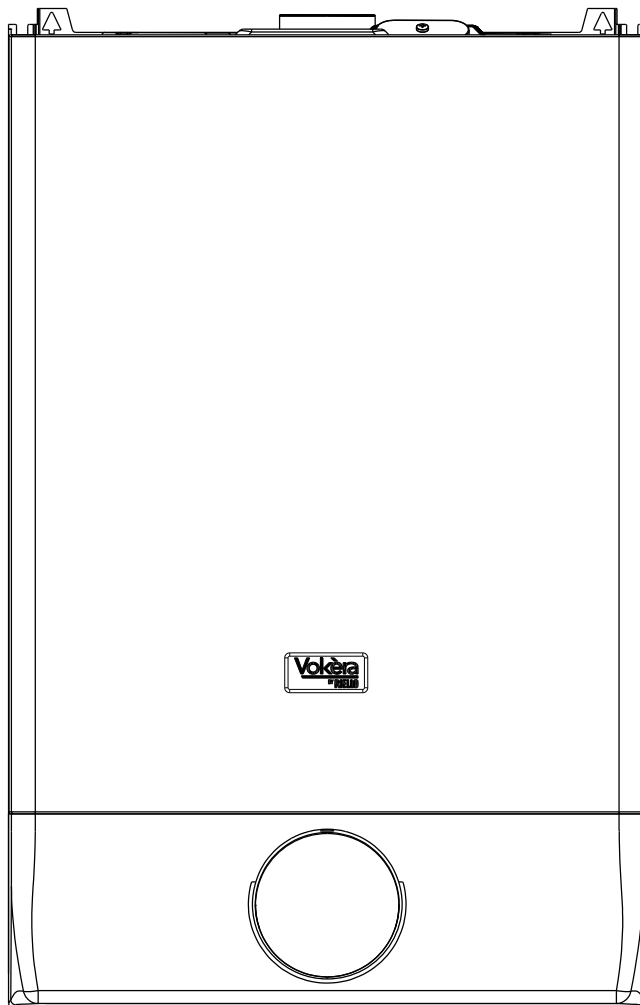


# EASI-FLO

## Water heater



## Installation & Servicing Instructions



G.C. N° 52 094 06 (NG)  
G.C. N° 52 094 07 (LPG)

THESE INSTRUCTIONS  
TO BE RETAINED  
BY USER



Vokèra is a licensed member of the Benchmark scheme which aims to improve the standards of installation and commissioning of domestic hot water systems in the UK.

The **Vokera EASI-FLO** water heater complies with:

- Appliances Directive 2009/142/EEC
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- Directive 2009/125/EC Ecodesign for energy-using appliances
- Directive 2010/30/EU Indication by labelling of the consumption of energy by energy-related products
- Delegated Regulation (EU) No. 811/2013
- Delegated Regulation (EU) No. 813/2013



<b>1</b>	<b>GENERAL</b>	<b>3</b>	5.20	What if the appliance is due its annual service . . . . .	15
1.1	General warnings . . . . .	3	5.21	What if i need to call an engineer . . . . .	15
1.2	Fundamental safety rules . . . . .	3			
<b>2</b>	<b>DESCRIPTION</b>	<b>3</b>	<b>6</b>	<b>COMMISSIONING</b>	<b>16</b>
2.1	Structure . . . . .	3	6.1	Gas supply installation . . . . .	16
2.2	Technical data . . . . .	4	6.2	Water pipe work . . . . .	16
2.3	Water circuit . . . . .	5	6.3	Pre-operation checks . . . . .	16
2.4	External wiring . . . . .	6	6.4	Initial lighting . . . . .	16
<b>3</b>	<b>GENERAL REQUIREMENTS</b>	<b>7</b>	6.5	Checking the burner pressure . . . . .	16
3.1	Terminal position for fan assisted appliance . . . . .	7	6.6	Setting the outlet temperature . . . . .	16
3.2	Principle components . . . . .	7	6.7	Final checks . . . . .	16
3.3	Mode of operation . . . . .	7	6.8	Instructing the user . . . . .	16
3.4	Safety devices . . . . .	7	<b>7</b>	<b>SERVICING</b>	<b>17</b>
3.5	Related documents . . . . .	8	7.1	General . . . . .	17
3.6	Location of appliance . . . . .	8	7.2	Routine annual servicing . . . . .	17
3.7	Gas supply . . . . .	8	7.3	Replacement of components . . . . .	17
3.8	Flue system . . . . .	8	7.4	Component removal procedure . . . . .	17
3.9	Air supply . . . . .	8	7.5	High limit thermostat . . . . .	17
3.10	Water pipe work . . . . .	8	7.6	Flow switch . . . . .	17
3.11	Pipework . . . . .	8	7.7	Burner . . . . .	18
3.12	Drain cocks . . . . .	8	7.8	Flue fan . . . . .	18
3.13	Electrical supply . . . . .	8	7.9	Heat exchanger . . . . .	18
3.14	Timber framed buildings . . . . .	8	<b>8</b>	<b>CHECKS, ADJUSTMENTS, AND FAULT FINDING</b>	<b>19</b>
<b>4</b>	<b>INSTALLATION</b>	<b>9</b>	8.1	Checking appliance operation . . . . .	19
4.1	Delivery . . . . .	9	8.2	Appliance mode of operation . . . . .	19
4.2	Contents . . . . .	9	8.3	Checking and adjusting burner pressure . . . . .	19
4.3	Unpacking . . . . .	9	8.4	External faults . . . . .	20
4.4	Preparation for mounting the appliance . . . . .	9	8.5	Electrical checks . . . . .	20
4.5	Fitting the flue . . . . .	9	8.6	Fault finding . . . . .	20
4.6	Connecting the gas and water . . . . .	12	8.7	Fault codes . . . . .	20
4.7	Electrical connections . . . . .	13	<b>9</b>	<b>L.P.G. INSTRUCTIONS</b>	<b>21</b>
4.8	Withdrawal range graph . . . . .	13	9.1	Gas supply . . . . .	21
<b>5</b>	<b>USER</b>	<b>14</b>	9.2	Gas supply installation . . . . .	21
5.1	Do's and don'ts . . . . .	14	9.3	Checking and adjusting burner pressure . . . . .	21
5.2	Guarantee registration card . . . . .	14	<b>10</b>	<b>GAS TRANSFORMATION</b>	<b>22</b>
5.3	Benchmark log book . . . . .	14	10.1	Gas conversion . . . . .	22
5.4	How does it work? . . . . .	14	10.2	Adjustments . . . . .	22
5.5	Diagnostic fault indicator . . . . .	14			
5.6	Led status indicator . . . . .	14			
5.7	Dimensions . . . . .	14			
5.8	Clearances required . . . . .	14			
5.9	Before switching on . . . . .	14			
5.10	Appliance controls (see fig. 1) . . . . .	14			
5.11	Lighting the appliance . . . . .	14			
5.12	Changing the domestic hot water temperature . . . . .	14			
5.13	How to reset the appliance . . . . .	14			
5.14	Diagnostic indicators . . . . .	15			
5.15	How to shut down the system for short periods . . . . .	15			
5.16	How to shut down the system for long periods . . . . .	15			
5.17	How to care for the appliance . . . . .	15			
5.18	What if i suspect a gas leak . . . . .	15			
5.19	What if the status led is flashing red . . . . .	15			

The following symbols are used in some parts of this booklet:

**CAUTION** = actions that require special care and suitable preparation

**PROHIBITED** = actions that absolutely must NOT be carried out

# 1 GENERAL

## 1.1 General warnings

- ⚠ After having removed the packaging, check that the material supplied is intact and complete; if this is not the case, contact **Vokera Ltd**.
- ⚠ The **EASI-FLO** water heater must be installed by qualified personnel as detailed under any current standards and law applicable and with the instructions provided by **Vokera Ltd** in the manual supplied with the appliance.
- ⚠ The water heater must be used for the purposes it has been expressly manufactured. **Vokera Ltd** declines all contractual and extra-contractual liability for damage caused to persons, animals or things, due to errors in installation, control, servicing or improper use.
- ⚠ In the event of water leaks, disconnect the water heater from the mains power supply, close the water supply and promptly notify **Vokera Ltd** or other professionally qualified personnel.
- ⚠ If the water heater is not used for an extended period, the following minimum operations must be completed:
  - move the main system switch to "off".
- ⚠ Servicing must be performed on the water heater at least once a year.
- ⚠ This manual is an integral part of the water heater and as a consequence must be kept with care. If the manual is damaged or lost, contact **Vokera Ltd** for another copy.
- ⚠ When the product reaches the end of its life it should not be disposed of as solid urban waste but should be brought to a separated waste collection facility.

## 1.2 Fundamental safety rules

The use of products that operate on fuel, electricity and water requires a number of fundamental safety rules to be observed, including:

- ⊘ The water heater must not be used by children or invalid persons without supervision.
- ⊘ Electrical devices or appliances, such as switches, household appliances, etc. must not be used if there is the smell of gas or unburned fuel. In this case:
  - ventilate the room by opening doors and windows;
  - close the fuel stopcock;
  - promptly contact **Vokera Ltd**, your gas supplier or other professionally qualified personnel.
- ⊘ Do not touch the water heater when barefoot or with wet parts of the body.
- ⊘ No service or cleaning operations may be performed without first having disconnected the water heater from the mains power supply, moving the main system switch to "off".
- ⊘ The safety or control devices must not be adjusted without the authorisation and written instructions from the manufacturer of the water heater.

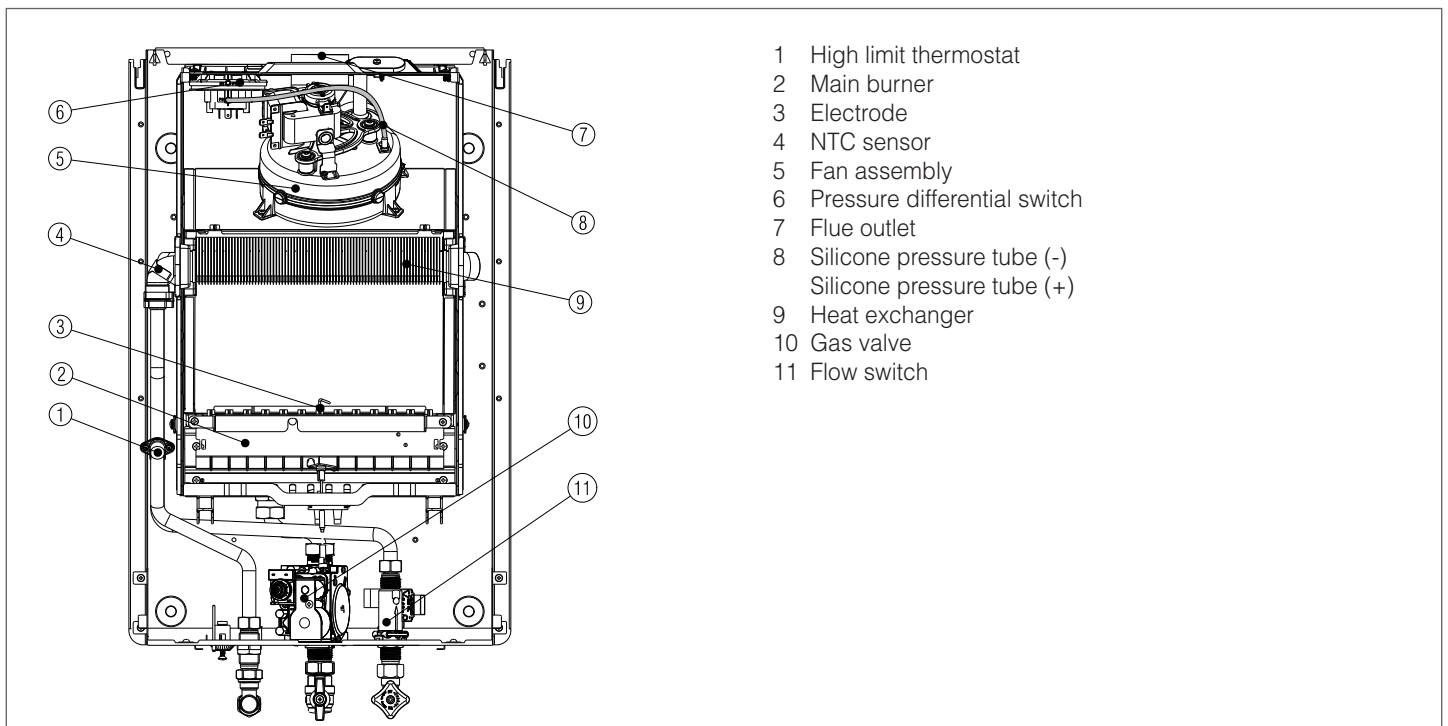
# 2 DESCRIPTION

The **Vokera EASI-FLO** is an instantaneous water heater, which - by design - incorporates electronic ignition, NTC temperature control and a coaxial flue that can be rotated – horizontally – through 360 degrees for various horizontal or vertical applications.

The **EASI-FLO** can also be used with the **Vokera** twin flue system.

All installers are asked to follow the Benchmark Scheme by adhering to the Code of Practise, which can be obtained from [www.centralheating.co.uk](http://www.centralheating.co.uk).

## 2.1 Structure

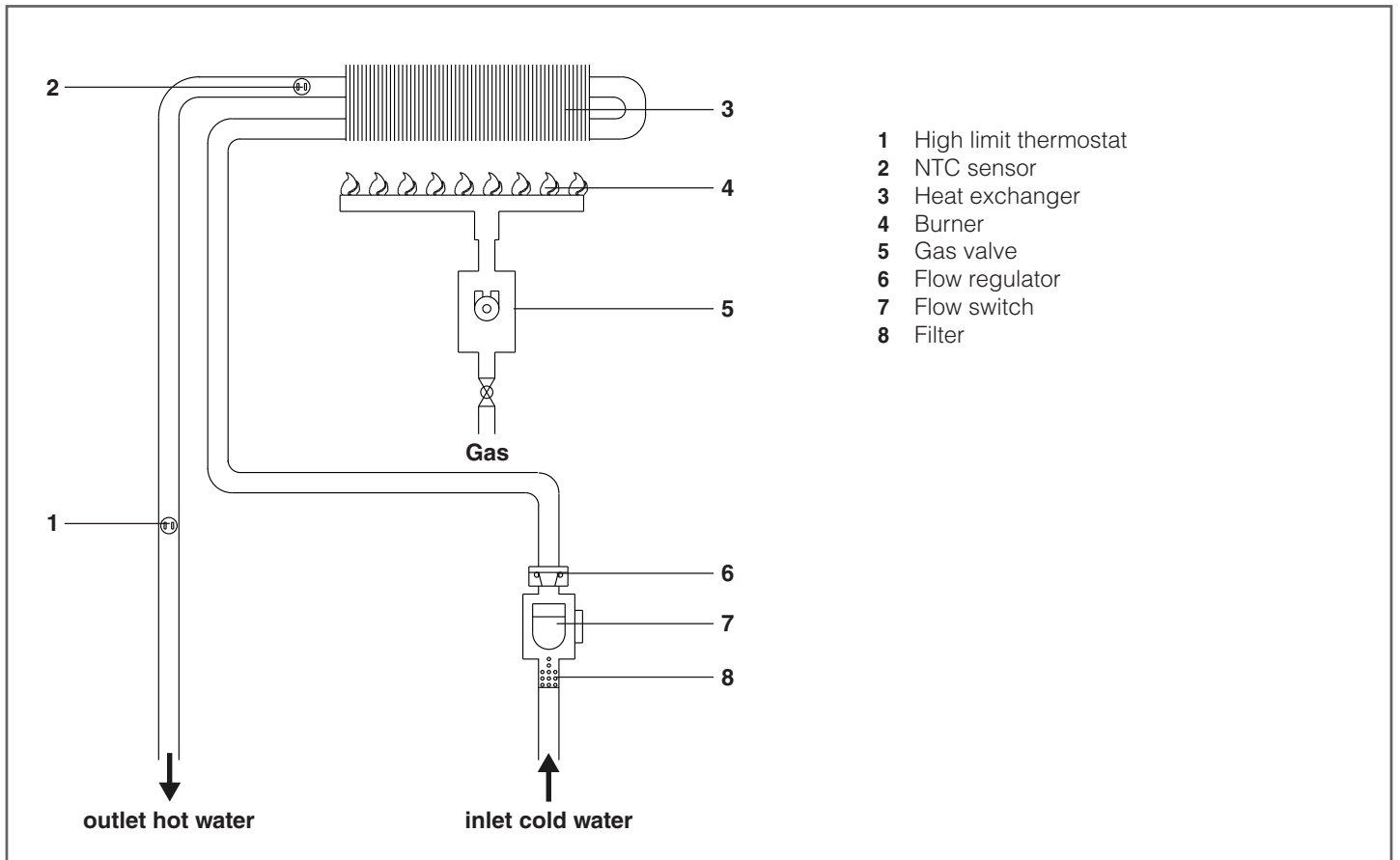


## 2.2 Technical data

DESCRIPTION	EASI-FLO	Units	
Nominal heat input	30.00 25,800	kW kcal/h	
Nominal heat output	27.90 23,994	kW kcal/h	
Reduced heat input	10.50 9,030	kW kcal/h	
Reduced heat output	9.09 7,820	kW kcal/h	
Category	I12H3+		
Destination country	GB - IE		
Configuration type	B22-B52;C12-C12x;C22;C32-C32x;C42-C42x;C52-C52x; C62-C62x;C82-C82x;C92-C92x		
<b>Gas characteristics</b>			
Lower heat output	G20	34.02	MJ/m <sup>3</sup> S
	G30	116.09	
	G31	88	
Lower Wobbe index (15°C 1013 mbar)	G20	45.67	MJ/m <sup>3</sup> S
	G30	80.58	
	G31	70.69	
Nominal supply pressure	G20	20	mbar
	G30	28-30	
	G31	37	
Maximum gas flow rate in DHW mode	G20	3.17	Sm <sup>3</sup> /h
	G30	2.36	
	G31	2.33	kg/h
Maximum DHW pressure	G20	11.30	mbar
	G30	28.00	
	G31	36.00	
Ø main burner nozzle	G20	1.35	mm
	G30	0.78	
	G31	0.78	
Flue gas mass flow rate (max/min)	G20	16.213-13.571	g/s
	G30	15.755-13.481	
	G31	16.148-13.359	
Nozzles	13	n.	
Ø gas connection	3/4"		
<b>Concentric flue gas outlet pipes</b>			
Diameter	60 - 100	mm	
Maximum length	3.4	m	
Loss due to 45°/90° bend	1/1.5	m	
Wall hole	105	mm	
<b>Separate flue gas outlet pipes</b>			
Diameter	80	mm	
Maximum length	14.5 + 14.5	m	
Loss due to 45°/90° bend	1.2/1.7	m	
Flue gas temperature (max/min)	G20	139 - 112	°C
	G30	140 - 112	
	G31	140 - 111	
Withdrawal range	2 - 12	l/min	
Minimum pressure	0.15	bar	
Nominal pressure	2	bar	
Maximum pressure	10	bar	
DHW minimum flow rate	2	l/min	
Quantity of hot water with Δt 35°C	11.4	l/min	
Ø water connections	1/2"		
DHW temperature selection range	35-60	°C	
Flow regulator	12	l/min	
Total electrical power	50.4	W	
Internal fuse	2	AF	
External fuse	3	A	
Power supply voltage	230/50	V/Hz	
Protection rating	IPX4D		
<b>Appliance dimensions</b>			
Height	640	mm	
Width	400	mm	
Depth	246	mm	
Net weight	17	kg	
<b>Clearances</b>			
Top	150 mm from casing or 25 mm above flue elbow (whichever is applicable)		
Bottom	150	mm	
Sides	50	mm	
Front	600	mm	
<b>Connections</b>			
Cold water	15 (compression)	mm	
Hot water	15 (compression)	mm	
Gas	15 (copper)	mm	

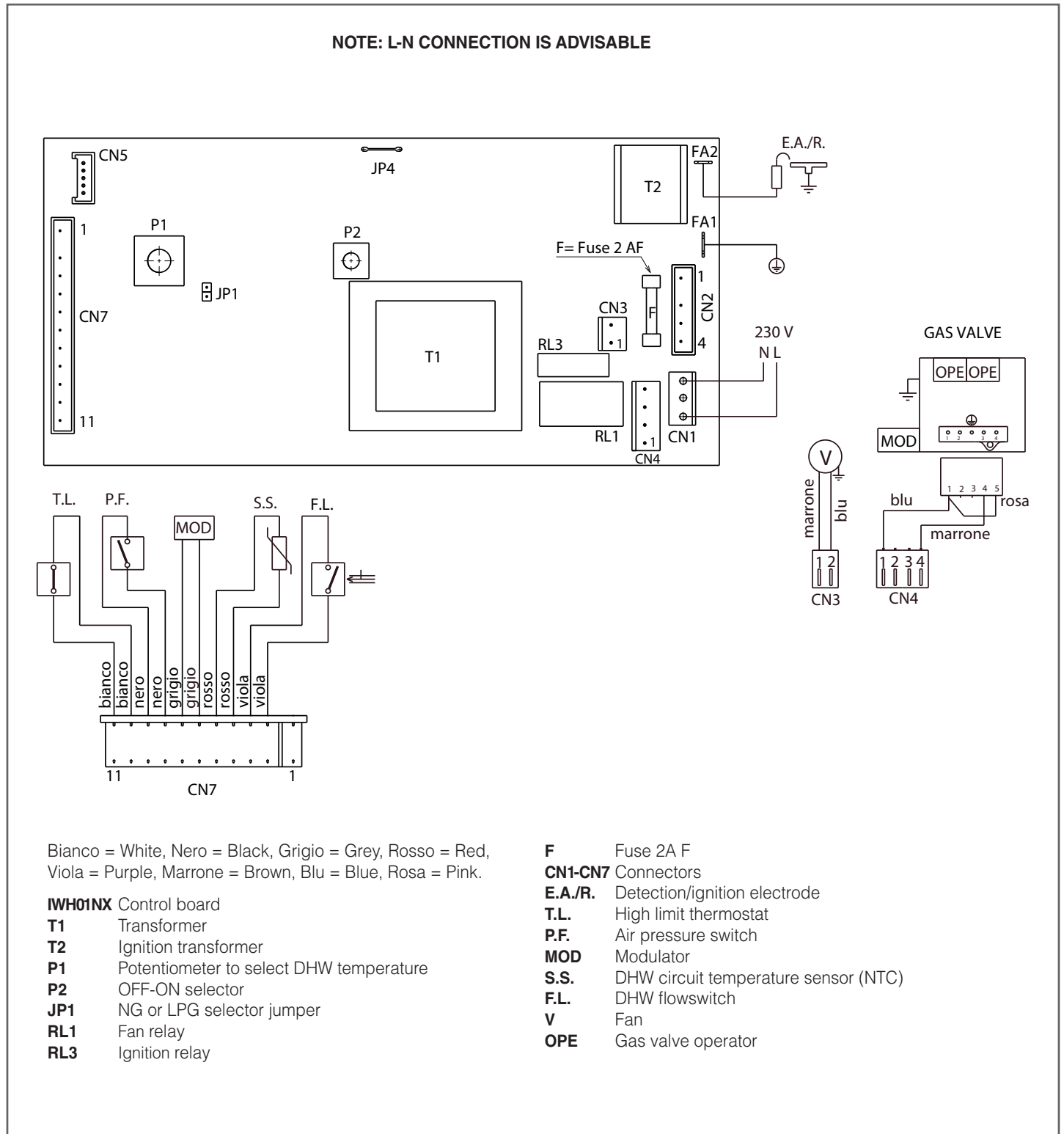
Parameter	Symbol	Value	Unit
Water heating energy efficiency class	-	A	-
Declared load profile	-	XL	-
Water heating energy efficiency	$\eta_{wh}$	80.1	%
Daily fuel consumption	$Q_{fuel}$	24.937	kWh
Annual fuel consumption	AFC	19	GJ
Daily electricity consumption	$Q_{elec}$	0.093	kWh
Annual electricity consumption	AEC	20	kWh
Sound power level, indoors	LWA	47	dB(A)
Emissions of nitrogen oxides	NOx	118	mg/kWh

### 2.3 Water circuit

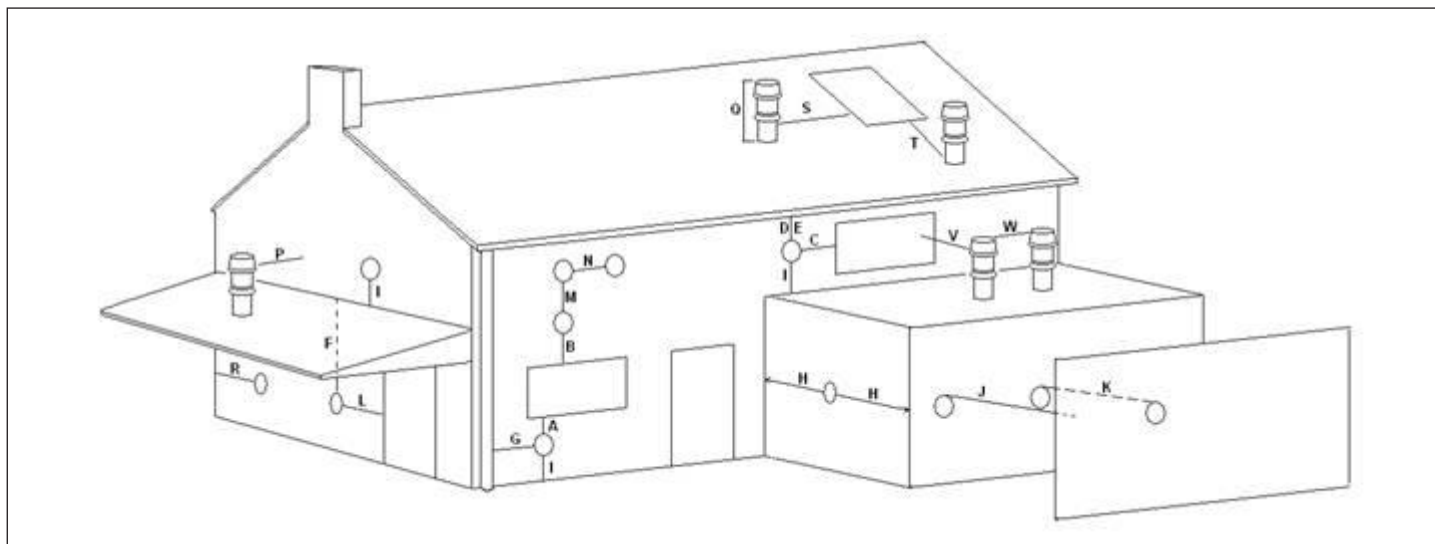


## 2.4 External wiring

The appliance comes with a factory fitted cable that should be connected to a suitable fused isolator or plug. If this is unsuitable and a direct connection to the appliance is required, it must be connected to the appliance as shown in the following diagram. For further advice on the electrical connection, please contact **Vokera** technical on 0844 391 0999.



### 3 GENERAL REQUIREMENTS



#### 3.1 Terminal position for fan assisted appliance

Key	Location	Minimum distance
A	Below an opening (window, air-brick, etc.)	300 mm
B	Above an opening (window, air-brick, etc.)	300 mm
C	To the side of an opening (window, air-brick, etc.)	300 mm
D	Below gutter, drain-pipe, etc.	25 mm
E	Below eaves	25 mm
F	Below balcony, car-port roof, etc.	25 mm
G	To the side of a soil/drain-pipe, etc.	25 mm (60mm for 80/125 - 5" flue)
H	From internal/external corner	25 mm (60mm for 80/125 - 5" flue)
I	Above ground, roof, or balcony level	300 mm
J	From a surface or boundary facing the terminal	600 mm
K	From a terminal facing a terminal	1200 mm
L	From an opening in the car-port into the building	1200 mm
M	Vertically from a terminal on the same wall	1500 mm
N	Horizontally from a terminal on the same wall	300 mm
P	From a structure to the side of the vertical terminal	300 mm
Q	From the top of the vertical terminal to the roof flashing	As determined by the fixed collar of the vertical terminal
R	To the side of a boundary	300 mm
S	To the side of an opening or window on a pitched roof	600 mm
T	Below an opening or window on a pitched roof	2000 mm
V	From a vertical terminal to an adjacent opening (window, air-brick, etc.)	(call Vokera technical for advice)
W	From a vertical terminal to an adjacent vertical terminal	300 mm (only if both terminals are the same height)

#### 3.2 Principle components

- A fully integrated electronic control board featuring electronic temperature control, self diagnostic fault indicator, continuous gas modulation.
- Electronic ignition with flame supervision.
- Fan.
- Differential air pressure switch.
- Two-stage gas valve.

#### 3.3 Mode of operation

When there is a request for hot water via a hot water outlet or tap, the water flow switch senses water movement thereby energizing the fan, the fan proves the differential air pressure switch which in-turn allows an ignition sequence to begin.

Ignition is sensed by the electronic circuitry to ensure flame stability at the burner. Once successful ignition has been achieved, the electronic circuitry increases the gas rate to maximum or modulates to suit the set requirement.

When the appliance reaches the desired temperature the burner will modulate to maintain the desired temperature. Should the temperature continue to increase, the burner will shut off when the maximum operating temperature is attained.

When the request for hot water has been satisfied the appliance fan may continue to operate to dissipate any residual heat within the appliance.


#### 3.4 Safety devices

When the appliance is in use, safe operation is ensured by:

- a high limit thermostat that over-rides the temperature control circuit to prevent or interrupt the operation of the burner;
- a differential air pressure switch that checks the operation of the fan and flue thereby allowing safe operation of the burner;
- a flame supervision device that will shut off the gas supply to the burner if



Detailed		
BS 5440	Part 1	Flues
BS 5440	Part 2	Flues and ventilation
BS 5546		Installation of hot water supplies for domestic purposes
BS 6891		Low pressure installation pip
BS 6700		Design, installation, testing and maintenance of services supplying Water for domestic use

 This appliance must be installed by a competent person in accordance with the Gas Safety (Installation & Use) Regulations.

### 3.5 Related documents

The installation of this water heater must be in accordance with the relevant requirements of the Gas Safety (Installation & Use) Regulations, the Water supply (water fittings) Regulations, the Water Byelaws Scotland, the Building Standards (Scotland) Regulation and Building Standards (Northern Ireland) Regulations. It should be in accordance also with any relevant requirements of the local authority and the relevant recommendations of the following British Standard Codes of Practice.

### 3.6 Location of appliance

The appliance may be installed in any room or internal space, although particular attention is drawn to the requirements of the current I.E.E. wiring regulations, and in Scotland, the electrical provisions of the Building Regulations, with respect to the installation of the appliance in a room or internal space containing a bath or shower.

When an appliance is installed in a room or internal space containing a bath or shower, the appliance or any control pertaining to it must not be within reach of a person using the bath or shower.

The location chosen for the appliance must permit the provision of a safe and satisfactory flue and termination. The location must also permit an adequate air supply for combustion purposes and an adequate space for servicing and air circulation around the appliance. Where the installation of the appliance will be in an unusual location special procedures may be necessary, BS 6798 gives detailed guidance on this aspect. A compartment used to enclose the appliance must be designed and constructed specifically for this purpose. An existing compartment/cupboard may be utilised provided that it is modified to suit. Details of essential features of compartment/cupboard design, including airing cupboard installations, are given in BS 6798. This appliance is not suitable for external installation.

### 3.7 Gas supply

The gas meter – as supplied by the gas supplier – must be checked to ensure that it is of adequate size to deal with the maximum rated input of all the appliances that it serves. Installation pipes must be fitted in accordance with BS 6891. Pipe-work from the meter to the appliance must be of adequate size. Pipes of a smaller size than the appliance gas inlet connection must not be used. The installation must be tested for soundness in accordance with BS 6891. If the gas supply serves more than one appliance, it must be ensured that an adequate supply is maintained to each appliance when they are in use at the same time.

### 3.8 Flue system

The terminal should be located where the dispersal of combustion products is not impeded and with due regard for the damage and discoloration that may occur to building products located nearby.

The terminal must not be located in a place where it is likely to cause a nuisance. In cold and/or humid weather, water vapor may condense on leaving the terminal; the effect of such plumbing must be considered. If installed less than 2m above a pavement or platform to which people have access (including balconies or flat roofs) the terminal must be protected by a guard of durable material. The guard must be fitted centrally over the terminal.

Refer to BS 5440 Part 1, when the terminal is 0,5 metres (or less) below plastic guttering or 1 metre (or less) below painted eaves.

### 3.9 Air supply

The following notes are intended for general guidance only. This appliance is a room sealed, fan-flued water heater, consequently it does not require a permanent air vent for combustion air supply. When installed in a cupboard or compartment, ventilation for cooling purposes is also not required.

### 3.10 Water pipe work

Detailed recommendations are given in BS 5449 Part 1 and BS 6798. The following notes are for general guidance only.

### 3.11 Pipework

It is recommended that copper tubing to BS 2871 Part 1 is used in conjunction with soldered capillary joints. Where possible pipes should have a gradient to ensure air is carried naturally to an outlet and that water flows naturally to drain cocks. Pipes should be insulated to avoid heat loss and in particular to avoid the possibility of freezing. Particular attention should be paid to pipes passing through ventilated areas such as under floors, loft space, and void areas.

### 3.12 Drain cocks

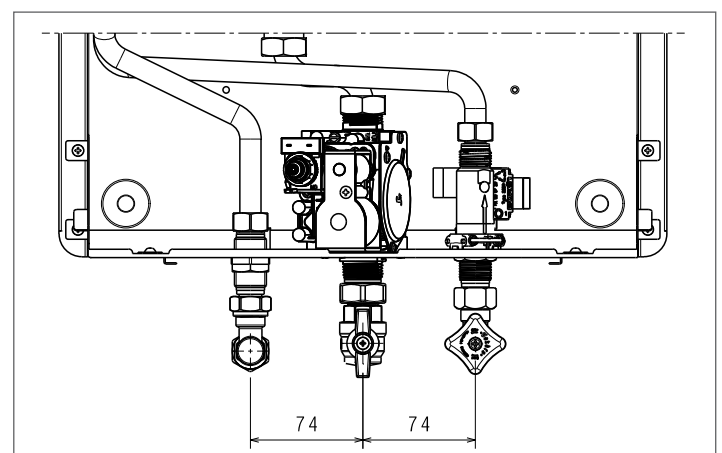
these must be located in accessible positions to facilitate draining of the appliance and all water pipes connected to the appliance. The drain cocks must be manufactured in accordance with BS 2879.

### 3.13 Electrical supply

The appliance is supplied for operation on 230V @ 50Hz electrical supply; it must be protected with a 3-amp fuse. The method of connection to the mains electricity supply must allow for complete isolation from the supply. The preferred method is by using a double-pole switch with a contact separation of at least 3mm. The switch must only supply the appliance. Alternatively an un-switched shuttered socket with a fused 3-pin plug both complying with BS 1363 is acceptable.

### 3.14 Timber framed buildings

If the appliance is to be fitted in a timber framed building, it should be fitted in accordance with the Institute of Gas Engineers publication (IGE/ UP/7) "Guide for Gas Installations in Timber Frame Buildings".





## 4 INSTALLATION

### 4.1 Delivery

The appliance is delivered in a heavy-duty cardboard carton. Lay the carton on the floor with the writing the correct way up.

### 4.2 Contents

Contained within the carton is:


- the appliance;
- the wall mounting bracket and stand-off brackets (stand-off brackets are for use with rear flue outlet only);
- template;
- an accessories pack containing the appliance service valves and washers;
- the instruction pack containing the installation & servicing instructions, user instructions and a 3-amp fuse.


### 4.3 Unpacking

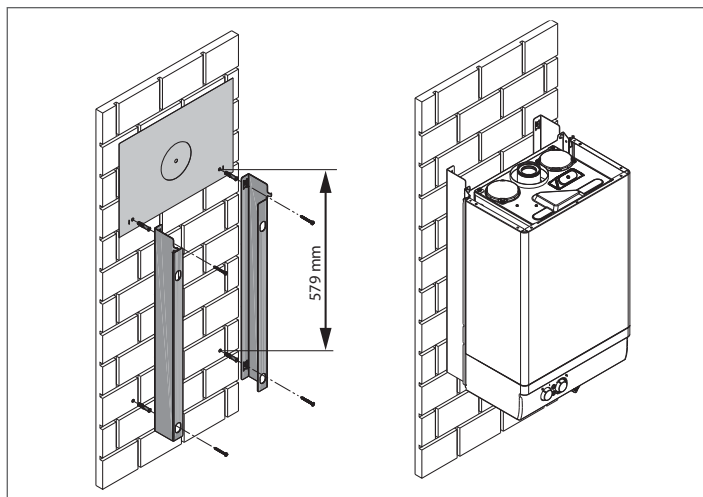
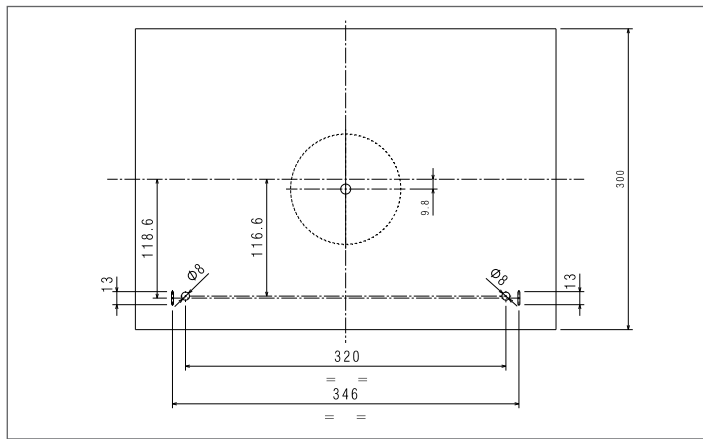
At the top of the carton pull both sides open – do not use a knife – unfold the rest of the carton from around the appliance, carefully remove all protective packaging from the appliance, and lay the accessories etc. to one side.

### 4.4 Preparation for mounting the appliance

The appliance should be mounted on a smooth, vertical, surface, which must be capable of supporting the full weight of the appliance. Care should be exercised when determining the position of the appliance with respect to hidden obstructions such as pipes, cables, etc. When the position of the appliance has been decided – using the template supplied – carefully mark the position of the wall-mounting bracket and flue-hole (if applicable).

-  Position the cartoon template and trace the two upper holes  $\varnothing$  8 mm. Trace the two lower holes  $\varnothing$  8 mm at a distance from the upper holes of 579 mm. Fix the stand-off brackets (the stand-off brackets should only be used if the flue is exiting to the rear).

-  Attach the wall mounting bracket.



### MAXIMUM FLUE LENGTHS

Flue system	EASI-FLO	UM
Concentric Horizontal	3.40	mt
Concentric Vertical	4.40	mt
Twin flue	14.5 + 14.5	mt

### 4.5 Fitting the flue

The top flue outlet permits both horizontal and vertical flue applications to be considered, alternatively, the Vokèra twin flue system can be utilised if longer flue runs are required.

#### Concentric horizontal flue

(For concentric vertical flue, see page 10).

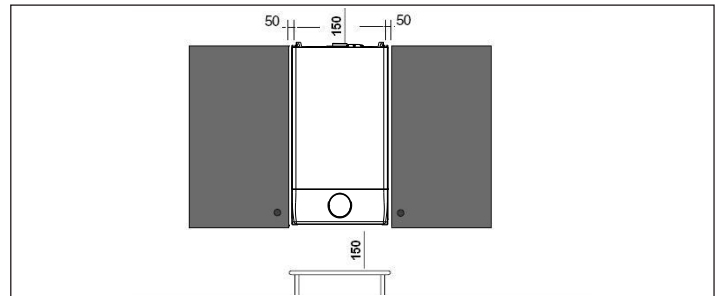
(For twin flue applications, see page 11).

The appliance can be used with either the Vokèra 60/100mm concentric Uni-flue system or the optional Vokera twin flue system.

Total flue length 60-100	Restrictor required
Up to 0.85 metre	41 mm diameter
From 0.85 to 1.70 metre	43 mm diameter
From 1.70 to 2.70 metre	45 mm diameter
From 2.70 to 3.40 metre	Not installed

#### NOTE

These instructions relate only to the Vokèra Uni-Flue 60/100mm concentric flue system. The appliance flue outlet elbow can be rotated through 360° on its vertical axis. In addition the flue may be extended from the outlet elbow in the horizontal plane. A reduction must also be made to the maximum length (see table below) when additional bends are used.



#### Reduction for additional bends

Bend	Reduction in maximum flue length for each bend	
45° bend	1.0 metre (60/100)	mt
90° bend	1.5 metre (60/100)	mt

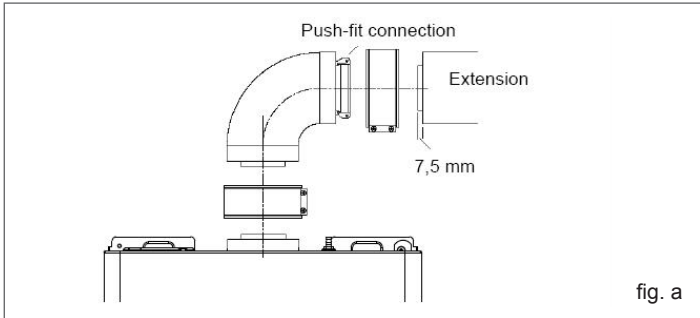
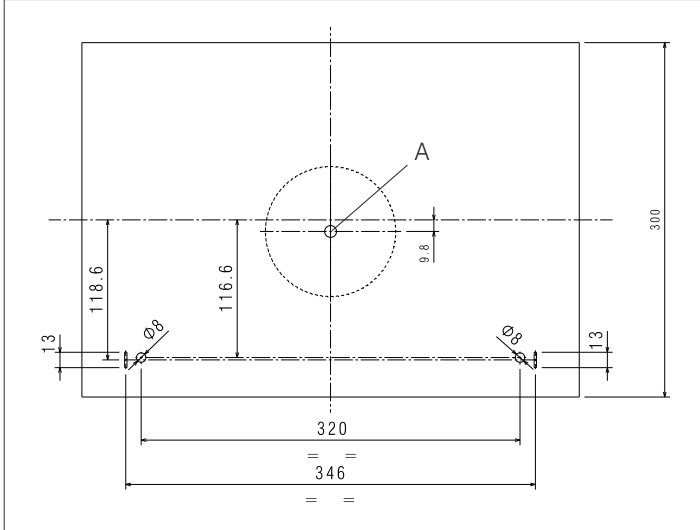
#### Horizontal flue terminals and accessories

Part no.	Description	Min-Max length
2359029	Horizontal flue kit	833 mm (dimension 'X')
2359119	Telescopic flue kit	
2359069	750 mm extension	750 mm
2359079	1500 mm extension	1500 mm
2359089	Telescopic extension	350-490 mm
2359049	45° bend (pair)	220mm
2359059	90° bend	N/A
529	Wall bracket (5)	N/A

Using the template provided (A), mark and drill a 125mm hole for the passage of the flue pipe. The hole should have a 1° drop from the appliance to outside, to eliminate the possibility of rainwater entering the appliance via the flue.

The fixing holes for the wall-mounting bracket should now be drilled and plugged, an appropriate type and quantity of fixing should be used to ensure that the bracket is mounted securely.

Once the bracket has been secured to the wall, mount the appliance onto the bracket..



### Fitting the horizontal flue kit

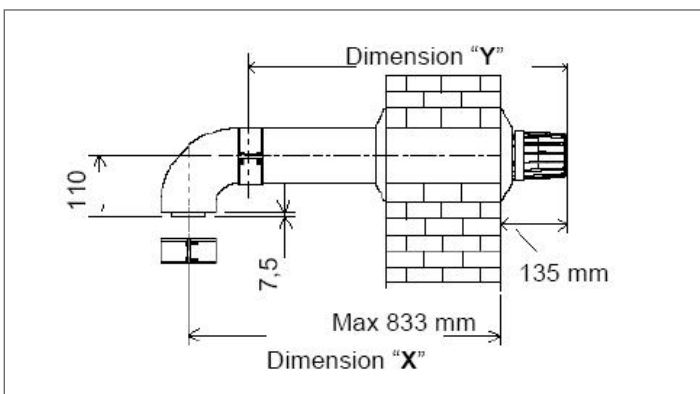
Carefully measure the distance from the centre of the appliance flue outlet to the face of the outside wall (dimension 'X'). Ensure the inner (60mm) pipe is fully inserted into the outer (100mm) pipe (when the inner pipe is fully inserted, it stands proud of the outer pipe by 7.5mm). Add 32mm to dimension 'X' to give the overall flue length (dimension 'Y').

### NOTE

The standard horizontal flue kit (part no. 2359029) is suitable for a distance (dimension 'Y') of up to 865mm.

The telescopic flue kit (part no. 2359119) is suitable for a distance (dimension 'Y') of up to 600mm.

Dimension 'Y' is measured from the end of the terminal to the end of the outer (100mm) pipe. The interior trim should be fitted to the flue pipe before connection of the 90° bend.



### Extending the flue

The horizontal flue system can be extended using bends and/or extensions from the Uni-Flue range.

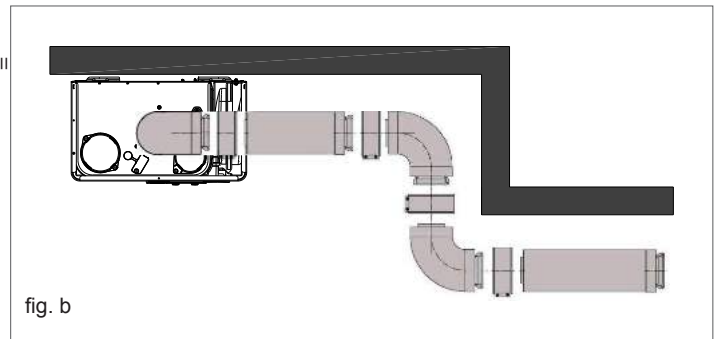
Connect the bend – supplied with the terminal kit – to the top of the appliance using the clips, screws, & gaskets supplied. The additional bends & extensions have an internal push-fit connection, care should be taken to ensure that the correct seal is made when assembling the flue system. Connect the required number of flue extensions or bends (up to the maximum equivalent flue length) to the flue terminal using the clips, screws, & gaskets supplied (see fig. a & fig. b). The interior trim should be fitted at this point.

### NOTE

When cutting an extension to the required length, you must ensure that the excess is cut from the plain end of the extension, and that the inner (60mm) pipe is 7.5mm longer than outer (100mm) pipe. Remove any burrs, and check that any seals are located properly.

You must ensure that the entire flue system is properly supported and connected.

Seal the flue assembly to the wall using cement or a suitable alternative that will provide satisfactory weatherproofing. The exterior trim can now be fitted.



### Concentric vertical flue

The appliance can be used with either the Vokèra 60/100mm concentric Uni-flue system or the optional Vokera twin flue system.

Total flue length 60-100	Restrictor required
Up to 1.85 metre	41 mm diameter
From 1.85 to 2.70 metre	43 mm diameter
From 2.70 to 3.70 metre	45 mm diameter
From 3.70 to 4.40 metre	Not installed

### NOTE

These instructions relate only to the Vokèra 60/100mm concentric flue system. For specific details on the installation of the Vokera twin flue system please refer to the instructions supplied. The vertical flue terminal can be connected directly to the appliance flue outlet. Alternatively, an extension or bend can be connected to the appliance flue outlet if desired, however if additional bends are fitted, a reduction must be made to the maximum flue length (see table below).

### Reduction for bends

Bend	Reduction in maximum flue length for each bend	
45° bend	1.0 metre (60/100)	mt
90° bend	1.5 metre (60/100)	mt

### Vertical flue terminal and accessories

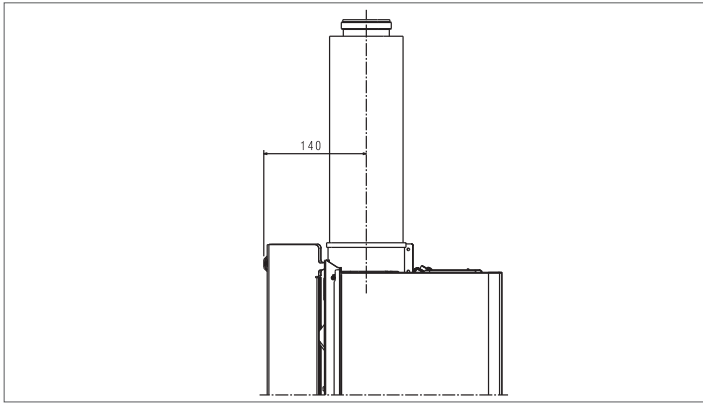
Part No.	Description	Length
2359039	Vertical flue terminal	1.0 metre
531	Pitched roof flashing plate	N/A
532	Flat roof flashing plate	N/A
2359069	750 mm extension	750 mm

Part No.	Description	Length
2359079	1500 mm extension	1500 mm
2359049	45° bend (pair)	N/A
2359059	90° bend	N/A
529	Wall bracket (5)	N/A

Using the dimensions given in "fig. a" as a reference, mark and cut a 125mm hole in the ceiling and/or roof.

Fit the appropriate flashing plate to the roof and insert the vertical flue terminal through the flashing plate from the outside, ensuring that the collar on the flue terminal fits over the flashing.

The fixing holes for the wall-mounting bracket should now be drilled and plugged, an 'appropriate type and quantity of fixing should be used to ensure that the bracket is mounted securely. Once the bracket has been secured to the wall, mount the appliance onto the bracket.



#### IMPORTANT

The vertical flue terminal is 1.0 metre in length and cannot be cut; therefore it may be necessary to adjust the height of the appliance to suit or use a suitable extension.

Connect the vertical flue assembly to the appliance flue spigot using the 100mm clip, gasket & screws (supplied), ensuring the correct seal is made. The flue support bracket (supplied with the vertical flue kit) can now be fitted.

If the vertical flue requires extension/s or additional bend/s, connect the required number of flue extensions or bends (up to the maximum equivalent flue length) between the appliance and vertical flue assembly.

Ensure that any horizontal sections of the flue system have a minimum 1°; maximum 3° fall back to the appliance (1° = 17mm per 1000mm).

#### NOTE

When cutting an extension to the required length, you must ensure that the excess is cut from the plain end of the extension. Remove any burrs, and check that any seals are located properly.

You must ensure that the entire flue system is properly supported and connected.

#### Twin flue system

The Vokèra twin flue system enables greater flue distances to be achieved than that of a concentric flue system. It can be used for horizontal or vertical applications, however the twin flue system must be converted to the dedicated concentric flue kit for termination. It is essential that the installation of the twin flue system be carried out in strict accordance with these instructions.

Total flue length 80	Restrictor required
Up to 1+1 metre	41 mm diameter
From 1+1 to 5+5 metre	43 mm diameter
From 5+5 to 8+8 metre	45 mm diameter
From 8+8 to 14.5+14.5 metre	Not installed

#### Guidance notes on twin flue installation

- The flue must have a fall back of 1° back to the appliance to allow any condensate that forms in the flue system to drain via the condensate drain. Consideration must also be given to the fact that there is the possibility of a small amount of condensate dripping from the terminal.
- Ensure that the entire flue system is adequately supported, use at least one bracket for each extension.
- Extreme care must be taken to ensure that no debris is allowed to enter the flue system at any time.
- As the exhaust outlet pipe can reach very high temperatures it must be protected to prevent persons touching the hot surface.

Bend	Reduction in maximum flue length for each bend	
45° bend	1.2 metre	mt
90° bend	1.7 metre	mt

#### Twin flue accessories

Part No.	Description	Length
20006933	Twin adapter kit	N/A

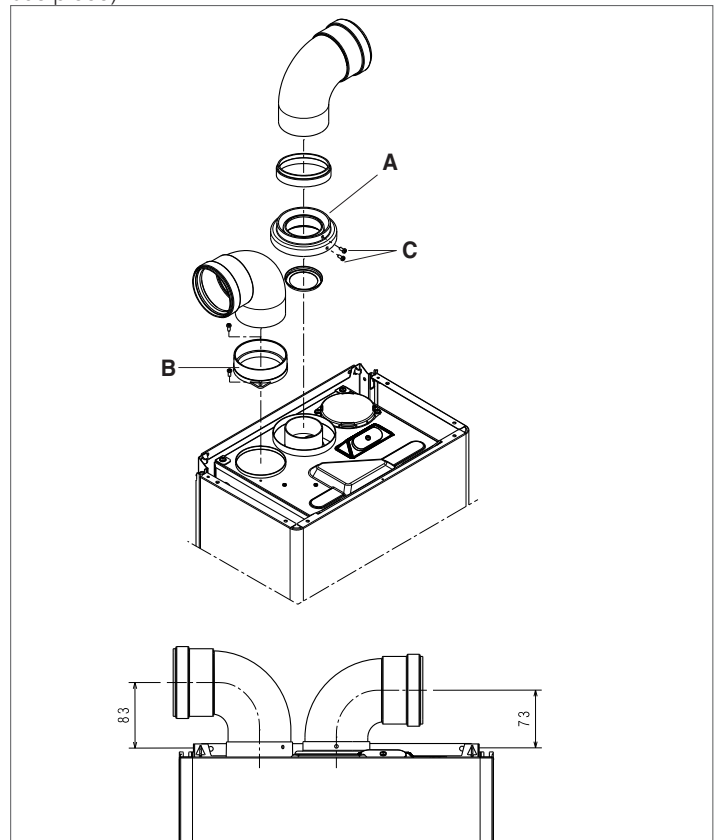
#### Mounting the appliance

The fixing holes for the wall-mounting bracket should now be drilled and plugged, an appropriate type and quantity of fixing should be used to ensure that the bracket is mounted securely. Once the bracket has been secured to the wall, mount the appliance onto the bracket.

#### Installation of twin adaptor kit

- Insert the exhaust connection manifold (A) onto the appliance flue outlet.
- Remove the blanking plate (located to the left of the appliance flue outlet) and – using the same screws – install the air inlet plate (B).
- Using the hole in the exhaust connection manifold as a guide, drill a 3mm hole in the appliance flue spigot and secure the exhaust manifold connection to the flue spigot using the screw provided (C).
- Using the two holes in the air inlet plate as a guide, drill a 3mm hole in each and secure the air inlet pipe/bend using the screws provided.

The twin flue pipes extensions and accessories can now be installed by pushing together (the plain end of each extension or bend should be pushed approximately 50mm into the female socket of the previous piece).



### Horizontal termination

- The twin flue system must be converted to the dedicated concentric flue kit for termination.
- The horizontal terminal is supplied with a built-in converter box and cannot be shortened.
- A 130mm hole is required for the passage of the concentric terminal through the wall.
- The air inlet pipe must always be level with or below, that of the exhaust pipe.

Depending on site conditions it may be preferable to install the terminal assembly prior to fitting the twin flue pipes.

Mark and drill a level 130mm hole for the passage of the horizontal flue terminal. Insert the terminal assembly into the flue hole.

Push-fit the twin flue pipes onto the concentric to twin converter box ensuring that the exhaust pipe connects to the exhaust connection on the concentric to twin converter.

If necessary cut the plain ends (male) of the twin flue pipes to allow connection to the concentric to twin converter.

#### NOTE

Before cutting twin flue pipes ensure allowances have been made for connection onto the previous piece and onto the concentric to twin converter. The last twin flue pipes must be pushed 50mm onto the male spigots of the concentric to twin converter.

#### NOTE

Seal the flue terminal assembly to the wall using cement or a suitable alternative that will provide satisfactory weatherproofing. The interior and exterior trim can now be fitted.

### Vertical termination

The twin flue system must be converted to the dedicated concentric flue kit for termination.

- The vertical terminal is supplied with a built-in converter box and cannot be shortened.
- A 130mm hole is required for the passage of the concentric terminal through the ceiling and/or roof.

Depending on site conditions it may be preferable to install the terminal assembly prior to fitting the twin flue pipes.

Fit the appropriate flashing plate to the roof and insert the vertical flue terminal through the flashing plate from the outside, ensuring that the collar on the flue terminal fits over the flashing.

Push-fit the twin flue pipes onto the concentric to twin converter ensuring that the exhaust pipe connects to the exhaust connection on the concentric to twin converter.

If necessary cut the plain ends (male) of the twin flue pipes to allow connection to the concentric to twin converter.

#### NOTE

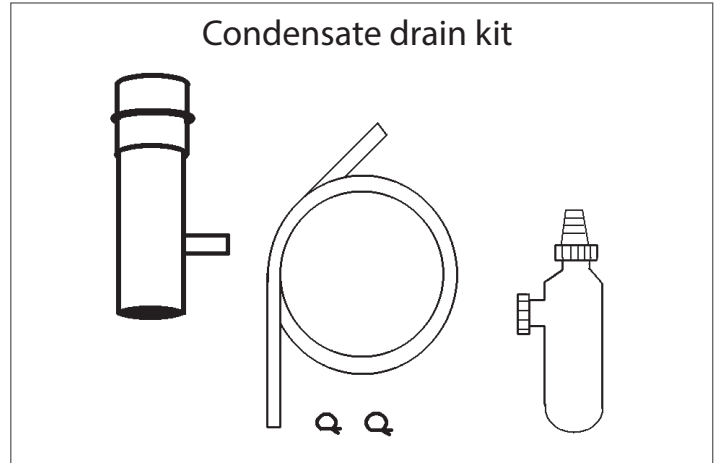
- Before cutting twin flue pipes ensure allowances have been made for connection onto the previous piece and onto the concentric to twin converter. The last twin flue pipes must be pushed 50mm onto the male spigots of the concentric to twin converter.
- You must ensure that the entire flue system is properly supported and connected.
- Ensure that any horizontal sections of pipe have a 1° to 3° fall towards the appliance to allow any condensate that forms in the flue system to drain via the condensate drain. (17mm per 1000mm = 1°).

### Installation of condensate drain kit

The condensate drain kit must be fitted within 1 metre of the appliance flue outlet. It is recommended that the condensate drain kit should be fitted in the vertical plane, however it can be fitted horizontally with care.

- Fit the first bend to the condensate drain kit or exhaust connection manifold by firmly pushing in to position.
- Using the two holes in the exhaust connection manifold as a guide, drill a 3 mm hole in each and secure using the screws provided.
- Connect the air inlet pipe to the air baffle as above.
- The twin flue pipes extensions and accessories can now be installed by pushing together (the plain end of each extension or bend should be pushed approximately 50 mm into the female socket of the previous piece).

The condensate drain trap must be connected to the drain in accordance with building Regulations or other rules in force.



## 4.6 Connecting the gas and water

The appliance is supplied with an accessories pack that contains sealing washers and service valves. The service valves are of the compression type. When connecting pipe work to the valves, tighten the compression end first, then insert the sealing washers before tightening the valve to the appliance.



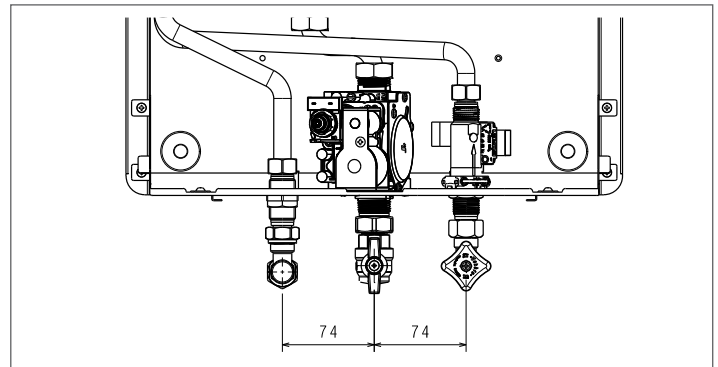
It will be necessary to hold the valve with one spanner whilst tightening with another.

#### GAS

The appliance is supplied with a 15mm service valve, connect a 15mm pipe to the inlet of the valve and tighten both nuts.

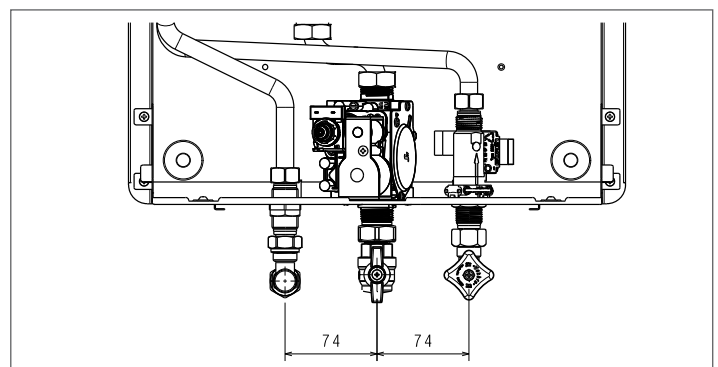


It will be necessary to calculate the diameter of the gas supply pipe to ensure the appliance has an adequate supply of gas.



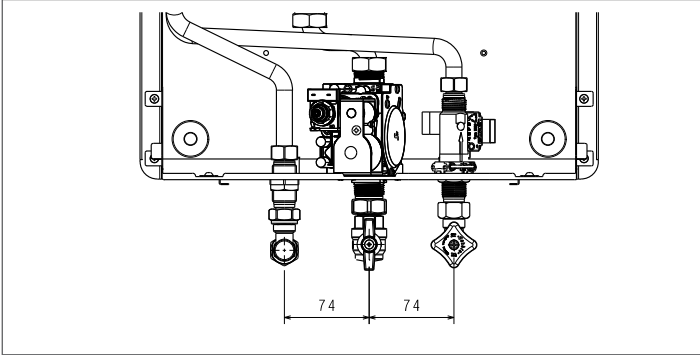
#### COLD INLET

The appliance is supplied with 15mm stopcock for the cold water inlet connection, connect a 15mm pipe to the inlet of the valve and tighten the nut.



## HOT WATER OUTLET

The appliance is supplied with 15mm connector for the hot water outlet connection, connect a 15mm pipe to the outlet of the connector and tighten the nut.



## 4.7 Electrical connections

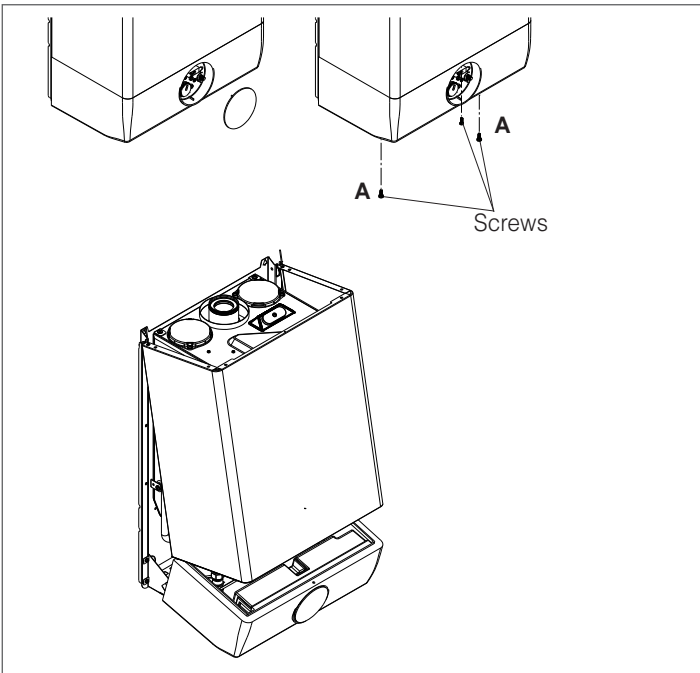
The electrical supply must be as specified in 3.7. The appliance is supplied, pre-wired with a 0,9 metre length of flex, connect the wires as follows:

- connect the Brown wire to the L (Live) terminal of the plug or fused isolator;
- connect the Blue wire to the N (Neutral) terminal of the plug or fused isolator;
- connect the Green/Yellow wire to the E (Earth) terminal of the plug or isolator;
- ensure the plug or fused isolator is fitted with a 3-amp fuse.

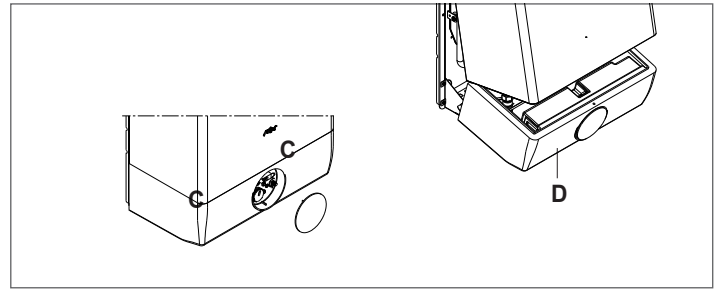
## CASING REMOVAL

To gain internal access to the appliance you must first remove the casing, proceed as outlined below:

- locate and remove the screws A that secure the controls fascia to the appliance casing;
- lift the casing upward to disengage it from the top locating hooks and then remove;



- To open the control fascia remove the screws **C**
- gently lower the control fascia **D** until it rests;
- store the casing and screws safely until required.
- Re-fit in the reverse order.



## 4.8 Withdrawal range graph

The graphs below show the operating range of the appliance's electronic modulation.

Using the temperature selection dial (B), the temperature of the hot water requested can be selected from between the minimum and the maximum.

By turning the dial (B) to an intermediary point, the temperature of the water provided is between the minimum and maximum values that can be selected.

The outer curves in the graphs refer to the temperatures obtained in relation to the water flow rate with the dial (B) set to the minimum or maximum positions.

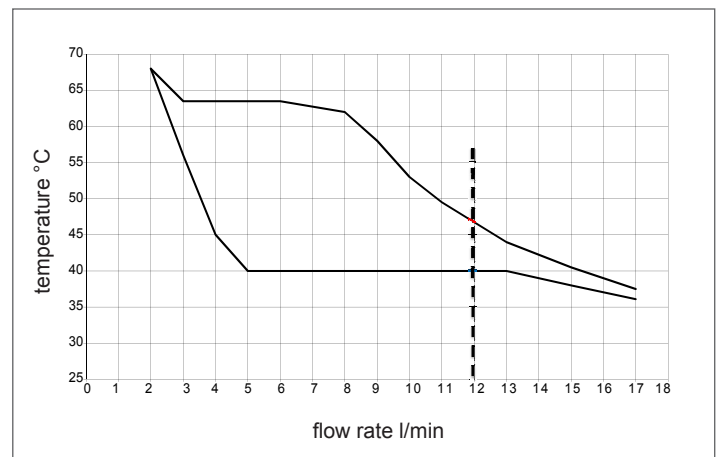
The temperatures shown refer to stable conditions with the cold water supply temperature at  $15 \pm 1^\circ\text{C}$ , with a tolerance of  $\pm 0.5$  l/min of the water flow rate provided and of  $\pm 2^\circ\text{C}$  of the hot water temperature obtained. The temperatures shown in the graph are read at the appliance hot water outlet pipe.

The flow limiter allows the set temperature of the hot water provided to be adjusted at any time, within the specified limits.

As a result, the permitted operating range (with the limiter in position) is that shown by the curves and the dotted vertical line corresponding to the water flow limiter value.

If very little water is withdrawn (around 2-2.5 l/min.) or where the mains water pressure is very low, and with the potentiometer set to the maximum temperature, modulation can no longer control the temperature in an optimal way. As a result, the burner may turn on and off repeatedly with fluctuating variations in temperature.

It is recommended that you lower the requested temperature by a few degrees by turning the dial (B) anticlockwise.





## 5 USER

Your **EASI-FLO** water heater incorporates the very latest gas water heating technology, and if cared for, will give years of reliable use and efficiency.

Please therefore take some time to read these instructions carefully.



When the product reaches the end of its life it should not be disposed of as solid urban waste but should be brought to a separated waste collection facility.

### 5.1 Do's and don't's

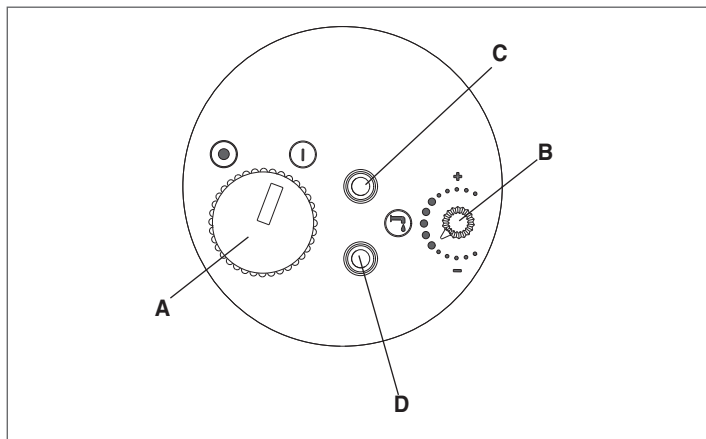
- Do ensure that you know how to isolate the appliance in an emergency
- Do ensure that you are familiar with the appliance controls
- Do ensure that your installer has completed the appliance log book
- Do not attempt to remove the appliance casing or gain internal access
- Do not hang clothes etc. over the appliance
- Do not forget to have the appliance serviced annually

**A** = Selector switch

**B** = Variable Thermostat

**C** = Green LED

**D** = Red LED



### 5.2 Guarantee registration card

Please take the time to fill out your guarantee registration card. The completed warranty card should be posted within 30 days of installation.

### 5.3 Benchmark log book

The **Benchmark Log Book** is supplied with your appliance. This important document must be completed during the installation/commissioning of your appliance. All CORGI Registered Installers carry a CORGI ID card, and have a registration number. Both should be recorded in your Benchmark Log Book. You can check your installer by calling CORGI direct on 01256 372300. Failure to install and commission the appliance in accordance with the manufacturers instructions may invalidate the warranty. This does not affect your statutory rights.

### 5.4 How does it work?

Your **EASI-FLO** water heater is an instantaneous gas water heater that operates to produce hot water whenever a hot water outlet (tap) is opened. The **EASI-FLO** will operate whenever a flow of water, through the appliance is sensed. The **EASI-FLO** lights electronically and does not have a pilot light. In the unlikely event of a fault developing with your appliance, the supply of gas to the burner will be terminated automatically.

### 5.5 Diagnostic fault indicator

In the unlikely event of a fault developing, the **EASI-FLO** displays a unique fault indicator that helps identify where the fault lies.

### 5.6 Led status indicator

The **EASI-FLO** is equipped with 2 led status indicators that gives a visual indication of whether the appliance

### 5.7 Dimensions

Height	640	mm
Width	400	mm
Depth	246	mm

### 5.8 Clearances required

ABOVE	150	mm
BELOW	150	mm
SIDES	50	mm
FRONT	600	mm

### 5.9 Before switching on

Before switching the appliance on, please familiarise yourself with:

- how to isolate the appliance from the gas, water and electricity supplies;
- the appliance controls.

### 5.10 Appliance controls (see fig. 1)

The appliance controls are situated on the front of the appliance. The appliance has a mode switch, variable thermostat. The mode switch has two positions:

- OFF/RESET (⊙)
- ON (Ⓛ)

The variable thermostat allows you to set the outlet temperature between 35°C (min) and 60°C (max), depending on the flow of water.

### 5.11 Lighting the appliance

Ensure the gas and electrical supply to the appliance are switched on. Turn the mode switch to the (Ⓛ) (ON) position. The status indicator should be "green" if the status indicator is flashing "red".

When a hot water outlet (tap) is opened, the appliance will go through an ignition sequence, whereby the burner will light. If the appliance fails to ignite during the ignition sequence, allow a period of two minutes before resetting. To adjust the outlet temperature of the appliance turn the thermostat knob clockwise to increase or anti-clockwise to decrease.

When the appliance reaches the set temperature, the burner will modulate to ensure temperature stability.

### 5.12 Changing the domestic hot water temperature

Turn the temperature control (B) clockwise to increase the temperature of the domestic hot water and anti-clockwise to decrease the temperature of the domestic hot water.

### 5.13 How to reset the appliance

When the led status indicator is flashing red, the appliance will require to be reset manually. Using the mode switch, turn it left to the "⊙" (off/reset position) then turn it back to the (Ⓛ) position.

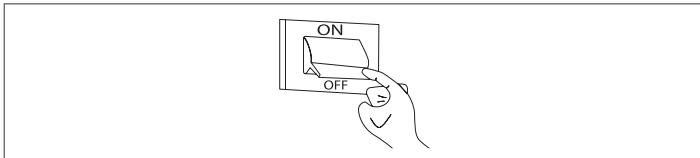
**!** If the appliance requires to be reset frequently, it may be indicative of a fault, please contact your installer or **Vokera** Customer Service for further advice.

## 5.14 Diagnostic indicators

Green LED	Red LED	Status working	Action required
ON for 1 second, OFF for 5 seconds	OFF	No request for hot water	None
ON	OFF	Hot water request	None
OFF	ON	Appliance lockout	Ensure gas is turned on at meter. Wait 2 minutes before resetting
ON	Flashing ON/OFF every 0,5 seconds	Overheating	Allow to cool, if problem persists, call engineer
Flashing ON/OFF every 0,5 seconds	OFF	Internal fault	Call engineer
Flashing ON/OFF every 0,5 seconds	Flashing ON/OFF every 0,5 seconds	Internal fault	Call engineer

## 5.15 How to shut down the system for short periods

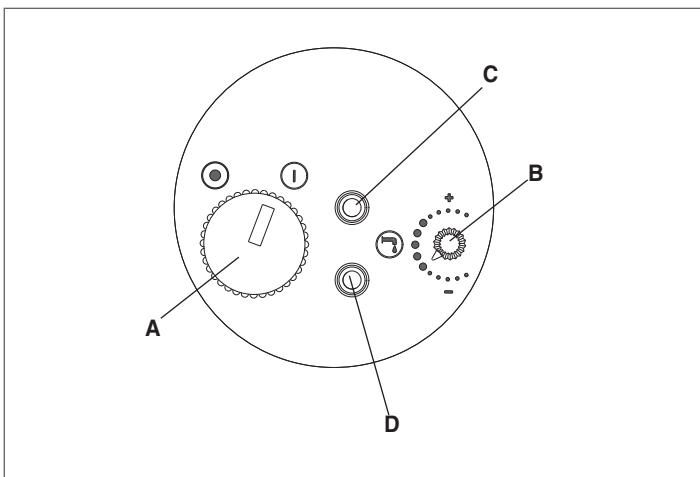
In case of temporary absences for weekends, short trips, etc.: Turn the main dial (A) on the control panel to the "☉" position. Turn the main system dial to "OFF".



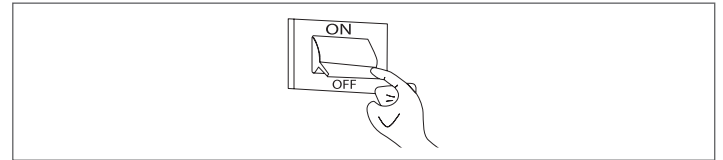
Check that the green light switches off (C).

## 5.16 How to shut down the system for long periods

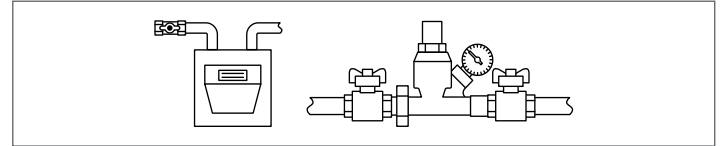
If the appliance is not going to be used for a long period of time: Turn the main dial (A) on the control panel to the "☉" position.



Turn the main system dial to "OFF".



Check that the green light switches off (C). Shut-off the gas valve and water taps.



Empty the system if there is a risk of freezing.

The Technical Support Service is available for advice, should it not be possible to implement the above procedure easily

## 5.17 How to care for the appliance

To clean the outer casing use only a clean damp cloth. Do not use any scourers or abrasive cleaners.

## 5.18 What if i suspect a gas leak

If you suspect a gas leak, turn off the gas supply at the gas meter, and contact your installer or local gas supplier. If you require further advice please contact your nearest Vokera office.

## 5.19 What if the status led is flashing red

If the red led is flashing it indicates that the appliance has developed a problem, when this happens the appliance automatically shuts down and requires to be reset manually.

## 5.20 What if the appliance is due its annual service

### Advice for tenants only

Your landlord should arrange for servicing. Advice for homeowners Please contact **Vokera Customer Services (0844 391 0999 (UK) or 056 7755057 (ROI))** if you would prefer a **Vokera** service engineer or agent to service your appliance. Alternatively your local CORGI registered engineer may be able to service the appliance for you.

## 5.21 What if i need to call an engineer

If you think your appliance may have developed fault, please contact your installer or **Vokera Customer Services (0844 391 0999 (UK) or 056 7755057 (ROI))** have all your details to hand including full address and postcode, relevant contact numbers, and your completed appliance log book.



## 6 COMMISSIONING

### 6.1 Gas supply installation

Inspect the entire installation including the gas meter, test for soundness and purge. Refer to BS 6891 for specific instruction.

### 6.2 Water pipe work

The water pipe work shall be flushed and tested in accordance with the Water Supply (water fittings) Regulations (Water Byelaws Scotland).

### 6.3 Pre-operation checks

Before attempting the initial lighting of the appliance, the following checks must be carried out:

- ensure all gas service valves from the meter to the appliance are open and the supply pipe has been properly purged;
- ensure the proper electrical checks have been carried out (see 8.6 FAULT CODES), particularly continuity, polarity and resistance to earth;
- ensure the 3 amp fuse – supplied with the appliance – has been fitted;
- ensure the appliance and associated pipe work has been filled and vented;
- ensure the flue system has been fitted properly and in accordance with the instructions;
- ensure all appliance service valves are open.

### 6.4 Initial lighting

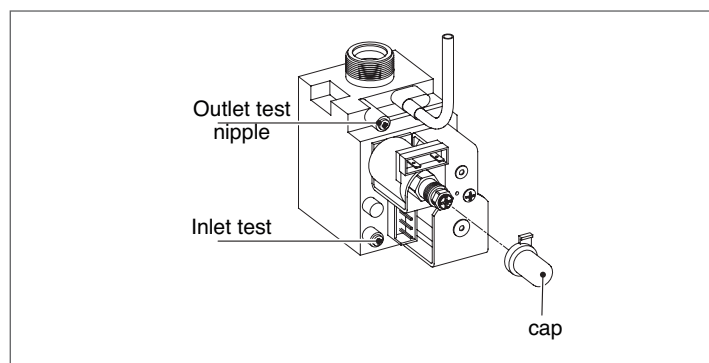
Ensure the electrical supply to the appliance is switched on. Turn the selector knob to the 'on' position. Open a hot water outlet (preferably a bath tap) and ensure the flow rate exceeds 2 litres per minute.

The appliance will now go through an ignition sequence as described in 3.3 MODE OF OPERATION. Should the appliance fail to ignite, refer to 6.3 PRE-OPERATION CHECKS and/or section 8 CHECKS, ADJUSTMENTS, AND FAULT FINDING.

### 6.5 Checking the burner pressure

Although the burner pressure is factory set, it is necessary to check it during commissioning.

Isolate the appliance from the electrical supply and attach a suitable manometer to the gas valve outlet test nipple.



Light the appliance as described in 6.4 INITIAL LIGHTING and compare the reading on the manometer with the values described in 2.2 TECHNICAL DATA. If adjustment is required, follow the detailed instructions in section 8.3 CHECKING AND ADJUSTING BURNER PRESSURE. Once the burner pressure has been checked, isolate the appliance from the electrical supply, remove the manometer, and tighten the gas valve outlet test nipple.

### 6.6 Setting the outlet temperature

The hot water outlet temperature can be adjusted between 35°C - 60°C via the thermostat knob.

### 6.7 Final checks

- ⚠ Ensure all test nipples on the appliance gas valve are tight and checked for tightness.
- ⚠ Ensure the appliance flue system is fitted correctly and is properly secured.
- ⚠ Ensure all pipe work is re-checked for tightness.
- ⚠ Re-fit appliance casing.
- ⚠ Complete benchmark checklist. For uk only

Complete details of the appliance, controls, installation and commissioning in the Benchmark checklist at the back of this book. It is important that the Benchmark checklist is correctly completed and handed to the user. Failure to install and commission the appliance to the manufacturers instructions will invalidate the warranty.

### 6.8 Instructing the user

Hand over all documentation supplied with this appliance – including these instructions – and explain the importance of keeping them in a safe place.

Explain to the user how to isolate the appliance from the gas, water and electricity supplies, and the locations of all drain points.

Show the user how to operate the appliance and its controls correctly. Explain to the user how to turn off the appliance for both long and short periods, and advise on the necessary precautions to prevent frost damage.

Explain to the user that for continued safe and efficient operation, the appliance must be serviced annually by a competent person.

## 7 SERVICING

### 7.1 General

Once the appliance has been serviced, the benchmark Service Record must be completed. For UK only: It is important that the Benchmark Service Record is correctly completed and handed to the user. Failure to install and commission the appliance to the manufacturers instructions will invalidate the warranty. To ensure the continued safe and efficient operation of the appliance, it is recommended that it is checked and serviced at regular intervals. The frequency of servicing will depend upon the particular installation conditions, but in general, once per year should be adequate.

It is the law that any servicing work is carried out by competent person such as a **Vokera** engineer, an approved service agent, British Gas, or other CORGI registered personnel.

The following instructions apply to the appliance, but it should be remembered that the domestic hot water system will also require attention from time to time.

### 7.2 Routine annual servicing

- Check the operation of the appliance and ensure it functions as described in section 8 CHECKS, ADJUSTMENTS, AND FAULT FINDING.
- Compare the performance of the appliance with its design specification. The cause of any noticeable deterioration should be identified and rectified without delay.
- Thoroughly inspect the appliance for signs of damage or deterioration especially the flue system and the electrical apparatus.
- Check and adjust – if necessary – all burner pressure settings (see 8.3 CHECKING AND ADJUSTING BURNER).
- Carry out an analysis of the flue gases (see 8.4 EXTERNAL FAULTS), and visually check the condition of the entire flue assembly.
- Compare the results with the appliance design specification. Any deterioration in performance must be identified and rectified without delay.
- Ensure both flue venturis are clean and free from any debris or obstruction.
- Ensure both the burner and heat exchanger are clean and free from any debris or obstruction.
- Inspect all joints for signs of leakage and repair if necessary.
- Refer to the commissioning section and/or replacement of parts section for detailed instruction if required.


### 7.3 Replacement of components

Although it is anticipated that this appliance will give years of reliable, trouble free service, the life span of components will be determined by factors such as operating conditions and usage. Should the appliance develop a fault, the fault finding section will assist in determining which component is malfunctioning.

### 7.4 Component removal procedure

To remove a component, access to the interior of the appliance is essential. Isolate the appliance from the electrical supply and remove the fuse. And when necessary, close all service valves on the appliance, remove the appliance casing as described in section 4.7. CASING REMOVAL. Drain the water content from the appliance via an outlet or appropriate drain point. Ensure some water absorbent cloths are available to catch any residual water that may drip from the appliance or removed component.

Undertake a complete commissioning check as detailed in section 9 COMMISSIONING, after replacing any component.

 Always test for gas soundness if any gas carrying components have been removed or disturbed.

### 7.5 High limit thermostat

Carry out component removal procedure as described in 7.4 COMPONENT REMOVAL PROCEDURE. Locate and remove the ten screws that secure the air chamber cover.

Remove the air chamber cover.

Pull off electrical connections from the high limit thermostat, slacken and remove retaining screws.

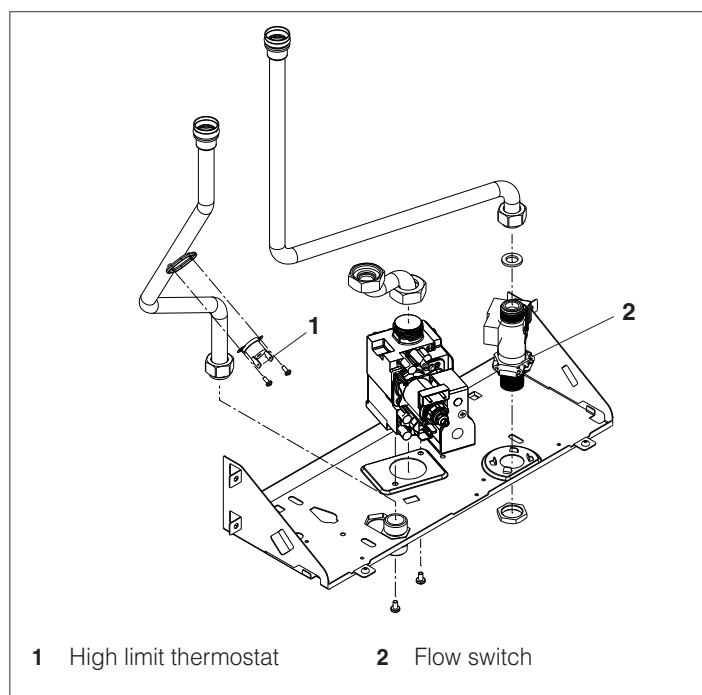
Replace in the reverse order.

### 7.6 Flow switch

Carry out component removal procedure as described in 7.4 COMPONENT REMOVAL PROCEDURE.

Remove the appliance casing as described in 4.7. CASING REMOVAL. Disconnect the cold water inlet pipe from the bottom connection of the flow switch.

Disconnect the outlet pipe from the top connection of the flow switch. Detach the electrical plug/wires from the flow switch. Slacken and remove the lock-nut that secures the flow switch to the lower frame. Replace in the reverse order.



### PRINTED CIRCUIT BOARD (PCB)

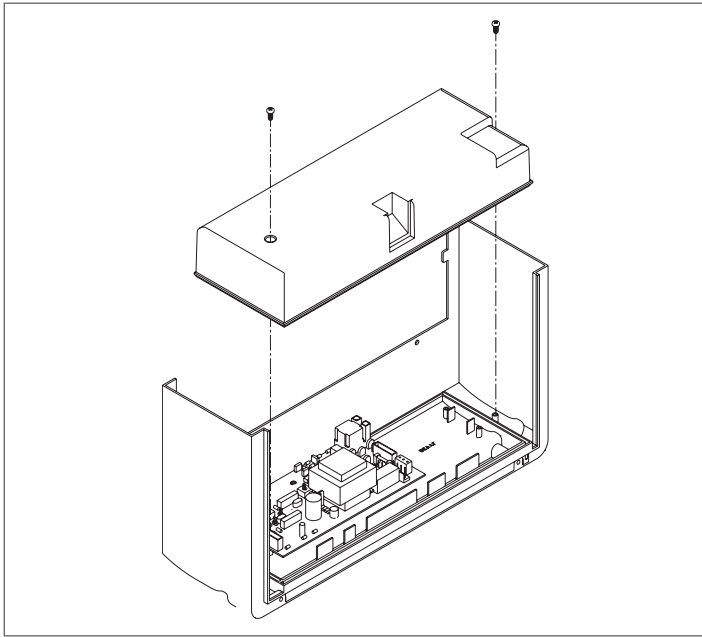
Carry out component removal procedure as described in 7.4 COMPONENT REMOVAL PROCEDURE.

Remove the appliance casing as described in 4.7. CASING REMOVAL. Carefully slide out the control panel until the lugs on the lower right and left side of the panel are free from the slots on the appliance frame.

Remove the electrode lead from its clip on the PCB housing.

Locate and remove the two screws which secure the PCB cover & terminal cover, then remove cover, after carefully taking note of all wiring connections, disconnect all wiring from the PCB, locate and remove the PCB securing screws, remove PCB.

Replace in the reverse order.



**⚠** Ensure that the replacement PCB has the correct “Jumper Tag” configuration (see section 2.4 EXTERNAL WIRING).

### 7.7 Burner

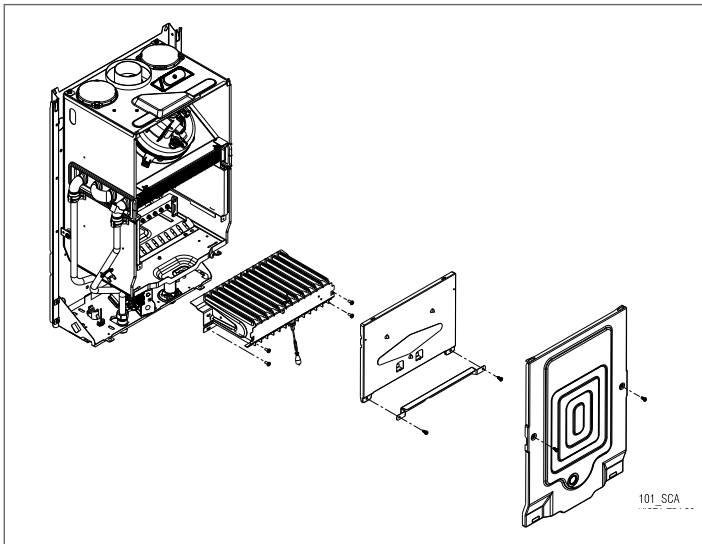
Carry out component removal procedure as described in 7.4 COMPONENT REMOVAL PROCEDURE.

Unscrew and remove the air box front cover.

Locate and remove the six screws around the inner combustion cover and remove.

Disconnect the spark plug cable connection, slide off the lower cable grommet from the seat of the air distribution box, remove the burner fixing screws and remove with the spark plug attached and corresponding cables.

Replace in the reverse order.

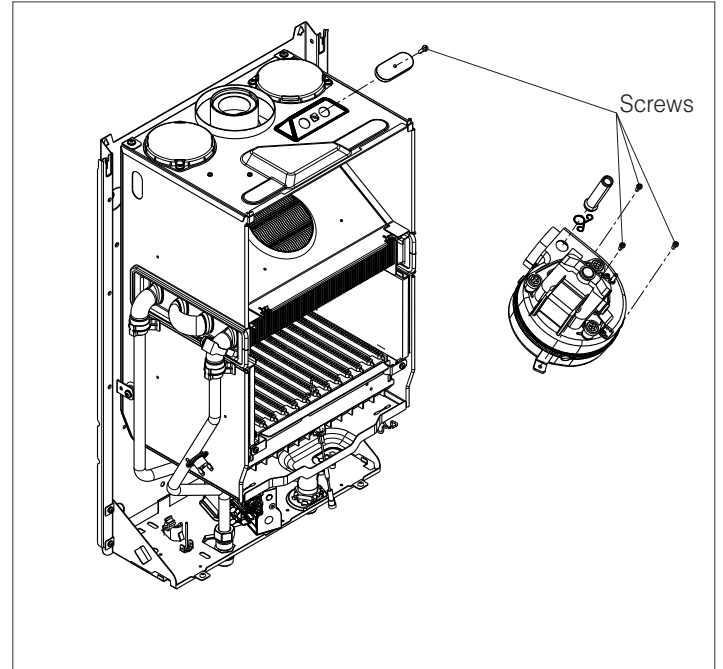


### 7.8 Flue fan

Carry out component removal procedure as described in 7.4 COMPONENT REMOVAL PROCEDURE.

Remove the appliance casing as described in 4.7 COMPONENT REMOVAL PROCEDURE. Locate and remove the screws that secure the air chamber cover. Remove the air chamber cover.

Locate and remove the screws that secure the flue assembly. Disconnect the electrical connections and silicone tubes attached to the fan, noting their positions. Disconnect the maintenance clip that secures the flue outlet pipe to the fan, ease the fan & flue hood assembly from its location. Locate and remove the screws that secure the fan to the flue hood. Remove the fan to flue elbow. Replace in the reverse order. Ensure all seals are in good condition, taking care to ensure they are replaced correctly.



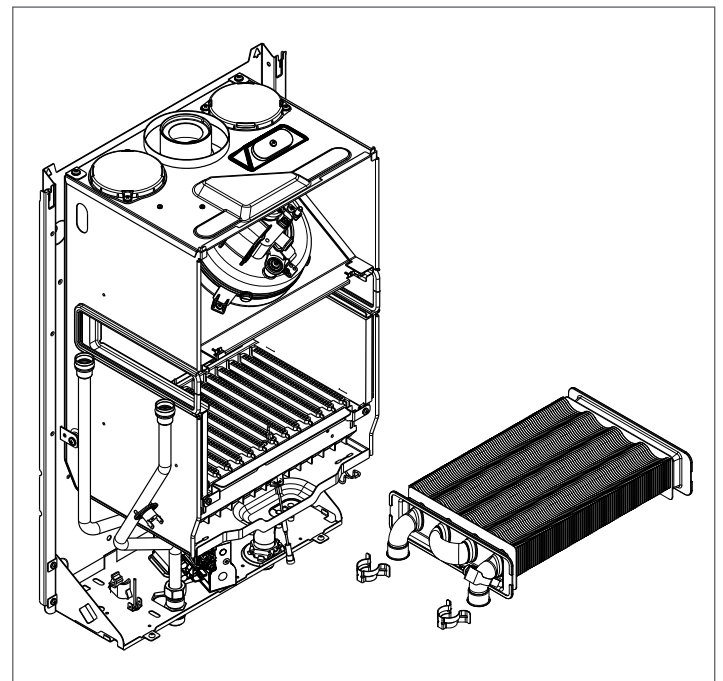
### 7.9 Heat exchanger

Carry out component removal procedure as described in 7.4 COMPONENT REMOVAL PROCEDURE.

Unscrew and remove the air chamber front cover.

Locate and remove the six screws around the inner combustion cover and remove. Remove locking pins and disconnect the pipes, from the flow and return connections on the heat exchanger.

Disconnect the electrical plugs from the primary thermistor, the heat exchanger can now be withdrawn from the appliance. Replace in the reverse order. Ensure all seals are in good condition, taking care to ensure they are replaced correctly.




## 8 CHECKS, ADJUSTMENTS, AND FAULT FINDING


### 8.1 Checking appliance operation

When carrying out any repairs or servicing to the appliance, the relevant commissioning procedure must be undertaken to ensure the continued safe operation of the appliance. Particular attention should be made to ensure gas soundness, water soundness, and the electrical integrity of the appliance.

### 8.2 Appliance mode of operation

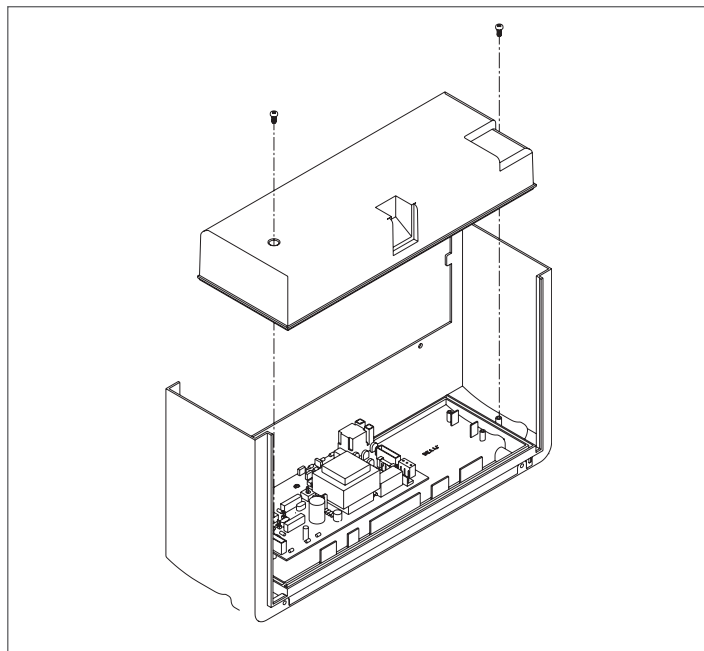
When there is a request for hot water via a hot water outlet or tap, the water flow switch senses water movement thereby energising the fan.

 There must be sufficient inlet water pressure and flow (min. 0,15 bar/ 2 lpm) to ensure the water flow switch is activated. If there is insufficient pressure and/or flow, the appliance will be prevented from operating. When the fan runs, it proves the differential air pressure switch which in-turn allows an ignition sequence to begin.

 The ignition sequence lasts approximately 7 seconds, during which the appliance will continue to spark even if the burner has already lit. If the spark/sensing electrode does not sense ignition the appliance will then go to lockout. Ignition is sensed by the electronic circuitry to ensure flame stability at the burner. Once successful ignition has been achieved, the electronic circuitry allows the full gas rate through the appliance. When the appliance reaches the desired temperature the burner will modulate to maintain the set temperature. Should the temperature continue to rise the burner will shut off when the maximum operating temperature is attained. When the request for heat and/or hot water has been satisfied, the fan may continue to operate to dissipate any residual heat within the appliance.


### 8.3 Checking and adjusting burner pressure

Although the burner pressure is factory set, it is necessary to check it during servicing or if the gas valve has been removed. Isolate the appliance from the electrical supply and attach a suitable manometer to the gas valve outlet test nipple.




#### SETTING THE MAXIMUM BURNER PRESSURE

Light the appliance as described in 6.6 SETTING THE OUTLET TEMPERATURE and compare the reading on the manometer with the value described in 2.2 TECHNICAL DATA. If adjustment is required, remove the protective cap from the gas valve modulating coil assembly and turn the outer (10mm) nut clockwise to increase, or counter-clockwise to decrease the burner pressure.

 You should ensure that one or two hot water outlets are fully open during the above procedure. This will ensure that the output of the appliance (burner pressure) is not compromised due to a high outlet temperature.

#### SETTING THE MINIMUM BURNER PRESSURE

Once the maximum burner pressure has been checked and/or adjusted, remove one of the grey wires from the modulating coil. Compare the reading on the manometer with the value described in 2.2 TECHNICAL DATA. If adjustment is required, turn the inner (red) cross-head screw clockwise to increase, or counter-clockwise to decrease the burner pressure, whilst ensuring that the outer (10mm) nut does not move. When checking and/or adjustment has been completed, isolate the appliance from the electrical supply, replace the protective cap, refit the grey wire to the modulating coil, remove the manometer, and tighten the outlet test nipple.

 A gas soundness check must be carried out.

## 8.4 External faults

Before carrying out any fault-finding or component replacement, ensure the fault is not attributable to any aspect of the installation.

### INSTALLATION FAULTS

Symptom	Possible causes
No ignition	Check external wiring. Check cold supply is connected to cold inlet.
Poor hot water	Check gas supply. Check adjust flow rate.
Unstable flame picture	Check flue system.

## 8.5 Electrical checks

Any electrical checks must be carried out by a suitably qualified person.


### EARTH CONTINUITY TEST

Isolate the appliance from the electrical supply, and using a suitable multi-meter carry out a resistance test. Connect test leads between an appliance earth point and the earth wire of the appliance supply cable. The resistance should be less than 1 ohm. If the resistance is greater than 1 ohm check all earth wires and connectors for continuity and integrity.

### SHORT CIRCUIT CHECK

Isolate the appliance from the electrical supply, and using a suitable multi-meter, carry out a short circuit test between the Live & Neutral connections at the appliance.

Repeat above test on the Live & Earth connections at the appliance term.

 Should it be found that the fuse has failed but no fault is indicated, a detailed continuity check will be required to trace the fault. A visual inspection of components may also assist in locating the fault.

### POLARITY CHECK

With the appliance connected to the electrical supply and using a suitable multi-meter, carry out the following voltage tests:

- connect test leads between the Live & Neutral connections at the appliance. The meter should read approximately 230V ac. If so proceed to next stage. If not, see 8.5 REVERSED POLARITY OR SUPPLY FAULT

- connect test leads between the Live & Earth connections at the appliance. The meter should read approximately 230V ac. If so proceed to next stage. If not, see 8.5. REVERSED POLARITY OR SUPPLY FAULT

- Connect test leads between the Neutral & Earth connections at the appliance. The meter should read approximately 0 – 15Vac. If so polarity is correct. If not, see 8.5. REVERSED POLARITY OR SUPPLY FAULT

### REVERSED POLARITY OR SUPPLY FAULT

Repeat the above tests at the appliance isolator, if testing reveals correct polarity and/or supply at the isolator, re-check wiring and connections between the isolator and the appliance. If tests on the isolator also reveal reversed polarity or a supply fault, consult the local electricity supplier for advice.

### RESISTANCE TO EARTH CHECK

Isolate the appliance from the electrical supply, and using a suitable multi-meter carry out a resistance test. Connect test leads between the Live & Earth connections at the appliance. If the meter reads other than infinity there is a fault that must be isolated, carry out a detailed continuity check to identify the location of the fault.



These series of checks must be carried out before attempting any fault-finding procedures on the appliance. On completion of any task that required the disconnection and re-connection of any electrical wiring or component, these checks must be repeated.

## 8.6 Fault finding

Before attempting any fault-finding, the electrical checks as detailed in 8.5 ELECTRICAL CHECKS must be carried out.

Isolate the appliance from the electrical supply and remove the casing and PCB cover.

Restore the electrical supply to the appliance, turn the selector switch to the “on” position, and open a hot water outlet. The appliance should now function as described in section 8.2 APPLIANCE MODE OF OPERATION. Should the appliance fail to respond, the internal fuse and connectors should be checked to ensure integrity and continuity. If the appliance still fails to respond, refer to the detailed fault-finding flowcharts overleaf.

## 8.7 Fault codes:

Status water heater	Green LED	Red LED	Status working
OFF	Flashing ON 1 SEC OFF 5 SEC	OFF	SWITCHED OFF
ON	Flashing ON 1 SEC OFF 5 SEC	OFF	SWITCHED ON
ON	ON	OFF	DHW REQUEST
ON	OFF	ON	FLAME LOCKOUT
ON	OFF	Flashing ON 0,5 SEC OFF 0,5 SEC	LIMIT THERMOSTAT ON
ON	Flashing ON 0,5 SEC OFF 0,5 SEC	Spento	AIR PRESSURE SWITCH “OPEN”
ON	Flashing ON 0,5 SEC OFF 0,5 SEC	Flashing ON 0,5 SEC OFF 0,5 SEC	NTC THERMISTOR FAULT



## 9 L.P.G. INSTRUCTIONS

TECHNICAL DATA	G30	G31	
Inlet pressure (LPG)	28-30	37	mbar
Maximum burner pressure	28,00	36,00	mbar
Minimum burner pressure	3,60	4,80	mbar
Gas rate	2,36	2,33	Sm <sup>3</sup> /h
Injector size	13 x 0,78	13 x 0,78	mm

RELATED DOCUMENTS		
BS 5440	PART 2	Flues
BS 5440	PART 1	Flues & ventilation
BS 5546	PART 1	Installation of gas hot water supplies for domestic purposes
BS 6891		Low pressure installation pipes
BS 5482		Domestic butane & propane gas burners in permanent dwellings

### 9.1 Gas supply

The gas supply must be connected to the appliance by a competent LPG installer and must be of sufficient size to supply the appliance at its maximum output.

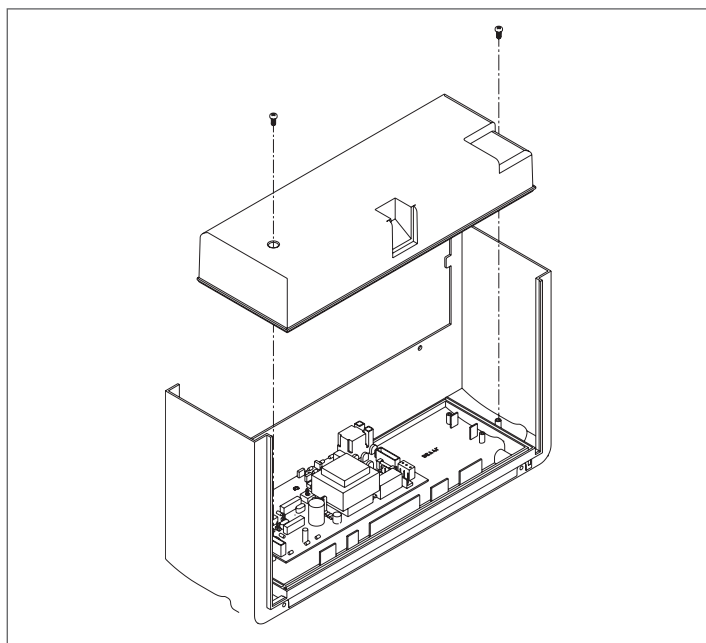
An existing supply must be checked to ensure that it is of adequate size to deal with the maximum rated input of this and any other appliances that it serves.

### 9.2 Gas supply installation

The entire installation, including the meter, must be purged and checked for gas soundness.


### 9.3 Checking and adjusting burner pressure

Although the burner pressure is factory set, it is necessary to check it during servicing or if the gas valve has been removed. Isolate the appliance from the electrical supply and attach a suitable manometer to the gas valve outlet test nipple.




#### SETTING THE MAXIMUM BURNER PRESSURE

Light the appliance as described in 6.6 and compare the reading on the manometer with the value described in 2.2 TECHNICAL DATA. If adjustment is required, remove the protective cap from the gas valve modulating coil assembly and turn the outer (10mm) nut clockwise to increase, or counterclockwise to decrease the burner pressure.

 You should ensure that one or two outlets are open during the above procedure. This will ensure that the output of the appliance (burner pressure) is not compromised due to a high outlet temperature.

#### SETTING THE MINIMUM BURNER PRESSURE

Once the maximum burner pressure has been checked and/or adjusted, remove one of the grey wires from the modulating coil. Compare the reading on the manometer with the value described in 2.2 TECHNICAL DATA. If adjustment is required, turn the inner (red) cross-head screw clockwise to increase, or counter-clockwise to decrease the burner pressure, whilst ensuring that the outer (10mm) nut does not move. When checking and/or adjustment has been completed, isolate the appliance from the electrical supply, replace the protective cap, refit the grey wire to the modulating coil, remove the manometer, and tighten the outlet test nipple.

 Important, a gas important, a gas soundness check must be carried out.

## 10 GAS TRANSFORMATION

### 10.1 Gas conversion

Converting gas from one form to another can be done easily, even with the appliance already installed.

**!** This should be done exclusively by professionals qualified and authorised according to the regulations in force.

The appliance is supplied to operate with methane gas (G20) or LPG (G30/G31), according to the indications on the product data plate.

The appliance can be converted from one type of gas to another using one of the specific kits provided on request.

- methane conversion kit
- LPG conversion kit.

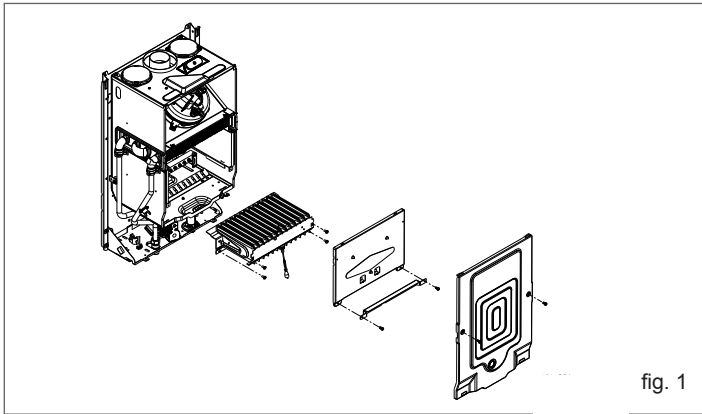


fig. 1

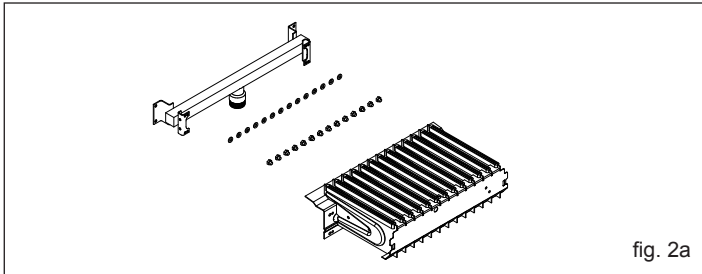


fig. 2a

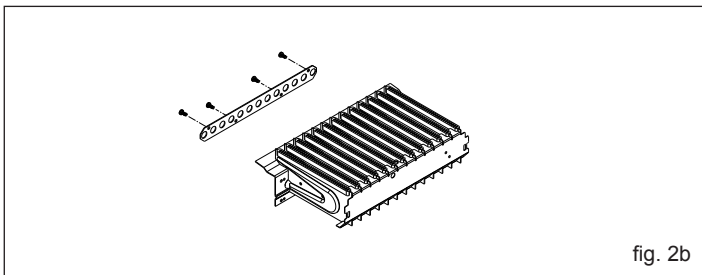


fig. 2b

To disassemble:

- disconnect the appliance from the mains and shut off the gas valve
- remove in this order: the casing, air tank cover and combustion chamber cover (fig. 1)
- disconnect the spark plug cable
- unthread the lower cable gland from the air tank seat
- remove the burner screws and then the burner with the spark plug attached and the relative cables (fig. 1)
- use a box spanner or a wrench to remove the nozzles and the washers. Replace with those in the kit (fig. 2a).

**!** Use and fit the washers in the kit even in the case of collectors without washers.

In the case of gas conversion from natural gas to LPG, secure the burner flange contained in the kit using the screws (fig. 2b)

in the case of gas conversion from LPG to natural gas, remove the burner flange (fig. 2b)

- reinsert the burner in the combustion chamber and tighten the screws to fix it to the gas collector
- position the cable gland with the spark plug cable in its seat on the air tank
- reconnect the spark plug cable
- refit the combustion chamber cover and the air tank cover
- to access the circuit board, open the instrument panel, following the instructions contained in paragraph 6.1
- on the control board (fig. 3):
- if converting from methane gas to LPG, insert the jumper in position JP1
- if converting from LPG to methane gas, remove the jumper from position JP1

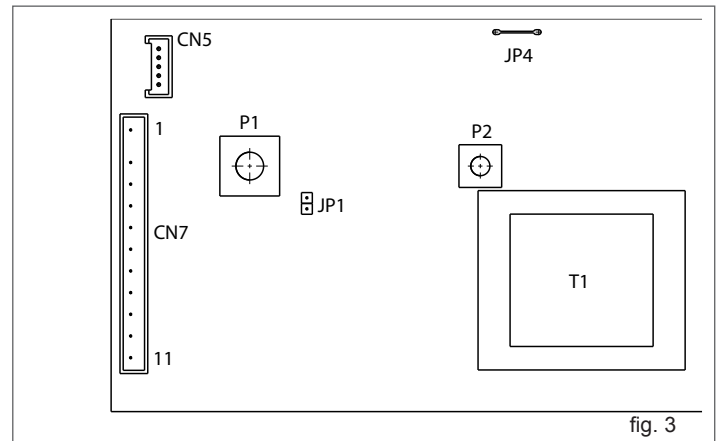


fig. 3

- reposition the components previously removed
- reconnect the appliance to the mains and turn on the gas valve (with the appliance in operation, check the gas supply circuit seals).

**!** Once conversion is complete, set the appliance as detailed in the relevant section of this manual and attach the new data ID plate contained in the kit.

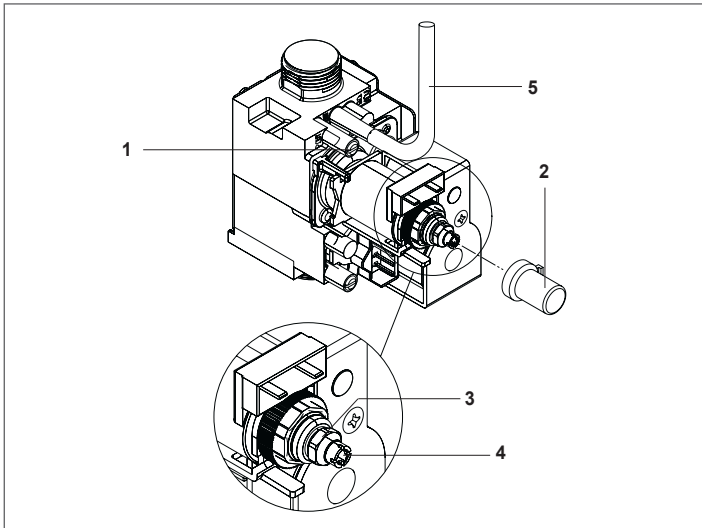
### 10.2 Adjustments

The appliance has already been factory set by the manufacturer. However, should it need to be readjusted, for example after non-scheduled maintenance, replacing the gas valve or gas conversion, proceed as described below.

**!** Adjustments to maximum power must be performed in the indicated sequence and only by qualified technicians.

- Remove the casing by loosening the screws holding it in place(A).
- Loosen the pressure tapping point screw (1) located downstream of the gas valve by approximately two turns and connect a pressure gauge there.
- Disconnect the compensation inlet (5) from the gas valve.
- Remove the protective cap (2).
- Turn a water tap on fully, bring the temperature selector to the maximum and connect the appliance to a power supply.





**Setting to the maximum value:**

Screw the nut (3) fully until obtaining the gas pressure shown in the table.

Maximum gas pressure at nozzles		
<b>G20</b>	11,30	mbar
	115,23	mm. C.A.
<b>G30</b>	28,0	mbar
	285,52	mm. C.A.
<b>G31</b>	36,00	mbar
	367,10	mm. C.A.

**Setting to the minimum value:**

disconnect one of the two electrical cables from the coil or unscrew the hex head socket screw (4) to adjust the minimum until obtaining the gas pressure value shown in the table refit the protective cap (2).

Minimum gas pressure at nozzles		
<b>G20</b>	1,60	mbar
	16,32	mm. C.A.
<b>G30</b>	3,60	mbar
	36,71	mm. C.A.
<b>G31</b>	4,80	mbar
	48,59	mm. C.A.

- Reconnect the compensation inlet to the gas valve (5).
- Disconnect the pressure gauge and retighten the pressure tapping point screw (1).

**⚠** Please remember that for operation with LPG, a gas pressure regulator at the appliance power supply is required, set to 28-30 mbar if operating with butane and 37 mbar for propane.

# COMMISSIONING: CO AND COMBUSTION RATIO CHECK

## BEFORE CO AND COMBUSTION RATIO CHECK

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

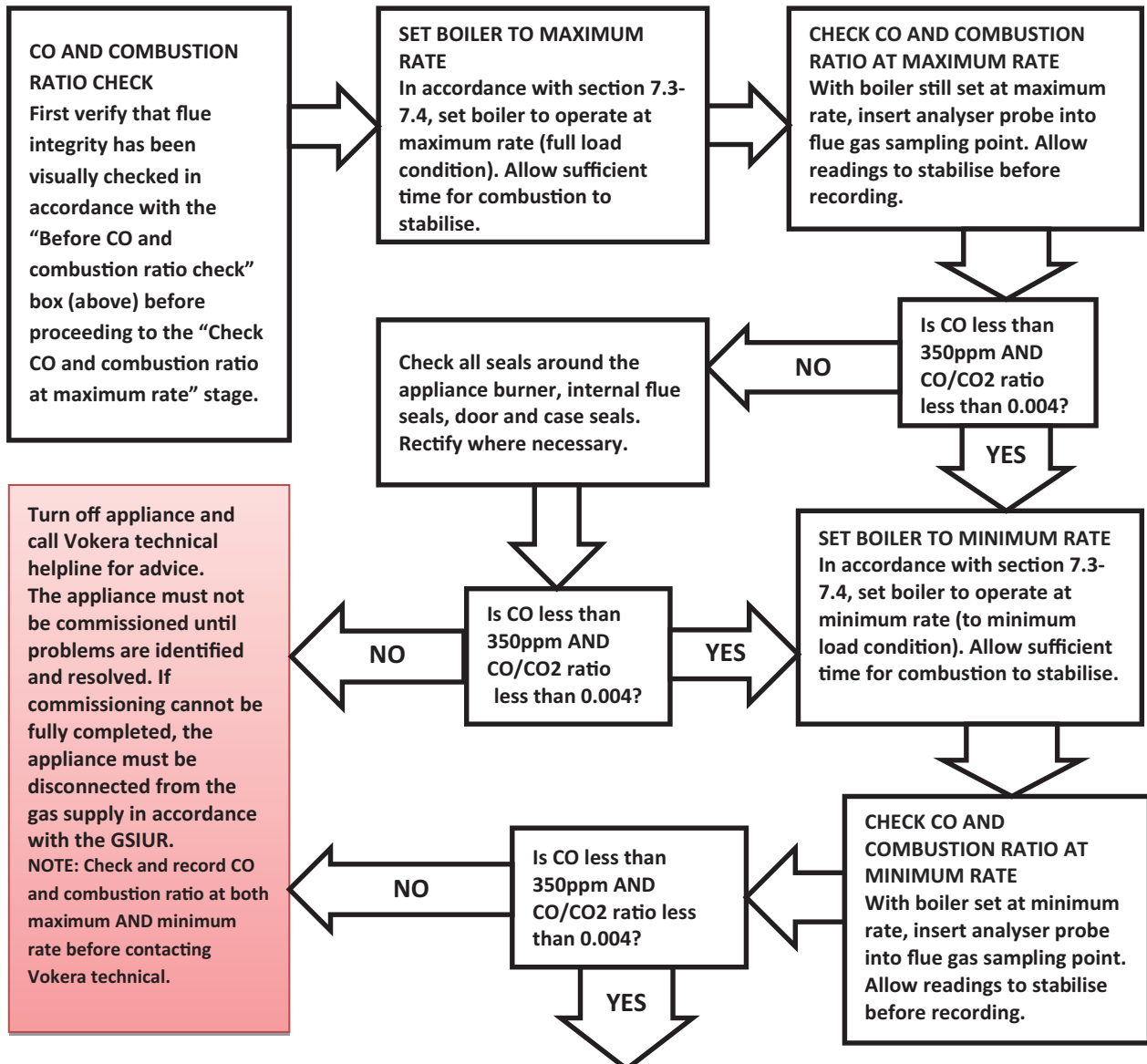
As part of the installation process, **ESPECIALLY WHERE A FLUE HAS BEEN FITTED BY PERSONS OTHER THAN THE BOILER INSTALLER**, visually check the integrity of the whole flue system to confirm that all components are correctly assembled, fixed and supported. Check that the maximum flue lengths have not been exceeded and all guidance has been followed (e.g. Technical Bulletin 008).

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

Before use, the flue gas analyser should have been maintained and calibrated as specified by the manufacturer. The installer must have the relevant competence for use of the analyser. Check and zero the analyser **IN FRESH AIR**, as per analyser manufacturer's instructions.

## NOTE

The air/gas ratio valve is factory-set and must not be adjusted during commissioning unless this action is recommended, following contact with Vokera technical. If any such adjustment is recommended and further checking of the boiler is required, the engineer must be competent to carry out this work and to use the flue gas analyser accordingly. If the boiler requires conversion to operate with a different gas family (e.g., conversion from natural gas to LPG) separate guidance will be provided by Vokera technical and must be followed.



**Boiler is operating satisfactorily**  
No further actions required.

Ensure test points are capped, boiler case is correctly replaced and all other commissioning procedures are completed. Complete Benchmark Checklist, recording CO and combustion ratio readings as required.

# Benchmark Commissioning and Servicing Section

It is a requirement that the boiler is installed and commissioned to the manufacturers instructions and the data fields on the commissioning checklist completed in full.

To instigate the boiler guarantee the boiler needs to be registered with the manufacturer within one month of the installation.

To maintain the boiler guarantee it is essential that the boiler is serviced annually by a Gas Safe registered engineer who has been trained on the boiler installed. The service details should be recorded on the Benchmark Service Interval Record and left with the householder.



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# 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:				
<b>To be completed by the customer on receipt of a Building Regulations Compliance Certificate*</b>								
Building Regulations Notification Number (if applicable):								
<b>CONTROLS</b> (tick the appropriate boxes)								
Time and temperature control to heating	Room thermostat and programmer/timer	<input type="checkbox"/>	Programmable room thermostat	<input type="checkbox"/>				
	Load/weather compensation	<input type="checkbox"/>	Optimum start control	<input type="checkbox"/>				
Time and temperature control to hot water	Cylinder thermostat and programmer/timer	<input type="checkbox"/>	Combination Boiler	<input type="checkbox"/>				
Heating zone valves	Fitted	<input type="checkbox"/>	Not required	<input type="checkbox"/>				
Hot water zone valves	Fitted	<input type="checkbox"/>	Not required	<input type="checkbox"/>				
Thermostatic radiator valves	Fitted	<input type="checkbox"/>	Not required	<input type="checkbox"/>				
Automatic bypass to system	Fitted	<input type="checkbox"/>	Not required	<input type="checkbox"/>				
Boiler interlock			Provided	<input type="checkbox"/>				
<b>ALL SYSTEMS</b>								
The system has been flushed and cleaned in accordance with BS7593 and boiler manufacturer's instructions							Yes	<input type="checkbox"/>
What system cleaner was used?								
What inhibitor was used?							Quantity	litres
Has a primary water system filter been installed?							Yes	No
<b>CENTRAL HEATING MODE</b> measure and record:								
Gas rate	m <sup>3</sup> /hr	<input type="text"/>	<b>OR</b>	ft <sup>3</sup> /hr	<input type="text"/>			
Burner operating pressure (if applicable)	mbar	<input type="text"/>	<b>OR Gas inlet pressure</b>	mbar	<input type="text"/>			
Central heating flow temperature					°C			
Central heating return temperature					°C			
<b>COMBINATION BOILERS ONLY</b>								
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?								
<b>DOMESTIC HOT WATER MODE</b> Measure and Record:								
Gas rate	m <sup>3</sup> /hr	<input type="text"/>	<b>OR</b>	ft <sup>3</sup> /hr	<input type="text"/>			
Burner operating pressure (at maximum rate)	mbar	<input type="text"/>	<b>OR Gas inlet pressure at maximum rate</b>	mbar	<input type="text"/>			
Cold water inlet temperature					°C			
Hot water has been checked at all outlets							Yes	Temperature
Water flow rate					l/min			
<b>CONDENSING BOILERS ONLY</b>								
The condensate drain has been installed in accordance with the manufacturer's instructions and/or BS5546/BS6798							Yes	<input type="checkbox"/>
<b>ALL INSTALLATIONS</b>								
Record the following:	At max. rate:	CO	ppm	<b>AND</b>	CO/CO <sub>2</sub>	Ratio		
	At min. rate: (where possible)	CO	ppm	<b>AND</b>	CO/CO <sub>2</sub>	Ratio		
The heating and hot water system complies with the appropriate Building Regulations							Yes	<input type="checkbox"/>
The boiler and associated products have been installed and commissioned in accordance with the manufacturer's instructions							Yes	<input type="checkbox"/>
The operation of the boiler and system controls have been demonstrated to and understood by the customer							Yes	<input type="checkbox"/>
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer							Yes	<input type="checkbox"/>
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.



## 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.

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;"><b>SERVICE 01</b></td> <td style="width: 20%;">Date:</td> </tr> <tr><td colspan="2">Engineer name:</td></tr> <tr><td colspan="2">Company name:</td></tr> <tr><td colspan="2">Telephone No:</td></tr> <tr><td colspan="2">Gas safe register No:</td></tr> <tr> <td>Record:</td> <td>At max. rate: CO ppm <b>AND</b> CO<sub>2</sub> %</td> </tr> <tr> <td></td> <td>At min. rate: (Where Possible) CO ppm <b>AND</b> CO<sub>2</sub> %</td> </tr> <tr><td colspan="2">Comments:</td></tr> <tr><td colspan="2">Signature</td></tr> </table>	<b>SERVICE 01</b>	Date:	Engineer name:		Company name:		Telephone No:		Gas safe register No:		Record:	At max. rate: CO ppm <b>AND</b> CO <sub>2</sub> %		At min. rate: (Where Possible) CO ppm <b>AND</b> CO <sub>2</sub> %	Comments:		Signature		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;"><b>SERVICE 02</b></td> <td style="width: 20%;">Date:</td> </tr> <tr><td colspan="2">Engineer name:</td></tr> <tr><td colspan="2">Company name:</td></tr> <tr><td colspan="2">Telephone No:</td></tr> <tr><td colspan="2">Gas safe register No:</td></tr> <tr> <td>Record:</td> <td>At max. rate: CO ppm <b>AND</b> CO<sub>2</sub> %</td> </tr> <tr> <td></td> <td>At min. rate: (Where Possible) CO ppm <b>AND</b> CO<sub>2</sub> %</td> </tr> <tr><td colspan="2">Comments:</td></tr> <tr><td colspan="2">Signature</td></tr> </table>	<b>SERVICE 02</b>	Date:	Engineer name:		Company name:		Telephone No:		Gas safe register No:		Record:	At max. rate: CO ppm <b>AND</b> CO <sub>2</sub> %		At min. rate: (Where Possible) CO ppm <b>AND</b> CO <sub>2</sub> %	Comments:		Signature	
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\*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.





Cod. 20121918 - Ed. 2 - 03/17

**Registered address:**

Vokèra Ltd  
Borderlake House  
Unit 7 Riverside Industrial Estate  
London Colney  
Herts AL2 1HG

[enquiries@vokera.co.uk](mailto:enquiries@vokera.co.uk)

[www.vokera.co.uk](http://www.vokera.co.uk)  
[www.vokera.ie](http://www.vokera.ie)

***Sales, General Enquires***

**T** 0844 391 0999  
**F** 0844 391 0998

Vokèra Ireland  
West Court, Callan  
Co Kilkenny  
**T** 056 7755057  
**F** 056 7755060

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specification without prior notice.  
Consumers statutory rights are not affected.

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