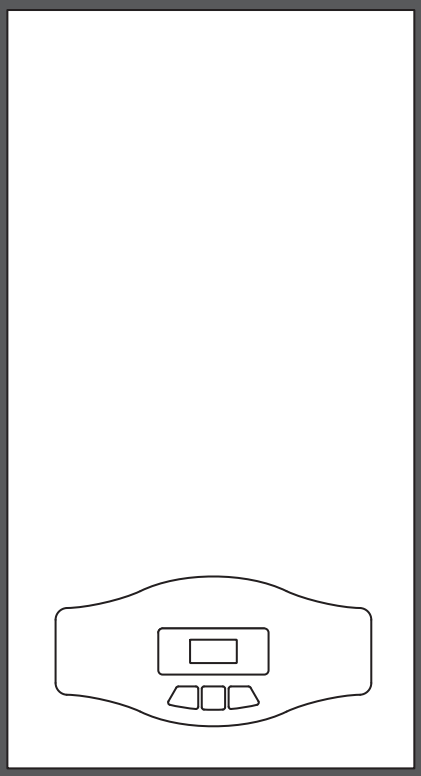
ARISTON

EGIS HE

Installation and Servicing Instructions



CONDENSING WALL-HUNG GAS BOILER

EGIS HE 24
EGIS HE 30

Country of destination GB, IE

GC Numbers:

EGIS HE 24 47-116-71
EGIS HE 30 47-116-72

kiwa approved product
UK WATER SUPPLY REGULATIONS

benchmark
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

CE

0000000042000015110021200000000

INDEX

1.1 General informations

These instructions are suitable for EGIS HE boilers :
Do not forget the Log Book!

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. Visit www.centralheating.co.uk for more information.

To The Installer
As part of the commissioning of this appliance it is vital that the Log Book is completed and given to the Householder. Please ensure that your customer is aware of the importance of keeping the Log Book safe as a record of the installation and the appliance service history.

Please ensure that your customer is aware of the correct operation of the system, boiler and controls.

ARISTON recommend the use of protective clothing, when installing and working on the appliance i.e. gloves.

CUSTOMER CARE
ARISTON, as a leading manufacturer of domestic and commercial water heating appliances is committed to providing high quality products and a high quality after sales service.
Advice on installation or servicing can also be obtained by contacting the ARISTON Technical and Customer Service Departments at High Wycombe.

TECHNICAL DEPARTMENT
Tel: 0333 240 7777
Fax: 01494 459775

CUSTOMER SERVICE DEPARTMENT
Tel: 0333 240 8777
Fax: 01494 459775

GUARANTEE
The manufacturer's guarantee is for 1 year from the date of purchase. The guarantee is invalidated if the appliance is not installed in accordance with the recommendations made herein or in a manner not approved by the manufacturer. To assist us in providing you with an efficient after sales service. Please register the appliance online at www.ariston.co.uk/register without delay.

CAUTION

In the United Kingdom, installation, start-up, adjustments and maintenance, must be performed by a competent person only, in accordance with the current Gas Safety (Installation & Use) Regulations and the instructions provided.

In the Republic of Ireland, the installation and initial start up of the appliance must be carried out by a Competent Person in accordance with the current edition of I.S.813 "Domestic Gas Installations", the current Building Regulations, reference should also be made to the current ETCI rules for electrical installation.

All GAS SAFE registered installers carry an ID card, and have a registration number. Both should be recorded in the Benchmark Log Book. You can check your installer is GAS SAFE registered at www.gassaferegister.co.uk or by calling 0800 408 5500.

Improper installation may cause damage or injury to individuals, animals and personal property for which the manufacturer will not be held liable. To ensure efficient and safe operation it is recommended that the boiler is serviced annually by a competent person.

If it is known that a fault exists on the appliance, it must not be used until the fault has been corrected by a competent person.

This instruction booklet is especially designed for appliances installed in the UK and the Republic of Ireland

1.2 Advice for the installer

⚠ The installation and first ignition of the boiler must be performed by qualified personnel in compliance with current national regulations regarding installation, and in conformity with any requirements established by local authorities and public health organisations.
After the boiler has been installed, the installer must ensure that the end user receives the declaration of conformity and the operating manual, and should provide all necessary information as to how the boiler and the safety devices should be handled.

This appliance is designed to produce hot water for domestic use.
It should be connected to a heating system and a distribution network for domestic hot water, both of which must be compatible with its performance and power levels.
The use of the appliance for purposes other than those specified is strictly forbidden. The manufacturer cannot be held responsible for any damage caused by improper, incorrect and unreasonable use of the appliance or by the failure to comply with the instructions given in this manual.
Installation, maintenance and all other interventions must be carried out in full conformity with the governing legal regulations and the instructions provided by the manufacturer. Incorrect installation can harm persons, animals and possessions; the manufacturing company shall not be held responsible for any damage caused as a result.
The boiler is delivered in a carton. Once you have removed all the packaging, make sure the appliance is intact and that no parts are missing. If this is not the case, please contact your supplier.
Keep all packaging material (clips, plastic bags, polystyrene foam, etc.) out of reach of children as it may present a potential hazard.
In the event of a fault and/or malfunction, turn the appliance off, turn off the gas cock and do not attempt to repair it yourself. Contact a qualified professional instead.
Before any maintenance or repair work is performed on the boiler, make sure you have disconnected it from the electricity supply by switching the external bipolar switch to the "OFF" position and removing the fuse.
All repairs, which should only be performed using original spare parts, should be carried out by a qualified professional. Failure to comply with the above instructions could compromise the safety of the appliance and invalidate all liability on the part of the manufacturer.
In the event of any maintenance or other structural work in the immediate vicinity of the ducts or flue gas exhaust devices and their accessories, switch the appliance off by switching the external bipolar switch to the "OFF" position and shutting off the gas control valve. When the work has been completed, ask a qualified technician to check the efficiency of the ducting and the devices.
Turn the boiler off and turn the external switch "OFF" to clean the exterior parts of the appliance.
Clean using a cloth dampened with soapy water. Do not use aggressive detergents, insecticides or toxic products. If the appliance is used in full compliance with current legislation, it will operate in a safe, environmentally-friendly and cost-efficient manner.
If using kits or optional extras, make sure they are authentic.

1.3 CE labelling

The CE mark guarantees that the appliance conforms to the following directives:
- **2009/142/CEE**
  relating to gas appliances
- **2004/108/CEE**
  relating to electromagnetic compatibility
- **92/42/CEE**
  relating to energy efficiency
- **2006/95/CEE**
  relating to electrical safety

1.4 Symbols used on the data plate

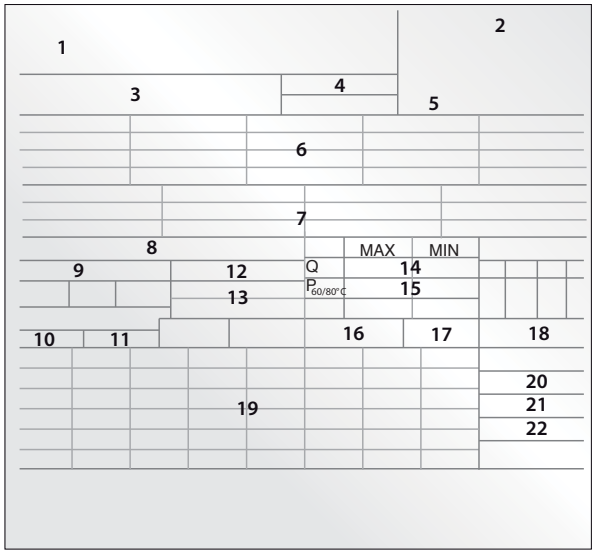


Fig. 1.1

Legend :

1. Brand
2. Manufacturer
3. Boiler model - Serial number
4. Commercial reference
5. certification number
6. Destination country - gas category
7. Gas setting
8. Installation type
9. Electrical data
10. Maximum domestic hot water pressure
11. Maximum heating pressure
12. Boiler type
13. NOx class / Efficiency
14. Input rating nominal heating
15. Power ouput heating
16. DHW specific flow rate
17. Boiler output efficiency
18. Input rating nominal DHW
19. Gases which may be used
20. Minimum ambient temperature for use
21. Max. central heating temperature
22. Max. domestic hot water temperature

1.5 Safety regulations

Key to symbols:

⚠ Failure to comply with this warning implies the risk of personal injury, in some circumstances even fatal

△ Failure to comply with this warning implies the risk of damage, in some circumstances even serious, to property, plants or animals.

Install the appliance on a solid wall which is not subject to vibration.

⚠ Noisiness during operation.

When drilling holes in the wall for installation purposes, take care not to damage any electrical wiring or existing piping.

⚠△ Electrocution caused by contact with live wires. Explosions, fires or asphyxiation caused by gas leaking from damaged piping. Damage to existing installations. Flooding caused by water leaking from damaged piping.

Perform all electrical connections using wires which have a suitable section.

△ Fire caused by overheating due to electrical current passing through undersized cables.

Protect all connection pipes and wires in order to prevent them from being damaged.

⚠△ Electrocution caused by contact with live wires. Explosions, fires or asphyxiation caused by gas leaking from damaged piping. Flooding caused by water leaking from damaged piping.

Make sure the installation site and any systems to which the appliance must be connected comply with the applicable norms in force.

⚠△ Electrocution caused by contact with live wires which have been installed incorrectly. Damage to the appliance caused by improper operating conditions.

Use suitable manual tools and equipment (make sure in particular that the tool is not worn out and that its handle is fixed properly); use them correctly and make sure they do not fall from a height. Replace them once you have finished using them.

⚠△ Personal injury from the falling splinters or fragments, inhalation of dust, shocks, cuts, pricks and abrasions. Damage to the appliance or surrounding objects caused by falling splinters, knocks and incisions.

Use electrical equipment suitable for its intended use (in particular, make sure that the power supply cable and plug are intact and that the parts featuring rotary or reciprocating motions are fastened correctly); use this equipment correctly; do not obstruct passageways with the power supply cable, make sure no equipment could fall from a height. Disconnect it and replace it safely after use.

⚠△ Personal injury caused by falling splinters or fragments, inhalation of dust, knocks, cuts, puncture wounds, abrasions, noise and vibration. Damage to the appliance or surrounding objects caused by falling splinters, knocks and incisions.

Make sure any portable ladders are positioned securely, that they are suitably strong and that the steps are intact and not slippery and do not wobble when someone climbs them. Ensure someone provides supervision at all times.

⚠ Personal injury caused by falling from a height or cuts (stepladders shutting accidentally).

Make sure any rolling ladders are positioned securely, that they are suitably strong, that the steps are intact and not slippery and that the ladders are fitted with handrails on either side of the ladder and parapets on the landing.

⚠ Personal injury caused by falling from a height.

During all work carried out at a certain height (generally with a difference in height of more than two metres), make sure that parapets are used to surround the work area or that individual harnesses are used to prevent falls. The space where any accidental fall may occur should be free from dangerous obstacles, and any impact upon falling should be cushioned by semi-rigid or deformable surfaces.

⚠ Personal injury caused by falling from a height.

Make sure the workplace has suitable hygiene and sanitary conditions in terms of lighting, ventilation and solidity of the structures.

⚠ Personal injury caused by knocks, stumbling etc.

Protect the appliance and all areas in the vicinity of the work place using suitable material.

△ Damage to the appliance or surrounding objects caused by falling splinters, knocks and incisions.

Handle the appliance with suitable protection and with care.

△ Damage to the appliance or surrounding objects from shocks, knocks, incisions and squashing.

During all work procedures, wear individual protective clothing and equipment.

⚠ Personal injury caused by electrocution, falling splinters or fragments, inhalation of dust, shocks, cuts, puncture wounds, abrasions, noise and vibration.

Place all debris and equipment in such a way as to make movement easy and safe, avoiding the formation of any piles which could yield or collapse.

△ Damage to the appliance or surrounding objects from shocks, knocks, incisions and squashing.

All operations inside the appliance must be performed with the necessary caution in order to avoid abrupt contact with sharp parts.

⚠ Personal injury caused by cuts, puncture wounds and abrasions.

Reset all the safety and control functions affected by any work performed on the appliance and make sure they operate correctly before restarting the appliance.

⚠△ Explosions, fires or asphyxiation caused by gas leaks or an incorrect flue gas exhaust. Damage or shutdown of the appliance caused by out-of-control operation.

Before handling, empty all components that may contain hot water, carrying out any bleeding if necessary.

⚠ Personal injury caused by burns.

Descale the components, in accordance with the instructions provided on the safety data sheet of the product used, airing the room, wearing protective clothing, avoid mixing different products, and protect the appliance and surrounding objects.

⚠△ Personal injury caused by acidic substances coming into contact with skin or eyes; inhaling or swallowing harmful chemical agents. Damage to the appliance or surrounding objects due to corrosion caused by acidic substances.

If you detect a smell of burning or smoke, keep clear of the appliance, disconnect it from the electricity supply, open all windows and contact the technician.

⚠ Personal injury caused by burns, smoke inhalation, asphyxiation.

2. product description

2.1 Control panel

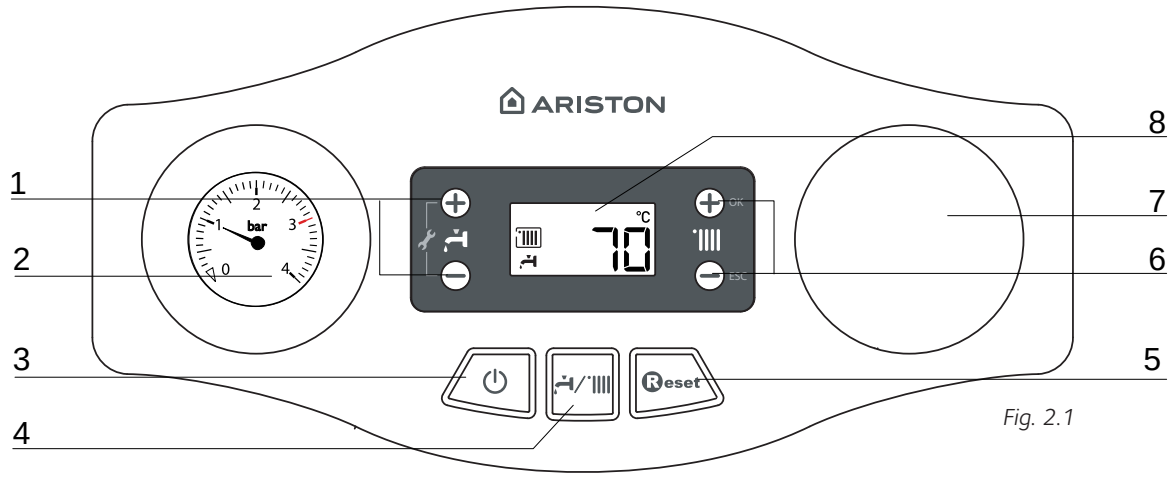


Fig. 2.1

Legend :
1. Domestic Hot Water adjustment button **+/-** (a)
2. Pressure gauge
3. ON/OFF button
4. Operating MODE button (summer/winter)
5. RESET button
6. Heating temperature regulation button **+/-** (b)
7. Optional clock/RF Receiver
8. Display

(a) - Pressing the buttons simultaneously allows for accessing the setting, adjustment and diagnostics parameters (qualified engineers only)
(b) - Pressing the buttons simultaneously allows for modifying and saving the parameter settings (Qualified engineers only)

2.2 Display

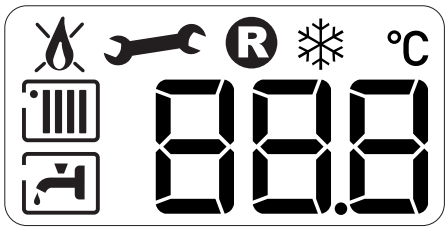


Fig. 2.2

Digits indicating:
- set temperature
- menu settings
- error code signals

Reset button request

Technical assistance request

Flame detected

Indication of operation shutdown

Heating operation set

Heating operation active

Hot water operation set

Hot water operation active

Anti-frost Function Active

2.3 Overall view

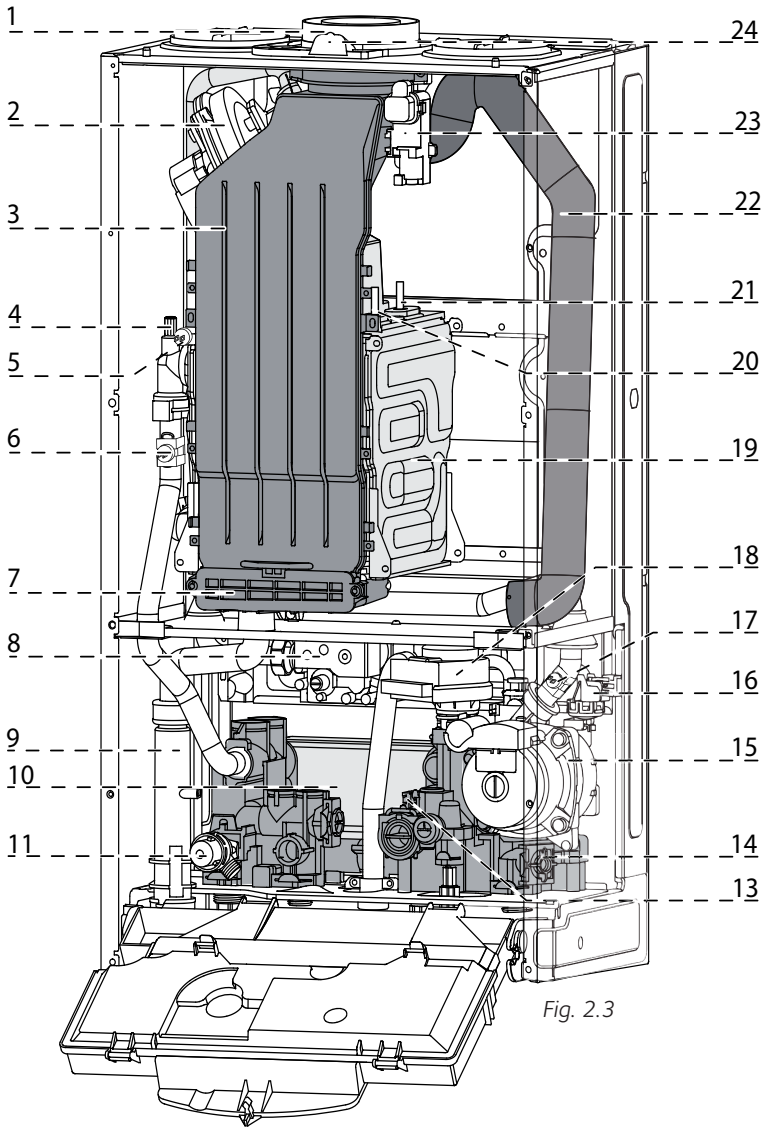


Fig. 2.3

Legend

1. Flue connector
2. Modulating Fan
3. Flue collector
4. Air relief valve
5. Overheat thermostat (Main Heat exchanger)
6. C.H. Flow temperature probe
7. Inspection door
8. Gas valve
9. Condensate trap
10. Secondary heat exchanger
11. Safety valve
13. D.H.W. Flow switch
14. C.H. circuit filter
15. Circulation Pump with air release valve
16. Switch On-Off
17. C.H. Return temperature probe
18. Diverter valve
19. Main heat exchanger
20. Detection Electrode
21. Ignition electrodes
22. Silencer
23. Ignitor
24. Combustion Analysis Test Point

2.4 Overall Dimensions

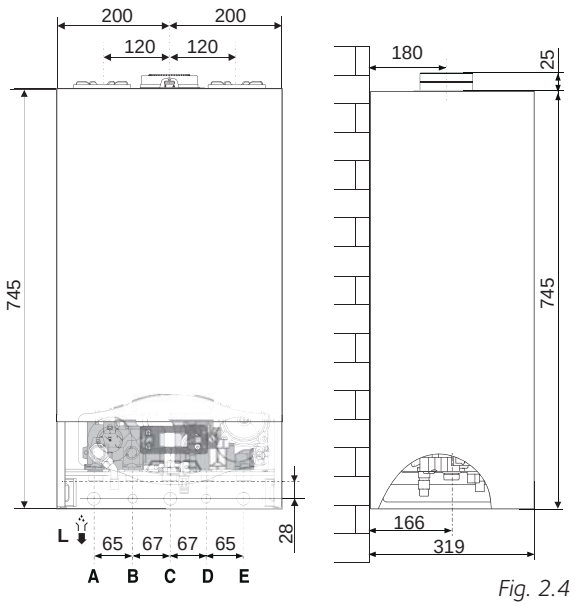


Fig. 2.4

A. Central Heating Flow
B. Domestic Hot Water Outlet
C. Gas Inlet
D. Domestic Cold Water Inlet
E. Central Heating Return

2.5 Minimum clearances

In order to allow easy access to the boiler for maintenance operations, The boiler must be installed in accordance with the clearances stated below.

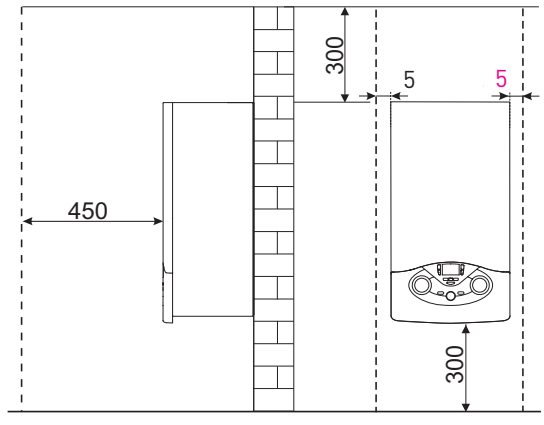


Fig. 2.5

2.6 Technical Data

	Model: EGIS HE			24	30
GENERAL	CE Certification (pin)			0085CL0380	
	Boiler type			B23, B23p, B33 C13(x),C23, C33(x), C43(x), C53(x), C63(x),C83(x), C93(x)	
POWER SPECIFICATIONS	Max/min nominal calorific flow rate (Pci)	Qn	KW	23.5 / 4.5	29.0 / 6.0
	Max/min nominal calorific flow rate (Pcs)	Qn	KW	26.1 / 5.0	32.2 / 6.7
	Domestic hot water max/min nominal calorific flow rate (Pci)	Qn	KW	23.5 / 4.5	29.0 / 6.0
	Domestic hot water max/min nominal calorific flow rate (Pcs)	Qn	KW	26.1 / 5.0	32.2 / 6.7
	Max/min power output (80°C-60°C)	Pn	KW	23.0 / 4.4	28.4 / 5.9
	Max/min power output (50°C-30°C)	Pn	KW	24.5 / 4.8	30.6 / 6.5
	Domestic hot water max/min power output	Pn	KW	22.9 / 4.4	28.4 / 5.9
	Combustion efficiency (of flue gas)		%	98.2	98.3
	Nominal calorific flow rate efficiency (60/80°C) Hi/Hs		%	97.7 / 88.0	98.0 / 88.2
	Nominal calorific flow rate efficiency (30/50°C) Hi/Hs		%	104,3 / 94.0	105.5 / 95.0
	Efficiency at 30% at 30°C Hi/Hs		%	106.5 / 95.9	108.0 / 97.3
	Efficiency at 30% at 47°C Hi/Hs		%	100.8 / 90.8	102.0 / 91.8
	Minimum calorific flow rate efficiency (60/80°C) Hi/Hs		%	97 / 87,3	98.1 / 88.3
	Efficiency rating (dir. 92/42/EEC)		stars	****	****
	SEDBUK band		Band	A	A
	SAP efficiency 2005 (seasonal)		%		
	SAP efficiency 2009 (annual)		%		
	Loss when stopped (ΔT = 30°C)		%	0.2	0.1
	Loss of burner gas when operating		%	1.8	1.7
EMISSIONS	Available air pressure		Pa	100	100
	NOx class		class	5	5
	NOx emissions		mg/kWh		
	Flue gas temperature (G20) (80°C-60°C)		°C	58	65
	CO2 content (G20) (80°C-60°C)		%	9.4	9.4
	CO content (0%O2) (80°C-60°C)		ppm	192	216
	O2 content (G20) (80°C-60°C)		%	3.8	3.8
	Maximum flue gas flow (G20) (80°C-60°C)		Kg/h	37,3	46.0
	Excess air (80°C-60°C)		%	22	22
CENTRAL HEATING	Expansion chamber inflation pressure		bar	1	1
	Maximum heating pressure		bar	3	3
	Expansion chamber capacity		L	8	8
	Min/max heating temperature (high temperature range)		°C	35 / 82	35 / 82
	Min/max heating temperature (low temperature range)		°C	25 / 45	25 / 45
DOMESTIC HOT WATER	Domestic hot water max/min temperature		°C	36 / 60	36 / 60
	Specific flow rate of domestic hot water (ΔT=30°C)		l/mn	10,3	13,5
	Quantity of hot water ΔT=35°C		l/mn	9,9	11,3
	Hot water comfort rating (EN13203)		stars	**	**
	Hot water minimum flow rate		l/mn	>2	>2
	Domestic hot water max/min pressure		bar	6/0.3	6/0.3
	Max temperature inlet water		°C	60	60
ELECTRICAL	Power supply frequency/voltage		V/Hz	230 - 50	230 - 50
	Total electrical power absorbed		W	110	115
	Minimum ambient temperature for use		°C	+5	+5
	Protection level for the electrical appliance		IP	X5D	X5D
	Weight		kg	32	32
	Dimension (H x W x D)		mm	745 x 400 x 319	745 x 400 x 319

3. installation

3.1 Reference Standards

In the United Kingdom, the installation and initial start-up of the boiler must be by a GAS SAFE registered installer in accordance with the installation standards currently in effect, as well as with any and all local health and safety standards i.e. CORGI.

In the Republic of Ireland the installation and initial start-up of the appliance must be carried out by a Competent Person in accordance with the current edition of I.S.813 "Domestic Gas Installations" and the current Building Regulations, reference should also be made to the current ETCI rules for electrical installation.

The installation of this appliance must be in accordance with the relevant requirements of the Local Building Regulations, the current I.E.E. Wiring Regulations, the by-laws of the local authority, in Scotland, in accordance with the Building Standards (Scotland) Regulation and Health and Safety document No. 635, "Electricity at Work Regulations 1989" and in the Republic of Ireland with the current edition of I.S. 813 and the Local Building Regulations (IE).

C.O.S.H.H.

Materials used in the manufacture of this appliance are non-hazardous and no special precautions are required when servicing.

Codes of Practive

Installation should also comply with the following British Standards Code of Practice:

BS 7593	**Treatment of water in domestic hot water central heating systems**
BS 5546	**Installation of hot water supplies for domestic purposes**
BS 5440-1	**Flues**
BS 5440-2	**Air supply**
BS 5449	**Forced circulation hot water systems**
BS 6798	**Installation of gas fired hot water boilers of rated input not exceeding 70kW**
BS 6891	**Installation of low pressure gas pipes up to 28mm**
BS 7671	**IEE Wiring Regulations**
BS 4814	**Specification for expansion vessels**
BS 5482	**Installation of L.P.G.**

and in the Republic of Ireland in accordance with the following codes of practice:

I.S. 813	**Domestic Gas Installations**

Avoid installing the boiler where the air inlet can be polluted by chemical products such as chlorine (swimming pool area), or ammonia (hair dresser), or alkalin products (launderette).

3.1.1 Flue

Detailed information on flue assembly can be found in the "**Connecting the Flue"** section.

The boiler must be installed so that the flue terminal is exposed to the free passage of external air at all times and must not be installed in a place likely to cause nuisance. It must not be allowed to discharge into another room or space such as an outhouse or closed lean-to.

Condensing boilers have a tendency to form a plume of water vapour from the flue terminal due to the low temperature of the flue gasses. The terminal should therefore be located with due regard for the damage or discolouration that may occur to building within the vicinity and consideration must also be given to adjacent boundaries, openable windows should also be taken into consideration when siting the flue.

The minimum acceptable clearances are shown below:

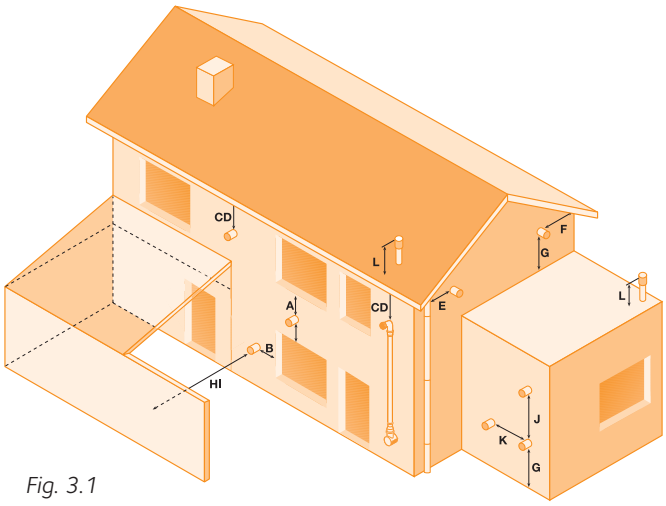


Fig. 3.1

- A Directly below an opening, window, etc	300 mm
- B Horizontally to an opening, window, etc	300 mm
- C Below gutters, soils pipes or drain pipes	75 mm
- D Below eaves	200 mm
- E From vertical drain pipe or soil pipe	75 mm
- F From internal or external corner	300 mm
- G Above ground, roof or balcony level	300 mm
- H From a surface facing the terminal	600 mm
- I From a terminal facing a terminal	1200 mm
- J Vertically from a terminal on the same wall	1500 mm
- K Horizontally from an terminal on the same wall	300 mm
- L Fixed by vertical flue terminal	

NOTE: THE FLUE MUST NOT BE INSTALLED IN A PLACE LIKELY TO CAUSE A NUISANCE AND POSITIONED TO ENSURE THAT PRODUCTS OF COMBUSTION DO NOT DISCHARGE ACROSS A BOUNDARY

It may be necessary to protect the terminal with a guard, if this is the case it will be necessary to purchase a stainless steel terminal guard. Reference should be made to the Building Regulations for guidance.

3.1.2 Ventilation

The room in which the boiler is installed does not require specific ventilation. If the boiler is installed in a cupboard or compartment ventilation is not required for cooling purposes.

3.1.3 Gas Supply
The gas installation and tightness testing must be in accordance with the requirements of BS6891. Ensure that the pipe size is adequate for demand including other gas appliances on the same supply.

3.1.4 Electrical Supply
The appliance requires an earthed 230V - 50 Hz supply and must be in accordance with current I.E.E. regulations. It must also be possible to be able to completely isolate the appliance electrically. Connection should be via a 3 amp double pole fused isolating switch with contact separation of at least 3mm on both poles. Alternatively, a fused 3 amp, 3 pin plug and unswitched socket may be used, provided it is not used in a room containing a bath or shower, it. It should only supply the appliance.

3.1.5 Water Supply
The boiler is suitable for sealed systems only. The maximum working pressure for the appliance is 6 bar. All fittings and pipework for the appliance should be of the same standard. If there is a possibility of the incoming mains pressure exceeding 6 bar, particularly at night, then a suitable pressure limiting valve must be fitted.
The boiler is designed to provide hot water on demand to multiple outlets within the property. If there is a requirement for greater demands, for example if the boiler has several bathrooms and cloakrooms, a vented or unvented hot water storage system may be used.

3.1.6 Showers
Any shower valves used with the appliance should be of a thermostatic or pressure balanced type. Refer to the shower manufacturer for performance guidance and suitability.

3.1.7 FLUSHING AND WATER TREATMENT
The abovementioned boiler is equipped with an aluminium primary heat exchanger, therefore several primary heating circuit water treatment measures are necessary for optimal operation.
A few general warnings are provided below.
If the boiler is installed as part of an existing system, we recommend all unsuitable additives are removed.
We recommend the appliance is only switched on after the system has been flushed in accordance with BS 7593.

For correct cleaning, use chemical products suited to the metals applied in the system (including aluminium alloys), as these are designed to dissolve and eliminate all impurities within the circuit. The cleaning product prepares the circuit for the addition of an inhibitor, which ensures that no impurities accumulate on the heat exchanger, thus preventing the efficiency of the heat exchange process from being diminished. Fernox S3 and Sentinel X400 are compatible with this boiler.

We also recommend protecting the exchanger from scale build-up, corrosion and sediment formation by adding suitable chemical products such as Fernox F1 or Sentinel X100 inhibitors.

Protecting the heat exchanger from scale build-up and corrosion is of primary importance. All water is subject to the infiltration of impurities, and in some cases more than others, depending on geographical location. Premature scale build-up on the heat exchanger may cause the heat exchange process to become less efficient; the resulting scales may jam circuit components and reduce the estimated lifespan of the entire system.

If antifreeze products are used in the circuit, make sure they are compatible with aluminium. We especially advise against using widely available ethylene glycol which, besides being corrosive to aluminium and its alloys, can also become toxic.
ARISTON suggests using suitable antifreeze products such as Fernox ALPHI 11, which guarantees excellent anti-frost protection and is compatible with all metals.
We recommend the pH of the water/antifreeze mixture is checked regularly.

If the value falls outside the range specified by the manufacturer (7←pH←8), treat the system again. Never mix different types of antifreeze product.

In underfloor systems, the use of plastic pipes which are not protected from the penetration of oxygen may cause oxides or bacterial substances to form. To prevent this problem from occurring, we recommend using pipes fitted with oxygen barriers.

IMPORTANT
Failure to carry out the water treatment procedure will invalidate the appliance warranty.

3.1.8 System Controls
The boiler is electrically controlled and is suitable for most modern electronic time and temperature controls. The addition of such external controls can be beneficial to the efficient operation of the system. The boiler connections for external controls are 12V DC and so only controls of 12V DC that have voltage free contacts should be used. (page 26).
ARISTON supply a range of wired and wireless system controls. Contact your supplier for more details.

3.1.9 Location
The boiler can be installed on any suitable internal wall (suitable sound proofing may be required when installing onto a stud partition wall). Provision must be made to allow for the correct routing of the flue and siting of the terminal to allow the safe and efficient removal of the flue products. A compartment or cupboard may be used provided that it has been built or modified for this purpose. It is not necessary to provide permanent ventilation for cooling purposes. Detailed recommendations are given in BS 5440 Part 2. If it is proposed that it is to be installed in a timber framed building then reference should be made to British Gas Document DM2, IGE/UP/7 or advice sought from CORGI.
Where a room sealed appliance is installed in a room containing a bath or shower, the appliance and any electrical switch or appliance control, utilising mains electricity should be situated specifically in accordance with current IEE Wiring Regulations.

For unusual locations, special procedures may be necessary. **BS 6798** gives detailed guidance on this aspect.

3.1.10 Codensate Discharge

To install the condensate pipe, push fit the flexible pipe into the outlet spigot on the appliance, cut to length and locate the outlet into a tundish.

The condensate discharge hose from the boiler must have a continuous fall of 2.5° and must be inserted by at least 50mm into a suitable acid resistant pipe - e.g. plastic waste or overflow pipe. The condensate discharge pipe must have a minimum diameter of 22mm, must have a continuous fall and preferably be installed and terminated to prevent freezing.
The discharge pipe must be terminated in a suitable position:

i) Connecting into an internal soil stack (at least 450mm above the invert of the stack). A trap giving a water seal of at least 75mm must be incorporated into the pipe run, there also must be an air beak upstream of the trap.

ii) Connecting into the waste system of the building such as a washing maching or sink trap. The connection must be upstream of the washing machine/sink. If the connection is downstream of the waste trap then an additional trap giving a minimum water seal of 75mm and an air break must be incorporated in the pipe run, as above.

iii) Terminating into a gully, below the grid level but above the water level

iv) Into a soakaway

Note: If any condensate pipework is to be installed externally then it should be kept to a minimum and be insulated with a waterproof insulation and have a continuous fall. The total length of external pipe used should not exceed 3 metres.

Some examples of the type of condensate terminations can be found below.

1. Internal termination of condensate drainage pipe to internal stack.

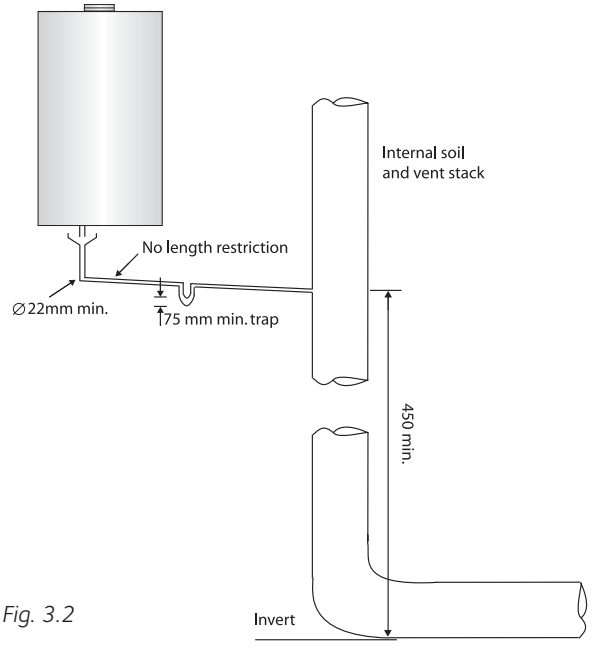


Fig. 3.2

2. External termination of condensate drainage pipe via internal discharge branch (e.g. sink waste) and condensate siphon.

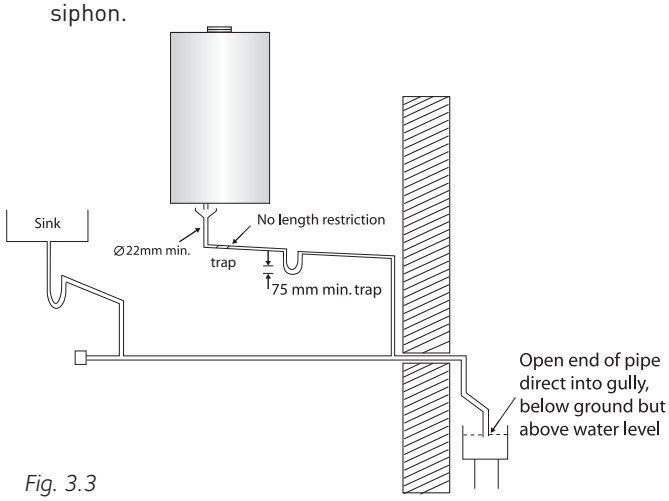


Fig. 3.3

3. External termination of condensate drainage pipe via internal discharge branch (e.g. sink waste - proprietary fitting).

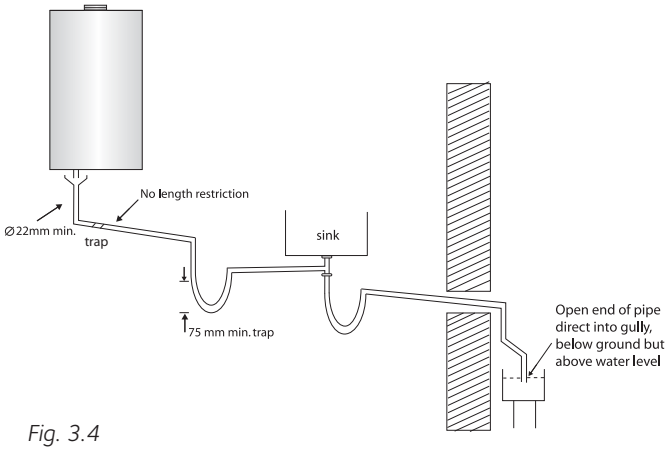


Fig. 3.4

4. External termination of condensate drainage pipe via condensate siphon

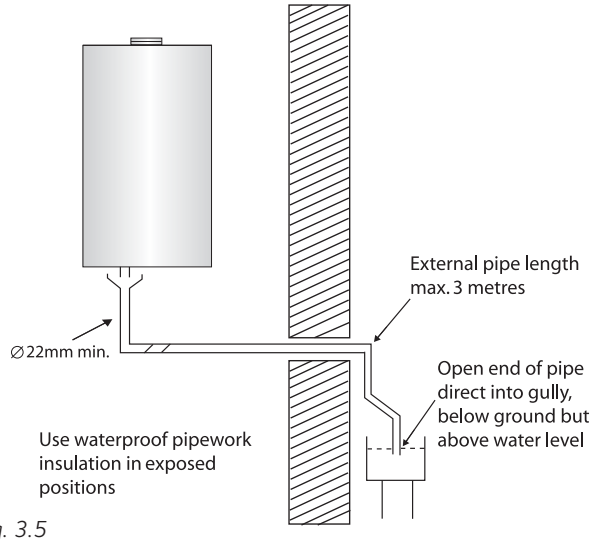


Fig. 3.5

3.2 Installing the Boiler

Please check that you are familiar with the installation requirement before commencing work.

The installation accessories described in the following list are included in the boiler packaging:

- Hanging bracket
- A paper template (showing the dimensions of the boiler with 5 mm side clearances)
- Connection valves (compression)
- Screws and washers
- Installation, Servicing and User manual

3.2.1 Method of positioning the boiler on the wall

The paper template can be used to ensure the correct positioning of kitchen cabinets etc.

The paper template has to be fixed to the wall and used to locate the position of the hanging bracket and the centre for the flue hole.
Drill and plug the wall and secure the hanging bracket using the screws provided ensure the hanging bracket is level. Remove the boiler from its packaging and remove the front casing panel.
Place the boiler on the hanging bracket.

NOTE: THE APPLIANCE MUST NOT BE FITTED ON A COMBUSTIBLE WALL SURFACE.

3.2.2 Connecting the boiler to the system

- Remove the boiler casing as described on page 17
- Remove the caps and connect the valves to the boiler using the washers provided
- 5 x fibre washers for the CH flow and return, cold water inlet, gas inlet and hot water outlet connections.

3.2.3 Safety Valve Discharge and Condense Outlet

The pressure relief valve pipe is made of copper. It should terminate below the boiler safely outside the premises. Care should be taken that it does not terminate over an entrance or window or where a discharge of heated water could endanger occupants or passers by.

Warning !

⚠ **Do not apply heat to the copper safety valve outlet pipe whilst it is connected to the 3 bar safety relief valve.**

Fill the central heating and DHW system and bleed air from the system as described in the Commissioning instructions (page 28).

The system should be carefully checked for leaks, as frequent refilling could cause premature system corrosion or unnecessary scaling of the heat exchanger. The pipe from the trap should be connected to a drain as described in the relevant regulations.

Note: A filling loop is not supplied with the appliance.
A filling loop must therefore be supplied and fitted in a convenient position for the end user to access.

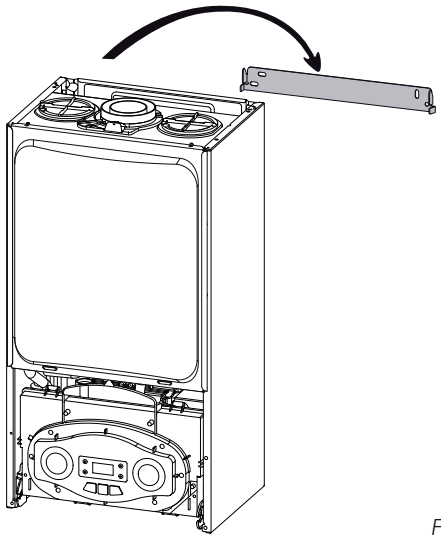


Fig. 3.6

Note: Connections viewed from behind boiler

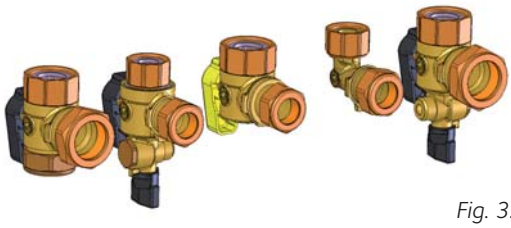


Fig. 3.7

Pay special attention not to bend the condensate silicone drain pipe is such a way as to interrupt the flow. Please only use drain pipe material compatible with condensate products (refer to BS 6798).

The condensate flow can reach 2 litres/hour because of the acidity of the condensate products (Ph close to 2), take care before operation.

See page 13 for condensate discharge options.

3.2.4 Gas connection

Make sure, using the labels on the packaging and the data plate on the appliance itself, that the boiler is in the correct country and that the gas category for which the boiler was designed corresponds to one of the categories available in the country where it will be used.
The gas supply piping must be created and measured out in compliance with specific legal requirements and in accordance with the maximum power of the boiler; you should also make sure that the shut-off valve is the right size and that it is connected correctly.
Check that the supplied gas corresponds to the type of gas for which the boiler was designed (see the data plate located on the appliance itself).
It is also important to check that the pressure of the gas (Natural Gas or LPG) you will be using to feed the boiler is suitable, because if it is insufficient the power may be reduced, causing inconvenience for the user.

3.2.5 Water connection

The illustration below shows the connections for the water and gas attachments of the boiler. See valves configuration on page 14.
Check that the maximum water mains pressure does not exceed 6 bar; if it does, a pressure reducing valve must be installed.
For the measuring of the pipes and of the heating bodies in the heating system, the residual head value should be calculated as a function of the requested flow rate, in accordance with the values shown in the circulation pump graph.

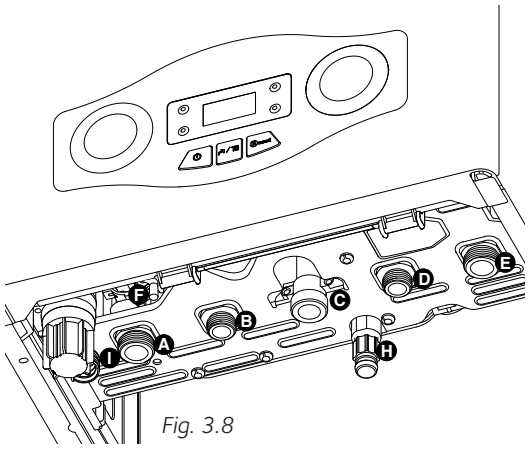
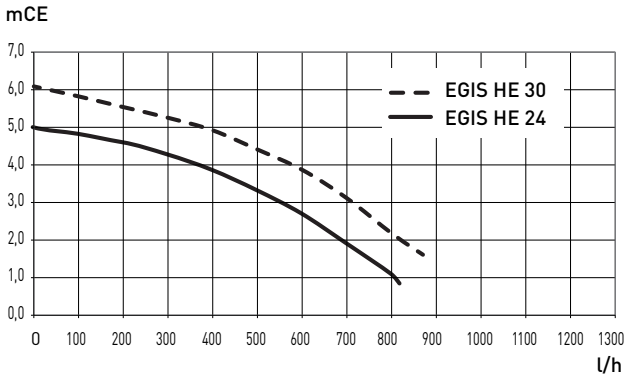


Fig. 3.8

A. Central heating Flow
B. Domestic Hot Water Outlet
C. Gas Inlet
D. Domestic Cold Water Inlet
E. Central Heating Return
F. Safety Valve Discharge
H. Drain Valve
I. Drain condensate

To calculate the size of the heating installation, refer to the "Available pressure" graph below.

3.2.6 Graph representing the available circulation pump pressure ΔT20°C



⚠ **Before the equipment is used, for the first time the trap must be filled with water. To do this, add approximately 1/4 litre of water via the flue outlet before fitting the flue system, or unscrew the cap on the trap positioned underneath the boiler, fill it with water and refit it**

⚠ **Warning! Insufficient water in the trap can temporarily cause the flue gas to be expelled into the surrounding ambient air**

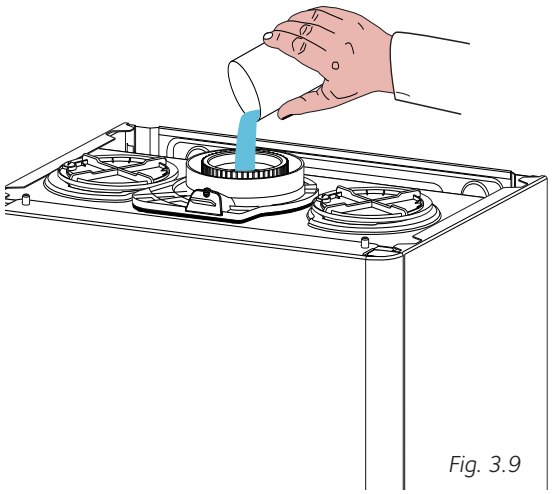


Fig. 3.9

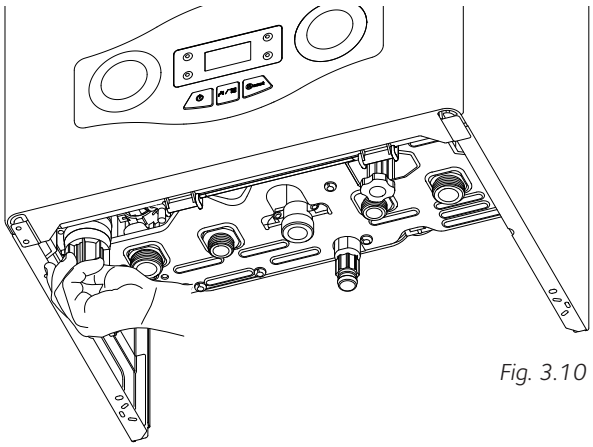


Fig. 3.10

3.2.7 Underfloor heating

For appliances with underfloor heating, fit a safety thermostat onto the underfloor heating outlet. For the electrical connection of the thermostat see the section on "Electrical connections - page 25".

If the outlet temperature is too high, the boiler will stop both domestic hot water and the heating production and the error code 1 16 "floor thermostat contact open" will appear on the display. The boiler will restart when the thermostat is closed during automatic resetting.

If the thermostat cannot be installed, the underfloor heating equipment must be protected by a thermostatic valve, or by a by-pass to prevent the floor from reaching too high a temperature.

3.2.8 Water circuit diagram

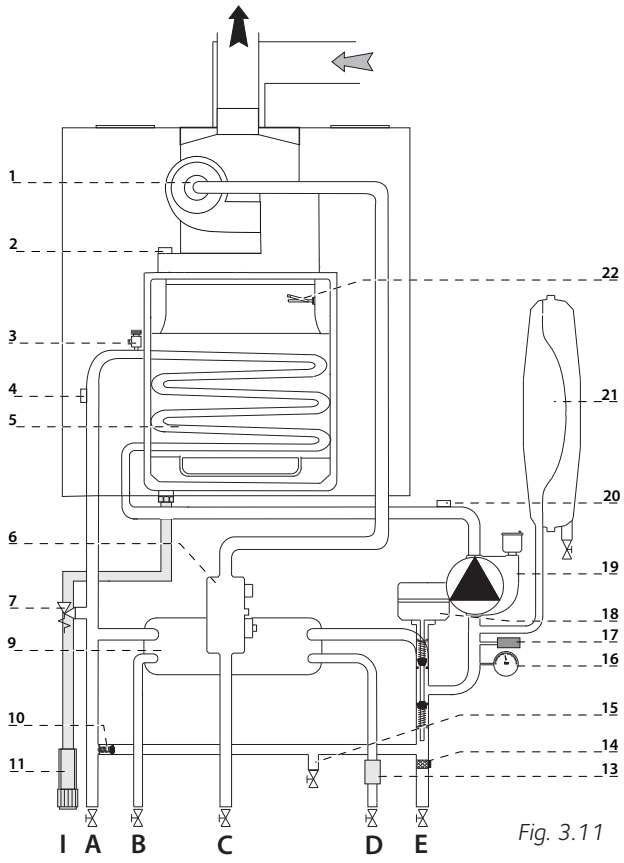


Fig. 3.11

Legend:

1. Modulating Fan
2. Overheat Thermostat (Main Heat exchanger)
3. Air relief valve
4. Central Heating Flow Temperature Probe
5. Main Heat Exchanger
6. Gas Valve
7. Safety valve
9. Secondary Exchanger
10. Automatic By-pass
11. Condensate Trap
13. D.H.W. Flow Switch
14. Central Heating Filter
15. Drain valve
16. Pressure Gauge
17. Switch On/Off
18. Diverter valve
19. Circulation Pump with air release valve
20. Central Heating Return Temperature Probe
21. Expansion vessel
22. Ignition Electrode
    Detection electrode

3.3 Instructions for opening the casing and performing an internal inspection

Before performing any work on the boiler, first disconnect it from the electrical power supply using the external bipolar switch and shut off the gas valve.

To access the inside of the boiler, the following is necessary:

1. Loosen the two screws on the front casing (a), pull it forwards and unhook it from the upper pins (b)
2. Rotate the control panel, pulling it forwards (c)
3. Unhook the two clips on the panel closing off the combustion chamber. Pull it forwards and unhook it from the upper pins (d)

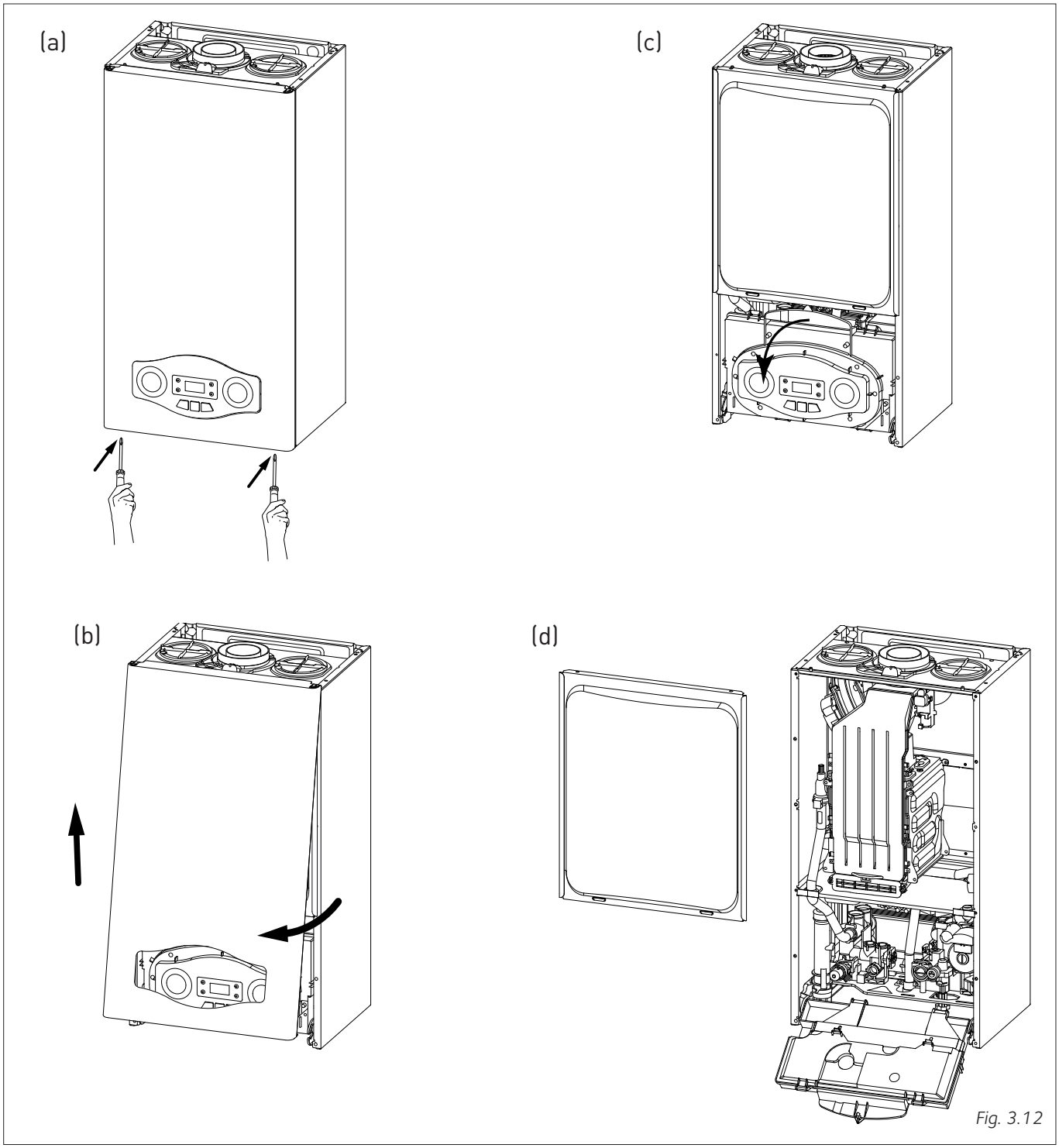


Fig. 3.12

3.4 Connecting the Flue

Flue System

The provision for satisfactory flue termination must be made as described in BS 5440-1.

The appliance must be installed so that the flue terminal is exposed to outdoor air.

The terminal must not discharge into another room or space such as an outhouse or lean-to.

It is important that the position of the terminal allows a free passage of air across it at all times.

The terminal should be located with due regard for the damage or discolouration that might occur on buildings in the vicinity, it must also be located in a place not likely to cause nuisance.

In cold or humid weather water vapour may condense on leaving the flue terminal.

The effect of such "steaming" must be considered.

If the terminal is less than 2 metres above a balcony, above ground or above a flat roof to which people have access, then a suitable stainless steel terminal guard must be fitted.

The minimum acceptable spacing from the terminal to obstructions and ventilation openings are specified in Fig. 3.13.

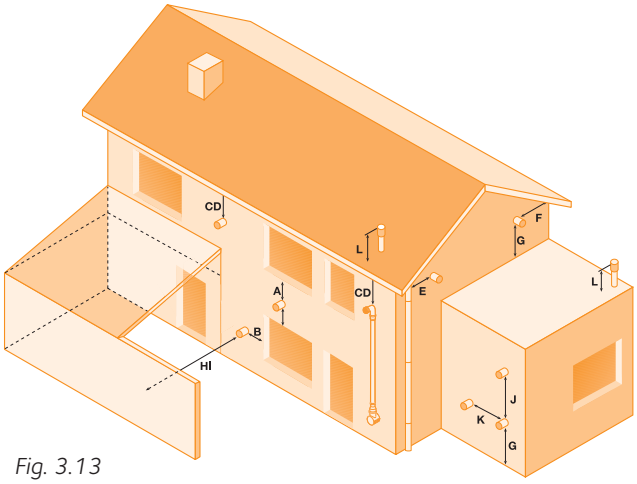


Fig. 3.13

- A Directly below an opening, window, etc 300 mm
- B Horizontally to an opening, window, etc 300 mm
- C Below gutters, soils pipes or drain pipes 75 mm
- D Below eaves 200 mm
- E From vertical drain pipe or soil pipe 75 mm
- F From internal or external corner 300 mm
- G Above ground, roof or balcony level 300 mm
- H From a surface facing the terminal 600 mm
- I From a terminal facing a terminal 1200 mm
- J Vertically from a terminal on the same wall 1500 mm
- K Horizontally from an terminal on the same wall 300 mm
- L Fixed by vertical flue terminal

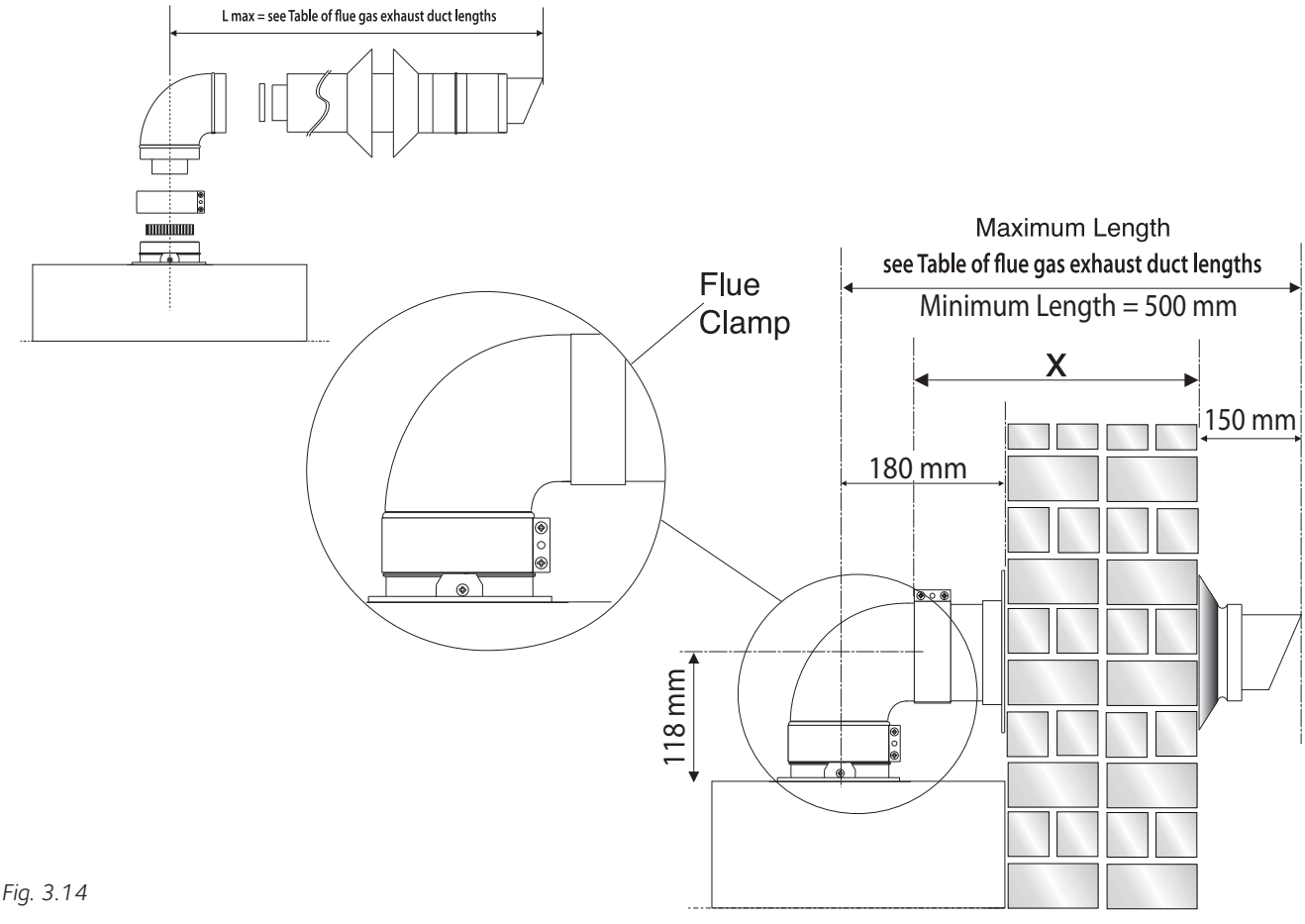


Fig. 3.14

Warning
The exhaust gas ducts must not be in contact with or close to inflammable material and must not pass through building structures or walls made of inflammable material.
When replacing an old appliance, the flue system must be changed.

Important
Ensure that the flue is not blocked.
Ensure that the flue is supported and assembled in accordance with these instructions.

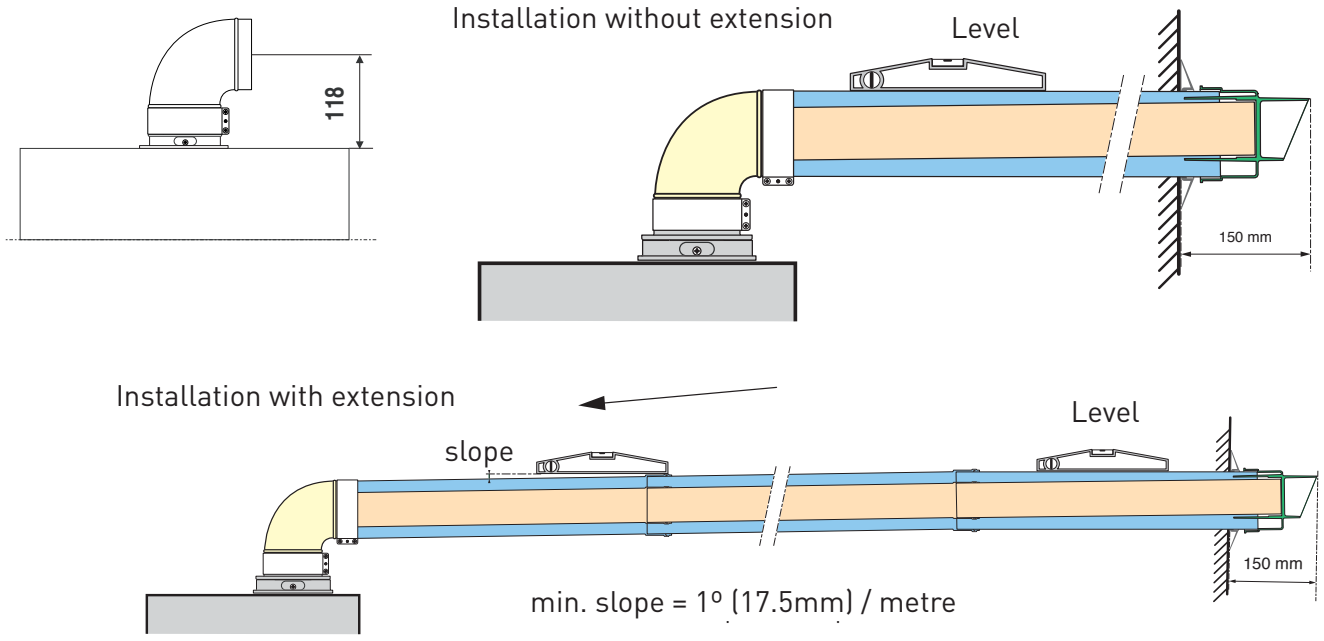


Fig. 3.15

3.4.1 Fitting the Coaxial Flue
(Ø 60 / 100 Horizontal)

Contents:
1x Silicone O-Ring (60mm)
1x Elbow (90°)
2x Wall Seals (Internal & External)
1x Flue Pipe including Terminal (1 metre - 60/100)
2x Flue Clamps
4x Screws
2x Seals

Once the boiler has been positioned on the wall, fit the rubber flue seal into the internal flue turret (see diagram opposite),

insert the elbow into the socket and rotate to the required position. note: It is possible to rotate the elbow 360° on its vertical axis.

Using the flue clamp, seals and screws supplied (Fig 3.16) secure the elbow to the boiler.

The 1 metre horizontal flue kit (3318073) supplied is suitable for an exact X dimension of 753mm.

Measure the distance from the face of the external wall to the face of the flue elbow (X - Fig 3.14), this figure must now be subtracted from 753mm, you now have the total amount to be cut from the plain end of the flue.

Draw a circle around the outer flue and cut the flue to the required length taking care not to cut the inner flue, next cut the inner flue ensuring that the length between the inner and outer flue is maintained. (Fig 3.16).

e.g.
X = 555mm
753-555 = 198mm
(Length to be cut from the plain end of the flue).

Once cut to the required length, ensure that the flue is free from burrs and reassemble the flue. If fitting the flue from inside of the building attach the grey outer wall seal to the flue terminal and push the flue through the hole, once the wall seal has passed through the hole, pull the flue back until the seal is flush with the wall. Alternatively, the flue can be installed from outside of the building, the grey outer seal being fitted last.

Should the flue require extending, the flue connections are push fit, however, one flue bracket should be used to secure each metre of flue.

Note: See table for maximum and minimum flue runs.

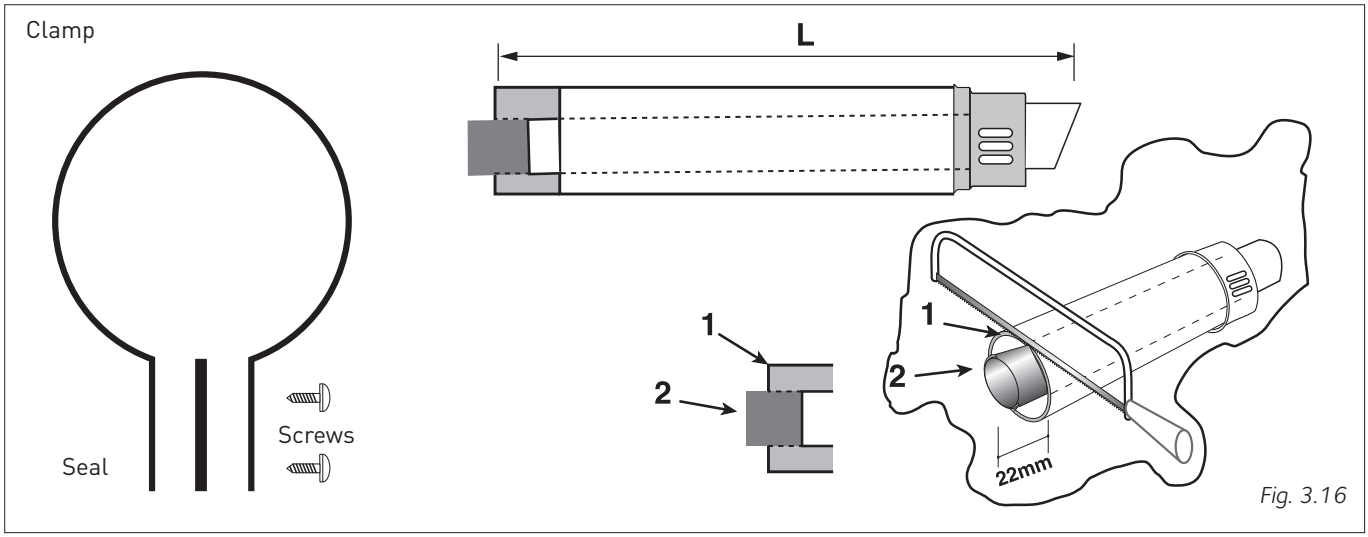


Fig. 3.16

3.4.2 Fitting the 5" Flue

(Ø 80 / 125 Horizontal/vertical)

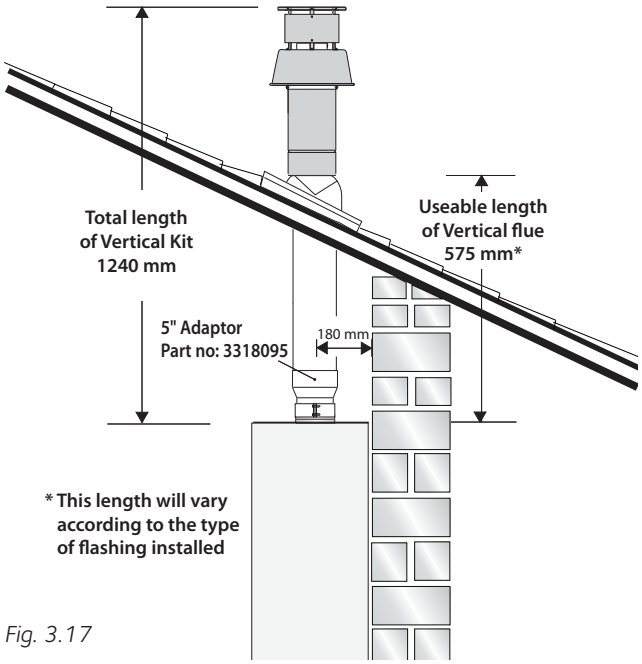


Fig. 3.17

Once the boiler has been positioned on the wall, it is necessary to insert the Ø80/125 adaptor (Fig. 3.17) for both horizontal and vertical flue runs into the boiler flue socket (not supplied with flue kit - Part No 3318095).

Push the adaptor onto the boilers flue connection, grease the seals then add extensions or elbows as required, secure the adaptor, using the clamp and screws provided.

To fit extensions or elbows it is first necessary to ensure that the lip seal is fitted correctly into the inner flue, once verified, it is simply necessary to push them together, no clamps are necessary to secure the flue components.

Before proceeding to fit the flue, ensure that the maximum flue length has not been exceeded (See the tables) and that all elbows and bends have been taken into consideration, the maximum flue length is 10 metres, for each additional 90° elbow 1 metre must be subtracted from the total flue length, and for each 45° 0.5 metres must be subtracted from the total flue length (the height of the vertical adaptor and a 45° bend can be seen in Fig.3.18 and a 90° bend in Fig. 3.19).

Note: DO NOT cut the vertical flue kit.

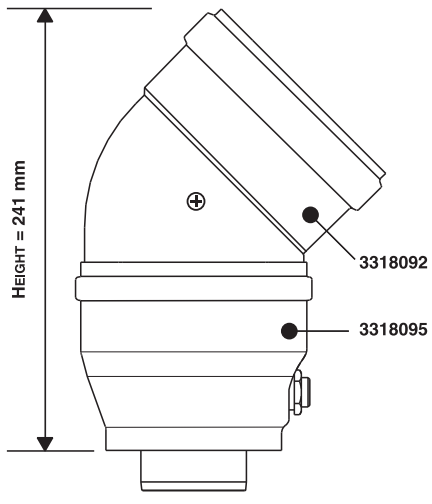


Fig. 3.18

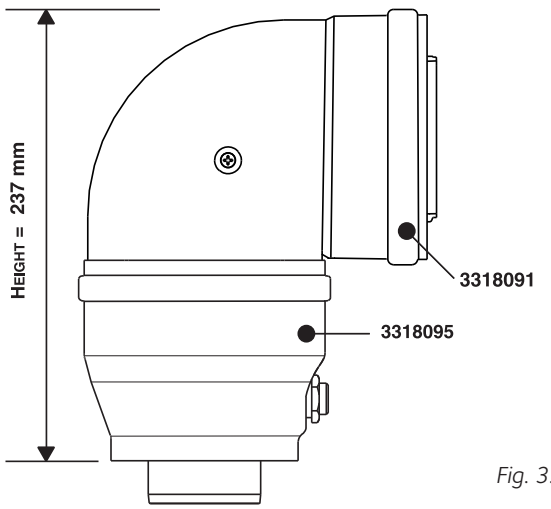


Fig. 3.19

3.4.3 Fitting the Coaxial Flue
(Ø 60 / 100 Vertical)

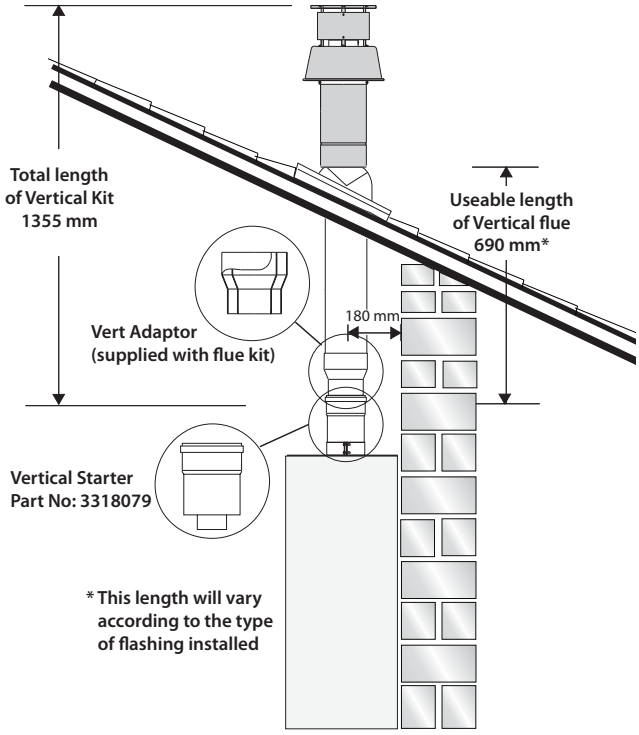


Fig. 3.20

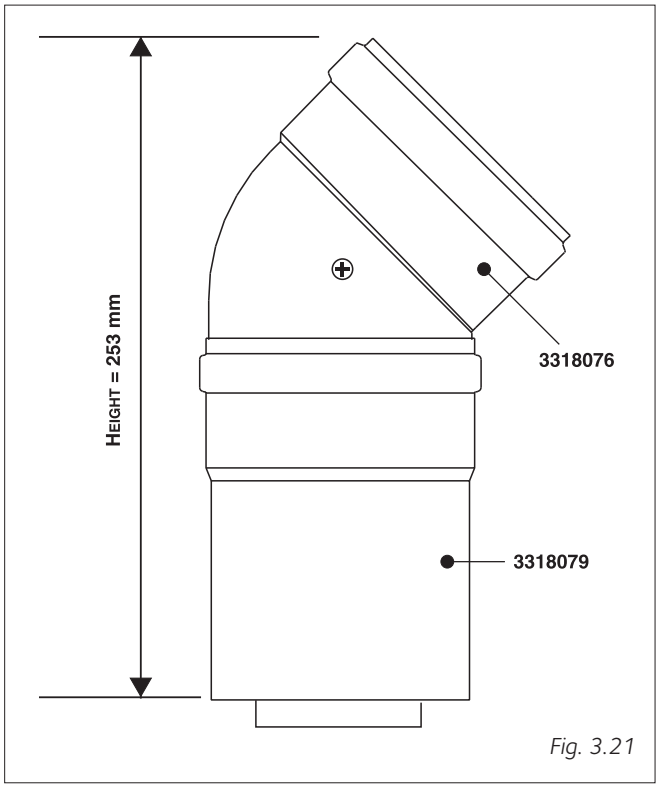


Fig. 3.21

Note: See table for maximum and minimum flue runs.

Contents:
1x Silicone O-Ring (60mm)
1x Conical Adaptor (60/100mm)
1x Vertical Flue Kit (80/125mm)
3x Screws

The vertical flue kit is supplied with a specially designed weather proof terminal fitted, it can be used either with a flat roof or a pitched roof.

The Vertical flue kits useable lengths with the pitched roof flashings are indicated in Fig. 3.20.

Before proceeding to fit the flue, ensure that the maximum flue length has not been exceeded (See the tables) and that all elbows and bends have been taken into consideration, the maximum flue length is see table, for each additional 90° elbow 1 metre must be subtracted from the total flue length, and for each 45° 0.5 metres must be subtracted from the total flue length (the height of the vertical adaptor and a 45° bend can be seen in Fig. 3.21).

Mark the position of the flue hole in the ceiling and/or roof (see Fig. 3.20 for distance from wall to the centre of the flue).

Cut a 130mm diameter hole through the ceiling and/or roof and fit the flashing plate to the roof.

DO NOT cut the vertical flue kit.

To connect the vertical flue kit directly to the boiler, place the vertical starter kit (Part No. 3318079) (see Fig. 3.20) onto the exhaust manifold and secure with the clamp, fit the vertical adaptor onto the vertical starter kit (note: there is no need to use a clamp to secure this as it is a push fit connection), the vertical flue kit must then be inserted through the roof flashing, this will ensure that the correct clearance above the roof is provided as the terminal is a fixed height.

Should extensions be required, they are available in 1 metre (Part No. 3318077), 500mm (Part No. 3318078) and 160mm lengths, they must be connected directly to the vertical starter kit before connecting the adaptor to allow the vertical flue kit to be fitted. In the event that extension pieces need to be shortened, they must only be cut at the male end and it must be ensured that the inner and outer flue remain flush.

When utilising the vertical flue system, action must be taken to ensure that the flue is supported adequately to prevent the weight being transferred to the appliance flue connection by using 1 flue bracket per extension.

When the flue passes through a ceiling or wooden floor, there must be an air gap of 25mm between any part of the flue system and any combustible material. The use of a ceiling plate will facilitate this. Also when the flue passes from one room to another a fire stop must be fitted to prevent the passage of smoke or fire, irrespective of the structural material through which the flue passes.

3.4.4 Fitting the Twin Pipe (Ø80 / 80)

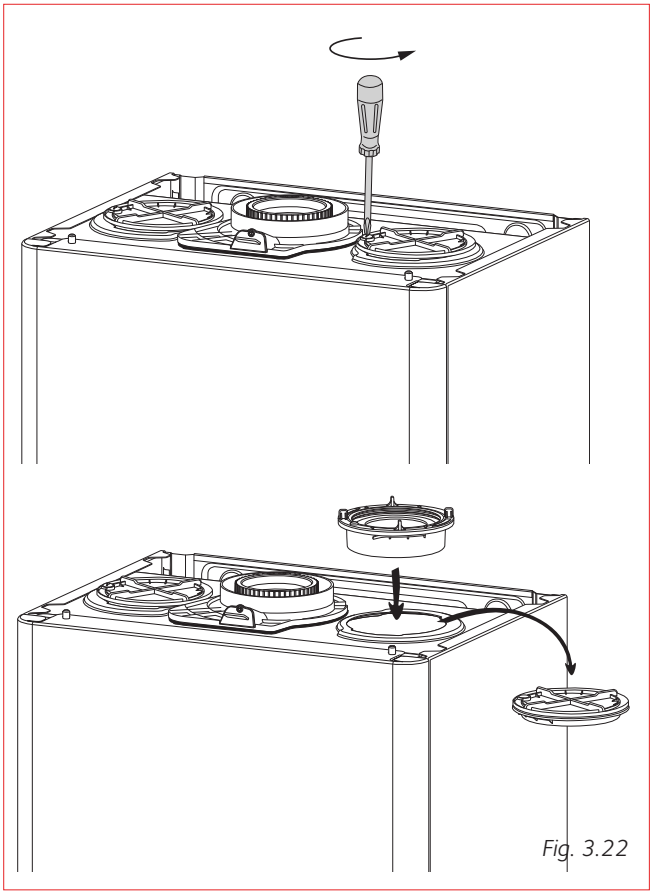


Fig. 3.22

Note: See table for maximum and minimum flue runs.

Where it is not possible to terminate the flue within the distance permitted for coaxial flues, the twin flue pipe can be used by fitting a special adaptor to the flue connector and using the aperture for the air intake located on top of the combustion chamber.

Always ensure that the flue is adequately supported, using one flue bracket per extension and avoiding low points. (ARISTON supply suitable clamps as Part No. 705778).
To utilise the air intake it is necessary to:

1) Take the air intake cover off the top of the appliance
2) Assemble the flange on the header supplied with the boiler
3) Insert the header on the tube or the elbow up until the lower stop (you do not have to use the washer).
4) Insert the elbow/header in the boiler air intake hole and fasten it with screws.

The twin flue pipes can be fitted with or without additional elbows and need no clamps, simply ensure that the red o-ring is inserted in the female end of the flue pipe and push the extension piece fully into the previous section of flue pipe or elbow, check that the o-ring is not dislodged when assembling the flue (greasing the seal will aid assembly).

Twin pipe can also be converted back to Coaxial flue to enable vertical termination with a coaxial kit by using the pipe bridge (Twin - Coaxial Adaptor - Part No. 3318089). When running the twin flue pipe vertically.

It is not possible to terminate concentrically horizontally. Termination is only possible with separate air and exhaust terminals.

When siting the twin flue pipe, the air intake and exhaust terminals must terminate on the same wall, the centres of the terminals must be a minimum of 280 mm apart and the air intake must not be sited above the exhaust terminal (refer to Fig. 10). The air intake pipe can be run horizontally, however, the terminal and the final 1 metre of flue must be installed either horizontally or with a slight fall away from the boiler to avoid rain ingress.

It is also strongly recommended that the air intake pipe run be constructed of insulated pipe to prevent condense forming on the outside of the tube.

The maximum permissible flue length for twin flue is dependent on the type of run used (see table on page 24).

For further information relating to flue runs not illustrated, please contact the Technical Department on 0870 241 8180.

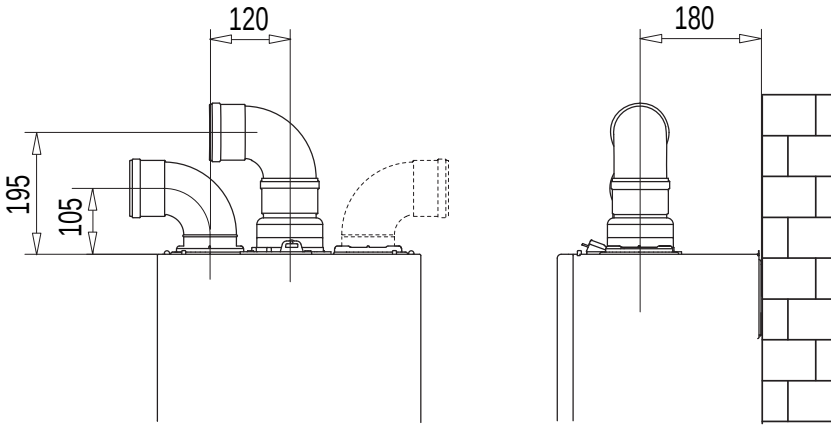


Fig. 3.23

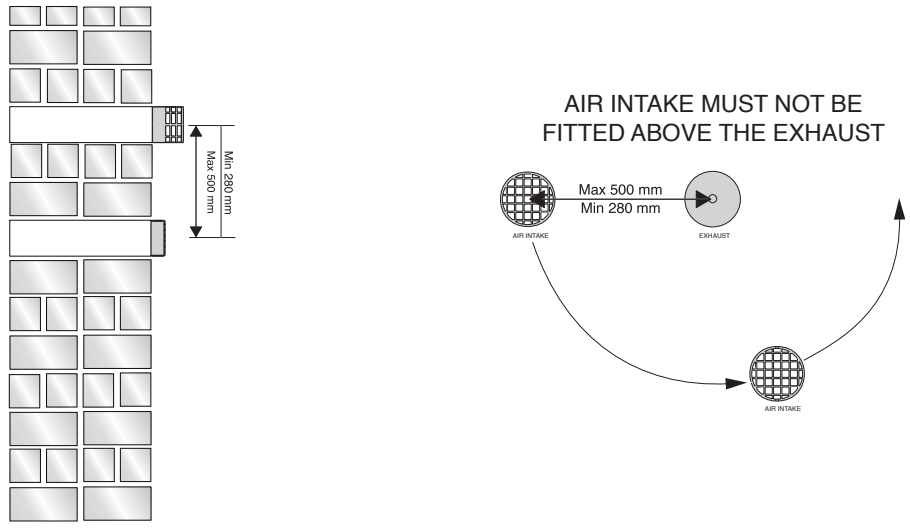


Fig. 3.24

For coaxial systems, the maximum development value, mentioned in the table below also takes into account an elbow. For twin flue systems the maximum development value, mentioned in the table includes the exhaust gas/air intake terminal.

Type 5 outlets should respect the following instructions:

1- Use the same ø 80 mm flue pipes for the air intakes and exhaust gas ducts.
2- If you need to insert elbows in the air intake and exhaust gas ducts, you should consider for each one the equivalent length to be included in the calculation of developed length.
3- The exhaust gas duct should jut above the roof by at least 0.5 m.
4- The intake and exhaust gas ducts in Type C13 + C53 must be installed on the same wall, or where the exhaust is vertical and the air intake horizontal, the terminals must be on the same side of the building.

3.4.5 Table of flue gas exhaust duct lengths

FLUE TYPE		Maximum Extension Exhaust-air (m)		Diameter of pipe (mm)
		EGIS HE		
		24	30	
Coaxial System	C13 C33 C43	10	10	ø 60/100
	B33	10	10	
	C13 C33 C43	25	25	ø 80/125
	B33			
Twin-pipe System		S1 = S2		ø 80/80
	C13 C43 C33	25 / 25		
	C53 C83	1 + S2		
		1+43	1+41	ø 80/80
	B23	44	42	ø 80

S1 = Air intake S2 = Flue gas exhaust

S1 = S2 - Air intake and flue gas exhaust equal lengths
S1 + S2 - Air intake and flue gas exhaust unequal lengths

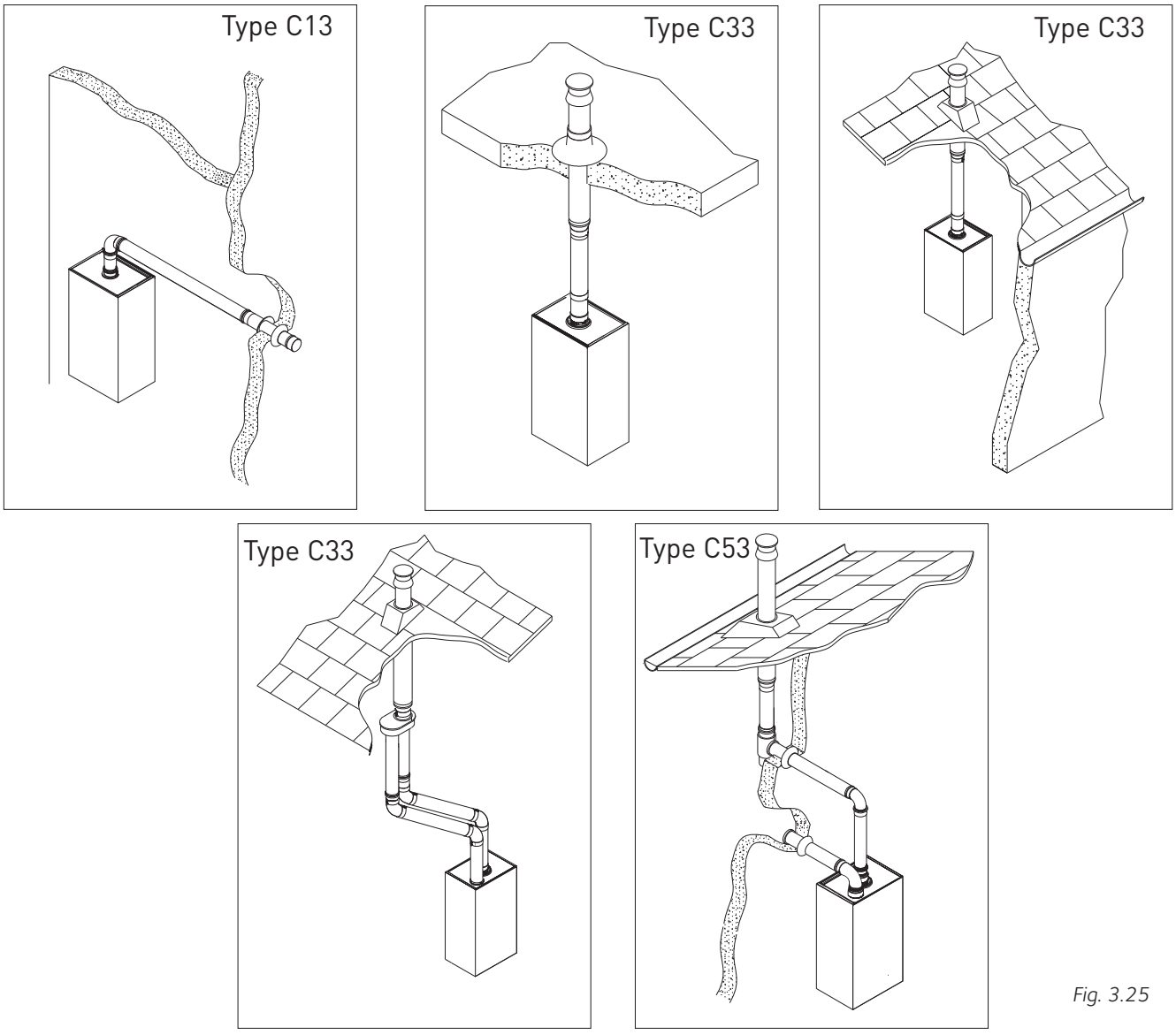


Fig. 3.25

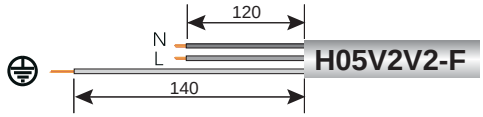
WARNING
Before performing any work on the boiler, first disconnect it from the electrical power supply using the external bipolar switch and remove the fuse.

3.5 Electrical connections

For increased safety, ask a qualified technician to perform a thorough check of the electrical system.
The manufacturer is not responsible for any damage caused by the lack of a suitable earthing system or by the malfunctioning of the electricity mains supply.
Make sure that the system is able to withstand the maximum power absorbed by the boiler (this is indicated on the appliance data plate). Check that the section of the wires is suitable and is not less 0,75 mm^2
The appliance must be connected to an effiecient earthing system if it is to operate correctly.
The power supply cable must be connected to a 230V-50Hz network, where the L-N poles and the earth connection are all respected.
Important!
In the event that the power supply cable must be changed, replace it with one with the same specifications.

Power supply cable

Fig. 3.26



Important!
The appliance is supplied with a fly-lead already connected, this must be connected to a 240V supply fused at 3 Amp and must facilitate completed electrical isolation of the appliance, by use of a fused double pole isolator having a contact separation of at least 3mm in all poles or alternatively by means of a 3A fused three pin plug and unswitched shuttered socket outlet both complying with BS1363.

The use of multiplugs, extension leads or adaptors is strictly prohibited.
It is strictly forbidden to use the piping from the hydraulic, heating and gas systems for the appliance earthing connection.
The boiler is not protected against the effects caused by lightning. If the mains fuses need to be replaced, use 2A rapid fuses.

3.5.1 Peripheral unit connection

To access peripheral unit connections carry out the following steps:
- Disconnect the boiler from the power supply
- Remove the casing by unhooking it from the instrument panel
- Rotate the control panel while pulling it forwards
- Unhook the two clips "a", rotate the cover "b" to have access to the peripherical connections
- Unscrew the two screws "c" and remove the cover "d" of the instrument panel to have access to the main P.C.B.

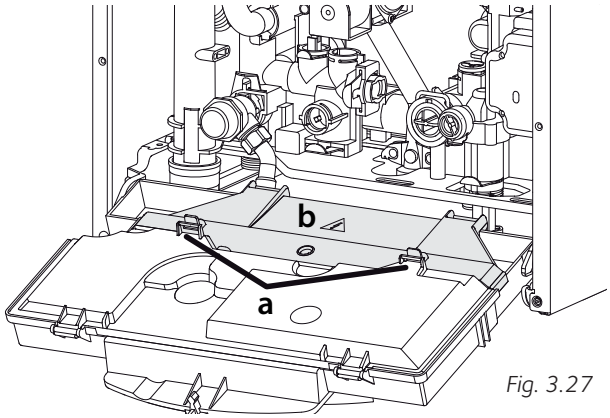


Fig. 3.27

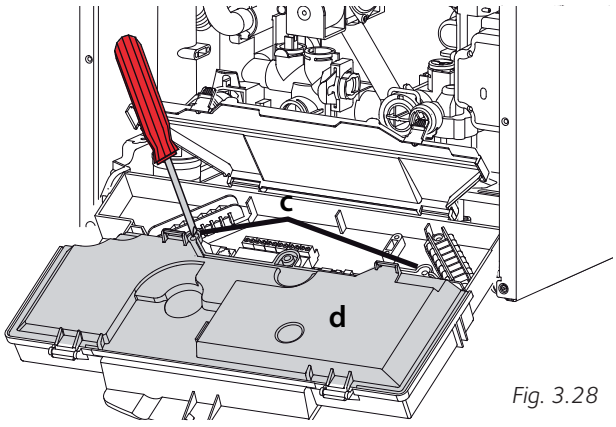


Fig. 3.28

Peripheral connections:
FLOOR/TA2 = the underfloor heating thermostat or the room thermostat 2 (selected via parameter 223)
SE = the external sensor.
SOL = Solar temperature probe
TA1 = the room thermostat 1

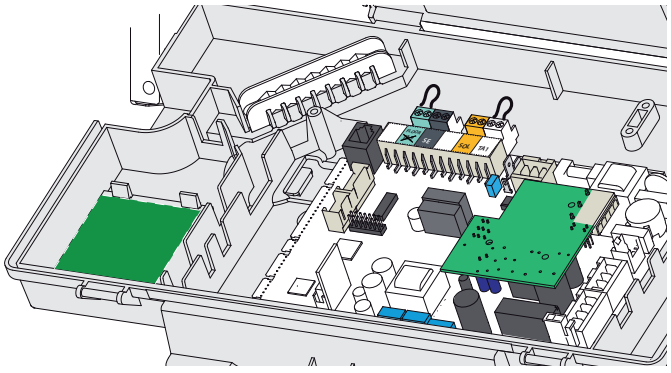
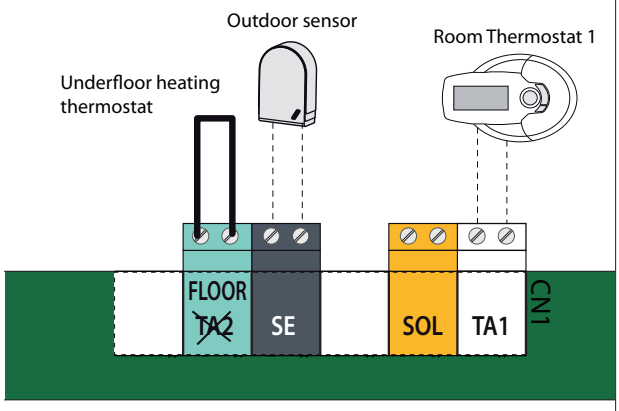


Fig. 3.29



3.5.2 Room Thermostat / Remote Clock Connection

To connect a room thermostat, it is necessary to:

1. Open the control panel
2. Loosen the cable clamp using a screwdriver and insert the wires leading from the room thermostat
3. Connect the wires to the terminals as indicated in the figure below, removing the link
4. If a remote time clock is to be fitted, using a volt free switching time clock connect the switching wires from the time clock following points 1 - 3 above
5. If using an external time clock and room thermostat, these must be connected in series as shown in diagram C,
6. Ensure that they are well connected and not subject to stress when the control panel is closed

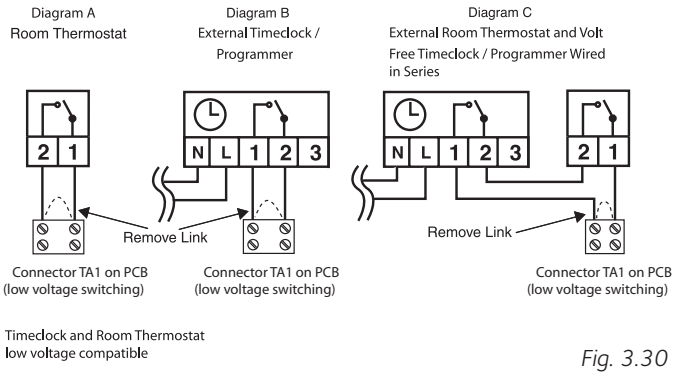


Fig. 3.30

3.5.3 Outdoor sensor connection

- Introduce the outdoor sensor wires
- Loosen the cable clamp using a screwdriver and insert the wires leading from the outdoor sensor one at a time.
- Connect the wires to the terminals as indicated in the figure below;
- Make sure that they are well connected and that they are not subject to stress when the control panel lid is opened or closed;
- Close the flap again, then replace the control panel cover and the front casing.
- Change Parameter 421 from 1 to 3. (See page 36 for setting the parameters when using the outdoor sensor).

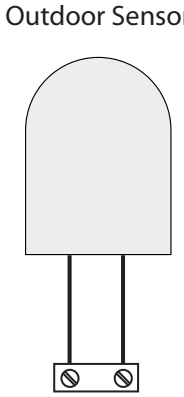


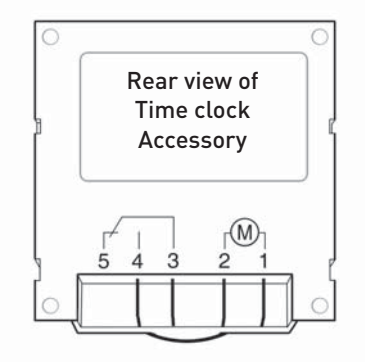
Fig. 3.31 Connector SE on appliance connector block

NOTE: **WHEN CONNECTING THE BOILER TO EXTERNAL CONTROLS, DO NOT RUN 240V CABLES AND CABLES FOR SWITCHING CIRCUITS (WHICH ARE LOW VOLTAGE) TOGETHER, USE SEPERATE CABLES TO PREVENT INDUCED VOLTAGE ON THE LOW VOLTAGE CIRCUITS.**

3.5.4 Fitting instructions for:

- **Internal mechanical time clock**
- **Internal RF receiver for Ariston programmable room thermostat**

These instructions to be used in conjunction with the appliance installation instructions. Ensure the appliance is electrically isolated before working on the appliance.
Remove the outer casing, and remove the front control panel by removing the 2 securing screws.
Remove the clock blanking plate (or existing clock if fitting the RF receiver in a product with an existing mechanical clock) from the front control panel of the boiler.
Using the 4 securing screws supplied with the clock accessory, secure the clock/RF receiver into position, ensuring the accessory is oriented correctly.
Connect the wires to the clock accessory using the spade connectors (see fig. 1 for wiring configuration)



1	Red Wire
2	Double Black wire
3	Black wire
4	Spare terminal
5	Blue wire

Fig. 1

Reassemble appliance, turn on electrical supply and operate accessory using instructions supplied.

3.5.5 Electrical diagram

For increased safety, ask a qualified technician to perform a thorough check of the electrical system.

The manufacturer is not responsible for any damage caused by the lack of a suitable earthing system or by the malfunctioning of the electricity mains supply.

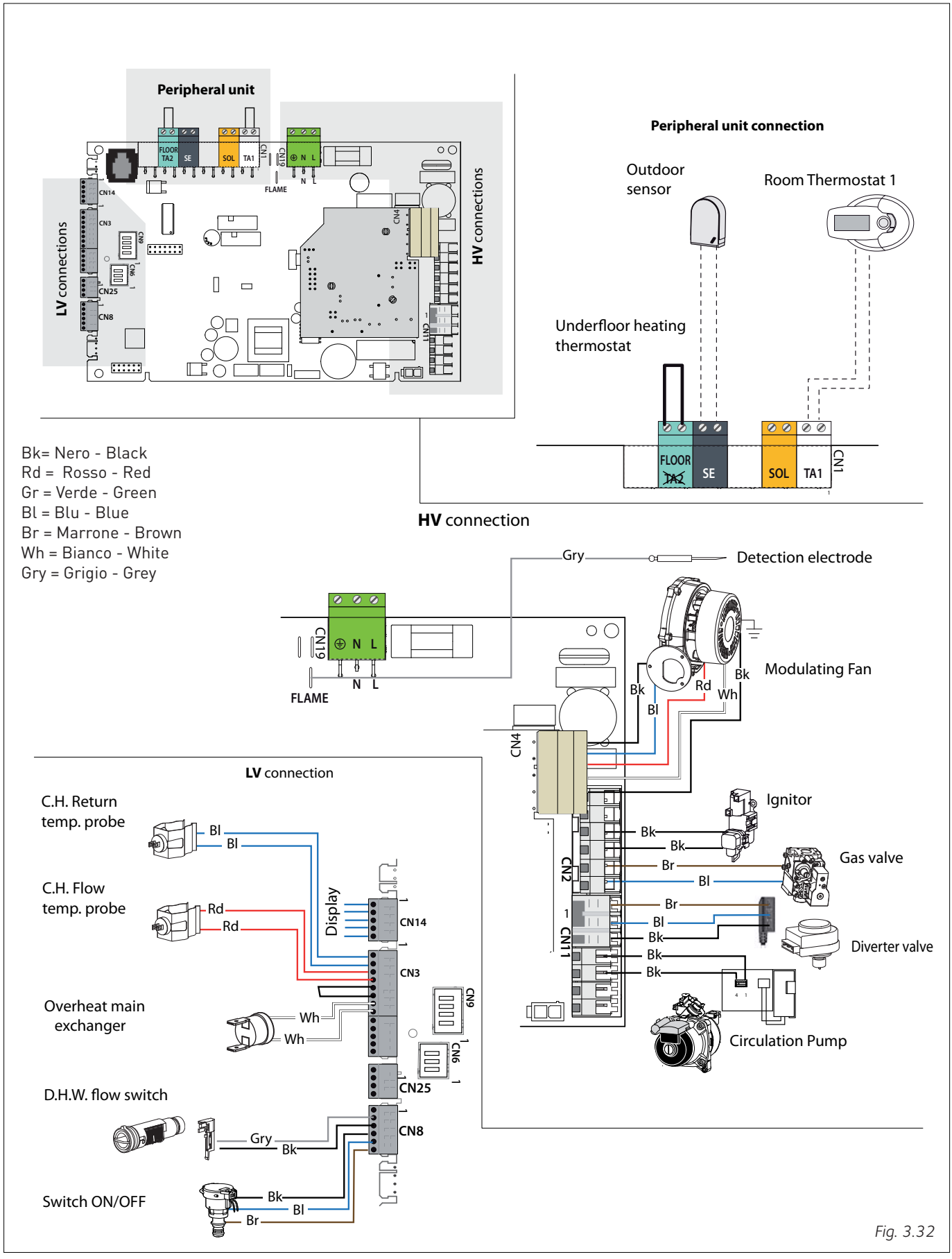


Fig. 3.32

4. commissioning

4.1 Initial preparation
Ariston Thermo UK Ltd support the benchmark initiative. On pages pages 57 and 58 of this manual the Benchmark Commissioning Checklist and Service interval Record can be found. It is important that this is completed in the presence of your customer, they are shown how to use it, and it is signed by them. Please instruct your customer that they must have this manual with them whenever they contact a service engineer or us.

Preliminary electrical system checks to ensure electrical safety must be carried out by a competent person i.e. polarity, earth continuity, resistance to earth and short circuit.

4.1.1 Electricity supply
- Check that the voltage and frequency of the electricity supply correspond to the data shown on the boiler data plate;
- Make sure that the earthing connection is efficient.

4.1.2 Filling the Heating System:
Switch the electrical supply to the boiler on in order to view the system pressure on the display;
Remove the front casing panel and lower the control panel as described on page 15).
Open the central heating flow and return cocks supplied with the connection kit;
Lift the cap on the automatic air release valve and leave open permanently;
Close all air release valves on the central heating system;
Gradually open the valves at the filling point (filling loop) until water is heard to flow, do not open fully;
Open each air release tap starting with the lowest point and close them only when clear water free of air is visible;
Purge the air from the pump by unscrewing the pump plug anti-clockwise, also manually rotate the pump shaft in the direction indicated by the pump label to ensure the pump is free;
Refit the pump plug;
Continue filling the system until at least 1.5 bar registers on the pressure gauge;
Inspect the system for water tightness and remedy any leaks discovered.

Important!
Manually vent the heat exchanger at the manual air vent. Failure to vent adequately may damage the heat exchanger (page 7, legend 4).

4.1.3 Filling of the DHW System:
Close all hot water draw off taps;
Open the cold water inlet cock supplied with the connection kit;
Slowly open each draw off tap and close them only when clear water, free of bubbles, is visible.

4.1.4 Gas Supply:
Inspect the entire installation including the gas meter and test for tightness. The entire installation should be in accordance with the relevant standards. In GB this is BS 6891 and in IE this is the current edition of I.S.813.

The connection on the the appliance is a 15mm nut and olive located at the rear of the gas service cock.

If the gas supply serves other appliances, ensure that an adequate supply is available both to the boiler and the other appliances when they are in use at the same time.

Pipe work must be of an adequate size. Pipes of less than 22mm should not be used, final connection being 15mm.

Open the gas cock (supplied with the connection kit) to the appliance and check the gas connection on the appliance for leaks.

4.2 Water Treatment:
The boiler is equipped with an aluminium heat exchanger.
The detailed recommendations for water treatment are given in BS 7593 (Treatment of water in domestic hot water central heating systems); the following notes are given for general guidance;

If the boiler is installed on an existing system, any unsuitable additives must be removed;

Under no circumstances should the boiler be fired before the system has been thoroughly flushed; the flushing procedure must be in line with BS7593.

Firstly fill the central heating system with the power off, and flush through cold, fill the central heating system again, adding a flushing detergent, run the boiler on central heating until it reaches its operating temperature and flush the system, refill the system with a suitable corrosion inhibitor,

Note: Failure to carry out the flushing procedure will result in the warranty becoming void.

FIRST IGNITION OPERATION

Date . . . . . .

Installer . . . . . .

1. Check the electrical supply.

Complete . . . . . .

2. Check the type of gas and change the gas if necessary.

Complete . . . . . .

3. Check the gas tightness.

Complete . . . . . .

4. Measure the gas inlet working pressure.

Complete .....

5. Check the flue system.

Complete . . . . . .

6. Fill the system. See section 4.1.2.

Complete . . . . . .

7. Check the hydraulic water tightness.

Complete . . . . . .

8. Spin the pump.

Complete . . . . . .

9. Purge the air by pressing the Mode button for 5 sec.

Complete . . . . . .

10. Set the heating power. See section 4.5.1.

Complete . . . . . .

11. Balance the central heating circuit.

Complete . . . . . .

12. Check operation in DHW mode.

Complete . . . . . .

13. Adjust DHW flow rate on the boiler (if necessary).

Complete . . . . . .

14. Check combustion rate at maximum power. See Section 4.5.

Complete . . . . . .

15. Check combustion rate at minimum power. See Section 4.5.

Complete . . . . . .

16. Check the ionisation current.

Complete . . . . . .

17. Explain the operation of the boiler to the end user.

Complete . . . . . .

18. Complete Benchmark Checklist. See pages 58 & 59.

Complete . . . . . .

4.3 Ignition procedure

Press the ON/OFF button on the control panel to switch on the boiler. The display shows:

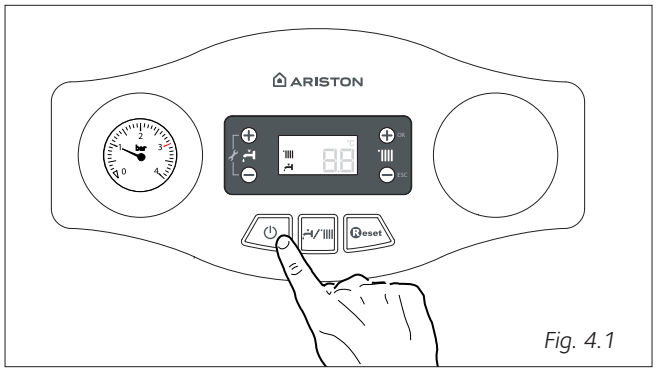


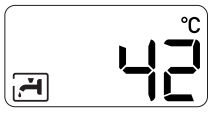
Fig. 4.1

• the operating mode:

	winter
	summer

- The figures indicate:
  - the flow temperature in central heating mode
  - the set temperature of the hot water in domestic hot water

The carrying out of certain functions is shown:

Deaeration cycle started	
Central Heating Post-circulation	
D.H.W. circuit Post-circulation	

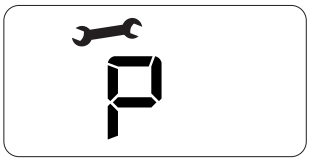
4.3.1 Electricity supply

- Check that the voltage and frequency of the electricity supply correspond to the data shown on the boiler data plate;
- Make sure that the earthing connection is efficient.

4.4 First ignition

1. Make sure that:

- The gas valve is closed;
- The electrical connection has been properly carried out. Make sure that, in any case, the green/yellow earthing wire is connected to an efficient earthing system;
- Use a screwdriver to lift the cap on the automatic air relief valve;
- Switch on the boiler (by pressing the ON/OFF button) and use the MODE button to select the standby mode, where no hot water or heating requests are made.



- Start the deaeration cycle by pressing the MODE button for 5 seconds.
  The boiler will start a deaeration cycle lasting about 7 minutes (See below). If you need to stop it press the ESC button, alternatively it is possible to manually vent the heat exchanger.
- At the end, check that the system is completely deaerated and, if not, repeat the procedure.
- Bleed the air from the radiators;
- The exhaust duct for combustion products should be suitable and free from any obstructions;
- Check whether the trap contains water; if not, it must be refilled.
  N.B.: if the boiler will not be used for long periods, the trap should be filled before the boiler is started up again. It is dangerous not to refill the siphon as fumes may be released into the environment.

2. Open the gas cock and check the connection seals, including the boiler connection joints, making sure that the meter does not detect any passage of gas. Repair any leaks.

3. Start the boiler by selecting the heating or domestic hot water operation using the MODE button.

4.4.1 Deaeration cycle

During the filling stage or if there is excess air in the system, the deaeration cycle can be activated by holding the MODE button for 5 seconds. The boiler will start a cycle which lasts approximately 7 minutes. When this is complete the menu screen will be restored. The cycle may either be repeated, if necessary, or stopped by pressing MODE. Press the MODE button until the normal display screen is restored. **IF THE CYCLE IS STOPPED BE SURE TO MANUALLY VENT THE APPLIANCE.**

4.5 Combustion checking procedure
The order of operations for this procedure must always be respected.

Operation 1 - Supply pressure check
Loosen the screw **1** and insert the pressure gauge connection pipe into the pipe tap.
Switch the boiler on at maximum power, enabling the "Test function" (press the RESET button for 10 seconds; the display will show TEST).
The supply pressure should correspond to the value established in relation to the type of gas ,for which the boiler is designed see Table summarising changes.

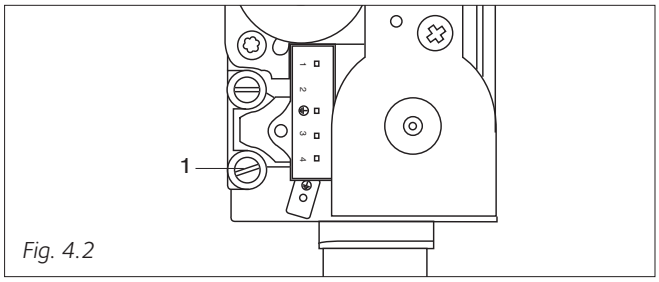


Fig. 4.2

Operation 2 - Preparing the measuring equipment
Connect the calibrated measuring device to the left-hand combustion test point by unscrewing the screw and removing the blanking cover.

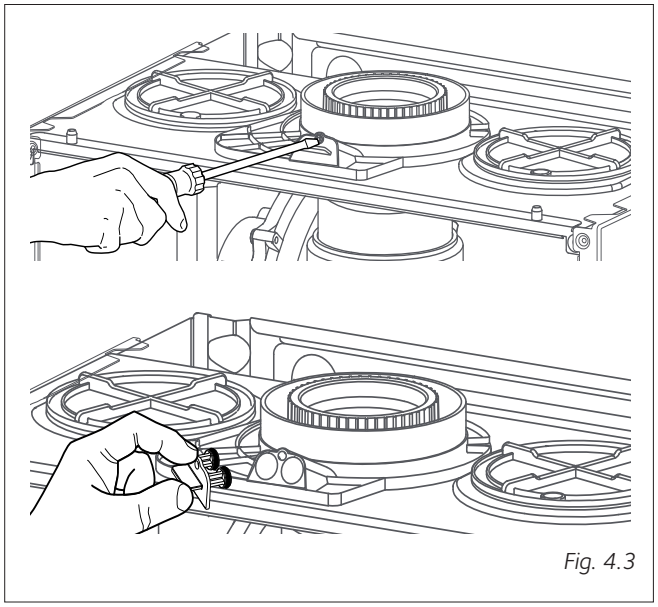
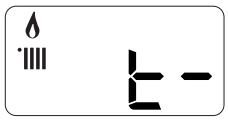
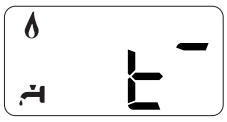


Fig. 4.3

Operation 3 - Adjusting the CO2 at maximum output (domestic hot water)
Draw off the domestic hot water at the maximum water flow rate.
Select the Cleaning function by pressing the RESET button for 10 seconds.
WARNING! When the cleaning function is activated, the temperature of the water coming out of the boiler may be more than 65°C.


The following icon appears on the display: (gas boiler activated at the C.H. maximum power)


Press the button to select the icon: (D.H.W. maximum power)

Wait 1 minute for the boiler to stabilise before carrying out the combustion analyses.

Read the CO2 value (%) and compare it with the values given in the table below
N.B.: values with the casing closed.

	EGIS HE	
Gas	**MAX**	**MIN**
G20	9.4 (+/- 0.2)	9.3 (+/- 0.2)

If the CO2 value (%) read differs from the values given in the table, then adjust the gas valve following the instructions below, otherwise move directly onto operation 4.

Adjusting the gas valve at maximum output
*Adjust the gas valve by turning setting screw **4** clockwise in increments to reduce the CO2 level (a 1/4 turn adjusts the CO2 level by approximately 0.2%). Wait 1 minute after each change in setting for the CO2 value to stabilise.*
If the value measured corresponds to the value given in the table, adjustment is complete, otherwise start the setting procedure again.

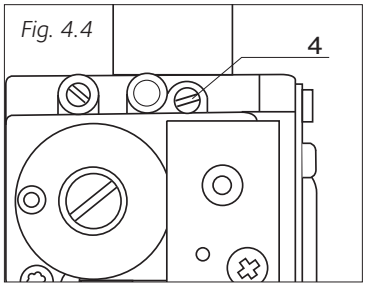
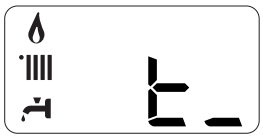


Fig. 4.4

***N.B.** The TEST function is automatically deactivated after 10 minutes or manually by briefly pressing the RESET button.*

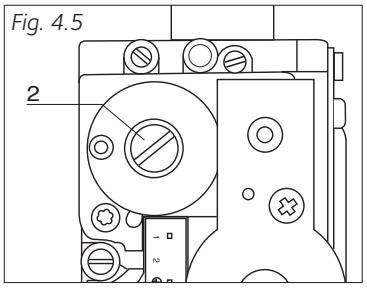
Operation 4 - Checking the CO2 at minimum output
Whit the Cleaning function active,
press the ⊕ button to select
(Minimum Power)
Wait 1 minute for the boiler to stabilise before carrying out the combustion analysis.



If the CO2 value (%) read differs by 0.5 % from the value found whilst adjusting the maximum gas flow, then adjust the gas valve following the instructions below, otherwise move directly onto operation 5.

Adjusting the gas at minimum output
*Remove cap and adjust screw **2** by turning anti-clockwise in increments to reduce the CO2 level. Wait 1 minute after each adjustment for the CO2 value to stabilise.*
WARNING! this adjustment is sensitive: a rotation of a 1/4 turn corresponds to 0.4% of CO2.
If the value measured corresponds to the value given in the table, adjustment is complete, otherwise start the setting procedure again.

Fig. 4.5



Attention! If the value of the CO2 at the minimum power has been changed, it is necessary repeat the adjustment at maximum power also.

Operation 5 - Ending the adjustment
Exit the TEST mode by pressing RESET.
Stop the draw-off.
Verify and repair any gas leaks.
Refit the front panel to the boiler.
Refit the blanking cover for the combustion test points.

menu 2 - Boiler parameters
submenu 3 - **parameter 1**
Maximum Heating Power adjustment
submenu 2 - **parameter 0**
Soft light Ignition
submenu 3 - **parameter 5**
Heating ignition delay

4.5.1 Maximum Heating Power adjustment
The maximum heating power can be adjusted to between the maximum power allowed by the boiler and the minimum power).
The display shows the value between 100% ("99" on the display) and 0% ("0") of this interval.
To check the maximum heating power, access menu 2/sub menu 3/parameter 1, check the value and, if necessary, modify it as indicated in the Gas Regulation table. (See page 36 for more details).

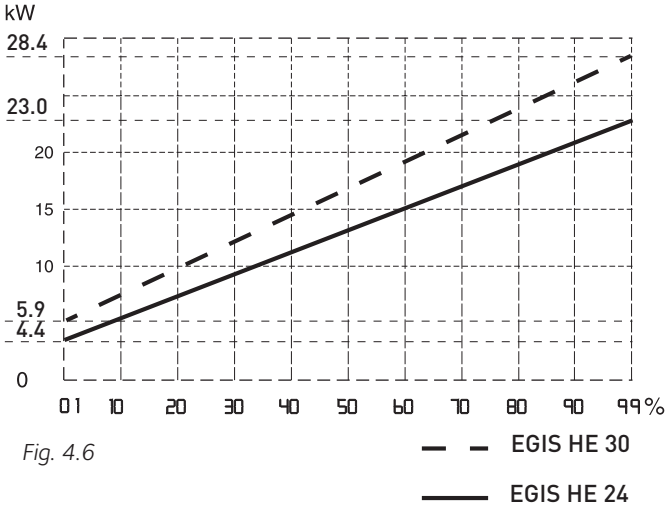


Fig. 4.6

4.5.2 Checking the soft ignition power
The soft light can be adjusted between the maximum power (shown on the display as "99", i.e. 100%) and the minimum power (shown on the display as "1", i.e. 1%).
To check the soft ignition power, access menu 2/sub menu 2/ parameter 0.

4.5.3 Heating ignition delay adjustment
This parameter – menu 2/sub menu 3/parameter 5 - can be used to manually (0) or automatically (1) set the delay time before the subsequent reignition of the burner after it has switched off on reaching the desired temperature in central heating mode.
By selecting manual, it is possible to set the delay in minutes using the successive parameter (menu 2/sub menu 3/ parameter 6), to a time between 0 and 7 minutes.
Automatic selection means that the boiler will establish the delay time based on the set-point temperature

4.5.4 Table summarising changes

		parameter	EGIS HE 24	EGIS HE 30
			G20	G20
Lower Wobbe index (15°C, 1013 mbar) (MJ/m3)			45.67	45.67
Soft ignition		220	60	60
Minimum fan speed (%)		233	13	16
Maximum central heating fan speed (%)		234	93	94
Maximum D.H.W fan speed (%)		232	93	94
Maximum heating power adjstment		231	70	60
Gas valve restrictor (ø)			NO	NO
Gas flow max/min (15°C, 1013 mbar) (nat - m3/h) (GPL - kg/h)	max		2.49	3.07
	min		0.48	0.63

4.5.5 Changing the gas supply

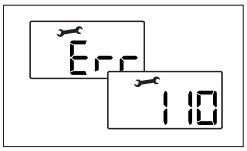
It is not possible to convert this boiler from Natural Gas to LPG.

5. boiler protection devices

The boiler is protected from malfunctioning by means of internal checks performed by the electronic microprocessor P.C.B., which stops the boiler from operating if necessary.
In the event of the boiler being shut off in this manner, a code appears on the display which refers to the type of shut-off and the reason behind it.
There are two types of shut-off:

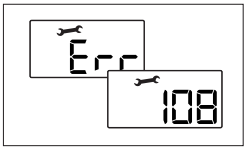
5.1 Safety shut-off

This type of error is "volatile", which means that the boiler starts up again automatically as soon as the problem which caused the shut-off is removed; the error is indicated by the «Err» (ex. Err/110) and the symbol which appears on the display and the error code.



In fact, soon as the cause of the shut-off disappears, the boiler starts up again and continues to operate normally.

In the event of error 108 - **Shut-off due to insufficient water pressure** inside the heating circuit - the boiler will perform a safety shut-off.
You can increase the pressure by filling the heating circuit.
In this case or if the re-balancing request is performed on a frequent basis, switch the boiler off, turn the external electric switch to the OFF position, shut off the gas cock and contact a qualified technician to check for any leaks of water.



5.2 Shutdown

This type of error is "non-volatile", which means that it is not removed automatically. On the display flash Err and the error code -es. Err/501 , and appear the symbol R.
To restore normal operation press the Reset button on the control panel.

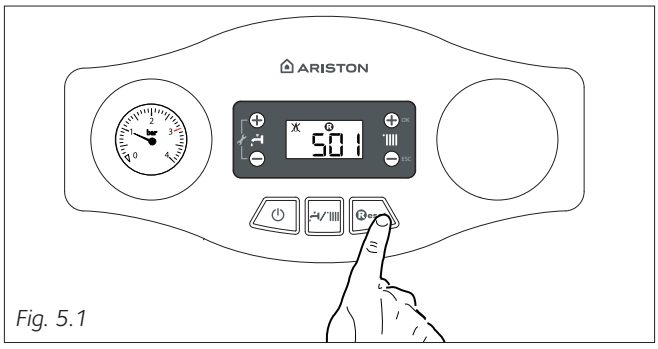


Fig. 5.1

5.3 Malfunction warning

This warning is shown by the display in the following format:
5P1 = FIRST IGNITION ATTEMPT UNSUCCESSFUL
the first figure indicating the operational assembly is followed by a P (warning) and the code relating to the specific warning.

Important
If this shutdown occurs frequently, contact an authorised Technical Service Centre for assistance. For safety reasons, the boiler will permit a maximum of 5 resets in 15 minutes (5 presses of the RESET button); at the 6th attempt within this 15-minute period the boiler will shut down and may only be operated again after the electricity supply has been disconnected. If the shutdown is occasional or an isolated event, this is not a problem.

The first figure of the error code (e.g. 1 01) indicates within which operational assembly the error occurred.
1 - Primary Circuit
2 - Domestic Hot Water Circuit
3 - Internal Electronic Part
4 - External Electronic Part
5 - Ignition and Detection
6 - Air inlet - flue gas outlet
7 - Multi-zone Heating

5.4 Table summarising error codes

D.H.W. circuit Central Heating circuit	
1 01	Overheat
1 03	Insufficient circulation
1 04	
1 05	
1 06	
1 07	
1 08	Insufficient water (request filling)
1 09	System pressure → 3 bar
1 10	C.H. Flow temp. probe circuit open / short circuit
1 12	C.H. Return temp. probe circuit open / short circuit
1 14	External sensor circuit open / short circuit
1 16	Floor Thermostat contact open
1 P1	Insufficient circulation indication
1 P2	
1 P3	
D.H.W. circuit	
2 05	DHW In Probe Open Circuit - Solar Kit (optional)
Internal P.C.B.'s	
3 01	EEPROM error
3 02	Comunication error
3 03	Main P.C.B. error
3 04	Too many (→ 5) resets in 15 minutes
3 05	Main P.C.B. error
3 06	Main P.C.B. error
3 07	Main P.C.B. error
Ignition and Detecion	
5 01	No flame detected
5 02	Flame detected with gas valve closed
5 04	Flame lift
5 P1	1st Ignition Failed
5 P2	2nd Ignition Failed
5 P3	Flame cut-off
Air Inlet / Flue gas outlet	
6 10	Overheat (Main heat exchanger)
6 12	Insufficient fan speed

5.5 Anti-frost Device.

The anti-frost function acts on the central heating flow temperature probe, independently from other operations, when the electrical supply is turned on.

If the primary circuit temperature is between 3°C and 8°C the pump will run (with the diverter valve switching between central heating and hot water every 1 minute) until the temperature reaches > 9°C.

If the flow temperature remains between 3°C and 8°C the pump will continue to run for a maximum of 20 minutes unless a temperature above > 9°C is detected in the central heating flow, after this the the burner will fire (heating position) until a temperature of > 30°C is detected.

If the central heating flow temperature is < 3°C, the burner will fire (heating position) at minimum power until the temperature reaches > 30°C, the burner will go out.

If lockout is caused by overheat the burner will not fire but the pump will continue to run (heating position).

The anti-frost device activates only when (with the boiler operating correctly):

- the system pressure is correct;
- the boiler is electrically powered;
- there is a supply of gas.

6. settings - adjustment - problem identification parameters

6.1 Accessing the settings - adjustment - problem identification parameters

The boiler can be used to manage the heating and domestic hot water production system in its entirety.
Navigation within the menus enables the boiler system + connected peripheral units to be customised, optimising operation for maximum comfort and maximum saving. It also provides important information relating to the efficient operation of the boiler.

The parameters are listed in the following pages.
The various parameters can be accessed and modified using the **"+"** and **"-"** buttons and the **"+" OK** and **"-" ESC** buttons (see fig. below).

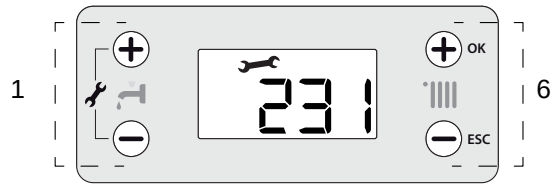


Fig. 6.1

1. Programming **"+"** and **"-"** key, to access and modify the parameter
6. Programming **"+" OK** key, to save the changes of parameters value
Programming **"-" ESC** key, to exit from the parameters

The information relating to the parameters are indicated on the display.

Caution! The menus reserved for qualified technicians may only be accessed after setting the access code.

To access to the parameters proceed as follows:

1. Press simultaneously the **"+"** e **"-"** buttons for 5 seconds
   The display requires the acces code, **222** will appear on the display

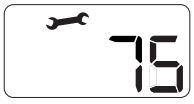
2. Press the **"+"** button to select code **234**.
3. Press the **"+" OK** button to access the parameter list

4. On the display will appear the first parameter **220**

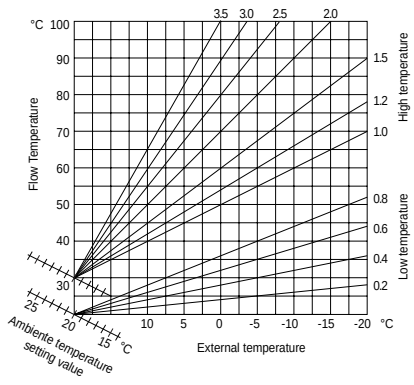
5. To select the parameters press the **"+"** button.
   - example: modify the parameter **231**

6. Press the **"+" OK** button to access the parameter. The display will indicate the value "eg: **10**"

7. Press the **"+"** and **"-"** buttons to select the new value, e.g. " **15**".
8. Press the **"+" OK** button to save the change or press **"-" ESC** to exit without saving.



To exit, press the **"-" ESC** button until the normal display screen is restored.

Parameter	Description	value	default setting	
SERVICE CODE			222	press the programming **"+"** button to select 234 and press the **"+" OK** button
220	Soft ignition	from 0 to 99	60	see 4.5.2 (Page 31)
224	Thermoregulation	0 = Not active 1 = Active	0	
228	Boiler version - DO NOT MODIFY	from 0 to 5	0	ONLY FOR SERVICE - To be used only when replacing P.C.B.
231	Maximum Central Heating power Adjustable heating	from 0 to 99		see 4.5.1 (Page 31)
232	Domestic hot water maximum RPM percentage CANNOT BE MODIFIED	from 0 to 99		RESERVED FOR TECHNICAL ASSISTANCE Only if the gas or PCB is changed see "gas setting" table
233	Minimum RPM percentage CANNOT BE MODIFIED	from 0 to 99		
234	Heating maximum RPM percentage CANNOT BE MODIFIED	from 0 to 99		
236	Anti-cycling time	from 0 to 7 (minutes)	3	
247	Central Heating Pressure detection device	0 = Temperature Probes only 1 = Pressure switch 2 = Pressure sensor	1	ONLY FOR SERVICE - To be used only in substitution P.C.B.
252	Hot water flow delay	from 5 to 200 (0.5 to 20 seconds)	5	Anti "water hammering"
253	D.H.W. switch logic	0 = Anti-scale (stop at → 67°C) 1 = At 4°C over set-point	0	
254	Post-circulation and post-ventilation after domestic hot water is drawn	0 = OFF 1 = ON	0	
	OFF = 3 minutes post-circulation and post-ventilation after domestic hot water draw-off if the boiler temperature measured requires it. ON = always on for 3 minutes post-circulation and post-ventilation after domestic hot water draw-off.			
420	Zone 1 Temperature range	0 = from 20 to 45°C (low temperature) 1 = from 35 to 85°C (high temperature)	1	
421	Select Type of Thermoregulation	0 = Fixed Flow Temperature 1 = Basic Thermoregulation 3 = Outdoor Temperature only	1	
422	Zone 1 Slope	from 0_2 to 0_8	0_5	low temperature
		from 1_0 to 3_5	1_5	hight temperature
		When an outdoor sensor is used, the boiler calculates the most suitable delivery temperature, taking into account the outside temperature and type of system. The type of curve should be selected in correspondence with the projected temperature of the system and the nature of the dispersions present in the structure. For high-temperature systems, one of the curves depicted below may be chosen.		

6. settings - adjustment - problem identification parameters

Parameter	Description	value	default setting	
423	Parallel curve shift Zone 1 Offset	from - 14 to + 14 (HT)	0	
		from -7 to +7 (LT)		
	To adapt the heating curve to the system requirements, shift the curve in parallel so that the calculated flow temperature is modified, in addition to the room temperature.			
	Access the parameter and press "+" or "-" buttons while temperature regulation is activated to shift the curve upwards or downwards. Each step represents a flow temperature increase/decrease of 1°C in relation to the set-point value. **Warning!** The curves can be shifted upwards or downwards without accessing the parameter, using the "+" or "-" buttons, but the display will always show -7 to +7 High temperature - each step 2°C Low temperature - each step 1°C			
425	Maximum Central Heating Temperature Zone 1	from 35 to 85 °C (Param. 420 = 1)	82	
		from 20 to 45 °C (Param. 420 = 0)	45	
426	Minimum Central Heating Temperature Zone 1	from 35 to 85 °C (Param. 420 = 1)	40	
		from 20 to 45 °C (Param. 420 = 0)	25	
700	Test Mode	t - = Max Heating power t -- = Max DHW power t _ = Minimum power		Enabled also by pressing for 10 seconds the Reset button. This function is deactivated automatically after 10 minutes, or when the RESET button is pressed.
701	Air purge Function	Press MODE button to active		
822	Fan Speed - x100 RPM			
831	Flow Heating temperature (°C)			
832	Return Heating temperature (°C)			
842	D.H.W. Inlet Temperature			Display only with Solar Kit or external storage Kit

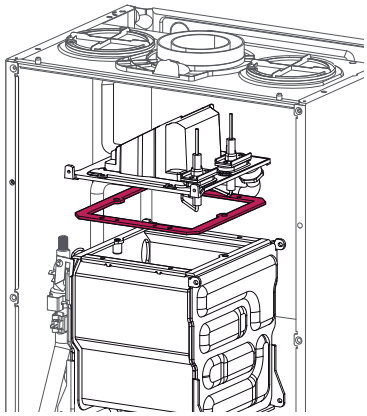
Important
Maintenance is an essential part of the safe and efficient operation of the boiler and ensures its durability. It should be performed according to the instructions given in current legislation. Perform combustion analysis regularly in order to check the operating efficiency of the boiler and to make sure any polluting substances released are within the boundaries set by current legislation.
Before beginning maintenance work:
- Disconnect the appliance from the electricity supply by turning the external bipolar switch to the "OFF" position;
- Close the gas isolation valve and the central heating and domestic hot water system isolation valves.

After the work has been completed the initial settings will be restored.

7.1 General comments
It is recommended that the following inspections be carried out on the boiler at least once a year:
1. Check the seals in the water part and, if necessary, replace thegaskets and restore the seal to perfect working order.
2. Check the seals in the gas part and, if necessary, replace the gaskets and restore the seal to perfect working order.
3. Visually check the overall condition of the boiler.
4. Following the inspection detailed in point "3", disassemble and clean the combustion chamber, if necessary.
5. Check and clean the siphon.
6. Make sure the following heating safety devices are operating correctly: - temperature limit safety device.
7. Make sure that the following gas part safety devices are operating correctly:
   - absence of gas or fl ame safety device (ionisation).
8. Check the effi ciency of the domestic hot water production process (test the fl ow rate and temperature).
9. Perform a general inspection of the boiler operation.
10. Remove oxide from the detection electrode using an emery cloth.
11. These checks are not exhaustive, further mechanical, electrical and combustion maintenance checks maybe required.

12. Check and adjust combustion settings (high & low)

The presence of oxide inside the heat exchanger doesn't prejudice the performances of the boiler. In case it is considered necessary to proceed with the cleaning of the heat exchanger.
Proceed as follows:
CLEANING THE FLUE GAS SIDE
The inside of the primary heat exchanger 19 may be accessed by dismantling the burner - see picture.
Clean the heat exchanger with a vacuum cleaner with the aid of a non-metallic brush, by avoiding the use of liquid cleaners and detergents.
WARNING!
It is mandatory to replace the seal (g - see picture) every time the burner is dismantled.
Moreover, clean the fl ue gas duct 3 (located in front of the heat exchanger) prior to repositioning it.
During the removal of the siphon, place a container below the boiler to catch any spilled water.



7.2 Operational test
After having carried out the maintenance operations, fill the heating circuit at a pressure of approximately 1.5 bar and release the air from the system.
Fill the domestic hot water system at the same time.
- Begin operating the boiler.
- If necessary, release the air from the heating system again.
- Check the settings and make sure all the command, adjustment and monitoring parts are working correctly.
- Check the flue system is sealed and operating correctly.

7.3 Draining procedures
The heating system must be drained using the following procedure:
- Switch off the boiler, make sure the external bipolar switch is in the OFF position and shut off the gas valve;
- Loosen the automatic air relief valve;
- Open the system drain off cock and collect the escaping water in a container;
- Empty the water from the lowest points of the system (where applicable).

If the system is to be left inactive in areas where the room temperature may fall below 0°C during winter, we recommend that anti-freeze liquid is added to the water in the heating system in order to avoid the need for repeated draining; when this liquid is used make sure it is compatible with the stainless steel used for the bodywork of the boiler.
We recommend the use of anti-freeze products which contain PROPYLENE GLYCOLS as these inhibit corrosion and that they are used in conjunction with the anti-scaling and anti-corrosion function, in the quantities suggested by the manufacturer, at the minimum temperature.
Regularly check the pH level of the water/anti-freeze mix in the boiler circuit and replace it when the value measured is lower than the limit prescribed by the manufacturer.
DO NOT MIX DIFFERENT TYPES OF ANTI-FREEZE.
The manufacturer will not be held liable for any damage caused by the appliance or the system due to the use of inappropriate anti-freeze substances or additives.

7.4 Draining the domestic hot water system
Every time there is a danger of freezing, the domestic hot water system must be drained as follows:
- Shut off the water mains inlet valve;
- Open all the hot and cold water taps;
- Empty the water from the lowest points of the system (where applicable).

WARNING
Before handling, empty all components which may contain hot water, perform bleeding where necessary.
Descale the components in accordance with the instructions provided on the safety data leaflet supplied with the product used, make sure the room is well ventilated, wear protective clothing, avoid mixing different products, and protect the appliance and surrounding objects.
Seal all openings used to take a gas pressure reading or to make any gas adjustments.
Make sure that the nozzle is compatible with the supplied gas.
If a smell of burning is detected or smoke is seen leaking from the appliance, or there is a smell of gas, disconnect it from the electricity supply, shut off the gas valve, open the windows and call for technical assistance.

7.5 Cleaning the primary exchanger
Cleaning the combustion side
The inside of the primary exchanger is accessed by removing the burner. Clean using a non-metallic rifle-type brush.

7.6 Cleaning the trap
The trap is accessed by emptying the condensate bowl located in the bottom section. Wash with water and detergent.
Replace the condensate collection bowl in its housing.
NB: In the event of prolonged use of the appliance, the trap must be filled before being used again.
A lack of water in the trap may cause products of combustion to be temporarily released into the atmosphere.

8.1 GENERAL ACCESS

8.1.1 General Access

Tools 

TIME 3 min

Remove the two screws under the boiler

1

Pull the casing forwards and unhook it from the upper pins

2

Lower the electrical front panel

3

Remove the combustion chamber front panel by releasing the clips

4

8.2 ELECTRICAL UNIT

8.2.1 Control box access

Tools 

TIME 4 min

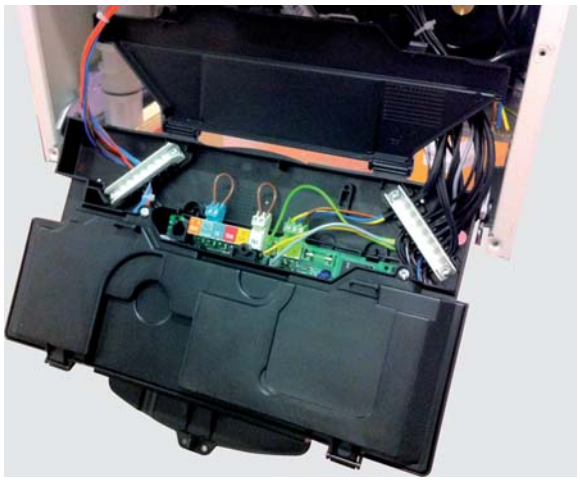
Remove the front panel as above and pivot the electrical box

1

Unhook the two clip and rotate the cover

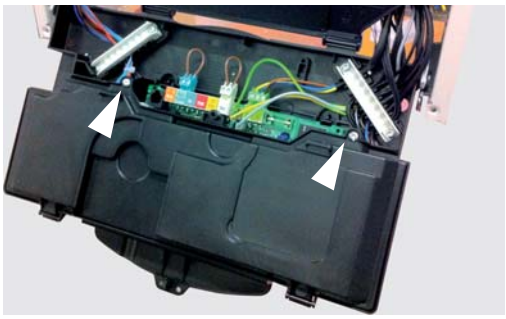
2

3

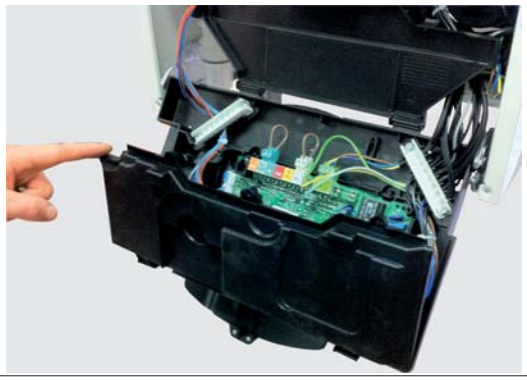


Unscrew the two screws and remove the cover

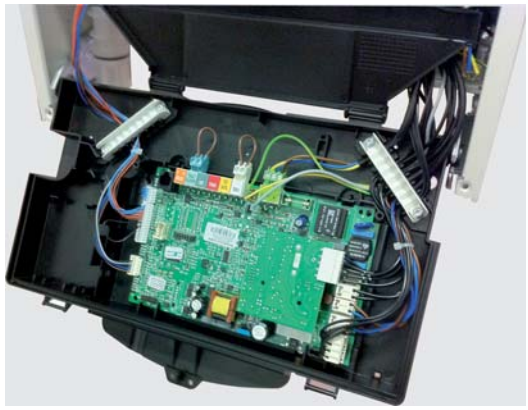
3



4



5

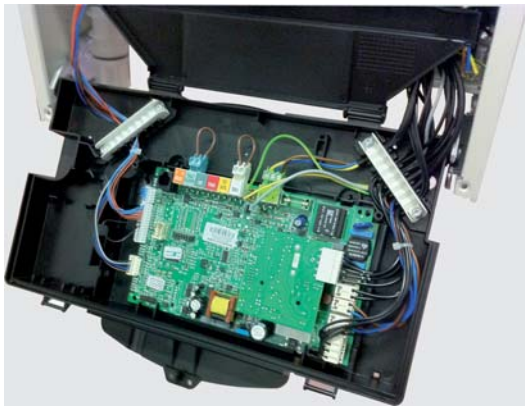


8.2.2 Fuse

Tools 

TIME 5 min

Open the control box as above

1 

Remove the fuse

2 

3 

8.2.3 Main P.C.B.

Tools 

TIME 5 min

After opening the control box, disconnect the elctrical plug connections

1 

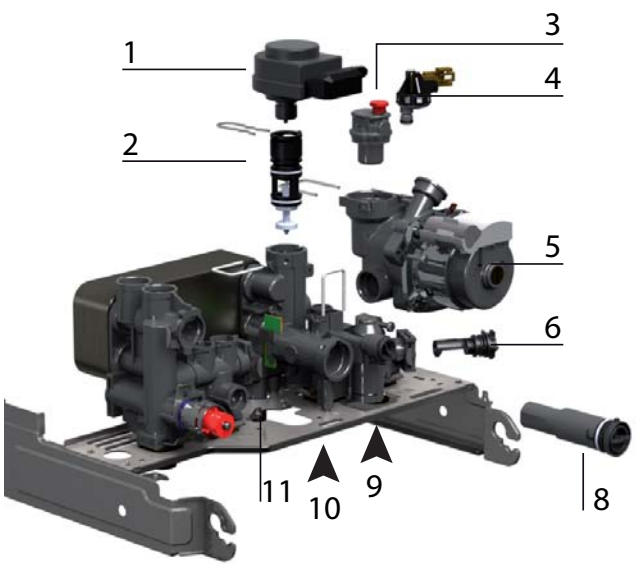
Unhook and remove the P.C.B.

2 

8.2.4 Display P.C.B.	
Tools 	
TIME  5 min	
Unscrews the four screws and pull the assembly towards you	
1	
Disconnect the elctrical plug connections, unhook and remove the P.C.B.	
2	

8.3 HYDRAULIC UNIT

8.3.1 RIGHT HAND HYDRAULIC BLOCK ASSEMBLY



Legend:
1 - Diverter valve motor
2 - Diverter valve
3 - Auto air vent
4 - Primary water pressure switch
5 - Pump
6 - Central heating filter
8 - D.H.W. flow switch assembly
9 - Central Heating return
10 - Cold water inlet (D.H.W.)
11 - C.H. drain valve

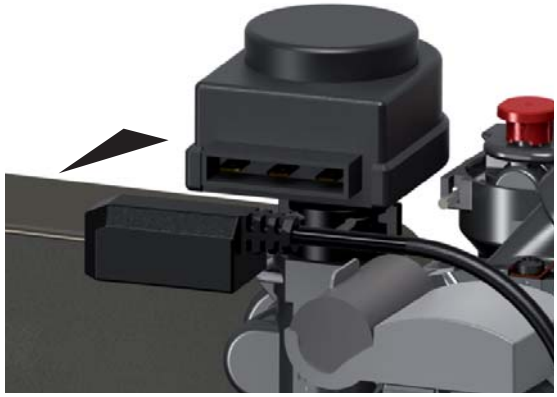
8.3.2. 3 Way valve unit

Tools 

TIME 5 min

Unplug the diverter valve cable

1

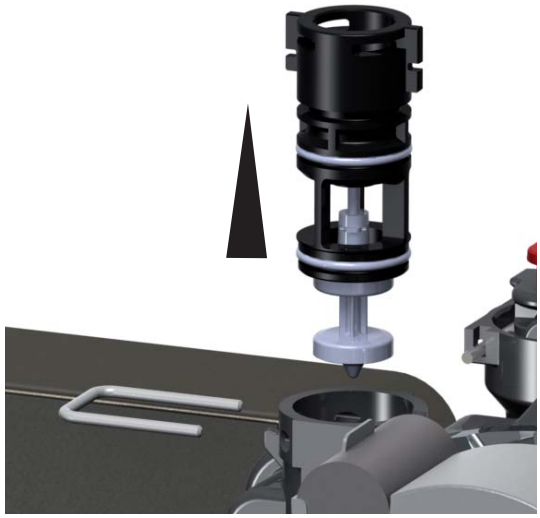


Remove the clip and lift the motor from the diverter valve body.

2

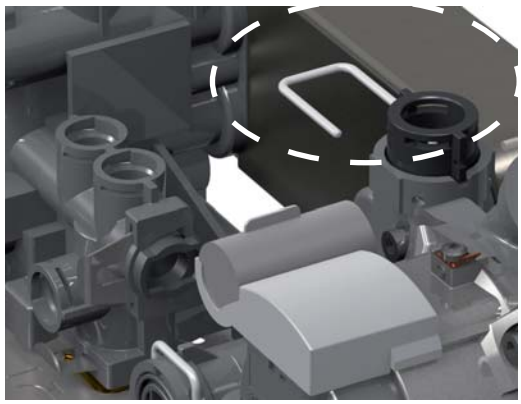
Drain the boiler (see 3.3). Remove the clip and lift the diverter valve from the assembly.

3



When reassembling, ensure the diverter valve is aligned correctly.

4



8.3.3 Draining

Tools

TIME 5 min

Turn the drain valve anti-clockwise to open and drain the water from the boiler

1

8.3.4 Automatic air vent

Tools

TIME 5 min

Drain the boiler (see 3.3). Remove the clip and lift the AAV from the assembly.

1

2

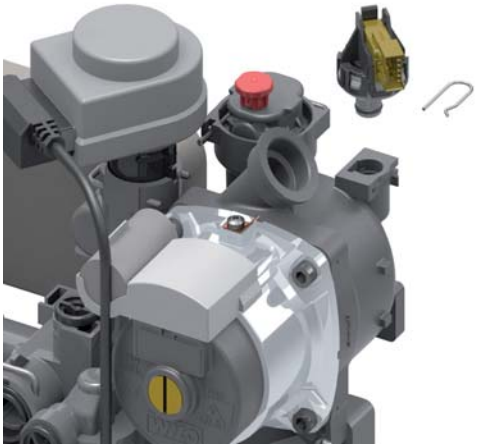
8.3.5 Primary water pressure sensor

Tools

TIME 5 min

Drain the boiler (see 3.3). Slide the fixing clip, (it is held captive) unplug the electrical connector and lift the sensor from the assembly.

1



2

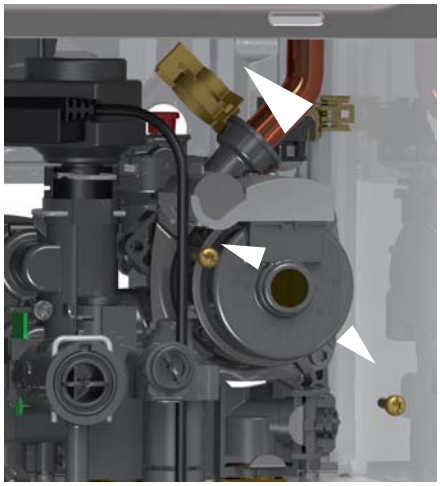
8.3.6 Pump

Tools 

TIME 10 min

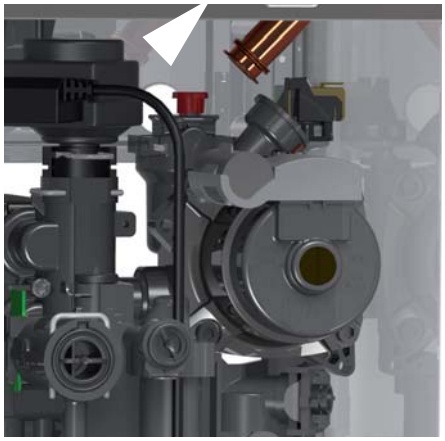
Drain the boiler (see 3.3). Remove the clip and the two screws

1



Disconnect the pipe and then move the pump to the right to disengage

2



Remove the pump

3

Remove the sensor (see 3.5)

4

Remove the AAV (see 3.4)

5

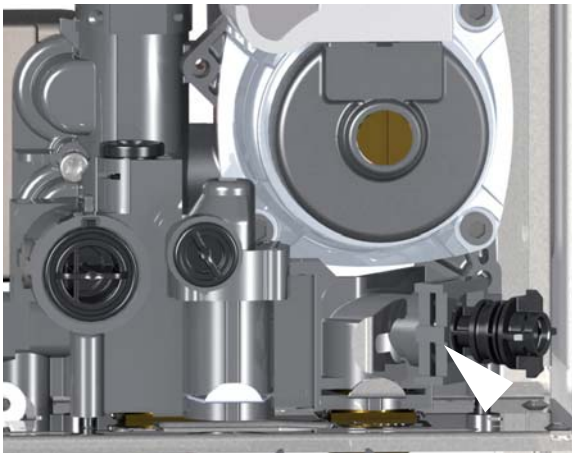
6

8.3.7 C.H. Filter

Tools 

TIME 5 min

Drain the boiler (see 3.3).
Remove the clip and remove the filter

1 

Remove the filter

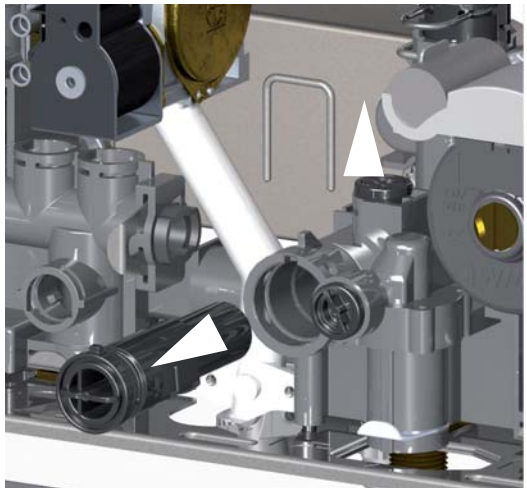
2 

8.3.8 D.H.W. Flow switch assembly

Tools 

TIME 10 min

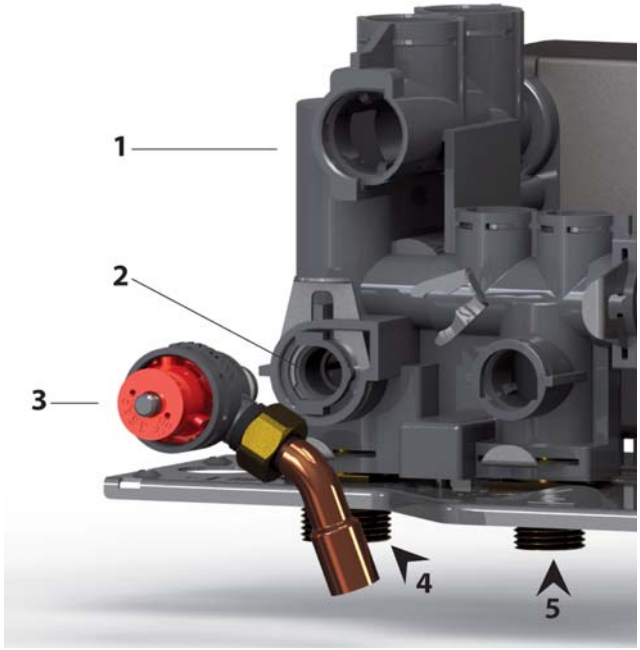
Drain the boiler (see 3.3). Remove the clip and pull the flow switch assembly towards you

1 

Twist the flow switch assembly to disengage

2 

8.3.9 LEFT HAND HYDRAULIC BLOCK ASSEMBLY



Legend:
1 - Left hand hydraulic block
2 - By-pass assembly
3 - Safety valve
4 - Central heating flow
5 - Domestic hot water outlet

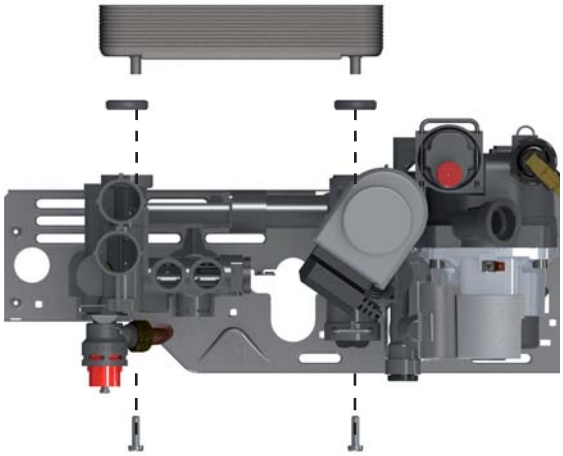
8.3.10 Secondary heat exchanger

Tools 

TIME 10 min

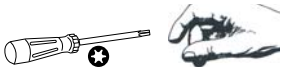
Drain primary and domestic hot water circuits. Remove the two screws and remove the heat exchanger

1



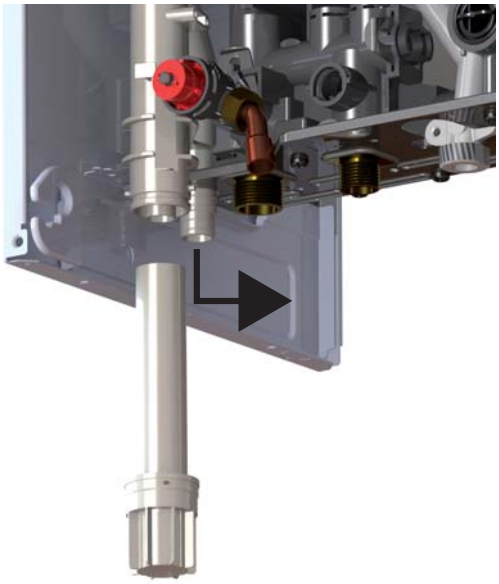
2

8.3.11 Condensate trap

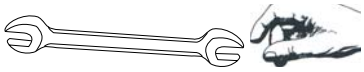
Tools 

TIME 5 min

Unscrew the condensate trap from the condensate body

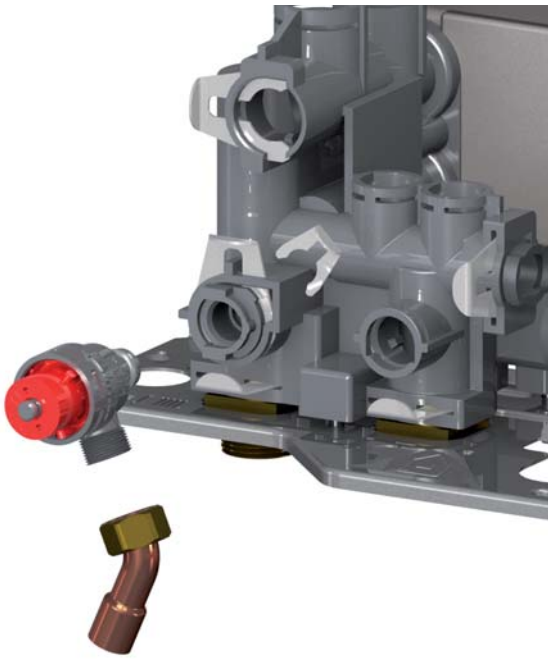
1 

8.3.12 Safety valve

Tools 

TIME 5 min

Drain the boiler (see 3.3). Disconnect the discharge pipe. Remove the fist clip on the left and pull the safety valve towards you

1 

2 

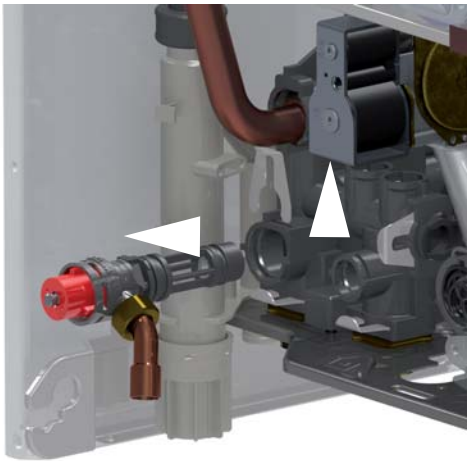
8.3.13 By-pass assembly

Tools 

TIME 5 min

Drain the boiler (see 3.3). Remove the second clip and pull the assembly towards you

1



2

3

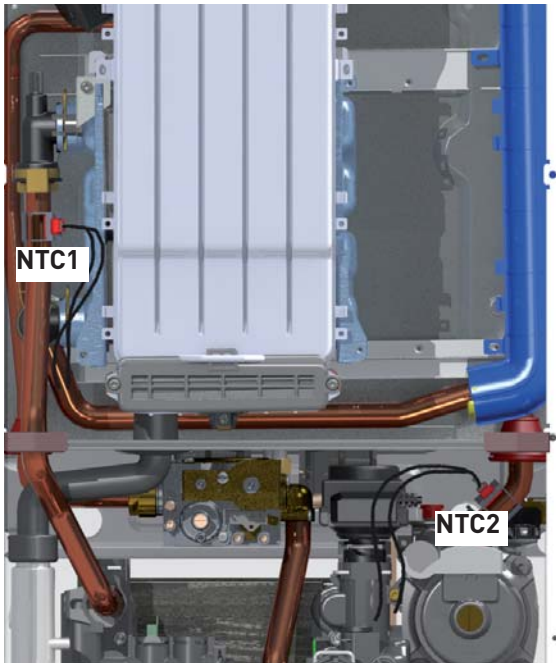
8.3.14 Temperature sensors

Tools 

TIME 5 min

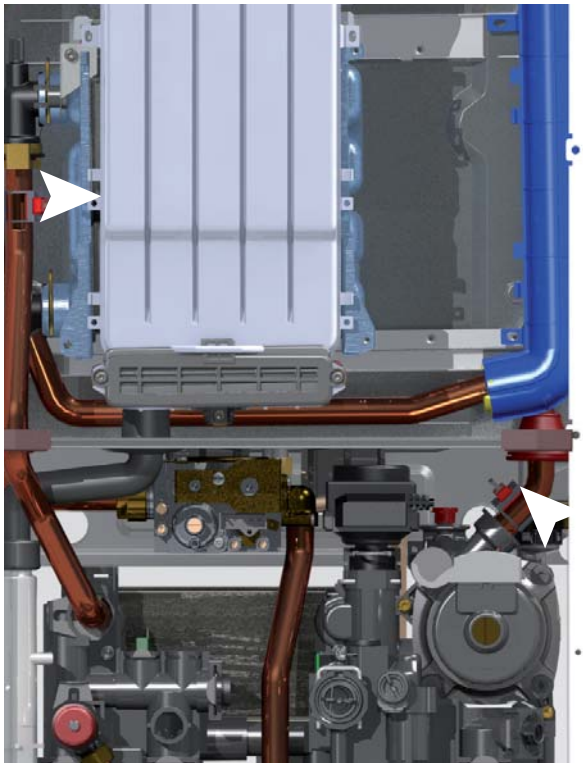
NTC1 : Black
NTC2: Red

1



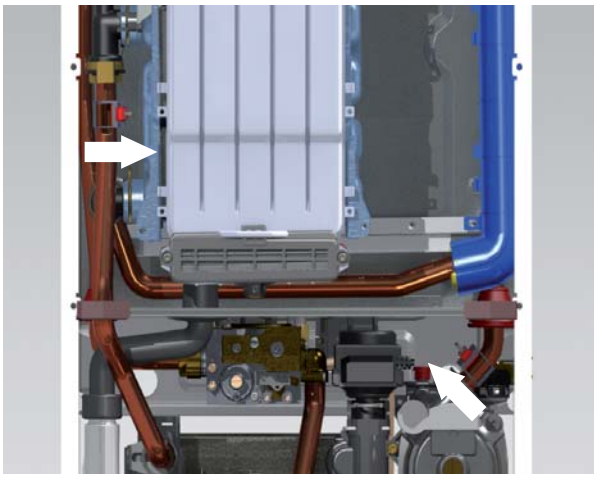
Unplug the electrical connections

2



Remove the clip and the temperature sensor

3



IMPORTANT ! Do not use conducting paste for the contact sensors because it will alter the resistance value.

TEMPERATURE	RESISTANCE (kOhm)
0	27
10	17
20	12
25	10
30	8
40	5
50	4

8.3.15 Overheat thermostat

Tools 

TIME 5 min

Remove the electrical connections
Unscrew the screw nad remove the overheat thermostat

1

8.3.16 Manual Air vent

Tools 

TIME 5 min

Drain boiler (see 3.3)
Unscrew and lift the manual air vent from the exchanger

1

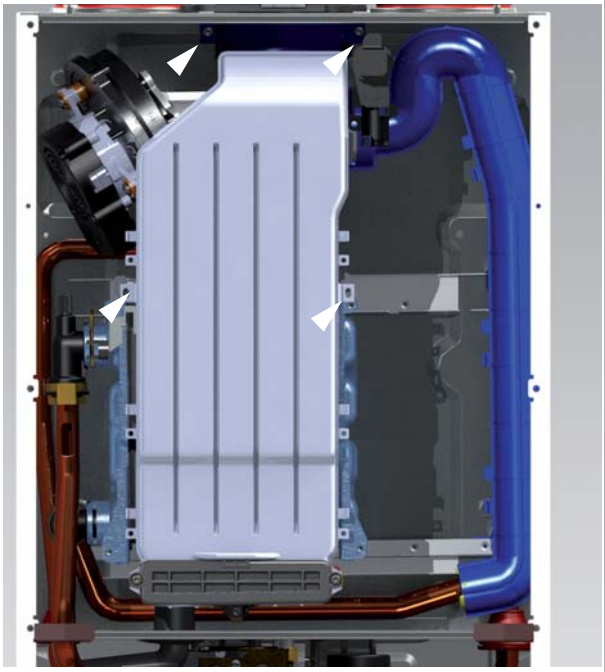
8.3.17 Main heat exchanger

Tools 

TIME 25 min

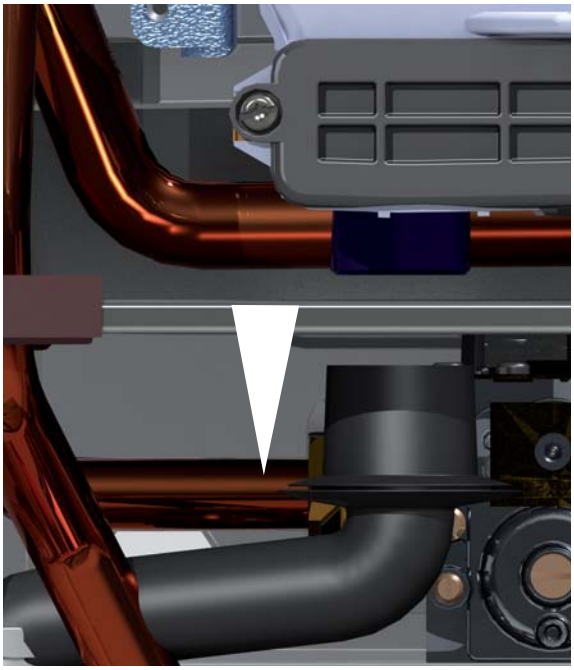
Drain boiler (see 3.3)
Unscrew the screws of flue collector

1



Disconnect the condensate discharge pipe from the flue collector

2

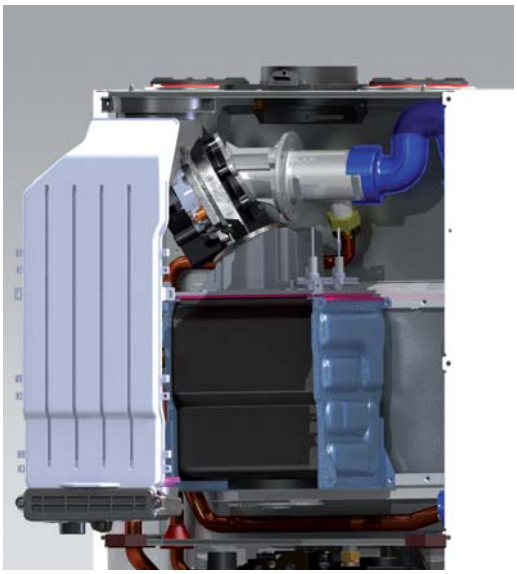


Remove the ignitor (Disconnect the electrical connectios)

3

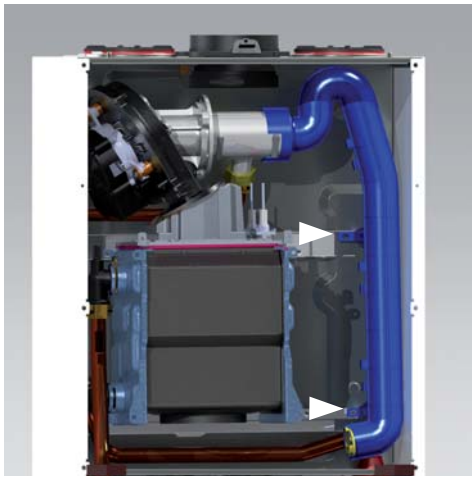
Remove the flue collector

4

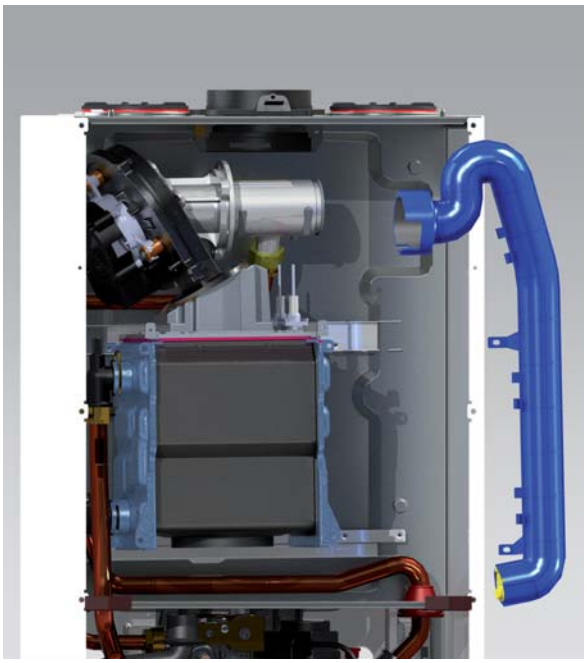


Unscrew the screws of the silencer

5



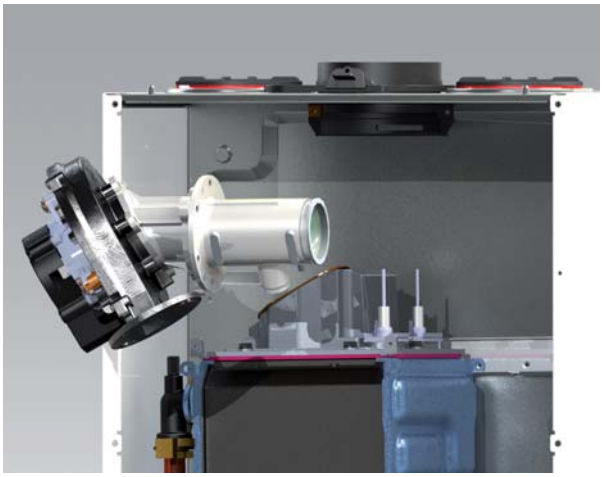
Remove the silencer



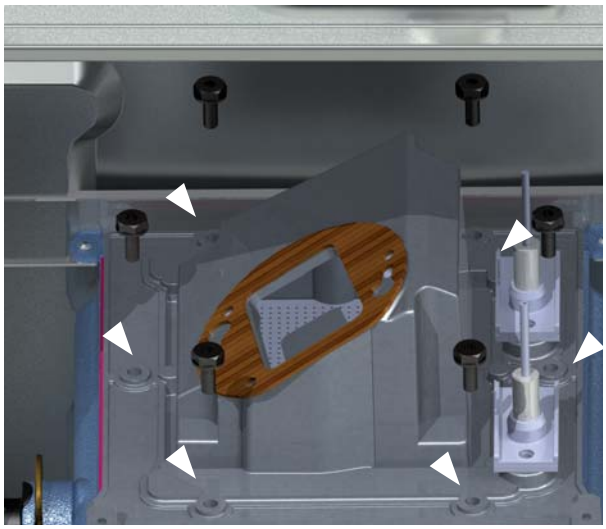
Disconnect the gas pipe from the mixer.

Remove the fan electrical connection
Unscrews the two screws

Remove the fan-mixer group



Unscrews the six screws of the burner

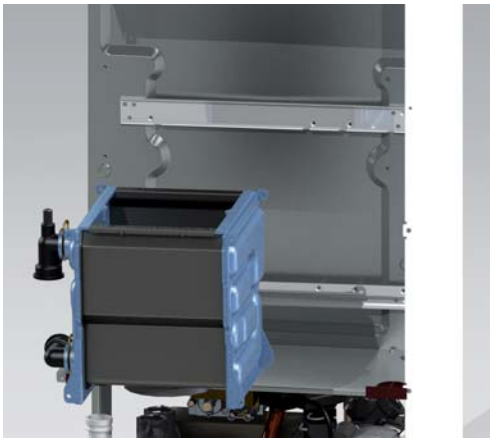


Remove the burner

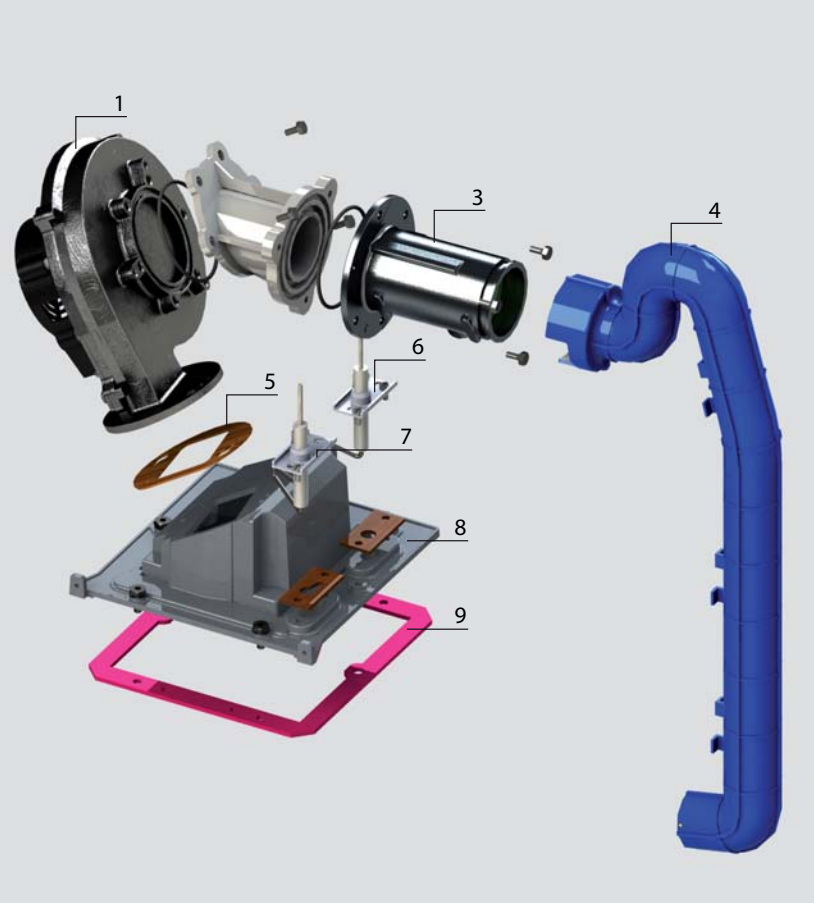
Remove the clips to disconnect the flow and return pipes.

Unscrew the screws of the main exchanger

Remove the main heat exchanger

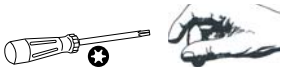


8.4 COMBUSTION GROUP



Legend:
1 - Fan
3 - Mixer
4 - Silencer
5 - Gasket (Fan)
6 - Detection electrode
7 - Ignition electrode
8 - Burner
9 - Burner gasket

8.4.1 Spark generator

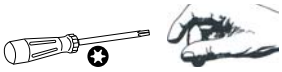
Tools 

TIME 5 min

Remove the electrical connections from the spark generator and unhook it.

1

8.4.2 Electrodes

Tools 

TIME 5 min

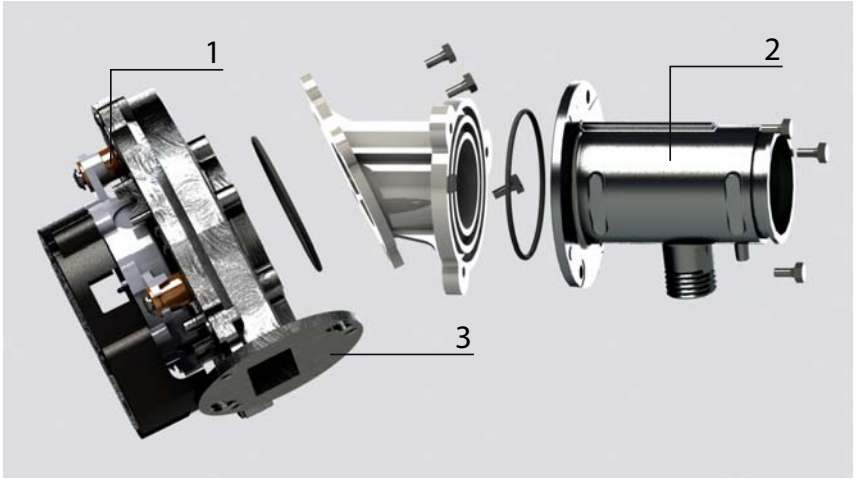
Unscrews the four screws

1

Pull the electrodes towards you.

2

8.4.3 Fan	
Tools 	
TIME  15 min	
Remove the combustion assembly (see 4.3)	
1	
Remove the three screws to free the fan.	
2	



Legend:
1 - Fan
2 - Venturi
3 - Gasket

Fan & mixer venturi according to the model		
Power	**Fan**	**Venturi diameter**
24 kW	EBM RG 118 40 W	Ø 17
30 kW	EBM RG 118 40 W	Ø 25

8.4.4 Gas Valve

Tools 

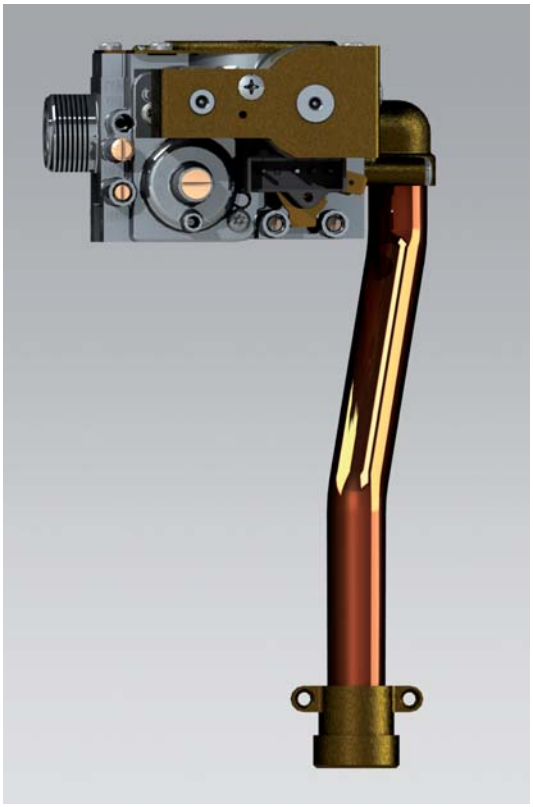
TIME 15 min

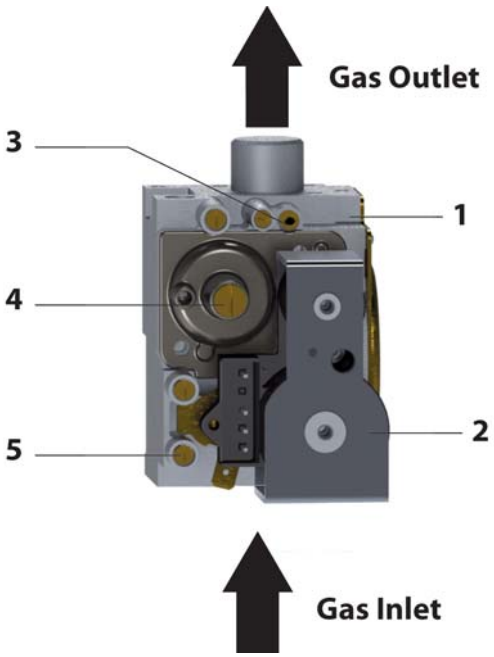
Remove the two screws under the boiler and disconnect the gas pipe on the left of the gas valve

1

Remove the gas valve

2





Legend:
1 - Gas valve
2 - Solenoids
3 - Throttle adjustment
4 - Offset adjustment
5 - Inlet test nipple

8.5 ANNUAL MAINTENANCE

Plate heat exchanger Maintenance Interval: As necessary How: To measure specification of DHW performance.	
By-pass & Safety valve Maintenance Interval: Annually How: Visual inspection / Clean as necessary	
Central heating filter Maintenance Interval: Annually How: Visual inspection / Clean as necessary	
Flow switch operation Maintenance Interval: Annually How: Visual inspection / Clean as necessary / Check flow rate	
Expansion vessel Maintenance Interval: Annually How: Check air pressure is at 1 bar (System drained)	
Ignition & detection electrodes Maintenance Interval: Annually How: Visual inspection / Clean as necessary / Distance from the burner / Ionisation current more than 1 µA	
Fan Maintenance Interval: Annually How : Visual inspection / Clean as necessary	

8. maintenance guide

Primary Heat exchanger Maintenance Interval: Annually How : Visual inspection / Clean as necessary	
Condensate trap Maintenance Interval: Annually or after cleaning primary heat exchanger How : Visual inspection / Clean as necessary / Add water before replacing	
Pump Maintenance Interval: At the first ignition and annually How: Check that the AAV is open / Visual inspection / Clean as necessary	

GAS BOILER SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the boiler as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission according to the manufacturer's instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

Customer Name _____ Telephone Number _____

Address _____

Boiler Make and Model _____

Boiler Serial Number |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Commissioned by *(print name)* _____ Gas Safe Register Number _____

Company Name _____ Telephone Number _____

Company Address _____

_____ Commissioning Date _____

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:

Building Regulations Notification Number *(if applicable)* _____

CONTROLS Tick the appropriate boxes

Time and Temperature Control to Heating	Room Thermostat and Programmer/Timer	☐	Programmable Room Thermostat	☐	Load/Weather Compensation	☐	Optimum Start Control ☐
Time and Temperature Control to Hot Water					Cylinder Thermostat and Programmer/Timer	☐	Combination Boiler ☐
Heating Zone Valves					Fitted	☐	Not Required ☐
Hot Water Zone Valves					Fitted	☐	Not Required ☐
Thermostatic Radiator Valves					Fitted	☐	Not Required ☐
Automatic Bypass to System					Fitted	☐	Not Required ☐
Boiler Interlock							Provided ☐

ALL SYSTEMS

The system has been flushed and cleaned in accordance with BS7593 and boiler manufacturer's instructions Yes ☐

What system cleaner was used? _____

What inhibitor was used? Quantity _____ *litres*

CENTRAL HEATING MODE Measure and Record:

Gas Rate	_____ m^3/hr	OR		_____	ft^3/hr
Burner Operating Pressure (if applicable)	_____ mbar	OR	Gas Inlet Pressure	_____	mbar
Central Heating Flow Temperature				_____	°C
Central Heating Return Temperature				_____	°C

COMBINATION BOILERS ONLY

Is the installation in a hard water area (above 200ppm)? Yes ☐ No ☐

If yes, and if required by the manufacturer, has a water scale reducer been fitted? Yes ☐ No ☐

What type of scale reducer has been fitted? _____

DOMESTIC HOT WATER MODE Measure and Record:

Gas Rate	_____ m^3/hr	OR		_____	ft^3/hr
Burner Operating Pressure (at maximum rate)	_____ mbar	OR	Gas Inlet Pressure (at maximum rate)	_____	mbar
Cold Water Inlet Temperature				_____	°C
Hot water has been checked at all outlets	Yes ☐		Temperature	_____	°C
Water Flow Rate				_____	*l/min*

CONDENSING BOILERS ONLY

The condensate drain has been installed in accordance with the manufacturer's instructions and/or BS5546/BS6798 Yes ☐

If the condensate pipe terminates externally has the pipe diameter been increased and weatherproof insulation fitted? Yes ☐

ALL INSTALLATIONS

If required by the manufacturer, record the following CO_2 _____ % OR CO _____ *ppm* OR CO/CO_2 Ratio _____

The heating and hot water system complies with the appropriate Building Regulations Yes ☐

The boiler and associated products have been installed and commissioned in accordance with the manufacturer's instructions Yes ☐

The operation of the boiler and system controls have been demonstrated to and understood by the customer Yes ☐

The manufacturer's 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 manufacturer's 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.

benchmark COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

Service Record

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

Always use the manufacturer's specified spare part when replacing controls.

Service 1 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 2 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 3 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 4 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 5 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 6 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 7 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 8 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 9 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Service 10 Date:

Engineer Name:

Company Name:

Telephone No.

Gas Safe Register No.

Comments:

Signature:

Ariston Thermo UK Ltd
Hughenden Avenue
High Wycombe
Bucks HP13 5FT
Telephone: (01494) 755600
Fax: (01494) 459775
Internet: www.ariston.co.uk

Technical Advice: 0333 240 7777
Customer Service: 0333 240 8777

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