance
- the gas isolation valves for the heating system and the water system are open
- the system pressure as shown on the pressure gauge when the system is cold, is between **1 and 1.2 bar**
- the pump impeller rotates freely
- the siphon has been filled
- the flue is fitted correctly.

7.2 Before commissioning

After having carried out the preliminary operations, proceed as follows:

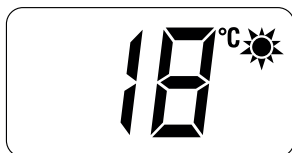
- set the main system switch to "ON"



- the type of gas for which the boiler has been calibrated, "**nG**" (methane) or "**LG**" (LPG,) will appear followed by the power. Finally "**--**" will appear on the display



- press the button  once for at least 1 second to select "SUMMER mode" . The value of the delivery sensor detected at that moment will appear on the display



- press the button  once to select "WINTER mode" . The value of the heating water temperature detected at that moment will appear on the display



- operate the heating controls and check that the boiler starts and operates correctly
- using the procedure shown in section "**Chimney sweep function**" complete inlet working gas pressure test and a flue gas analysis.
- record in Benchmark commissioning Check list (page 51).

7.3 Parameter setting and display

To go into the parameter menu:

- from the selected mode (eg. WINTER)



- press the buttons **—** and **OK** (approximately 5 seconds) at the same time until "**tS**" (installer) appears on the 2 digits of the display which alternate with "**0.1**" (parameter number) and a "**0**" (set value)



- press the button **+** to scroll up the list of parameters and then **—** to scroll down the list

NOTE: holding the buttons **+** or **—** increases the speed of the scrolling movement.

- once the required parameter has been reached, press the button **OK** for approximately 3 seconds to confirm and access the set value which will then flash and can then be modified



- to modify the value in the permitted range, press the buttons **+** to increase it or **-** to decrease it
- once the required value has been reached, press the button **OK** to confirm.

When all the parameter modifications have been made, exit the parameter menu by pressing and holding down the buttons **-** and **OK** **at the same time** for approximately 5 seconds until the initial screen is displayed.



7.4 List of parameters

Type	No.	Description	Range	U/M	Step	Default
CONFIGURATION						
tS	0.1	Index showing boiler power in kW	0 = 25 (METHANE) 2 = 25 (GPL) 0 = combi 1 = storage tank with thermostat or heating only 2 = N/A 3 = N/A (NOT used) 4=instant with solar power input (NOT used) 5 = open vent 6 = KIT HYBRID instant boiler (NOT used) 7 = Edea Hybrid (NOT used) 8 = Edea Hybrid SPAIN CENTRALIZED (NOT used) 9 = HYBRIDWALL instant boiler (NOT used) 10 = HYBRIDWALL hot water tank boiler (NOT used)	-	1	--
tS	0.2	Hydraulic configuration		-	1	1
tS	0.3	Not used	0	-	1	0
tS	0.4	Combustion configuration	0	-	1	0
tS	0.5	Duration in minutes of the HIGH request, in alternating mode (simultaneous requests) (NOT used)	0 .. 180	Min	1	45
tS	0.6	Duration in minutes of the LOW request, in alternating mode (simultaneous requests) (NOT used)	0 .. 180	Min	1	0
tS	0.7	Thermal gradient for PdC defrosting aid (ONLY for Edea Hybrid tSp2 = 7 and 8) (NOT used)	0 .. 30	°C/Min	1	10
tS	0.8	External sensor value correction	-5 .. +5	°C	1	0
tS	0.9	Ignition fan speed	80 .. 160	RPMx25	1	138
DOMESTIC HOT WATER - HEATING						
tS	1.0	Boiler Antifreeze Threshold Delivery Sensor	0 .. +10	°C	1	3
tS	1.1	External Sensor Antifreeze Threshold -- = Disabled	-9 .. +5	°C	1	-2
tS	1.2	Heating Curve Incline	0 .. 200	seconds x 10	1	100
tS	1.3	Minimum Heating Temperature Adjustment	20 .. tS 14	°C	1	20
tS	1.4	Maximum Heating Temperature Adjustment	tS 13 .. 80	°C	1	80
tS	1.5	Maximum power in CH mode	0 .. 100	%	1	100
tS	1.6	Heating Post-Circulation Time	0 .. 99	seconds x 10	1	3
tS	1.7	Heating Pump Activation Delay	0 .. 60	seconds x 10	1	0
tS	1.8	Heating Re-ignition Delay	0 .. 60	Min	1	3
tS	1.9	Domestic Hot Water Modulation with Flow meter (NOT used)	0 = Disabled 1 = Enabled	-	-	1
tS	2.0	Maximum power domestic hot water (NOT used)	0 .. 100	%	1	100

Type	No.	Description	Range	U/M	Step	Default
tS	2.1	Minimum power heating/domestic hot water (premixed) (NOT used)	0 .. 100	%	1	0
tS	2.2	Domestic hot water preheating enabling (NOT used)	0 = Disabled 1 = Enabled	-	-	0
tS	2.3	External relay 1 function 1 - k4	0 = not used 1 = remote alarm NO 2 = remote alarm NC 3 = zone valve 4 = automatic filling 5 = external request 6 = recirculation pump 7 = zone valve with OT 8 = relaunch pump 9 = heat pump management only for TSP2 = 7 (NOT used) 10 = SUMMER/WINTER (NOT used) 11 = DHW (domestic hot water) request (DHW ON with relè ON) (NOT used) 12 = TA2 request (TA2 ON with relè ON) (NOT used)	-	-	0
tS	2.4	External relay 1 function 2 - k3	0 = not used 1 = remote alarm NO 2 = remote alarm NC 3 = zone valve 4 = automatic filling 5 = external request 6 = recirculation pump 7 = zone valve with OT 8 = relaunch pump 9 = heat pump management only for TSP2 = 6 (NOT used) 10 = low-temperature valve management (NOT used) 11 = DHW (domestic hot water) request (DHW ON with relè ON) (NOT used) 12 = TA2 request (TA2 ON with relè ON) (NOT used) 13 = Kit Hybridwall PdC management (NOT used)	-	-	0
tS	2.5	Auxiliary TA function	0 = according to TA 1 = TA Antifreeze 2 = domestic hot water disabled	-	-	0
tS	2.6	Zone Valve / Pump Relaunch Delay	0 .. 99	Min	1	1
tS	2.8	DHW activation delay with solar power	0 .. 180	sec	-	0
tS	2.9	Anti-legionella Function (Only hot water tank)	-- = Disabled 50 .. 80	°C	1	--
tS	3.0	Maximum domestic hot water temperature (NOT used)	10 .. 67	°C	1	60
tS	3.1	Long chimney	0 .. 40	%	1	0
tS	3.2	Automatic changeover on external probe used as system inlet probe Centralized boiler function: temperature change state in WINTER for (fixed time at 30 min) (NOT used)	0 .. 45	°C	1	35
tS	3.3	Automatic changeover on external probe used as system inlet probe Centralized boiler function: temperature change state in SUMMER for (fixed time at 30 min) (NOT used)	0 .. 45	°C	1	10
tS	3.5	Digital / analogue Pressure switch	0 = water pressure switch 1 = water pressure transducer (with ALL 09) 2 = water pressure transducer (without ALL 09)	-	1	1
tS	3.9	Modulating pump minimum speed	20 .. 100	%	1	30
tS	4.0	Modulating Pump Speed	-- = No modulation AU = Automatic 30 .. 100 PM = tS39..100	%	10	--
tS	4.1	ΔT Modulating pump delivery/Return	10 .. 40	°C	1	20
tS	4.2	Select heat pump or boiler convenience (only if tS 0.2 = 6) (NOT used)	-20 .. 30	°C	1	5
tS	4.3	Heat pump boiler aid activation delay (only if tS 0.2 = 6) (NOT used)	1 .. 180	Min	-	20
tS	4.4	PdC alarm safety (NOT used)	0 .. 80	°C	1	55
tS	4.7	System pump forcing (only in winter mode)	0 = Disabled 1 = Enabled	-	-	0
RESET						
tS	4.8	INST Parameter set to default	0 .. 1	-	-	0

In the event of a fault/malfunction the message "ALL" will appear on the display with the alarm number eg. "ALL 05" (Delivery sensor (SM) fault).

Before repairing the fault:

- disconnect the appliance from the mains power by setting the main switch to "OFF"

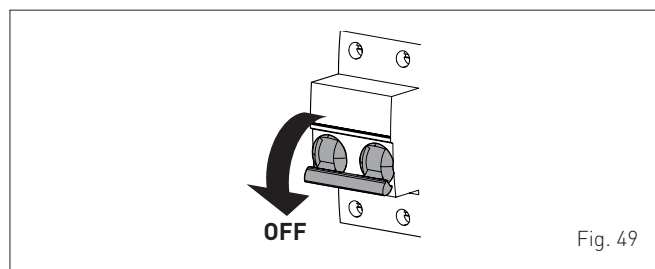


Fig. 49

– as a precautionary measure, close the gas isolation valve. Resolve the problem and start-up the boiler again.

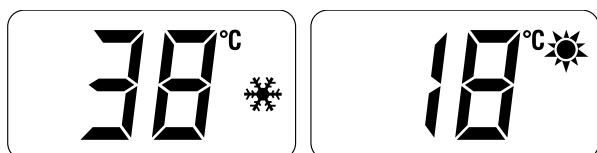
NOTE: after having repaired the fault, when the alarm number appears on the display together with the message RESET (see figure), press the button **OK (RESET)** for approximately 3 seconds to start the appliance up again.



7.5 Display of operating data and counters

Access the operating data "In" and the counters "CO" as follows:

- from the operating screen in the mode enabled at that moment (WINTER ❄️ or SUMMER ☀️)



- go into "INFO" by pressing the buttons **+** and **-** at the same time for more than 3 seconds until "In" appears alternating with "0.0" (information number) and "25" (eg. value)



From this point, the technician has 2 options:

- scroll through the list of "info" and "counters" by pressing the button **+**. This way, scrolling will be in sequence
- display the "activated alarms" (no more than 10) by pressing the button **-**. Once in this section, proceed with button **+** or **-**.

When all the values have been displayed, exit the menu by pressing and holding down the button **OK** for approximately 5 seconds until the initial screen is displayed.



TABLE OF INFORMATION DISPLAYED

Type	No.	Description	Range	U/M	Step
In	0.0	SW version			
In	0.1	External sensor	- 9 .. 99	°C	1
In	0.2	Delivery sensor temperature	- 9 .. 99	°C	1
In	0.3	Exhaust temperature	- 9 .. 99	°C	1
In	0.6	Actual heating SET temperature	Par. 13 ... Par. 14	°C	1
In	0.7	Power level	0 .. 99	%	1
In	0.8	DHW Flow rate	0 .. 99	l/min	0.1
In	0.9	Water pressure transducer reading (when fitted)	0 .. 99	bar	0.1
In	1.0	Actual speed fan number	0 .. 99	RPM x 100	1

TABLE OF COUNTER DISPLAYED

Type	No.	Description	Range	U/M	Step
CO	0.0	total no. of boiler operating hours	0 .. 99	h x 1000	0.1; from 0.0 to 9.9; 1; from 10 to 99
CO	0.1	total no. of burner operating hours	0 .. 99	h x 1000	0.1; from 0.0 to 9.9; 1; from 10 to 99
CO	0.2	total no. of burner ignitions	0 .. 99	h x 1000	0.1; from 0.0 to 9.9; 1; from 10 to 99
CO	0.3	total no. faults	0 .. 99	x 1	1
CO	0.4	total no. of times installer parameters "tS" accessed	0 .. 99	x 1	1
CO	0.5	total no. of times OEM parameters accessed	0 .. 99	x 1	1
CO	0.6	Countdown to the next service	1 .. 199	months	1

TABLE OF ACTIVATED ALARMS/FAULTS

Type	No.	Description
AL	0.0	Last activated alarm/fault
AL	0.1	Last but one activated alarm/fault
AL	0.2	Third from last activated alarm/fault
AL	0.3	Previous activated alarm/fault
AL	0.4	Previous activated alarm/fault
AL	0.5	Previous activated alarm/fault
AL	0.6	Previous activated alarm/fault
AL	0.7	Previous activated alarm/fault
AL	0.8	Previous activated alarm/fault
AL	0.9	Previous activated alarm/fault

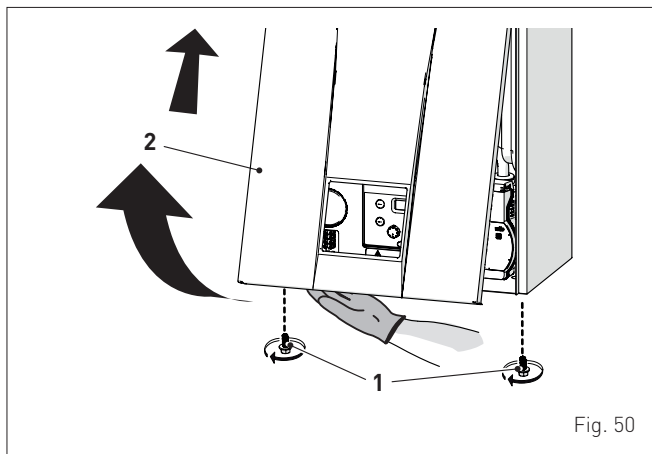
7.6 Checks

7.6.1 Chimney sweep function

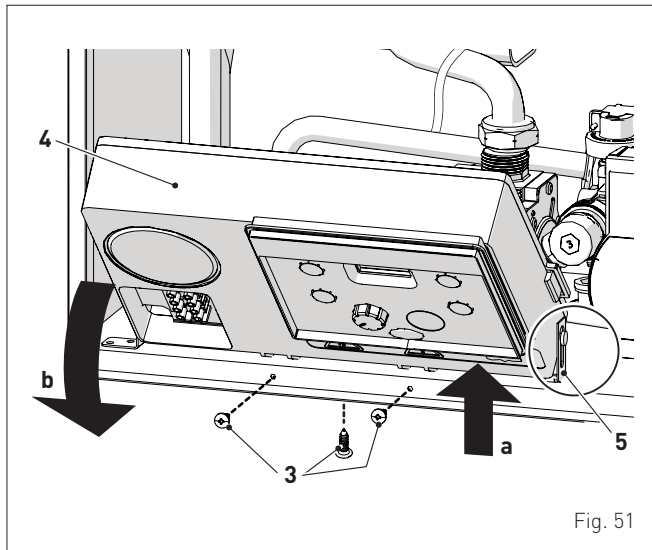
The chimney sweeper function is used by the qualified maintenance technician to check the mains gas pressure, detect the combustion parameters and to measure the combustion efficiency. A combustion analysis should not be conducted until a satisfactory inlet working pressure test has been completed.

This function lasts 15 minutes and is activated by proceeding as follows:

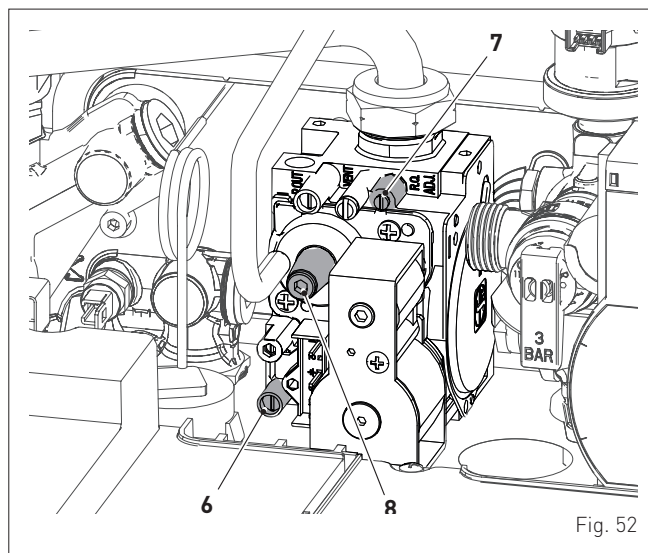
- if the panel (2) has not already been removed, remove the two screws (1), pull the front panel (2) forwards and release it from the top by lifting it



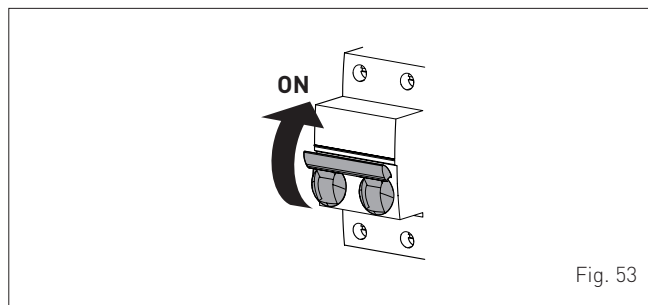
- remove the screws (3) securing the control panel (4)
- move the panel (4) upwards (a) but keeping it in the side guides (5) to the end of travel
- bring it forwards and down (b) until it is horizontal



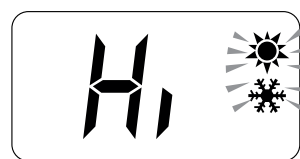
- isolate the gas cock
- loosen the screw of the “gas mains pressure point” (6) and connect a pressure gauge



- open the gas cock
- power the boiler by setting the main switch to “ON”



- press button and hold for at least 1 second, until you select “SUMMER” mode
- press the buttons **OK** and **+** at the same time for approximately 10 seconds until the message flashes “Hi”, on the display alternating with the temperature of the delivery sensor and the flashing symbols **OK** and **+**



- press the button **+** to make the boiler operate at maximum power “Hi” and check that the mains gas pressure value on the pressure gauge is correct.
- check that the gas supply pressure is as shown in the table below

Type of gas	G20	G31
Pressure (mbar)	20	37

- measure the CO₂ and verify that it corresponds to the value appearing in the table. If not, turn the “CO₂ adjuster screw (splitter)” (7) of the gas valve until you obtain the CO₂ value of the table. Make any other necessary measurements.

GIULIA SYSTEM	CO ₂ (G20)	CO ₂ (G31)
	Q _{max} (% ± 0,2)	Q _{max} (% ± 0,2)
25	9,3	10,2

- press the button to make the boiler operate at minimum power “Lo”. The message “Lo” will appear on the display together with the flashing symbols and .



- measure the CO₂ and verify that it matches the value shown in the table. If not, turn the gas valve’s “CO₂ adjuster screw to the minimum power (offset)” (8) until you obtain the CO₂ value of the table. Take any other necessary readings.
- record in Benchmark commissioning Check list (page 51).

GIULIA SYSTEM	CO ₂ (G20)	CO ₂ (G31)
	Q _{min} (% ± 0,2)	Q _{min} (% ± 0,2)
25	9,0	10,0

NOTE: There are negligible losses of working gas pressure attributable to the boiler as the gas cock is connected directly to the gas valve.

- press the button to exit the “Chimney sweep Procedure”. The boiler water delivery temperature will appear on the display



- disconnect the pressure gauge, carefully close the pressure point (6), test for gas tightness, put the control panel back to the original position and refit the front panel (2). Now conduct a flue gas analysis as detailed in APPENDIX 2.

7.7 Gas conversion

GIULIA SYSTEM models can be transformed from G20- to G31-based operation by installing the “Nozzle kits for G31”, which must be ordered separately from the boiler, and by modifying “tS 0.1” as indicated in the table.

GIULIA SYSTEM	G31	
	Kit code	tS 0.1
25 (*)	5185164	2

(*) To set parameter tS 0.1 correctly, set the parameter according to the installed model as described in the paragraph “**List of parameters**”.



CAUTION

Only qualified persons in compliance with the instructions contained in this manual are permitted to install, commission and maintain this boiler. The installation of this boiler must be in accordance with the relevant requirements of the current Gas Safety (installation and use) Regulation 1998, the local building regulations, and I.E.E. wiring regulations.



WARNING

Before carrying out any interventions described:

- isolate the power supply
- isolate the gas cock
- avoid contact with any hot surfaces.

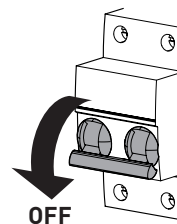


Fig. 54

7.7.1 Preliminary operations

To carry out the conversion:

- remove the screws (1), pull the front panel (2) forwards and release it from the top by lifting it

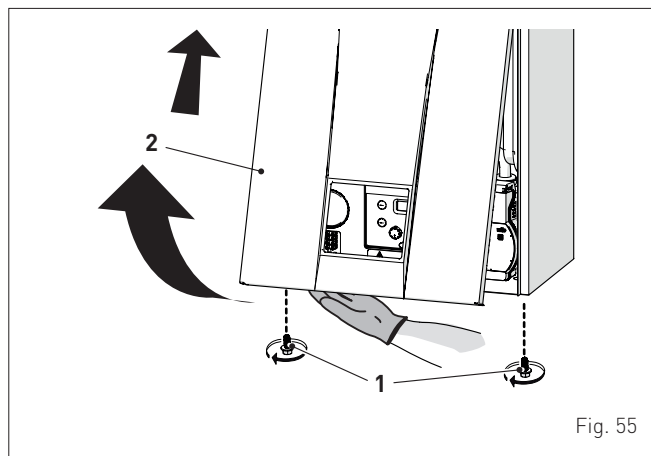


Fig. 55

- loosen the ring nut (3) and the spring clip (4) of the gas pipe (5)
- detach the gas pipe (5) from the gas valve and from the mixer, making sure that the silicone pipe (6) does not hinder the operations; if it does, remove it
- replace the old nozzle (7) with the new one for G31, as shown in the figure
- put the gas pipe (5) back on and tighten the ring nut (3) on the gas valve
- put the spring clip (4) back onto the mixer
- put the previously removed silicone pipe (6) back on

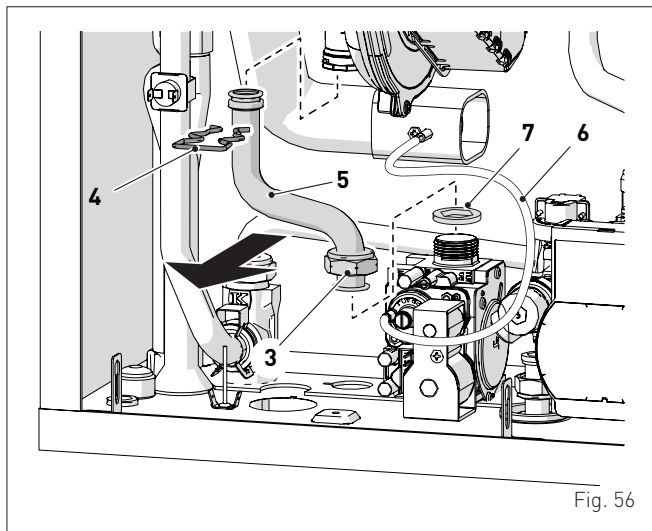


Fig. 56

- access the installer parameters and modify parameter tS 0.1 on the basis of the power and gas used, as indicated in the table in the **"Circuit Board Replacement"** paragraph
- perform the **"Chimney sweep function"** to correctly set the CO₂ of the boiler with the new gas and then mount the front panel (2) back on, securing it with the two screws (1).

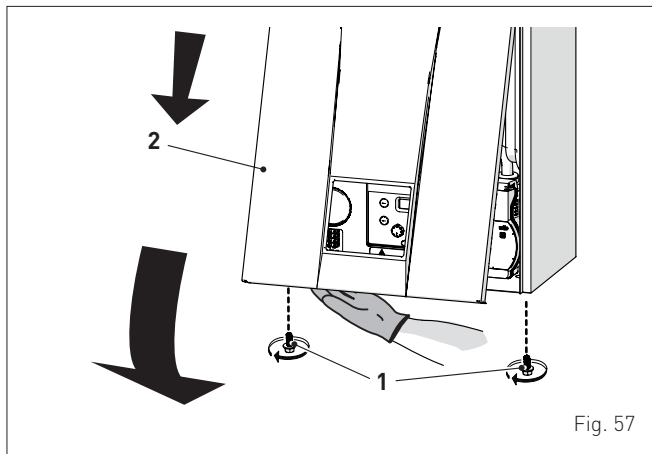


Fig. 57



CAUTION

Conversion may ONLY be carried out by Professionally Qualified Personnel.



CAUTION

If the gas supply is changed from G20 to G31, mark the box on the TECHNICAL DATA PLATE.

G31 - 37 mbar

X



7.8 Heating power output adjustment

To comply with Building regulations, the heating output must be set according to the requirements of the installed heating system.

This is done by adjustment of "parameter 15" (tS 1.5).

Calculate the heating requirements of the heating system in kW. Determine what that value is, as a % of the nominal heat output of the boiler, see table **"Technical features"** page 18. Access the parameters as shown in **"Parameter setting and display"** page 40, and adjust the parameter 15 (tS 1.5) to that % value

Example:

- Heating system with 8 radiators, average 1.5 kW per radiator total heat
- Requirement 12 kW (8 x 1.5)
- Maximum nominal heat output of boiler = 23.6 kW
- Parameter 15 (tS 1.5) = 12/23.6 = 50.8%. Set tS 1.5 to 51%.



CAUTION

As a condition of the warranty and to ensure correct operation and efficiency, it is important that the boiler is serviced every 12 months, within 30 days of the anniversary of the installation date ensure the required information is recorded in the Gas Boiler System Service Interval Record (page 52) (Benchmark).

8 MAINTENANCE

8.1 Servicing

As a condition of the warranty and to ensure correct operation and efficiency, it is important that the boiler is serviced every 12 months, within 30 days of the anniversary of the installation date ensure the required information is recorded in the Gas Boiler System Service Interval Record (Benchmark).



CAUTION

- Only qualified persons in compliance with the instructions contained in this manual are permitted to install, commission and maintain this boiler. Suitable protective safety equipment **MUST be worn**. The installation of this boiler must be in accordance with the relevant requirements of the current Gas Safety (installation and use), the local building regulations, and I.E.E. wiring regulations.
- Make sure that the system components and pipes are not hot (risk of burning).



WARNING

Before carrying out any interventions described:

- isolate the power supply
- isolate the gas cock
- avoid contact with any hot surfaces.

8.2 External cleaning

8.2.1 Cleaning the case

When cleaning the cladding, use a cloth dampened with soap and water or alcohol for stubborn marks.



DO NOT

Do not use abrasive products.

8.3 Burner Inspection

8.3.1 Burner access

To access the internal parts of the boiler:

- remove the screws (1), pull the front panel (2) forwards and release it from the top by lifting it

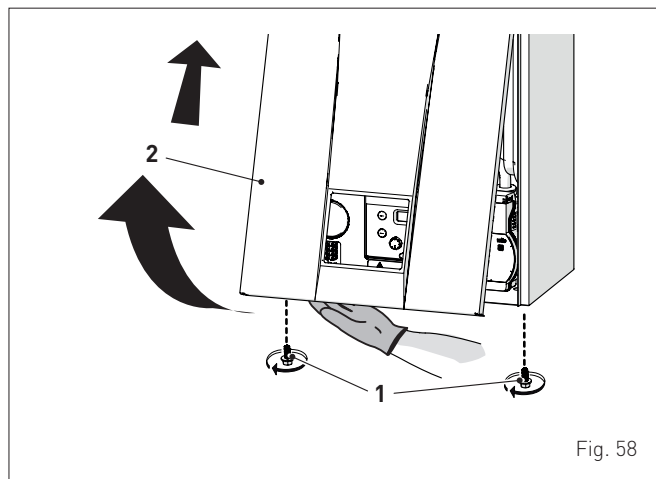


Fig. 58

- remove the screws (3) securing the control panel (4)
- move the panel (4) upwards (a) but keeping it in the side guides (5) to the end of travel
- bring it forwards and down (b) until it is horizontal

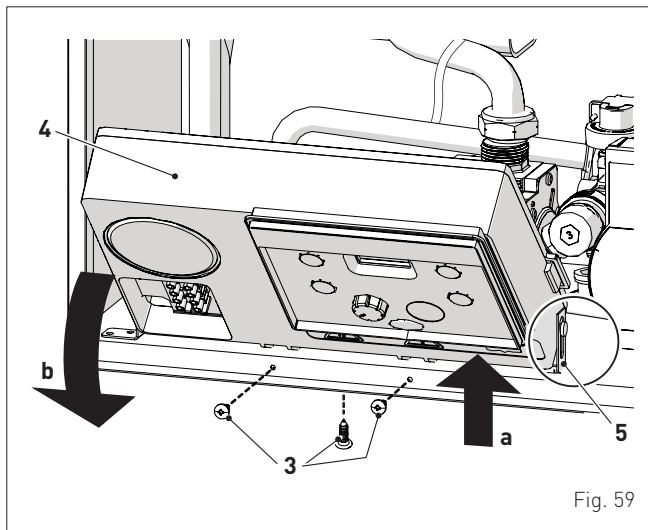


Fig. 59

- remove the silicone tube (6) from the air/gas duct
- unscrew the swivel joint (7)
- extract the connectors (8) from the fan and disconnect the electrode cable (9)

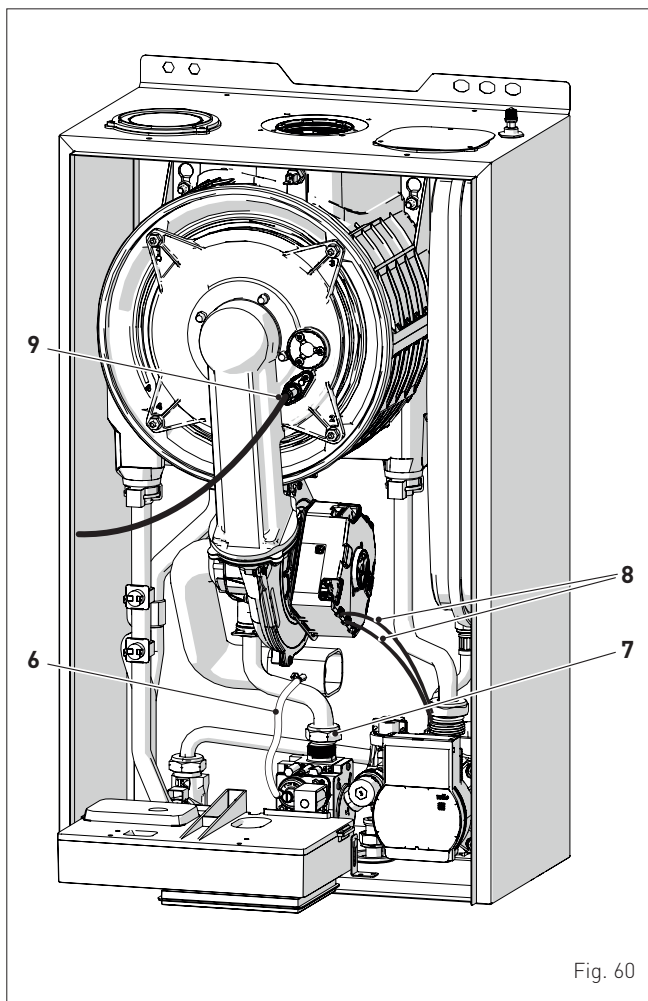
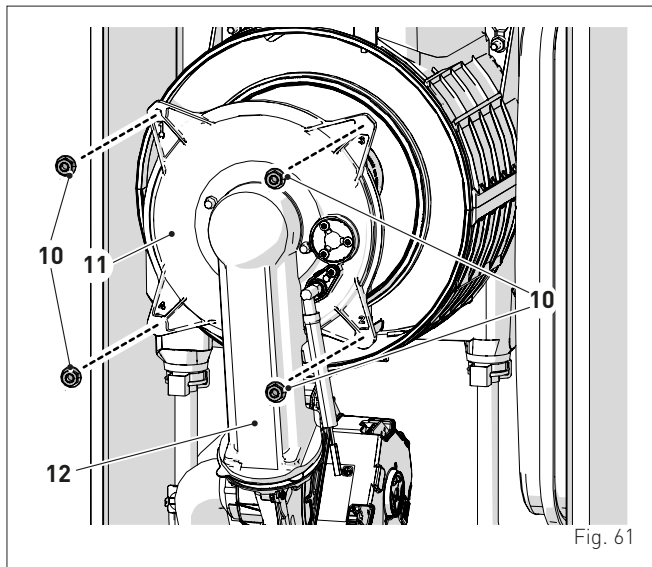


Fig. 60

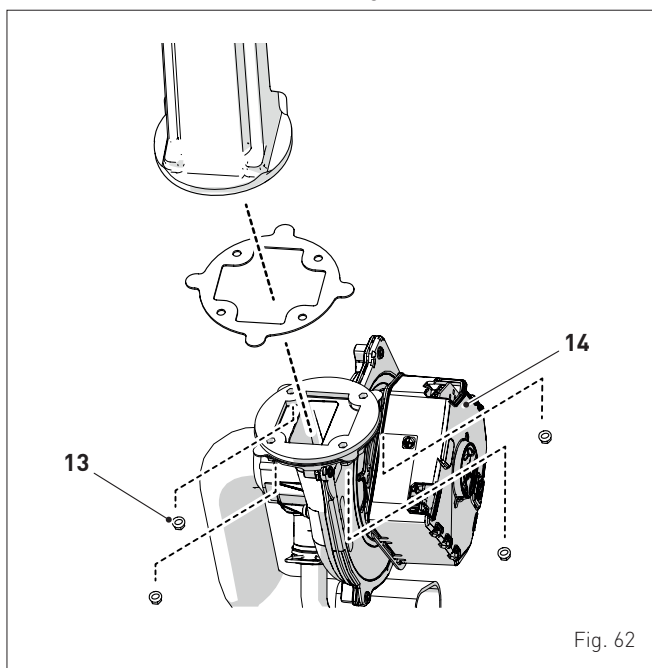
- Unscrew the four nuts (10) securing the combustion chamber door (11)
- pull the fan/sleeve/door unit (12) forwards and remove it



CAUTION

Work carefully when removing the assembly (12) to prevent any damage occurring to the internal insulation of the combustion chamber and the door seal.

- loosen the four nuts (13) securing the fan (14) and remove it.

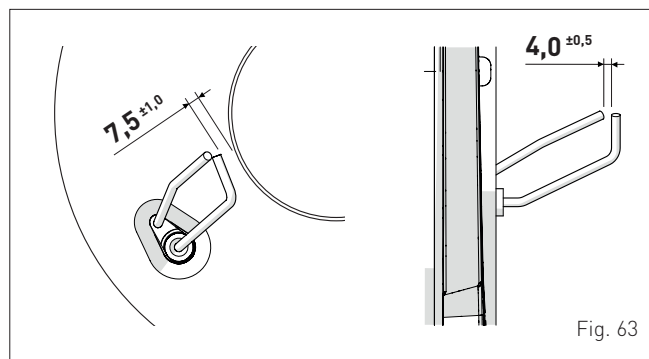


8.3.2 Cleaning the burner and the combustion chamber

The combustion chamber and the burner do not require any particular maintenance. Simply brush them with a soft brush.

8.3.3 Checking the ignition/detection electrode

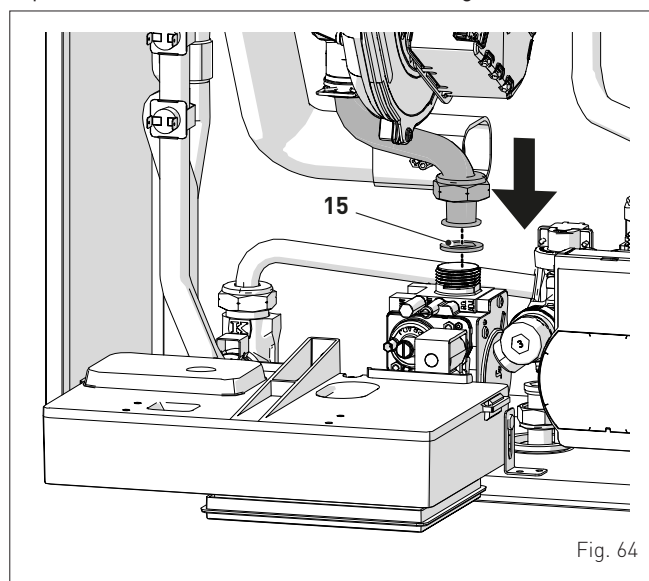
Check the state of the ignition/detection electrode and replace if necessary. Check the measurements as per the drawing whether the ignition/detection electrode is replaced or not.



8.3.4 Final operations

After having cleaned the combustion chamber and the burner:

- remove any carbon residue
- check that the seal and the insulation of the door (11) to the combustion chamber are undamaged. Replace if necessary
- refit the assembly by carrying out the same operations for removal but in the reverse order and tighten the screws (10) of the door to the combustion chamber
- mount the nozzle (15) back on and adjust it so that the flared part faces downwards, as shown in the figure



- reconnect the connections to the fan and the electrode.

8.4 Checks

8.4.1 Checking the flue

Check that the flue is undamaged and complete.

8.4.2 Checking the expansion vessel pressure

It is recommended that the expansion vessel on the water side is drained and that the prefilling pressure is not less than **1 bar**. If this is not the case, pressurize it to the correct value (see section "**Expansion vessel**").

Once the checks described above have been completed:

- refill the boiler as described in section "**SYSTEM Filling**"
- check that the siphon has been filled correctly
- Start the boiler, activate the "**Chimney sweep function**" and carry out combustion analysis as detailed in Appendix 2
- refit the front panel securing it with the two screws which were removed previously.

8.5 Circuit Board Replacement

Type	No.	Description	Setting for GIULIA SYSTEM
			25
tS	0.1	Index showing boiler power in kW 0 = 25 (METHANE) 2 = 25 (GPL)	0
tS	0.2	0 = combi 1 = storage tank with thermostat or heating only 2 = N/A 3 = N/A (NOT used) 4 = instant with solar power input (NOT used) 5 = open vent 6 = KIT HYBRID instant boiler (NOT used) 7 = Edea Hybrid (NOT used) 8 = Edea Hybrid SPAIN CENTRALIZED (NOT used) 9 = HYBRIDWALL instant boiler (NOT used) 10 = HYBRIDWALL hot water tank boiler (NOT used)	1

To enter "**Parameter setting and display**" refer to the indications provided in the specific section.

If the **gas valve** are replaced, the user must still carry out the entire phase of "**Chimney sweep function**" described in the specific section.

8.6 Malfunction codes and possible solutions

LIST OF MALFUNCTION/FAULT ALARMS

Type	No.	Fault	Solution
AL	02	Low water pressure in system	- Restore pressure - Check for any leaks in the system
AL	03	High water pressure in system	- Empty the system via the drain valve on the hydraulic assembly and bring the pressure to approximately 1.2 bar
AL	04	Domestic hot water sensor fault (return sensor fault for T models)	- Check connections - Check the sensor is working
AL	05	Delivery sensor fault	- Check connections - Check the sensor is working
AL	06	No flame detection	- Check the integrity of the electrode and check that it is not grounded - Check gas availability and pressure - Check the operation of the gas valve
AL	07	Safety thermostat intervention	- Check the sensor or thermostat connections - Deaerate the system - Check the bleed valve - Replace the sensor or the thermostat - Check that the pump impeller is not blocked
AL	08	Fault in the flame detection circuit	- Check the integrity of the electrode and check that it is not grounded - Check the operation of the gas valve
AL	09	No water circulating in the system	- Check the rotation of the pump rotor - Check the electrical connections - Replace the pump
AL	11	Gas valve modulator disconnected	- Check the electrical connection
AL	12	Domestic hot water sensor fault in tank mode	- Set the parameter tS 0.4 (Combustion configuration) to 0
AL	13	Exhaust sensor intervention	- Check the sensor is working - Replace the smoke probe
AL	14	Exhaust sensor fault	- Replace the smoke probe - Check the electrical connection of the smoke probe - Contact the Technical Assistance Centre
AL	15	Fan check cable disconnected	- Check the connection cable between the fan and the board
AL	28	Maximum number of consecutive resets reached (6)	- Wait 1 hour and try unblocking the board again - Contact the Technical Assistance Centre
AL	30	Return sensor fault (boiler sensor fault for T models)	- Replace the return probe - Check parameters - Contact the Technical Assistance Centre
AL	37	Fault due to low network voltage	- Check the voltage - Contact your network provider

Type	No.	Fault	Solution
AL	40	Incorrect supply frequency detected	- Contact your network provider
AL	41	Flame loss more than 6 consecutive times	- Check the ignition/detection electrode - Check the gas supply (open valve) - Check mains gas pressure
AL	42	Button fault	- Check that buttons are working
AL	43	Open Therm communication fault	- Check the OT electric connection
AL	44	No flame valve opening time sum anomaly	- Check for the presence of water hammer on the hot water system and, if present, mount a water hammer arrestor - Check for any abnormal requests on the room thermostat - Contact the Technical Assistance Centre
AL	56	Lock for ΔT delivery/return over max limit (open vent)	- Contact the Technical Assistance Centre
AL	57	Lock for flow temperature (FT) check (open vent)	- Contact the Technical Assistance Centre
AL	72	Incorrect positioning of the delivery sensor	- Check delivery sensor operation and position
AL	80	Fault on the valve control logic line/valve cable damaged	- Check gas valve and board
AL	95	Flame signal micro interruptions error	- Check electrode - Check board - Check electric power supply - Check gas calibration
AL	98	SW error, board start-up	- Contact the Technical Assistance Centre
AL	99	General board error	- Contact the Technical Assistance Centre
-	-	Frequent relief valve intervention	- Check circuit pressure - Check expansion vessel

GAS BOILER SYSTEM COMMISSIONING CHECKLIST & WARRANTY VALIDATION RECORD

Address:															
Boiler make and model:															
Boiler serial number:															
Commissioned by (PRINT NAME):					Gas Safe registration number:										
Company name:					Telephone number:										
Company email:					Company address:										
								Commissioning date:							
Heating and hot water system complies with the appropriate Building Regulations? Yes															
Optional: Building Regulations Notification Number (if applicable):															
Time, temperature control and boiler interlock provided for central heating and hot water Yes															
Boiler Plus requirements (tick the appropriate box(s))															
Boiler Plus option chosen for combination boiler in ENGLAND					Weather compensation		Smart thermostat with automisation and optimisation								
					Load compensation		Flue Gas Heat Recovery								
Time and temperature control to hot water		Cylinder thermostat and programmer/timer					Combination boiler								
Zone valves		pre-existing		Fitted		Not required									
Thermostatic radiator valves		pre-existing		Fitted		Not required									
Automatic bypass to system		pre-existing		Fitted		Not required									
Underfloor heating		pre-existing		Fitted		Not required									
Water quality															
The system has been flushed, cleaned and a suitable inhibitor applied upon final fill, in accordance with BS7593 and boiler manufacturers' instructions								Yes							
What system cleaner was used?					Brand:			Product:							
What inhibitor was used?					Brand:			Product:							
Primary water system filter		pre-existing		Fitted		Not required									
CENTRAL HEATING MODE measure and record (as appropriate)															
Gas rate (for combination boilers complete DHW mode gas rate)				m ³ /hr		or		ft ³ /hr							
Central heating output left at factory settings?				Yes		No									
If no, what is the maximum central heating output selected?				kW											
Dynamic gas inlet pressure				mbar											
Central heating flow temperature				°C											
Central heating return temperature				°C											
System correctly balanced/rebalanced?				Yes											
COMBINATION BOILERS ONLY															
Is the installation in a hard water area (above 200ppm)?				Yes		No									
Water scale reducer/softener		pre-existing		Fitted		Not required									
What type of scale reducer/softener has been fitted?				Brand:			Product:								
Water meter fitted?				Yes		No									
If yes- DHW expansion vessel		pre-existing		Fitted		Not required									
Pressure reducing valve		pre-existing		Fitted		Not required									
DOMESTIC HOT WATER MODE Measure and record															
Gas rate				m ³ /hr		or		ft ³ /hr							
Dynamic gas inlet pressure at maximum rate				mbar											
Cold water inlet temperature				°C											
Hot water has been checked at all outlets				Yes		Temperature		°C							
CONDENSATE DISPOSAL															
The condensate drain has been installed in accordance with the manufacturers' instructions and/or BS5546/BS6798								Yes							
Point of termination				Internal		External (only where internal termination impractical)									
Method of disposal				Gravity		Pumped									
ALL INSTALLATIONS															
Record the following		At max rate:		CO		ppm		CO ₂		%		CO/CO ₂		Ratio	
		At min rate (where possible)		CO		ppm		CO ₂		%		CO/CO ₂		Ratio	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?												Yes			
The operation of the boiler and system controls have been demonstrated to and understood by the customer												Yes			
The manufacturers' literature, including Benchmark Checklist and Service Record, has been explained and left with the customer												Yes			
Commissioning Engineer's signature															
Customer's signature (To confirm satisfactory demonstration and receipt of manufacturers' literature)															

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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SERVICE & INTERIM BOILER WORK RECORD

It is recommended that your boiler and heating system are regularly serviced and maintained, in line with manufacturers' instructions, and that the appropriate service / interim work record is completed.

Service provider

When completing a service record (as below), please ensure you have carried out the service as described in the manufacturers' instructions. Always use the manufacturers' specified spare parts.

SERVICE/INTERIM WORK ON BOILER delete as appropriate				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	%	CO/CO ₂
Min rate	CO	ppm	CO ₂	%	CO/CO ₂
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?					yes
Gas rate:		m ³ /h	OR	ft ³ /h	
Were parts fitted? delete as appropriate		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER delete as appropriate				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	%	CO/CO ₂
Min rate	CO	ppm	CO ₂	%	CO/CO ₂
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?					yes
Gas rate:		m ³ /h	OR	ft ³ /h	
Were parts fitted? delete as appropriate		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER delete as appropriate				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	%	CO/CO ₂
Min rate	CO	ppm	CO ₂	%	CO/CO ₂
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?					yes
Gas rate:		m ³ /h	OR	ft ³ /h	
Were parts fitted? delete as appropriate		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER delete as appropriate				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	%	CO/CO ₂
Min rate	CO	ppm	CO ₂	%	CO/CO ₂
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?					yes
Gas rate:		m ³ /h	OR	ft ³ /h	
Were parts fitted? delete as appropriate		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER delete as appropriate				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	%	CO/CO ₂
Min rate	CO	ppm	CO ₂	%	CO/CO ₂
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?					yes
Gas rate:		m ³ /h	OR	ft ³ /h	
Were parts fitted? delete as appropriate		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE/INTERIM WORK ON BOILER delete as appropriate				Date:	
Engineer name:		Company name:			
Telephone N°:		Gas Safe registration N°:			
Max rate	CO	ppm	CO ₂	%	CO/CO ₂
Min rate	CO	ppm	CO ₂	%	CO/CO ₂
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct?					yes
Gas rate:		m ³ /h	OR	ft ³ /h	
Were parts fitted? delete as appropriate		Yes	No		
Parts fitted:					
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *				yes	n/a
Comments:					
Signature:					

*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

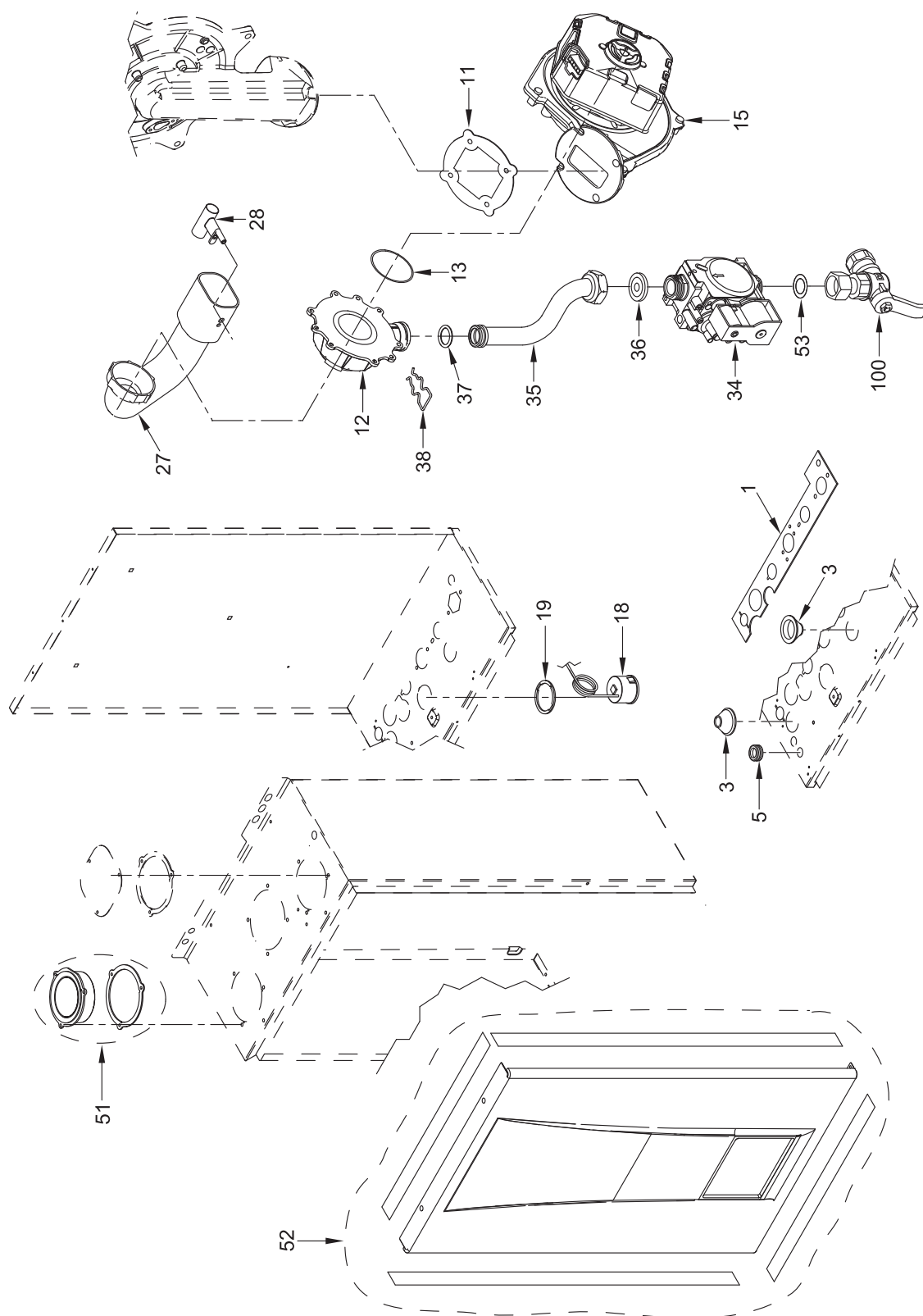
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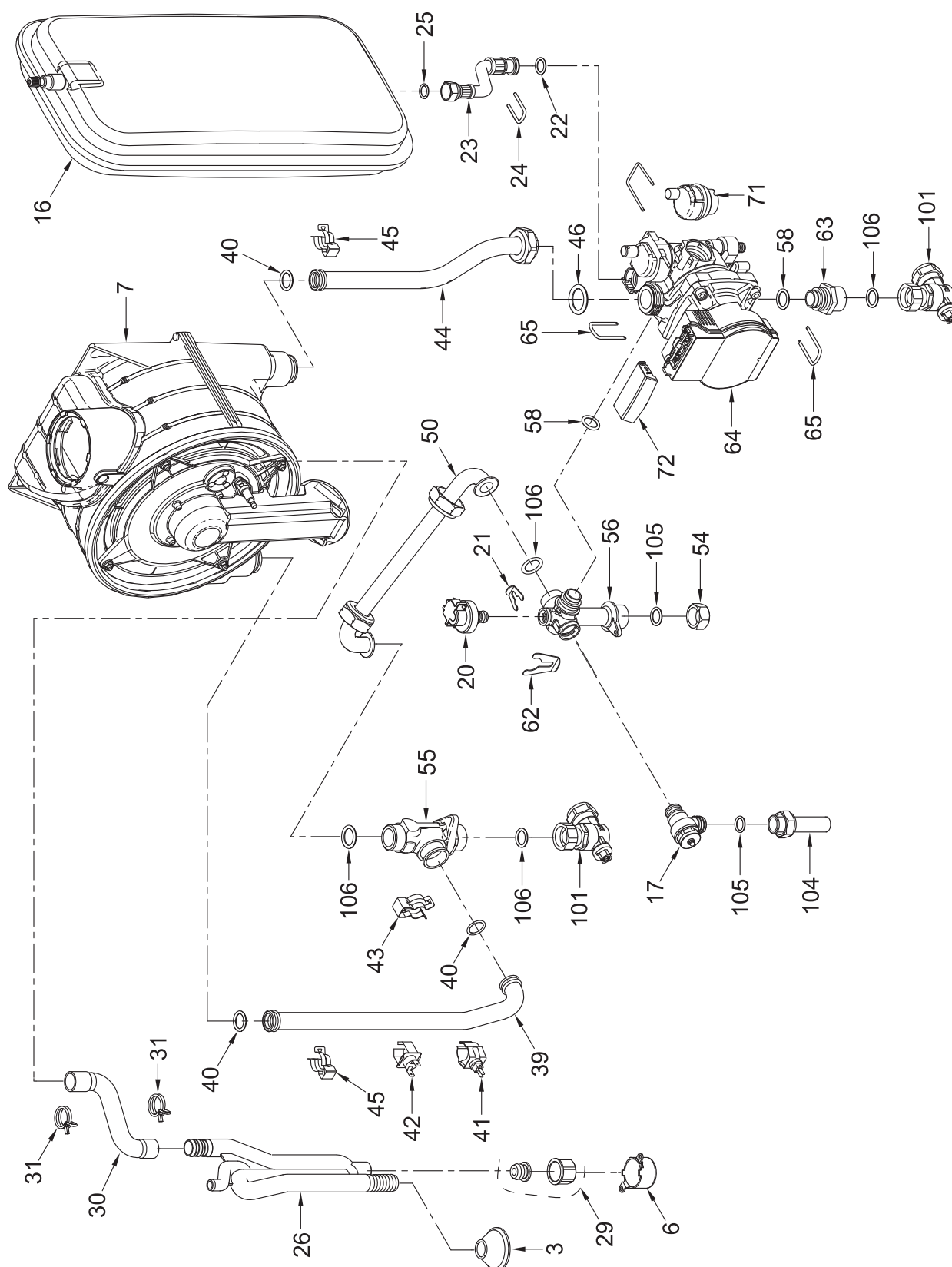
www.centralheating.co.uk

9 EXPLODED VIEWS

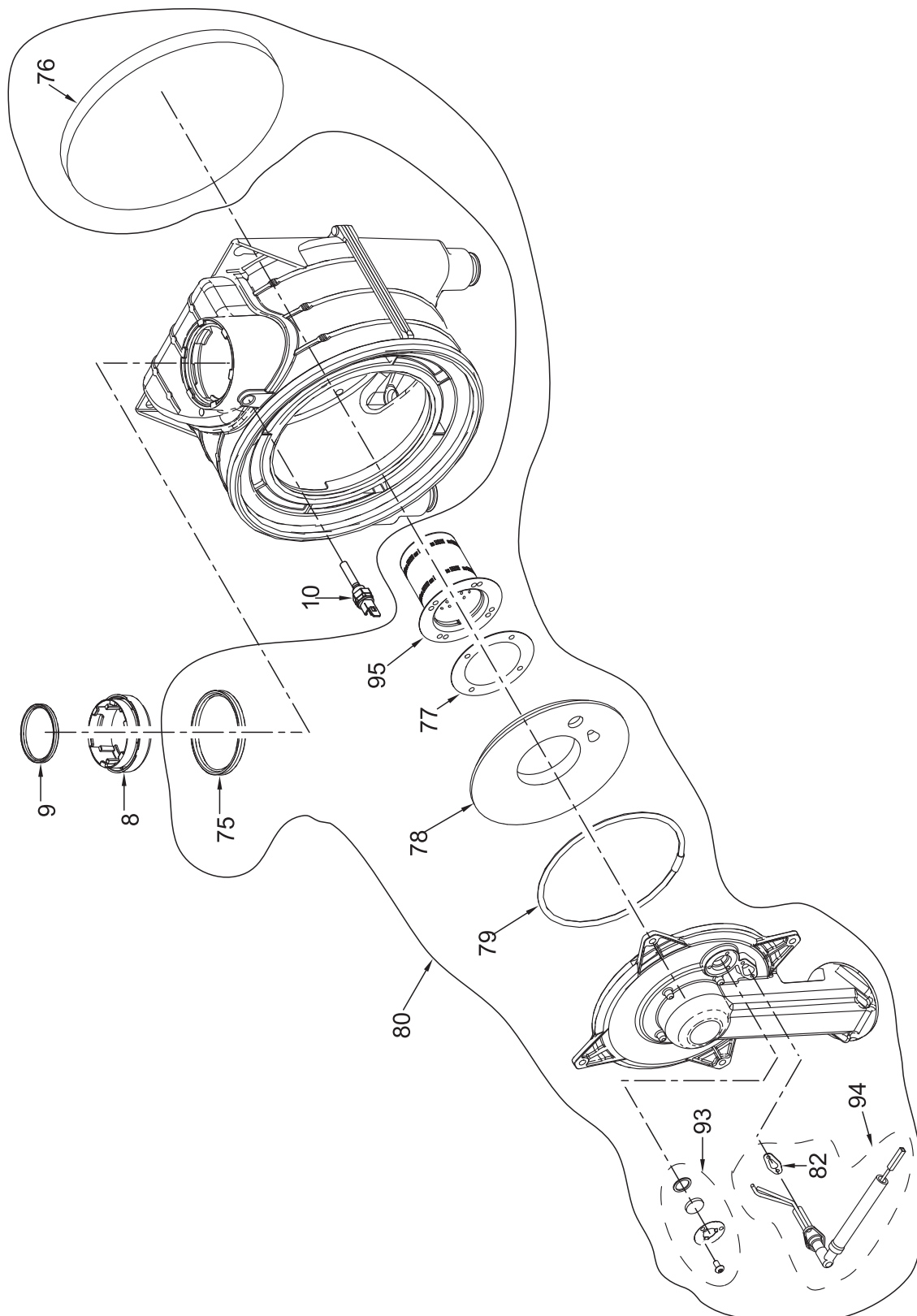
Frame



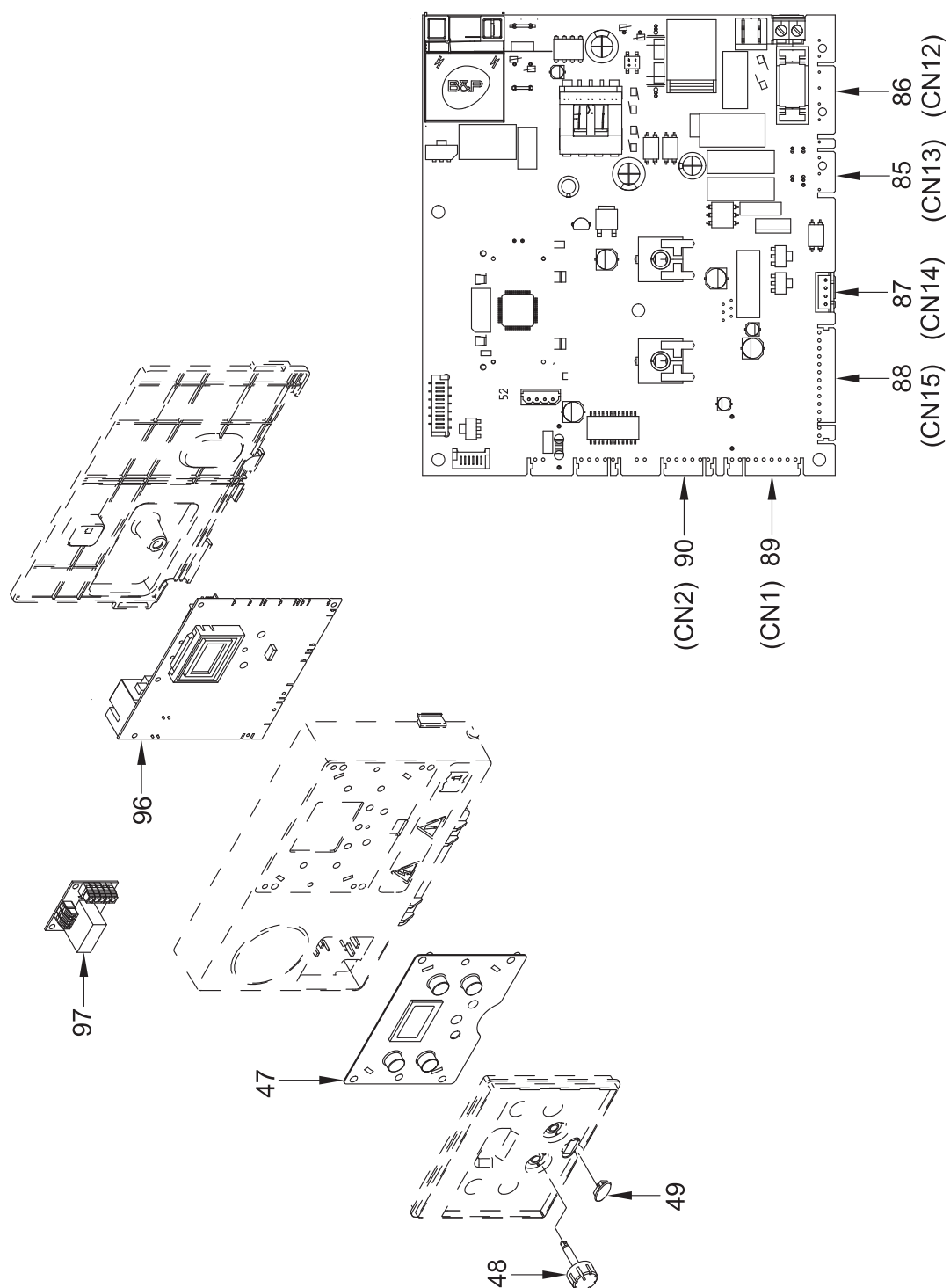
Hydraulic assembly



Exchanger / Combustion



Control panel group



Pos.	Code	Description	Advised parts
001	6229886	Hydraulic group gasket	
003	6226752	Silicone pipe ring ø12	
005	6226719	Bushing	
006	6119382	Siphon safety plug	
007	6278935	Heat exchanger water/gas assy	
008	6296548	Reducer DN 80-60	
009	6248875	Gasket Ø 60	
010	6277130	Probe NTC D.4X40	A
011	6174816	Gasket for fan flange	
012	6274325	Mixer	
013	6226438	O-ring 82.22X2.62	
015	6261442	Fan	A
016	5183735	Rectang. expansion vessel L.7	
017	6040225	Pressure relief valve 1/2" 3 ba	A
018	6146132	Hydrometer	
019	6229881	Gasket	
020	6273612	Water pressure transducer	
021	6226639	Spring clip	
022	6226476	ORing diam.15x2	
023	6281632	Flex.pipe MF3/8" L=200 + or	
024	6226643	Pipe fixing spring	
025	2030226	Gasket Ø 10,2x14,8x2	
026	6281764	Water trap group	
027	6001185	Air suction pipe	
028	6223370	Venturi	
029	5171635	Cap + gasket for water trap kit	
030	6034126	Condensate drainage pip	
031	2051150	Clamp diam. 25	
034	6243840	Gas valve	A
035	6281752	Pipe connecting gas valve-mixer	
036	6050469	Nozzle 530 met	
037	6226477	Rubber gasket OR Ø 17x3	
038	6226636	D.H.W. elektrovalve fix.spring	
039	6227557	Flow pipe	
040	6226412	O-ring 3068	
041	6231372	Temperature sensor	A
042	6146729	100°C safety stat	A
043	6226601	Spring for heat exchanger conne	
044	6264877	Return pipe from C.H. system	
045	6226619	Spring for heat exchanger conne	
046	2030267	Piracriten gasket Ø 30x17x2	
047	6305130	Rubber button	
048	6290170	Knob Ø 20	
049	6305140	Rubber cap	
050	6277798	Pipe connecting	
051	6281674	Group air intake	
052	6281667	Front panel + insulators	

Pos.	Code	Description	Advised parts
053	2030249	Gasket Ø 24x17x3	
054	6229500	Plug 1/2"	
055	6265895	Flowing to C.H. system manifold	
056	6265835	C.H. return manifold	
058	6226475	ORing diam.18,64x3,53	
062	6226645	Spring clip	
063	6120560	Pump nipple 3/4"	
064	6330400	Modulating circulating pump	
065	6226644	Spring clip for rotating connec	
071	6013182	Automatic air vent	A
072	6319647	Circulateur top cover	
075	6248876	Smoke outlet gasket ø80 mm	
076	6326951	Rear insulation + springs	
077	6326942	Gasket for burner flange	
078	6326952	Front insulation	
079	6326953	Sealing	
080	6326980	Burner-door group	
081	6326950	Gasket for ignition electrode	
085	6329484	Pump-fan CN13 connection	
086	6329627	6 pole cable connector CN12	
087	6329611	4 pole cable connector CN14	
088	6329626	14 pole cable connector CN15	
089	6325671	9 pole cable connector CN1	
090	6329474	6 pole cable connector CN2	
093	6281753	Peephole kit	
094	6281754	Ignit.-ionis.elect.+ `asket kit	A
095	6278377	Burner	
096	6324932	Main PCB	
097	6301461	Relay PCB	A
100	6177530	Gas cock 3/4" F x 15	
101	6177523	Ball cock 3/4" x 22	
104	6157662	Pressure relief valve drain pi	A
105	2030227	Gasket Ø 12x18x2	
106	2030228	Gasket Ø 17x24x2	
700	5202375	Complete control panel	
701	6316259	5 pole cable connector	
703	5184818	Fitting cocks kit	
704	5185164	Conversion kit to LPG	

A Spare parts for minimum fittings

Manufacturer's Instructions

The latest manufacturer's instructions shall be followed for the correct connection of the condensate discharge pipe from the boiler as this may vary due to the design of the boiler. For example, a trap is not required in the condensate discharge pipework if there is a trap with a minimum condensate seal of 75 mm incorporated into the boiler.

Internal Condensate Pipe Discharge Termination

Internal condensate discharge pipework shall be a minimum of 19mm ID (typically 22mm OD) plastic pipe or as per manufacturer's instructions and this should "fall" a minimum of 45mm per metre away from the boiler, taking the shortest practicable route to the termination point.

(45mm as per BS6798, 52mm per metre as per industry practice is specified in the following diagrams)

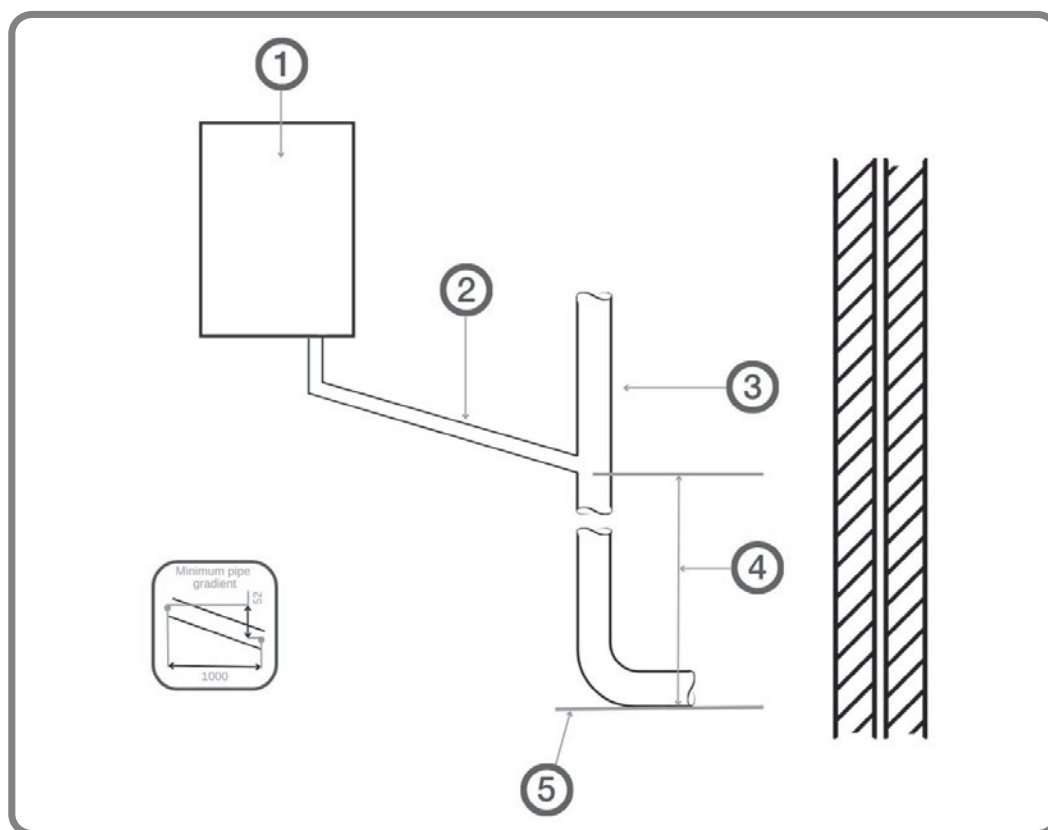
To minimise the risk of freezing during prolonged sub-zero conditions, an internal "gravity discharge point" such as an internal soil stack (preferred method), internal kitchen, utility room or bathroom waste pipe e.g. from a sink, basin, bath or shower shall be adopted, where possible.

Note - Use a suitable permanent connection to the foul waste pipe. Figures 1, 2(a), 2(b) show appropriate connection methods.

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

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Figure 1 – Connection of condensate discharge pipe to internal soil and vent stack.
Note – Refer to manufacturer's instructions.



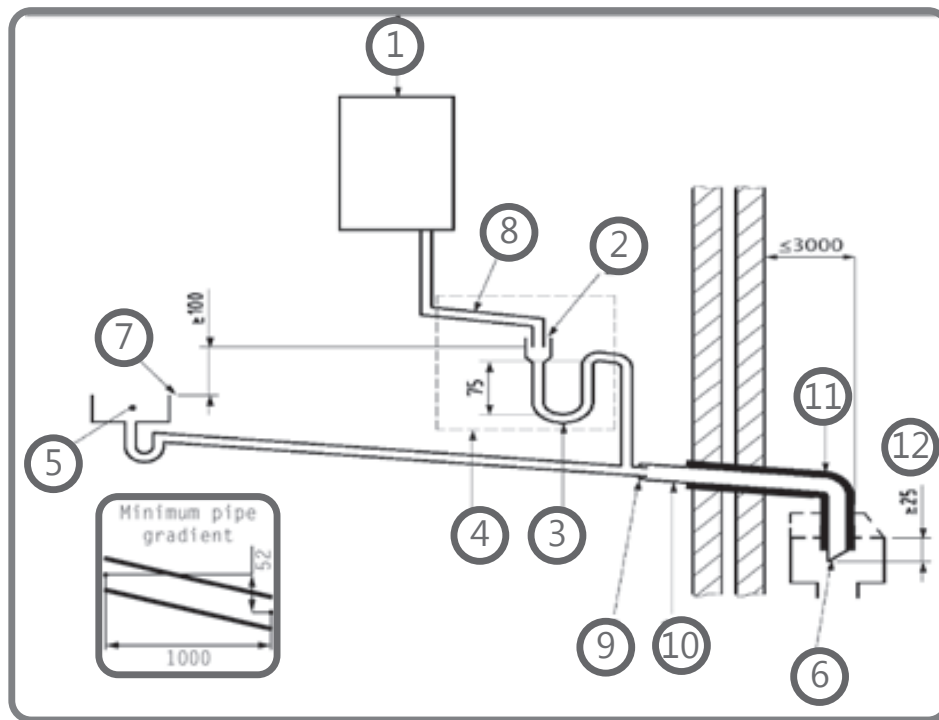
Key

- 1 Boiler
- 2 Minimum internal diameter 19mm
- 3 Soil and vent stack
- 4 450 mm minimum up to three storeys
- 5 Invert

Internal Condensate Pipe Connection with External Termination

Figure 2(a) – Connection of a condensate discharge pipe downstream of a sink, basin, bath or shower waste trap.

Note – Check manufacturer's instructions to see if an air break or trap is required.



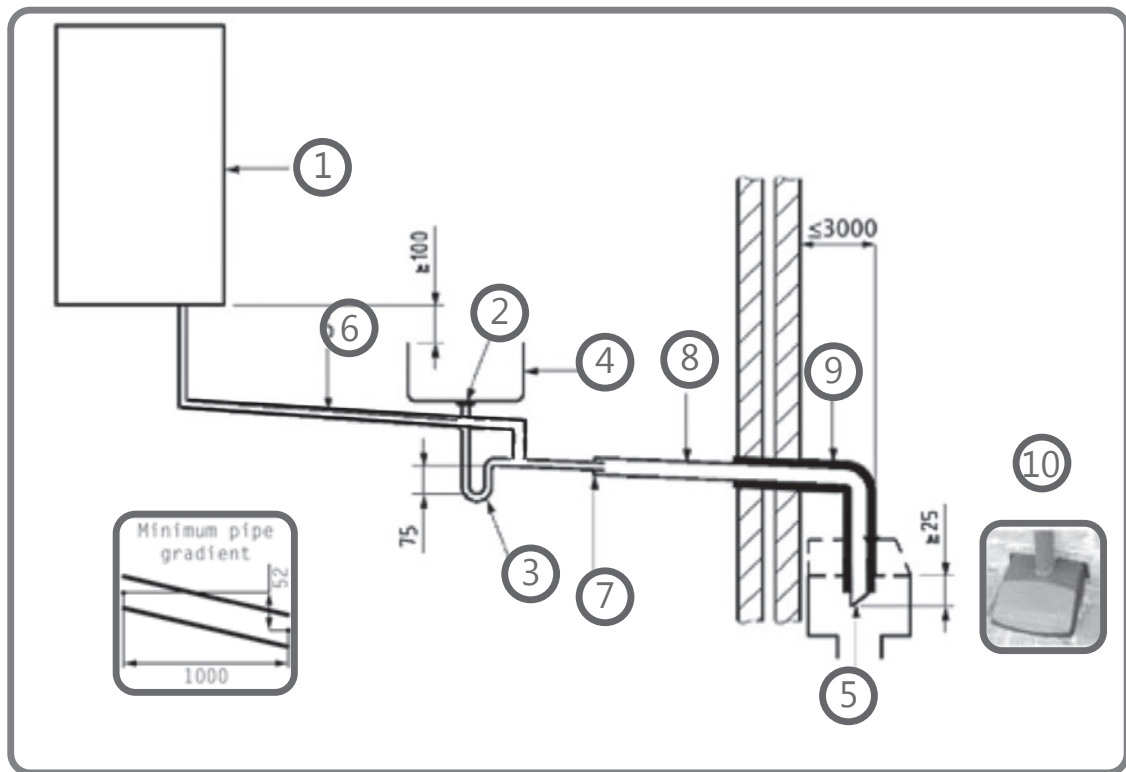
Key

- 1 Boiler
- 2 Visible air break
- 3 75 mm trap
- 4 Visible air break and trap not required if there is a trap with a minimum condensate seal of 75 mm incorporated into the boiler. In this case the 100 mm is measured to the trap in the boiler.
- 5 Sink, basin, bath or shower
- 6 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 °
- Note – the maximum external condensate discharge length is 3 metres
- 7 Sink lip
- 8 Minimum internal diameter 19 mm
- 9 Pipe size transition
- 10 Minimum internal diameter 30 mm taken to the outside
- 11 UV resistant, Water/weather proof insulation
- 12 Drain cover/leaf guard

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

Internal Condensate Pipe Connection with External Termination

Figure 2(b) – Connection of a condensate discharge pipe downstream of a sink, basin, bath or shower waste trap



Key

- 1 Boiler
- 2 Visible air break at plug hole –
- 3 75 mm sink, basin, bath or shower waste trap
- 4 Sink, basin, bath or shower with integral overflow
- 5 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 °
- Note – the maximum external condensate discharge length is 3 metres
- 6 Minimum internal diameter 19 mm
- 7 Pipe size transition
- 8 Minimum internal diameter 30 mm taken to the outside
- 9 UV resistant, Water/weather proof insulation
- 10 Fit drain cover/leaf guard

Internal Condensate Pipe Discharge Termination

When connecting to existing pipework it is critical to review the existing installation to ensure the existing pipework is appropriate for condensate discharge having been run correctly and fully insulated and sealed if this is an external or internal termination.

The possibility of waste pipes freezing downstream of the connection point shall be considered when determining a suitable connection point - e.g. a slightly longer pipe run to an internal soil stack may be preferable to a shorter run discharging directly through the wall to an external drain.

Note - Where "gravity discharge" to an internal termination is not physically possible (e.g. the discharge point is above the appliance location, or access is obstructed by a doorway), or where very long internal pipe runs would be required to reach a suitable discharge point, then a condensate pump shall be used.

External waste pipework shall be:

- Only used to take the condensate waste away and no other waste must be connected to keep the pipework free from restrictions or blockages
- Insulated with waterproof UV resistant material.
- All joints sealed correctly stopping water getting between the insulation and waste pipe
- Terminated below the grid but above the water line and a drain/leaf guard fitted.
- Cut at 45 degrees where it terminates into the grid and insulated to the tip of the pipe.
- A minimum thickness of 13mm insulation is recommended for minimum 32mm OD solvent pipe work and fittings
- Where the insulation passes through the wall with a flexible seal for expansion and contraction is required, to stop any moisture getting between the insulation and waste pipe. This also stops any moisture penetrating through the wall, providing seal supporting energy efficiency



Condensate Pump

Use of a Condensate Pump to an Internal Termination

Condensate can be removed using a proprietary condensate pump, of a specification recommended by the boiler or pump manufacturer. In order to minimise the risk of freezing during prolonged sub-zero spells, the preferred method is internal to the property for terminating the boiler condensate pump to a foul water discharge point should be adopted such as an internal soil stack (preferred method) All waste pipework must be as vertical as possible to take condensate water as fast and as hot as possible to the internal soil stack Any waste pipework being fitted in an unheated area must be enlarged to 32mm OD, insulated and sealed correctly (solvent weld pipe and fitting). UV is not required as fitted internally

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

External Connections

External Connections

Only fit a correctly insulated external boiler condensate drain connection if an internal gravity or pumped connection is **impractical** to install.

The pipe work from the boiler shall be of a minimum 19mm ID or if in an unheated area increased to 30mm ID (typically 32mm OD) solvent weld of as per manufacturer's instructions and the condensate discharge pipe shall be run in a standard drainpipe material, e.g. poly (vinyl chloride) (PVC), un-plasticized poly (vinyl chloride) (PVC-U), acrylonitrile butadiene-styrene (ABS), polypropylene (PP) or chlorinated poly (vinyl chloride) (PVC-C).

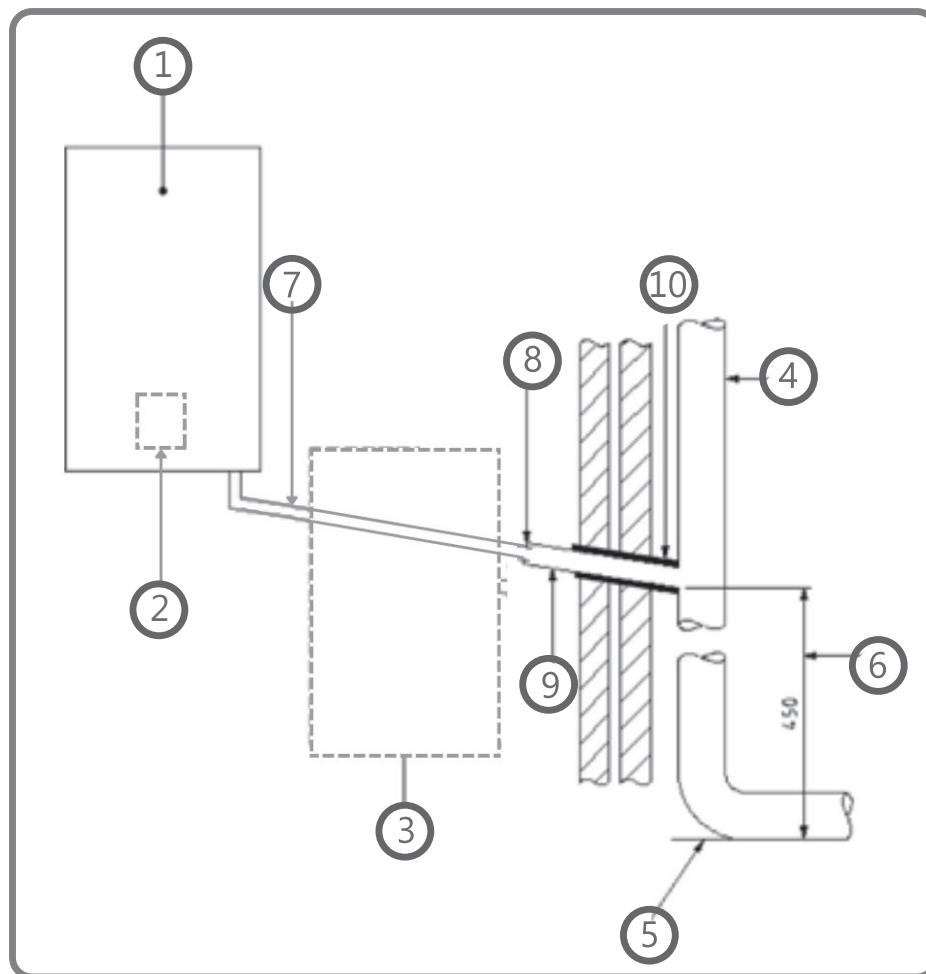
Note - Fixing centres for brackets should be a maximum of 300mm for flexible pipe and 500mm for solid pipe and manufacturer's recommendations should be followed.

The condensate pipe should be run internally as far as possible before going externally and the pipe diameter shall be increased to a minimum of 30mm ID (typically 32mm OD) if not already, if in an unheated, area before it passes through the wall. The angle of the pipe shall slope downwards by at least 3 degrees as it passes through the wall to assist in maintaining a good velocity as the condensate exits the building.

The external pipe run shall be kept as short as possible to a maximum of 3 metres, taking the most direct and "most vertical" route to the discharge point, with no horizontal sections in which condensate might collect. The external condensate and pipework inside the cavity wall must be insulated to manufacturers instructions

External Connections

Figure 3 – Connection of condensate discharge pipe to external soil and vent stack



Key

- 1 Boiler
- 2 Internal Trap
- 3 Visible air break and trap not required if there is a trap with a minimum condensate seal of 75mm incorporated into the boiler.
- 4 Soil and vent stack
- 5 Invert
- 6 450mm minimum up to three storeys
- 7 Minimum internal diameter 19 mm
- 8 Pipe size transition point
- 9 Minimum internal diameter 30mm taken to the outside
- 10 UV Resistant, Water/weather proof insulation

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

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External Connections

Connecting to a rain water downpipe/External Soil Stack

When a rain water downpipe is used as the termination (NB only permissible if this downpipe passes to a combined foul and rainwater drainage system) an external air break shall be installed between the condensate discharge pipe and the downpipe to avoid reverse flow of rainwater into the boiler should the downpipe itself become blocked, flooded or frozen.

Figure 4 shows a suitable connection method. Pipe insulation should be fitted.

External Termination of the Condensate Pipe

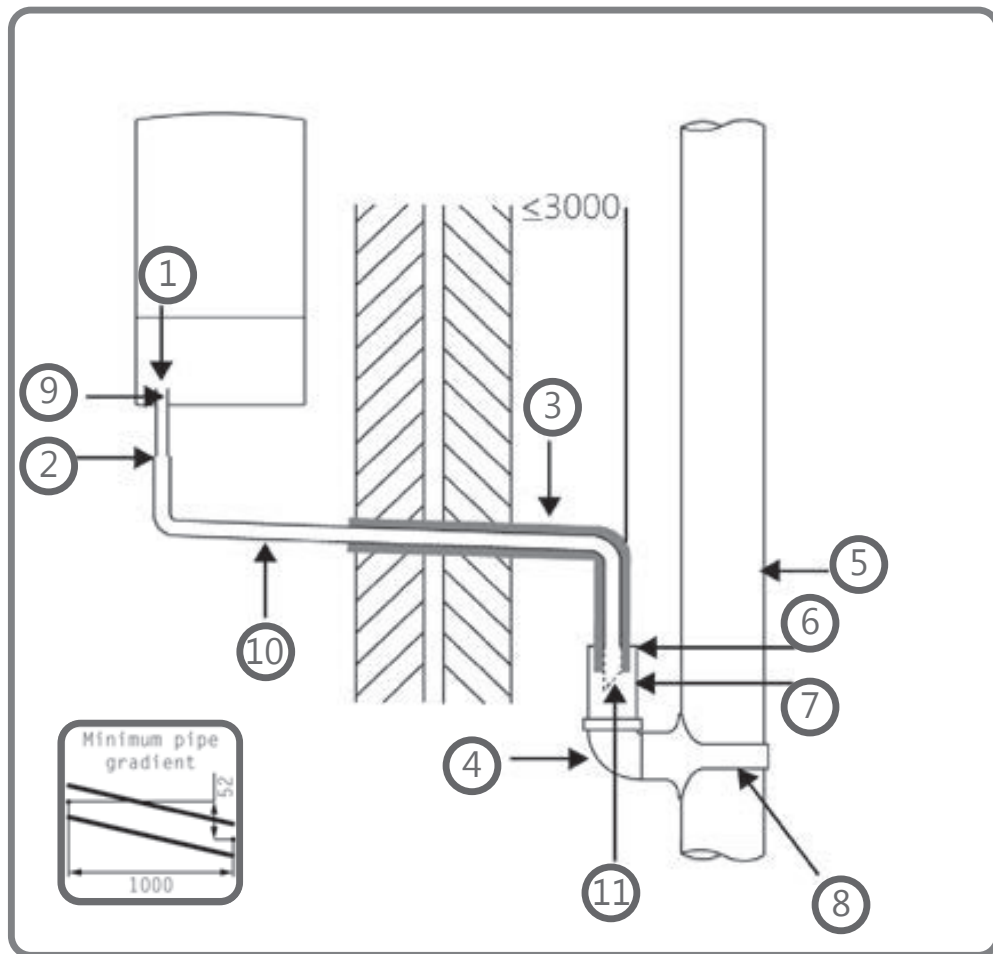
Where the condensate discharge pipe is terminated over an open foul drain or gully, the pipe should terminate below the grating level, but above water level, in order to minimise “wind chill” at the open end. Pipe drainage and resistance to freezing will be improved if the termination end of the condensate pipe is cut at 45 degrees as opposed to a



The use of a drain cover (such as those used to prevent blockage by leaves) shall be fitted to offer further protection from wind chill. Figure 4 (following page) shows a suitable connection method. Where the condensate drain pipe terminates in a purpose-designed soakaway any above-ground section of condensate discharge pipe should be run and insulated as described above. Figure 6 (following page)

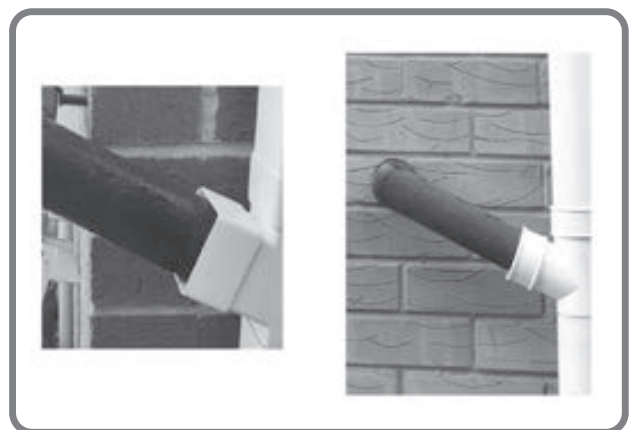
External Connections

Figure 4 – External termination to rainwater downpipe (NB only combined foul/rainwater drain)



Key

- 1 Condensate discharge pipe from boiler
- 2 Pipe size transition point
- 3 Water/weather proof, UV resistant insulation
- 4 43mm 90° male/female bend
- 5 External rain water pipe into foul water
- 6 External air break
- 7 Air gap
- 8 68mm PVC strapon fitting
- 9 Minimum internal diameter 19mm
- 10 Minimum external diameter 30mm and through the wall
- 11 End cut at 45°

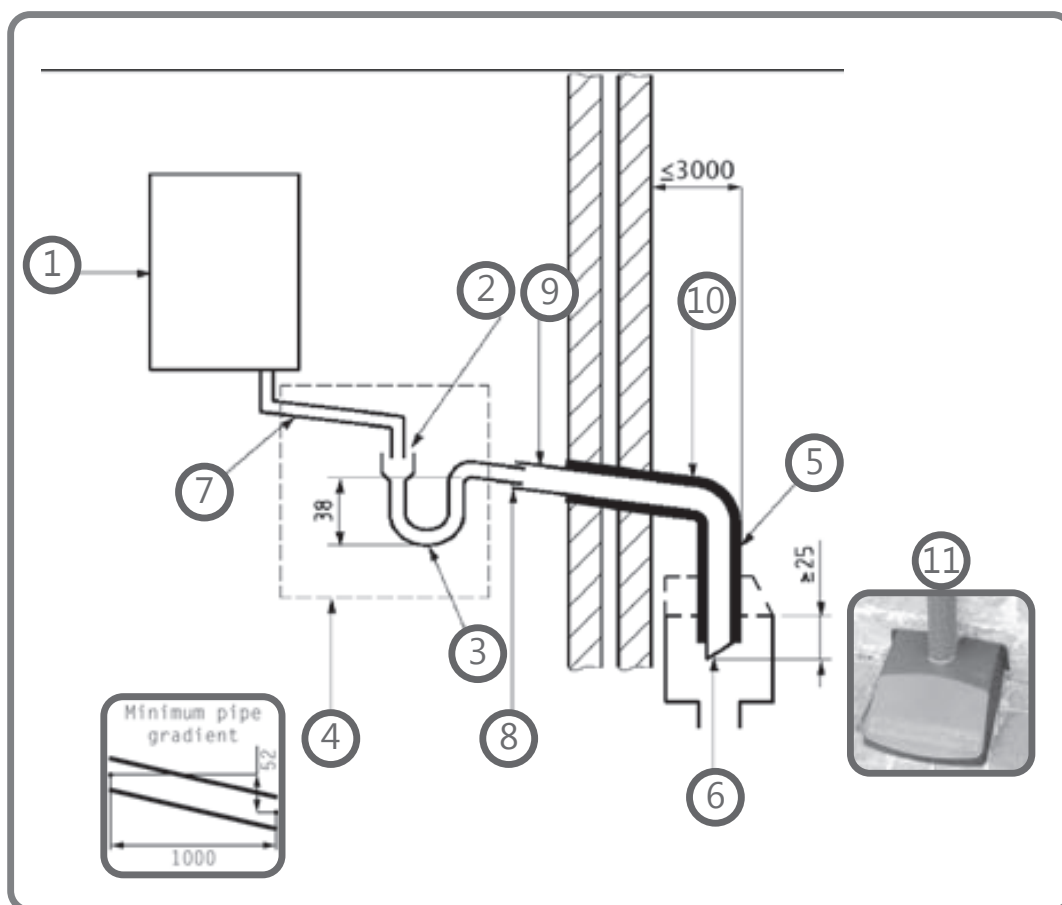


Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

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External Connections

Figure 5 – Preferred Method: External drain, gully or rainwater hopper

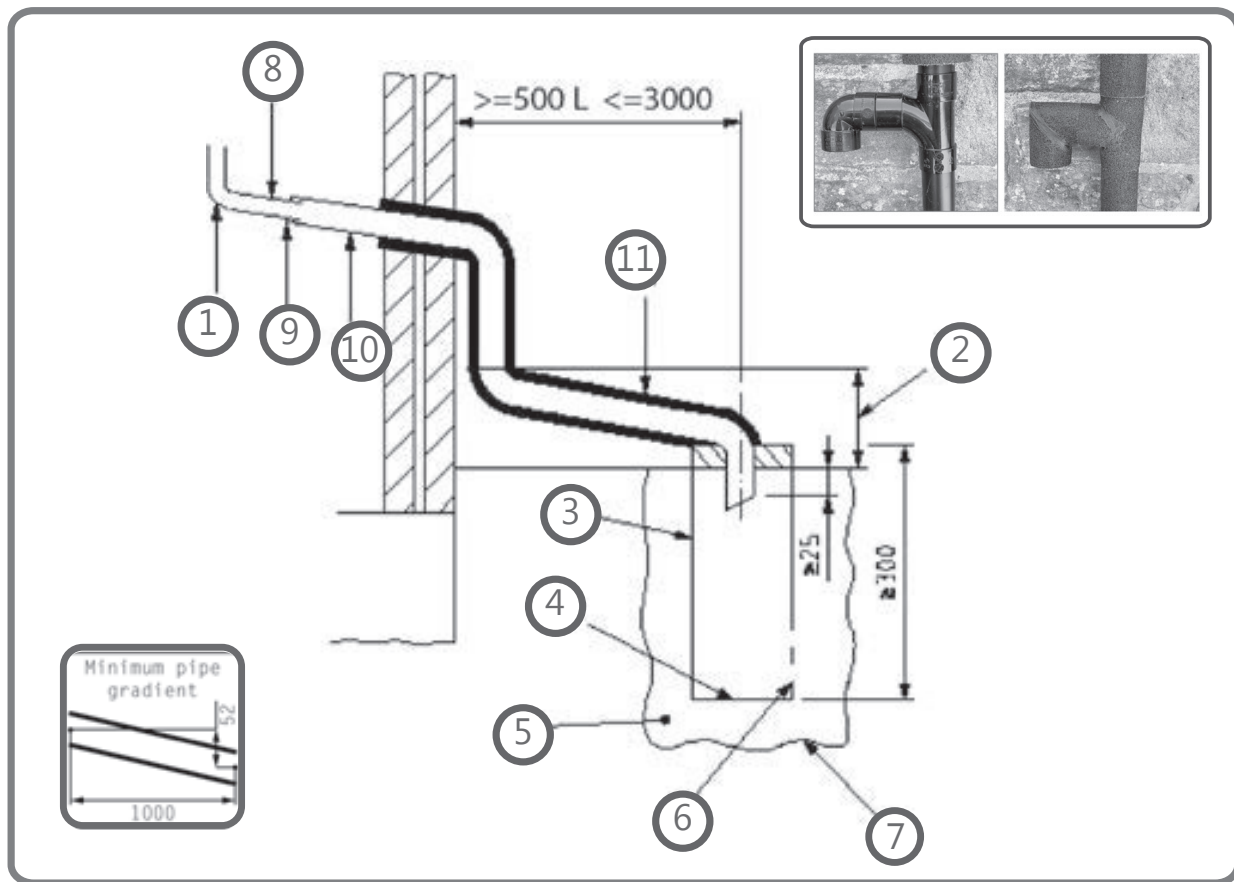


Key

- 1 Boiler
- 2 Visible air break
- 3 38mm minimum trap
- 4 Visible air break and trap not required if there is a trap with a minimum condensate seal of 38 mm incorporated into the boiler – refer to manufacturer's instructions
- 5 External length of pipe 3 m maximum
- 6 Open end of condensate discharge pipe direct into gully 25 mm min below grating but above water level; end cut at 45 °
- 7 Minimum internal diameter 19mm increased to a min of 30mm ID (typically 32mm OD) in an unheated area
- 8 Pipe size transition point
- 9 Minimum internal diameter 30mm to the outside
- 10 Water/weather proof and UV resistant insulation
- 11 Fit drain cover/leaf guard

External Connections

Figure 6 – Example of a purpose made soakaway



Key

- 1 Condensate discharge pipe from boiler
- 2 Ground (this section of the condensate discharge pipe may be run either above or below round level); End cut at 45°
- 3 Diameter 100 mm minimum plastic tube
- 4 Bottom of tube sealed
- 5 Limestone chippings
- 6 Two rows of three 12 mm holes at 25 mm centres, 50 mm from bottom of tube and facing away from house
- 7 Hole depth 400 mm minimum by 300 mm diameter
- 8 Minimum internal diameter 19 mm
- 9 Pipe size transition point
- 10 Minimum external diameter 30 mm
- 11 Water/weather proof and UV resistant insulation

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

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Other considerations

Unheated Areas in Buildings

Internal condensate drainage pipes run in unheated areas such as lofts, basements and garages shall be treated as external connections and insulated accordingly. Weather proof materials may not be necessary but where separate sections of insulation join together, including elbow joints then these should be connected, insulated and sealed correctly to prevent them coming apart with a suitable material to help prevent freezing.

Insulation Materials

Insulation used for external condensate pipes, shall have an outer coating that is weather proof, and UV resistant. Use a minimum of 13mm thick insulation for 32mm external pipes. Ensure all pipework is insulated and sealed correctly

Use of Air Breaks In Condensate Discharge Pipes

Heating engineers should follow manufacturer's instructions on the use of air breaks in condensate discharge pipes. An air break is normally required for both rainwater and soak away connections. Refer to manufacturer's instructions for further details on for air break requirements.

Soakaway

If a soakaway is the only alternative to discharge the condensate an external insulated and sealed air break is required. This will allow water to be discharged from the condensate pipe should the soakaway become saturated, and will allow the boiler to continue to operate. Note: If water is discharged from this 'overflow', then increasing the volume of the soakaway pit should be considered.



Alternative Solutions

Cold weather protection

Cold weather protection methods approved or endorsed by boiler manufacturers and/or service organisations may be adopted if these are considered suitable by the parties involved. It is the responsibility of the manufacturer of these products to ensure they have completed the necessary testing or calculations to ensure the product offers suitable protection to prevent the condensate pipe from freezing. The product manufacturer should provide information as to what level of external temperature and for what time period the product can protect against sub-zero temperatures, i.e. -15°C for 48 hours.

Electric Trace Heating

Trace heating with an external thermostat can be fitted to the external condensate pipe to raise the temperature of the condensate pipe in freezing conditions. Trace heating takes the form of an electrical heating element run in physical contact along the length of the condensate pipe. The pipe still needs to be insulated and sealed correctly to retain heat losses from the pipe. Heat generated by the element then maintains the temperature of the pipe. If such a system is used then the installation instructions of the trace heating manufacturer and any specific recommendations regarding pipe diameter, insulation, etc. should be followed. All other relevant guidance on condensate discharge pipe installation should also be followed.

Auxiliary Syphon – Fitted Internally

Auxiliary siphons fitted inside the premises assist with the siting of the boiler where an external condensate pipe must be fitted. The storage capacity of the auxiliary siphon increases the volume of condensate discharge reducing the risk of freezing. A further reduction in the potential for the pipe to freeze is achieved when combined with the external insulation requirements and sealing correctly. The aim is to keep the condensate discharge running as fast and as hot as possible, this heats the waste pipe and prevents freezing.

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

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Annex A

Note – Annex A details remedial actions for householders which can be taken if a condensate discharge pipe freezes. This may result in requests for alteration to condensate discharge pipework, in which case the guidance above should be followed.

Frozen Condensate Information Leaflet –Our customer information guide on frozen boiler condensate discharge is also available for download. It includes a condensate assessment form, for engineers to complete and advice to customers during extreme cold weather conditions. www.hhic.org.uk/resources.

Dear Householder,

Your heating engineer has noted that your boiler condensate discharge pipe may be at risk of freezing in prolonged, and extreme cold weather conditions. In recent years we have seen temperatures as low as -20*c in some parts of the UK.

The concern is that your pipe runs externally or in an unheated space for at least some of its length and is liable to freeze in these extreme temperatures as it is not installed in line with the latest guidance, to help guard against freezing. If your pipe freezes, it will cause your boiler to go into “shut off” at a time when you need your heating and hot water the most.

Your heating engineer will advise you on the solutions available to reduce the risk of your pipe freezing, including running the discharge pipe to an internal drainage point (the preferred method if you have an internal soil stack), or installing one of the available products designed to give you added protection against freezing conditions. They will also clearly identify the external condensate discharge pipe for your future reference and may apply an identification label or tape.

Annex A

Your Engineer has identified the potential for your boiler to freeze in extreme conditions as the following:

Risk category	Explanation	Engineer selection
RED	High risk of freezing- TAKE ACTION	☐
AMBER	Medium risk of freezing- Strongly advise action to be taken	☐
GREEN	Low risk but some improvement required	☐

Work required:

Name: _____

Company: _____

Telephone: _____

Email: _____

Manufacturers Instructions shall be referred to when installing boiler condensate discharge pipes

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Annex A

Thawing Frozen Condensate Pipes

Below is an explanation of what you would need to do to resolve the problem in the event that the pipe was to freeze. We would highly recommend getting a professional to assess the situation and resolve the problem by upgrading the condensate. If you do try to unfreeze your condensate, please take care as there are risks due to the related weather conditions.

1. Locate the blockage

The Condensate discharge pipe usually freezes at the most exposed points outside, such as the open end of the pipe, at a bend or elbow, or where there is a dip in the pipe where condensate can collect. (If the condensate has no insulation there may be an extensive frozen area)

2. Thaw the Frozen Pipe

The Condensate can be thawed in a number of ways. By applying a hot water bottle, a microwaveable heat packs around the blockage or by pouring warm water onto the pipe. Do not use boiling water. Do not use water if your condensate discharge pipe is not easily reached from ground level, Do not put yourself at any undue risk. Seek assistance and engage a professional heating engineer. Be aware that if you are pouring water onto the pipe this can also quickly freeze on the ground, causing a slip hazard.

3. Reset/ Restart the boiler

Once the frozen blockage has been cleared, the boiler will usually need to be reset, and advice on how to do this can be found in the user instructions manual for your boiler. Normally this will involve simply pressing a reset button on the front of the boiler, or in some cases by isolating the electrical supply to the boiler and switching it back on

11 APPENDIX 2

FLOWCHART FOR CO AND COMBUSTION RATIO CHECK ON COMMISSIONING A CONDENSING BOILER

PRIOR TO CO AND COMBUSTION RATIO CHECK

The installation instructions should have been followed, gas type verified and gas supply pressure/rate checked as required prior to commissioning.

As part of the installation process, **ESPECIALLY WHERE A FLUE HAS BEEN FITTED BY PERSONS OTHER THAN THE BOILER INSTALLER**, visually check the integrity of the whole flue system to confirm that all components are correctly assembled, fixed and supported. Check that manufacturer's maximum flue lengths have not been exceeded and all guidance has been followed (e.g. Gas Safe Technical Bulletin TB008).

The flue gas analyser should be of the correct type, as specified by BS 7967

Prior to its use, the flue gas analyser should have been maintained and calibrated as specified by the manufacturer. The installer must have the relevant competence for use of the analyser.

Check and zero the analyser IN FRESH AIR as per analyser manufacturer's instructions.

NOTE

the air gas ratio valve is factory-set and must not be adjusted **DURING COMMISSIONING** unless this action is recommended after discussions with SIME LTD.

If any such adjustment is recommended and further checking of the boiler is required the installer/service engineer must be competent to carry out this work and to use the flue gas analyser accordingly.

If the boiler requires conversion to operate with a different gas family (e.g. conversion from natural gas to LPG) separate guidance will be provided by the boiler manufacturer and must be followed.

VERIFY FLUE INTEGRITY

Analysers readings indicate that combustion products and inlet air must be mixing. Further investigation of the flue is therefore required.

Check that flue components are assembled, fixed and supported as per boiler/flue manufacturer's instructions.

Check that flue and flue terminal are not obstructed.

Is O₂ less than or equal to 20.6% and CO₂ less than 0.2%

YES

NO

Turn off appliance and call SIME LTD Technical Helpline for advice.

the appliance must not be commissioned or used, until problems are identified and resolved.

Check all seals around the appliance burner; internal flue seals, door and case seals. Rectify where necessary.

Is CO less than 350ppm AND CO/CO₂ ratio less than 0.004

YES

NO

Turn off appliance and call SIME LTD Technical Helpline for advice.

the appliance must not be commissioned or used until problems are identified and resolved.

NOTE

Check and record CO and combustion ratio at both maximum AND minimum rate before contacting SIME LTD.

SET BOILER TO MAXIMUM RATE

Set the boiler to operate at maximum rate (full load condition). Allow sufficient time for combustion to stabilise.

NOTE - Do not insert analyser probe during this period to avoid possible "flooding" of sensor.

CARRY OUT FLUE INTEGRITY CHECK USING ANALYSER

Insert analyser probe into the air inlet test point and allow readings to stabilise.

NOTE - The flue must always be installed with flue test point. This will be located within the first piece connected to the boiler.

Is O₂ less than or equal to 20.6% and CO₂ less than 0.2%

NO

YES

CHECK CO AND COMBUSTION RATIO AT MAXIMUM RATE

With boiler still set at maximum rate, insert analyser probe into flue gas sampling point. Allow readings to stabilise before recording.

Is CO less than 350ppm AND CO/CO₂ ratio less than 0.004

NO

YES

SET BOILER TO MINIMUM RATE

In accordance with boiler instructions, set boiler to operate at minimum rate (to minimum load condition). Allow sufficient time for combustion to stabilise.

NOTE: If manufacturer's instructions do not specify how to set boiler to minimum rate contact Technical Helpline for advice.

CHECK CO AND COMBUSTION RATIO AT MINIMUM RATE

With boiler set at minimum rate, insert analyser probe into flue gas sampling point. Allow readings to stabilise before recording.

NOTE - if no flue gas sampling point is present and the correct procedure is not specified in the manual, contact SIME LTD Technical Helpline for advice.

Is CO less than 350ppm AND CO/CO₂ ratio less than 0.004

NO

YES

BOILER IS OPERATING SATISFACTORILY
no further actions required

Ensure test points are capped, boiler case is correctly replaced and all other commissioning procedures are completed.

Complete Benchmark Checklist, recording CO and combustion ratio readings as required.

12 ANNEXES

12.1 Boiler product board

	
GIULIA SYSTEM	25
C.H. energy efficiency class	
Heat output (kW)	24
C.H. annual energy consumption (GJ)	44
C.H. seasonal energy efficiency (%)	93
Sound power dB(A)	55
<p>Specific precautionary measures to be adopted at the time of assembly, installation or maintenance of the equipment are contained in the boiler instruction manual</p> <p>Conforming to Annex IV (item 2) of the Delegated Regulations (EU) No. 811/2013 which supplements Directive 2010/30/EU</p>	

12.2 Boiler technical sheet

Information requirements for boiler space heaters, boiler combination heaters							
Model(s):		GIULIA SYSTEM 25					
Condensing boiler:		Yes					
Low-temperature boiler:		Yes					
B11 boiler:		No					
Cogeneration space heater:		No		Equipped with a supplementary heater:		No	
Combination heater:		No					
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Nominal heat output for space heating	P _n	24	kW	Seasonal space heating energy efficiency	η _s	93	%
For boiler space heaters and boiler combination heaters: useful heat output				For boiler space heaters and boiler combination heaters: useful efficiency			
At nominal heat output and high-temperature regime ^a	P ₄	23,6	kW	At nominal heat output and high-temperature regime (*)	η ₄	88,1	%
At 30% of nominal heat output and low-temperature regime ^b	P ₁	7,8	kW	At 30% of nominal heat output and low-temperature regime (*)	η ₁	97,8	%
Auxiliary electricity consumption				Other items			
At full load	e _{l_{max}}	0,035	kW	Standby heat loss	P _{stby}	0,082	kW
At part load	e _{l_{min}}	0,011	kW	Ignition burner power consumption	P _{ign}	0	kW
In standby mode	PSB	0,004	kW	Emissions of nitrogen oxides	NO _x	32	mg/kWh
For combination heaters:							
Declared load profile		--		Water heating energy efficiency		η _{wh}	- %
Daily electricity consumption		Q _{elec}	- kWh	Daily fuel consumption		Q _{fuel}	- kWh
Contact details		Fonderie Sime S.p.A. Via Garbo 27, 37045 Legnago (VR) ITALIA					
a. High-temperature regime means 60°C return temperature at heater inlet and 80°C feed temperature at heater outlet. b. Low-temperature regime means for condensing boilers 30°C, for low-temperature boilers 37°C and for other heaters 50°C return temperature.							
(*) The yield data have been calculated using the higher heating value.							

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